United States Army Corps of Engineers
New England District

In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan for Treatment of Per- and Polyfluoroalkyl Substances in Groundwater

Operable Unit 14
Area of Contamination 31 – Former Fire Training Area
Former Fort Devens Army Installation
Devens, Massachusetts

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Acronyms and Abbreviations

%	percent
µm	micrometer
AFFF	aqueous film forming foam
AOC	area of contamination
Arcadis	Arcadis U.S., Inc.
BERS-Weston	BERS-Weston Services, JVA, LLC
bgs	below ground surface
CAC	colloidal activated carbon
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DO	dissolved oxygen
DPT	direct-push technology
Fort Devens	Former Fort Devens Army Installation
ft	feet
ft/day	feet per day
FTA	fire training area
FTS	fluorotelomer sulfonic
HASP	Health & Safety Plan
lbs	pounds
KGS	KOMAN Government Solutions, LLC
MAAF	Moore Army Airfield
ng/L	nanogram per liter or part per trillion
ORP	oxidation-reduction potential
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutane sulfonic acid
PFDA	perfluorodecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid

PFOS	perfluorooctane sulfonate or perfluorooctane sulfonic acid
PRB	permeable reactive barrier
psi	pounds per square inch
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
Rev.	revision
RI	remedial investigation
ROI	radius of influence
RRS	Regenesis Remediation Services
S-A JV	SERES-Arcadis 8(a) Joint Venture 2, LLC
SI	site investigation
SOP	standard operating procedure
SWTT	single-well tracer test
TGI	technical guidance instruction
USACE	United States Army Corps of Engineers – New England District
USEPA	United States Environmental Protection Agency
VAP	vertical aquifer profile
Work Plan	In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan

1 Introduction

This In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan (Work Plan) for Treatment of Per- and Polyfluoroalkyl Substances (PFAS) in Groundwater at Area of Contamination (AOC) 31 has been prepared by the SERES-Arcadis 8(a) Joint Venture 2, LLC (S-A JV) on behalf of the United States Army Corps of Engineers – New England District (USACE) to summarize the work to be performed to implement an in situ pilot test for treatment of PFAS in groundwater at the former Fort Devens Army Installation (Fort Devens) located in Devens, Massachusetts. The location of AOC 31 and its position with respect to the larger PFAS area under which it is being investigated (Area 3 or the Former North Post of Fort Devens) are presented on Figures 1 and 2, respectively.

This Work Plan summarizes supplemental characterization sampling performed at AOC 31 to better define PFAS concentrations and describes the treatment technology to be tested at field scale to inform decision making regarding best suited remedial technologies for treatment of PFAS in groundwater at Fort Devens, where appropriate. This Work Plan describes the parameters used in the design of the approach and the field activities to be performed to implement in situ injection of an activated carbon adsorbent at AOC 31 to treat PFAS in groundwater.

1.1 Site Background

Fort Devens is located in the towns of Ayer and Shirley in Middlesex County and in the towns of Harvard and Lancaster in Worcester County, Massachusetts, as shown on Figure 1. It is approximately 35 miles northwest of Boston, Massachusetts and occupies approximately 9,260 acres. The installation is divided into the North, Main, and South Posts, and the Nashua River runs through these posts. AOC 31 is located within the former North Post. Fort Devens was placed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 United States Code 9601 et seq.) National Priorities List in November 1989. The installation was listed in the Defense Base Closure and Realignment Act of 1990 and officially closed in March 1996.

A site inspection (BERS-Weston Services, JVA, LLC [BERS-Weston] 2018) and a preliminary remedial investigation (KOMAN Government Solutions, LLC [KGS] 2021) were conducted at Fort Devens, and PFAS were detected in soil and groundwater in AOC 31. AOC 31 is within Area 3 and comprises the Moore Army Airfield (MAAF) former fire training area (FTA), as shown on Figure 2. The former FTA was a 100-foot by 100-foot, asphalt-topped, 8-inch-thick concrete pad surrounded by a 12-inch-high by 24-inch-wide earthen containment berm. Approximately once each year between 1975 and 1986, the former FTA was used for fire training exercises, which included dousing a shell of a U-8 airplane with fuel and paint thinner and burning it within the bermed area. No discharge of fuel from the FTA was reported. The former FTA was also used to burn fuel samples from the laboratory once each year (KGS 2017).

The former FTA is no longer in use; however, PFAS contamination from the former FTA has been characterized as migrating in groundwater toward the downgradient Nashua River (KGS 2021). Groundwater flow in overburden in this area is shown on Figure 3. The area now contains small brush, broken-up concrete, and asphalt.

1.2 Site Setting

The geology across Fort Devens consists of major glacial sediment units composed of till, deltaic deposits from former glacial Lake Nashua, and deposits from glacial meltwater streams that overlie a complex series of sedimentary, igneous, and metamorphic bedrock formations. Post-glacial deposits consist mainly of river terrace sands and gravels, fine alluvial sands, and silts, as well as peat, silt, and sands in swampy areas. In Area 3, the overburden is thickest beneath the former MAAF, where it is approximately 210 feet thick, and thinnest beneath the Nashua River, where it is approximately 25 feet thick. The depth to bedrock at AOC 31 ranges from approximately 150 to 190 feet below ground surface (bgs; KGS 2021).

AOC 31 is located on a topographic high at the edge of a glacial kame terrace on the southwest side of the runway in the former MAAF (Figure 2). The former FTA overlays the abandoned east-west-trending runway. For fire training exercises, this area was traditionally doused with fuel/ paint thinner, open-burned within a bermed area, and sprayed with aqueous film forming foam (AFFF). The western edge of AOC 31 and the airfield abruptly slopes down toward the Nashua River; groundwater flow follows the slope, moving west-southwest toward the river (Figure 3).

1.3 Regulatory Background

Based on the results of a site inspection (BERS-Weston 2018) and the first phase of remedial investigation (RI; KGS 2021), the current conceptual site model indicates that the PFAS present in the soil at elevated concentrations at AOC 31 are a source of PFAS to groundwater. This groundwater is subsequently migrating toward, and discharging to, the Nashua River. PFAS concentrations in groundwater at AOC 31 are some of the highest detected at Fort Devens. In response to these data, the Nashua River Watershed Association requested, in a letter dated March 18, 2020 (Nashua River Watershed Association 2020), that the Army take an action to address PFAS at the former FTA.

To gather additional data to pursue a potential voluntary interim remedial action for PFAS at AOC 31, the Army prepared Remedial Investigation Work Plan for PFAS Area 3 Field Sampling Plan, Addendum No.1 (KGS 2022), and the Army's contractor KGS performed substantially more groundwater and soil sampling in and adjacent to AOC 31 to better define concentrations of PFAS in both media. Several transects of vertical aquifer profiling (i.e., grab groundwater sampling and analysis of PFAS every 10 feet vertically in the overburden aquifer until refusal), including five locations per transect, were performed during this work to support design of a field-scale pilot test to treat PFAS in groundwater.

Activities completed under this Work Plan are subject to and consistent with CERCLA (42 United States Code 9601 et seq.) as amended by the Superfund Amendments and Reauthorization Act of 1986 (99th Congress 1986), and the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations 300) requirements, with concurrence from the Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency (USEPA).

2 Nature and Extent of Contamination

The primary release mechanism of PFAS to the environment at AOC 31 was direct discharge of PFAS-containing AFFF to the ground surface. AFFF also may have impacted nearby soils through aerial deposition from fire training activities. No discharge of petroleum products from the FTA training pit was reported during its operation. In 1992, prior to the PFAS investigations, a soil and groundwater site investigation (SI) was conducted at AOC 31 (identified as SA 31 at that time) (KGS 2021). The 1992 SI concluded that petroleum-related organic compounds (total petroleum hydrocarbons and polycyclic aromatic hydrocarbons) were detected in soil samples located immediately below the FTA concrete pad; however, no observable petroleum-related organic compound contamination of groundwater (approximately 60 feet bgs) had occurred as a result of potential releases associated with former FTA activities. No further action was recommended.

Since 2017, the Army has been investigating whether PFAS associated with the past use of PFAS-containing AFFF by the Army is present in environmental media at AOC 31. Investigation locations for soil and groundwater are shown on Figures 4 and 5, respectively. A timeline of significant events follows:

- 2016 – Investigations related to PFAS began in 2016 with a base-wide preliminary assessment to determine whether there were potential historical releases of PFAS associated with Fort Devens. Areas that warranted further investigation based on previous use and disposal of PFAS were identified in the Fort Devens Final PFAS Base-Wide Preliminary Assessment of Perfluoroalkyl Substances (KGS 2017).
- 2017 – The Army conducted a SI in 2017 to determine the presence or absence of PFAS in soil, groundwater, and/or sediment and surface water at selected sites at Fort Devens. Based on the results, performance of an RI was recommended at numerous sites, including AOC 31 (BERS-Weston 2018).
- 2018 to 2020 – Phase I RI field investigations were conducted at locations previously identified as impacted by PFAS to support the CERCLA (42 United States Code 9601 et seq.) decision-making process related to PFAS impacts at Fort Devens. Activities included the sampling of new and existing monitoring wells, the collection of surface water and sediment samples, and vertical groundwater profile sampling or vertical aquifer profiling (KGS 2021).
- 2022 – As part of the Remedial Investigation Work Plan for PFAS Area 3 Field Sampling Plan, Addendum No.1 (KGS 2022) to the Final RI Work Plan for PFAS (KGS 2020), supplemental investigation locations were sampled at AOC 31 and AOC 50 in the summer and fall of 2022. These data were collected to better define the areas where the Army would propose to perform pilot studies in soil and groundwater (vertical aquifer profiling) at AOC 31. An additional 32 soil borings and 28 groundwater sampling locations in AOC 31 were advanced to better characterize PFAS impacts at the former FTA. Results are included in Appendix A.
- 2023 – Lysimeters were installed at AOC 31 to measure porewater concentrations of PFAS at various depths over time (S-A JV 2022). These activities and the associated sampling results and data evaluation are included in a Pilot Test Work Plan for Treatment of PFAS in Soils, to be submitted under separate cover.

PFAS concentrations and mixtures in this area indicate:

- PFAS mass in soil at AOC 31 continues to provide a source of PFAS to groundwater. This groundwater subsequently migrates and discharges to the Nashua River (Figure 3). The magnitude of PFAS concentrations in the soil at AOC 31 are the greatest detected at Fort Devens. Soil exhibits exceedances of screening levels for perfluorooctane sulfonate (PFOS) down to the water table in some locations, but these impacts are well delineated. The primary PFAS detected in soil is PFOS, followed by perfluorohexanesulfonic acid (PFHxS) and perfluorooctanoic acid (PFOA). The dominant mixtures of PFAS in soil are shown on Figure 6. The locations with the highest detections of PFAS are located within the footprint of the former FTA

and to the west of that area, where wind may have carried AFFF, or AFFF may otherwise have been pushed in that direction following training. PFOS and PFHxS are major ingredients in AFFF.

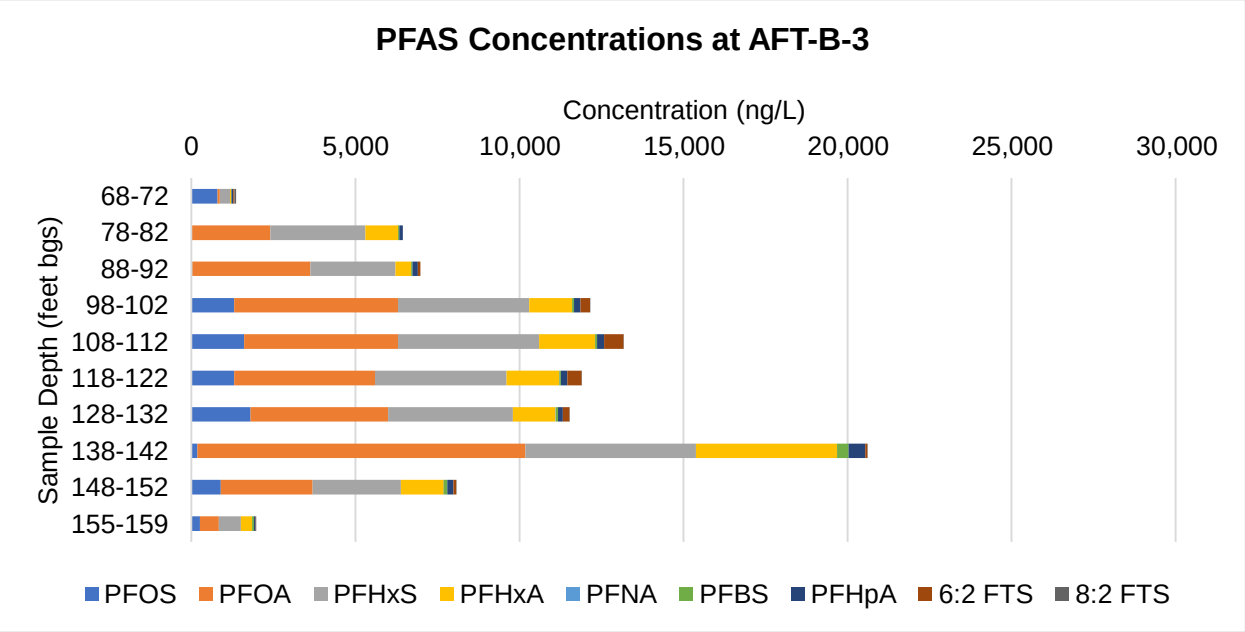
- Due to AOC 31's location downgradient of the former MAAF, there appears to be a mixture of several signatures that vary in concentration vertically at the vertical aquifer profile (VAP) locations, shown on Figure 7:
  - High concentrations of primarily PFOS and PFHxS were detected at the water table (approximately 63 feet bgs). At greater depths, PFOA, PFHxS, and perfluorohexanoic acid (PFHxA) are dominant, and PFOA and PFHxS become dominant deep in the overburden. These variations in groundwater PFAS concentrations with depth are common across the VAP locations compared to the PFAS concentrations in soil within the AOC 31 area and suggest that the groundwater in this area has been impacted by releases in the former FTA as well as by additional upgradient sources (potentially AFFF on runways or near the former MAAF fire station). PFAS fingerprint pie charts show this variation of dominant analytes on Figure 7.
  - High PFAS concentrations at 31VP-19-01 (i.e., 10,200 nanograms per liter [ng/L] total of Massachusetts PFAS6 (perfluorodecanoic acid [PFDA], perfluoroheptanoic acid [PFHpA], PFHxS, perfluorononanoic acid [PFNA], PFOA, and PFOS) at 123 to 127 feet bgs) suggest PFAS impacts are traveling downgradient from AOC 31 (and upgradient sources) and discharging to the Nashua River. Cross sections showing results along VAP transects are included as Figures 8, 8a, 8b, and 8c. The pilot test discussed in this Work Plan will target PFAS upgradient of VAP locations AFT-B-3 and AFT-B-4, shown on Figure 8b.
- The PFAS types and concentrations in VAP samples collected at the edge of the Nashua River, as well as their depth relative to where they are detected in upgradient VAP locations, suggest that PFAS-impacted groundwater is discharging to the Nashua River from those sources. The highest concentrations of PFAS detected in this area along the riverbank occurs in the top 20 feet of the water table, as the vertical hydraulic gradient is upward where groundwater discharges (Figure 8c).
- On the west side of the Nashua River, groundwater has been sampled for PFAS at 31VP-19-05. PFAS were detected at concentrations below applicable standards in samples collected at and near the water table and decreased to non-detect with depth (Figure 8c). This suggests that underflow of PFAS in groundwater from AOC 31 beneath the Nashua River to the west bank is likely not occurring; however, this will be evaluated further as part of the upcoming Area 3 – Phase II RI.

3 PFAS Mass Flux through the Proposed Pilot Test Area

As part of the treatability study (S-A JV 2022), groundwater sampling was conducted via vertical aquifer profiling to collect high-resolution PFAS concentration data to support development of a field-scale pilot test for groundwater. Groundwater sampling was performed in July 2022 using a direct-push technology (DPT) drill rig along three transects located immediately adjacent to the source area (primary flux transect; PFT-A), upgradient of the FTA (AFT-A), and downgradient of the FTA (AFT-B). The locations of these transects and results of sampling are shown on Figure 5 and in Appendix A. Five vertical aquifer profiles were completed along each transect. Groundwater samples were collected starting at the saturated zone (approximately 68 feet bgs) to refusal (between 140 and 192 feet bgs). Along these transects, grab groundwater samples were collected at 10-foot intervals, starting from the water table and moving down, using a discrete interval sampler with a 4-foot retractable screen. A total of 182 VAP samples, including 16 duplicates, were collected from the 15 locations comprising the three transects (PFT-A, AFT-A, and AFT-B). Top-down VAP sampling methods were used to help ensure representative groundwater samples and prevent cross-contamination between intervals. Top-down sampling required pulling the tooling after each sample interval, followed by decontaminating the tooling, resetting the sampler, and advancing the tooling to the next planned interval. Cross sections showing results along the AFT-A and AFT-B transects are shown on Figures 8, 8a, 8b, and 8c.

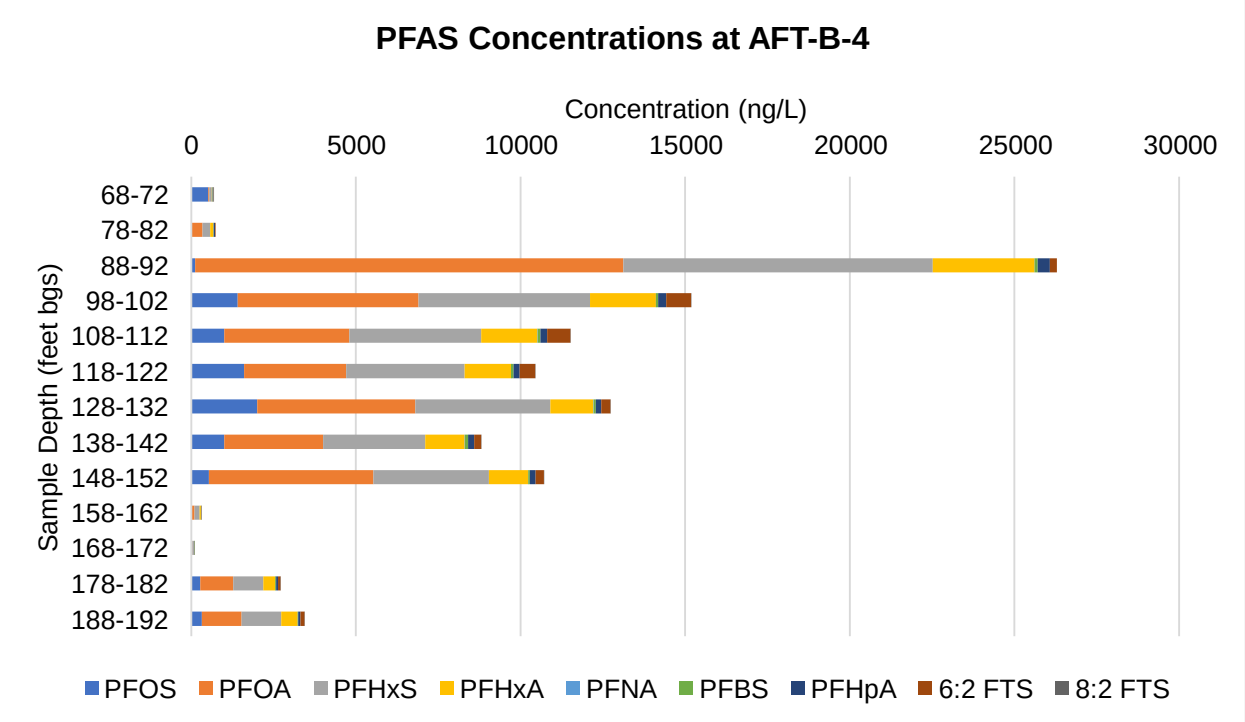
Of the 182 samples (including 16 duplicates) collected, 138 samples (76 percent [%]) had concentrations greater than the screening levels for groundwater. PFOS, PFOA, PFHxS, and PFHxA were detected at their highest concentrations in samples collected at the following boring locations: PFOS at AFT-B-5 at 88 to 92 feet bgs (2,500 ng/L); PFOA at AFT-A-3 at 98 to 102 feet bgs (15,000 ng/L); PFHxS at AFT-A-3 at 98 to 102 feet bgs (11,000 ng/L); and PFHxA at AFT-B-3 at 138 to 142 feet bgs (4,300 ng/L). The highest total concentrations of PFAS of interest were measured at AFT-B-3 and AFT-B-4, located in the transect downgradient of the FTA. These detections were present between 78 and 152 feet bgs. PFAS concentrations decreased by an order of magnitude in deeper samples. The total PFAS at these locations primarily comprised PFHxA, PFHxS, PFOA, and PFOS. At AFT-B-3, the highest concentration was observed at depths ranging between 138 and 142 feet bgs, and, at AFT-B-4, the highest concentration was observed at depths ranging between 82 and 92 feet bgs. The bar charts showing the PFAS concentrations at various depths at AFT-B-3 and AFT-B-4 are presented on Exhibits 3-1 and 3-2, respectively.

Exhibit 3-1. PFAS Concentrations at AFT-B-3



Notes:
PFBS = perfluorobutane sulfonic acid FTS = fluorotelomer sulfonic

Exhibit 3-2. PFAS Concentrations at AFT-B-4



The proposed 75-foot-long pilot injection transect will target PFAS in groundwater upgradient of AFT-B-3 and AFT-B-4. A target treatment interval of 60 to 150 feet bgs was selected to demonstrate colloidal activated carbon (CAC) treatment during the proposed pilot in an interval where the PFAS flux is at the higher end of PFAS fluxes present across Fort Devens. This target interval includes the highest concentrations in groundwater at each of these locations, shown on Exhibits 3-1 and 3-2.

PFAS mass flux through the proposed 75-foot-long pilot injection transect was calculated to assess the mass migrating through the target injection interval over one year. The calculation utilized the total concentration of PFAS at AFT-B-3 and AFT-B-4 observed between 68 and 152 feet bgs (Table 1 and Figure 9). This information was used to determine the amount of carbon needed to address the PFAS in groundwater over a 10-year period.

Hydraulic conductivity and hydraulic gradient used in the calculation were estimated based on the potentiometric data and the groundwater model developed by S.S. Papadopulos & Associates, Inc. (S-A JV 2023a). Hydraulic gradient was estimated to be approximately 0.0018 foot per foot with an estimated hydraulic conductivity of 50 feet per day (ft/day). Assuming an effective porosity of 10%, the average groundwater flow velocity and Darcy velocity through the overburden aquifer are estimated to be on the order of 0.9 ft/day and 0.09 ft/day, respectively.

Mass flux can be estimated as the product of groundwater (Darcy) flux across a transect, taking into account the solute concentration in groundwater. Total PFAS concentrations at VAP borings AFTB-3 and AFTB-4 from 68 to 152 feet bgs were used in the calculation (Table 1). Mass flux was calculated through the proposed 75-foot (length of permeable reactive barrier [PRB]) by 90-foot (vertical thickness of PRB) injection transect. VAP groundwater samples were collected at 10-foot intervals. To calculate mass flux, this area of cross section was, therefore, subdivided into eighteen 37.5-foot by 10-foot discrete areas, as presented on Figure 9. Each area was represented by a single total concentration of PFAS.

Mass flux = $\sum C \; x \; q \; x \; A$

Where:

- C = contaminant concentration in groundwater (grams per liter)
- q = Darcy velocity = K x i = 0.09 ft/day
    - K = saturated hydraulic conductivity = 50 ft/day
    - i = hydraulic gradient, dimensionless = 0.0018 foot per foot
- A = area of the control plane = (37.5 feet × 10 feet)

The average total PFAS mass flux through the 75-foot by 90-foot “discrete area for mass flux calculations” identified on Figure 9 was calculated to be 9.78 mg/ft^2/year, based on sample results from VAP borings AFT-B-3 and AFT-B-4. The total calculated PFAS mass flux through the pilot test treatment area is approximately 66 grams per year. The results are presented in Table 1. The PFAS soil concentrations between the location of PRB and downgradient monitoring wells are below the site-specific screening levels (USEPA Region 1 2022) as presented on Figure 4 and discussed in the Area 3 – Phase II RI Work Plan for PFAS (in preparation). Therefore, a negligible vertical flux of PFAS from soils to groundwater was assumed while calculating mass flux through the treatment zone for the purpose of this pilot test.

4 Remedial Technology Description

In situ adsorption of PFAS facilitated via injection of a PFAS-relevant adsorbent can be used to reduce mass flux of PFAS in groundwater from source areas. This technology does not include destruction; the PFAS remains immobilized in situ for the life of the adsorbent or until displaced via competition with natural organic matter. The use of injected adsorbents for PFAS is relatively new; however, several large-scale treatment efforts have been conducted at the field scale in recent years. In situ adsorption of other contaminants, such as petroleum hydrocarbons and chlorinated volatile organic compounds, has been successfully performed for more than a decade. Recommendations for long-term management of PFAS adsorbed to colloidal activated carbon in the subsurface at this site will be made in the Pilot Test Report (see Section 5.9) based on the results of pilot test monitoring and industry-wide results for colloidal activated carbon use in general at that time.

While long-term performance of this technology for PFAS is still being evaluated, the mass of adsorbent that is required for the mass of PFAS that is to be adsorbed is generally understood, and timeframes at which it may be appropriate to refresh or reinject additional adsorbents can be estimated using an estimate of mass flux (presented in Section 3) and the amount of adsorbent to be injected (presented in Section 5).[1] The effectiveness of the mass flux reduction is based both on effective distribution of the adsorbent throughout the injection transect, so that groundwater containing PFAS will intersect the adsorbent and be treated, and the mass and effectiveness of the adsorbent injected. A pilot-scale trial will be implemented to evaluate the effectiveness of and collect design parameters for potential full-scale implementation of this remedial technology. The 75-foot-long, 90-foot-thick (vertically) target treatment interval is referred to as a PRB, as groundwater will continue to flow through the area and react (adsorb) to activated carbon over the effective life of the barrier.

[1] No refresh or reinjection of additional absorbents is planned as part of the planned pilot test. As noted in Section 5.9, post-three year performance monitoring recommendations will be made in the Pilot Test Report.

5 Pilot Test Objectives, Design, and Implementation

The success of this technology relies on effective distribution of the injected activated carbon so PFAS in groundwater are treated via adsorption. Therefore, it is essential to achieve homogeneous distribution of the injected activated carbon adsorbent throughout the targeted zone. The primary objective of this pilot test is to determine whether an activated carbon adsorbent can be effectively distributed into the aquifer along a transect to create an effective PRB. Assessment of the effectiveness of the treatment will include: (1) visual confirmation of adsorbent in groundwater along the PRB to confirm that adequate distribution has been achieved; and (2) groundwater monitoring downgradient of the PRB to determine the reduction in PFAS concentrations and, therefore, PFAS mass flux from the source area as a result of the PRB installation. Specific objectives of this pilot test are to collect key design parameters (i.e., time necessary to mix injectate, time necessary for injection, and pressure and flowrate required during injection) and costing data for full-scale implementation of this technology at the site and to identify potential limitations of this remedial methodology, as follows:

- Accurately characterizing PFAS fluxes upgradient and downgradient of the PRB, which includes evaluating both groundwater velocity and concentrations;
- Characterizing the distribution of injected activated carbon through the aquifer along the PRB, including if any short-circuiting (where injected fluid follows a preferential flow path through a highly permeable or fractured zone in the subsurface rather than being evenly distributed throughout the intended area) or almost-daylighting (where injected fluid follows a preferential flow path toward or to ground surface rather than remaining in the target injection zone) occurs in the vadose zone;
- Evaluating whether visual assessment (presence/absence), with the presence of CAC indicated by a greyish to black coloration of the groundwater samples collected from a temporary placement validation piezometer and performance monitoring well cluster 31PMW-03 and 31PMW-04 located within the PRB is sufficient for characterizing the distribution of injected activated carbon;
- Evaluating whether the activated carbon and stabilizing polymer wash out and migrate into downgradient monitoring wells; and
- Determining site logistics and costs for full-scale implementation.

The following subsections describe the design and implementation approach for in situ application of PFAS-relevant adsorbent on a pilot scale to demonstrate the efficacy of this approach for use in the development of full-scale remedial alternatives for PFAS in groundwater at Fort Devens. The pilot test implementation will consist of the following: (1) performance monitoring well installation; (2) pre-design field activities; (3) installation of the PRB; and (4) performance monitoring.

5.1 Performance Monitoring Well Installation

The proposed pilot test program for AOC 31 will include the installation of six new monitoring well clusters (two upgradient of the PRB [31PMW-01 and 31PMW-02], two within the PRB [31PMW-03 and 31PMW-04], and two downgradient of the PRB [31PMW-05 and 31-PMW-06]). Each monitoring well cluster will consist of two monitoring wells, one screened at approximately 90 to 100 feet bgs and one screened at approximately 120 to 130 feet bgs.

The screen depths were selected to monitor the zones with the greatest detected PFAS concentrations both upgradient and downgradient of the PRB (see Figures 8a and 8b and Appendix A). The proposed locations of the

performance monitoring wells are shown on Figure 10, and preliminary well construction details are provided in Table 2. Performance monitoring well clusters 31PMW-03 and 31-PMW-04, located within the PRB, will also be used to confirm the mass flux and groundwater velocity in the pilot test area, as discussed in Section 5.2.2, and for monitoring during injections to verify extent of PRB, as discussed in Section 5.3.3.3.

PFAS concentrations and residual mass are present downgradient of the proposed PRB that could influence the evaluation of post-injection trends over the short-term duration (i.e., three-year performance monitoring period) of the pilot test. Thus, the two downgradient monitoring locations (one well pair at 31-PMW-05 and one well pair at 31-PMW-06) for this pilot are located approximately 50 feet downgradient of the PRB injection lines. These locations were selected to be as close as feasible to the injection area without being directly impacted by the injections to increase the likelihood of observing decreasing PFAS trends related to the pilot test injections over the three-year monitoring period. The estimated groundwater velocity in the pilot test area is approximately 0.9 ft/day (S-A JV 2023a), which results in a groundwater travel time of approximately 56 days from the CAC injection area to these performance monitoring well pairs. Thus, approximately 20 groundwater pore volumes will theoretically pass through the area between the PRB and these monitoring locations during the three-year monitoring period.

A private utility locator will be used to identify underground utilities prior to the installation of monitoring wells. The monitoring wells will be installed using hollow-stem auger or rotosonic methods. Proposed locations and construction may be adjusted based on field conditions. Equipment and tooling that enter the borehole will be decontaminated between locations. Wells will be constructed of a 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) riser with 10 feet of 0.010-inch slotted PVC screen. A sand filter pack will be installed around the screen to approximately 2 feet above the top of screen. A 2-foot bentonite seal will be installed above the sand pack, and the remainder of the annular space will be filled to land surface with grout to secure the casing. Each monitoring well will be completed with a 2-foot by 2-foot concrete pad equipped with either a metal stick-up protective cover and locking cap and four protective bollards or a flush-mounted traffic-rated manhole cover. Technical guidance instructions (TGIs) associated with installation activities are included in the *Draft Uniform Federal Policy for Quality Assurance Project Plan (QAPP) for Area 3 – Phase II Remedial Investigation for PFAS* (Area 3 QAPP; S-A JV 2025a) and *Draft Uniform Federal Policy for Quality Assurance Project Plan Addendum – AOC 31 Pilot Tests for Per- and Polyfluoroalkyl Substances in Soils and Groundwater, Area 3* (Area 3 QAPP Addendum; S-A JV 2025b).

Grain size analysis will be performed to estimate the porosity of the aquifer material. A soil sample will be collected for grain size analysis from the middle of each of the screen zones at all six monitoring well clusters (all 12 monitoring wells) during well installation. Following installation, monitoring wells will be developed until a relatively clear discharge is obtained. Unless otherwise specified, the maximum turbidity should be 50 nephelometric turbidity units or less, as specified in Area 3 QAPP (S-A JV 2025a) and Area 3 QAPP Addendum (S-A JV 2025b).

5.2 Pre-Injection Field Work

Groundwater velocity is a major component of contaminant mass flux, and understanding the flux is essential for proper in situ remediation design. This Work Plan includes a preliminary design that is adequate for pilot test implementation. The additional data gathered by the pre-injection efforts described in this section may modify the approach slightly.

5.2.1 Hydraulic Conductivity Testing

Hydraulic conductivity testing via slug testing will be conducted at three of the six performance monitoring well clusters to verify the hydraulic conductivity information being used for the pilot test PRB design. Slug testing will be conducted in accordance with the technology and directions detailed in the Arcadis TGI – General Slug Testing (Rev. #8, March 8, 2024) document, found in the Area 3 QAPP Addendum (S-A JV 2025b). A solid slug of calibrated/known volume will be used to conduct rising and falling head tests in locations with adequate water column length (i.e., the water column is of sufficient length to allow for placement of a transducer at least 1 foot below the anticipated submersion depth of the slug). A pressure transducer will be installed in each well at least 15 minutes prior to initiation of the slug tests to allow for equilibration. The recommended recording rate for very responsive aquifers is 0.25 second. The falling head test will first be completed by lowering a solid slug into each well. The target for initial groundwater displacement will be between 1 and 3 feet and/or generally less than 25% of the effective screen length. Water levels will be recorded to within 80 to 95% recovery. After the falling head test is completed, a rising head test will be conducted by quickly removing the slug (with the same displacement and recovery targets). Each test will be completed a second time to improve the accuracy of the testing. Appropriate and applicable analytical solutions and corrections will be applied following guidelines presented in The Design, Performance, and Analysis of Slug Tests – 2nd Edition (Butler 2019).

5.2.2 FluxTracer® Flux Mapping Tool

A passive tool (FluxTracer®) developed by Regenesis Remediation Services (RRS) will be used to confirm the mass flux and groundwater velocity in the pilot test area prior to PRB installation. The flux mapping tool to be used is a device that vertically delineates contaminant mass flux and groundwater velocity within an existing monitoring well to aid in fine tuning of the remedial design.

The FluxTracer consists of five separate 2-foot-long stainless steel cannisters secured in a series on a premeasured central wire line equipped with a modified J-plug. They are pre-assembled with joint-like flexibility between the closely stacked cannisters so they can easily be deployed to and removed from a well. The FluxTracer will be installed at one set of the proposed performance monitoring well cluster that will be in line with the PRB (31PMW-03 or 31PMW-04) and left in place for 2 weeks. FluxTracers will be installed and removed prior to starting the PRB installation injections. Upon removal, the canisters will be sent to RRS for analysis. The FluxTracer overview is provided in Appendix B.

5.2.3 Single Well Tracer Test

A single well point-dilution tracer test is a hydrogeological testing method that allows for a relatively rapid assessment of the groundwater velocity in the formation proximate to the test well. The test consists of adding a tracer solution to the water column in the well without imposing an artificial head in the aquifer and then measuring the subsequent decline in tracer concentration (i.e., specific conductivity) in the well over time. The observed rate of decrease in tracer concentration or washout over time is then interpreted using analytical models to calculate the local groundwater flux and velocity. Single-well tracer tests (SWTTs) allow for an efficient estimation of groundwater velocity and are a cost-effective alternative to a standard tracer test. The SWTT is conducted using two datalogging conductivity sensors suspended in the test well to monitor changes in electrical conductivity after the introduction of tracer. In this case, the tracer will be a sodium chloride (salt) tracer solution, which creates a marked increase (at least 500 microSiemens per centimeter difference) in electrical conductivity from the site (i.e., formation) water. This electrical conductivity difference permits an adequate signal-to-noise

ratio that allows distinction of the tracer from background while minimizing the potential for density-induced flow resulting from salinity contrast between the tracer solution and groundwater. Addition of sodium chloride at the concentrations used for conductivity-based in-well testing was chosen as it is unlikely to impact or interfere with the activated carbon application.

The test is initiated by displacing water volume in the well with tracer solution, while inducing minimal or no outflow from the well, to create a relatively uniform conductivity increase in the water column in the well. As formation water naturally displaces the tracer solution in the well, the conductivity of the water in the well decreases. The rate of conductivity decrease is proportional to the groundwater velocity, allowing estimation of groundwater velocity from the conductivity response.

SWTTs will be performed at one upgradient monitoring well cluster (31PMW-01 or 31PMW-02) to estimate groundwater velocity in each screened zone. The test will be conducted after baseline or quarterly samples have been collected to avoid any potential dilution effect of the tracer addition. Two tests will be performed at each well, one during the wet season and one during the dry season, to assess seasonal variation in groundwater velocity.

5.3 Treatment Design

A PRB consisting of colloidal activated carbon (CAC) will be installed to evaluate the field-scale efficacy of this technology to mitigate PFAS migration from the AOC 31 source area through groundwater. The treatment design, consisting of the selected adsorbent, PRB location and dimensions, and injection details, is described in the following subsections. An adaptive approach will be utilized so observations of conditions during the injections can be evaluated and, if necessary, used to adjust the injection program in real time based on field conditions. Design injection volumes per vertical foot, concentrations, injection intervals, spacing between injection points, and locations of the injection points may be altered if conditions in the field are different from anticipated conditions.

5.3.1 Adsorbent

A few adsorbents, including CAC, RemBind®, and FLUORO-SORB® were considered for this pilot test. A commercially available CAC adsorbent, PlumeStop® Colloidal Activated Carbon™ (PlumeStop) by RRS, was selected as the adsorbent to be tested at a pilot scale via injection. PlumeStop was selected based on its noticeably smaller particle size (1 to 2 micrometer [µm]), which is expected to be easily injected and effectively distributed as compared to other sorbents, which were much larger in size (e.g., FLUORO-SORB particle size is 400 to 1,000 µm). PlumeStop contains organic polymers that maintain the activated carbon particles in suspension to allow PlumeStop to be distributed through the subsurface without the highly active carbon aggregating. PlumeStop consists of approximately 23-25% CAC, 2% polymer additives, and 75% water by weight. The safety data sheet for PlumeStop is provided as Appendix C.

5.3.2 Location and Dimension

RRS will inject PlumeStop under the supervision of the S-A JV. The pilot test will be performed hydraulically downgradient (west-southwest) of the AOC 31 source area, upgradient of VAP locations AFT-B-3 and AFT-B-4, as discussed in Section 3 and shown on Figure 10. This location was selected based on the VAP results, which detected high concentrations of PFAS in groundwater at AFT-B-3 and AFT-B-4 (locations shown on Figure 5), starting at the water table (approximately 60 feet bgs) and continuing to approximately 150 feet bgs, included in

Appendix A and as shown on Figures 8b, 8c, and 9. A PRB with a length of 75 feet and an estimated treatment interval of 90 feet (60 to 150 feet bgs) was selected for the pilot test. The proposed location of the pilot test PRB is presented on Figure 10.

5.3.3 Injection Details

The proposed injection details follow. The injection activities are anticipated to take approximately one month's time for completion.

5.3.3.1 Injection Volume

PFAS in groundwater data were provided to the RRS to determine a recommended dose of CAC for the AOC 31 pilot test. The concentration of Massachusetts PFAS6 constituents (PFDA, PFHpA, PFHxS, PFNA, PFOA, PFOS) used as the basis of design exceeded 29,000 ng/L and the total PFAS concentration exceeded 35,000 ng/L. RRS determined a minimum dose of CAC to meet PFAS treatment requirements and then tested that dose for longevity and residence time in a 10-year simulation using the highest PFAS demand areas and assumed carbon sinks in AOC 31 overburden. For their design simulations, RRS applied an additional natural carbon load of 150,000 ng/L to the groundwater moving through the proposed pilot barrier. RRS considered this loading conservative for the glacial sand in the pilot area (AOC 31 overburden materials are sands and gravelly sands, which typically have low TOC and thus a low native carbon demand).

The PFAS considered by RRS in their design and testing included PFHxS. Concentrations used for the final loading design and tests were: PFNA 10 ng/L; PFHpA 510 ng/L; PFOS 2,500 ng/L; PFOA 15,000 ng/L; PFHxS 11,000 ng/L; PFHxA 4,300 ng/L; PFBS 350 ng/L; 6:2 FTS 1,500 ng/L; and 8:2 FTS 55 ng/L. Using these inputs, no breakthrough of any constituent except PFHxA was predicted by a 30-year simulation; PFHxA showed potential breakthrough at greater than 5 years. The PFHxA concentrations across the pilot treatment thickness (based on primary samples from locations AFT-B-3 and AFT-B-4) ranged between 20 and 4,300 ng/L with a geomean concentration of 816 ng/L.

The RRS software is based on competitive sorption between the constituents going through the CAC treatment zone. RRS normally runs 10-year simulations for performance evaluations and activated carbon loading; however, for the AOC 31 pilot test, RRS built in safety factors via a predicted long term performance test of 10,950 days (30 years) and a flux safety factor of approximately 3.3 times over the original Arcadis-calculated pilot zone PFAS loading of 66 grams per year.

The planned injection dose is based on a flux load of approximately 221 grams per year for the 75 foot by 90 foot pilot treatment plane. A PlumeStop mass of 106,000 pounds (lbs) will be injected to achieve an estimated 10 to 15 years of treatment. Based on the PlumeStop composition described in Section 5.3.1, 106,000 lbs of PlumeStop would contain approximately 24,380 lbs (or 23% by weight) activated carbon and 2,120 lbs (or 2% by weight) polymers. PlumeStop will be mixed with water above ground immediately prior to injection and injected as an aqueous solution. A custom-built injection system will be used by RRS for mixing the injection solution, adhering to approximately 2.2% by volume concentration solution of CAC. The injection solution will be continuously agitated to maintain the blend during the injection process. PlumeStop solution will be injected into a total of 15 DPT points along the 75-foot transect (Figure 10). Each point will include 18 injection intervals, each 4 feet thick, or "high," vertically. Each injection interval will receive 428 gallons of injection solution (384 gallons of water and 393 lbs [44 gallons] of PlumeStop), with each injection point receiving a total of 7,698 gallons of injection solution (6,914 gallons of water and 7,067 lbs [784 gallons] of PlumeStop). A total of approximately

115,475 gallons of 2.2 % PlumeStop solution (103,710 gallons of water and 106,000 lbs [11,765 gallons] will be injected to create the PRB. Water will be supplied and collected from the nearest fire hydrant and will likely need to be trucked to the pilot test area. A sample of the source fire hydrant water will be collected and analyzed for PFAS prior to use during the pilot test.[2]

5.3.3.2 Injection Method

Injections will be performed via DPT by RRS (injection subcontractor). RRS will be outfitted with various injection tool alternatives compatible with the selected diameter DPT injection rods. The PRB injection transect will consist of 15 DPT injection points, each with a design radius of influence (ROI) of 2.5 feet. The injection points will be spaced approximately 5 feet apart and will be offset from each other horizontally by 2 feet, in a zig-zag pattern. The PlumeStop will be delivered from 60 to 150 feet bgs. Injection point spacing was optimized to provide close CAC application locations perpendicular to groundwater flow while also recognizing the additional advective and dispersive spreading that will occur for a short time after application, which will further expand the effective CAC footprint and increase potential residence time. The current design “zig zag” pattern is conceptually equivalent to two parallel injection lines. The 2.5 foot injection ROI assumed as the basis of design is highly conservative for the sand and gravelly sand that comprise the overburden in the pilot test area. Additionally, as described in Section 5.3.3.1, the design incorporates a 3.3 times PFAS flux safety factor. If AOC 31 pilot test observations/results indicate that aquifer characteristics and/or PFAS flux conditions are more demanding than anticipated, configuration alternatives such as multiple injection lines could be considered for a full-scale design.

Prior to subsurface work, the S-A JV will contract with a private utility locator to identify underground utilities and complete Dig Safe requirements. Temporary DPT injection points will then be advanced to 150 feet bgs, and PlumeStop solution will be injected utilizing a bottom-up technique , with injection beginning at the deepest interval and progressing upward to a target depth of 60 feet bgs. The 90-foot-thick treatment zone will be split into 4-foot injection intervals. Each DPT point will receive delivery at 18 injection intervals, each 4 feet thick, or “high,” vertically (total of 270 intervals at 15 DPT points). The injection tooling for PlumeStop utilizes a temporary drive point with a retractable screen; the DPT point is driven to terminal depth, then pulled up to reveal the injection screen.

The PlumeStop solution will be injected at a maximum pressure of 1 pound per square inch (psi) per foot depth bgs (i.e., not exceeding 150 psi for the treatment depth) to avoid hydrofracturing and development of preferential flow pathways through the PRB. Injections will be started at a low flow rate and will be slowly and incrementally brought up to speed until stabilized. Injection parameters such as pressures, flow rates, and overall volume will be continuously monitored and digitally recorded for each injection interval. RRS field personnel will process these data in real-time to monitor for sudden and/or unexpected changes to injection parameters. If sudden shifts are observed, modifications to the injection approach will be made to avoid and/or minimize the development of preferential flow pathways. The S-A JV and RRS will also monitor the injection points and surrounding area for any indication of daylighting during the injection activities. Daylighting potential is very low because there is 60 feet of vadose zone above the treatment zone in the pilot test area; nonetheless, a spill response kit will be maintained on standby. To enhance efficiency, simultaneous injections at multiple locations may be performed.

During injection, wells and piezometers installed within the injection line will be monitored for general water quality parameters (total organic carbon, dissolved organic carbon, total suspended solids), blackwater from the

[2] All potable water at the former Fort Devens and Town of Ayer is currently pre-treated for PFAS, so this source water will also have been documented as PFAS-free based on the pre-treatment.

PlumeStop solution, and water levels. Water quality parameter changes are used to help assess timing and degree of water displacement during injection. Blackwater arrival time and field-derived PlumeStop concentrations are observed to indicate if the application match-up between solution mix, volume, and pressure are culminating in sufficient ROI. Water levels are checked to look for fluid movement from injection locations, prevent excessive groundwater mounding, and in selection of appropriate but safe injection pressures to avoid creation of preferential pathways from fracturing. This information is primarily a quality assurance/quality control check. If expected observations are made at the monitoring points, then installation of the PRB will proceed with no changes to the initial approach. If unexpected conditions are observed, adjustments to the installation approach may include, but not be limited to, measures such as changing injection tooling, adjusting the amount of carrier water in the injection solution, modifying injection point spacing, and/or adjusting pumping rates.

Design simulations performed by RRS using available site data indicate that the CAC dosing design for the pilot test is sufficient to sorb the key PFAS constituents in a 30-year mass flux simulation. Because the proposed pilot test dosing is conservative, the only anticipated changes during the field application would be adjustments to the injection procedure, reagent mix water, tooling, or spacing based on the placement confirmation testing. The total number and location of injection points and the associated injection volumes may be adjusted based on observed field conditions. Following injection, any open boreholes will be properly abandoned using cement grout (with up to 10% bentonite).

To provide protection against short circuiting, RRS will packer seal the well head at each of the four wells (31PMW-03 and 31PMW-04) located within the PRB during CAC injection. The packer seal will be placed at the well head instead of within the well screen because these monitoring wells will be accessed regularly (daily) during the injection program for CAC placement validation. RRS has used this well head packer approach at other sites and has not observed short-circuiting up the packered wells.

5.3.3.3 Injection Monitoring

At the outset of injections and periodically thereafter, real-time data will be collected and analyzed to corroborate design assumptions and CAC distribution in the subsurface. Placement validation testing will be conducted using one temporary piezometer placed near the center line of the PRB. The temporary piezometer will be placed in between two injection points and screened within the target injection interval to confirm CAC distribution between the points. The two performance monitoring well clusters (31PMW-03 and 31PMW-04) located along the PRB transect will also be used for CAC placement validation when injections are occurring within 10 feet of these monitoring wells. Monitoring of these locations during injections will include the collection of water levels and downhole measurement of field parameters (temperature, pH, conductivity, dissolved oxygen [DO], oxidation-reduction potential [ORP], and turbidity). Grab samples will also be collected for visual confirmation of the presence of PlumeStop in groundwater or soil samples using in-field concentration tests provided by RRS. The gathered and analyzed data will help to verify the ROI and timing of breakthrough of the CAC (i.e., time required for CAC to be detected in the nearby monitoring locations).

In-field adaptations may be implemented during the application if placement validation testing suggests adjustments are required to ensure the distribution of remedial amendments aligns with the design or to enhance the injection application's efficacy. These adjustments may involve changing injection tooling or alterations in injection concentrations, volume injected per vertical foot, injection intervals, pumping rates, and/or spacing between injection points.

5.4 Data Collection

Field activities will be conducted in accordance with the following TGIs included in the Draft Uniform Federal Policy for Area 3 QAPP Addendum for Area 3 (S-A JV 2025b) – Phase II Remedial Investigation for PFAS (S-A JV 2024):

- **RI-SOP-01**: TGI – PFAS Field Sampling Guidance (Rev. #7, April 18, 2021);
- **RI-SOP-02**: TGI - PFAS Sampling Procedures and Low-Flow Groundwater Purging for Monitoring Wells (Rev. #0, June 19, 2018);
- **RI-SOP-03**: TGI – Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (Rev. #4, September 19, 2017);
- **RI-SOP-04**: TGI – Equipment and Reagent Blank Sample Collection for PFAS Analysis (Rev. #0, October 2, 2018);
- **RI-SOP-05**: TGI - Utility Location (Rev #4, May 1, 2020);
- **RI-SOP-06**: TGI – Manual Water-Level and NAPL Monitoring (Rev. #1, May 8, 2020);
- **RI-SOP-07**: TGI – In-Situ and Ex-Situ Water Quality Parameters (Rev. #0, October 16, 2018);
- **RI-SOP-08**: TGI – Sample Chain of Custody (Rev. #2, April 29, 2020);
- **RI-SOP-09**: TGI – Investigation-Derived Waste Handling and Storage (Rev. #1, May 15, 2020);
- **RI-SOP-10**: TGI – Groundwater and Soil Sampling Equipment Decontamination (Rev. #1, May 8, 2020);
- **RI-SOP-11**: TGI – Monitoring Well Development (Rev. #0, April 24, 2017);
- **RI-SOP-12**: TGI – PFAS-Specific Drilling and Monitoring Well Installation (Rev. #0, October 12, 2018); and
- **RI-SOP-13**: TGI – Soil Description (Rev. #2, February 16, 2018).
- **RI-SOP-16** TGI – General Slug Testing (Rev. #7, March 2023).

These standard operating procedures (SOPs) provide procedural guidance in general accordance with industry standards/guidelines and regulatory requirements. Special considerations will be made throughout each of the aforementioned field activities regarding PFAS-containing materials and cross-contamination potential. All field staff will be provided with a summary of materials and field equipment approved for site investigation, and recommendations will be provided on any materials that are prohibited for the collection of PFAS samples (i.e., Teflon™ or low-density polyethylene supplies). The S-A JV will confirm with the laboratory analyzing the samples (Eurofins Lancaster Laboratories or Pace Analytical) that sampling containers are high-density polyethylene with unlined polypropylene caps. Wet ice will be used to pack sample containers for shipment, and PFAS samples will be stored in coolers separate from other types of samples (if necessary).

Quality assurance and quality control samples will be collected in accordance with the Area 3 QAPP Addendum (S-A JV 2025b).

5.4.1 Performance Monitoring

The proposed performance monitoring program is included in Table 2. Performance sampling will be conducted at six newly installed monitoring well clusters (31PMW-01 through 31PMW-06, each cluster with one well screened at 90-100 feet bgs and the other screened at 120-130 feet bgs) and existing monitoring wells 31MW-21-01 (screened at 60-70 feet bgs) and G6M-18-02 (screened at 124-134 feet bgs). In addition, depth to water

measurements will be recorded at existing piezometer 31PZ-19-01 (screened at 67-77 feet bgs) and existing monitoring wells G6M-18-01 (screened at 116-126 feet bgs) and G6M-97-05B (screened at 130-135 feet bgs).

Baseline monitoring will be conducted at all locations in the performance monitoring program following installation of the new monitoring wells and prior to injection, as shown in Table 2. Monitoring wells will be sampled on a quarterly (i.e., every 3 months) basis following injections for one year and semiannually (i.e., every six months) for two years, for a total of three years following injections.

Prior to the collection of groundwater samples, gauging will be conducted during each monitoring event to help estimate groundwater flow direction and/or document effects on vertical gradient changes as a result of the PRB installation. During purging, field parameters (temperature, pH, specific conductivity, DO, ORP, and turbidity) will be monitored and noted. Groundwater samples will be collected from each well after field parameters have been stable for at least three consecutive readings. Groundwater samples will be collected from the middle of the saturated screen. Samples will be analyzed for PFAS using USEPA Method 1633, total organic carbon using USEPA 9060A, dissolved organic carbon using standard method 5310C, and total suspended solids using standard method 2540D as specified in Table 2. Performance monitoring samples collected from wells within the PRB installation area (31PMW-03 and 31PMW-04) and downgradient of the PRB installation area (31PMW-05 and 31PMW-06) will also be assessed for visual evidence of the presence, if any, of PlumeStop in the groundwater. Additional locations (piezometer 31PZ-19-01 and monitoring wells G6M-18-01 and G6M-97-05B) adjacent to the PRB will be gauged to assess if installation of the PRB has affected groundwater flow direction and/or resulted in vertical gradient changes. A change in flow direction and/or vertical gradient changes are not anticipated due to the low concentration (2.2% by volume) if injection solution, very small size of the CAC (approximately 1 to 2 µm in diameter), and injection pressure below 150 psi.

5.5 Decommissioning and Waste Management

Prior to demobilization, all heavy equipment will be decontaminated and inspected to help prevent damage or cross-contamination due to field activities. Waste generated during the proposed activities will include purged groundwater and drill cuttings, as well as general site refuse. Appropriate waste characterization sampling will be completed, and waste will be managed and disposed of in accordance with the base-wide Fort Devens Investigation-Derived Waste Plan (Arcadis 2024).

5.6 Surveying

The northing and easting (MA State Plane, North American Datum of 1983 (National Geodetic Survey 2018a), top-of-casing elevation, and ground elevation of each newly installed monitoring well (i.e., 31PMW-01 through 31PMW-06) and of existing monitoring wells 31PZ-19-01, G6M-18-01, and G6M-97-05B will be surveyed. The approximate dimensions of the pilot test PRB also will be surveyed. Surveying will be measured to the nearest 0.1 foot horizontally and the nearest 0.01 foot vertically, and a reference point will be indicated by a notch or permanent marker. A Massachusetts-licensed surveyor will be contracted to perform surveying in accordance with the Massachusetts State Plane Coordinate System of the North America Datum of 1983 (National Geodetic Survey 2018a) and the North American Vertical Datum of 1988 (National Geodetic Survey 2018b).

5.7 Health and Safety

The S-A JV will develop a site-specific Health & Safety Plan (HASP) to amend and update the Fort Devens Accident Prevention Plan. Relevant new activity hazard analyses will be completed and incorporated. All work will be conducted in accordance with the approved Accident Prevention Plan and the USACE Safety and Health Requirements Manual (EM 385-1-1; USACE 2024), and all applicable federal, state, and local health and safety requirements. The site-specific HASP will also be prepared in accordance with SA-JV's SOPs and TGIs. Specific attention will be given to mitigation procedures associated with the hazards inherent with drill rig operation, handling of amendments, and general site constraints. A personnel and equipment decontamination plan will be included to address the decontamination procedures to be followed. The site-specific HASP will include an emergency response plan that will address potential emergencies at the site and how they will be mitigated, a list of all site personnel and their contact information, and a list of all appropriate governmental emergency contact personnel and their contact information.

5.8 Project Schedule

The preliminary schedule for the pilot test implementation and estimated duration of activities include:

- 2 to 3 months – Installation of performance monitoring wells, hydraulic testing, baseline sampling, and FluxTracer deployment and retrieval;
- 2 to 3 months – Notice to proceed, remedial design updates, scheduling, and material ordering;
- 1 to 2 months – Pilot test field implementation:
  - 1 to 2 weeks – Site mobilization and preparation;
  - 4 weeks – DPT injections of CAC; and
  - 1 week – Site restoration and demobilization; and
- 3 years – Pilot test performance monitoring and reporting.

The calculated design life of the pilot PRB is a minimum 10-year period, based on PFAS concentrations in the affected intervals targeted by the pilot. This preliminary monitoring schedule includes performance monitoring for three years, at the end of which the data will be used to support feasibility study assessment of full-scale implementability of this treatment technology for areas of the site where treatment of PFAS in groundwater may be required.

5.9 Data Analysis and Reporting

Following the completion of injection activities, an interim pilot test report summarizing completion of field activities will be prepared. The report will include photos, waste manifest(s) (if applicable), safety logs, performance sampling results, daily field summary reports, and the means and methods and any field variances required as part of this work. During post-injection performance monitoring, semi-annual progress reports will be prepared, and a summary pilot test report will be completed at the end of the three-year monitoring period including recommendations regarding full-scale implementation.

The summary pilot test report will also provide recommendations for performance monitoring beyond the planned three-year period and recommendations for wider use of the technology at the site based on the first three years of monitoring data and industry-wide results for CAC use in general. Full-scale implementation of this technology

at the site, if it proceeds, would incorporate flux variations along the length of the target implementation area in the design to optimize long-term performance and the life of the barrier, potentially based on the results of this pilot test. Recommendations for long-term management of PFAS adsorbed to CAC in the subsurface will also be made in the summary pilot test report based on the results from the first three years of pilot test monitoring and industry-wide results for CAC use in general at that time.

6 References

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Tables

Table 1
Mass Flux Calculation
In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan for
Treatment of Per- and Polyfluoroalkyl Substances in Groundwater
Area of Concern 31 - Former Fort Devens Army Installation, Devens, Massachusetts

Discrete Unit for Calculation	Model Hydraulic Conductivity (feet/day)	Length of Discrete Area (feet)	Height of Discrete Area (feet)	Total PFAS Concentration (ng/L)[a]	Darcy Velocity (feet/day)[b]	Mass Flux ($mg/ft^2/year$)	Mass Flux (grams/year)
1	50	37.5	10	1,360	0.09	1.26	0.47
2	50	37.5	10	6,450	0.09	5.99	2.25
3	50	37.5	10	7044[c]	0.09	6.55	2.46
4	50	37.5	10	12,145	0.09	11.29	4.23
5	50	37.5	10	13,172	0.09	12.24	4.59
6	50	37.5	10	11,900	0.09	11.06	4.15
7	50	37.5	10	11,526	0.09	10.71	4.02
8	50	37.5	10	20,610	0.09	19.16	7.18
9	50	37.5	10	8044[c]	0.09	7.48	2.80
10	50	37.5	10	685	0.09	0.64	0.24
11	50	37.5	10	729	0.09	0.68	0.25
12	50	37.5	10	26,282	0.09	24.43	9.16
13	50	37.5	10	15,185	0.09	14.11	5.29
14	50	37.5	10	11,509	0.09	10.70	4.01
15	50	37.5	10	10,453[c]	0.09	9.72	3.64
16	50	37.5	10	12,729	0.09	11.83	4.44
17	50	37.5	10	8,805	0.09	8.18	3.07
18	50	37.5	10	10,712	0.09	9.96	3.73
						Total	*66*

Notes:
[a] Total concentration of PFAS detected at vertical aquifer profile borings AFT-B-3 and AFT-B-4 between 60 and 150 feet below ground surface.
[b] Darcy flux estimated based on the regional groundwater model developed by S.S. Papadopulos & Associates, Inc.
[c] Average of the primary and duplicate sample results were used to calculate total PFAS concentration.

Acronyms and Abbreviations:
$mg/ft^2/year$ = milligrams per square feet per day
ng/L = nanograms per liter
PFAS = per- and polyfluoroalkyl substances

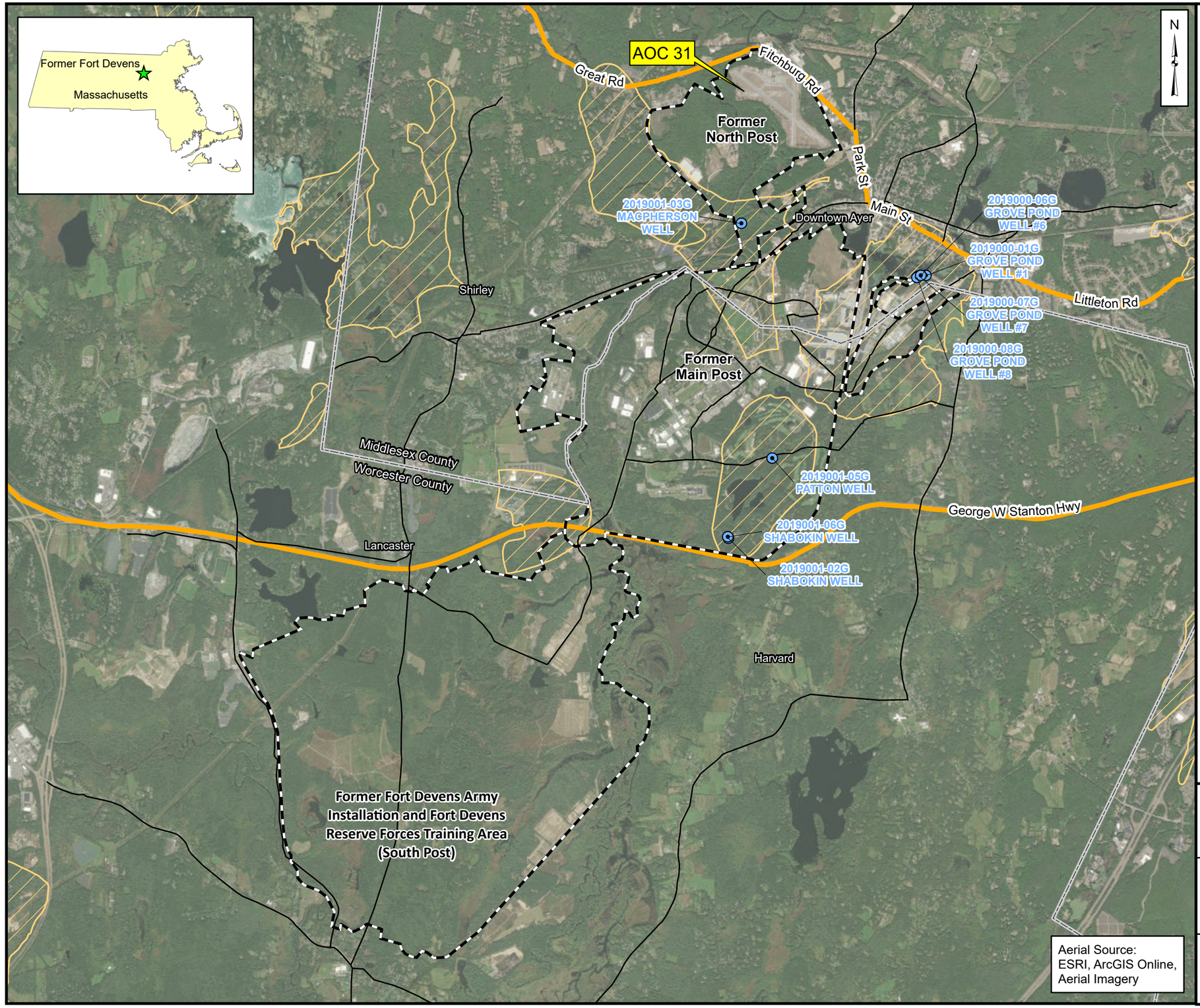
Table 2
Performance Monitoring Program
In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan for
Treatment of Per- and Polyfluoroalkyl Substances in Groundwater
Area of Contamination 31 - Former Fort Devens Army Installation, Devens, Massachusetts

Well[a]	Top Screen Depth (ft bgs)	Base Screen Depth (ft bgs)	Baseline Frequency	Post-Injection Monitoring Frequency[b]		Analysis/Parameter										
						Field Readings or Measurements							Laboratory Analysis			
				Year 1	Year 2 and 3	Depth to Groundwater	pH	Oxidation Reduction Potential	Dissolved Oxygen	Turbidity	Temperature	Specific Conductance	PFAS USEPA Method 1633	TOC USEPA Method 9060A	DOC SM 5310C	TSS SM 2540D
31PMW-01A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-01B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-02A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-02B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-03A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-03B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-04A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-04B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-05A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-05B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-06A	90	100	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PMW-06B	120	130	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31MW-21-01	60	70	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
G6M-18-02	124	134	One time	Quarterly	Semiannually	x	x	x	x	x	x	x	x	x	x	x
31PZ-19-01	67	77	One time	Quarterly	Semiannually	x										
G6M-18-01	116	126	One time	Quarterly	Semiannually	x										
G6M-97-05B	130	135	One time	Quarterly	Semiannually	x										

Notes:
[a] Construction details for proposed wells are preliminary and may be adjusted based on field conditions.
[b] The monitoring frequency may be adjusted based on field conditions and observations following injection activities. All locations will be sampled prior to injection to establish baseline conditions.

Acronyms and Abbreviations:
x = to be measured or analyzed
DOC = dissolved organic carbon
ft bgs = feet below ground surface
PFAS = per- and polyfluoroalkyl substances
SM = standard method
TOC = total organic carbon
TSS = total suspended solids
USEPA = United States Environmental Protection Agency

Figures



LEGEND

- FORMER FORT DEVENS BOUNDARY
- WATER SUPPLY WELL
- COUNTY LINE
- HIGHWAY
- MAJOR ROAD
- MASSDEP ZONE II WELLHEAD PROTECTION AREA

NOTE:
1. AOC = AREA OF CONTAMINATION
2. MASSDEP = MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

0 1 2
Miles

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

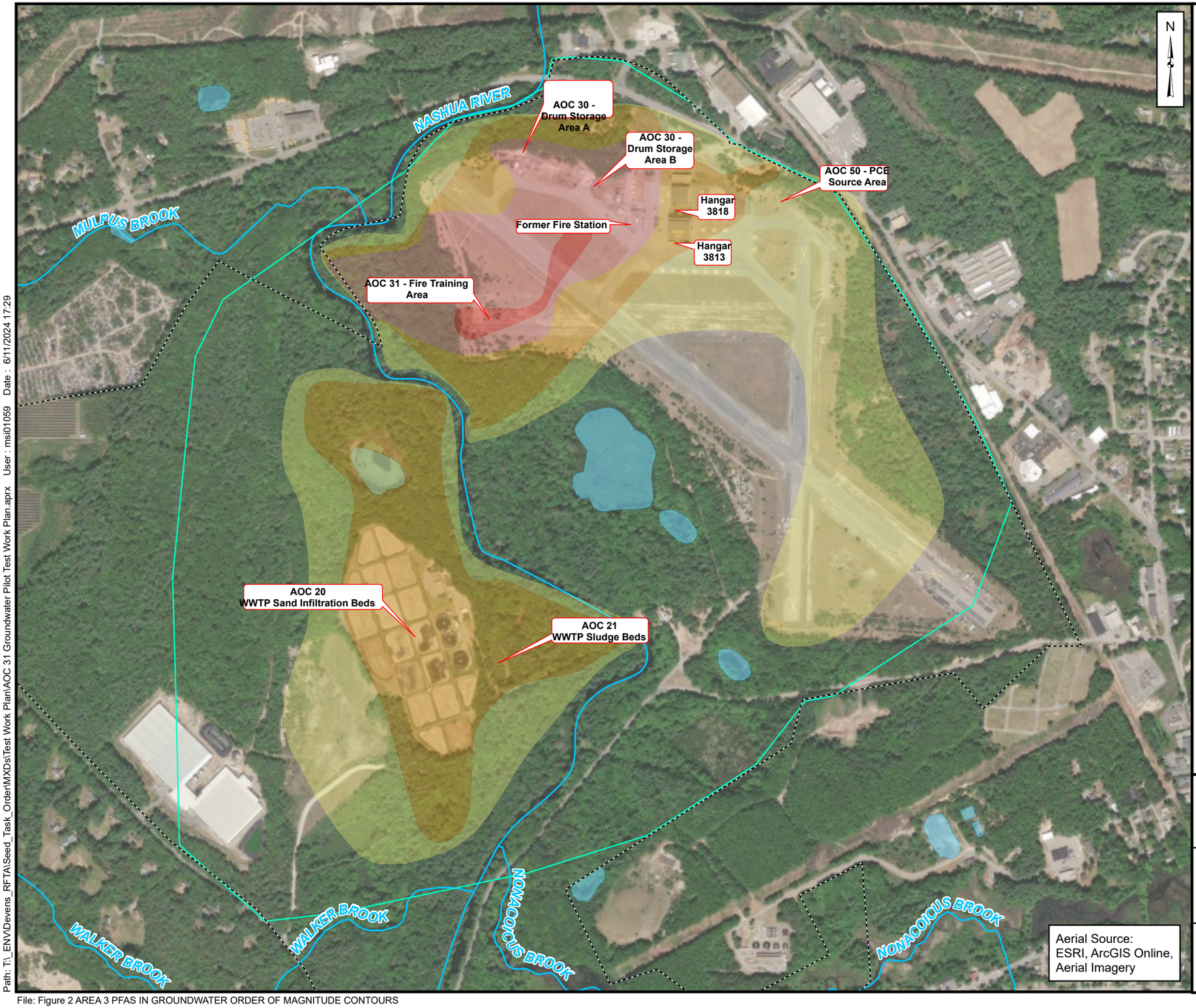
SITE LOCATION

SERES Engineering & Services, LLC
ARCADIS a joint venture

Figure 1

T:_ENV\Devens_RFTA\Seed_Task_Order\MXDs\Test Work Plan\AOC 31 Groundwater Pilot Test Work Plan.aprx 6/11/2024 17:29 User Name: msi01059

File: Figure 1 Site Location



N

LEGEND

- FORMER FORT DEVENS BOUNDARY
- PFAS AREA 3
- APPROXIMATE EXTENT OF THE AREA WHERE THE SUM OF PFAS6 CONCENTRATIONS EXCEEDES THE SSSL IN GROUNDWATER
- APPROXIMATE EXTENT OF THE AREA >10X SSSLs
- APPROXIMATE EXTENT OF THE AREA >100X SSSLs
- APPROXIMATE EXTENT OF THE AREA >1000X SSSLs
- STREAM
- WATERBODY

NOTES:
WWTP = WASTEWATER TREATMENT PLANT
AOC = AREA OF CONTAMINATION
PCE = TETRACHLOROETHYLENE
PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
PFOS = PERFLUOROOCTANE SULFONIC ACID
PFOA = PERFLUOROOCTANOIC ACID
PFHxS = PERFLUOROHEXANESULFONIC ACID
PFNA = PERFLUORONONAOIC ACID
PFHpA = PERFLUOROHEPTANOIC ACID
PFDA = PERFLUORODECANOIC ACID
SSSL = SITE-SPECIFIC SCREENING LEVEL
X = TIMES

0 500 1,000
Feet

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AREA 3 PFAS6 IN GROUNDWATER: ORDER OF MAGNITUDE CONTOURS

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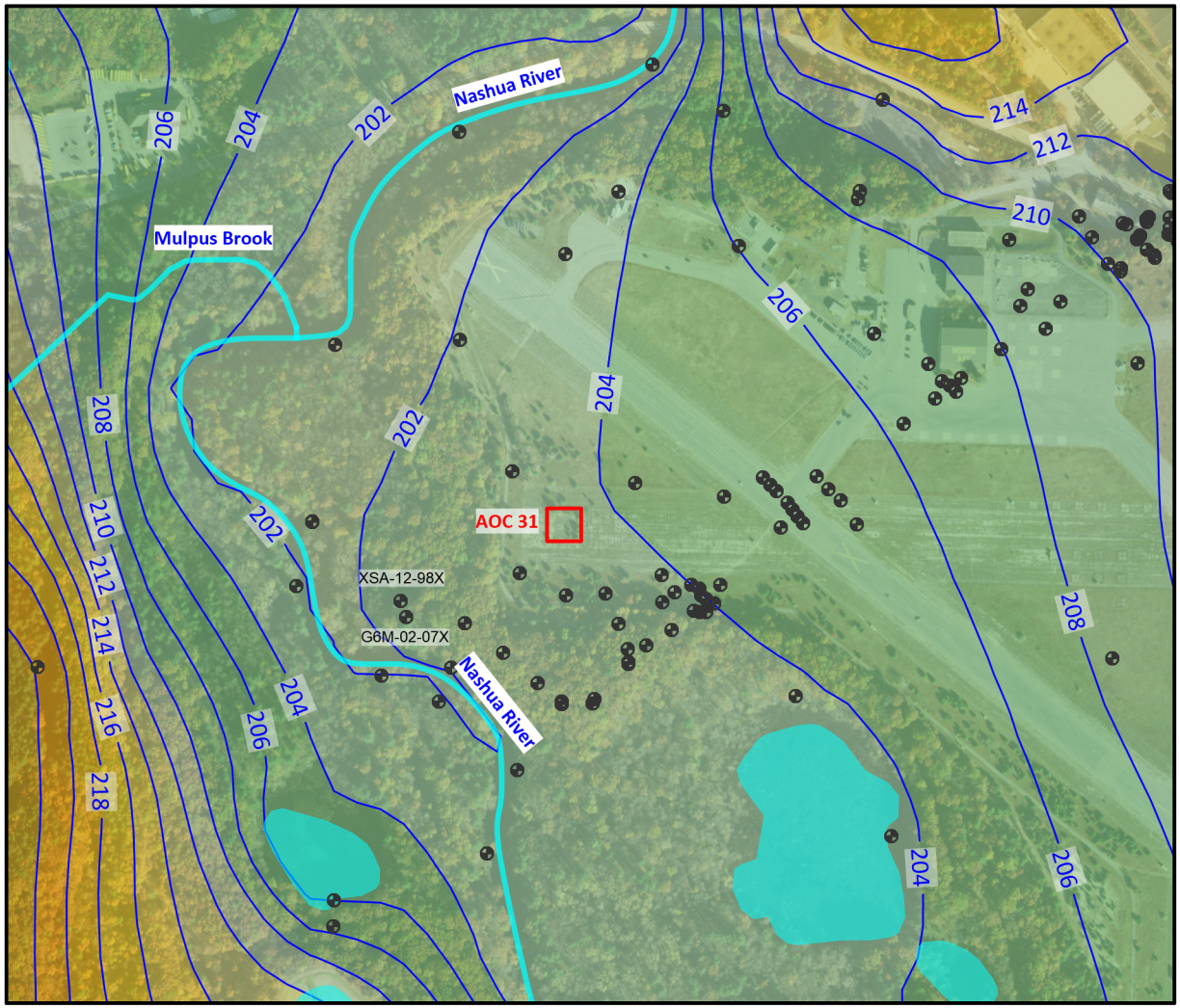
Figure 2

Path: T:_ENV\Devens_RFTA\Seed_Task_Order\MXDs\Test Work Plan\AOC 31 Groundwater Pilot Test Work Plan.aprx User : msl01059 Date : 6/11/2024 17:29

File: Figure 2 AREA 3 PFAS IN GROUNDWATER ORDER OF MAGNITUDE CONTOURS



N

Water Level Elevation
(ft AMSL)

258
254
250
246
242
238
234
230
226
222
218
214
210
206
202
198

SCALE:FEET

0 650 1300

LEGEND:

SIMULATED GROUNDWATER ELEVATION CONTOUR (feet above mean sea level [ft AMSL])

AREA OF CONCERN (AOC)

AREA 3 MONITORING WELL

NOTES:

1. Two wells which are potentially downgradient of AOC 31, XSA-12-98X and G6M-02-07X, had PFAS6 detections ranging from 110-165 ng/L. XSA-12-98X was sampled three times and G6M-02-07X was sampled once. Due to the detected low concentrations with respect to the AOC 31 concentrations, these two potentially downgradient wells are assumed to not be intersecting a significant amount of PFAS mass emanating from AOC 31. No other wells potentially downgradient of AOC 31have been sampled for PFAS.
2. PFAS = Per- and Polyfluoroalkyl Substances
3. PFAS6 = PFDA, PFHpA, PFHxS, PFNA, PFOA, PFOS
   PFOS = PERFLUOROOCTANE SULFONIC ACID
   PFOA = PERFLUOROOCTANOIC ACID
   PFHxS = PERFLUOROHEXANESULFONIC ACID
   PFNA = PERFLUORONONAOIC ACID
   PFHpA = PERFLUOROHEPTANOIC ACID
   PFDA = PERFLUORODECANOIC ACID

PROJECT NAME:

AOC 31 Groundwater Pilot Test Work Plan
Former Fort Devens Army Installation
Devens, Massachusetts

Simulated Overburden Water Level Elevation Contours

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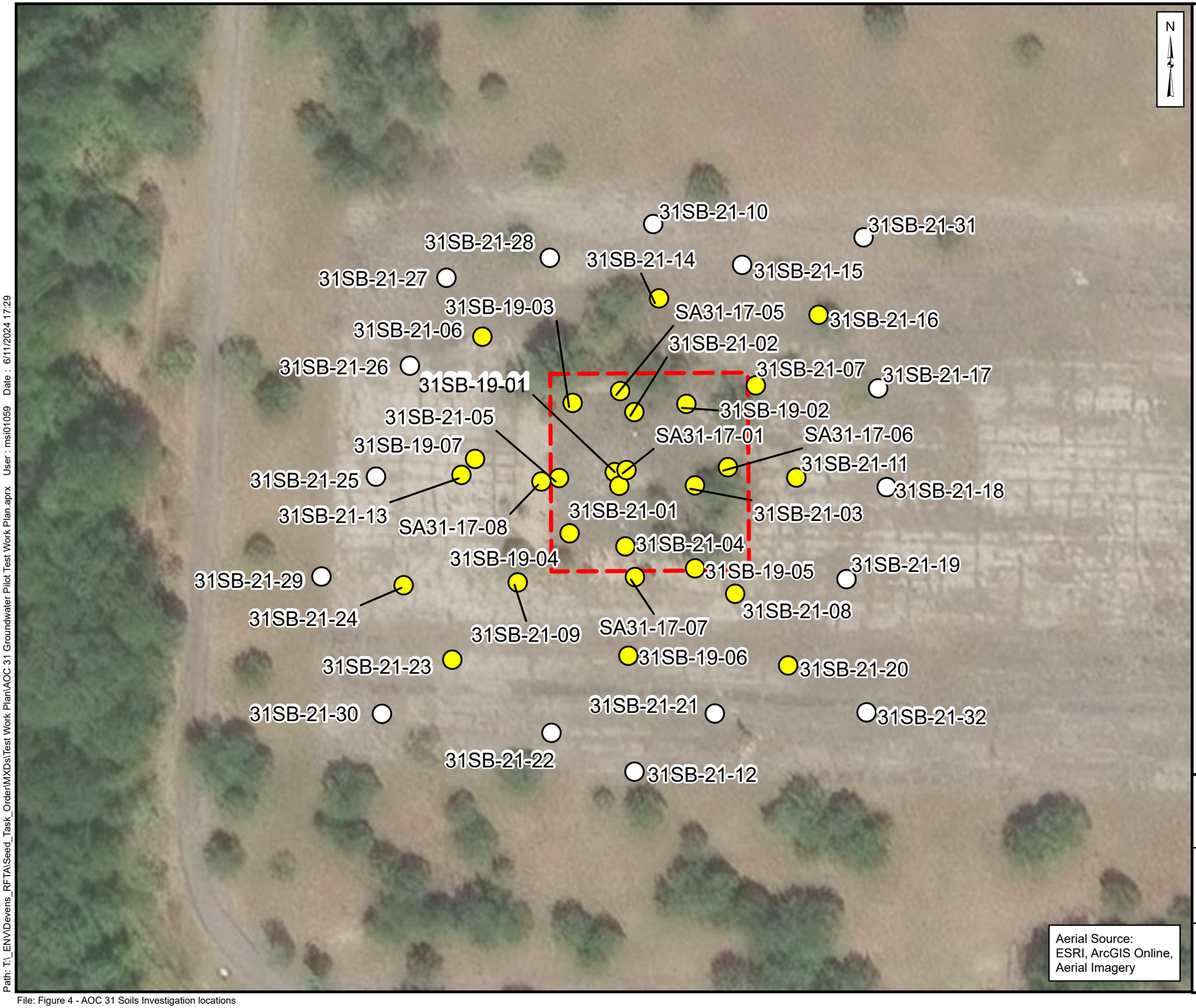
FIGURE
3



LEGEND

- AOC 31 FORMER FIRE TRAINING AREA
- COMPLETED SOIL BORING BELOW SSSL
- COMPLETED SOIL BORING ABOVE SSSL

NOTES:
AOC = AREA OF CONTAMINATION
BORINGS WERE CONDUCTED DURING THE FOLLOWING EVENTS:
2017 SITE INVESTIGATION (EXAMPLE: SA31-17-05)
2019 PHASE I REMEDIAL INVESTIGATION (EXAMPLE: 31SB-19-02)
2022 SUPPLEMENTAL SAMPLING (EXAMPLE: 31SB-21-11; NOTE: SOIL BORINGS WERE IDENTIFIED WITH 21 DESPITE BEING CONDUCTED IN 2022)
PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
PFOS = PERFLUOROOCTANE SULFONIC ACID
PFOA = PERFLUOROOCTANOIC ACID
PFHxS = PERFLUOROHEXANESULFONIC ACID
PFNA = PERFLUORONONAOIC ACID
PFHpA = PERFLUOROHEPTANOIC ACID
PFDA = PERFLUORODECANOIC ACID
SSSL = SITE-SPECIFIC SCREENING LEVEL

0 50 100
Feet

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 SOIL INVESTIGATION LOCATIONS

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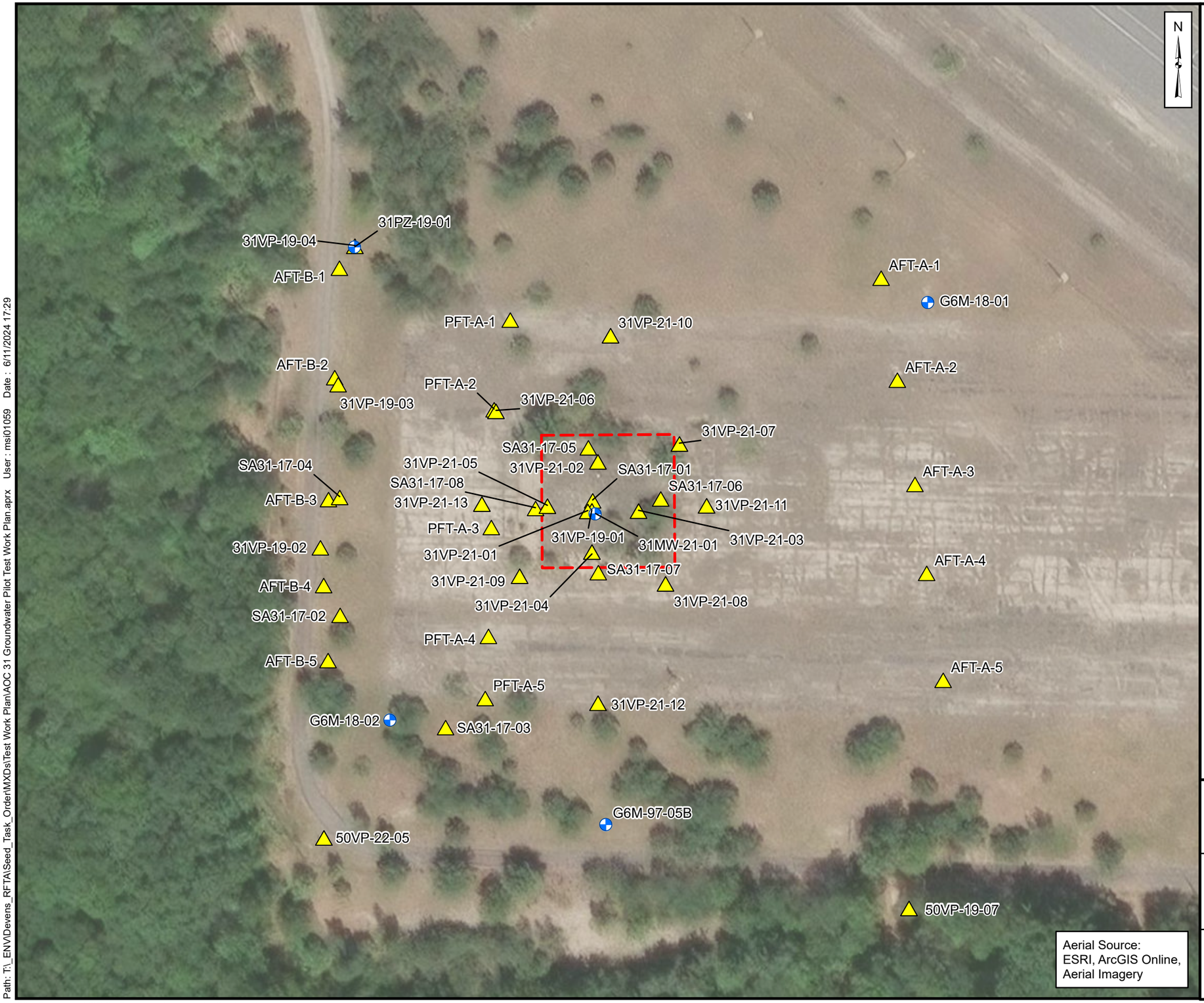
ARCADIS a joint venture

Figure 4

Path: T:_ENV\Devens_RFTA\Seed_Task_Order\MXDs\Test Work Plan\AOC 31 Groundwater Pilot Test Work Plan.aprx User : msl01059 Date : 6/11/2024 17:29

File: Figure 4 - AOC 31 Soils Investigation locations



LEGEND

- AOC 31 FORMER FIRE TRAINING AREA
- MONITORING WELL
- VERTICAL AQUIFER PROFILE/GRAB GROUNDWATER SAMPLE

NOTES:

AOC = AREA OF CONTAMINATION

BORINGS WERE CONDUCTED DURING THE FOLLOWING EVENTS:

2017 SITE INVESTIGATION (EXAMPLE: SA31-17-05)
2019 PHASE I REMEDIAL INVESTIGATION (EXAMPLE: 31SB-19-02)
2022 SUPPLEMENTAL SAMPLING (EXAMPLES: 31SB-21-11, AFTs, AND PFTs; NOTE: SOIL BORINGS WERE IDENTIFIED WITH 21 DESPITE BEING CONDUCTED IN 2022)

0 75 150
Feet

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 GROUNDWATER INVESTIGATION LOCATIONS

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Figure 5

Path: T:_ENV\Devens_RFTA\Seed_Task_Order\MXDs\Test Work Plan\AOC 31 Groundwater Pilot Test Work Plan.aprx User : msl01059 Date : 6/11/2024 17:29

File: Figure 5 - AOC 31 Groundwater Investigation Locations

ANALYTE ACRONYMS

1. 6:2 FtS = 6:2 fluorotelomer sulfonate
2. 8:2 FtS = 8:2 fluorotelomer sulfonic acid
3. EtFOSAA = N-ethyl perfluorooctane sulfonamidoacetic acid
4. MeFOSAA = N-methylperfluorooctane sulfonamidoacetic acid
5. PFBS = perfluorobutanesulfonic acid
6. PFDA = perfluorodecanoic acid
7. PFDoA = perfluorododecanoic acid
8. PFHpA = perfluoroheptanoic acid
9. PFHxA = perfluorohexanoic acid
10. PFHxS = perfluorohexanesulfonic acid
11. PFNA = perfluorononanoic acid
12. PFOA = perfluorooctanoic acid
13. PFOS = perfluorooctanesulfonic acid
14. PFTeDA = perfluorotetradecanoic acid
15. PFTrDA = perfluorotridecanoic acid
16. PFUnA = perfluoroundecanoic acid

NOTES

1. A PIE CHART SHOWING THE MAXIMUM PFAS MIXTURE AT EACH SAMPLED LOCATION IS SHOWN REGARDLESS OF CONCENTRATION DETECTED.
2. THE SIZE OF THE PIE CHART IS PROPORTIONAL TO THE SUM OF THE PFAS CONCENTRATIONS. LARGER PIE CHARTS INDICATE HIGHER TOTAL PFAS CONCENTRATIONS WHEN COMPARED TO SMALLER PIE CHARTS.
3. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
4. AOC = AREA OF CONTAMINATION

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 PFAS MIXTURES IN SOIL

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FIGURE
6

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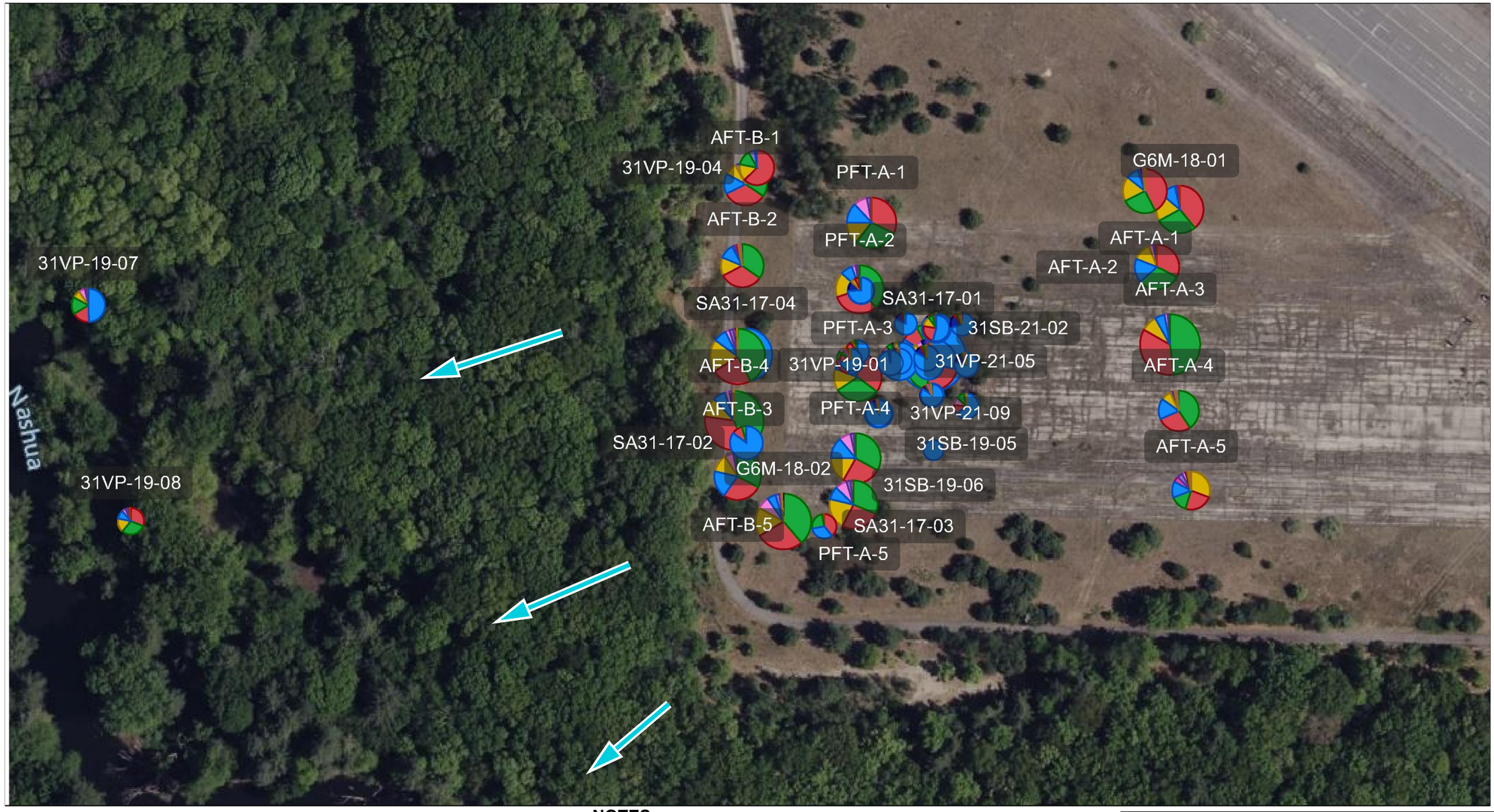

ANALYTE ACRONYMS

1. 6:2 FtS = 6:2 fluorotelomer sulfonate
2. 8:2 FtS = 8:2 fluorotelomer sulfonic acid
3. EtFOSAA = N-ethyl perfluorooctane sulfonamidoacetic acid
4. MeFOSAA = N-methylperfluorooctane sulfonamidoacetic acid
5. PFBS = perfluorobutanesulfonic acid
6. PFDA = perfluorodecanoic acid
7. PFDoA = perfluorododecanoic acid
8. PFHpA = perfluoroheptanoic acid
9. PFHxA = perfluorohexanoic acid
10. PFHxS = perfluorohexanesulfonic acid
11. PFNA = perfluorononanoic acid
12. PFOA = perfluorooctanoic acid
13. PFOS = perfluorooctanesulfonic acid
14. PFTeDA = perfluorotetradecanoic acid
15. PFTrDA = perfluorotridecanoic acid
16. PFUnA = perfluoroundecanoic acid

NOTES

1. A PIE CHART SHOWING THE MAXIMUM PFAS MIXTURE AT EACH SAMPLED LOCATION IS SHOWN REGARDLESS OF CONCENTRATION DETECTED.
2. THE SIZE OF THE PIE CHART IS PROPORTIONAL TO THE SUM OF THE PFAS CONCENTRATIONS. LARGER PIE CHARTS INDICATE HIGHER TOTAL PFAS CONCENTRATIONS WHEN COMPARED TO SMALLER PIE CHARTS.
3. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES

→ INTERPRETED GROUNDWATER FLOW DIRECTION

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 PFAS MIXTURES IN GROUNDWATER

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ARCADIS a joint venture

FIGURE 7

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LEGEND

G6M-02-13X	MONITORING WELL
31VP-19-05	VERTICAL AQUIFER PROFILE BORING ID
A — A'	TRANSECT LINE
B — B'	TRANSECT LINE
C — C'	TRANSECT LINE
	AOC 31 FORMER FIRE TRAINING AREA

NOTES:

1. ONLY INVESTIGATION LOCATIONS PRESENT ON CROSS-SECTIONS INCLUDED ON FIGURE.
2. AOC = AREA OF CONTAMINATION

0 200' 400'

APPROXIMATE SCALE 1 in. = 200 ft.

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 CROSS-SECTION MAP

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FIGURE
8

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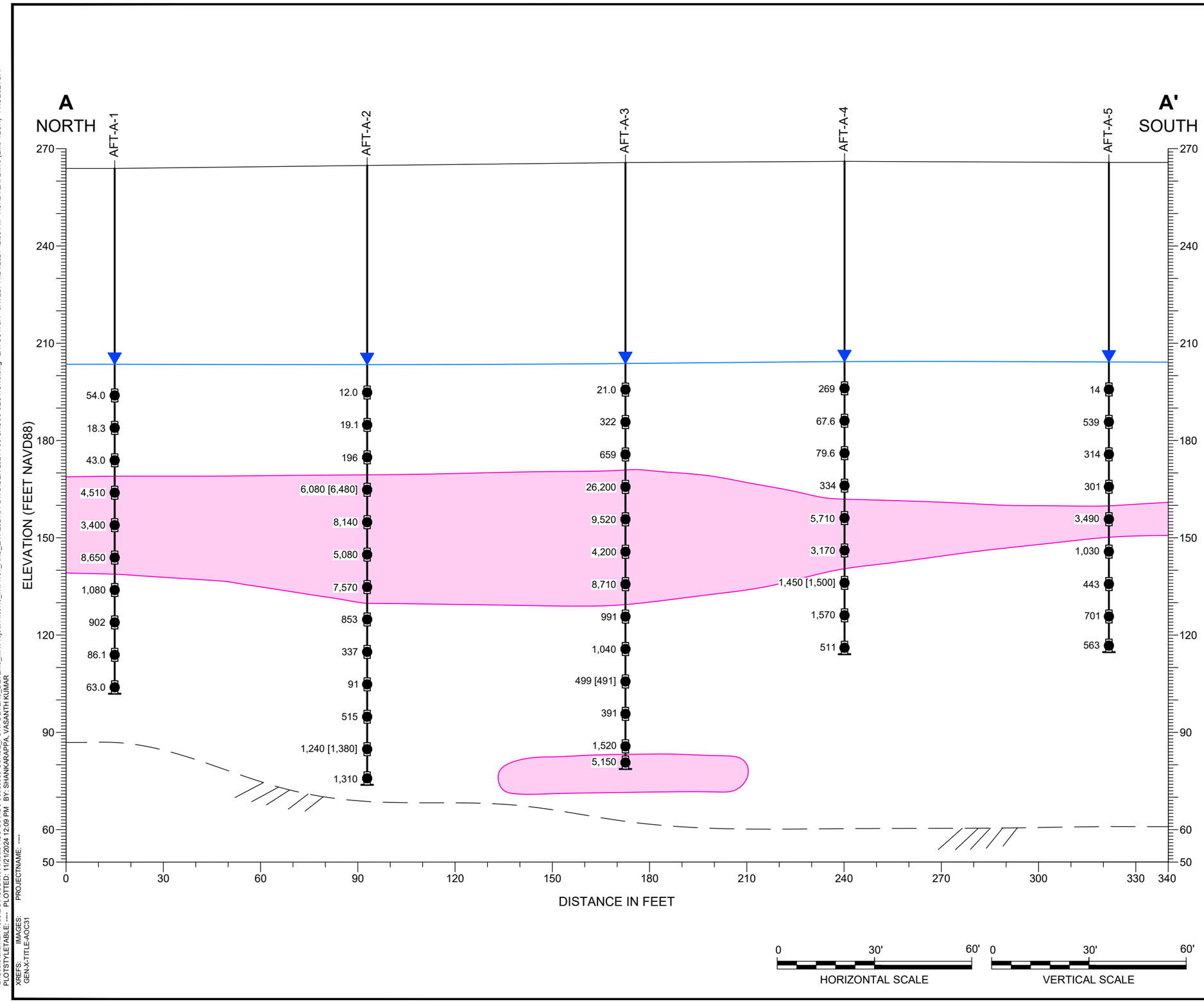

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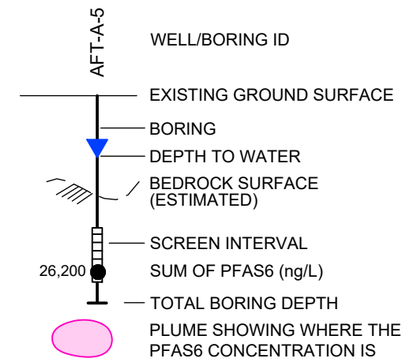
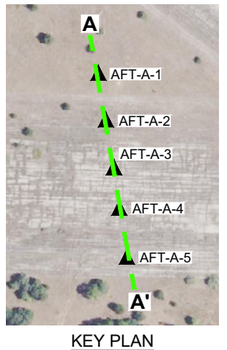


NOTES:

1. > = GREATER THAN
2. DUPLICATE CONCENTRATIONS ARE INCLUDED IN PARENTHESIS
3. ID = IDENTIFICATION
4. MCL = MAXIMUM CONTAMINATION LIMIT
5. NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
6. ng/L = NANOGRAM PER LITER
7. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
8. PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
9. PFDA = PERFLUORODECANOIC ACID
10. PFHpA = PERFLUOROHEPTANOIC ACID
11. PFHxS = PERFLUOROHEXANESULFONIC ACID
12. PFNA = PERFLUORONANOIC ACID
13. PFOA = PERFLUOROOCTANOIC ACID
14. PFOS = PERFLUOROOCTANESULFONIC ACID



KEY PLAN
SHOWING CROSS SECTION A-A'

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 CROSS SECTION A-A': PFAS6 IN GROUNDWATER

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FIGURE
8a

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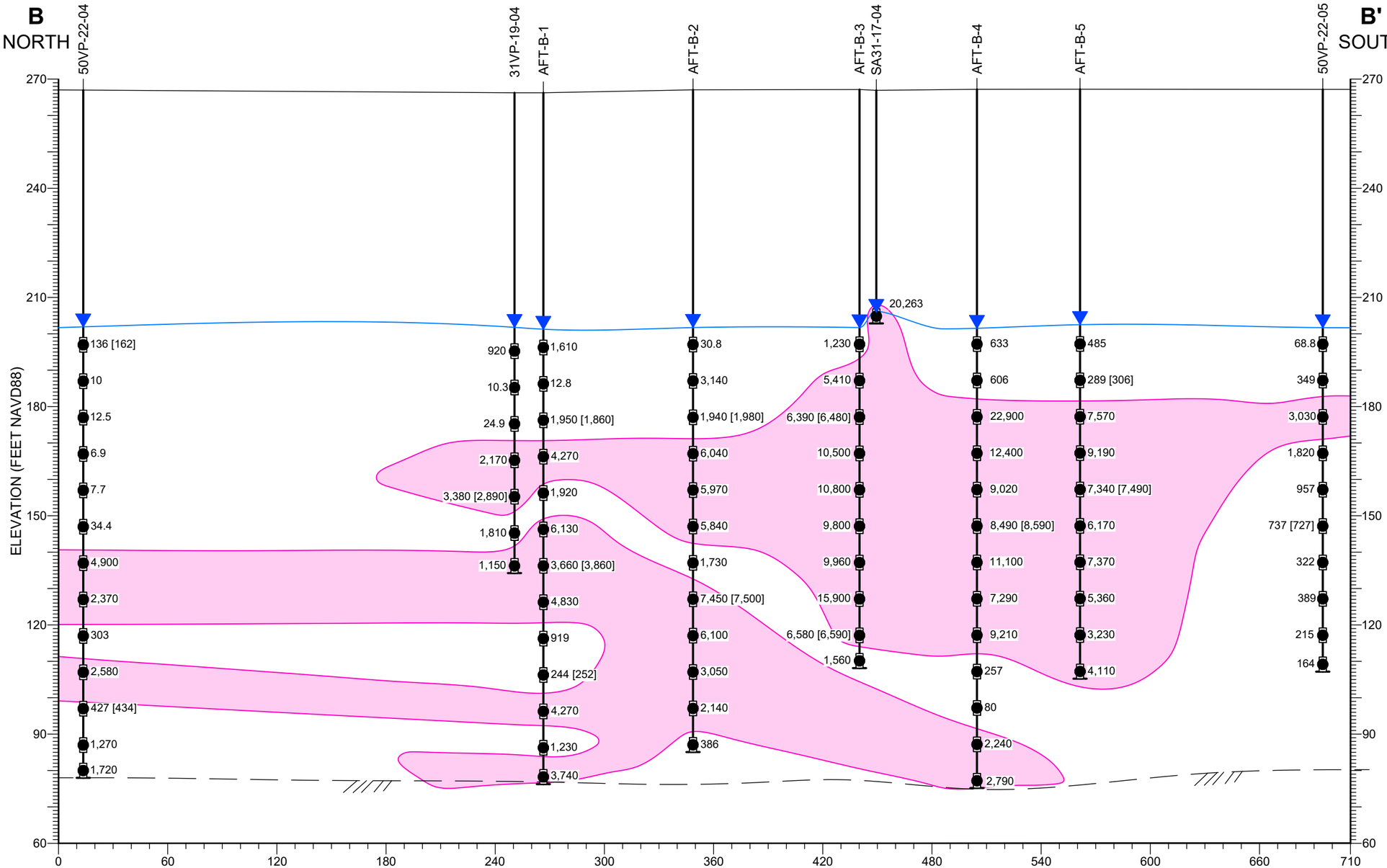

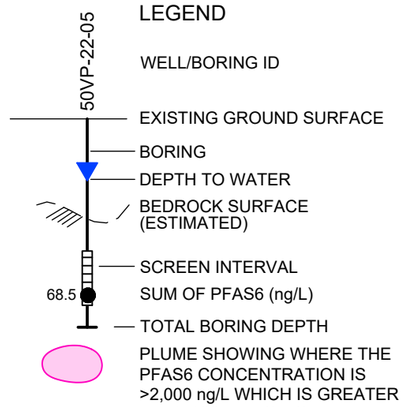

NOTES:

1. > = GREATER THAN
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3. ID = IDENTIFICATION
4. MCL = MAXIMUM CONTAMINATION LIMIT
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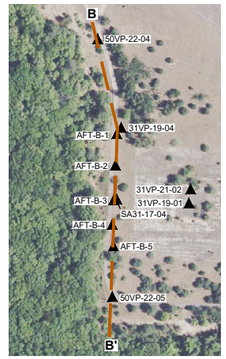
6. ng/L = NANOGRAM PER LITER
7. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
8. PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
9. PFDA = PERFLUORODECANOIC ACID
10. PFHpA = PERFLUOROHEPTANOIC ACID
11. PFHxS = PERFLUOROHEXANESULFONIC ACID
12. PFNA = PERFLUORONANOIC ACID
13. PFOA = PERFLUOROOCTANOIC ACID
14. PFOS = PERFLUOROOCTANESULFONIC ACID



KEY PLAN
SHOWING CROSS SECTION B-B'

0 60' 120'
HORIZONTAL SCALE

0 30' 60'
VERTICAL SCALE

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 CROSS SECTION B-B': PFAS6 IN GROUNDWATER

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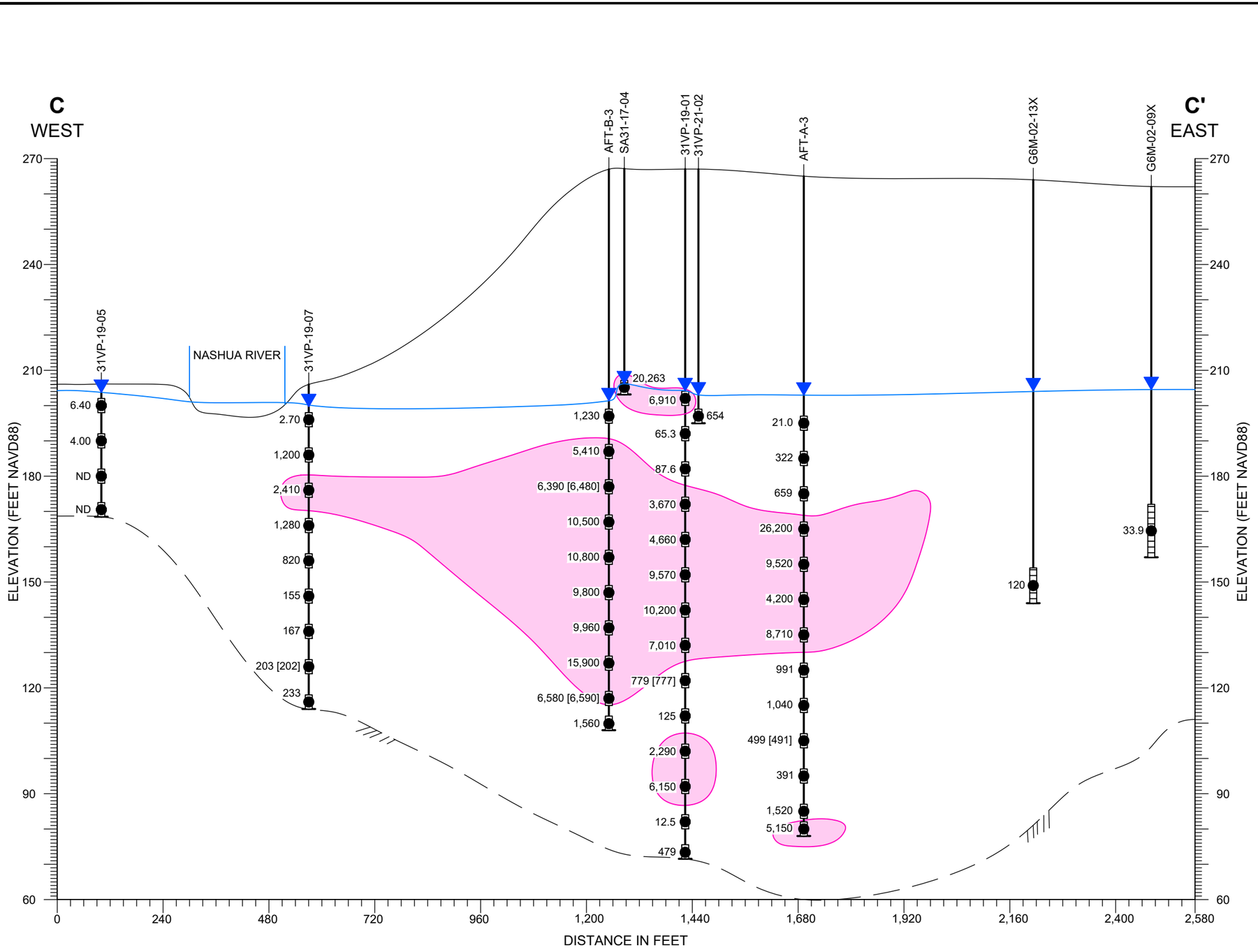
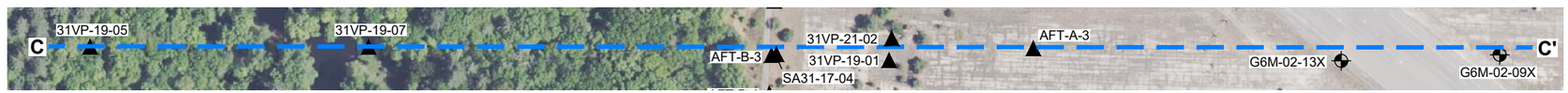
FIGURE
8b





KEY PLAN
SHOWING CROSS SECTION C-C'

LEGEND

- WELL/BORING ID (G6M-02-09X)
- EXISTING GROUND SURFACE
- BORING
- DEPTH TO WATER
- BEDROCK SURFACE (ESTIMATED)
- SCREEN INTERVAL
- 26,200 SUM OF PFAS6 (ng/L)
- TOTAL BORING DEPTH
- PLUME SHOWING WHERE THE PFAS6 CONCENTRATION IS >2,000 ng/L WHICH IS GREATER THAN 100 TIMES ITS REGULATORY MCL OF 20 ng/L

NOTES:

1. > = GREATER THAN
2. DUPLICATE CONCENTRATIONS ARE INCLUDED IN PARENTHESIS
3. ID = IDENTIFICATION
4. MCL = MAXIMUM CONTAMINATION LIMIT
5. NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
6. ng/L = NANOGRAM PER LITER
7. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
8. PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
9. PFDA = PERFLUORODECANOIC ACID
10. PFHpA = PERFLUOROHEPTANOIC ACID
11. PFHxS = PERFLUOROHEXANESULFONIC ACID
12. PFNA = PERFLUORONANOIC ACID
13. PFOA = PERFLUOROOCTANOIC ACID
14. PFOS = PERFLUOROOCTANESULFONIC ACID

HORIZONTAL SCALE: 0 240' 480'

VERTICAL SCALE: 0 30' 60'

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

AOC 31 CROSS SECTION C-C': PFAS6 IN GROUNDWATER

SERES Engineering & Services LLC
ARCADIS a joint venture

FIGURE 8c

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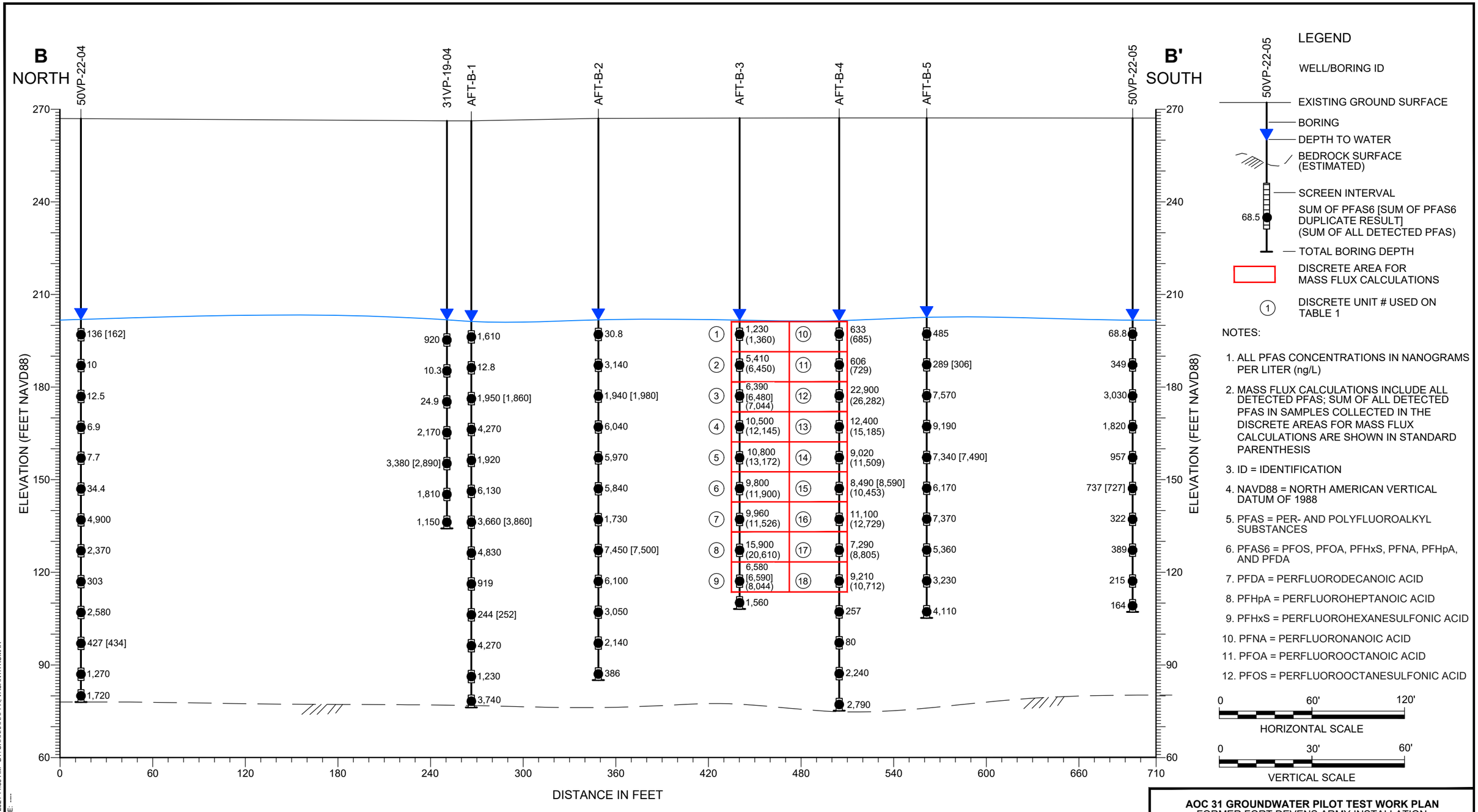

NOTES:

1. ALL PFAS CONCENTRATIONS IN NANOGRAMS PER LITER (ng/L)
2. MASS FLUX CALCULATIONS INCLUDE ALL DETECTED PFAS; SUM OF ALL DETECTED PFAS IN SAMPLES COLLECTED IN THE DISCRETE AREAS FOR MASS FLUX CALCULATIONS ARE SHOWN IN STANDARD PARENTHESIS
3. ID = IDENTIFICATION
4. NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
5. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
6. PFAS6 = PFOS, PFOA, PFHxS, PFNA, PFHpA, AND PFDA
7. PFDA = PERFLUORODECANOIC ACID
8. PFHpA = PERFLUOROHEPTANOIC ACID
9. PFHxS = PERFLUOROHEXANESULFONIC ACID
10. PFNA = PERFLUORONANOIC ACID
11. PFOA = PERFLUOROOCTANOIC ACID
12. PFOS = PERFLUOROOCTANESULFONIC ACID

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

MASS FLUX DISCRETE AREAS

SERES Construction Consulting LLC
ARCADIS a joint venture

FIGURE
9

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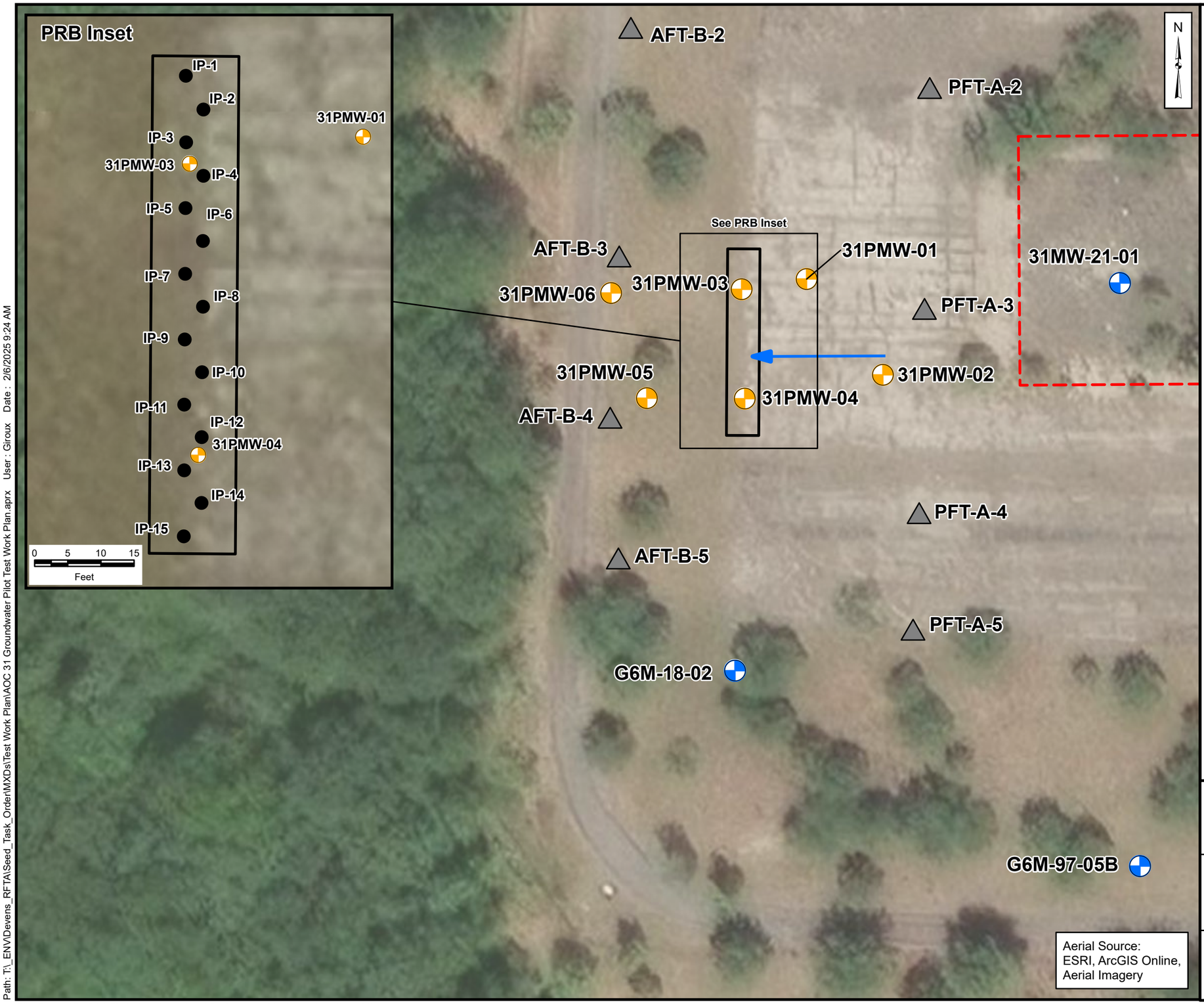


LEGEND

- FORMER FIRE TRAINING AREA
- PROPOSED PERFORMANCE MONITORING WELL DUAL CLUSTER
- EXISTING MONITORING WELL
- VERTICAL AQUIFER PROFILE BORING ID
- PROPOSED INJECTION POINTS (IP)
- APPROXIMATE PERMEABLE REACTIVE BARRIER (PRB) INSTALLATION AREA
- GROUNDWATER FLOW DIRECTION

NOTE:
Proposed performance monitoring well dual clusters shall be screened at 90-100 and 120-130 feet below ground surface

0 40 80
Feet

AOC 31 GROUNDWATER PILOT TEST WORK PLAN
FORMER FORT DEVENS ARMY INSTALLATION
DEVENS, MASSACHUSETTS

PILOT TEST AREA LAYOUT AND PERFORMANCE MONITORING LOCATIONS

SERES Engineering & Services, LLC
ARCADIS a joint venture

Figure 10

Path: T:_ENV\Devens_RFTA\Seed_Task_Order\MXDs\Test Work Plan\AOC 31 Groundwater Pilot Test Work Plan.aprx User : Giroux Date : 2/6/2025 9:24 AM

File: Figure 10 - Pilot Study Area Layout and Performance Monitoring Locations_V1

Appendix A

AOC 31 Supplemental Sampling Results

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-01	31SB-21-01-0.5-1	0.5	1	07/06/2022	**17.0**	**14.0**	**0.0820 J**	0.0500 U	**1.10**	**0.610**	**0.330**	**0.820**	**17.0**	**2.90**	**0.490**	**280**	**2.70**	**0.120 J**	**0.120 J**	**0.520**
31SB-21-01	31SB-21-01-11-12	11	12	07/06/2022	**2.30**	**39.0**	0.0920 U	0.0460 U	0.0920 U	**0.180**	0.0920 U	**0.350**	**4.80**	**0.330**	**0.760**	**880**	**2.50**	0.0920 U	0.0460 U	0.0920 U
31SB-21-01	31SB-21-01-1-2	1	2	07/06/2022	**1.30**	**2.30**	**0.0530 J**	**0.0370 J**	0.0970 U	**0.350**	**0.280**	**0.260**	**0.810**	**0.260**	**0.200**	**7.90**	**0.340**	0.0970 U	**0.0650 J**	**0.440**
31SB-21-01	31SB-21-01-13-14	13	14	07/06/2022	**2.90**	**73.0**	0.0960 U	0.0480 U	0.0960 U	**0.290**	0.0960 U	**0.380**	**4.60**	**0.280**	**1.10**	**1,400**	**3.10**	0.0960 U	0.0480 U	0.0960 U
31SB-21-01	31SB-21-01-15-16	15	16	07/06/2022	**0.300 J**	**60.0**	**0.0570 J**	0.0560 U	0.110 U	**0.160 J**	0.110 U	**0.0460 J**	**0.460**	**0.0610 J**	**0.190 J**	**300**	**0.460**	0.110 U	0.0560 U	0.110 U
31SB-21-01	31SB-21-01-17-18	17	18	07/06/2022	**0.420**	**73.0**	**0.0490 J**	0.0470 U	0.0950 U	**0.180 J**	0.0950 U	**0.120 J**	**1.20**	**0.130 J**	**0.200**	**470**	**0.900**	0.0950 U	0.0470 U	0.0950 U
31SB-21-01	31SB-21-01-19-20	19	20	07/06/2022	**15.0**	**13.0**	0.100 U	0.0500 U	**0.460**	0.100 U	0.100 U	**0.660**	**21.0**	**2.60**	**0.0510 J**	**190**	**7.80**	0.100 U	0.0500 U	0.100 U
31SB-21-01	31SB-21-01-2-3	2	3	07/06/2022	**1.10**	**2.30**	0.120 U	0.0600 U	0.120 U	**0.240**	**0.140 J**	**0.260**	**0.620**	**0.260**	**0.0840 J**	**9.10**	**0.370**	0.120 U	0.0600 U	**0.260**
31SB-21-01	31SB-21-01-25-26	25	26	07/06/2022	**0.220 J**	**1.90**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.0440 J**	**0.760**	**0.110 J**	**0.0220 J**	**43.0**	**0.180 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-01	31SB-21-01-30-31	30	31	07/06/2022	**0.200 J**	**7.50**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.0610 J**	**0.850**	**0.130 J**	**0.0300 J**	**64.0**	**0.240 J**	0.120 U	0.0600 U	0.120 U
31SB-21-01	31SB-21-01-35-36	35	36	07/06/2022	**0.130 J**	**6.10**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	**0.0380 J**	**0.430**	**0.0990 J**	**0.0250 J**	**44.0**	**0.170 J**	0.0950 U	0.0480 U	0.0950 U
31SB-21-01	31SB-21-01-40-41	40	41	07/06/2022	**0.0710 J**	**0.640**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.290**	**0.110 J**	0.0580 U	**4.50**	**0.0920 J**	0.120 U	0.0580 U	0.120 U
31SB-21-01	31SB-21-01-45-46	45	46	07/06/2022	**0.0860 J**	**0.790**	0.110 U	0.0550 U	0.110 U	0.110 U	0.110 U	**0.0590 J**	**0.510**	**0.110 J**	0.0550 U	**5.30**	**0.130 J**	0.110 U	0.0550 U	0.110 U
31SB-21-01	31SB-21-01-50-51	50	51	07/06/2022	**0.0980 J**	**1.50**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.360**	**0.100 J**	0.0510 U	**11.0**	**0.120 J**	0.100 U	0.0510 U	0.100 U
31SB-21-01	31SB-21-01-55-56	55	56	07/06/2022	**0.270 J**	**5.00**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.500**	**0.120 J**	**0.0240 J**	**42.0**	**0.180 J**	0.100 U	0.0520 U	0.100 U
31SB-21-01	31SB-21-01-5-6	5	6	07/06/2022	**0.780**	**7.80**	0.120 U	0.0620 U	0.120 U	**0.390**	0.120 U	**0.200 J**	**0.850**	**0.0740 J**	**0.280**	**12.0**	**0.490**	0.120 U	0.0620 U	0.120 U
31SB-21-01	31SB-21-01-62-63	62	63	07/06/2022	**1.60**	**15.0**	0.100 U	0.0510 U	0.100 U	**0.0570 J**	0.100 U	**0.0500 J**	**1.60**	**0.210**	**0.210**	**220**	**1.30**	0.100 U	0.0510 U	0.100 U
31SB-21-01	31SB-21-01-7-8	7	8	07/06/2022	**1.00**	**13.0**	**0.0880 J**	0.0460 U	0.0930 U	**0.420**	0.0930 U	**0.290**	**1.80**	**0.0840 J**	**0.310**	**16.0**	**0.850**	0.0930 U	0.0460 U	**0.0820 J**
31SB-21-01	31SB-21-01-9-10	9	10	07/06/2022	**0.730**	**29.0**	0.130 U	0.0640 U	0.130 U	**0.350**	0.130 U	**0.340**	**1.80**	**0.110 J**	**0.250 J**	**33.0**	**0.850**	0.130 U	0.0640 U	0.130 U
31SB-21-01 (FD)	AOC31SB-21-01-35-36 DUP43	35	36	07/06/2022	**0.110 J**	**5.00**	0.0930 U	0.0470 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	**0.400**	**0.0880 J**	**0.0240 J**	**35.0**	**0.130 J**	0.0930 U	0.0470 U	0.0930 U
31SB-21-01 (FD)	AOC31SB-21-01-55-56 DUP44	55	56	07/06/2022	**0.210 J**	**3.10**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.430**	**0.130 J**	**0.0280 J**	**28.0**	**0.170 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-02	31SB-21-02-0.5-1	0.5	1	07/06/2022	**0.730**	**1.80**	0.100 U	0.0510 U	**0.160 J**	**0.110 J**	0.100 U	**0.200**	**4.80**	**0.460**	0.200 U	**47.0**	**0.660**	0.100 U	0.0510 U	**0.0730 J**
31SB-21-02	31SB-21-02-11-12	11	12	07/06/2022	**30.0**	**0.0970 J**	0.100 U	0.210 U	0.100 U	0.100 U	0.100 U	**0.280**	**16.0**	**0.270**	0.0510 U	**43.0**	**41.0**	0.100 U	0.0510 U	0.100 U
31SB-21-02	31SB-21-02-1-2	1	2	07/06/2022	**0.0680 J**	**0.540**	0.0930 U	0.0470 U	0.0930 U	**0.110 J**	0.0930 U	**0.160 J**	**0.470**	**0.120 J**	0.190 U	**11.0**	**0.140 J**	0.0930 U	0.0470 U	0.0930 U
31SB-21-02	31SB-21-02-13-14	13	14	07/06/2022	**12.0**	**4.00**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.210 J**	**7.60**	**0.320**	0.0580 U	**280**	**14.0**	0.120 U	0.230 U	0.120 U
31SB-21-02	31SB-21-02-15-16	15	16	07/06/2022	**6.40**	**7.00**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.210 J**	**4.90**	**1.00**	0.240 U	**260**	**7.60**	0.120 U	0.0600 U	0.120 U
31SB-21-02	31SB-21-02-17-18	17	18	07/06/2022	**22.0**	**0.870**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	**0.310**	**13.0**	**0.440**	0.0480 U	**43.0**	**33.0**	0.0950 U	0.0480 U	0.0950 U
31SB-21-02	31SB-21-02-19-20	19	20	07/06/2022	**1.60**	**57.0**	0.100 U	0.0500 U	**0.160 J**	**0.400**	0.100 U	**0.250**	**4.90**	**0.400**	**0.400**	**440**	**2.70**	0.100 U	0.0500 U	0.100 U
31SB-21-02	31SB-21-02-2-3	2	3	07/06/2022	**0.0660 J**	**83.0**	**0.140 J**	0.0470 U	0.0930 U	**0.900**	0.0930 U	**0.0810 J**	**0.890**	**0.0780 J**	**0.270**	**87.0**	**0.460**	0.0930 U	0.0470 U	0.0930 U
31SB-21-02	31SB-21-02-25-26	25	26	07/06/2022	**0.330**	**0.550**	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.0930 J**	**1.10**	**0.0850 J**	**0.0330 J**	**29.0**	**0.380**	0.0990 U	0.0490 U	0.0990 U
31SB-21-02	31SB-21-02-30-31	30	31	07/06/2022	**0.430**	**1.00**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.0860 J**	**1.50**	**0.110 J**	**0.0740 J**	**53.0**	**0.500**	0.0940 U	0.0470 U	0.0940 U
31SB-21-02	31SB-21-02-35-36	35	36	07/06/2022	**0.370**	**0.530**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.0730 J**	**0.900**	**0.0770 J**	**0.0630 J**	**47.0**	**0.320**	0.0990 U	0.0500 U	0.0990 U
31SB-21-02	31SB-21-02-40-41	40	41	07/06/2022	**0.350**	**0.550**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0540 J**	**0.500**	**0.0980 J**	**0.0440 J**	**23.0**	**0.160 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-02	31SB-21-02-45-46	45	46	07/06/2022	**0.350**	**3.10**	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.0720 J**	**0.850**	**0.120 J**	**0.0430 J**	**49.0**	**0.290 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-02	31SB-21-02-50-51	50	51	07/06/2022	**0.130 J**	**4.90**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0610 J**	**0.520**	**0.0950 J**	**0.0370 J**	**72.0**	**0.110 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-02	31SB-21-02-55-56	55	56	07/06/2022	**0.0730 J**	**1.10**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.150 J**	**0.0570 J**	0.0480 U	**18.0**	0.140 U	0.0950 U	0.0480 U	0.0950 U
31SB-21-02	31SB-21-02-5-6	5	6	07/06/2022	**2.50**	**3.50**	0.100 U	0.0510 U	**0.580**	0.100 U	0.100 U	**0.370**	**14.0**	**0.620**	**0.780**	**1,400**	**4.40**	0.100 U	0.0510 U	0.100 U
31SB-21-02	31SB-21-02-62-63	62	63	07/06/2022	**2.20**	**23.0**	**0.170 J**	0.0510 U	**0.0450 J**	**0.120 J**	**0.0550 J**	**0.110 J**	**2.40**	**0.270**	**0.150 J**	**280**	**1.50**	0.100 U	**0.0400 J**	**0.0480 J**
31SB-21-02	31SB-21-02-7-8	7	8	07/06/2022	**6.30**	**1.10**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.240**	**7.20**	**0.280**	**1.10**	**1,500**	**11.0**	0.0980 U	0.0490 U	0.0980 U
31SB-21-02	31SB-21-02-9-10	9	10	07/06/2022	**19.0**	**0.620**	0.100 U	0.0500 U	**0.0640 J**	0.100 U	0.100 U	**3.30**	**56.0**	**1.10**	**0.330**	**37.0**	**28.0**	0.100 U	0.0500 U	0.100 U
31SB-21-02 (FD)	AOC 31SB-21-02-30-31-DUP41	30	31	07/06/2022	**0.390**	**1.10**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.0860 J**	**1.60**	**0.110 J**	**0.0770 J**	**53.0**	**0.510**	0.100 U	0.0510 U	0.100 U
31SB-21-02 (FD)	AOC 31SB-21-02-40-41-DUP42	40	41	07/06/2022	**0.340**	**0.530**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0460 J**	**0.490**	**0.0920 J**	**0.0370 J**	**24.0**	**0.150 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-03	31SB-21-03-0.5-1	0.5	1	07/05/2022	**4.00**	**3.10**	0.100 U	0.0510 U	**0.170 J**	**0.640**	**0.190 J**	**0.320**	**3.50**	**0.870**	**0.240**	**42.0**	**1.10**	**0.0870 J**	**0.0640 J**	**0.480**

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-03	31SB-21-03-11-12	11	12	07/05/2022	**0.320**	**1.80**	0.0970 U	0.0480 U	0.0970 U	**0.150 J**	0.0970 U	**0.400**	**3.60**	**0.250**	**0.140 J**	**6.20**	**1.10**	0.0970 U	0.0480 U	0.0970 U
31SB-21-03	31SB-21-03-1-2	1	2	07/05/2022	**0.460**	**0.380**	**0.0740 J**	0.0600 U	0.120 U	**0.620**	0.120 U	**0.140 J**	**1.20**	**0.210 J**	**0.150 J**	**17.0**	**0.530**	0.120 U	0.0600 U	0.120 U
31SB-21-03	31SB-21-03-13-14	13	14	07/05/2022	**0.300 J**	**8.20**	0.110 U	0.0570 U	0.110 U	**0.150 J**	0.110 U	**0.360**	**3.30**	**0.210 J**	**0.130 J**	**25.0**	**1.40**	0.110 U	0.0570 U	0.110 U
31SB-21-03	31SB-21-03-15-16	15	16	07/05/2022	**0.300 J**	**33.0**	**0.320**	0.0530 U	0.110 U	**0.150 J**	0.110 U	**0.210**	**1.70**	**0.250**	**0.120 J**	**130**	**1.10**	0.110 U	0.0530 U	0.110 U
31SB-21-03	31SB-21-03-17-18	17	18	07/05/2022	**0.270 J**	**8.50**	**0.0570 J**	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.130 J**	**1.40**	**0.170 J**	**0.0400 J**	**63.0**	**0.810**	0.0960 U	0.0480 U	0.0960 U
31SB-21-03	31SB-21-03-19-20	19	20	07/05/2022	**0.510**	**53.0**	**0.440**	0.0520 U	0.100 U	**0.190 J**	**0.0960 J**	**0.230**	**2.70**	**0.460**	**0.0880 J**	**310**	**1.50**	0.100 U	0.0520 U	**0.0580 J**
31SB-21-03	31SB-21-03-2-3	2	3	07/05/2022	**0.330 J**	**0.460**	0.110 U	0.0570 U	0.110 U	**0.780**	**0.0760 J**	**0.300**	**3.90**	**0.360**	**0.250**	**22.0**	**0.970**	0.110 U	0.0570 U	**0.0820 J**
31SB-21-03	31SB-21-03-25-26	25	26	07/05/2022	**0.150 J**	**2.60**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.170 J**	**1.30**	**0.200**	**0.0210 J**	**5.30**	**0.390**	0.0940 U	0.0470 U	0.0940 U
31SB-21-03	31SB-21-03-30-31	30	31	07/05/2022	**0.510**	**2.80**	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.200 J**	**3.10**	**0.300**	**0.0320 J**	**20.0**	**1.20**	0.110 U	0.0530 U	0.110 U
31SB-21-03	31SB-21-03-35-36	35	36	07/05/2022	**0.760**	**0.740 J**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.0930 J**	**2.50**	**0.230**	0.0580 U	**10.0 J**	**1.20 J**	0.120 U	0.0580 U	0.120 U
31SB-21-03	31SB-21-03-40-41	40	41	07/05/2022	**1.10**	**1.30**	0.0950 U	0.0470 U	0.0950 U	0.0950 U	0.0950 U	**0.100 J**	**3.40**	**0.210**	**0.0290 J**	**15.0**	**2.00**	0.0950 U	0.0470 U	0.0950 U
31SB-21-03	31SB-21-03-45-46	45	46	07/05/2022	**1.00**	**0.550**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.0380 J**	**1.80**	**0.0540 J**	0.0500 U	**16.0**	**1.70**	0.0990 U	0.0500 U	0.0990 U
31SB-21-03	31SB-21-03-50-51	50	51	07/05/2022	**2.40**	**0.920**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0430 J**	**2.30**	**0.0400 J**	**0.0250 J**	**31.0**	**2.60**	0.0980 U	0.0490 U	0.0980 U
31SB-21-03	31SB-21-03-55-56	55	56	07/05/2022	**1.00**	**0.220 J**	0.110 U	0.0570 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.660**	0.110 U	0.0570 U	**8.90**	**0.890**	0.110 U	0.0570 U	0.110 U
31SB-21-03 (FD)	31SB-21-03-55-56-DUP40	55	56	07/05/2022	**1.30**	**0.200 J**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.0480 J**	**0.970**	**0.0430 J**	0.0580 U	**9.50**	**1.20**	0.120 U	0.0580 U	0.120 U
31SB-21-03	31SB-21-03-5-6	5	6	07/05/2022	**0.180 J**	**0.510**	0.100 U	0.0500 U	0.100 U	**0.0640 J**	0.100 U	**0.220**	**1.90**	**0.150 J**	**0.110 J**	**5.40**	**0.510**	0.100 U	0.0500 U	0.100 U
31SB-21-03	31SB-21-03-61-62	61	62	07/05/2022	**0.680**	**0.870**	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.280**	**0.0490 J**	0.190 U	**41.0**	**0.480**	0.0970 U	0.0480 U	0.0970 U
31SB-21-03	31SB-21-03-7-8	7	8	07/05/2022	**0.210 J**	**0.530**	0.100 U	0.0520 U	0.100 U	**0.0860 J**	0.100 U	**0.300**	**3.50**	**0.220**	**0.0960 J**	**6.70**	**0.990**	0.100 U	0.0520 U	0.100 U
31SB-21-03	31SB-21-03-9-10	9	10	07/05/2022	**0.150 J**	**0.340**	0.100 U	0.0500 U	0.100 U	**0.0550 J**	0.100 U	**0.230**	**3.10**	**0.270**	**0.0590 J**	**4.10**	**0.910**	0.100 U	0.0500 U	0.100 U
31SB-21-03 (FD)	AOC31SB-21-03-25-26-DUP38	25	26	07/05/2022	**0.150 J**	**1.80**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.160 J**	**1.20**	**0.200**	0.0490 U	**4.30**	**0.350**	0.0980 U	0.0490 U	0.0980 U
31SB-21-03 (FD)	AOC31SB-21-03-35-36-DUP39	35	36	07/05/2022	**1.20**	**2.00 J**	0.0920 U	0.0460 U	0.0920 U	0.0920 U	0.0920 U	**0.140 J**	**3.90**	**0.310**	**0.0360 J**	**20.0 J**	**2.00 J**	0.0920 U	0.0460 U	0.0920 U
31SB-21-04	31SB-21-04-0.5-1	0.5	1	06/30/2022	**1.50**	**1.30**	0.100 U	0.0500 U	**0.0610 J**	**0.0670 J**	**0.190 J**	**0.130 J**	**0.970**	**0.250**	**0.0650 J**	**7.90**	**0.330**	**0.230**	**0.270**	**0.140 J**
31SB-21-04	31SB-21-04-11-12	11	12	06/30/2022	**0.750**	**5.40**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	**0.100 J**	**1.50**	**0.110 J**	**0.170 J**	**140**	**0.610**	0.0950 U	0.0480 U	0.0950 U
31SB-21-04	31SB-21-04-1-2	1	2	06/30/2022	**0.230 J**	**0.440**	0.100 U	**0.0320 J**	0.100 U	**0.0850 J**	**0.230**	**0.0760 J**	**0.330**	**0.120 J**	**0.0470 J**	**3.00**	**0.210 J**	**0.0370 J**	**0.0690 J**	**0.240**
31SB-21-04	31SB-21-04-13-14	13	14	06/30/2022	**2.10**	**5.80**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.130 J**	**2.10**	**0.130 J**	**0.110 J**	**160**	**1.60**	0.100 U	0.0510 U	0.100 U
31SB-21-04	31SB-21-04-15-16	15	16	06/30/2022	**3.90**	**2.90**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.160 J**	**2.90**	**0.190 J**	**0.0860 J**	**110**	**2.00**	0.100 U	0.0510 U	0.100 U
31SB-21-04	31SB-21-04-17-18	17	18	06/30/2022	**5.70**	**3.50**	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	**0.180 J**	**3.20**	**0.200**	**0.150 J**	**200**	**2.60**	0.0970 U	0.0480 U	0.0970 U
31SB-21-04	31SB-21-04-19-20	19	20	06/30/2022	**1.00**	**1.00**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.0960 J**	**1.20**	**0.170 J**	**0.0600 J**	**57.0**	**1.00**	0.0940 U	0.0470 U	0.0940 U
31SB-21-04	31SB-21-04-2-3	2	3	06/30/2022	**0.230 J**	**0.760**	**0.0890 J**	0.0500 U	0.100 U	**0.100 J**	**0.210**	**0.100 J**	**0.290**	**0.190 J**	**0.0270 J**	**3.00**	**0.260 J**	0.100 U	**0.0510 J**	**0.310**
31SB-21-04	31SB-21-04-25-26	25	26	06/30/2022	**0.0530 J**	**0.460**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0480 J**	**0.330**	**0.0350 J**	**0.0310 J**	**20.0**	**0.410**	0.100 U	0.0500 U	0.100 U
31SB-21-04	31SB-21-04-30-31	30	31	06/30/2022	0.0990 U	**0.370**	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.300**	0.0990 U	**0.0250 J**	**13.0**	**0.160 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-04	31SB-21-04-35-36	35	36	06/30/2022	0.0980 U	**0.400**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.450**	0.0980 U	0.0490 U	**11.0**	**0.200 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-04	31SB-21-04-40-41	40	41	06/30/2022	0.0960 U	**0.160 J**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.160 J**	0.0960 U	0.0480 U	**4.60 J**	**0.100 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-04	31SB-21-04-45-46	45	46	06/30/2022	**0.0820 J**	**1.40**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0470 J**	**0.830**	0.0960 U	**0.0410 J**	**33.0**	**0.360**	0.0960 U	0.0480 U	0.0960 U
31SB-21-04	31SB-21-04-50-51	50	51	06/30/2022	**0.0350 J**	**0.500**	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.160 J**	0.0970 U	0.0490 U	**9.60**	**0.0760 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-04	31SB-21-04-55-56	55	56	06/30/2022	**0.350**	**0.290**	0.0950 U	0.0470 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.360**	0.0950 U	0.0470 U	**7.60**	**0.0830 J**	0.0950 U	0.0470 U	0.0950 U
31SB-21-04	31SB-21-04-5-6	5	6	06/30/2022	**0.120 J**	**0.870**	**0.0580 J**	0.0500 U	0.100 U	**0.0850 J**	0.100 U	**0.0520 J**	**0.380**	**0.0700 J**	**0.0640 J**	**5.20**	**0.250 J**	0.100 U	0.0500 U	0.100 U
31SB-21-04	31SB-21-04-59-60	59	60	06/30/2022	0.0970 U	**0.110 J**	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.110 J**	0.0970 U	0.0480 U	**4.50 J**	0.140 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-04	31SB-21-04-7-8	7	8	06/30/2022	**0.0760 J**	**2.20**	**0.0940 J**	0.490 U	0.0960 U	**0.120 J**	0.0960 U	0.0960 U	**0.240**	**0.0620 J**	**0.0560 J**	**7.10**	**0.190 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-04	31SB-21-04-9-10	9	10	06/30/2022	**0.0600 J**	**4.10**	**0.0920 J**	0.410 U	0.100 U	**0.100 J**	0.100 U	0.100 U	**0.280**	**0.0460 J**	**0.0600 J**	**13.0**	**0.200 J**	0.100 U	0.0510 U	0.100 U
31SB-21-04 (FD)	AOC 31SB-21-04-30-31-DUP33	30	31	06/30/2022	**0.0260 J**	**0.460**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.320**	0.0940 U	**0.0270 J**	**13.0**	**0.190 J**	0.0940 U	0.0470 U	0.0940 U
31SB-21-04 (FD)	AOC-31SB-21-04-40-41 DUP34	40	41	06/30/2022	**0.0290 J**	**0.300**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.250**	0.100 U	0.0500 U	**7.70 J**	**0.150 J**	0.100 U	0.0500 U	0.100 U
31SB-21-04 (FD)	AOC31SB-21-04-55-56 DUP35	55	56	06/30/2022	0.0950 U	**0.290**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.340**	0.0950 U	0.0480 U	**7.40**	**0.0580 J**	0.0950 U	0.0480 U	0.0950 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-05	31SB-21-05-0.5-1	0.5	1	07/01/2022	**3.80**	**2.60**	0.0960 U	0.0480 U	**0.880**	**0.100 J**	0.0960 U	**0.350**	**8.00**	**1.90**	**0.0740 J**	**55.0**	**2.50**	0.0960 U	0.0480 U	**0.0590 J**
31SB-21-05	31SB-21-05-11-12	11	12	07/01/2022	**0.0510 J**	**12.0**	**0.0810 J**	0.0470 U	0.0930 U	**0.0680 J**	0.0930 U	**0.0810 J**	**1.50**	**0.100 J**	**0.0980 J**	**180**	**0.860**	0.0930 U	0.0470 U	0.0930 U
31SB-21-05	31SB-21-05-1-2	1	2	07/01/2022	**0.230 J**	**30.0**	**0.380**	0.0500 U	**0.0410 J**	**0.550**	**0.0510 J**	**0.0810 J**	**1.80**	**0.190 J**	**0.160 J**	**150**	**0.690**	0.0990 U	0.0500 U	**0.0880 J**
31SB-21-05	31SB-21-05-13-14	13	14	07/01/2022	**0.0450 J**	**18.0**	**0.170 J**	0.0500 U	0.100 U	**0.140 J**	0.100 U	**0.0570 J**	**1.20**	**0.0930 J**	**0.100 J**	**460**	**0.670**	0.100 U	0.0500 U	0.100 U
31SB-21-05	31SB-21-05-15-16	15	16	07/01/2022	**0.220 J**	**3.00**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**1.70**	**0.160 J**	**0.0940 J**	**250**	**1.50**	0.100 U	0.0510 U	0.100 U
31SB-21-05	31SB-21-05-17-18	17	18	07/01/2022	**0.360**	**6.10**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0570 J**	**2.40**	**0.160 J**	**0.240**	**610**	**2.40**	0.0960 U	0.0480 U	0.0960 U
31SB-21-05	31SB-21-05-19-20	19	20	07/01/2022	**0.0320 J**	**0.890**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0490 J**	**0.740**	**0.270**	**0.0230 J**	**74.0**	**0.490**	0.100 U	0.0520 U	0.100 U
31SB-21-05	31SB-21-05-2-3	2	3	07/01/2022	**0.120 J**	**24.0**	**0.170 J**	0.0500 U	0.100 U	**0.190 J**	0.100 U	**0.110 J**	**1.50**	**0.180 J**	**0.120 J**	**180**	**0.670**	0.100 U	0.0500 U	0.100 U
31SB-21-05	31SB-21-05-25-26	25	26	07/01/2022	**0.0290 J**	**0.310**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.530**	**0.0750 J**	0.0490 U	**31.0**	**0.260 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-05	31SB-21-05-30-31	30	31	07/01/2022	0.110 U	0.110 U	0.110 U	0.0570 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.340**	**0.0820 J**	0.0570 U	**2.00**	**0.130 J**	0.110 U	0.0570 U	0.110 U
31SB-21-05	31SB-21-05-35-36	35	36	07/01/2022	**0.110 J**	0.0920 U	0.0920 U	0.0460 U	0.0920 U	0.0920 U	0.0920 U	**0.0660 J**	**0.520**	**0.0760 J**	0.0460 U	**3.90**	**0.280**	0.0920 U	0.0460 U	0.0920 U
31SB-21-05	31SB-21-05-40-41	40	41	07/01/2022	**0.0870 J**	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.370**	**0.0790 J**	0.0510 U	**2.50**	**0.220 J**	0.100 U	0.0510 U	0.100 U
31SB-21-05	31SB-21-05-45-46	45	46	07/01/2022	**0.210 J**	0.0930 U	0.0930 U	0.0460 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	**0.600**	**0.0830 J**	0.0460 U	**4.50**	**0.370**	0.0930 U	0.0460 U	0.0930 U
31SB-21-05	31SB-21-05-50-51	50	51	07/01/2022	**0.110 J**	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.380**	0.100 U	0.0510 U	**2.90**	**0.240 J**	0.100 U	0.0510 U	0.100 U
31SB-21-05	31SB-21-05-55-56	55	56	07/01/2022	**1.20**	**0.700**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.100 J**	**3.00**	**0.0710 J**	**0.120 J**	**70.0**	**2.70**	0.100 U	0.0510 U	0.100 U
31SB-21-05	31SB-21-05-5-6	5	6	07/01/2022	**0.130 J**	**18.0**	**0.0520 J**	0.0470 U	0.0950 U	**0.170 J**	0.0950 U	**0.110 J**	**2.30**	**0.0990 J**	**0.370**	**290**	**1.50**	0.0950 U	0.0470 U	0.0950 U
31SB-21-05	31SB-21-05-59-60	59	60	07/01/2022	**0.110 J**	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.410**	0.0990 U	0.0490 U	**4.50**	**0.330**	0.0990 U	0.0490 U	0.0990 U
31SB-21-05	31SB-21-05-7-8	7	8	07/01/2022	**0.0990 J**	**7.50**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0570 J**	**1.70**	**0.0770 J**	**0.170 J**	**300**	**0.610**	0.0960 U	0.0480 U	0.0960 U
31SB-21-05	31SB-21-05-9-10	9	10	07/01/2022	**0.140 J**	**14.0**	0.110 U	0.0530 U	0.110 U	**0.0530 J**	0.110 U	**0.0400 J**	**1.20**	**0.0560 J**	**0.190 J**	**340**	**0.650**	0.110 U	0.0530 U	0.110 U
31SB-21-05 (FD)	AOC 31SB-21-05-40-41-DUP37	40	41	07/01/2022	**0.0770 J**	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	**0.0400 J**	**0.390**	**0.0920 J**	0.0480 U	**2.60**	**0.230 J**	0.0970 U	0.0480 U	0.0970 U
31SB-21-05 (FD)	AOC 31SB-21-05-DUP36	25	26	07/01/2022	0.0980 U	**0.230**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.490**	**0.0760 J**	0.0490 U	**24.0**	**0.270 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-06	31SB-21-06-0.5-1	0.5	1	06/30/2022	**0.490**	**3.20**	0.110 U	0.0530 U	0.110 U	**0.170 J**	**0.0600 J**	**0.0920 J**	**2.10**	**0.130 J**	**0.0940 J**	**28.0**	**0.260 J**	0.110 U	0.0530 U	**0.0640 J**
31SB-21-06	31SB-21-06-11-12	11	12	06/30/2022	**0.110 J**	**10.0**	0.110 U	0.0560 U	0.110 U	**0.0650 J**	0.110 U	**0.0590 J**	**1.20**	**0.180 J**	**0.0790 J**	**190**	**0.250 J**	0.110 U	0.0560 U	0.110 U
31SB-21-06	31SB-21-06-1-2	1	2	06/30/2022	**0.200 J**	**2.60**	0.0980 U	**0.0390 J**	0.0980 U	**0.240**	0.0980 U	**0.0780 J**	**1.10**	**0.0380 J**	**0.0760 J**	**17.0**	**0.150 J**	0.0980 U	0.0490 U	**0.0560 J**
31SB-21-06	31SB-21-06-13-14	13	14	06/30/2022	**0.0700 J**	**3.00**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.0420 J**	**1.20**	**0.180 J**	**0.0470 J**	**66.0**	**0.230 J**	0.0940 UJ	0.0470 U	0.0940 U
31SB-21-06	31SB-21-06-15-16	15	16	06/30/2022	**0.450**	**1.90**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0680 J**	**3.90**	**0.170 J**	**0.0490 J**	**170**	**1.60**	0.100 UJ	0.0520 U	0.100 U
31SB-21-06	31SB-21-06-17-18	17	18	06/30/2022	**0.530**	**1.30**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0610 J**	**4.20**	**0.120 J**	**0.0570 J**	**190**	**2.00**	0.0980 U	0.0490 U	0.0980 U
31SB-21-06	31SB-21-06-19-20	19	20	06/30/2022	**0.210 J**	**0.450**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**3.80**	**0.160 J**	**0.0370 J**	**150**	**1.40**	0.100 U	0.0520 U	0.100 U
31SB-21-06	31SB-21-06-2-3	2	3	06/30/2022	**0.240 J**	**10.0**	**0.200**	**0.450**	0.100 U	**0.130 J**	**0.0530 J**	**0.0540 J**	**1.10**	**0.110 J**	**0.130 J**	**190**	**0.250 J**	0.100 U	0.0500 U	**0.0620 J**
31SB-21-06	31SB-21-06-25-26	25	26	06/30/2022	**0.150 J**	**0.100 J**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**3.30**	**0.170 J**	0.0500 U	**84.0**	**0.770**	0.0990 U	0.0500 U	0.0990 U
31SB-21-06	31SB-21-06-30-31	30	31	06/30/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.860**	**0.130 J**	0.0520 U	**22.0**	**0.130 J**	0.100 U	0.0520 U	0.100 U
31SB-21-06	31SB-21-06-35-36	35	36	06/30/2022	**0.0530 J**	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.0420 J**	**1.20**	**0.160 J**	0.0490 U	**44.0**	**0.190 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-06	31SB-21-06-40-41	40	41	06/30/2022	0.0960 U	**0.0650 J**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.960**	**0.110 J**	0.0480 U	**33.0**	**0.180 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-06	31SB-21-06-45-46	45	46	06/30/2022	0.0990 U	**0.0730 J**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.830**	**0.100 J**	0.0500 U	**28.0**	**0.170 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-06	31SB-21-06-50-51	50	51	06/30/2022	**0.0710 J**	**0.180 J**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0610 J**	**1.60**	**0.110 J**	0.0490 U	**58.0**	**0.260 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-06	31SB-21-06-55-56	55	56	06/30/2022	**0.100 J**	**0.290**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0650 J**	**2.10**	**0.110 J**	**0.0240 J**	**100**	**0.330**	0.0960 U	0.0480 U	0.0960 U
31SB-21-06	31SB-21-06-5-6	5	6	06/30/2022	**1.00**	**61.0**	0.100 U	0.0510 U	0.100 U	**0.110 J**	0.100 U	**0.140 J**	**3.00**	**0.220**	**0.450**	**760**	**1.30**	0.100 U	0.0510 U	0.100 U
31SB-21-06	31SB-21-06-61-62	61	62	06/30/2022	**0.110 J**	**3.70**	0.110 U	**0.0880 J**	0.110 U	**0.0930 J**	0.110 U	0.110 U	**1.20**	**0.170 J**	**0.0870 J**	**860**	**0.300 J**	0.110 U	0.0540 U	0.110 U
31SB-21-06	31SB-21-06-7-8	7	8	06/30/2022	**0.390**	**24.0**	**0.0590 J**	0.0480 U	0.0950 U	**0.260**	0.0950 U	**0.220**	**1.60**	**0.130 J**	**0.170 J**	**400**	**0.450**	0.0950 U	0.0480 U	0.0950 U
31SB-21-06	31SB-21-06-9-10	9	10	06/30/2022	**0.270 J**	**17.0**	**0.110 J**	0.0510 U	0.100 U	**0.240**	0.100 U	**0.140 J**	**2.10**	**0.130 J**	**0.110 J**	**480**	**0.400**	0.100 UJ	0.0510 U	0.100 U
31SB-21-06 (FD)	AOC31SB-21-06-25-26 DUP30	25	26	06/30/2022	**0.140 J**	**0.110 J**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**3.30**	**0.140 J**	0.0490 U	**89.0**	**0.730**	0.0980 U	0.0490 U	0.0980 U
31SB-21-06 (FD)	AOC31SB-21-06-35-36 DUP31	35	36	06/30/2022	**0.0400 J**	**0.0360 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0430 J**	**1.40**	**0.150 J**	0.0500 U	**55.0**	**0.230 J**	0.100 U	0.0500 U	0.100 U
31SB-21-06 (FD)	AOC31SB-21-06-45-46 DUP32	45	46	06/30/2022	**0.0330 J**	**0.0920 J**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.890**	**0.100 J**	0.0480 U	**31.0**	**0.180 J**	0.0960 U	0.0480 U	0.0960 U

ARCADIS

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-07	31SB-21-07-0.5-1	0.5	1	06/24/2022	**0.0540 J**	**0.140 J**	0.110 U	0.0560 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.240**	**0.0400 J**	**0.0250 J**	**2.40**	**0.0760 J**	0.110 U	0.0560 U	0.110 U
31SB-21-07	31SB-21-07-11-12	11	12	06/24/2022	**0.510**	**2.80**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.110 J**	**1.50**	**0.0590 J**	**0.300**	**90.0**	**1.60**	0.120 U	0.0580 U	0.120 U
31SB-21-07	31SB-21-07-1-2	1	2	06/24/2022	0.130 U	0.130 U	0.130 U	0.0630 U	0.130 U	0.130 U	0.130 U	0.130 U	**0.0980 J**	0.130 U	0.0630 U	**1.00**	0.190 U	0.130 U	0.0630 U	0.130 U
31SB-21-07	31SB-21-07-13-14	13	14	06/24/2022	**0.690**	**1.40**	0.120 U	0.0590 U	0.120 U	0.120 U	0.120 U	**0.130 J**	**2.60**	**0.0980 J**	**0.190 J**	**90.0**	**1.60**	0.120 U	0.0590 U	0.120 U
31SB-21-07	31SB-21-07-15-16	15	16	06/24/2022	**2.70**	**0.240 J**	0.130 U	0.0630 U	0.130 U	0.130 U	0.130 U	**0.250**	**7.20**	**0.190 J**	**0.0640 J**	**57.0**	**2.00**	0.130 U	0.0630 U	0.130 U
31SB-21-07	31SB-21-07-17-18	17	18	06/24/2022	**3.00**	**0.250**	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	**0.290**	**4.50**	**0.310**	**0.0920 J**	**63.0**	**2.70**	0.0970 U	0.0490 U	0.0970 U
31SB-21-07	31SB-21-07-19-20	19	20	06/24/2022	**1.90**	**0.0820 J**	0.110 U	0.0550 U	0.110 U	0.110 U	0.110 U	**0.190 J**	**3.50**	**0.210 J**	**0.0330 J**	**22.0**	**2.30**	0.110 U	0.0550 U	0.110 U
31SB-21-07	31SB-21-07-2-3	2	3	06/24/2022	**0.0390 J**	**6.00**	**0.0840 J**	**0.260 J**	0.100 U	**0.280**	0.100 U	**0.0710 J**	**0.160 J**	0.100 U	**0.0790 J**	**11.0**	**0.110 J**	0.100 U	0.0510 U	**0.100 J**
31SB-21-07	31SB-21-07-25-26	25	26	06/24/2022	**0.690**	**0.0610 J**	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.0950 J**	**1.80**	**0.0830 J**	0.0540 U	**13.0**	**1.10**	0.110 U	0.0540 U	0.110 U
31SB-21-07	31SB-21-07-30-31	30	31	06/24/2022	**0.190 J**	**0.0590 J**	0.120 U	0.0590 U	0.120 U	0.120 U	0.120 U	**0.110 J**	**0.880**	**0.150 J**	**0.0290 J**	**12.0**	**0.550**	0.120 U	0.0590 U	0.120 U
31SB-21-07	31SB-21-07-35-36	35	36	06/24/2022	**0.130 J**	**0.120 J**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.0790 J**	**0.790**	**0.120 J**	0.0510 U	**15.0**	**0.400**	0.100 U	0.0510 U	0.100 U
31SB-21-07	31SB-21-07-40-41	40	41	06/24/2022	**0.110 J**	**0.140 J**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.100 J**	**0.920**	**0.0770 J**	0.0600 U	**13.0**	**0.380**	0.120 U	0.0600 U	0.120 U
31SB-21-07	31SB-21-07-45-46	45	46	06/24/2022	**0.300**	**0.400**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.0570 J**	**1.00**	**0.0380 J**	**0.0360 J**	**24.0 J**	**0.830**	0.0940 U	0.0470 U	0.0940 U
31SB-21-07 (FD)	31SB-21-07-45-46 DUP18	45	46	06/24/2022	**0.260 J**	**0.400**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.0700 J**	**0.840**	**0.0490 J**	**0.0320 J**	**21.0**	**0.680**	0.120 U	0.0600 U	0.120 U
31SB-21-07	31SB-21-07-50-51	50	51	06/24/2022	**0.260 J**	**0.550**	0.120 U	0.0590 U	0.120 U	0.120 U	0.120 U	**0.0920 J**	**0.410**	**0.0480 J**	0.0590 U	**11.0**	**0.280 J**	0.120 U	0.0590 U	0.120 U
31SB-21-07	31SB-21-07-55-56	55	56	06/24/2022	**0.160 J**	**0.460**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0590 J**	**0.260**	0.0960 U	0.0480 U	**7.40**	**0.140 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-07 (FD)	31SB-21-07-55-56 DUP19	55	56	06/24/2022	**0.200 J**	**0.470**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.0770 J**	**0.320**	0.120 U	0.0580 U	**8.50**	**0.190 J**	0.120 U	0.0580 U	0.120 U
31SB-21-07	31SB-21-07-5-6	5	6	06/24/2022	0.120 U	**43.0**	0.120 U	0.0590 U	0.120 U	**0.0630 J**	0.120 U	**0.0890 J**	**0.180 J**	**0.0460 J**	**0.0980 J**	**26.0**	**0.140 J**	0.120 U	0.0590 U	0.120 U
31SB-21-07	31SB-21-07-61-62	61	62	06/24/2022	**0.0990 J**	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.0400 J**	**0.290**	0.110 U	0.0530 U	**0.360**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-07	31SB-21-07-7-8	7	8	06/24/2022	0.120 U	**13.0**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.140 J**	**0.340**	**0.0460 J**	**0.180 J**	**110**	**0.350 J**	0.120 U	0.0600 U	0.120 U
31SB-21-07	31SB-21-07-9-11	9	11	06/24/2022	**0.0370 J**	**14.0**	0.120 U	0.0620 U	0.120 U	0.120 U	0.120 U	**0.110 J**	**0.550**	**0.0500 J**	**0.120 J**	**97.0**	**0.470**	0.120 U	0.0620 U	0.120 U
31SB-21-08	31SB-21-08-0.5-1	0.5	1	06/27/2022	0.110 U	**0.770**	0.110 U	0.0530 U	0.110 U	**0.170 J**	0.110 U	**0.0980 J**	**0.240**	**0.0860 J**	**0.0910 J**	**5.80**	**0.130 J**	0.110 U	0.0530 U	**0.0500 J**
31SB-21-08	31SB-21-08-0-0.5	0	0.5	06/27/2022	**0.420**	**0.530**	0.100 U	0.0500 U	**0.0480 J**	**0.410**	**0.0890 J**	**0.130 J**	**0.930**	**0.210**	**0.150 J**	**15.0**	**0.350**	**0.0370 J**	**0.0450 J**	**0.300**
31SB-21-08	31SB-21-08-11-12	11	12	06/27/2022	**0.0270 J**	**2.70**	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	**0.0810 J**	**0.820**	**0.0320 J**	**0.0460 J**	**70.0**	**0.320**	0.0970 U	0.0490 U	0.0970 U
31SB-21-08	31SB-21-08-1-2	1	2	06/27/2022	0.100 U	**13.0**	**0.0660 J**	0.0510 U	0.100 U	**0.180 J**	0.100 U	**0.0710 J**	**0.240**	**0.0560 J**	**0.0550 J**	**7.50**	**0.130 J**	0.100 U	0.0510 U	0.100 U
31SB-21-08	31SB-21-08-13-14	13	14	06/27/2022	**0.0330 J**	**4.50**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0840 J**	**0.790**	**0.0570 J**	**0.0720 J**	**130**	**0.490**	0.100 U	0.0520 U	0.100 U
31SB-21-08	31SB-21-08-15-16	15	16	06/27/2022	**0.690**	**9.30**	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.0700 J**	**1.40**	**0.0670 J**	**0.0390 J**	**110**	**1.20**	0.110 U	0.0540 U	0.110 U
31SB-21-08	31SB-21-08-17-18	17	18	06/27/2022	**0.540**	**2.80**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.450**	0.0980 U	0.0490 U	**26.0**	**0.350**	0.0980 U	0.0490 U	0.0980 U
31SB-21-08	31SB-21-08-19-20	19	20	06/27/2022	**0.400**	**0.790**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.370**	**0.0310 J**	0.0500 U	**11.0**	**0.290 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-08	31SB-21-08-2-3	2	3	06/27/2022	**0.0400 J**	**62.0**	0.0990 U	0.0500 U	0.0990 U	**0.270**	0.0990 U	**0.0910 J**	**0.440**	**0.120 J**	**0.140 J**	**35.0**	**0.650**	0.0990 U	0.0500 U	0.0990 U
31SB-21-08	31SB-21-08-25-26	25	26	06/27/2022	0.100 U	**0.520**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0930 J**	0.100 U	0.0500 U	**4.10**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-08	31SB-21-08-30-31	30	31	06/27/2022	0.120 U	**0.360**	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.250**	0.120 U	0.0580 U	**4.00**	0.170 U	0.120 U	0.0580 U	0.120 U
31SB-21-08	31SB-21-08-35-36	35	36	06/27/2022	0.0990 U	**0.0440 J**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.280**	0.0990 U	0.0500 U	**1.50**	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-08	31SB-21-08-40-41	40	41	06/27/2022	0.0940 U	**0.0520 J**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.240**	0.0940 U	0.0470 U	**1.60**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-08	31SB-21-08-45-46	45	46	06/27/2022	0.100 U	**0.170 J**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.570**	0.100 U	0.0510 U	**4.70 J**	**0.0610 J**	0.100 U	0.0510 U	0.100 U
31SB-21-08	31SB-21-08-50-51	50	51	06/27/2022	0.0990 U	**0.0810 J**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.360**	0.0990 U	0.0500 U	**2.30**	**0.0640 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-08	31SB-21-08-55-56	55	56	06/27/2022	**0.0390 J**	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.170 J**	0.100 U	0.0520 U	**2.50**	**0.0860 J**	0.100 U	0.0520 U	0.100 U
31SB-21-08	31SB-21-08-5-6	5	6	06/27/2022	**0.0550 J**	**1.60**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.120 J**	**0.970**	**0.0380 J**	**0.0680 J**	**41.0**	**0.880**	0.0960 U	0.0480 U	0.0960 U
31SB-21-08	31SB-21-08-62-63	62	63	06/27/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0440 J**	0.100 U	0.0500 U	**8.80**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-08	31SB-21-08-7-8	7	8	06/27/2022	**0.0350 J**	**5.00**	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	**0.0930 J**	**0.840**	**0.0400 J**	**0.0650 J**	**58.0**	**0.590**	0.120 U	0.0600 U	0.120 U
31SB-21-08	31SB-21-08-9-10	9	10	06/27/2022	**0.0360 J**	**8.20**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0960 J**	**0.640**	**0.0450 J**	**0.0550 J**	**47.0**	**0.350**	0.0960 U	0.0480 U	0.0960 U
31SB-21-08 (FD)	AOC31SB-21-08-35-36 DUP22	35	36	06/27/2022	0.100 U	**0.0440 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.220**	0.100 U	0.0500 U	**1.30**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-08 (FD)	AOC31SB-21-08-55-56 DUP23	55	56	06/27/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.160 J**	0.0980 U	0.0490 U	**2.10**	**0.0660 J**	0.0980 U	0.0490 U	0.0980 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-09	31SB-21-09-0.5-1	0.5	1	06/28/2022	**0.0770 J**	**2.50**	**0.0540 J**	0.0520 U	0.100 U	**0.800**	**0.240**	**0.190 J**	**0.490**	**0.110 J**	**0.160 J**	**7.90**	**0.210 J**	0.100 U	**0.0370 J**	**0.710**
31SB-21-09	31SB-21-09-0-0.5	0	0.5	06/28/2022	**0.120 J**	**2.00**	0.100 U	0.0510 U	0.100 U	**0.630**	**0.120 J**	**0.240**	**0.970**	**0.110 J**	**0.170 J**	**25.0**	**0.320**	0.100 U	**0.0340 J**	**0.720**
31SB-21-09	31SB-21-09-11-12	11	12	06/28/2022	**0.190 J**	**14.0**	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.180 J**	**0.510**	**0.0400 J**	**0.0980 J**	**150**	**0.450**	0.0990 U	0.0490 U	0.0990 U
31SB-21-09	31SB-21-09-1-2	1	2	06/28/2022	**0.0370 J**	**6.10**	**0.190 J**	**0.130 J**	0.0980 U	**1.10**	0.0980 U	**0.200**	**0.420**	**0.0920 J**	**0.110 J**	**8.20**	**0.320**	0.0980 U	0.0490 U	**0.360**
31SB-21-09	31SB-21-09-13-14	13	14	06/28/2022	**0.330**	**12.0**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.120 J**	**0.570**	**0.0510 J**	**0.0510 J**	**94.0**	**0.260 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-09	31SB-21-09-15-16	15	16	06/28/2022	**1.50**	**54.0**	0.110 U	0.0530 U	0.110 U	**0.170 J**	0.110 U	**0.170 J**	**2.40**	**0.430**	**0.140 J**	**800**	**0.430**	0.110 U	0.0530 U	0.110 U
31SB-21-09	31SB-21-09-17-18	17	18	06/28/2022	**0.490**	**9.70**	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.0730 J**	**1.00**	**0.120 J**	**0.0330 J**	**150**	**0.140 J**	0.110 U	0.0540 U	0.110 U
31SB-21-09	31SB-21-09-19-20	19	20	06/28/2022	**0.290 J**	**2.20**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.0390 J**	**0.590**	**0.0570 J**	0.0510 U	**46.0**	**0.0800 J**	0.100 U	0.0510 U	0.100 U
31SB-21-09	31SB-21-09-2-3	2	3	06/28/2022	0.100 U	**39.0**	0.100 U	0.0520 U	0.100 U	**1.30**	0.100 U	**0.240**	**0.410**	**0.110 J**	**0.290**	**29.0**	**0.600**	0.100 U	0.0520 U	0.100 U
31SB-21-09	31SB-21-09-25-26	25	26	06/28/2022	**0.0700 J**	**0.570**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.750**	**0.0600 J**	0.0490 U	**19.0**	**0.0790 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-09	31SB-21-09-30-31	30	31	06/28/2022	**0.0810 J**	**0.460**	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.730**	**0.0510 J**	0.0480 U	**16.0**	**0.0830 J**	0.0970 U	0.0480 U	0.0970 U
31SB-21-09	31SB-21-09-35-36	35	36	06/28/2022	**0.0380 J**	**0.350**	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.480**	0.0970 U	0.0490 U	**13.0**	**0.0580 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-09	31SB-21-09-40-41	40	41	06/28/2022	**0.0280 J**	**0.430**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.360**	0.0990 U	0.0500 U	**16.0**	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-09	31SB-21-09-45-46	45	46	06/28/2022	0.0970 U	**0.420**	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.330**	0.0970 U	0.0480 U	**16.0**	0.140 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-09	31SB-21-09-50-51	50	51	06/28/2022	**0.170 J**	**13.0**	0.100 U	0.0520 U	0.100 U	**0.0690 J**	0.100 U	0.100 U	**2.60**	**0.0980 J**	**0.120 J**	**500**	**0.230 J**	0.100 U	0.0520 U	0.100 U
31SB-21-09	31SB-21-09-55-56	55	56	06/28/2022	0.100 U	**0.0370 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0340 J**	0.100 U	0.0500 U	**5.00**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-09	31SB-21-09-5-6	5	6	06/28/2022	**0.0490 J**	**53.0**	0.100 U	0.0500 U	0.100 U	**0.190 J**	0.100 U	**0.240**	**0.950**	**0.0440 J**	**0.330**	**15.0**	**0.470**	0.100 U	0.0500 U	0.100 U
31SB-21-09	31SB-21-09-62-63	62	63	06/28/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0650 J**	0.100 U	0.0500 U	**1.60**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-09	31SB-21-09-7-8	7	8	06/28/2022	0.0980 U	**26.0**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.140 J**	**0.560**	0.0980 U	**0.130 J**	**9.10**	**0.240 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-09	31SB-21-09-9-10	9	10	06/28/2022	**0.0550 J**	**26.0**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.120 J**	**0.460**	0.100 U	**0.100 J**	**54.0**	**0.280 J**	0.100 U	0.0510 U	0.100 U
31SB-21-09 (FD)	AOC31SB-21-09-25-26 DUP26	25	26	06/28/2022	**0.0430 J**	**0.390**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.490**	**0.0550 J**	0.0480 U	**12.0**	**0.0540 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-09 (FD)	AOC31SB-21-09-45-46 DUP27	45	46	06/28/2022	0.0960 U	**0.340**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.310**	0.0960 U	0.0480 U	**14.0**	0.140 U	0.0960 U	0.0480 U	0.0960 U
31SB-21-10	31SB-21-10-0.5-1	0.5	1	06/23/2022	**0.0280 J**	0.0990 U	0.0990 U	**0.0270 J**	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0360 J**	**0.0410 J**	**0.0580 J**	**0.520**	0.150 U	0.0990 U	**0.0260 J**	0.0990 U
31SB-21-10	31SB-21-10-0-0.5	0	0.5	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.160 J**	**0.0340 J**	0.100 U	**0.0380 J**	**0.0400 J**	**0.0620 J**	**0.250 J**	0.150 U	0.100 U	**0.0300 J**	**0.0510 J**
31SB-21-10	31SB-21-10-11-12	11	12	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0560 J**	**0.120 J**	**0.0760 J**	0.0500 U	0.100 U	**0.150 J**	0.100 U	0.0500 U	0.100 U
31SB-21-10	31SB-21-10-1-2	1	2	06/23/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0430 J**	**0.0570 J**	**0.0740 J**	**0.140 J**	**6.00**	**0.130 J**	0.100 U	0.0520 U	0.100 U
31SB-21-10	31SB-21-10-13-14	13	14	06/23/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0860 J**	**0.0560 J**	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-10	31SB-21-10-15-16	15	16	06/23/2022	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.310**	**0.0850 J**	0.0480 U	0.0950 U	0.140 U	0.0950 U	0.0480 U	0.0950 U
31SB-21-10	31SB-21-10-17-18	17	18	06/23/2022	0.130 U	0.130 U	0.130 U	0.0640 U	0.130 U	0.130 U	0.130 U	0.130 U	**0.340**	**0.0710 J**	0.0640 U	0.130 U	0.190 U	0.130 U	0.0640 U	0.130 U
31SB-21-10	31SB-21-10-19-20	19	20	06/23/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.130 J**	0.110 U	0.0530 U	0.110 U	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-10	31SB-21-10-2-3	2	3	06/23/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0590 J**	**0.0580 J**	**0.0650 J**	**8.10**	**0.160 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-10	31SB-21-10-25-26	25	26	06/23/2022	0.0950 U	0.0950 U	0.0950 U	0.0470 U	0.0950 U	0.0950 U	0.0950 U	**0.0600 J**	**0.140 J**	0.0950 U	0.0470 U	**0.120 J**	**0.230 J**	0.0950 U	0.0470 U	0.0950 U
31SB-21-10 (FD)	31SB-21-10-25-26 DUP16	25	26	06/23/2022	0.100 UJ	0.100 UJ	0.100 UJ	0.0520 UJ	0.100 UJ	0.100 UJ	0.100 UJ	**0.0630 J**	**0.170 J**	0.100 UJ	0.0520 UJ	**0.140 J**	**0.210 J**	0.100 UJ	0.0520 UJ	0.100 UJ
31SB-21-10	31SB-21-10-30-31	30	31	06/23/2022	**0.960**	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	**0.360**	**1.40**	**0.0460 J**	0.0480 U	**1.60 J**	**1.60**	0.0950 U	0.0480 U	0.0950 U
31SB-21-10	31SB-21-10-35-36	35	36	06/23/2022	**0.0440 J**	**0.140 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.200**	**1.40**	**0.0370 J**	**0.0270 J**	**8.80**	**0.640**	0.100 U	0.0500 U	0.100 U
31SB-21-10	31SB-21-10-40-41	40	41	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.0520 J**	**0.310**	0.100 U	0.0510 U	**1.90**	**0.110 J**	0.100 U	0.0510 U	0.100 U
31SB-21-10	31SB-21-10-45-46	45	46	06/23/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	**0.0990 J**	**0.460**	**0.0710 J**	0.0490 U	**0.120 J**	**0.0780 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-10 (FD)	31SB-21-10-45-46 DUP17	45	46	06/23/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.0860 J**	**0.380**	**0.0740 J**	0.0490 U	0.0990 U	**0.0770 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-10	31SB-21-10-50-51	50	51	06/23/2022	**0.0250 J**	0.0900 U	0.0900 U	0.0450 U	0.0900 U	0.0900 U	0.0900 U	**0.140 J**	**0.900**	**0.0880 J**	0.0450 U	0.0900 U	**0.160 J**	0.0900 U	0.0450 U	0.0900 U
31SB-21-10	31SB-21-10-55-56	55	56	06/23/2022	**0.0890 J**	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0520 J**	**0.540**	**0.170 J**	0.0520 U	0.100 U	**0.140 J**	0.100 U	0.0520 U	0.100 U
31SB-21-10	31SB-21-10-5-6	5	6	06/23/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.150 J**	**0.150 J**	**0.290**	0.0540 U	**1.50 J**	**0.560**	0.110 U	0.0540 U	0.110 U
31SB-21-10	31SB-21-10-60-61	60	61	06/23/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0610 J**	**0.320**	**0.110 J**	0.0480 U	**0.150 J**	**0.0980 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-10	31SB-21-10-7-8	7	8	06/23/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.160 J**	**0.150 J**	**0.390**	0.0490 U	0.0980 U	**0.670**	0.0980 U	0.0490 U	0.0980 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-10	31SB-21-10-9-10	9	10	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0560 J**	**0.130 J**	**0.130 J**	0.0500 U	0.100 U	**0.180 J**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-0.5-1	0.5	1	06/27/2022	0.100 U	**2.50**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.350**	**0.270**	**0.0500 J**	**0.220**	**30.0**	**0.430**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-0-0.5	0	0.5	06/27/2022	**0.120 J**	**14.0**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.130 J**	**0.170 J**	**0.0390 J**	**0.240**	**44.0**	**0.280 J**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-11-12	11	12	06/27/2022	**0.120 J**	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.330**	**1.60**	**0.0360 J**	0.0480 U	**0.0900 J**	**0.730**	0.0960 U	0.0480 U	0.0960 U
31SB-21-11	31SB-21-11-1-2	1	2	06/27/2022	**0.0540 J**	**19.0**	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.320**	**0.550**	**0.0450 J**	**0.100 J**	**48.0**	**0.870**	0.0990 U	0.0500 U	0.0990 U
31SB-21-11	31SB-21-11-13-14	13	14	06/27/2022	**0.290**	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	**0.300**	**0.890**	0.0970 U	0.0490 U	**0.320**	**0.650**	0.0970 U	0.0490 U	0.0970 U
31SB-21-11	31SB-21-11-15-16	15	16	06/27/2022	**0.300**	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.140 J**	**0.660**	**0.0400 J**	0.0480 U	**0.420**	**0.460**	0.0960 U	0.0480 U	0.0960 U
31SB-21-11	31SB-21-11-17-18	17	18	06/27/2022	**1.10**	**2.60**	0.120 U	0.0590 U	0.120 U	0.120 U	0.120 U	**0.150 J**	**1.10**	**0.100 J**	**0.0500 J**	**62.0**	**0.660**	0.120 U	0.0590 U	0.120 U
31SB-21-11	31SB-21-11-19-20	19	20	06/27/2022	**0.410**	**0.300**	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.0470 J**	**0.480**	0.110 U	0.0540 U	**12.0**	**0.250 J**	0.110 U	0.0540 U	0.110 U
31SB-21-11	31SB-21-11-2-3	2	3	06/27/2022	**0.330**	**22.0**	0.110 U	0.0560 U	0.110 U	0.110 U	0.110 U	**0.680**	**1.60**	**0.260**	**0.460**	**130**	**1.70**	0.110 U	0.0560 U	0.110 U
31SB-21-11	31SB-21-11-25-26	25	26	06/27/2022	**0.220 J**	**0.200**	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	**0.0640 J**	**0.900**	**0.0850 J**	0.0470 U	**5.90**	**0.410**	0.0940 U	0.0470 U	0.0940 U
31SB-21-11	31SB-21-11-30-31	30	31	06/27/2022	**0.0940 J**	**0.120 J**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	**0.0530 J**	**0.830**	**0.0690 J**	0.0480 U	**8.00**	**0.420**	0.0950 U	0.0480 U	0.0950 U
31SB-21-11	31SB-21-11-35-36	35	36	06/27/2022	**0.230 J**	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.110 J**	**1.60**	**0.0510 J**	0.0500 U	**5.80**	**0.760**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-40-41	40	41	06/27/2022	**0.130 J**	0.110 U	0.110 U	0.0550 U	0.110 U	0.110 U	0.110 U	**0.0690 J**	**0.810**	0.110 U	0.0550 U	**8.80**	**0.310 J**	0.110 U	0.0550 U	0.110 U
31SB-21-11	31SB-21-11-45-46	45	46	06/27/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.200**	0.100 U	0.0500 U	**2.00**	**0.0590 J**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-50-51	50	51	06/27/2022	**0.0520 J**	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.290**	0.100 U	0.0510 U	**2.20**	**0.110 J**	0.100 U	0.0510 U	0.100 U
31SB-21-11	31SB-21-11-55-56	55	56	06/27/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.120 J**	0.120 U	0.0580 U	**0.240 J**	0.170 U	0.120 U	0.0580 U	0.120 U
31SB-21-11	31SB-21-11-5-6	5	6	06/27/2022	**0.0550 J**	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**3.20**	**27.0**	**0.540**	0.0500 U	**0.0620 J**	**0.370**	0.100 U	0.0500 U	0.100 U
31SB-21-11	31SB-21-11-61-62	61	62	06/27/2022	**0.110 J**	**0.0600 J**	0.110 U	0.0550 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.130 J**	0.110 U	0.0550 U	**2.10**	**0.0900 J**	0.110 U	0.0550 U	0.110 U
31SB-21-11	31SB-21-11-7-8	7	8	06/27/2022	**0.950**	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**2.50**	**16.0**	**0.440**	0.0500 U	**0.250 J**	**1.10**	0.0990 U	0.0500 U	0.0990 U
31SB-21-11	31SB-21-11-9-10	9	10	06/27/2022	**0.950**	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**1.70**	**8.40**	**0.290**	0.0480 U	**0.210 J**	**0.910**	0.0960 U	0.0480 U	0.0960 U
31SB-21-11 (FD)	AOC31-SB-21-11-30-31 DUP20	30	31	06/27/2022	**0.0970 J**	**0.0920 J**	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.780**	**0.0560 J**	0.0490 U	**7.10**	**0.390**	0.0970 U	0.0490 U	0.0970 U
31SB-21-11 (FD)	AOC31-SB-21-11-45-46 DUP21	45	46	06/27/2022	0.120 U	0.120 U	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.190 J**	0.120 U	0.0600 U	**1.40**	0.180 U	0.120 U	0.0600 U	0.120 U
31SB-21-12	31SB-21-12-0.5-1	0.5	1	06/28/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0340 J**	**0.360**	**0.0550 J**	0.100 U	0.0500 U	0.100 U
31SB-21-12	31SB-21-12-0-0.5	0	0.5	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.0800 J**	**0.120 J**	0.100 U	**0.0310 J**	0.100 U	**0.0260 J**	**0.310**	0.150 U	**0.0550 J**	**0.0770 J**	**0.140 J**
31SB-21-12	31SB-21-12-11-12	11	12	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**1.40**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-12	31SB-21-12-1-2	1	2	06/28/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.180 J**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-12	31SB-21-12-13-14	13	14	06/28/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0470 U	**0.480**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-12	31SB-21-12-15-16	15	16	06/28/2022	0.0930 U	0.0930 U	0.0930 U	0.0460 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0460 U	**0.0890 J**	0.140 U	0.0930 U	0.0460 U	0.0930 U
31SB-21-12	31SB-21-12-17-18	17	18	06/28/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.150 U	0.0990 UJ	0.0490 U	0.0990 U
31SB-21-12	31SB-21-12-19-20	19	20	06/28/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.150 U	0.0990 U	0.0490 U	0.0990 U
31SB-21-12	31SB-21-12-2-3	2	3	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.200 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-12	31SB-21-12-25-26	25	26	06/28/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-12	31SB-21-12-30-31	30	31	06/28/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-12	31SB-21-12-35-36	35	36	06/28/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.150 U	0.0990 UJ	0.0500 U	0.0990 U
31SB-21-12	31SB-21-12-40-41	40	41	06/28/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-12	31SB-21-12-45-46	45	46	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0460 J**	0.100 U	0.0510 U	0.100 U	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-12	31SB-21-12-50-51	50	51	06/28/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0700 J**	0.100 U	0.0520 U	0.100 U	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-12	31SB-21-12-55-56	55	56	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-12	31SB-21-12-5-6	5	6	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.270 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-12	31SB-21-12-58-59	58	59	06/28/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-12	31SB-21-12-7-8	7	8	06/28/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0490 U	**0.320**	0.150 U	0.0990 U	0.0490 U	0.0990 U
31SB-21-12	31SB-21-12-9-10	9	10	06/28/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.150 J**	0.150 U	0.100 U	0.0510 U	0.100 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-12 (FD)	AOC31SB-21-12-30-31 DUP24	30	31	06/28/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-12 (FD)	AOC31SB-21-12-50-51 DUP25	50	51	06/28/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0580 J**	0.110 U	0.0540 U	0.110 U	0.160 U	0.110 U	0.0540 U	0.110 U
31SB-21-13	31SB-21-13-0.5-1	0.5	1	06/29/2022	0.0950 U	**1.50**	0.0950 UJ	0.0470 UJ	0.0950 U	0.0950 U	0.0950 UJ	0.0950 U	**0.580**	0.0950 U	**0.0340 J**	**64.0**	**0.210 J**	0.0950 UJ	0.0470 U	0.0950 U
31SB-21-13	31SB-21-13-11-12	11	12	06/29/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.190 J**	**2.80**	**0.110 J**	**0.0630 J**	**0.300**	**0.220 J**	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-1-2	1	2	06/29/2022	**0.0360 J**	**2.80**	0.100 UJ	0.0500 UJ	0.100 U	0.100 U	0.100 U	**0.0680 J**	**0.670**	**0.0360 J**	**0.120 J**	**150**	**0.330**	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-13-14	13	14	06/29/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.570**	0.0970 U	0.0490 U	**0.0560 J**	**0.0640 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-13	31SB-21-13-15-16	15	16	06/29/2022	0.100 U	0.100 U	0.100 UJ	0.0520 UJ	0.100 U	0.100 U	0.100 UJ	0.100 U	**0.760**	0.100 U	0.0520 U	**0.230 J**	**0.210 J**	0.100 U	0.0520 U	0.100 UJ
31SB-21-13	31SB-21-13-17-18	17	18	06/29/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.490**	0.0990 U	0.0490 U	**0.250 J**	**0.170 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-13	31SB-21-13-19-20	19	20	06/29/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.190**	0.0960 U	0.0480 U	**0.0860 J**	**0.0630 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-13	31SB-21-13-2-3	2	3	06/29/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.490**	0.0980 U	**0.0490 J**	**12.0 J**	**0.190 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-13	31SB-21-13-25-26	25	26	06/29/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.330**	0.100 U	0.0500 U	**3.40**	**0.0840 J**	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-30-31	30	31	06/29/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.360**	0.100 U	0.0510 U	**4.90**	**0.110 J**	0.100 U	0.0510 U	0.100 U
31SB-21-13	31SB-21-13-35-36	35	36	06/29/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.570**	0.0940 U	0.0470 U	**2.80 J**	**0.120 J**	0.0940 U	0.0470 U	0.0940 U
31SB-21-13	31SB-21-13-40-41	40	41	06/29/2022	0.0910 U	0.0910 U	0.0910 U	0.0460 U	0.0910 U	0.0910 U	0.0910 U	0.0910 U	**0.610**	0.0910 U	0.0460 U	**2.90**	**0.140 J**	0.0910 U	0.0460 U	0.0910 U
31SB-21-13	31SB-21-13-45-46	45	46	06/29/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.960**	0.0960 U	0.0480 U	**6.30**	**0.180 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-13	31SB-21-13-50-51	50	51	06/29/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.220**	0.100 U	0.0500 U	**1.50**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-55-56	55	56	06/29/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0400 J**	**0.780**	**0.0490 J**	0.0500 U	**2.90**	**0.150 J**	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-5-6	5	6	06/29/2022	**0.0910 J**	**0.0800 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.310**	**25.0**	**0.150 J**	0.0500 U	**3.60**	**12.0**	0.100 U	0.0500 U	0.100 U
31SB-21-13	31SB-21-13-64-65	64	65	06/29/2022	**0.0420 J**	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.190 J**	0.0980 U	0.0490 U	**0.900 J**	**0.0660 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-13	31SB-21-13-7-8	7	8	06/29/2022	0.110 U	0.110 UJ	0.110 UJ	0.0560 UJ	0.110 U	0.110 UJ	0.110 UJ	**0.540**	**11.0**	**0.200 J**	0.0560 U	**7.20 J**	**0.550**	0.110 U	0.0560 U	0.110 UJ
31SB-21-13	31SB-21-13-9-10	9	10	06/29/2022	0.120 U	0.120 U	0.120 UJ	0.0590 UJ	0.120 U	0.120 U	0.120 U	**0.340**	**3.70**	**0.220 J**	0.0590 U	**0.200 J**	**0.430**	0.120 U	0.0590 U	0.120 U
31SB-21-13 (FD)	AOC31-SB-21-13-35-36 DUP28	35	36	06/29/2022	0.0920 U	0.0920 U	0.0920 U	0.0460 U	0.0920 U	0.0920 U	0.0920 U	0.0920 U	**0.890**	0.0920 U	0.0460 U	**6.00 J**	**0.170 J**	0.0920 U	0.0460 U	0.0920 U
31SB-21-13 (FD)	AOC31-SB-21-13-50-51 DUP29	50	51	06/29/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.210**	0.100 U	0.0510 U	**1.70**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-14	31SB-21-14-0.5-1	0	1	06/21/2022	0.100 U	**0.140 J**	0.100 U	0.0510 U	0.100 U	**0.140 J**	0.100 U	**0.0590 J**	**0.0300 J**	0.100 U	**0.0460 J**	**0.180 J**	**0.0950 J**	0.100 U	0.0510 U	0.100 U
31SB-21-14	31SB-21-14-11-12	11	12	06/21/2022	**0.0600 J**	**0.690**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.170 J**	**0.340**	**0.0390 J**	**0.200**	**14.0**	**0.580**	0.100 U	0.0510 U	0.100 U
31SB-21-14	31SB-21-14-1-2	1	2	06/21/2022	**0.0550 J**	**5.80**	0.100 U	0.0520 U	0.100 U	**0.520**	0.100 U	**0.430**	**0.160 J**	**0.0800 J**	**0.410**	**6.40**	**0.420**	0.100 U	0.0520 U	0.100 U
31SB-21-14	31SB-21-14-13-14	13	14	06/21/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	**0.0550 J**	**0.320**	0.0990 U	**0.0660 J**	**0.890**	**0.130 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-14	31SB-21-14-15-16	15	16	06/21/2022	0.100 U	**0.590**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0720 J**	**0.220**	**0.0410 J**	**0.110 J**	**8.00**	**0.150 J**	0.100 U	0.0500 U	0.100 U
31SB-21-14	31SB-21-14-17-18	17	18	06/21/2022	0.110 U	**0.420**	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.0600 J**	**0.350**	0.110 U	**0.0400 J**	**13.0**	**0.180 J**	0.110 U	0.0530 U	0.110 U
31SB-21-14	31SB-21-14-19-20	19	20	06/21/2022	**0.0620 J**	**0.710**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0910 J**	**0.620**	**0.0450 J**	**0.0590 J**	**19.0**	**0.360**	0.100 U	0.0520 U	0.100 U
31SB-21-14	31SB-21-14-2-3	2	3	06/21/2022	**0.0720 J**	**27.0**	0.110 U	0.0530 U	0.110 U	**0.410**	0.110 U	**0.480**	**0.270**	**0.0650 J**	**0.730**	**21.0**	**0.750**	0.110 U	0.0530 U	0.110 U
31SB-21-14	31SB-21-14-5-6	5	6	06/21/2022	0.100 U	**1.90**	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	**0.400**	**0.390**	**0.0990 J**	**0.390**	**57.0**	**0.640**	0.100 U	0.0510 U	0.100 U
31SB-21-14	31SB-21-14-7-8	7	8	06/21/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.170 J**	**0.370**	**0.0380 J**	**0.530**	**40.0**	**0.730**	0.110 U	0.0530 U	0.110 U
31SB-21-14	31SB-21-14-9-10	9	10	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	**0.260**	**0.630**	**0.0340 J**	0.0480 U	**0.780 J**	**0.950**	0.0970 U	0.0480 U	0.0970 U
31SB-21-15	31SB-21-15-0.5-1	0.5	1	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	**0.0830 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0560 J**	**0.420**	0.150 U	0.100 U	0.0500 U	**0.0460 J**
31SB-21-15	31SB-21-15-11-12	11	12	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0300 J**	0.100 U	0.0500 U	**0.380**	**0.0560 J**	0.100 U	0.0500 U	0.100 U
31SB-21-15	31SB-21-15-1-2	1	2	06/21/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.0580 J**	0.110 U	0.110 U	**0.110 J**	**6.50 J**	**0.170 J**	0.110 U	0.0530 U	0.110 U
31SB-21-15	31SB-21-15-13-14	13	14	06/21/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-15	31SB-21-15-15-16	15	16	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0450 J**	**0.0370 J**	0.0510 U	0.100 U	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-15	31SB-21-15-17-18	17	18	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.150 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-15	31SB-21-15-19-20	19	20	06/21/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.150 U	0.100 U	0.0520 U	0.100 U
31SB-21-15	31SB-21-15-2-3	2	3	06/21/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0320 J**	0.110 U	**0.0940 J**	**5.00 J**	**0.150 J**	0.110 U	0.0530 U	0.110 U
31SB-21-15	31SB-21-15-5-6	5	6	06/21/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0560 J**	**0.0730 J**	0.0520 U	**0.840**	**0.180 J**	0.100 U	0.0520 U	0.100 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-15	31SB-21-15-7-8	7	8	06/21/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0300 J**	0.0990 U	0.0500 U	0.0990 U	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-15	31SB-21-15-9-10	9	10	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0350 J**	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-15 (FD)	AOC31SB-21-15-1-2-DUP01	1	2	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	**0.0530 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.110 J**	**1.20 J**	**0.120 J**	0.100 U	0.0500 U	0.100 U
31SB-21-15 (FD)	AOC31SB-21-15-2-3-DUP02	2	3	06/21/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0480 J**	**0.0380 J**	**0.0670 J**	**0.0360 J**	**2.70 J**	**0.220 J**	0.100 U	0.0520 U	0.100 U
31SB-21-16	31SB-21-16-0.5-1	0.5	1	06/21/2022	0.0950 U	0.0950 U	0.0950 U	0.0470 U	0.0950 U	**0.160 J**	0.0950 U	**0.0360 J**	**0.0790 J**	**0.0590 J**	**0.0570 J**	**0.760**	**0.0530 J**	0.0950 U	0.0470 U	**0.0450 J**
31SB-21-16	31SB-21-16-11-12	11	12	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0780 J**	0.100 U	0.0510 U	**0.620**	**0.0630 J**	0.100 U	0.0510 U	0.100 U
31SB-21-16	31SB-21-16-1-2	1	2	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0610 J**	**0.0360 J**	**0.0430 J**	**0.680**	**0.0610 J**	0.100 U	0.0510 U	0.100 U
31SB-21-16	31SB-21-16-13-14	13	14	06/21/2022	0.0990 U	**1.70**	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.120 J**	0.0990 U	0.0490 U	**23.0**	**0.0690 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-16	31SB-21-16-15-16	15	16	06/21/2022	0.0960 U	**0.120 J**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.0700 J**	0.0960 U	0.0480 U	**5.00**	0.140 U	0.0960 U	0.0480 U	0.0960 U
31SB-21-16	31SB-21-16-17-18	17	18	06/21/2022	0.110 U	**0.820**	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0710 J**	0.110 U	0.0530 U	**10.0**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-16	31SB-21-16-19-20	19	20	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0480 J**	0.100 U	0.0500 U	**1.20**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-16	31SB-21-16-2-3	2	3	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.0540 J**	0.0970 U	**0.0430 J**	**2.10 J**	0.150 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-16	31SB-21-16-5-6	5	6	06/21/2022	**0.0340 J**	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.130 J**	**0.0440 J**	**0.0570 J**	**3.20**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-16	31SB-21-16-7-8	7	8	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.0610 J**	0.0970 U	**0.0270 J**	**1.80**	0.140 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-16	31SB-21-16-9-10	9	10	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.110 J**	0.100 U	0.0510 U	**1.00 J**	**0.0770 J**	0.100 U	0.0510 U	0.100 U
31SB-21-16 (FD)	AOC31SB-21-16-2-3-DUP03	2	3	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.0410 J**	0.0970 U	**0.0350 J**	**0.700 J**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-17	31SB-21-17-0.5-1	0.5	1	06/21/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	**0.0710 J**	0.100 U	**0.0440 J**	**0.0470 J**	**0.0700 J**	**0.0570 J**	**2.40 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-17	31SB-21-17-11-12	11	12	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.150 J**	0.100 U	0.0510 U	0.100 U	**0.110 J**	0.100 U	0.0510 U	0.100 U
31SB-21-17	31SB-21-17-1-2	1	2	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0400 J**	0.100 U	**0.0370 J**	**3.30**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-17	31SB-21-17-13-14	13	14	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.180 J**	0.100 U	0.0510 U	**0.770**	**0.130 J**	0.100 U	0.0510 U	0.100 U
31SB-21-17	31SB-21-17-15-16	15	16	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.420**	0.100 U	0.0500 U	**0.970**	**0.100 J**	0.100 U	0.0500 U	0.100 U
31SB-21-17	31SB-21-17-17-18	17	18	06/21/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.350**	0.0960 U	0.0480 U	0.0960 U	0.140 U	0.0960 U	0.0480 U	0.0960 U
31SB-21-17	31SB-21-17-19-20	19	20	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.260**	0.0970 U	0.0490 U	**1.10**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-17	31SB-21-17-2-3	2	3	06/21/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0330 J**	0.0940 U	0.0470 U	**0.750**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-17	31SB-21-17-5-6	5	6	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.130 J**	0.100 U	0.0510 U	**0.670**	**0.0780 J**	0.100 U	0.0510 U	0.100 U
31SB-21-17	31SB-21-17-7-8	7	8	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.990**	0.0980 U	0.0490 U	0.0980 U	**0.820**	0.0980 U	0.0490 U	0.0980 U
31SB-21-17	31SB-21-17-9-10	9	10	06/21/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0420 J**	**1.10**	0.0960 U	0.0480 U	0.0960 U	**0.360**	0.0960 U	0.0480 U	0.0960 U
31SB-21-17 (FD)	AOC31-SB-21-17-2-3-DUP04	2	3	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0310 J**	0.0980 U	**0.0350 J**	**3.60**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-18	31SB-21-18-0.5-1	0.5	1	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	**0.0550 J**	0.0980 U	0.0980 U	0.0980 U	**0.0460 J**	**0.110 J**	**5.00**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-18	31SB-21-18-11-12	11	12	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0470 J**	0.0980 U	0.0490 U	0.0980 U	**0.0560 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-18	31SB-21-18-1-2	1	2	06/21/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0430 J**	**0.0340 J**	0.0960 U	**0.180 J**	**12.0**	**0.0750 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-18	31SB-21-18-13-14	13	14	06/21/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0550 J**	0.0940 U	0.0470 U	0.0940 U	**0.0680 J**	0.0940 U	0.0470 U	0.0940 U
31SB-21-18	31SB-21-18-15-16	15	16	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0470 J**	0.100 U	0.0500 U	**0.140 J**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-18	31SB-21-18-17-18	17	18	06/21/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0900 J**	0.100 U	**0.0650 J**	**6.80**	**0.0600 J**	0.100 U	0.0510 U	0.100 U
31SB-21-18	31SB-21-18-19-20	19	20	06/21/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0580 J**	0.0940 U	0.0470 U	**0.350**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-18	31SB-21-18-2-3	2	3	06/21/2022	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.0730 J**	0.0950 U	**0.0650 J**	**5.80 J**	**0.0720 J**	0.0950 U	0.0480 U	0.0950 U
31SB-21-18	31SB-21-18-5-6	5	6	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0430 J**	**0.230**	**0.0360 J**	**0.0580 J**	**4.70**	**0.310**	0.100 U	0.0500 U	**0.0480 J**
31SB-21-18	31SB-21-18-7-8	7	8	06/21/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.320**	0.0990 U	0.0490 U	**0.150 J**	**0.110 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-18	31SB-21-18-9-10	9	10	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0450 J**	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-18 (FD)	AOC-31-SB-21-18-2-3-DUP05	2	3	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	**0.0970 J**	0.0970 U	**0.0510 J**	**0.0290 J**	**0.0340 J**	**0.0470 J**	**2.70 J**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-19	31SB-21-19-0.5-1	0.5	1	06/21/2022	0.120 U	0.120 U	0.120 U	0.0590 U	0.120 U	0.120 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.0580 J**	**8.40**	0.180 U	0.120 U	0.0590 U	0.120 U
31SB-21-19	31SB-21-19-11-12	11	12	06/21/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0760 J**	0.0990 U	**0.0270 J**	**4.90**	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-19	31SB-21-19-1-2	1	2	06/21/2022	0.0950 U	0.0950 U	0.0950 U	0.0470 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.0300 J**	0.0950 U	0.0470 U	**0.720**	0.140 U	0.0950 U	0.0470 U	0.0950 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-19	31SB-21-19-13-14	13	14	06/21/2022	**0.0370 J**	**0.370**	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0500 J**	**0.0810 J**	0.100 U	**0.0550 J**	**5.90**	**0.0570 J**	0.100 U	0.0520 U	0.100 U
31SB-21-19	31SB-21-19-15-16	15	16	06/21/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.120 J**	0.0970 U	0.0490 U	**1.70**	**0.100 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-19	31SB-21-19-17-18	17	18	06/21/2022	0.0950 U	**0.310**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.0620 J**	0.0950 U	0.0480 U	**2.50 J**	0.140 U	0.0950 U	0.0480 U	0.0950 U
31SB-21-19	31SB-21-19-19-20	19	20	06/21/2022	0.0980 U	**0.200**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0450 J**	**0.0680 J**	0.0980 U	0.0490 U	**3.60**	**0.0640 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-19	31SB-21-19-2-3	2	3	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.110 J**	**0.0490 J**	**0.0810 J**	**6.40**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-19	31SB-21-19-5-6	5	6	06/21/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.100 J**	0.0980 U	0.0490 U	**1.30**	**0.0890 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-19	31SB-21-19-7-8	7	8	06/21/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.0850 J**	0.0960 U	0.0480 U	0.0960 U	**0.0980 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-19	31SB-21-19-9-10	9	10	06/21/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.140 J**	0.100 U	**0.0340 J**	**7.50**	**0.0900 J**	0.100 U	0.0500 U	0.100 U
31SB-21-19 (FD)	AOC31-SB-21-19-2-3-DUP06	2	3	06/21/2022	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.0650 J**	**0.0300 J**	**0.0370 J**	**6.30**	0.140 U	0.0950 U	0.0480 U	0.0950 U
31SB-21-20	31SB-21-20-0.5-1	0.5	1	06/22/2022	0.0980 U	**0.0530 J**	0.0980 U	0.0490 U	0.0980 U	**0.170 J**	**0.0620 J**	**0.0440 J**	**0.140 J**	**0.0320 J**	**0.0430 J**	**1.00**	0.150 U	0.0980 U	0.0490 U	**0.300**
31SB-21-20	31SB-21-20-11-12	11	12	06/22/2022	0.290 U	**0.260**	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.950**	0.0950 U	**0.0500 J**	**73.0**	**0.100 J**	0.0950 U	0.0480 U	0.0950 U
31SB-21-20	31SB-21-20-1-2	1	2	06/22/2022	0.120 U	**0.0610 J**	0.120 U	0.0620 U	0.120 U	**0.400**	0.120 U	**0.0840 J**	**0.200 J**	**0.0500 J**	**0.140 J**	**4.60**	**0.0920 J**	0.120 U	0.0620 U	**0.220 J**
31SB-21-20	31SB-21-20-13-14	13	14	06/22/2022	0.300 U	**0.140 J**	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.670**	0.100 U	0.0500 U	**38.0**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-20	31SB-21-20-15-16	15	16	06/22/2022	0.300 U	**0.0960 J**	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.340**	**0.0450 J**	**0.0250 J**	**18.0**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-20	31SB-21-20-17-18	17	18	06/22/2022	0.110 U	**0.0790 J**	0.110 U	0.0560 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.210 J**	0.110 U	**0.0440 J**	**50.0**	0.170 U	0.110 U	0.0560 U	0.110 U
31SB-21-20	31SB-21-20-19-20	19	20	06/22/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.0510 J**	0.0970 U	0.0490 U	**5.60 J**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-20	31SB-21-20-2-3	2	3	06/22/2022	0.0930 U	0.0930 U	0.0930 U	0.0460 U	0.0930 U	0.0930 U	0.0930 U	**0.0450 J**	**0.180 J**	0.0930 U	**0.0890 J**	**4.60**	**0.0560 J**	0.0930 U	0.0460 U	0.0930 U
31SB-21-20	31SB-21-20-5-6	5	6	06/22/2022	0.0990 U	**0.0450 J**	0.0990 U	0.0500 U	0.0990 U	**0.110 J**	0.0990 U	**0.0490 J**	**0.240**	**0.0390 J**	**0.100 J**	**5.50**	**0.0760 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-20	31SB-21-20-7-8	7	8	06/22/2022	0.290 U	**0.550**	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0370 J**	**0.370**	**0.0330 J**	**0.0960 J**	**130**	**0.0830 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-20	31SB-21-20-9-10	9	10	06/22/2022	0.280 U	0.0920 U	0.0920 U	0.0460 U	0.0920 U	0.0920 U	0.0920 U	0.0920 U	**0.310**	0.0920 U	0.0460 U	**12.0**	0.140 U	0.0920 U	0.0460 U	0.0920 U
31SB-21-20 (FD)	AOC31-SB-21-20-2-3-DUP07	2	3	06/22/2022	0.300 U	**0.0810 J**	0.100 U	0.0500 U	0.100 U	**0.320**	0.100 U	**0.0980 J**	**0.260**	**0.0450 J**	**0.220**	**13.0**	**0.120 J**	0.100 U	0.0500 U	**0.0900 J**
31SB-21-21	31SB-21-21-0.5-1	0.5	1	06/22/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	**0.250**	0.0970 U	**0.0400 J**	**0.0660 J**	**0.0560 J**	**0.0940 J**	**2.00**	**0.0680 J**	0.0970 U	0.0490 U	**0.0720 J**
31SB-21-21	31SB-21-21-11-12	11	12	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0360 J**	0.0980 U	**0.0260 J**	**2.10**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-21	31SB-21-21-1-2	1	2	06/22/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0310 J**	**0.0890 J**	**4.50**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-21	31SB-21-21-13-14	13	14	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**1.20**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-21	31SB-21-21-15-16	15	16	06/22/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0480 U	**0.630**	0.140 U	0.0960 U	0.0480 U	0.0960 U
31SB-21-21	31SB-21-21-17-18	17	18	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.270 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-21	31SB-21-21-19-20	19	20	06/22/2022	**0.0310 J**	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0500 U	**0.140 J**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-21	31SB-21-21-2-3	2	3	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0430 J**	0.100 U	**0.0340 J**	**1.00**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-21	31SB-21-21-5-6	5	6	06/22/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0540 J**	0.0940 U	**0.0440 J**	**2.30**	0.140 U	0.0940 U	0.0470 U	**0.0420 J**
31SB-21-21	31SB-21-21-7-8	7	8	06/22/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0470 U	**0.540**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-21	31SB-21-21-9-10	9	10	06/22/2022	0.0920 U	0.0920 U	0.0920 U	0.0460 U	0.0920 U	0.0920 U	0.0920 U	0.0920 U	0.0920 U	0.0920 U	0.0460 U	**0.440**	0.140 U	0.0920 U	0.0460 U	0.0920 U
31SB-21-21 (FD)	AOC31-SB-21-21-2-3-DUP08	2	3	06/22/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	**0.0310 J**	0.0940 U	**0.0330 J**	**0.610**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-22	31SB-21-22-0.5-1	0.5	1	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	**0.0610 J**	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.180 J**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-22	31SB-21-22-0-0.5	0	0.5	06/22/2022	**0.0380 J**	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0720 J**	0.100 U	0.0510 U	**0.650**	**0.0580 J**	0.100 U	0.0510 U	0.100 U
31SB-21-22	31SB-21-22-11-12	11	12	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0400 J**	0.100 U	0.0510 U	**1.00**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-22	31SB-21-22-1-2	1	2	06/22/2022	0.100 U	**0.0390 J**	0.100 U	0.0510 U	0.100 U	**0.0690 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0480 J**	**0.450**	**0.0550 J**	0.100 U	0.0510 U	0.100 U
31SB-21-22	31SB-21-22-13-14	13	14	06/22/2022	0.0930 U	0.0930 U	0.0930 U	0.0470 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0470 U	0.0930 U	0.140 U	0.0930 U	0.0470 U	0.0930 U
31SB-21-22	31SB-21-22-15-16	15	16	06/22/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	**0.530**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-22	31SB-21-22-17-18	17	18	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.240 J**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-22	31SB-21-22-19-20	19	20	06/22/2022	0.0930 U	0.0930 U	0.0930 U	0.0460 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0930 U	0.0460 U	0.0930 U	0.140 U	0.0930 U	0.0460 U	0.0930 U
31SB-21-22	31SB-21-22-2-3	2	3	06/22/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	**0.0730 J**	0.110 U	**0.0480 J**	**0.0320 J**	0.110 U	**0.110 J**	**4.80 J**	**0.120 J**	0.110 U	0.0530 U	0.110 U
31SB-21-22	31SB-21-22-5-6	5	6	06/22/2022	**0.0430 J**	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0820 J**	0.100 U	**0.0370 J**	**2.20**	**0.0740 J**	0.100 U	0.0510 U	0.100 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-22	31SB-21-22-7-8	7	8	06/22/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0490 U	**0.210 J**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-22	31SB-21-22-9-10	9	10	06/22/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0490 U	**0.360**	0.150 U	0.0990 U	0.0490 U	0.0990 U
31SB-21-22 (FD)	AOC31-SB-21-22-2-3-DUP09	2	3	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	**0.150 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0410 J**	**0.860 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-23	31SB-21-23-0.5-1	0.5	1	06/22/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	**0.0720 J**	**0.0380 J**	0.0990 U	**0.0360 J**	0.0990 U	0.0490 U	**0.260 J**	0.150 U	0.0990 U	0.0490 U	**0.0930 J**
31SB-21-23	31SB-21-23-0-0.5	0	0.5	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0520 U	**0.0550 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-23	31SB-21-23-11-12	11	12	06/22/2022	**0.0320 J**	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	**0.0340 J**	0.0960 U	**0.0850 J**	0.0960 U	0.0480 U	**0.960**	**0.0590 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-23	31SB-21-23-1-2	1	2	06/22/2022	**0.0310 J**	0.110 U	0.110 U	0.0530 U	0.110 U	**0.170 J**	0.110 U	0.110 U	**0.120 J**	0.110 U	**0.0320 J**	**1.30**	**0.0610 J**	0.110 U	0.0530 U	0.110 U
31SB-21-23	31SB-21-23-13-14	13	14	06/22/2022	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	**0.180 J**	0.0950 U	0.0480 U	**0.440 J**	**0.0510 J**	0.0950 U	0.0480 U	0.0950 U
31SB-21-23	31SB-21-23-15-16	15	16	06/22/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.170 J**	0.100 U	0.0500 U	**0.640**	**0.0540 J**	0.100 U	0.0500 U	0.100 U
31SB-21-23	31SB-21-23-17-18	17	18	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.100 J**	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-23	31SB-21-23-19-20	19	20	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-23	31SB-21-23-2-3	2	3	06/22/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	**0.0510 J**	0.110 U	0.110 U	0.110 U	**0.0530 J**	**0.0810 J**	**7.40 J**	**0.140 J**	0.110 U	0.0530 U	0.110 U
31SB-21-23	31SB-21-23-5-6	5	6	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.0790 J**	0.100 U	0.100 U	**0.0740 J**	0.100 U	**0.0430 J**	**1.90**	0.150 U	0.100 U	0.0510 U	**0.0490 J**
31SB-21-23	31SB-21-23-7-8	7	8	06/22/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.160 J**	0.0970 U	**0.0530 J**	**21.0**	**0.0830 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-23	31SB-21-23-9-10	9	10	06/22/2022	**0.0280 J**	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0790 J**	0.0980 U	0.0490 U	**6.40**	**0.0520 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-23 (FD)	AOC31-SB-21-23-2-3-DUP10	2	3	06/22/2022	**0.0250 J**	0.0940 U	0.0940 U	0.0470 U	0.0940 U	**0.170 J**	0.0940 U	0.0940 U	**0.0750 J**	0.0940 U	**0.0290 J**	**0.830 J**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-24	31SB-21-24-0.5-1	0.5	1	06/22/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.0370 J**	**0.0360 J**	**0.0430 J**	**2.70**	0.170 U	0.120 U	0.0580 U	0.120 U
31SB-21-24	31SB-21-24-0-0.5	0	0.5	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	**0.0710 J**	**0.0510 J**	0.100 U	**0.0470 J**	0.100 U	**0.0720 J**	**7.20 J**	0.160 U	0.100 U	**0.0320 J**	**0.0590 J**
31SB-21-24	31SB-21-24-11-12	11	12	06/22/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.230**	0.0990 U	0.0500 U	**0.0930 J**	**0.0630 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-24	31SB-21-24-1-2	1	2	06/22/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0340 J**	0.110 U	**0.0360 J**	**3.00**	0.160 U	0.110 U	0.0540 U	0.110 U
31SB-21-24	31SB-21-24-13-14	13	14	06/22/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0600 J**	0.100 U	0.0500 U	0.100 U	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-24	31SB-21-24-15-16	15	16	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0880 J**	0.100 U	0.0510 U	**0.240 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-24	31SB-21-24-17-18	17	18	06/22/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0660 J**	0.0990 U	0.0500 U	**1.00**	**0.0760 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-24	31SB-21-24-19-20	19	20	06/22/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0940 U	0.0470 U	**0.0430 J**	0.140 U	0.0940 U	0.0470 U	0.0940 U
31SB-21-24	31SB-21-24-2-3	2	3	06/22/2022	0.120 U	0.120 U	0.120 U	0.0610 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.0600 J**	0.120 U	**0.0650 J**	**14.0 J**	0.180 U	0.120 U	0.0610 U	0.120 U
31SB-21-24 (FD)	31SB-21-24-2-3 DUP11	2	3	06/22/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.0520 J**	0.120 U	**0.0550 J**	**5.20 J**	0.170 U	0.120 U	0.0580 U	0.120 U
31SB-21-24	31SB-21-24-5-6	5	6	06/22/2022	0.110 U	0.110 U	0.110 U	0.0560 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0830 J**	**0.0520 J**	**0.0320 J**	**5.30**	**0.120 J**	0.110 U	0.0560 U	0.110 U
31SB-21-24	31SB-21-24-7-8	7	8	06/22/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.180 J**	0.0960 U	0.0480 U	0.0960 U	**0.210 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-24	31SB-21-24-9-10	9	10	06/22/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0410 J**	**0.440**	0.0960 U	0.0480 U	0.0960 U	**0.140 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-25	31SB-21-25-0.5-1	0.5	1	06/22/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0540 U	**0.150 J**	0.160 U	0.110 U	0.0540 U	0.110 U
31SB-21-25	31SB-21-25-0-0.5	0	0.5	06/22/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-25	31SB-21-25-11-12	11	12	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0660 J**	0.100 U	0.0520 U	**0.0600 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-25	31SB-21-25-1-2	1	2	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0720 J**	**0.0410 J**	**0.0660 J**	**1.90**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-25	31SB-21-25-13-14	13	14	06/22/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0400 J**	0.100 U	0.0510 U	0.100 U	0.150 U	0.100 UJ	0.0510 U	0.100 U
31SB-21-25	31SB-21-25-15-16	15	16	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0350 J**	0.100 U	0.0520 U	**0.120 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-25	31SB-21-25-17-18	17	18	06/22/2022	0.0940 U	0.0940 UJ	0.0940 U	0.0470 U	0.0940 U	0.0940 UJ	0.0940 U	0.0940 U	**0.0320 J**	0.0940 U	0.0470 U	0.0940 UJ	0.140 U	0.0940 UJ	0.0470 U	0.0940 U
31SB-21-25	31SB-21-25-19-20	19	20	06/22/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	0.150 U	0.0970 U	0.0480 U	0.0970 U
31SB-21-25	31SB-21-25-2-3	2	3	06/22/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0330 J**	**0.0380 J**	**0.710**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-25 (FD)	31SB-21-25-2-3 DUP12	2	3	06/22/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0360 J**	**0.0320 J**	0.0490 U	**0.340**	**0.120 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-25	31SB-21-25-5-6	5	6	06/22/2022	0.110 U	0.110 U	0.110 U	0.0570 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0570 U	**0.310 J**	0.170 U	0.110 U	0.0570 U	0.110 U
31SB-21-25	31SB-21-25-7-8	7	8	06/22/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0520 U	**0.150 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-25	31SB-21-25-9-10	9	10	06/22/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.0700 J**	0.0960 U	0.0480 U	0.0960 U	**0.0950 J**	0.0960 U	0.0480 U	0.0960 U
31SB-21-26	31SB-21-26-0.5-1	0.5	1	06/23/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	**0.0580 J**	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0460 J**	**0.640**	0.150 U	0.0990 U	0.0500 U	0.0990 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-26	31SB-21-26-0-0.5	0	0.5	06/23/2022	0.0940 U	0.0940 U	0.0940 U	0.0470 U	0.0940 U	**0.0570 J**	**0.0280 J**	0.0940 U	0.0940 U	0.0940 U	0.0470 U	**0.300**	0.140 U	0.0940 U	0.0470 U	**0.0490 J**
31SB-21-26	31SB-21-26-11-12	11	12	06/23/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0370 J**	**0.180 J**	0.0980 U	0.0490 U	**0.140 J**	**0.130 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-26	31SB-21-26-1-2	1	2	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.180 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0430 J**	**1.30**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-26	31SB-21-26-13-14	13	14	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0650 J**	**0.0430 J**	0.0500 U	**0.160 J**	**0.0750 J**	0.100 U	0.0500 U	0.100 U
31SB-21-26	31SB-21-26-15-16	15	16	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0640 J**	**0.0320 J**	**0.0400 J**	**2.00**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-26	31SB-21-26-17-18	17	18	06/23/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	**0.0370 J**	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-26	31SB-21-26-19-20	19	20	06/23/2022	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0480 U	0.0950 U	0.140 U	0.0950 U	0.0480 U	0.0950 U
31SB-21-26	31SB-21-26-2-3	2	3	06/23/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	**0.0670 J**	**3.70 J**	0.140 U	0.0960 UJ	0.0480 U	0.0960 U
31SB-21-26 (FD)	31SB-21-26-2-3 DUP13	2	3	06/23/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	**0.0990 J**	0.110 U	0.110 U	0.110 U	0.110 U	**0.0750 J**	**1.50 J**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-26	31SB-21-26-5-6	5	6	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	**0.0490 J**	**0.0460 J**	**0.0610 J**	**0.0960 J**	**4.00**	**0.110 J**	0.100 U	0.0500 U	0.100 U
31SB-21-26	31SB-21-26-7-8	7	8	06/23/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.500**	**0.240**	0.0530 U	0.110 U	0.160 U	0.110 UJ	0.0530 U	0.110 U
31SB-21-26	31SB-21-26-9-10	9	10	06/23/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	**0.0820 J**	**0.130 J**	**2.60 J**	0.0480 U	**5.60**	**0.200 J**	0.0960 UJ	0.0480 U	0.0960 U
31SB-21-27	31SB-21-27-0.5-1	0.5	1	06/23/2022	0.0970 U	0.0970 U	0.0970 U	0.0480 U	0.0970 U	**0.130 J**	0.0970 U	**0.0400 J**	**0.0360 J**	0.0970 U	**0.0520 J**	**1.10**	0.140 U	0.0970 U	0.0480 U	**0.0450 J**
31SB-21-27	31SB-21-27-0-0.5	0	0.5	06/23/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	**0.150 J**	**0.0610 J**	**0.0920 J**	**0.140 J**	**0.0630 J**	**0.0770 J**	**1.30**	**0.0860 J**	0.110 U	0.0540 U	**0.160 J**
31SB-21-27	31SB-21-27-11-12	11	12	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.180 J**	0.100 U	0.0510 U	0.100 U	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-27	31SB-21-27-1-2	1	2	06/23/2022	0.0980 UJ	0.0980 UJ	0.0980 UJ	0.0490 UJ	0.0980 UJ	**0.190 J**	0.0980 UJ	**0.0560 J**	**0.0370 J**	0.0980 UJ	**0.100 J**	**3.00 J**	0.150 UJ	0.0980 UJ	0.0490 UJ	0.0980 UJ
31SB-21-27	31SB-21-27-13-14	13	14	06/23/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	**0.550**	0.0970 U	0.0490 U	**7.80 J**	**0.0580 J**	0.0970 U	0.0490 U	0.0970 U
31SB-21-27	31SB-21-27-15-16	15	16	06/23/2022	0.120 U	0.120 U	0.120 U	0.0600 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.280**	**0.0480 J**	**0.0280 J**	**1.80**	0.180 U	0.120 U	0.0600 U	0.120 U
31SB-21-27	31SB-21-27-17-18	17	18	06/23/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	0.120 U	**0.640**	0.120 U	0.0580 U	**1.00 J**	0.170 U	0.120 U	0.0580 U	0.120 U
31SB-21-27	31SB-21-27-19-20	19	20	06/23/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0810 J**	0.100 U	0.0520 U	**0.0970 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-27	31SB-21-27-2-3	2	3	06/23/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	**0.0390 J**	**0.0760 J**	0.0980 U	**0.0840 J**	**9.20 J**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-27 (FD)	31SB-21-27-2-3 DUP14	2	3	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.180 J**	0.100 U	**0.120 J**	**0.0690 J**	**0.0410 J**	**0.110 J**	**3.30 J**	**0.0740 J**	0.100 U	0.0510 U	0.100 U
31SB-21-27	31SB-21-27-5-6	5	6	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	**0.110 J**	0.100 U	**0.0530 J**	**0.120 J**	**0.0400 J**	**0.0860 J**	**4.20**	**0.0660 J**	0.100 U	0.0500 U	**0.0610 J**
31SB-21-27	31SB-21-27-7-8	7	8	06/23/2022	0.120 UJ	0.120 UJ	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.360**	**0.620**	**0.870**	0.0580 U	**1.10 J**	**0.380**	0.120 U	0.0580 U	0.120 U
31SB-21-27	31SB-21-27-9-10	9	10	06/23/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.640**	**0.0490 J**	0.0490 U	0.0990 U	0.150 U	0.0990 U	0.0490 U	0.0990 U
31SB-21-28	31SB-21-28-0.5-1	0.5	1	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	**0.0870 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0360 J**	**0.120 J**	0.150 U	0.100 U	0.0510 U	**0.0450 J**
31SB-21-28	31SB-21-28-0-0.5	0	0.5	06/23/2022	0.130 U	0.130 U	0.130 U	0.0670 U	0.130 U	0.130 U	**0.0730 J**	0.130 U	0.130 U	0.130 U	0.0670 U	**0.0740 J**	0.200 U	0.130 U	**0.0370 J**	**0.0610 J**
31SB-21-28	31SB-21-28-11-12	11	12	06/23/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.210**	0.100 U	0.0520 U	0.100 U	**0.110 J**	0.100 U	0.0520 U	0.100 U
31SB-21-28	31SB-21-28-1-2	1	2	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	**0.0690 J**	0.100 U	0.100 U	0.100 U	0.100 U	**0.0840 J**	**0.720**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-28	31SB-21-28-13-14	13	14	06/23/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.150 J**	0.110 U	0.0530 U	**0.690**	**0.120 J**	0.110 U	0.0530 U	0.110 U
31SB-21-28	31SB-21-28-15-16	15	16	06/23/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.110 J**	**0.270**	**0.0500 J**	**0.0260 J**	**1.60**	**0.210 J**	0.120 U	0.0580 U	0.120 U
31SB-21-28	31SB-21-28-17-18	17	18	06/23/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	**0.0940 J**	**0.350**	0.110 U	**0.0230 J**	**2.40**	**0.310 J**	0.110 U	0.0530 U	0.110 U
31SB-21-28	31SB-21-28-19-20	19	20	06/23/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.150 J**	0.100 U	**0.0250 J**	**2.00**	**0.150 J**	0.100 U	0.0520 U	0.100 U
31SB-21-28	31SB-21-28-2-3	2	3	06/23/2022	0.120 U	0.120 U	0.120 U	0.0580 U	0.120 U	0.120 U	0.120 U	**0.0940 J**	**0.0930 J**	**0.100 J**	**0.0490 J**	**5.60 J**	**0.150 J**	0.120 U	0.0580 U	0.120 U
31SB-21-28 (FD)	31SB-21-28-2-3 DUP15	2	3	06/23/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0240 J**	**0.400 J**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-28	31SB-21-28-5-6	5	6	06/23/2022	0.110 U	0.110 U	0.110 U	0.0560 U	0.110 U	0.110 U	0.110 U	0.110 U	**0.0690 J**	**0.0570 J**	0.0560 U	0.110 U	**0.110 J**	0.110 U	0.0560 U	0.110 U
31SB-21-28	31SB-21-28-7-8	7	8	06/23/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0770 J**	0.100 U	0.0510 U	0.100 U	**0.0830 J**	0.100 U	0.0510 U	0.100 U
31SB-21-28	31SB-21-28-9-10	9	10	06/23/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0890 J**	0.100 U	0.0500 U	0.100 U	**0.0710 J**	0.100 U	0.0500 U	0.100 U
31SB-21-29	31SB-21-29-0-2	0	2	11/16/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	**0.150 J**	0.100 U	**0.0590 J**	**0.0330 J**	**0.0530 J**	**0.100 J**	**2.30**	**0.0750 J**	0.100 U	**0.0250 J**	**0.0530 J**
31SB-21-29	31SB-21-29-2-4	2	4	11/16/2022	0.110 U	0.110 U	0.110 U	0.0540 U	0.110 U	0.110 U	0.110 U	**0.110 J**	0.110 U	**0.170 J**	**0.420**	**2.50**	**0.240 J**	0.110 U	0.0540 U	0.110 U
31SB-21-29	31SB-21-29-4-6	4	6	11/16/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	**0.0640 J**	**0.140 J**	**0.150 J**	**0.0590 J**	**0.910**	**0.170 J**	0.0990 U	0.0500 U	0.0990 U
31SB-21-29	31SB-21-29-6-8	6	8	11/16/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.510**	0.0990 U	0.0500 U	0.0990 U	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-29	31SB-21-29-8-10	8	10	11/16/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.260**	0.100 U	0.0510 U	0.100 U	0.150 U	0.100 U	0.0510 U	0.100 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (µg/kg)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31SB-21-30	31SB-21-30-0-2	0	2	11/16/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	**0.0960 J**	0.110 U	0.110 U	0.110 U	0.110 U	**0.0480 J**	**0.260 J**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-30	31SB-21-30-2-4	2	4	11/16/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	**0.0980 J**	**0.0330 J**	**0.0980 J**	**0.0330 J**	**3.50**	**0.500**	0.100 U	0.0520 U	0.100 U
31SB-21-30	31SB-21-30-4-6	4	6	11/16/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	**0.0410 J**	**0.0470 J**	0.100 U	**0.0850 J**	0.0520 U	**0.470 J**	**0.0730 J**	0.100 U	**0.0260 J**	**0.0510 J**
31SB-21-30	31SB-21-30-6-8	6	8	11/16/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-30 (FD)	31SB-21-30-6-8-DUP08	6	8	11/16/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-30	31SB-21-30-8-10	8	10	11/16/2022	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0960 U	0.0480 U	0.0960 U	0.140 U	0.0960 U	0.0480 U	0.0960 U
31SB-21-31	31SB-21-31-10-12	10	12	11/17/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.800 J**	**0.0520 J**	0.0980 U	0.0490 U	0.0980 U
31SB-21-31 (FD)	31SB-21-31-10-12-DUP09	10	12	11/17/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	**0.680**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-31	31SB-21-31-12-14	12	14	11/17/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0350 J**	0.100 U	0.0510 U	**0.800**	**0.0750 J**	0.100 U	0.0510 U	0.100 U
31SB-21-31	31SB-21-31-14-16	14	16	11/17/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0420 J**	0.100 U	0.0500 U	0.100 U	**0.0710 J**	0.100 U	0.0500 U	0.100 U
31SB-21-31	31SB-21-31-16-18	16	18	11/17/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0360 J**	0.100 U	0.0520 U	**0.960**	**0.0610 J**	0.100 U	0.0520 U	0.100 U
31SB-21-31	31SB-21-31-18-20	18	20	11/17/2022	0.0990 U	0.0990 U	0.0990 U	0.0490 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	**0.0470 J**	0.0990 U	0.0490 U	0.0990 U	**0.0570 J**	0.0990 U	0.0490 U	0.0990 U
31SB-21-32	31SB-21-32-0-2	0	2	11/16/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.100 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-32	31SB-21-32-10-12	10	12	11/16/2022	0.110 U	0.110 U	0.110 U	0.0530 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.0530 U	**0.410**	0.160 U	0.110 U	0.0530 U	0.110 U
31SB-21-32	31SB-21-32-12-14	12	14	11/16/2022	0.0950 U	0.0950 U	0.0950 U	0.0470 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0950 U	0.0470 U	**0.340**	0.140 U	0.0950 U	0.0470 U	0.0950 U
31SB-21-32	31SB-21-32-14-16	14	16	11/16/2022	0.100 U	0.100 U	0.100 U	0.0510 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0510 U	**0.230 J**	0.150 U	0.100 U	0.0510 U	0.100 U
31SB-21-32	31SB-21-32-16-18	16	18	11/16/2022	0.100 U	0.100 U	0.100 U	0.0520 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0520 U	**0.470**	0.160 U	0.100 U	0.0520 U	0.100 U
31SB-21-32 (FD)	31SB-21-32-16-18-DUP07	16	18	11/16/2022	0.0990 U	0.0990 U	0.0990 U	0.0500 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0990 U	0.0500 U	**0.230 J**	0.150 U	0.0990 U	0.0500 U	0.0990 U
31SB-21-32	31SB-21-32-18-20	18	20	11/16/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0490 U	**1.40**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-32	31SB-21-32-2-4	2	4	11/16/2022	0.100 U	0.100 U	0.100 U	0.0500 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0270 J**	**0.280 J**	0.150 U	0.100 U	0.0500 U	0.100 U
31SB-21-32	31SB-21-32-4-6	4	6	11/16/2022	0.0970 U	0.0970 U	0.0970 U	0.0490 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0970 U	0.0490 U	**0.210 J**	0.150 U	0.0970 U	0.0490 U	0.0970 U
31SB-21-32	31SB-21-32-6-8	6	8	11/16/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.510**	0.150 U	0.0980 U	0.0490 U	0.0980 U
31SB-21-32	31SB-21-32-8-10	8	10	11/16/2022	0.0980 U	0.0980 U	0.0980 U	0.0490 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0980 U	0.0490 U	**0.480**	0.150 U	0.0980 U	0.0490 U	0.0980 U

Notes:
Detects are displayed in bold font

Acronyms and Abbreviations:
µg/kg = micrograms per kilogram

Qualifiers:
J Estimated Value
U Undetected: The analyte was analyzed for, but not detected.
UJ The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

PFAS Remedial Investigation
Supplemental Data (Groundwater)
AOC 31
Former Fort Devens, Massachusetts

ARCADIS

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (ng/L)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfona-midoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfona-midoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
31VP-21-01	31VP-21-01-68-72	68	72	07/06/2022	**15.0**	**17.0**	0.850 U	0.850 U	**0.940 J**	0.850 U	0.850 U	**4.60**	**19.0**	**14.0**	**0.620 J**	**120**	**12.0**	1.30 U	1.30 U	1.30 U
31VP-21-02	31VP-21-02-68-72	68	72	07/06/2022	**5.70**	**17.0**	0.890 U	0.890 U	**1.50 J**	0.890 U	0.890 U	**11.0**	**180**	**96.0**	**2.00**	**420**	**41.0**	1.30 U	1.30 U	1.30 U
31VP-21-03	31VP-21-03-68-72	68	72	07/05/2022	**1.50 J**	**1.50 J**	0.890 U	0.890 U	**0.880 J**	0.890 U	0.890 U	**5.00**	**18.0**	**7.90**	**0.600 J**	**37.0**	**13.0**	1.30 U	1.30 U	1.30 U
31VP-21-04	31VP-21-04-68-72	68	72	06/30/2022	**12.0**	**110**	0.870 U	0.870 U	**2.20**	0.870 U	0.870 U	**5.20**	**26.0**	**16.0**	**0.870 J**	**210**	**12.0**	1.30 U	1.30 U	1.30 U
31VP-21-05	31VP-21-05-68-72	68	72	07/01/2022	**300**	**200**	0.880 U	0.880 U	**4.60**	**0.870 J**	0.880 U	**91.0**	**870**	**120**	**3.30**	**4,300**	**250**	1.30 U	1.30 U	1.30 U
31VP-21-05 (FD)	AOC31VP-21-05-6872 DUP02	68	72	07/01/2022	**260**	**200**	0.870 U	0.870 U	**5.30**	0.870 U	0.870 U	**88.0**	**710**	**150**	**3.40**	**3,900**	**240**	1.30 U	1.30 U	1.30 U
31VP-21-06	31VP-21-06-68-72	68	72	06/30/2022	**3.50 J**	**87.0**	0.930 U	0.930 U	**3.80**	0.930 U	0.930 U	**8.10**	**35.0**	**38.0**	1.40 U	**540**	**7.30**	1.40 U	1.40 U	1.40 U
31VP-21-07	31VP-21-07-66-70	66	70	06/24/2022	**1.40 J**	**3.80**	0.900 U	0.900 U	0.900 U	**1.90 J**	0.900 U	**4.70**	**22.0**	**8.00**	**1.90**	**130**	**10.0**	1.40 U	1.40 U	1.40 U
31VP-21-08	31VP-21-08-66-70	66	70	06/28/2022	**0.400 J**	**1.60 J**	0.880 U	0.880 U	0.880 U	**0.870 J**	0.880 U	**7.50**	**30.0 J**	**21.0**	**0.600 J**	**87.0**	**8.20**	1.30 U	1.30 U	1.30 U
31VP-21-08 (FD)	AOC31VP-21-08-66-70DUP1	66	70	06/28/2022	**0.660 J**	**1.90**	0.950 U	0.950 U	0.950 U	**1.30 J**	0.950 U	**6.10**	**16.0 J**	**16.0**	**0.710 J**	**67.0**	**8.60**	1.40 U	1.40 U	1.40 U
31VP-21-09	31VP-21-09-68-72	68	72	06/29/2022	**2.50 J**	**110**	0.920 U	0.920 U	**3.70**	0.920 U	0.920 U	**15.0**	**74.0**	**24.0**	**1.10 J**	**1,200**	**18.0**	1.40 U	1.40 U	1.40 U
31VP-21-10	31VP-21-10-66-70	66	70	06/24/2022	**1.30 J**	**0.750 J**	**0.710 J**	1.00 U	**9.80**	**2.20**	1.00 U	**2.30**	**5.90**	**11.0**	**1.10 J**	**12.0**	**8.30**	1.50 U	1.50 U	1.50 U
31VP-21-11	31VP-21-11-66-70	66	70	06/27/2022	**0.990 J**	**2.50**	0.880 U	0.880 U	**4.60**	**1.30 J**	0.880 U	**6.50**	**4.70**	**9.30**	**0.770 J**	**41.0**	**7.80**	1.30 U	1.30 U	1.30 U
31VP-21-12	31VP-21-12-66-70	66	70	06/28/2022	0.910 U	1.40 U	0.910 U	0.910 U	0.910 U	0.910 U	0.910 U	**1.90**	**11.0**	**6.70**	1.40 U	**7.80 J**	**3.50**	1.40 U	1.40 U	1.40 U
31VP-21-13	31VP-21-13-68-72	68	72	06/29/2022	**84.0**	**31.0**	0.840 U	0.840 U	**7.10**	0.840 U	0.840 U	**36.0**	**310**	**48.0**	**2.40**	**710**	**120**	1.30 U	1.30 U	1.30 U
AFT-A-1	31VP-AFT-A-1-108-112	108	112	07/08/2022	**51.0**	1.40 U	0.910 U	0.910 U	**25.0**	0.910 U	0.910 U	**65.0**	**1,700**	**530**	**1.70 J**	**530**	**1,100**	1.40 U	1.40 U	1.40 U
AFT-A-1	31VP-AFT-A-1-118-122	118	122	07/11/2022	**15.0**	**8.90**	1.30 U	1.30 U	**87.0**	**0.760 J**	1.30 U	**140**	**4,700**	**2,000**	**7.10**	**1,000**	**2,800**	2.00 U	2.00 U	2.00 U
AFT-A-1	31VP-AFT-A-1-128-132	128	132	07/11/2022	**6.40**	**0.910 J**	1.20 U	1.20 U	**25.0**	1.20 U	1.20 U	**18.0**	**390**	**68.0**	**1.20 J**	**530**	**140**	1.80 U	1.80 U	1.80 U
AFT-A-1	31VP-AFT-A-1-138-142	138	142	07/12/2022	**2.60 J**	1.80 U	1.20 U	1.20 U	**38.0**	1.20 U	1.20 U	**22.0**	**490**	**77.0**	**0.750 J**	**220**	**170**	1.80 U	1.80 U	1.80 U
AFT-A-1	31VP-AFT-A-1-148-152	148	152	07/12/2022	1.00 U	1.60 U	1.00 U	1.00 U	**1.10 J**	1.00 U	1.00 U	**1.90 J**	**53.0 J**	**12.0**	1.60 U	**8.10**	**25.0**	1.60 U	1.60 U	1.60 U
AFT-A-1	31VP-AFT-A-1-158-162	158	162	07/13/2022	3.50 U	5.30 U	3.50 U	3.50 U	3.50 U	3.50 U	3.50 U	3.50 U	**27.0**	**7.50**	5.30 U	**18.0**	**18.0**	5.30 U	5.30 U	5.30 U
AFT-A-1	31VP-AFT-A-1-68-72	68	72	07/07/2022	**3.00 J**	**5.80**	1.20 U	1.20 U	**0.910 J**	1.20 U	1.20 U	**2.40 J**	**17.0**	**13.0**	1.90 U	**37.0**	**2.10 J**	1.90 U	1.90 U	1.90 U
AFT-A-1	31VP-AFT-A-1-78-82	78	82	07/07/2022	**0.420 J**	1.60 U	1.00 U	1.00 U	**0.550 J**	1.00 U	1.00 U	**2.90**	**6.40**	**3.50**	1.60 U	**4.80**	**4.20**	1.60 U	1.60 U	1.60 U
AFT-A-1	31VP-AFT-A-1-88-92	88	92	07/08/2022	**1.20 J**	**1.90 J**	1.00 U	1.00 U	**0.570 J**	1.00 U	1.00 U	**1.50 J**	**17.0**	**6.70**	1.60 U	**11.0**	**15.0**	1.60 U	1.60 U	1.60 U
AFT-A-1	31VP-AFT-A-1-98-102	98	102	07/08/2022	**8.80**	**4.70**	1.10 U	1.10 U	**25.0**	**0.830 J**	1.10 U	**170**	**3,100**	**430**	1.70 U	**37.0**	**1,200**	1.70 U	1.70 U	1.70 U
AFT-A-2	31VP-AFT-A-2-108-112	108	112	07/14/2022	**400**	**8.60**	1.50 U	1.50 U	**47.0**	1.50 U	1.50 U	**140**	**3,100**	**1,400**	**4.60**	**1,300**	**3,600**	2.30 U	2.30 U	2.30 U
AFT-A-2	31VP-AFT-A-2-118-122	118	122	07/15/2022	**96.0**	**22.0**	0.940 U	0.940 U	**34.0**	**0.560 J**	0.940 U	**72.0**	**1,800**	**540**	**8.00**	**2,000**	**1,200**	1.40 U	1.40 U	1.40 U
AFT-A-2	31VP-AFT-A-2-128-132	128	132	07/15/2022	**38.0**	**10.0**	1.60 U	1.60 U	**100**	**0.600 J**	1.60 U	**160**	**3,400**	**1,500**	**7.70**	**1,700**	**2,300**	2.40 U	2.40 U	2.40 U
AFT-A-2	31VP-AFT-A-2-138-142	138	142	07/18/2022	**4.00 J**	**0.980 J**	1.30 U	1.30 U	**37.0**	1.30 U	1.30 U	**23.0**	**440**	**100**	**1.10 J**	**200**	**190**	1.90 U	1.90 U	1.90 U
AFT-A-2	31VP-AFT-A-2-148-152	148	152	07/18/2022	**3.00 J**	2.90 U	1.90 U	1.90 U	**15.0**	1.90 U	1.90 U	**10.0**	**180**	**54.0**	2.90 U	**47.0**	**100**	2.90 U	2.90 U	2.90 U
AFT-A-2	31VP-AFT-A-2-158-162	158	162	07/19/2022	**3.60 J**	3.70 U	2.40 U	2.40 U	2.40 U	2.40 U	2.40 U	**1.60 J**	**34.0**	**15.0**	3.70 U	**14.0**	**43.0**	3.70 U	3.70 U	3.70 U
AFT-A-2	31VP-AFT-A-2-168-172	168	172	07/19/2022	**10.0**	**1.30 J**	1.50 U	1.50 U	**14.0**	1.50 U	1.50 U	**15.0**	**220**	**90.0**	2.30 U	**130**	**150**	2.30 U	2.30 U	2.30 U
AFT-A-2	31VP-AFT-A-2-178-182	178	182	07/20/2022	**19.0**	**1.60 J**	1.20 U	1.20 U	**29.0**	1.20 U	1.20 U	**32.0**	**550**	**170**	**0.930 J**	**240**	**420**	1.70 U	1.70 U	1.70 U
AFT-A-2	31VP-AFT-A-2-187-191	197	191	07/20/2022	**32.0**	**1.20 J**	0.850 U	0.850 U	**54.0**	0.850 U	0.850 U	**50.0**	**500**	**170**	**1.70**	**500**	**260**	1.30 U	1.30 U	1.30 U
AFT-A-2	31VP-AFT-A-2-68-72	68	72	07/13/2022	0.980 U	1.50 U	0.980 U	0.980 U	**0.680 J**	0.980 U	0.980 U	**2.40**	**7.20**	**4.10**	1.50 U	**1.10 J**	**2.40**	1.50 U	1.50 U	1.50 U
AFT-A-2	31VP-AFT-A-2-78-82	78	82	07/14/2022	1.00 U	1.50 U	1.00 U	1.00 U	**1.10 J**	1.00 U	1.00 U	**3.70**	**8.60**	**8.00**	1.50 U	**2.60**	**4.20**	1.50 U	1.50 U	1.50 U
AFT-A-2	31VP-AFT-A-2-88-92	88	92	07/14/2022	0.960 U	1.40 U	0.960 U	0.960 U	**3.10**	0.960 U	0.960 U	**3.40**	**120**	**38.0**	1.40 U	1.40 U	**73.0**	1.40 U	1.40 U	1.40 U
AFT-A-2	31VP-AFT-A-2-98-102	98	102	07/14/2022	**17.0**	1.40 U	0.960 U	0.960 U	**31.0**	0.960 U	0.960 U	**78.0**	**3,700**	**620**	1.40 U	1.40 U	**2,300**	1.40 U	1.40 U	1.40 U
AFT-A-2 (FD)	AOC31VP-AFT-A-2-178-182-DUP04	178	182	07/20/2022	**18.0**	**1.70 J**	1.20 U	1.20 U	**31.0**	1.20 U	1.20 U	**32.0**	**630**	**190**	**0.930 J**	**220**	**500**	1.80 U	1.80 U	1.80 U
AFT-A-2 (FD)	AOC31VP-AFT-A-2-98-102-DUP03	98	102	07/14/2022	**16.0**	1.40 U	0.930 U	0.930 U	**30.0**	0.930 U	0.930 U	**77.0**	**3,600**	**630**	1.40 U	1.40 U	**2,800**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-108-112	108	112	07/22/2022	**560**	1.30 U	0.860 U	0.860 U	**57.0**	0.860 U	0.860 U	**220**	**4,000**	**1,000**	**1.20 J**	**1,400 J**	**3,900**	1.30 U	1.30 U	1.30 U
AFT-A-3	31VP-AFT-A-3-118-122	118	122	07/22/2022	**190**	**16.0**	0.850 U	0.850 U	**37.0**	**0.340 J**	0.850 U	**88.0**	**1,400**	**620**	**9.10**	**1,600**	**1,100**	1.30 U	1.30 U	1.30 U
AFT-A-3	31VP-AFT-A-3-128-132	128	132	07/22/2022	**71.0**	**2.30**	0.920 U	0.920 U	**140**	**0.350 J**	0.920 U	**200**	**3,700**	**1,800**	**5.80**	**1,100**	**3,700**	1.40 U	1.40 U	1.40 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (ng/L)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfona-midoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfona-midoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
AFT-A-3	31VP-AFT-A-3-138-142	138	142	07/26/2022	**5.50**	1.40 U	0.910 U	0.910 U	**25.0**	0.910 U	0.910 U	**21.0**	**460**	**71.0**	**1.30 J**	**360**	**150**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-148-152	148	152	07/26/2022	**3.70 J**	1.50 U	0.970 U	0.970 U	**38.0**	0.970 U	0.970 U	**25.0**	**590**	**100**	**0.670 J**	**180**	**240**	1.50 U	1.50 U	1.50 U
AFT-A-3	31VP-AFT-A-3-158-162	158	162	07/27/2022	**6.80**	1.40 U	0.910 U	0.910 U	**9.60**	0.910 U	0.910 U	**9.50**	**240**	**67.0**	1.40 U	**49.0**	**200**	1.40 U	1.40 U	1.40 U
AFT-A-3 (FD)	31VP-AFT-A-3-158-162-DUP05	158	162	07/27/2022	**6.90**	1.40 U	0.920 U	0.920 U	**8.70**	0.920 U	0.920 U	**11.0**	**240**	**69.0**	1.40 U	**50.0**	**190**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-168-172	168	172	07/27/2022	**5.40**	**1.20 J**	0.950 U	0.950 U	**9.50 J**	**0.310 J**	0.950 U	**42.0**	**170**	**85.0**	1.40 U	**19.0**	**160**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-178-182	178	182	07/28/2022	**7.70**	**1.30 J**	0.960 U	0.960 U	**17.0 J**	**1.50 J**	0.960 U	**22.0**	**670**	**160**	**1.10 J**	**36.0**	**790**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-183-187	183	187	07/28/2022	**33.0**	**0.640 J**	0.960 U	0.960 U	**20.0**	0.960 U	0.960 U	**68.0**	**2,000**	**610**	1.40 U	**83.0**	**3,000**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-68-72	68	72	07/21/2022	4.60 U	1.40 U	0.910 U	0.910 U	**0.800 J**	0.910 U	0.910 U	**3.10**	**12.0**	**5.00**	1.40 U	**0.660 J**	**5.90**	1.40 U	1.40 U	1.40 U
AFT-A-3	31VP-AFT-A-3-78-82	78	82	07/21/2022	**8.00**	1.30 U	0.850 U	0.850 U	**5.40**	0.850 U	0.850 U	**21.0**	**91.0**	**64.0**	1.30 U	1.30 U	**210**	1.30 U	1.30 U	1.30 U
AFT-A-3	31VP-AFT-A-3-88-92	88	92	07/21/2022	**20.0**	1.30 U	0.850 U	0.850 U	**5.50**	0.850 U	0.850 U	**59.0**	**230**	**87.0**	1.30 U	1.30 U	**370**	1.30 U	1.30 U	1.30 U
AFT-A-3	31VP-AFT-A-3-98-102	98	102	07/22/2022	**12.0**	1.40 U	0.910 U	0.910 U	**98.0**	0.910 U	0.910 U	**230**	**11,000**	**2,700**	1.40 U	1.40 U	**15,000**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-108-112	108	112	08/01/2022	**140**	**0.900 J**	1.20 U	1.20 U	**31.0**	**0.520 J**	1.20 U	**100**	**2,200**	**640**	**0.930 J**	**210**	**3,200**	1.80 U	1.80 U	1.80 U
AFT-A-4	31VP-AFT-A-4-118-122	118	122	08/01/2022	**87.0**	**14.0**	0.940 U	0.940 U	**52.0**	**0.700 J**	0.940 U	**87.0**	**1,100**	**470**	**7.50**	**1,300**	**680**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-128-132	128	132	08/01/2022	**19.0**	1.40 U	0.940 U	0.940 U	**44.0**	0.940 U	0.940 U	**35.0**	**540**	**130**	**0.800 J**	**590**	**280**	1.40 U	1.40 U	1.40 U
AFT-A-4 (FD)	31VP-AFT-A-4-128-132-DUP06	128	132	08/01/2022	**22.0**	1.40 U	0.950 U	0.950 U	**47.0**	0.950 U	0.950 U	**35.0**	**570**	**130**	**0.870 J**	**610**	**280**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-138-142	138	142	08/02/2022	**77.0**	**3.80**	1.10 U	1.10 U	**34.0**	1.10 U	1.10 U	**47.0**	**720**	**240**	**1.80 J**	**390**	**410**	1.60 U	1.60 U	1.60 U
AFT-A-4	31VP-AFT-A-4-148-152	148	152	08/02/2022	**8.40**	**5.60**	0.980 U	0.980 U	**6.70**	**0.700 J**	0.980 U	**8.30**	**120**	**34.0**	**0.850 J**	**320**	**63.0**	1.50 U	1.50 U	1.50 U
AFT-A-4	31VP-AFT-A-4-68-72	68	72	07/29/2022	0.950 U	1.40 U	0.950 U	0.950 U	**1.90**	0.950 U	0.950 U	**5.80**	**63.0**	**20.0**	1.40 U	1.40 U	**200**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-78-82	78	82	07/29/2022	0.950 U	1.40 U	0.950 U	0.950 U	**0.810 J**	0.950 U	0.950 U	**5.60**	**43.0**	**7.70**	1.40 U	**1.20 J**	**19.0**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-88-92	88	92	07/29/2022	0.940 U	1.40 U	0.940 U	0.940 U	**1.50 J**	0.940 U	0.940 U	**5.30**	**55.0**	**14.0**	1.40 U	**2.30**	**17.0**	1.40 U	1.40 U	1.40 U
AFT-A-4	31VP-AFT-A-4-98-102	98	102	07/29/2022	**5.70**	1.40 U	0.950 U	0.950 U	**6.40**	0.950 U	0.950 U	**24.0**	**280**	**81.0**	1.40 U	**16.0**	**14.0**	1.40 U	1.40 U	1.40 U
AFT-A-5	31VP-AFT-A-5-108-112	108	112	08/04/2022	**95.0**	1.80 U	1.20 U	1.20 U	**150**	1.20 U	1.20 U	**150**	**830**	**950**	1.80 U	**110**	**540**	1.80 U	1.80 U	1.80 U
AFT-A-5	31VP-AFT-A-5-118-122	118	122	08/04/2022	**4.00 J**	**2.90**	1.00 U	1.00 U	**25.0 J**	**0.670 J**	1.00 U	**27.0**	**400**	**72.0**	**1.80 J**	**450**	**150**	1.50 U	1.50 U	1.50 U
AFT-A-5	31VP-AFT-A-5-128-132	128	132	08/05/2022	**1.60 J**	1.40 U	0.960 U	0.960 U	**16.0**	0.960 U	0.960 U	**12.0**	**190**	**52.0**	1.40 U	**160**	**81.0**	1.40 U	1.40 U	1.40 U
AFT-A-5	31VP-AFT-A-5-138-142	138	142	08/05/2022	**21.0**	1.60 U	1.10 U	1.10 U	**53.0**	1.10 U	1.10 U	**47.0**	**380**	**300**	**0.610 J**	**94.0**	**180**	1.60 U	1.60 U	1.60 U
AFT-A-5	31VP-AFT-A-5-147-151	147	151	08/08/2022	**23.0**	1.50 U	0.990 U	0.990 U	**31.0**	0.990 U	0.990 U	**39.0**	**340**	**230**	1.50 U	**44.0**	**140**	1.50 U	1.50 U	1.50 U
AFT-A-5	31VP-AFT-A-5-68-72	68	72	08/03/2022	0.960 U	1.40 U	0.960 U	0.960 U	**0.470 J**	0.960 U	0.960 U	**1.70 J**	**10.0**	**3.10**	1.40 U	**1.30 J**	**4.00**	1.40 U	1.40 U	1.40 U
AFT-A-5	31VP-AFT-A-5-78-82	78	82	08/03/2022	**16.0**	1.40 U	0.940 U	0.940 U	**6.10**	0.940 U	0.940 U	**16.0**	**450**	**41.0**	1.40 U	**23.0**	**50.0**	1.40 U	1.40 U	1.40 U
AFT-A-5	31VP-AFT-A-5-88-92	88	92	08/03/2022	**4.10 J**	1.60 U	1.00 U	1.00 U	**3.30**	1.00 U	1.00 U	**11.0**	**180**	**28.0**	1.60 U	**57.0**	**53.0**	1.60 U	1.60 U	1.60 U
AFT-A-5 (FD)	31VP-AFT-A-5-88-92 DUP07	88	92	08/03/2022	**4.10 J**	1.50 U	**0.790 J**	0.970 U	**3.50**	0.970 U	0.970 U	**11.0**	**190**	**27.0**	1.50 U	**61.0**	**52.0**	1.50 U	1.50 U	1.50 U
AFT-A-5	31VP-AFT-A-5-98-102	98	102	08/04/2022	**200**	1.40 U	0.960 U	0.960 U	**310**	0.960 U	0.960 U	**270**	**1,500**	**1,900**	**3.50**	**840**	**880**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-108-112	108	112	08/09/2022	**35.0**	1.50 U	0.980 U	0.980 U	**16.0**	0.980 U	0.980 U	**68.0**	**960**	**240**	1.50 U	**67.0**	**820**	1.50 U	1.50 U	1.50 U
AFT-B-1	31VP-AFT-B-1-118-122	118	122	08/10/2022	**140**	1.30 U	0.840 U	0.840 U	**34.0**	0.840 U	0.840 U	**110**	**2,700**	**750**	**0.750 J**	**220**	**3,100**	1.30 U	1.30 U	1.30 U
AFT-B-1	31VP-AFT-B-1-128-132	128	132	08/10/2022	**9.30**	1.30 U	0.850 U	0.850 U	**55.0**	0.850 U	0.850 U	**100**	**1,900**	**670**	**0.810 J**	**160**	**1,500**	1.30 U	1.30 U	1.30 U
AFT-B-1 (FD)	31VP-AFT-B-1-128-132-DUP09	128	132	08/10/2022	**8.50**	1.30 U	0.880 U	0.880 U	**57.0**	0.880 U	0.880 U	**93.0**	**2,000**	**590**	**0.780 J**	**170**	**1,600**	1.30 U	1.30 U	1.30 U
AFT-B-1	31VP-AFT-B-1-138-142	138	142	08/11/2022	**29.0**	**3.70**	0.960 U	0.960 U	**89.0**	0.960 U	0.960 U	**120**	**1,900**	**820**	**5.70**	**1,500**	**1,300**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-148-152	148	152	08/11/2022	**4.60 J**	1.40 U	0.940 U	0.940 U	**39.0**	0.940 U	0.940 U	**29.0**	**450**	**110**	**0.690 J**	**250**	**190**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-158-162	158	162	08/18/2022	**3.40 J**	1.50 U	0.980 U	0.980 U	**11.0**	0.980 U	0.980 U	**8.70**	**120**	**29.0**	1.50 U	**68.0**	**47.0**	1.50 U	1.50 U	1.50 U
AFT-B-1 (FD)	31VP-AFT-B-1-158-162-DUP11	158	162	08/18/2022	**3.70 J**	1.50 U	0.970 U	0.970 U	**11.0**	0.970 U	0.970 U	**8.70**	**130**	**29.0**	1.50 U	**67.0**	**46.0**	1.50 U	1.50 U	1.50 U
AFT-B-1	31VP-AFT-B-1-168-172	168	172	08/18/2022	**69.0**	1.60 U	1.10 U	1.10 U	**28.0**	1.10 U	1.10 U	**130**	**2,000**	**380**	1.60 U	**140**	**2,000**	1.60 U	1.60 U	1.60 U
AFT-B-1	31VP-AFT-B-1-178-182	178	182	08/19/2022	**11.0**	1.50 U	0.990 U	0.990 U	**12.0**	0.990 U	0.990 U	**29.0**	**540**	**98.0**	1.50 U	**55.0**	**610**	1.50 U	1.50 U	1.50 U
AFT-B-1	31VP-AFT-B-1-186-190	186	190	08/22/2022	**10.0**	1.40 U	0.970 U	0.970 U	**81.0**	**0.370 J**	0.970 U	**110**	**1,900**	**910**	**1.30 J**	**230**	**1,500**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-68-72	68	72	08/08/2022	**72.0**	**0.610 J**	0.930 U	0.930 U	**26.0**	0.930 U	0.930 U	**120**	**1,200**	**260**	**1.10 J**	**140**	**150**	1.40 U	1.40 U	1.40 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (ng/L)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfona-midoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfona-midoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
AFT-B-1	31VP-AFT-B-1-78-82	78	82	08/08/2022	**2.60 J**	1.40 U	0.910 U	0.910 U	**0.510 J**	0.910 U	0.910 U	**3.40**	**6.40**	**4.50**	1.40 U	**0.540 J**	**3.00**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-88-92	88	91	08/09/2022	0.920 U	1.40 U	0.920 U	0.920 U	**8.30**	0.920 U	0.920 U	**58.0**	**1,300**	**180**	1.40 U	1.40 U	**590**	1.40 U	1.40 U	1.40 U
AFT-B-1 (FD)	31VP-AFT-B-1-88-92-DUP08	88	91	08/09/2022	0.940 U	1.40 U	0.940 U	0.940 U	**7.70**	0.940 U	0.940 U	**57.0**	**1,200**	**180**	1.40 U	1.40 U	**600**	1.40 U	1.40 U	1.40 U
AFT-B-1	31VP-AFT-B-1-98-102	98	102	08/09/2022	1.10 U	1.60 U	1.10 U	1.10 U	**28.0**	1.10 U	1.10 U	**270**	**3,300**	**560**	1.60 U	**1.20 J**	**700**	1.60 U	1.60 U	1.60 U
AFT-B-2	31VP-AFT-B-2-108-112	108	112	08/24/2022	**130**	1.40 U	0.940 U	0.940 U	**33.0**	0.940 U	0.940 U	**120**	**2,200**	**540**	1.40 U	**150**	**3,500**	1.40 U	1.40 U	1.40 U
AFT-B-2	31VP-AFT-B-2-118-122	118	122	08/24/2022	**170**	**6.30**	1.00 U	1.00 U	**32.0**	**0.380 J**	1.00 U	**97.0**	**2,000**	**690**	**2.30**	**840**	**2,900**	1.60 U	1.60 U	1.60 U
AFT-B-2	31VP-AFT-B-2-128-132	128	132	08/24/2022	**34.0**	**6.70**	1.60 U	1.60 U	**9.20 J**	**0.590 J**	1.60 U	**28.0**	**560**	**190**	**0.890 J**	**580**	**560**	2.40 U	2.40 U	2.40 U
AFT-B-2	31VP-AFT-B-2-138-142	138	142	08/25/2022	**120**	**1.20 J**	0.920 U	0.920 U	**67.0**	0.920 U	0.920 U	**130**	**3,100**	**1,100**	**3.00**	**820**	**3,400**	1.40 U	1.40 U	1.40 U
AFT-B-2 (FD)	31VP-AFT-B-2-138-142-DUP13	138	142	08/25/2022	**110**	**1.20 J**	0.950 U	0.950 U	**68.0**	0.950 U	0.950 U	**130**	**3,300**	**1,200**	**2.80**	**770**	**3,300**	1.40 U	1.40 U	1.40 U
AFT-B-2	31VP-AFT-B-2-148-152	148	152	08/25/2022	**61.0**	**2.30**	0.980 U	0.980 U	**130**	0.980 U	0.980 U	**190**	**2,500**	**1,400**	**5.10**	**1,100**	**2,300**	1.50 U	1.50 U	1.50 U
AFT-B-2	31VP-AFT-B-2-158-162	158	162	08/26/2022	**41.0**	**0.860 J**	1.30 U	1.30 U	**47.0**	1.30 U	1.30 U	**76.0**	**1,300**	**570**	**1.90 J**	**370**	**1,300**	1.90 U	1.90 U	1.90 U
AFT-B-2	31VP-AFT-B-2-168-172	168	172	08/26/2022	**16.0**	**0.710 J**	1.00 U	1.00 U	**42.0**	1.00 U	1.00 U	**45.0**	**710**	**200**	**3.30**	**1,000**	**380**	1.50 U	1.50 U	1.50 U
AFT-B-2	31VP-AFT-B-2-178-182	178	182	08/29/2022	**3.30 J**	1.50 U	1.00 U	1.00 U	**11.0**	1.00 U	1.00 U	**9.70**	**170**	**48.0**	1.50 U	**110**	**96.0**	1.50 U	1.50 U	1.50 U
AFT-B-2	31VP-AFT-B-2-68-72	68	72	08/23/2022	0.950 U	1.40 U	0.950 U	0.950 U	**0.620 J**	0.950 U	0.950 U	**2.20**	**25.0**	**5.90**	1.40 U	1.40 U	**3.60**	1.40 U	1.40 U	1.40 U
AFT-B-2	31VP-AFT-B-2-78-82	78	82	08/23/2022	**2.90 J**	1.40 U	0.940 U	0.940 U	**16.0**	0.940 U	0.940 U	**36.0**	**1,500**	**310**	1.40 U	1.40 U	**1,600**	1.40 U	1.40 U	1.40 U
AFT-B-2	31VP-AFT-B-2-88-92	88	92	08/23/2022	**2.20 J**	1.40 U	0.930 U	0.930 U	**19.0**	0.930 U	0.930 U	**70.0**	**770**	**150**	1.40 U	**1.20 J**	**1,100**	1.40 U	1.40 U	1.40 U
AFT-B-2 (FD)	31VP-AFT-B-2-88-92-DUP12	88	92	08/23/2022	**1.90 J**	1.80 U	1.20 U	1.20 U	**19.0**	1.20 U	1.20 U	**66.0**	**710**	**150**	1.80 U	**1.60 J**	**1,200**	1.80 U	1.80 U	1.80 U
AFT-B-2	31VP-AFT-B-2-98-102	98	102	08/23/2022	**120**	**15.0**	0.950 U	0.950 U	**35.0**	**0.570 J**	0.950 U	**120**	**2,100**	**610**	**0.640 J**	**420**	**3,400**	1.40 U	1.40 U	**1.10 J**
AFT-B-3	31VP-AFT-B-3-108-112	108	112	08/31/2022	**590**	**5.00**	0.930 U	0.930 U	**60.0**	0.930 U	0.930 U	**210**	**4,300**	**1,700**	**6.70**	**1,600**	**4,700**	1.40 U	1.40 U	1.40 U
AFT-B-3	31VP-AFT-B-3-118-122	118	122	08/31/2022	**440**	**5.20**	0.840 U	0.840 U	**57.0**	0.840 U	0.840 U	**190**	**4,000**	**1,600**	**7.30**	**1,300**	**4,300**	1.30 U	1.30 U	1.30 U
AFT-B-3	31VP-AFT-B-3-128-132	128	132	09/01/2022	**200**	**3.10**	0.830 U	0.830 U	**67.0**	0.830 U	0.830 U	**150**	**3,800**	**1,300**	**6.10**	**1,800**	**4,200**	1.30 U	1.30 U	1.30 U
AFT-B-3	31VP-AFT-B-3-138-142	138	142	09/01/2022	**62.0**	**6.60**	0.820 U	0.820 U	**350**	0.820 U	0.820 U	**510**	**5,200**	**4,300**	**1.10 J**	**180**	**10,000**	1.20 U	1.20 U	1.20 U
AFT-B-3	31VP-AFT-B-3-148-152	148	152	09/02/2022	**87.0**	**7.10**	0.880 U	0.880 U	**110**	0.880 U	0.880 U	**180**	**2,700**	**1,300**	**5.20**	**890**	**2,800**	1.30 U	1.30 U	1.30 U
AFT-B-3 (FD)	31VP-AFT-B-3-148-152-DUP15	148	152	09/02/2022	**86.0**	**7.60**	0.840 U	0.840 U	**120**	0.840 U	0.840 U	**180**	**2,700**	**1,200**	**4.80**	**810**	**2,900**	1.30 U	1.30 U	1.30 U
AFT-B-3	31VP-AFT-B-3-155-159	155	159	09/02/2022	**9.60**	**8.70**	0.900 U	0.900 U	**51.0**	0.900 U	0.900 U	**50.0**	**680**	**340**	**0.810 J**	**260**	**570**	1.30 U	1.30 U	1.30 U
AFT-B-3	31VP-AFT-B-3-68-72	68	72	08/30/2022	**46.0**	**44.0**	0.970 U	0.970 U	**2.20**	0.970 U	0.970 U	**49.0**	**320**	**39.0**	**1.60 J**	**790**	**68.0**	1.50 U	1.50 U	1.50 U
AFT-B-3	31VP-AFT-B-3-78-82	78	82	08/30/2022	4.90 U	1.50 U	0.980 U	0.980 U	**37.0**	0.980 U	0.980 U	**110**	**2,900**	**1,000**	1.50 U	**3.20**	**2,400**	1.50 U	1.50 U	1.50 U
AFT-B-3	31VP-AFT-B-3-88-92	88	92	08/30/2022	**79.0**	1.50 U	0.980 U	0.980 U	**37.0**	0.980 U	0.980 U	**160**	**2,600**	**480**	1.50 U	**25.0 J**	**3,600**	1.50 U	1.50 U	1.50 U
AFT-B-3 (FD)	31VP-AFT-B-3-88-92-DUP14	88	92	08/30/2022	**87.0**	1.40 U	0.950 U	0.950 U	**36.0**	0.950 U	0.950 U	**160**	**2,700**	**500**	1.40 U	**23.0 J**	**3,600**	1.40 U	1.40 U	1.40 U
AFT-B-3	31VP-AFT-B-3-98-102	98	102	08/31/2022	**290**	**0.980 J**	0.910 U	0.910 U	**59.0**	0.910 U	0.910 U	**190**	**4,000**	**1,300**	**5.30**	**1,300**	**5,000**	1.40 U	1.40 U	1.40 U
AFT-B-4	31VP-AFT-B-4-108-112	108	112	09/08/2022	**700**	**4.00**	0.980 U	0.980 U	**90.0**	0.980 U	0.980 U	**210**	**4,000**	**1,700**	**5.30**	**1,000**	**3,800**	1.50 U	1.50 U	1.50 U
AFT-B-4	31VP-AFT-B-4-118-122	118	122	09/08/2022	**480**	**3.90**	0.960 U	0.960 U	**76.0**	0.960 U	0.960 U	**180**	**3,600**	**1,400**	**8.30**	**1,600**	**3,100**	1.40 U	1.40 U	1.40 U
AFT-B-4 (FD)	31VP-AFT-B-4-118-122-DUP16	118	122	09/08/2022	**490**	**4.40**	0.950 U	0.950 U	**75.0**	0.950 U	0.950 U	**180**	**3,500**	**1,300**	**8.50**	**1,600**	**3,300**	1.40 U	1.40 U	1.40 U
AFT-B-4	31VP-AFT-B-4-128-132	128	132	09/09/2022	**290**	**0.910 J**	0.970 U	0.970 U	**69.0**	0.970 U	0.970 U	**160**	**4,100**	**1,300**	**8.60**	**2,000**	**4,800**	1.50 U	1.50 U	1.50 U
AFT-B-4	31VP-AFT-B-4-138-142	138	142	09/09/2022	**220**	**1.10 J**	1.20 U	1.20 U	**98.0**	1.20 U	1.20 U	**180**	**3,100**	**1,200**	**5.60**	**1,000**	**3,000**	1.80 U	1.80 U	1.80 U
AFT-B-4	31VP-AFT-B-4-148-152	148	152	09/12/2022	**250**	**6.60**	1.60 U	1.60 U	**44.0**	1.60 U	1.60 U	**180**	**3,500**	**1,200**	**1.50 J**	**530**	**5,000**	2.40 U	2.40 U	2.40 U
AFT-B-4	31VP-AFT-B-4-158-162	158	162	09/12/2022	**1.50 J**	1.50 U	1.00 U	1.00 U	**14.0**	1.00 U	1.00 U	**7.40**	**160**	**37.0**	1.50 U	**14.0**	**76.0**	1.50 U	1.50 U	1.50 U
AFT-B-4	31VP-AFT-B-4-168-172	168	172	09/13/2022	0.950 U	1.40 U	0.950 U	0.950 U	**3.50**	0.950 U	0.950 U	**1.80 J**	**52.0**	**6.40**	1.40 U	**13.0**	**15.0**	1.40 U	1.40 U	1.40 U
AFT-B-4	31VP-AFT-B-4-178-182	178	182	09/14/2022	**79.0**	**2.80 J**	1.40 U	1.40 U	**31.0**	1.40 U	1.40 U	**58.0**	**910**	**360**	**0.980 J**	**270**	**1,000**	2.20 U	2.20 U	2.20 U
AFT-B-4	31VP-AFT-B-4-188-192	188	192	09/14/2022	**130**	**2.20 J**	1.30 U	1.30 U	**21.0 J**	1.30 U	1.30 U	**65.0**	**1,200**	**500**	1.90 U	**320**	**1,200**	1.90 U	1.90 U	1.90 U
AFT-B-4	31VP-AFT-B-4-68-72	68	72	09/07/2022	**9.00**	**20.0**	1.00 U	1.00 U	**1.20 J**	1.00 U	1.00 U	**13.0**	**82.0**	**20.0**	**1.30 J**	**510**	**28.0**	1.50 U	1.50 U	1.50 U
AFT-B-4	31VP-AFT-B-4-78-82	78	82	09/07/2022	**17.0**	1.50 U	0.980 U	0.980 U	**8.90**	0.980 U	0.980 U	**35.0**	**240**	**97.0**	1.50 U	**11.0**	**320**	1.50 U	1.50 U	1.50 U
AFT-B-4	31VP-AFT-B-4-88-92	88	92	09/07/2022	**210**	1.50 U	0.990 U	0.990 U	**92.0**	0.990 U	0.990 U	**370**	**9,400**	**3,100**	1.50 U	**110 J**	**13,000**	1.50 U	1.50 U	1.50 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (ng/L)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfona-midoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfona-midoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
AFT-B-4	31VP-AFT-B-4-98-102	98	102	09/08/2022	**760**	**0.800 J**	0.970 U	0.970 U	**68.0**	0.970 U	0.970 U	**250**	**5,200**	**2,000**	**5.90**	**1,400**	**5,500**	1.50 U	1.50 U	1.50 U
AFT-B-5	31VP-AFT-B-5-108-112	108	112	09/16/2022	**740**	**3.70**	0.970 U	0.970 U	**140**	0.970 U	0.970 U	**210**	**3,100**	**1,600**	**4.80**	**830**	**3,200**	1.50 U	1.50 U	1.50 U
AFT-B-5 (FD)	31VP-AFT-B-5-108-112-DUP-18	108	112	09/16/2022	**780**	**3.90**	1.00 U	1.00 U	**140**	1.00 U	1.00 U	**210**	**3,100**	**1,600**	**4.90**	**880**	**3,300**	1.60 U	1.60 U	1.60 U
AFT-B-5	31VP-AFT-B-5-118-122	118	122	09/16/2022	**340**	**4.00**	0.920 U	0.920 U	**87.0**	0.920 U	0.920 U	**160**	**2,500**	**1,000**	**6.60**	**1,000**	**2,500**	1.40 U	1.40 U	1.40 U
AFT-B-5	31VP-AFT-B-5-128-132	128	132	09/19/2022	**180**	**1.50 J**	0.990 U	0.990 U	**71.0**	0.990 U	0.990 U	**160**	**3,200**	**1,000**	**8.20**	**1,100**	**2,900**	1.50 U	1.50 U	1.50 U
AFT-B-5	31VP-AFT-B-5-138-142	138	142	09/19/2022	**130**	**1.40 J**	1.00 U	1.00 U	**72.0**	1.00 U	1.00 U	**150**	**2,000**	**810**	**5.20**	**1,100**	**2,100**	1.50 U	1.50 U	1.50 U
AFT-B-5	31VP-AFT-B-5-148-152	148	152	09/20/2022	**260**	1.70 U	1.10 U	1.10 U	**36.0**	1.10 U	1.10 U	**84.0**	**1,300**	**590**	**1.30 J**	**450**	**1,400**	1.70 U	1.70 U	1.70 U
AFT-B-5	31VP-AFT-B-5-158-162	158	162	09/20/2022	**290**	1.70 U	1.20 U	1.20 U	**45.0**	1.20 U	1.20 U	**110**	**1,800**	**760**	**2.10 J**	**600**	**1,600**	1.70 U	1.70 U	1.70 U
AFT-B-5	31VP-AFT-B-5-68-72	68	72	09/15/2022	4.90 U	1.50 U	0.970 U	0.970 U	**5.70**	0.970 U	0.970 U	**12.0**	**140**	**33.0**	1.50 U	**250**	**83.0**	1.50 U	1.50 U	1.50 U
AFT-B-5	31VP-AFT-B-5-78-82	78	82	09/15/2022	4.80 U	1.40 U	0.950 U	0.950 U	**3.40**	0.950 U	0.950 U	**24.0**	**140**	**43.0**	1.40 U	**29.0**	**96.0**	1.40 U	1.40 U	1.40 U
AFT-B-5	31VP-AFT-B-5-88-92	88	92	09/15/2022	**560**	1.40 U	0.930 U	0.930 U	**44.0**	0.930 U	0.930 U	**170**	**2,900**	**750**	**4.40**	**2,500**	**2,000**	1.40 U	1.40 U	1.40 U
AFT-B-5	31VP-AFT-B-5-98-102	98	102	09/16/2022	**800**	**2.50**	0.900 U	0.900 U	**120**	0.900 U	0.900 U	**250**	**3,700**	**1,700**	**5.30**	**830**	**4,400**	1.40 U	1.40 U	1.40 U
AFT-B-5 (FD)	31VP-AFT-B-5-DUP-17	78	82	09/15/2022	4.50 U	1.40 U	0.900 U	0.900 U	**3.50**	0.900 U	0.900 U	**24.0**	**150**	**43.0**	1.40 U	**32.0 J**	**100**	1.40 U	1.40 U	1.40 U
PFT-A-1	31VP-PFT-A-1-108-112	108	112	08/02/2022	**1,500**	1.50 U	1.00 U	1.00 U	**150**	1.00 U	1.00 U	**350**	**5,400**	**2,400**	**3.10**	**2,200**	**4,800**	1.50 U	1.50 U	1.50 U
PFT-A-1	31VP-PFT-A-1-118-122	118	122	08/02/2022	**220**	1.40 U	0.950 U	0.950 U	**40.0**	0.950 U	0.950 U	**110**	**3,900**	**1,100**	**2.40**	**780**	**4,000**	1.40 U	1.40 U	1.40 U
PFT-A-1	31VP-PFT-A-1-128-132	128	132	08/02/2022	**15.0**	1.50 U	0.990 U	0.990 U	**82.0**	0.990 U	0.990 U	**110**	**2,700**	**960**	**1.40 J**	**320**	**2,200**	1.50 U	1.50 U	1.50 U
PFT-A-1	31VP-PFT-A-1-138-142	138	142	08/03/2022	**14.0 J**	**0.730 J**	0.940 UJ	0.940 UJ	**92.0 J**	0.940 UJ	0.940 UJ	**95.0 J**	**1,700 J**	**870 J**	**1.30 J**	**260 J**	**1,200 J**	1.40 UJ	1.40 UJ	1.40 UJ
PFT-A-1	31VP-PFT-A-1-148-152	148	152	08/03/2022	**6.80**	1.60 U	1.10 U	1.10 U	**43.0**	1.10 U	1.10 U	**27.0**	**470**	**100**	**0.900 J**	**390**	**210**	1.60 U	1.60 U	1.60 U
PFT-A-1	31VP-PFT-A-1-158-162	158	162	08/04/2022	**4.90 J**	1.60 U	1.00 U	1.00 U	**15.0**	1.00 U	1.00 U	**11.0**	**140**	**39.0**	1.60 U	**83.0**	**56.0**	1.60 U	1.60 U	1.60 U
PFT-A-1	31VP-PFT-A-1-168-172	168	172	08/04/2022	**1.20 J**	1.40 U	0.960 U	0.960 U	**6.10**	0.960 U	0.960 U	**3.90**	**78.0**	**13.0**	1.40 U	**46.0**	**25.0**	1.40 U	1.40 U	1.40 U
PFT-A-1	31VP-PFT-A-1-176-180	176	180	08/05/2022	**1.90 J**	1.50 U	0.980 U	0.980 U	**7.70**	**0.380 J**	0.980 U	**5.50**	**110**	**26.0**	1.50 U	**50.0**	**56.0**	1.50 U	1.50 U	1.50 U
PFT-A-1	31VP-PFT-A-1-68-72	68	72	08/01/2022	**48.0**	**15.0**	0.970 U	0.970 U	**19.0**	0.970 U	0.970 U	**150**	**610**	**200**	**1.60 J**	**590**	**110**	1.50 U	1.50 U	1.50 U
PFT-A-1	31VP-PFT-A-1-78-82	78	82	08/01/2022	0.980 U	1.50 U	0.980 U	0.980 U	0.980 U	0.980 U	0.980 U	**3.90**	**29.0**	**6.40**	1.50 U	**8.50**	**5.30**	1.50 U	1.50 U	1.50 U
PFT-A-1	31VP-PFT-A-1-88-92	88	92	08/01/2022	**3.90 J**	**1.40 J**	1.10 U	1.10 U	**32.0 J**	**0.370 J**	1.10 U	**130**	**2,700**	**570**	1.60 U	**51.0**	**1,600**	1.60 U	1.60 U	1.60 U
PFT-A-1	31VP-PFT-A-1-98-102	98	102	08/01/2022	0.950 U	1.40 U	0.950 U	0.950 U	**14.0**	0.950 U	0.950 U	**120**	**690**	**180**	1.40 U	1.40 U	**260**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-108-112	108	112	08/09/2022	**400**	**1.20 J**	0.940 U	0.940 U	**50.0**	0.940 U	0.940 U	**140**	**3,900**	**1,600**	**3.40**	**1,100**	**5,700**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-118-122	118	122	08/09/2022	**96.0**	**7.30**	0.990 U	0.990 U	**100**	0.990 U	0.990 U	**170**	**3,600**	**1,900**	**3.30**	**850**	**3,100**	1.50 U	1.50 U	1.50 U
PFT-A-2	31VP-PFT-A-2-128-132	128	132	08/10/2022	**7.70**	**20.0**	0.990 U	0.990 U	**170**	0.990 U	0.990 U	**210**	**4,700**	**2,500**	**2.50**	**540**	**3,800**	1.50 U	1.50 U	1.50 U
PFT-A-2	31VP-PFT-A-2-136-140	136	140	08/11/2022	**38.0**	**6.10**	0.960 U	0.960 U	**150**	0.960 U	0.960 U	**210**	**3,500**	**1,700**	**6.00**	**1,200**	**2,800**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-68-72	68	72	08/08/2022	**43.0**	**23.0**	0.910 U	0.910 U	**5.50**	0.910 U	0.910 U	**39.0**	**200**	**120**	**1.00 J**	**480**	**55.0**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-78-82	78	82	08/08/2022	0.920 U	1.40 U	0.920 U	0.920 U	**0.970 J**	0.920 U	0.920 U	**3.00**	**22.0**	**9.70**	1.40 U	**7.20**	**2.80**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-88-92	88	92	08/08/2022	**3.80 J**	1.40 U	0.950 U	0.950 U	**15.0**	0.950 U	0.950 U	**39.0**	**1,300**	**240**	1.40 U	**1.40 J**	**1,200**	1.40 U	1.40 U	1.40 U
PFT-A-2	31VP-PFT-A-2-98-102	98	102	08/09/2022	**18.0**	**0.640 J**	0.940 U	0.940 U	**18.0**	0.940 U	0.940 U	**39.0**	**860**	**160**	1.40 U	**12.0**	**1,300**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-108-112	108	112	08/12/2022	**730**	**5.70**	0.930 U	0.930 U	**64.0**	0.930 U	0.930 U	**250**	**4,000**	**1,900**	**6.10**	**1,500**	**4,500**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-118-122	118	122	08/12/2022	**610**	**12.0**	5.00 U	5.00 U	**61.0**	5.00 U	5.00 U	**210**	**3,400**	**1,500**	**5.80 J**	**1,600**	**3,500**	7.50 U	7.50 U	7.50 U
PFT-A-3	31VP-PFT-A-3-128-132	128	132	08/15/2022	**100**	**4.80 J**	5.00 U	5.00 U	**100**	5.00 U	5.00 U	**160**	**4,000**	**1,500**	**6.10 J**	**1,400**	**3,800**	7.50 U	7.50 U	7.50 U
PFT-A-3	31VP-PFT-A-3-138-142	138	142	08/15/2022	**100**	15.0 U	10.0 U	10.0 U	**190**	10.0 U	10.0 U	**260**	**3,600**	**2,200**	15.0 U	**1,100**	**3,800**	15.0 U	15.0 U	15.0 U
PFT-A-3	31VP-PFT-A-3-148-152	148	152	08/16/2022	**9.30**	**0.620 J**	0.950 U	0.950 U	**35.0**	0.950 U	0.950 U	**27.0**	**440**	**100**	**0.790 J**	**420**	**180**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-158-162	158	162	08/16/2022	0.920 U	1.40 U	0.920 U	0.920 U	**1.00 J**	0.920 U	0.920 U	0.920 U	**6.30**	**2.20**	1.40 U	**1.60 J**	**2.30**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-168-172	168	172	08/17/2022	**0.900 J**	**1.40 J**	0.970 U	0.970 U	**3.30**	0.970 U	0.970 U	**2.30**	**47.0**	**12.0**	1.50 U	**51.0**	**19.0 J**	1.50 U	1.50 U	1.50 U
PFT-A-3 (FD)	31VP-PFT-A-3-168-172-DUP10	168	172	08/17/2022	**1.30 J**	**1.30 J**	1.00 U	1.00 U	**4.00**	1.00 U	1.00 U	**3.40**	**60.0**	**15.0**	1.50 U	**52.0**	**32.0 J**	1.50 U	1.50 U	1.50 U
PFT-A-3	31VP-PFT-A-3-178-182	178	182	08/17/2022	**5.90**	**0.780 J**	1.10 U	1.10 U	**7.80 J**	1.10 U	1.10 U	**9.70**	**210**	**53.0**	1.70 U	**82.0**	**150**	1.70 U	1.70 U	1.70 U
PFT-A-3	31VP-PFT-A-3-188-192	188	192	08/18/2022	**170**	**19.0**	0.990 U	0.990 U	**33.0**	**0.500 J**	0.990 U	**85.0**	**1,700**	**540**	**2.70**	**1,400**	**1,600**	1.50 U	1.50 U	1.50 U

Locations	Field Sample ID	Sample Begin Depth	Sample End Depth	Sample Date	PFAS (ng/L)															
					6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctanesulfona-midoacetic acid (NEtFOSAA)	N-Methyl perfluorooctanesulfona-midoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
PFT-A-3	31VP-PFT-A-3-68-72	68	72	08/11/2022	**46.0**	**55.0**	0.960 U	0.960 U	**1.50 J**	0.960 U	0.960 U	**29.0**	**250**	**28.0**	**0.920 J**	**880**	**63.0**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-78-82	78	82	08/11/2022	0.970 U	1.50 U	0.970 U	0.970 U	**0.960 J**	0.970 U	0.970 U	**4.40**	**31.0**	**6.20**	1.50 U	**3.20**	**9.10**	1.50 U	1.50 U	1.50 U
PFT-A-3	31VP-PFT-A-3-88-92	88	92	08/12/2022	**210**	1.40 U	0.970 U	0.970 U	**49.0**	0.970 U	0.970 U	**230**	**5,200**	**1,300**	1.40 U	**87.0 J**	**4,500**	1.40 U	1.40 U	1.40 U
PFT-A-3	31VP-PFT-A-3-98-102	98	102	08/12/2022	**400**	1.50 U	0.970 U	0.970 U	**54.0**	0.970 U	0.970 U	**210**	**3,600**	**1,300**	**2.90**	**690**	**4,000**	1.50 U	1.50 U	1.50 U
PFT-A-4	31VP-PFT-A-4-108-112	108	112	08/22/2022	**1,000**	**3.70**	0.960 U	0.960 U	**180**	0.960 U	0.960 U	**260**	**3,200**	**2,100**	**2.30**	**620**	**4,000**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-118-122	118	122	08/23/2022	**350**	**8.90**	0.950 U	0.950 U	**93.0**	**0.390 J**	0.950 U	**140**	**1,600**	**840**	**6.10**	**1,000**	**1,700**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-128-132	128	132	08/23/2022	**170**	**6.00**	0.950 U	0.950 U	**65.0**	0.950 U	0.950 U	**140**	**1,900**	**650**	**7.60**	**1,200**	**1,800**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-138-142	138	142	08/24/2022	**2.90 J**	1.40 U	0.950 U	0.950 U	**33.0**	0.950 U	0.950 U	**24.0**	**420**	**110**	**0.540 J**	**220**	**220**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-148-152	148	152	08/24/2022	**130**	1.70 U	1.10 U	1.10 U	**36.0**	1.10 U	1.10 U	**61.0**	**830**	**350**	**0.960 J**	**270**	**660**	1.70 U	1.70 U	1.70 U
PFT-A-4	31VP-PFT-A-4-158-162	158	162	08/25/2022	**5.10**	1.50 U	1.00 U	1.00 U	**1.80 J**	1.00 U	1.00 U	**2.30**	**32.0**	**15.0**	1.50 U	**15.0**	**25.0**	1.50 U	1.50 U	1.50 U
PFT-A-4	31VP-PFT-A-4-168-172	168	172	08/25/2022	**19.0**	1.50 U	1.00 U	1.00 U	**3.50**	1.00 U	1.00 U	**6.40**	**100**	**43.0**	1.50 U	**37.0**	**76.0**	1.50 U	1.50 U	1.50 U
PFT-A-4	31VP-PFT-A-4-178-182	178	182	08/26/2022	**1.60 J**	1.50 U	0.970 U	0.970 U	**3.00**	0.970 U	0.970 U	**2.40**	**45.0**	**11.0**	1.50 U	**7.70**	**16.0**	1.50 U	1.50 U	1.50 U
PFT-A-4	31VP-PFT-A-4-68-72	68	72	08/19/2022	**1.10 J**	1.40 U	0.960 U	0.960 U	**4.00**	0.960 U	0.960 U	**13.0**	**110**	**31.0**	1.40 U	**170**	**120**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-78-82	78	82	08/19/2022	**1.80 J**	1.50 U	0.980 U	0.980 U	**5.80**	0.980 U	0.980 U	**20.0**	**130**	**48.0**	1.50 U	**12.0**	**220**	1.50 U	1.50 U	1.50 U
PFT-A-4	31VP-PFT-A-4-88-92	88	92	08/23/2022	**780**	1.40 U	0.940 U	0.940 U	**55.0**	0.940 U	0.940 U	**200**	**3,000**	**850**	**3.40**	**2,300**	**2,500**	1.40 U	1.40 U	1.40 U
PFT-A-4	31VP-PFT-A-4-98-102	98	102	08/22/2022	**1,300**	**0.760 J**	0.970 U	0.970 U	**220**	0.970 U	0.970 U	**360**	**4,300**	**2,900**	**2.90**	**740**	**5,600**	1.50 U	1.50 U	1.50 U
PFT-A-5	31VP-PFT-A-5-108-112	108	112	08/30/2022	**230**	**6.10**	0.940 U	0.940 U	**99.0**	0.940 U	0.940 U	**120**	**1,300**	**780**	**3.20**	**670**	**1,300**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-118-122	118	122	08/31/2022	**48.0**	**3.10**	0.990 U	0.990 U	**61.0**	**0.590 J**	0.990 U	**91.0**	**970**	**340**	**5.00**	**1,200**	**650**	1.50 U	1.50 U	1.50 U
PFT-A-5	31VP-PFT-A-5-128-132	128	132	08/31/2022	**17.0**	**1.30 J**	0.940 U	0.940 U	**42.0**	**0.470 J**	0.940 U	**65.0**	**770**	**200**	**4.60 J**	**1,300**	**470**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-138-142	138	142	09/01/2022	**15.0**	1.40 U	0.920 U	0.920 U	**31.0**	0.920 U	0.920 U	**20.0**	**320**	**120**	1.40 U	**94.0**	**180**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-148-152	148	152	09/01/2022	**21.0**	1.50 U	1.00 U	1.00 U	**12.0**	1.00 U	1.00 U	**14.0**	**180**	**95.0**	1.50 U	**83.0**	**160**	1.50 U	1.50 U	1.50 U
PFT-A-5	31VP-PFT-A-5-68-72	68	72	08/29/2022	4.60 U	1.40 U	0.910 U	0.910 U	**2.00**	0.910 U	0.910 U	**13.0**	**100**	**25.0**	1.40 U	**18.0**	**59.0**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-78-82	78	82	08/29/2022	**210**	1.40 U	0.940 U	0.940 U	**27.0**	0.940 U	0.940 U	**89.0**	**1,200**	**370**	**4.00**	**1,200**	**730**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-88-92	88	92	08/29/2022	**1,200**	**1.30 J**	0.940 U	0.940 U	**310**	0.940 U	0.940 U	**400**	**4,000**	**3,200**	**2.80**	**700**	**4,700**	1.40 U	1.40 U	1.40 U
PFT-A-5	31VP-PFT-A-5-98-102	98	102	08/30/2022	**800**	**1.90**	0.950 U	0.950 U	**240**	0.950 U	0.950 U	**290**	**3,100**	**2,000**	**3.10**	**620**	**3,800**	1.40 U	1.40 U	1.40 U

Notes:
Detects are displayed in bold font

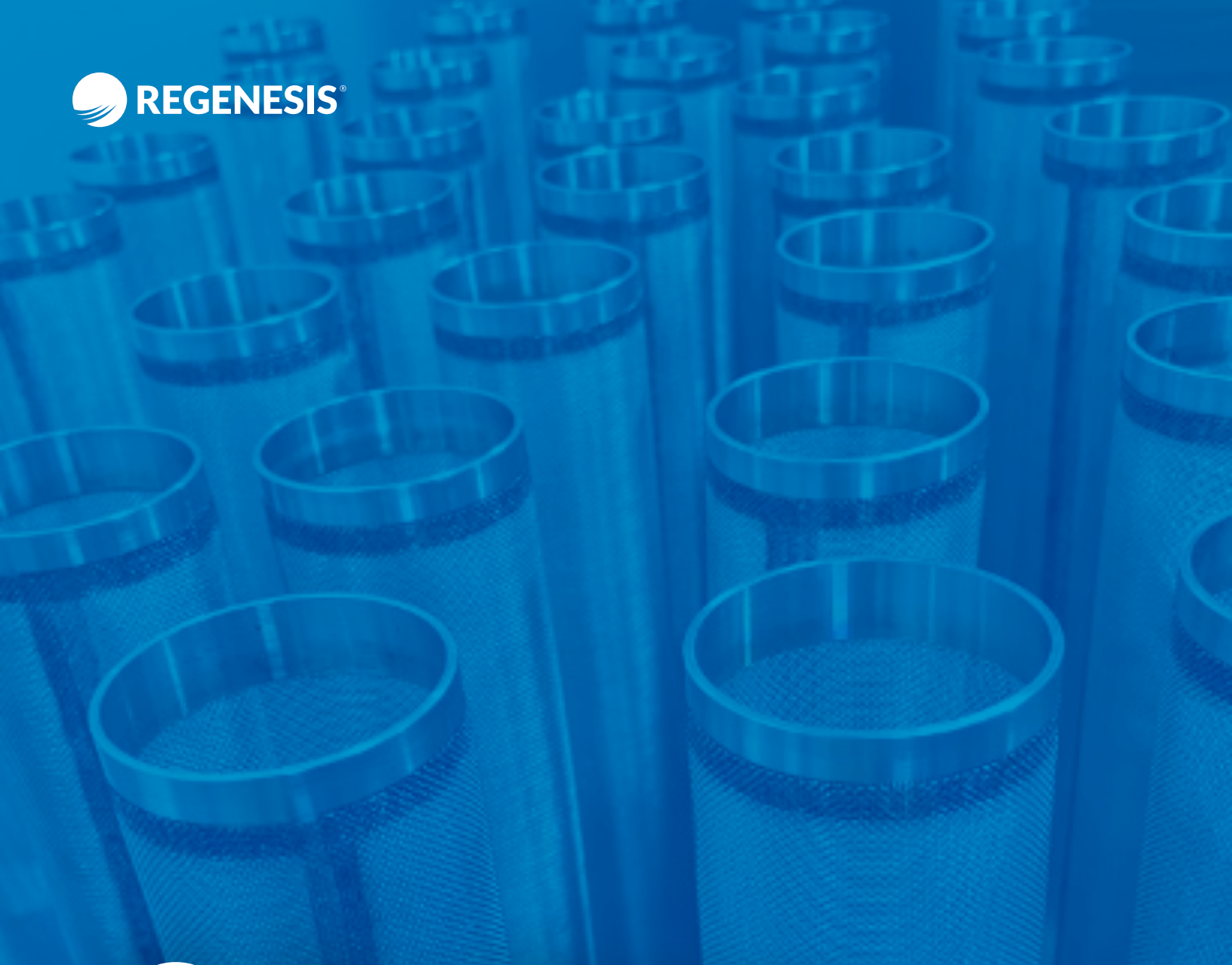
Acronyms and Abbreviations:
ng/L = nanograms per liter

Qualifiers:
J Estimated Value
U Undetected: The analyte was analyzed for, but not detected.
UJ The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

Appendix B

FluxTracer® Overview

REGENESIS®



FluxTracer
Flux Mapping Tool

FluxTracer Overview

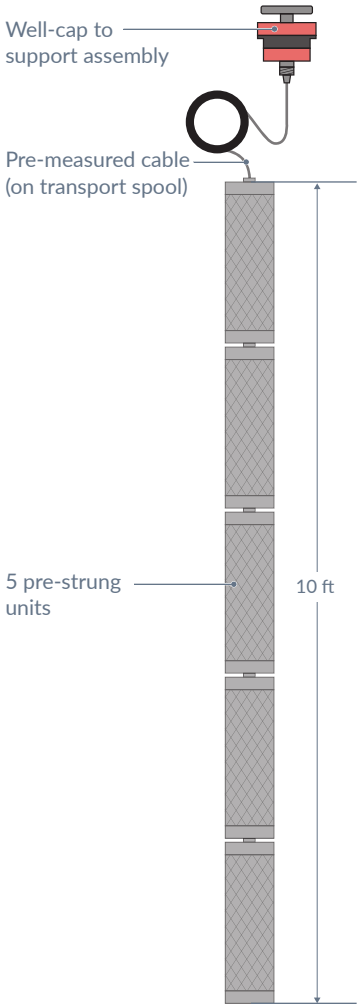
Technology at-a-Glance

Overview

FluxTracer: Technology at-a-glance

FluxTracer® Flux Mapping Tools are easy-to-use devices that vertically delineate contaminant mass flux and groundwater velocity within existing monitoring wells to aid in site characterization and remedial designs.

Conventional methods (pump and slug tests) give a single value for groundwater velocity whereas passive tools like FluxTracer are designed to distinguish individual zones within an aquifer. This level of resolution is especially useful for remediation design. See Figure 1 for visual representation.



A Dual-Functioning, Passive Sampling Technology For Site Characterization and *In Situ* Remediation Designs

The FluxTracer consists of five separate two-foot-long stainless steel cannisters secured in a series on a premeasured central wire line equipped with a modified J-plug. FluxTracers are always pre-assembled, arriving at your site ready to deploy with no on-site construction required. The unique design provides joint-like flexibility between the closely stacked cannisters to easily install and remove from a well.

Key Benefits:

- High Data Resolution and Accuracy
- Plume Characterization
- Estimate *In Situ* Product Longevity
- Reliable Turnaround Time
- Affordable with Full Customer Support

Fast Installation:

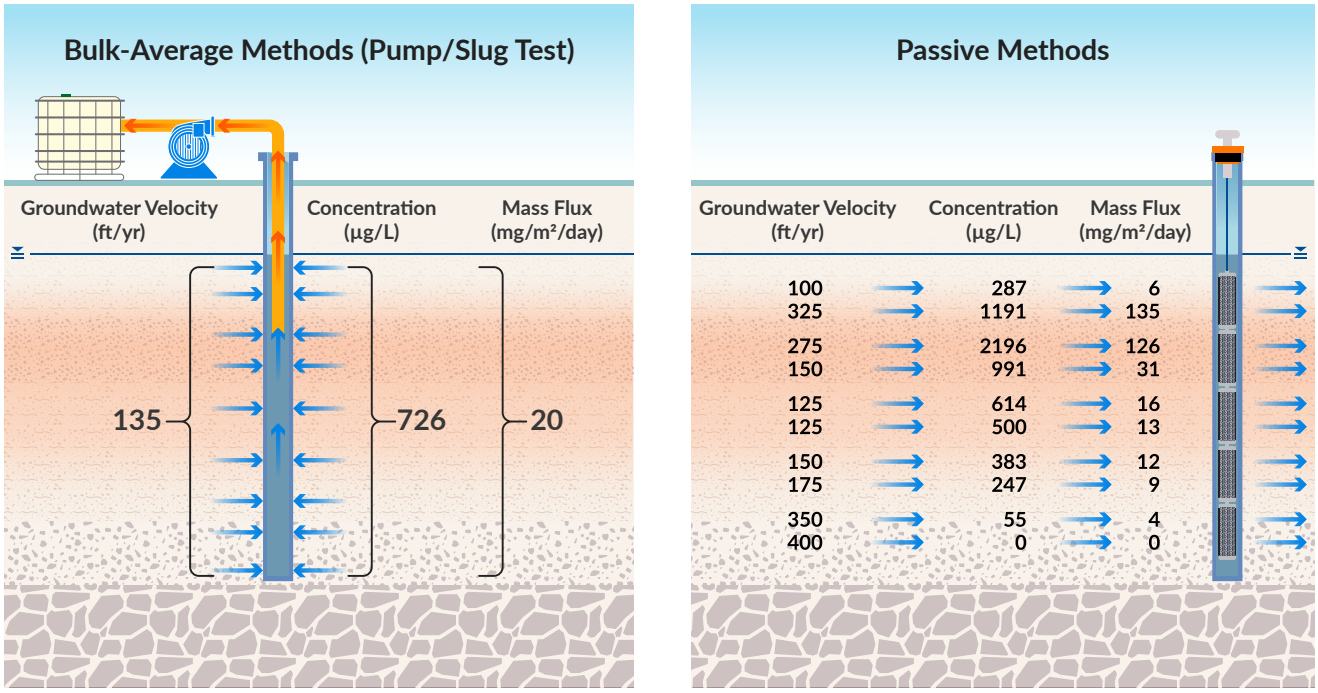
- 15-Minute Install Per Device
- Ready to Deploy Upon Arrival
- No Assembly Required

Target Contaminants:

- Chlorinated Volatile Organic Compounds (CVOCs)
- PFAS
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Total Petroleum Hydrocarbons (TPH) (PFM)*

* Analysis for BTEX and TPH are in development. Please refer to EnviroFlux PFMs for these analytes.

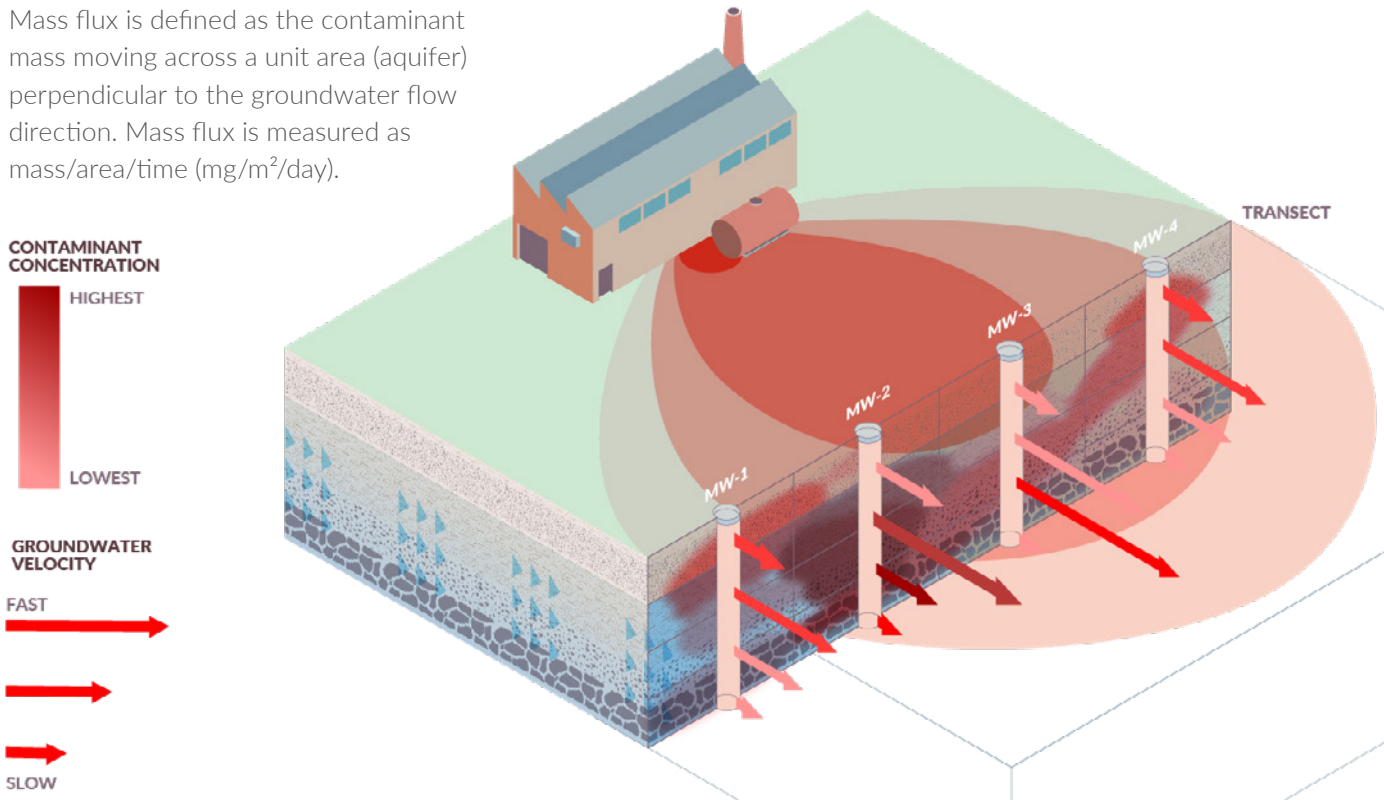
Figure 1 Measuring Groundwater Velocity & Mass Flux: Data Comparison



A comparison of conventional and passive methods of velocity and flux measurement

What is Mass Flux?

Mass flux is defined as the contaminant mass moving across a unit area (aquifer) perpendicular to the groundwater flow direction. Mass flux is measured as mass/area/time (mg/m²/day).

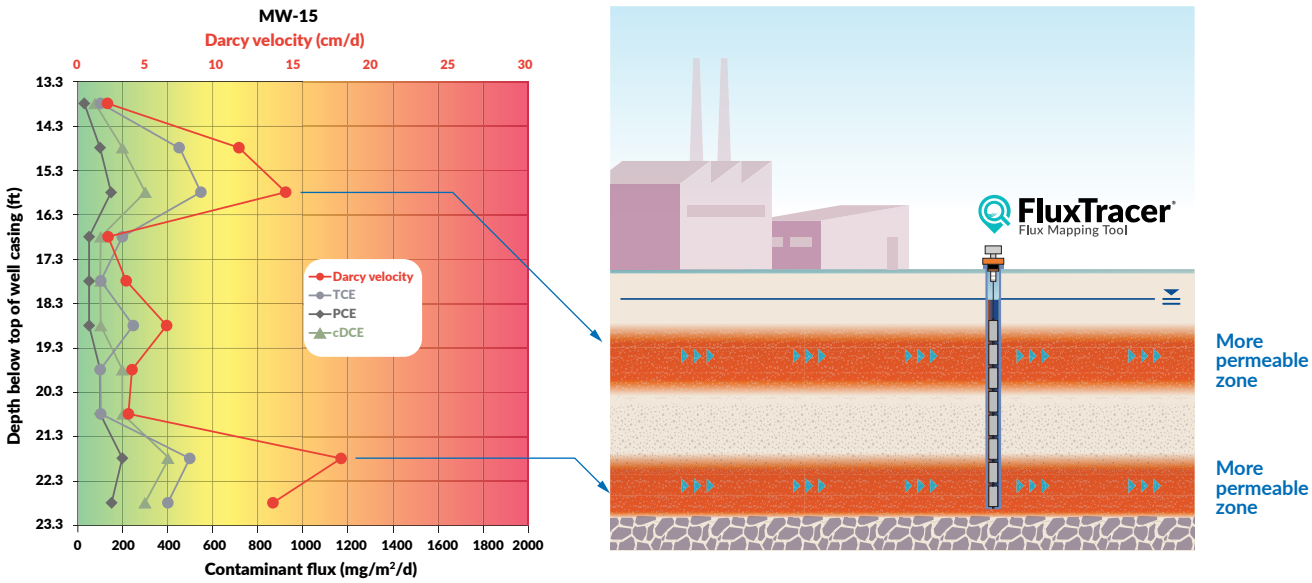


Why Design with Mass Flux and Groundwater Velocity?

- Identify impacted zone beyond well interval
- Developed for *in situ* remediation scale products
- High resolution data on conductive zones
- Estimate longevity of permeable reactive barriers
- Identify discrete zones with the highest contaminant mass
- Comparable cost to pump and slug tests
- Lower costs than HPTs

Oftentimes 90% of contaminant mass is moving through 10% of the aquifer

Figure 2 **Conceptual Site Model**



Site data showing mass flux of chlorinated contaminants (PCE, TCE, cDCE). Data shows highest TCE mass flux at 15.75' depth below casing and highest cDCE at 14.75' depth below casing. The mass flux data can be used to design with more certainty through applying additional focus on areas of the interval with the highest flux.

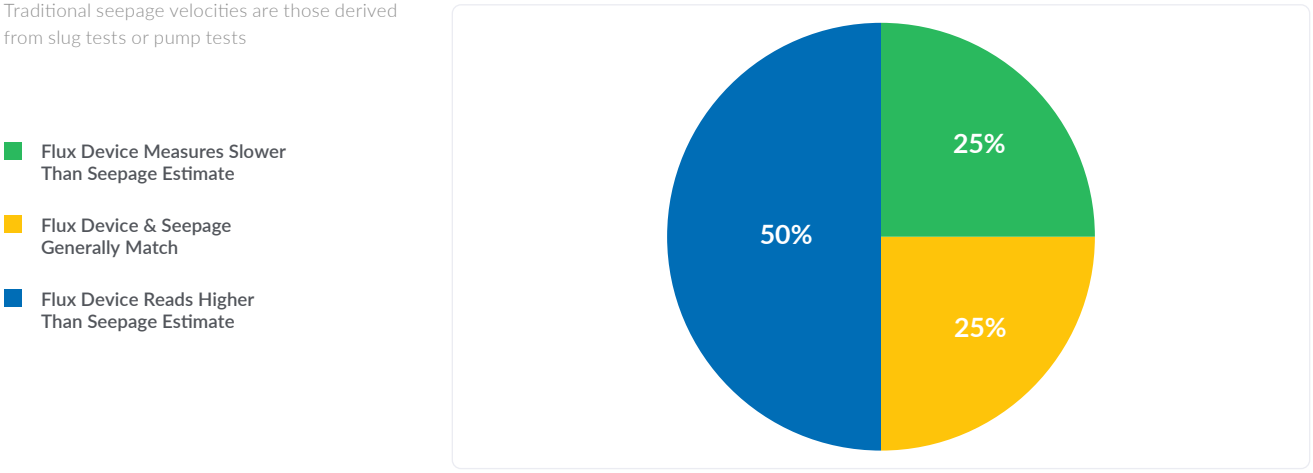
Conventional Methods can Significantly Underestimate Velocities in Flux Zones

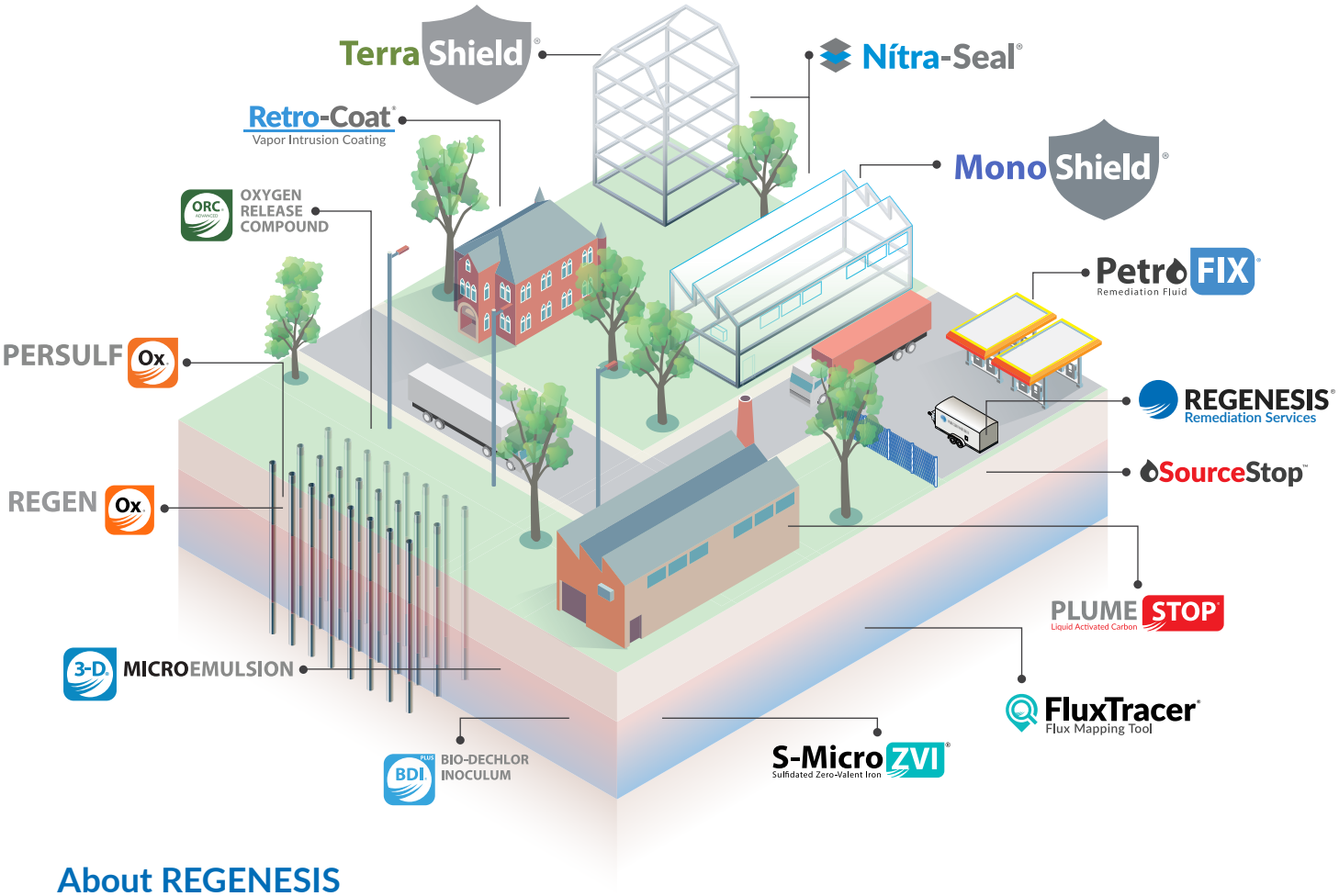
Groundwater velocity is a major component of contaminant mass flux and understanding the flux is essential to designing for in-situ remediation. The study summarized in the chart below shows that groundwater velocity can be underestimated 50% of the time using conventional methods such as slug and pump testing, and hydraulic profiling tools (HPTs). Slug and pumping tests provide bulk water averages and do not provide the resolution required for in-situ remediation designs. HPTs can provide resolution and has good vertical response across the target zone using k values, but the data generated are qualitative and not quantitative.

Approximately 50% of designs are modified after conducting FluxTracer measurements

Figure 3 **Passive Flux Device & Traditional Seepage Velocity Comparison**

Traditional seepage velocities are those derived from slug tests or pump tests





About REGENESIS

At REGENESIS we value innovation, technology, expertise and people which together form the unique framework we operate in as an organization. We see innovation and technology as inseparably linked with one being born out of the other.

Inherently, innovation imparts new and better ways of thinking and doing. For us this means delivering expert environmental solutions in the form of the most advanced and effective technologies and services available today.

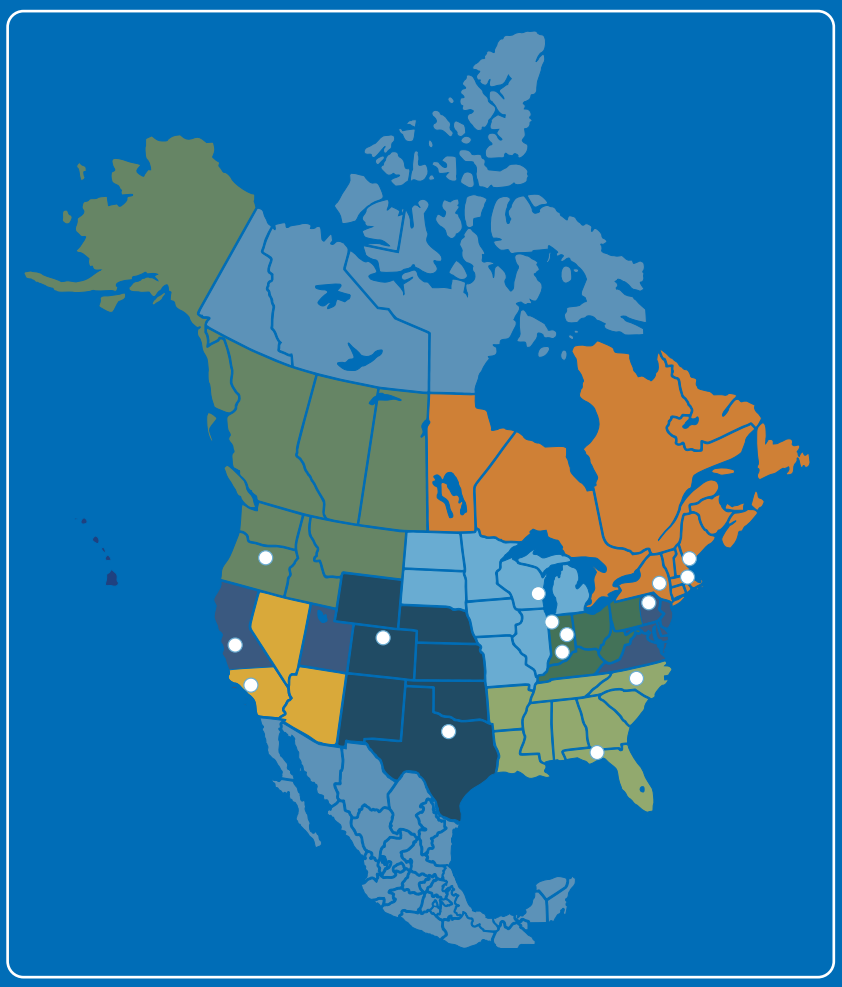
We value expertise, both our customers' and our own. We find that when our experienced staff collaborates directly with customers on complex problems there is a high potential for success including savings in time, resources and cost.

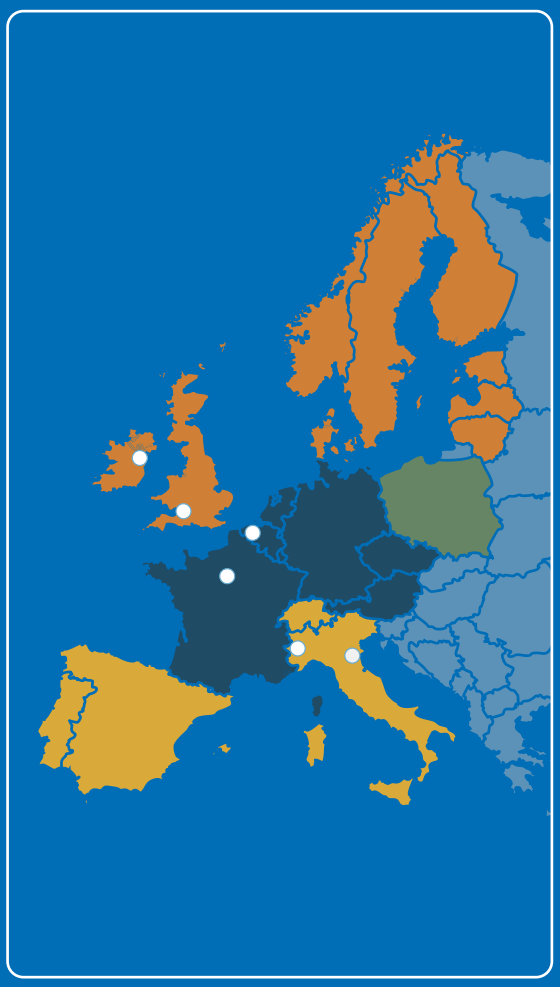
At REGENESIS we are driven by a strong sense of responsibility to the people charged with managing the complex environmental problems we encounter and to the people involved in developing and implementing our technology-based solutions. We are committed to investing in lasting relationships by taking time to understand the people we work with and their circumstances. We believe this is a key factor in achieving successful project outcomes.

We believe that by acting under this set of values, we can work with our customers to achieve a cleaner, healthier, and more prosperous world.

REGENESIS®

We're Ready to Help You Find the Right Solution For Your Site





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Visit www.REGENESIS.com to learn more.

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REGENESIS®

www.REGENESIS.com

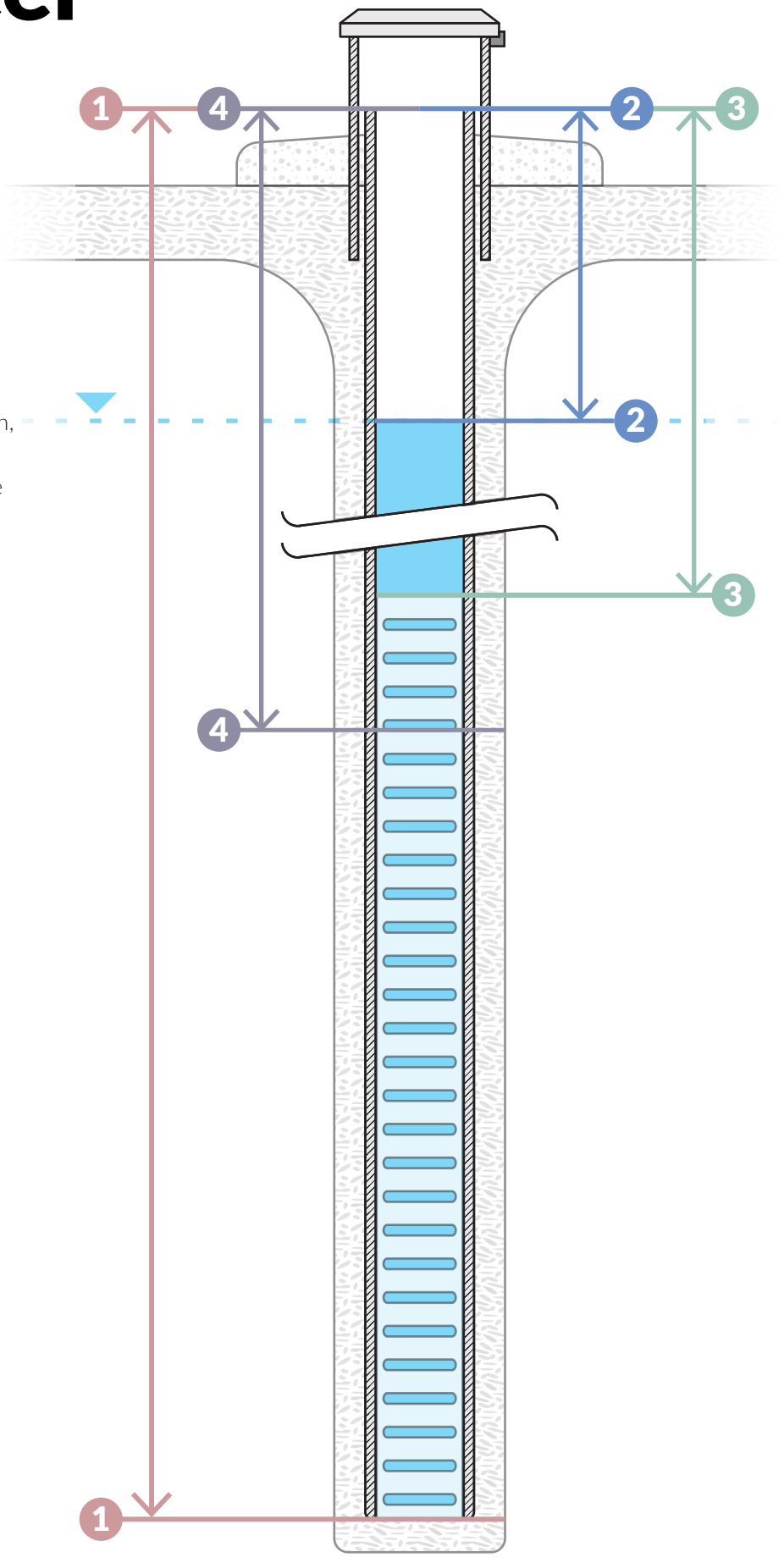
REGENESIS®

FluxTracer®
Flux Mapping Tool

Measurement Guidelines

REGENESIS® will provide a customized, pre-assembled FluxTracer device using the measurements provided in this form, which will rest within the targeted 10 ft vertical interval of the tested monitoring well.

To ensure a successful FluxTracer installation, please follow the measurement guidelines when providing your well dimensions on the Well Evaluation Form.



Length Guide

All units in feet

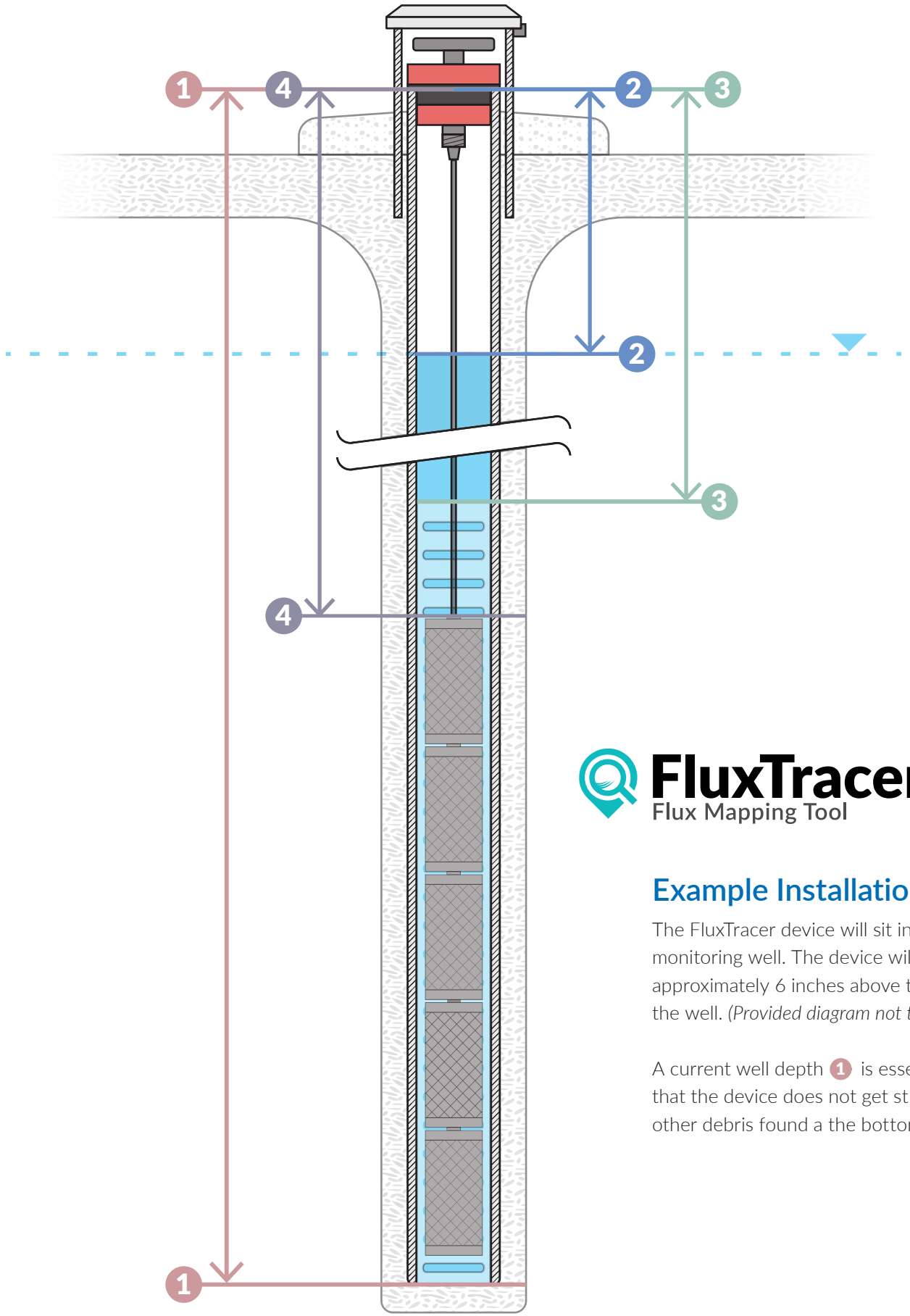
1 Total Depth
Measured from top of well casing to bottom/silt

2 Water Table
Anticipated depth to water at time of installation

3 Depth to Top of Screen
Measured from top of well casing to top of screened interval

4 Start of Target Interval
Depth the device will begin at.
For a 10' screen, 3 = 4

REGENESIS®



FluxTracer®
Flux Mapping Tool

Example Installation

The FluxTracer device will sit inside a monitoring well. The device will be suspended approximately 6 inches above the bottom of the well. *(Provided diagram not to scale.)*

A current well depth 1 is essential to ensure that the device does not get stuck in silt or other debris found a the bottom of the well.

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All other trademarks are property of their respective owners.

Well Evaluation Form

REGENESIS

FluxTracer® Flux Mapping Tool

Important Information:

- Review the Measurement Guidelines and Example Installation
- I confirm the target well(s) total depth ❶ has been measured within the past 3 months and is not obstructed to this reported depth. **REGENESIS is not responsible for devices that become stuck due to improperly reported well depths, materials or dimensions.**

Initials: _____

FORM NOT COMPLETE WITHOUT INITIALS

Remember to Include:

Please provide the following (when available):

- Site map with groundwater monitoring wells
- Representative boring logs/ cross sections
- Historical and current analytical tables
- Hydraulic parameters
- Geochemical data
- Potentiometric map

Site Information

Site Name _____

Site Address _____

Receiving Address _____

Deployment Date _____

Customer Name and Company _____

Lead Regulatory Agency _____

Project Manager _____

Phone _____

Email _____

Wells Targeted for FluxTracer Investigation

Using the included guidelines, fill in the table below:

Monitoring Well Name	Well Diameter	Device Length	Total Depth (feet) ①	Water Table (feet) ②	Depth to Top of Screen (feet) ③	Start of Target Interval (feet) ④	Contaminants of Concern	Installation Date/Time	Retrieval Date/Time
	2”								
	2”								
	2”								
	2”								

Note: Schedule 40 PVC only

Leave Blank Until Installation

Chain of Custody

Fill out before returning to REGENESIS.

Relinquished By	Date/Time	Received By	Date/Time

Please submit form to lab@regenesis.com. For additional questions please contact 949-366-8000

Appendix C

PlumeStop® SDS

REGENESIS

Technology-Based Solutions for the Environment

SAFETY DATA SHEET

1. Identification

Product identifier PlumeSTOP®

Other means of identification None.

Recommended use Soil and Groundwater Remediation.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Regenesis

Address 1011 Calle Sombra
San Clemente, CA 92673

Telephone 949-366-8000

E-mail CustomerService@regenesis.com

Emergency phone number CHEMTREC® at 1-800-424-9300 (International)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Water	7732-18-5	>75
Colloidal activated carbon ≤2.5 µm	7440-44-0	<25
Proprietary additives		≤2

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Carbon dioxide, alcohol-resistant foam, dry chemical, water spray, or water fog.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Combustion products may include: carbon monoxide, carbon dioxide, sodium oxides, metal oxides.
Special protective equipment and precautions for firefighters	Use protective equipment appropriate for surrounding materials.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to keep fire-exposed containers cool.
General fire hazards	This material will not burn until the water has evaporated. Residue can burn. When dry may form combustible dust concentrations in air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Avoid contact with spilled material. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	This product is miscible in water. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid contact with skin and eyes. Avoid prolonged exposure. Observe good industrial hygiene practices. Wash thoroughly after handling. Wear appropriate personal protective equipment (See Section 8).
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Protect from freezing.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Colloidal activated carbon ≤2.5 µm (CAS 7440-44-0)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Colloidal activated carbon ≤2.5 µm (CAS 7440-44-0)	TWA	2.5 mg/m3	Respirable.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear approved chemical safety goggles.
Skin protection	
Hand protection	Rubber, neoprene or PVC gloves are recommended. Wash hands after handling.
Other	Avoid contact with the skin. Wear suitable protective clothing.
Respiratory protection	Not normally needed. In case of insufficient ventilation, wear suitable respiratory equipment. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Aqueous suspension.
Color	Black.
Odor	Odorless.
Odor threshold	Not available.
pH	8 - 10
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not flammable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1 - 1.2
Solubility(ies)	
Solubility (water)	Miscible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. Keep from freezing.
Incompatible materials	Strong oxidizing agents. Water reactive materials.

Hazardous decomposition products Combustion may produce: carbon oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation Prolonged inhalation may be harmful.

Skin contact Prolonged or repeated skin contact may result in minor irritation.

Eye contact Direct contact with eyes may cause temporary irritation.

Ingestion Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test Results
Colloidal activated carbon ≤2.5 µm (CAS 7440-44-0)		
Acute		
Inhalation		
LC50	Rat	> 8500 mg/m³, air
Oral		
LD50	Rat	> 2000 mg/kg, (Female)

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil Expected to be temporarily highly mobile in soil.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

15. Regulatory information

US federal regulations

All components are listed on or exempt from the U.S. EPA TSCA Inventory List.
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Colloidal activated carbon ≤2.5 µm (CAS 7440-44-0)

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 26-February-2015

Revision date -

Version # 01

Further information HMIS® is a registered trade and service mark of the American Coatings Association (ACA).

HMIS® ratings

Health: 0
Flammability: 0
Physical hazard: 0

NFPA ratings

Disclaimer Regenesis cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

REGENESIS
Technology-Based Solutions for the Environment

SAFETY DATA SHEET

1. Identification

Product identifier	**PlumeSTOP® Nutrients**
Other means of identification	None.
Recommended use	Soil and Groundwater Remediation.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name	Regenesis
Address	1011 Calle Sombra San Clemente, CA 92673
Telephone	949-366-8000
E-mail	CustomerService@regenesis.com
Emergency phone number	CHEMTREC® at 1-800-424-9300 (International)

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
OSHA defined hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Dusts may irritate the respiratory tract, skin and eyes.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Use water spray to cool unopened containers. Avoid dust formation.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. This product is miscible in water. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Practice good housekeeping.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
PlumeSTOP® Nutrients (as dust)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
PlumeSTOP® Nutrients (as dust)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
PlumeSTOP® Nutrients (as dust)	TWA	3 mg/m3	Respirable particles.
		10 mg/m3	Inhalable particles.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Ensure adequate ventilation, especially in confined areas. Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles). Unvented, tight fitting goggles should be worn in dusty areas.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Skin protection	
Other	Wear suitable protective clothing.
Respiratory protection	In case of inadequate ventilation, use MSHA/NIOSH approved dust respirator.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Powder.
Color	White.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	The product is non-combustible.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Completely soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.

Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use. Ammonia fumes may be released upon heating.
Conditions to avoid	Contact with incompatible materials. Excessive heat.
Incompatible materials	Strong oxidizing agents. Bases.
Hazardous decomposition products	Ammonia fumes may be released upon heating.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Dusts may irritate the respiratory tract, skin and eyes.

Information on toxicological effects

Acute toxicity	Not expected to be acutely toxic.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	This product is completely water soluble and will disperse in soil.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Ammonium sulfate	7783-20-2	40-50

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Ammonium sulfate (CAS 7783-20-2)

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Ammonium sulfate (CAS 7783-20-2)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 07-January-2016

Revision date -

Version # 01

HMIS® ratings

Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings

Disclaimer

Regenesis cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Appendix D

Response to Agency Comments

US Army Corps of Engineers ®

New England District
696 Virginia Road
Concord, Massachusetts
01742-2751

Project Name:	Former Fort Devens Army Installation		
Location:	Devens, Massachusetts	Reviewers:	Shawn Lowry (USEPA) and Joanne Dearden (MassDEP)
Document Name: Draft In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan for Treatment of Per- and Polyfluoroalkyl Substances in Groundwater – Operable Unit 14, Area of Contamination 31, Former Fort Devens, MA			

No.	Ref. Page / Para.	COMMENT	RESPONSE
		Shawn Lowry (8 May 2025)	
1.	General	Section 5.8 notes that the preliminary schedule includes performance monitoring for three years. Several other timeframes are discussed in other sections of the report, including design calculations "to address the PFAS in groundwater over a 10-year period" (Section 3, PDF page 13) and breakthrough of PFAS compounds in a 30-year simulation (Section 5.3.3.1, PDF page 19) Please clarify the intended design life of the permeable reactive barrier (PRB) described in this work plan.	The calculated design life of the pilot PRB is a minimum 10-year period, based on PFAS concentrations in the affected intervals targeted by the pilot. The preliminary monitoring schedule in the Work Plan includes performance monitoring for three years, at the end of which the data will be used to support the assessment of full-scale implementability of this technology.
2.	General	Several sections of the text cite the "Draft Uniform Federal Policy for Quality Assurance Project Plan (QAPP) for Area 3 – Phase II Remedial Investigation for PFAS (S-A JV 2024) and addendum (in preparation)". Was the Draft 2024 QAPP finalized? If so, please update the citation and references in the text as appropriate. Please also indicate whether the actions discussed in this work plan will be completed prior to regulatory approval of the referenced QAPP addendum currently in preparation.	A Draft Area 3 QAPP (Draft Uniform Federal Policy for Quality Assurance Project Plan – Phase II Remedial Investigation for Per- and Polyfluoroalkyl Substances – Stage 1, Area 3) and a Draft AOC 31 Pilot Tests Addendum (Draft Uniform Federal Policy for Quality Assurance Project Plan Addendum – AOC 31 Pilot Tests for Per- and Polyfluoroalkyl Substances in Soils and Groundwater, Area 3) will be submitted to USEPA in May 2025.

No.	Ref. Page / Para.	COMMENT	RESPONSE
3.	PDF Page 8	Please make the following revision (changes emphasized): "Activities completed under this Work Plan are subject to and consistent with CERCLA (42 United States Code 9601 et seq.) as amended by the Superfund Amendments and Reauthorization Act of 1986 (99th Congress 1986), and the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations 300) requirements, with concurrence from the Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency (USEPA)."	The text has been changed per the comment.
4.	PDF Page 14	The text notes, "This technology does not include destruction; the PFAS remains immobilized in situ for the life of the adsorbent". Please clarify Army's intentions for the PRB when it reaches its end of life and add an explanation to the text. Will the saturated/spent PRB material need to be excavated to prevent long-term leaching?	The Army intends to leave the injected colloidal activated cardon (CAC) in place permanently as removal of the material at these depths is not feasible. Recommendations for long-term management of PFAS adsorbed to the CAC in the subsurface will be made in the Pilot Test Report based on the results from the first three years of pilot test monitoring, and industry-wide results for other similar projects available at that time.
5.	PDF Page 14	The text notes, "timeframes at which it may be appropriate to refresh or reinject additional adsorbents can be estimated using an estimate of mass flux (presented in Section 3) and the amount of adsorbent to be injected (presented in Section 5)." Does Army anticipate additional injections or refreshing adsorbents? If so, how would this be done? Please explain in the text.	Since this study is a pilot to collect data to support the evaluation of implementability of this treatment technology for potential use in other areas of Devens, no refresh or reinjection of additional absorbents is planned as part of the project. Recommendations for the potential wider use of the technology at the site will be made in the Pilot Test Report based on the first three years of monitoring data and industry-wide results for projects utilizing CAC in general.
6.	PDF Page 15	Section 5 discusses the pilot test objectives, including: "Characterizing the distribution of injected activated carbon through the aquifer along the PRB, including if any short-circuiting/almost-daylighting occurs in the vadose zone". Please define "short-circuiting" and "daylighting" as they are used in the text.	The terms "short-circuiting" and "daylighting" have been defined in the text per the comment.

No.	Ref. Page / Para.	COMMENT	RESPONSE
7.	PDF Page 15	Another pilot test objective states, "Evaluating whether visual assessment in groundwater is sufficient for characterizing the distribution of injected activated carbon". What decision criteria would be used in this evaluation? Please add explanation to the text.	The decision criterion will be visual presence/absence, with the presence of CAC indicated by a greyish to black coloration in groundwater samples from a temporary placement validation piezometer and performance monitoring well cluster 31PMW-03 and 31PMW-04 located within the PRB. This information has been added to the text.
8.	PDF Page 16	Section 5.2 discusses pre-design field work. Please clarify whether these activities would be completed prior to the PRB injection.	Yes, these activities will be completed prior to the PRB injection. The text in Section 5.2 has been clarified and the title changed to "Pre-Injection Field Work."
9.	PDF Page 21	The text states, "Placement validation testing will be conducted using one temporary piezometer at a to-be-determined location within the PRB". How will this location be chosen? Please add an explanation to the text.	The text has been updated to state that "Placement validation testing will be conducted using one temporary piezometer placed near the center line of the PRB. The temporary piezometer will be placed in between two injection points and screened within the target injection interval to confirm CAC distribution between the points."
10.	PDF pages 22-23	Please indicate the screen intervals for the existing wells and piezometers discussed in section 5.4.1 and revise the text as appropriate.	The screen intervals have been added to Section 5.4.1.
11.	PDF page 23	The text states, "Monitoring wells will be sampled on a quarterly (every 3 months) basis following injections for one year and semiannually for two years, for a total of three years following injections". Please clarify the intended frequency for the "semiannual" events (e.g., every 6 months, or otherwise) and revise the text as appropriate.	The text has been revised to clarify every six months as the intended monitoring frequency.
		Joanne Dearden (8 May 2025)	
1.	N/A	MassDEP has reviewed the Draft In Situ Activated Carbon Adsorbent Injection Pilot Test Work Plan for Treatment of Per- and Polyfluoroalkyl Substances in Groundwater Operable Unit 14, Area of Contamination 31 – Former Fire Training Area dated March 2025. I do not have any comments on this Draft Workplan.	N/A

US Army Corps
of Engineers ®

New England District
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No.	Ref. Page / Para.	COMMENT	RESPONSE
END OF COMMENTS			

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