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# **U.S. Army Corps of Engineers New England Division**

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**FINAL  
NO FURTHER ACTION DECISION UNDER CERCLA  
STUDY AREA 56  
BUILDING 2417 LUST SITE**

**FORT DEVENS, MASSACHUSETTS**

**CONTRACT NO DACA33-91-D-0006  
DELIVERY ORDER NO. 21**

**OCTOBER 1996**

**27 96102 ABBN**

**ABB** ABB Environmental  
Services, Inc.

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UNDER CERCLA**

**STUDY AREA 56  
BUILDING 2417 LUST SITE  
FORT DEVENS, MASSACHUSETTS**

*Prepared for:*

U.S. Army Corps of Engineers  
New England Division  
Waltham, Massachusetts

*Prepared by:*

ABB Environmental Services, Inc.  
Wakefield, Massachusetts  
Project No. 07147.00

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**EXECUTIVE SUMMARY**

Investigations of Study Area 56 (Building 2417 Leaking Underground Storage Tank Site) at Fort Devens Massachusetts have resulted in the decision that no further hazardous waste studies or remediation are required at this site. Study Area 56 was identified in the Federal Facilities Agreement between the U.S. Environmental Protection Agency and the U.S. Department of Defense as a potential site of contamination.

On December 21, 1989 Fort Devens was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act as amended by the Superfund Amendments and Reauthorization Act. In addition, under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens was selected for cessation of operations and closure. In accordance with these acts numerous studies, including a Master Environmental Plan, an Enhanced Preliminary Assessment, a Site Investigation, and a soil removal action were conducted at Study Area 56.

Study Area 56, Building 2417 Leaking Underground Storage Tank Site, is one of seven original Group 2 Study Areas located on the Main Post of Fort Devens. The Building 2417 Leaking Underground Storage Tank Site is located in the central portion of the Main Post off Givry Road in Harvard, Massachusetts. Building 2417 was constructed during World War II and was until recently used as a warehouse. In October 1990, a 1,000-gallon underground storage tank (used for storage of No. 2 fuel oil) and associated contaminated soil were removed from Study Area 56. Additional contaminated soil was removed in April 1991, but the excavation was terminated because of concern about the stability of Building 2417 and a nearby water line. During development of the Master Environmental Plan and the Enhanced Preliminary Assessment, Study Area 56 was identified as a potential source of residual petroleum contamination.

A Site Investigation conducted in 1992 at Study Area 56 focused on defining the extent of residual petroleum-contaminated soil. The source of petroleum is No. 2 heating oil that may have been released from loose piping or resulted from overflow of oil during filling. Human health risks associated with exposure to soils at Study Area 56 were evaluated in the preliminary risk evaluation conducted during the site investigation. Although no unacceptable risk to human health was identified, the

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## EXECUTIVE SUMMARY

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1 Site Investigation report recommended a removal action to address petroleum  
2 contamination beyond localized release in subsurface soil at Building 2417.

3  
4 In September and October 1994, OHM Remediation Services Corporation removed  
5 approximately 1,173 tons of petroleum-contaminated soil at Study Area 56. Soil  
6 containing total petroleum hydrocarbons above the target cleanup level was  
7 excavated and transferred to a temporary soil storage facility at Fort Devens. Field  
8 screening and confirmation laboratory analytical results indicated that all soil  
9 containing these compounds in excess of target cleanup levels has been removed.

10  
11 With the removal of contaminated soil from the Building 2417 Leaking  
12 Underground Storage Tank Site and a determination of no residual risk, there is no  
13 evidence or reason to conclude that residual hazardous waste contamination due to  
14 the former oil tank has caused significant environmental contamination or poses a  
15 threat to human health or the environment. The decision has been made to remove  
16 Study Area 56 from further consideration in the Installation Restoration Program  
17 process.

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## 1.0 INTRODUCTION

This decision document has been prepared to support a no further action decision at Study Area 56 - Building 2417 Leaking Underground Storage Tank (LUST) Site (SA 56) at Fort Devens, Massachusetts. The report was prepared as part of the U.S. Department of Defense (DOD) Base Realignment and Closure (BRAC) program to assess the nature and extent of contamination associated with site operations at Fort Devens.

In conjunction with the Army's Installation Restoration Program (IRP), Fort Devens and the U.S. Army Environmental Center (USAEC; formerly the U.S. Army Toxic and Hazardous Materials Agency) initiated a Master Environmental Plan (MEP) in 1988. The MEP consists of assessments of the environmental status of SAs, specifies necessary investigations, and provides recommendations for response actions with the objective of identifying priorities for environmental restoration at Fort Devens. SA 56 was identified as a potential source of contamination in the MEP. On December 21, 1989, Fort Devens was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act.

An Enhanced Preliminary Assessment (PA) was also performed at Fort Devens to address areas not normally included in the CERCLA process, but requiring review prior to closure. A final version of the PA report was completed in April 1992. In 1992, DOD, through USAEC, also initiated a Site Investigation (SI) for SA 56 along with the other 12 SAs in SA Groups 2 and 7 at Fort Devens. The SI was conducted by ABB Environmental Services, Inc. (ABB-ES).

Under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens has been selected for cessation of operations and closure. An important aspect of BRAC actions is to determine environmental restoration requirements before property transfer can be considered. Studies at SA 56 were conducted to support this overall mission.

## 2.0 BACKGROUND AND PHYSICAL SETTING

### 2.1 DESCRIPTION AND LAND USE

Fort Devens is located approximately 35 miles northwest of Boston, Massachusetts, adjacent to the town of Ayer and within Middlesex and Worcester counties. The installation consists of approximately 9,280 acres and includes portions of the towns of Ayer, Harvard, Lancaster and Shirley. Cities in the vicinity include Fitchburg, Leominster and Lowell. Land surfaces range from about 200 feet (ft) above mean sea level (MSL) along the Nashua River in the northern portion of the installation to 450 ft above MSL in the southern portion of the installation.

Fort Devens was established in 1917 as Camp Devens, a temporary training camp for soldiers from the New England area. In 1931, the camp became a permanent installation and was redesignated as Fort Devens. Throughout its history, Fort Devens has served as a training and induction center for military personnel and a unit mobilization and demobilization site. All or portions of this function occurred during World Wars I and II, the Korean and Vietnam conflicts, and operations Desert Shield and Desert Storm. The most recent mission of Fort Devens was to command and train its assigned units and support various tenant activities. Fort Devens closed in 1996, in accordance with the Defense Base Realignment and Closure Act.

Fort Devens currently consists of three major land use areas: Main Post, South Post, and North Post (Figure 2-1).

The majority of the facilities on Fort Devens are located in the Main Post area, north of Massachusetts Highway 2. The Nashua River intersects the Main Post along its western edge. The Main Post provided all of the on-post housing, including over 1,700 family units and 9,800 bachelor units (barracks and unaccompanied officer's quarters). Other facilities on the Main Post included community support activities (such as a cafeteria, post exchange, commissary, bowling alley, and golf course), administrative buildings, classrooms and training facilities, maintenance facilities, and ammunition storage facilities. SA 56 is located on the Main Post.

## SECTION 2

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1 The South Post is located south of Massachusetts Highway 2 and contains individual  
2 training areas that were designated for troop training, range activities, and a  
3 parachute drop zone where air training exercises were performed. The Nashua  
4 River bounds the South Post on the northeast side.  
5

6 The North Post is directly north of the Main Post. The principal activities on the  
7 North Post are the Douglas E. Moore Army Airfield, and the installation Waste  
8 Water Treatment Plant.  
9

10 The primary mission of Fort Devens was to command, train, and provide logistical  
11 support for non-divisional troop units. The installation also supported that portion  
12 of the U.S. Army Intelligence School located at Fort Devens, for the Army  
13 Readiness Region, for Reserve Components, and for Army Reserve and National  
14 Guard in the New England area.  
15

### 16 2.2 REGIONAL GEOLOGY

17  
18 Fort Devens is near the western boundary of the Seaboard Lowland Section of the  
19 New England-Maritime Physiographic province (Jahns, 1953). It is adjacent to the  
20 Worcester County Plateau of the Central Uplands province and part of the  
21 installation lies within the province (Koteff, 1966). The land surface is almost  
22 completely covered with unconsolidated glacial outwash deposits, resulting in few  
23 bedrock outcrops. The surficial deposits are underlain by a highly complex  
24 assemblage of intensely folded and faulted metasedimentary rocks with occasional  
25 igneous intrusions. The geomorphology of the region is dominated by glacial  
26 features such as outwash plains, kames, kame terraces, drumlins, and eskers.  
27

### 28 2.3 REGIONAL HYDROGEOLOGY

29  
30 Groundwater at Fort Devens occurs largely in the permeable glacial-deltaic outwash  
31 deposits of sand, gravel, and boulders. Well yields within these sediments are  
32 dependent upon the hydraulic characteristics of the aquifer and can range from 2 to  
33 over 300 gallons per minute (gpm). Small amounts of groundwater can be obtained  
34 from fractured bedrock with yields ranging from 2 to 10 gpm. Minor amounts of  
35 groundwater may be found in thin, permeable glacial lenses elsewhere on the  
36 installation. The primary hydrogeologic feature at Fort Devens is the Nashua River,  
37 which flows through the installation in a south to north direction, with an average  
38 discharge rate of 55 cubic feet per second. In addition to the Nashua River, the

terrain is dissected by numerous brooks that are associated with attendant wetlands. There are also several kettle ponds and one kettle lake located within the installation.

#### 2.4 STUDY AREA DESCRIPTION AND HISTORY

SA 56, Building 2417 LUST Site, is one of seven original Group 2 SAs located on the Main Post. Residual No. 2 fuel oil in soil was the focus of the MEP's recommendation to investigate SA 56. Building 2417 is located in the central portion of the Main Post off Givry Road in Harvard, Massachusetts (Figure 2-1). Building 2417 was constructed during World War II and was until recently used as a warehouse. The former 1,000-gallon underground storage tank (UST) (used for storage of No. 2 fuel oil) was located along the southeast side of Building 2417 (see Figure 2-2).

It became apparent that No. 2 fuel oil had leaked from the tank into the surrounding soil when the tank was removed. The tank, its contents (about 1,000 gallons of water and residual No. 2 fuel oil), and approximately 15 cubic yards of surrounding soil were removed on October 24, 1990, by Franklin Environmental Services, Inc. of Wrentham, Massachusetts, between the southeast side of Building 2417 and the asphalt access road (Biang, et al., 1992). Tank removal was monitored by Kurz Associates, Inc. of Bridgewater, Massachusetts, and supervised by U.S. Army personnel. The scrap tank was disposed of at John C. Tombarello & Sons in Lawrence, Massachusetts. The tank was observed to be corroded; however, no holes or cracks were noted. Appurtenant piping was not found. Petroleum odors and stained soil were observed in the excavation. Although an elevated photoionization detector reading (60 parts per million [ppm] total volatile organic compounds [VOCs]) was detected by headspace screening, excavation was discontinued (Cook and Kurz, 1990). In April 1991, additional contaminated soil was removed, but the excavation was terminated because of concern about the stability of Building 2417 and a nearby water line. A total of 126 cubic yards of soil was removed at this time and the excavation was backfilled with clean fill material (Jones, 1991).

Analytical samples were not collected from the original tank excavation at SA 56 in October 1990. Soil samples were collected for total petroleum hydrocarbons (TPH) analysis following the removal of soil on April 12, 1991. Results from two composite samples from the excavation wall and base indicated that TPH

## **SECTION 2**

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1 concentrations in soil remaining in the excavation were 226 ppm and 234 ppm.  
2 Based on these results, the site was recommended for further investigation.

### 3.0 RELATED INVESTIGATIONS

#### 3.1 MASTER ENVIRONMENTAL PLAN

The Building 2417 LUST Site was identified as a possible source for release of contaminants into the environment from the former UST. The MEP recommended that the site be investigated for potential groundwater contamination and that additional contaminated soil be removed. The recommended sampling program entailed installing monitoring wells and regularly collecting groundwater samples (Biang, et al., 1992).

#### 3.2 ENHANCED PRELIMINARY ASSESSMENT

The Enhanced PA included a review of the study and recommendations presented in the MEP and considered other areas that might require evaluation due to the closure of Fort Devens. No additional findings or recommendations for SA 56 were provided in the Enhanced PA.

#### 3.3 SITE INVESTIGATION REPORT

An SI was initiated in June 1992 and included 13 of the Groups 2 and 7 SAs listed in the MEP.

- SA 13 Landfill No. 9
- SA 43 Historic Gas Stations (19 Sites)
- SA 45 Lake George Street Vehicle Wash Area
- SA 49 Building 3602 LUST Site
- **SA 56 Building 2417 LUST Site**
- SA 57 Building 3713 Fuel Oil Spill
- SA 58 Building 2648/2650 Fuel Oil Spills
- SA 12 Landfill No. 8
- SA 14 Landfill No. 10
- SA 27 Waste Explosive Detonation Range (Hotel)
- SA 28 Waste Explosive Detonation Range (Training Area 14)
- SA 41 Unauthorized Dumping Area (Site A)
- SA 42 Popping Furnace

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## SECTION 3

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The purpose of the SI, which was conducted by ABB-ES under contract with the USAEC, was to verify the presence or absence of environmental contamination and to determine whether further investigation or remediation was warranted. The Final Site Investigation Report was issued May 1993 (ABB-ES, 1993). The objective of sampling at SA 56 was to investigate the vertical and horizontal extent of environmental contamination generated by the release of oil from the former No. 2 fuel oil UST outside Building 2417 and to recommend further actions.

The SI sampling program included collecting 29 subsurface soil samples from 14 TerraProbe points, and analyzing the samples on site for benzene, toluene, ethylbenzene, xylenes (referred to collectively as BTEX) and TPH as indicators of petroleum contamination. Results of field screening were used to place two soil borings at the location of highest detected concentrations (56B-92-01X and 56B-92-02X) (Figure 2-2). The borings were advanced to bedrock, which was encountered at 10.6 ft below ground surface (bgs), prior to reaching the groundwater table. Soil samples were collected continuously in each of the borings for field screening by a photoionization detector (PID) and for soil classification. Two soil samples were selected from each boring based on PID readings and analyzed at an analytical laboratory for Project Analyte List (PAL) VOCs and TPH.

Because a till layer appeared to be inhibiting the residual fuel-related contaminants from migrating to the bedrock and therefore, the groundwater, groundwater monitoring wells were not installed at the site (ABB-ES, 1993).

### 3.4 PRELIMINARY RISK EVALUATION

A preliminary risk evaluation (PRE) was performed as part of the SI to help establish whether environmental contamination at SA 56 required further investigation or remediation. This section presents the general approach employed for the PRE; details of the human health PRE for SA 56 is presented in Section 5.0.

The human health PRE for SA 56 evaluated contamination in subsurface soils. Contamination at this study area is in subsurface soils, which are not accessible to ecological receptors. Therefore, an ecological PRE was not conducted. Groundwater samples were not collected at SA 56 because groundwater was not encountered in soil borings; therefore, potential risks associated with exposure to groundwater were not evaluated in the PRE.

### 3.4.1 Human Health Preliminary Risk Evaluation Methodology

The human health PRE at SA 56 included the following elements:

**Current and Future Land Use:** Current and foreseeable future land uses are particularly relevant with respect to the applicability of soil screening values used in the PRE. Two sets of soil screening values were used in the evaluation. When the PRE was prepared for SA 56, the future use of this area was assumed to be residential. (A more current *Devens Reuse Plan*, shows that the Building 2400 area is slated for innovation and technology business [Vanassee Hangen Brustlin, Inc., 1994]). Two sets of soil screening values were considered in the PRE. One set, USEPA Region III risk-based concentrations for residential soil, is used for comparison to contaminant concentrations in only the top three feet of soil. The other set is used for comparison to contaminant concentrations in all soils from 3 to 15 ft in depth (subsurface soils) which are considered to be accessible under a commercial/industrial exposure scenario. Because the contamination at SA 56 is below 3 feet in depth, the U.S. Environmental Protection Agency (USEPA) Region III risk-based concentrations for commercial/industrial soil were used.

**Comparison to Public Health Standards and Guidelines:** For soil, human health standards and/or guidelines were used as screening criteria to evaluate the significance of the sampling data. The USEPA's Region III risk-based concentrations were used to evaluate the results of the soil sampling program. These concentrations are used by USEPA Region III toxicologists as a risk-based screening tool for Superfund sites and a benchmark for evaluating preliminary site investigation data and preliminary remediation goals. Although it has no official status either as regulation or guidance, it is useful as a screening tool. The data are updated quarterly and therefore regularly incorporate new USEPA toxicity constants as they are developed. The First Quarter, 1993 was the current update used in the SI PRE for SA 56.

For the SA 56 human health PRE, Region III risk-based concentrations for commercial/industrial soil were used. Risk-based concentrations for commercial/industrial soil assume that a worker ingests soil 250 days per year for 25 years, at an ingestion rate of 100 mg/day.

More recent PREs incorporate Method 1 standards from the Revised Massachusetts Contingency Plan (MCP) (MADEP, 1993). However, at the time the human health

### **SECTION 3**

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1 PRE was conducted on data collected during the SI at SA 56, the revised MCP was  
2 not in effect; therefore, MCP Method 1 standards were not used in the evaluation.

## 4.0 CONTAMINATION ASSESSMENT

The SA 56 SI laboratory analytical results are discussed in the following subsections. A detailed discussion of the analytical results are included in the SI Report (ABB-ES, 1993).

### 4.1 SITE INVESTIGATION

Analytical samples were not collected from the original tank excavation at SA 56 in October 1990. Samples were collected for TPH analysis following removal of soil on April 12, 1991. Results from two composite soil samples from the excavation wall and base indicated that TPH concentrations in soil remaining in the excavation were 226 ppm and 234 ppm. The MEP recommended the installation of groundwater monitoring wells and groundwater sampling. Additional objectives included assessing the vertical and horizontal extent of contaminant migration and additional soil removal.

The SI field sampling program at SA 56 conducted by ABB-ES in 1992 included collecting 29 subsurface soil samples from 14 TerraProbe points, and analyzing the samples on site for BTEX and TPH as indicators of petroleum contamination. Toluene, ethylbenzene, and/or xylenes were detected at the 5-ft depths during field screening at locations TP-03, TP-10, and TP-13. TPH was detected in eight of the 11 samples, at concentrations up to 3,800 ppm. Seven field screening samples were collected at a depth of 8 to 9 ft. TPH was detected in four of the seven samples at a maximum concentration of 1,470 ppm at TP-11. Maximum detected concentrations of ethylbenzene and xylenes in the 8- to 9-ft interval were 84 parts per billion (ppb) and 217 ppb, respectively. Eleven soil samples were also collected for field screening from depths of 10 to 11 ft bgs. No significant concentrations of organics were detected in these samples (ABB-ES, 1993).

The results of the field analysis for the subsurface soil samples indicated that residual petroleum-related contamination was present in and around the former UST from 5 to 8 ft bgs (Table 4-1 and Figure 4-1). The results for soil samples collected below 8 ft indicate that the contaminants have not migrated vertically (ABB-ES, 1993).

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Results of field screening were used to place two soil borings at the location of highest detected concentrations. Two samples were collected from each of these borings and were analyzed for VOCs and TPH to confirm field screening results and to further define geologic conditions at SA 56.

Laboratory analytical results correlated well with field screening results. Laboratory results indicated that subsurface soil was contaminated with TPH at concentrations of 56.1 micrograms per gram ( $\mu\text{g/g}$ ) in 56B-92-01X and 1,440  $\mu\text{g/g}$  in 56B-92-02X in the samples collected from 7 to 9 ft bgs. Concentrations of TPH detected in samples from 9 to 13 ft bgs ranged from 34.1 to 34.4  $\mu\text{g/g}$ . Acetone was detected in the 9 ft sample from 56B-92-01X at 0.035  $\mu\text{g/g}$ . Analytical results for soil are presented in Table 4-2 and shown in Figure 4-2.

Although the MEP proposed groundwater sampling at SA 56, monitoring wells were not installed during the SI because groundwater was not encountered in any of the subsurface explorations. The 14 TerraProbe points and two soil borings installed during the SI extended to depths of up to 11 ft bgs.

### 4.2 SOIL REMOVAL ACTION

Based on the elevated TPH concentrations detected in the subsurface soil at Building 2417, it was determined that a removal action should be conducted to address petroleum contamination beyond localized release in subsurface soil. The Army's decision to conduct a removal action was documented in the Action Memoranda for Various Sites (ABB-ES, 1994).

Fort Devens tasked the New England Division of the U.S. Army Corps of Engineers (USACE) to initiate a response action at the Building 2417 LUST Site. The Corps of Engineers contracted OHM Remediation Services Corporation (OHM) of Hopkinton, Massachusetts, to perform removal actions at SA 56 and at several other sites.

The following provides a summary of the soil removal action. Further details and documentation are provided in the Final Closure Report (OHM, 1996).

#### 4.2.1 Removal Action Objectives

At the time the human health PRE was conducted on data collected during the SI at SA 56, the revised MCP (MADEP, 1993) was not in effect; therefore, MCP Method 1 standards were not used in the evaluation. However, when the removal action was planned in 1994, the revised MCP had been promulgated. Therefore, MCP Method 1 S-1/GW-1 soil standards were used as risk-based guidelines to establish target cleanup levels for the removal action at the Building 2417 LUST Site. For a Method 1 Risk Characterization under the MCP, compliance with these soil standards constitutes a demonstration of no significant health risk from exposure to oil or hazardous material in soil. Category S-1 soil has the greatest potential for exposure. For TPH, the S-1 soil standard is 500 micrograms per gram ( $\mu\text{g/g}$ ). For benzene, toluene, ethylbenzene, and xylene, the S-1 soil standards are 10  $\mu\text{g/g}$ , 90  $\mu\text{g/g}$ , 80  $\mu\text{g/g}$ , and 500  $\mu\text{g/g}$ , respectively. These values, which have not changed since the 1993 MCP revisions, were selected as the target cleanup goals for the SA 56 removal action.

#### 4.2.2 Field Observations and Screening Results

On September 13, 1994, OHM began the soil removal action in the area where petroleum contamination was identified during the SI. Water was encountered during the excavation, and is probably indicative of a small, perched aquifer rather than the main bedrock aquifer. Such a condition arises when downward-moving water is obstructed by a lens of low-permeability material (such as glacial till). Infiltrating precipitation accumulates at the top of this low-permeability unit, forming a localized, saturated layer. Water was not encountered in any of the SI TerraProbe points and soil borings (which extended to depths of up to 11 ft bgs). OHM used a vacuum tanker to remove approximately 36,000 gallons of this perched water from the excavation. All water removed was processed through OHM's permitted water treatment facility at the OHM staging area and was discharged on site (OHM, 1996).

To access the contaminated soil, uncontaminated soil was removed from the surface and stockpiled separately for later use as backfill material. A photoionization detector (PID) was used to screen this "clean" soil and to identify the depth at which the excavation reached contaminated soil. Once contamination was encountered, all additional soil removed was stockpiled in temporary staging cells. Soil samples were continually collected from the excavation walls and floor for field screening for TPH

## SECTION 4

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1 by infrared spectroscopy. Field screening results, shown on Table 4-3, were used to  
2 direct the excavation.

3  
4 Soil samples collected from underneath the Building 2417 foundation (northwest  
5 sidewall) indicated the presence of contamination above the TPH action level which  
6 could not be removed without potentially jeopardizing the structural integrity of the  
7 building. The USACE then directed OHM to demolish the building in order to  
8 remove the residual contamination under the building. The removal action  
9 continued until screening results indicated that TPH concentrations in residual soils  
10 did not exceed 500  $\mu\text{g/g}$  (OHM, 1996). The excavation ultimately extended to an  
11 average depth of 11 ft. A total of 1,173 tons of contaminated soil were removed;  
12 the final excavation limit is shown on Figure 4-3.

13  
14 Prior to demolishing Building 2417, OHM contracted TRC Environmental Services  
15 to conduct an asbestos survey. The results of the survey indicated nonfriable  
16 asbestos in the floor tile and floor tile mastic, and friable asbestos in visible pipe  
17 covering. No asbestos was present in the ceiling, wallboard, or roof shingles  
18 sampled (OHM, 1996). OHM removed 120 square feet of nonfriable floor tile and  
19 2 linear feet of pipe covering.

20  
21 Several rounds of field screening of the soil were required prior to initiation of  
22 confirmation soil sampling. Results are presented in Table 4-3. Five confirmation  
23 soil samples were collected from the base and walls of the excavation on September  
24 22, 1994, and were submitted by OHM to the contract laboratory for TPH,  
25 semivolatile organic compounds (SVOCs), and BTEX analyses. Due to the ongoing  
26 demolition of Building 2417 and elevated concentrations in some samples,  
27 additional soil was removed and one confirmation sample was collected on October  
28 3, 1994 and three more on October 4, 1994. Analytical results, presented on Table  
29 4-4, confirm that any residual TPH, SVOCs, and BTEX in soil is below the target  
30 cleanup levels established for SA 56. Confirmation sample locations are shown on  
31 Figure 4-3. Petroleum contamination at SA 56 has been characterized and  
32 removed. (OHM, 1996).

### 33 34 4.2.3 Waste Characterization and Disposal

35  
36 Excavated soil was temporarily stockpiled by OHM in discrete staging cells which  
37 were double-lined with polyethylene sheeting and bounded by sand berms. Soil

1 believed to be uncontaminated was stored separately from soil considered  
2 contaminated.

3  
4 A composite soil sample was collected from the "clean" stockpiled soil. On-site  
5 screening indicated that the sample contained TPH at a concentration below the  
6 target cleanup level of 500  $\mu\text{g/g}$ . The SA 56 excavation was then backfilled using  
7 this uncontaminated material as well as additional clean fill provided by an offsite  
8 supplier (OHM, 1996).

9  
10 Waste characterization samples were collected from the contaminated soil stockpiles  
11 and were analyzed for TPH, SVOCs, Toxicity Characteristic Leaching Procedure  
12 (TCLP) inorganics, TCLP organics, Resource Conservation and Recovery Act  
13 (RCRA) characteristics, and BTEX. All contaminated soil was transferred to a  
14 temporary soil storage facility at Fort Devens pending reuse as cover material in the  
15 proposed Consolidation Landfill. The asbestos-containing material was placed into  
16 1 cubic yard boxes and shipped to Chicopee Sanitary Landfill located in Chicopee,  
17 Massachusetts. The demolition debris from Building 2417 was disposed off site at  
18 the Fitchburg Municipal Landfill located in Westminster, Massachusetts. Complete  
19 waste characterization results, as well as transportation and disposal documentation,  
0 are provided in Appendix A (OHM, 1996).

## 5.0 PRELIMINARY HUMAN HEALTH RISK EVALUATION

Building 2417 was most recently used as a warehouse, but was demolished as part of the removal action conducted in September and October 1994. The intended future use of the surrounding area, according to the *Devens Reuse Plan*, is innovation and technology business (Vanassee Hangen Brustlin, Inc. 1994). Table 5-1 presents the statistics and human health standards and guidelines used in the human health PRE for SA 56 which is summarized below.

### 5.1 SOILS

The PRE, performed as part of the SI, considered all soils between 3 and 15 ft bgs as subsurface soil. Detected contaminant concentrations were compared to Region III risk-based concentrations for commercial/industrial exposure. The Revised MCP Method 1 standards were not used in the PRE because they were not in effect at the time the PRE was conducted (May 1993). The use of Region III commercial/industrial soil concentrations are appropriate because the expected future use of the area is to be commercial.

Table 5-1 presents summary statistics from the field analytical subsurface soil sampling program conducted during the SI at SA 56 and human health standards and guidelines for comparison. Acetone was detected in one sample at  $0.035 \mu\text{g/g}$ . This concentration is below the USEPA Region III commercial/industrial soil concentration and is not considered a potential risk to human health.

Soil borings from locations 56B-92-01X and 56B-92-02X indicated residual TPH contamination from the former UST up to  $1,440 \mu\text{g/g}$  at a depth of 7 ft. Below 9 ft, the maximum TPH concentration in subsurface soil samples was  $34.4 \mu\text{g/g}$ .

To evaluate the health risk associated with TPH in soil during the SI, ABB-ES developed risk-based concentrations for petroleum products. These concentrations were calculated using the same exposure assumptions as those used by USEPA toxicologists in the USEPA Region III Risk-Based Concentration Table, First Quarter, 1993 for commercial/industrial soils. Dose response values for diesel oil used in the calculations are provisional values developed by USEPA, Environmental Criteria and Assessment Office (USEPA, 1992). USEPA suggests using the

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## SECTION 5

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1 reference dose value for diesel oil as a surrogate for No. 2 fuel oil. The calculated  
2 risk-based commercial/industrial soil concentration for No. 2 fuel oil is 8,180  $\mu\text{g/g}$ .  
3

4 The maximum detected TPH concentration in soil at SA 56 (3,800  $\mu\text{g/g}$ ) was below  
5 the calculated risk-based commercial/industrial soil concentration of 8,180  $\mu\text{g/g}$ .  
6 Although the PRE therefore determined that residual contamination at SA 56 does  
7 not pose an significant risk to human health, the soil removal action was conducted  
8 to address petroleum contamination beyond localized release in subsurface soil.  
9

### 10 5.2 QUALITATIVE EVALUATION OF RESIDUAL RISK

11  
12 Cleanup standards for the soil removal action at SA 56 were established using the  
13 MCP Method 1 S-1/GW-1 soil standard for TPH. The revised MCP was not a  
14 standard at the time of the PRE but was promulgated by the time the removal  
15 action was performed. Soil with TPH concentrations exceeding 500  $\mu\text{g/g}$  was  
16 removed during the soil removal action in September and October 1994. The  
17 maximum detected TPH concentration in confirmation samples (266  $\mu\text{g/g}$ ) is below  
18 the MCP S-1/GW-1 soil standard of 500  $\mu\text{g/g}$ . Groundwater samples were not  
19 collected at SA 56 because groundwater was not encountered in soil borings at the  
20 site. Because a till layer appeared to be inhibiting the residual fuel-related  
21 contaminants from migrating to the bedrock, it is believed that fuel-related  
22 contaminants have not migrated to the groundwater. The low residual contaminant  
23 concentrations in soil suggest that no significant risks to human health exist at the  
24 Building 2417 LUST Site.

## 6.0 CONCLUSIONS

No further action is recommended for SA 56. This recommendation is based on historical site use as confirmed by physical observations, sampling, and chemical analysis. It is also based on the results of human health PRE and the completed removal actions.

The objective of the SI sampling program was to investigate the distribution of contamination in the subsurface soils, and if needed, groundwater at SA 56. The potential migration pathway for fuel contamination was via surface water infiltration and percolation through the contaminated overburden soil and into the groundwater. Subsurface soil samples were collected for field and laboratory analysis to determine the distribution of contamination.

Petroleum-related organic compounds were detected in the field analytical samples and in the soil samples submitted for laboratory chemical analysis. The field analytical results identified the area of contamination, both vertically and horizontally. These field analytical results were confirmed by laboratory analysis of soil samples collected from two soil borings. Contamination appeared to be confined to the upper 8 ft of soil in the location of the former UST. The data indicated that contaminants have not migrated into or through the glacial till layer above bedrock. Based on these results, it does not appear that contamination has migrated into the groundwater, which appears to be within the bedrock at SA 56.

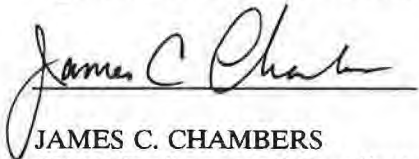
Although contaminant concentrations were below levels that would pose a potential human health risk under the assumed commercial/industrial exposure scenario, a soil removal action was proposed to address TPH contamination beyond localized release in soils. The cleanup level for TPH was established using the MCP Method 1 S-1/GW-1 soil standard of 500  $\mu\text{g/g}$ , which was conservative given the current and planned future use of the area (innovation and technology business). Soil with TPH concentrations exceeding 500  $\mu\text{g/g}$  was removed during the soil removal action. Excavation was continued until confirmation sample analyses indicated that TPH concentrations were below the cleanup level. The maximum detected TPH concentration in confirmation soil samples (266  $\mu\text{g/g}$ ) is below the 500  $\mu\text{g/g}$  standard. The low residual concentrations of TPH and other petroleum-related compounds suggest that no residual risks to human health exist at SA 56.

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## 7.0 DECISION

With the removal of contaminated soil from the Building 2417 LUST Site and a determination of no residual risk, there is no evidence or reason to conclude that residual hazardous waste contamination due to the former UST at Building 2417 has caused significant environmental contamination or poses a threat to human health or the environment. The decision has been made to remove SA 56 from further consideration in the IRP process. In accordance with CERCLA 120 (h) (3), all remedial actions necessary have taken place, and the USEPA and MADEP signatures constitute concurrence in accordance with the same.

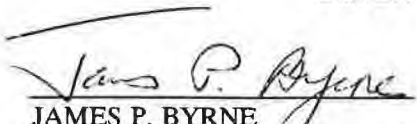


JAMES C. CHAMBERS  
BRAC Environmental Coordinator

2 Oct 96

Date

## U.S. ENVIRONMENTAL PROTECTION AGENCY



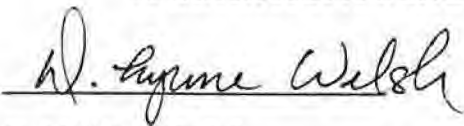
JAMES P. BYRNE  
Fort Devens Remedial Project Manager

10/2/96

Date

☒ Concur☐ Non-concur (Please provide reasons for non-concurrence in writing)

## MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION



D. LYNNE WELSH  
Section Chief, Federal Facilities - CERO

10/2/96

Date

☒ Concur☐ Non-concur (Please provide reasons for non-concurrence in writing)

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## **GLOSSARY OF ACRONYMS AND ABBREVIATIONS**

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ABB-ES	ABB Environmental Services, Inc.
bgs	below ground surface
BRAC	Defense Base Realignment and Closure Act of 1990
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOD	U.S. Department of Defense
ft	foot or feet
gpm	gallons per minute
IRP	Installation Restoration Program
LUST	leaking underground storage tank
MADEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
MEP	Master Environmental Plan
mg	milligrams
MSL	mean sea level
OHM	OHM Remediation Services Corporation
PA	Enhanced Preliminary Assessment
PAL	Project Analyte List
PID	photoionization detector
ppb	parts per billion
ppm	parts per million
PRE	Preliminary Risk Evaluation
RCRA	Resource Conservation and Recovery Act
SA	Study Area
SI	site investigation

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**ABB Environmental Services, Inc.**

## **GLOSSARY OF ACRONYMS AND ABBREVIATIONS**

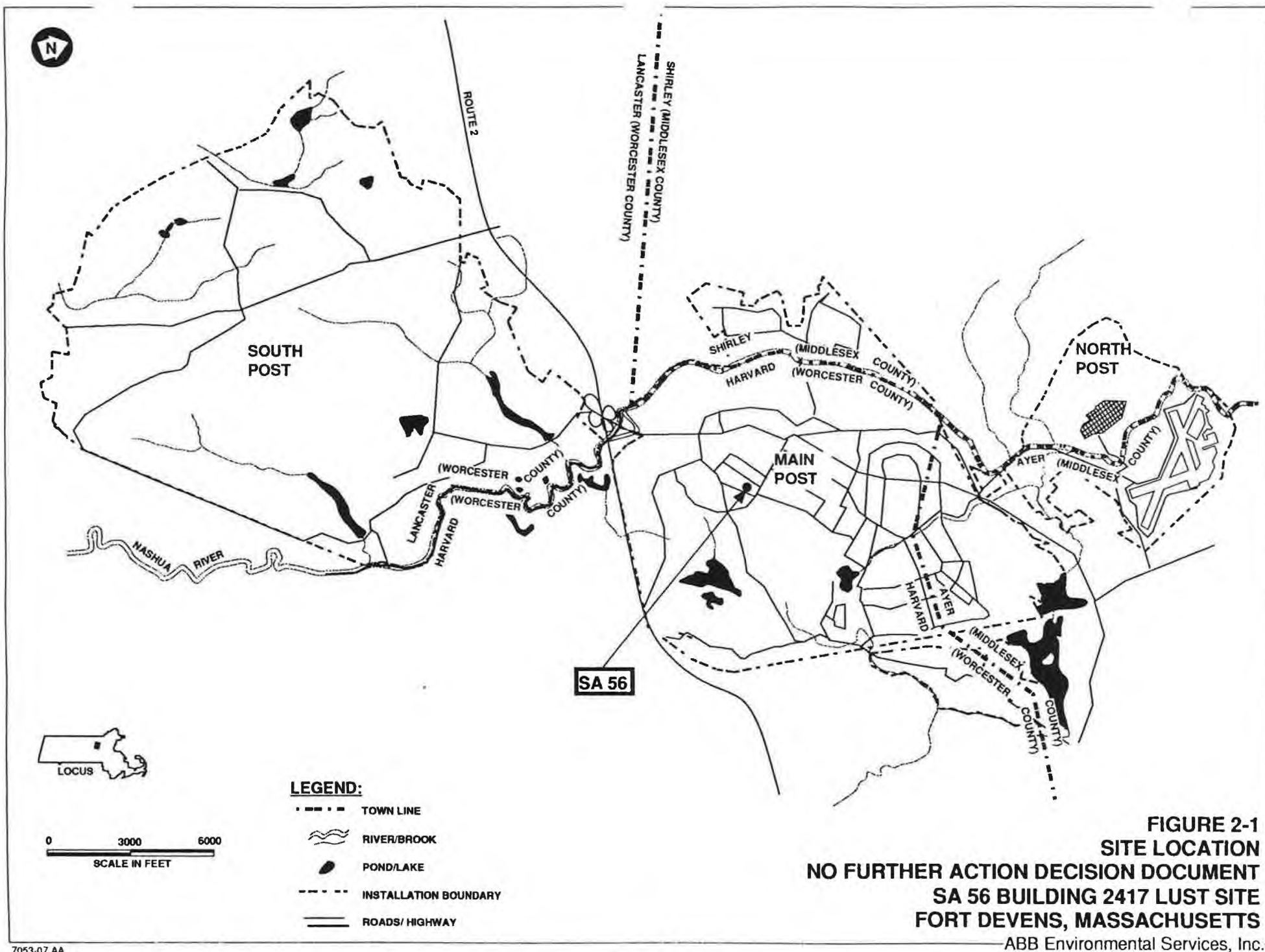
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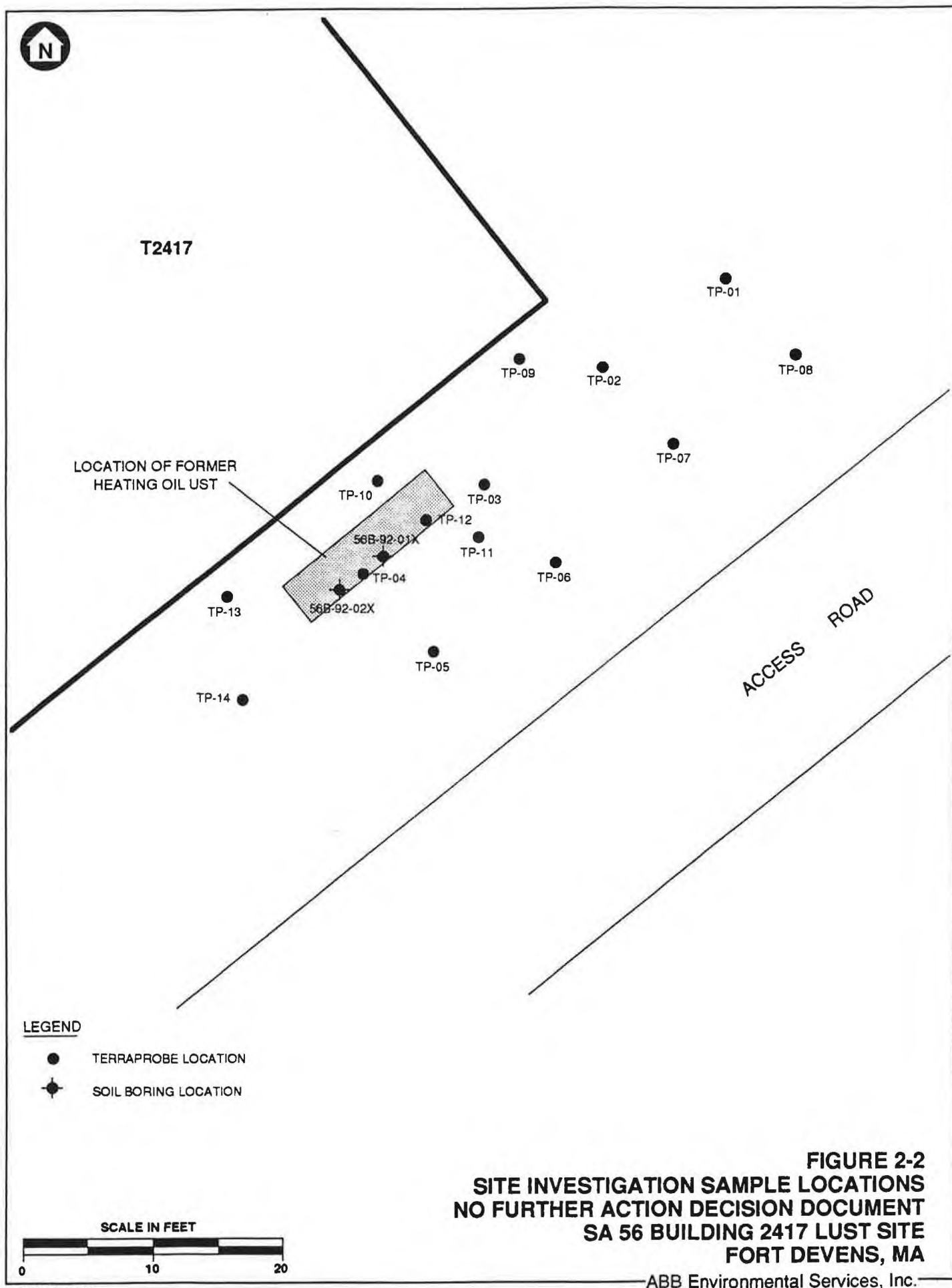
SVOC	semivolatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
$\mu\text{g/g}$	micrograms per gram
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

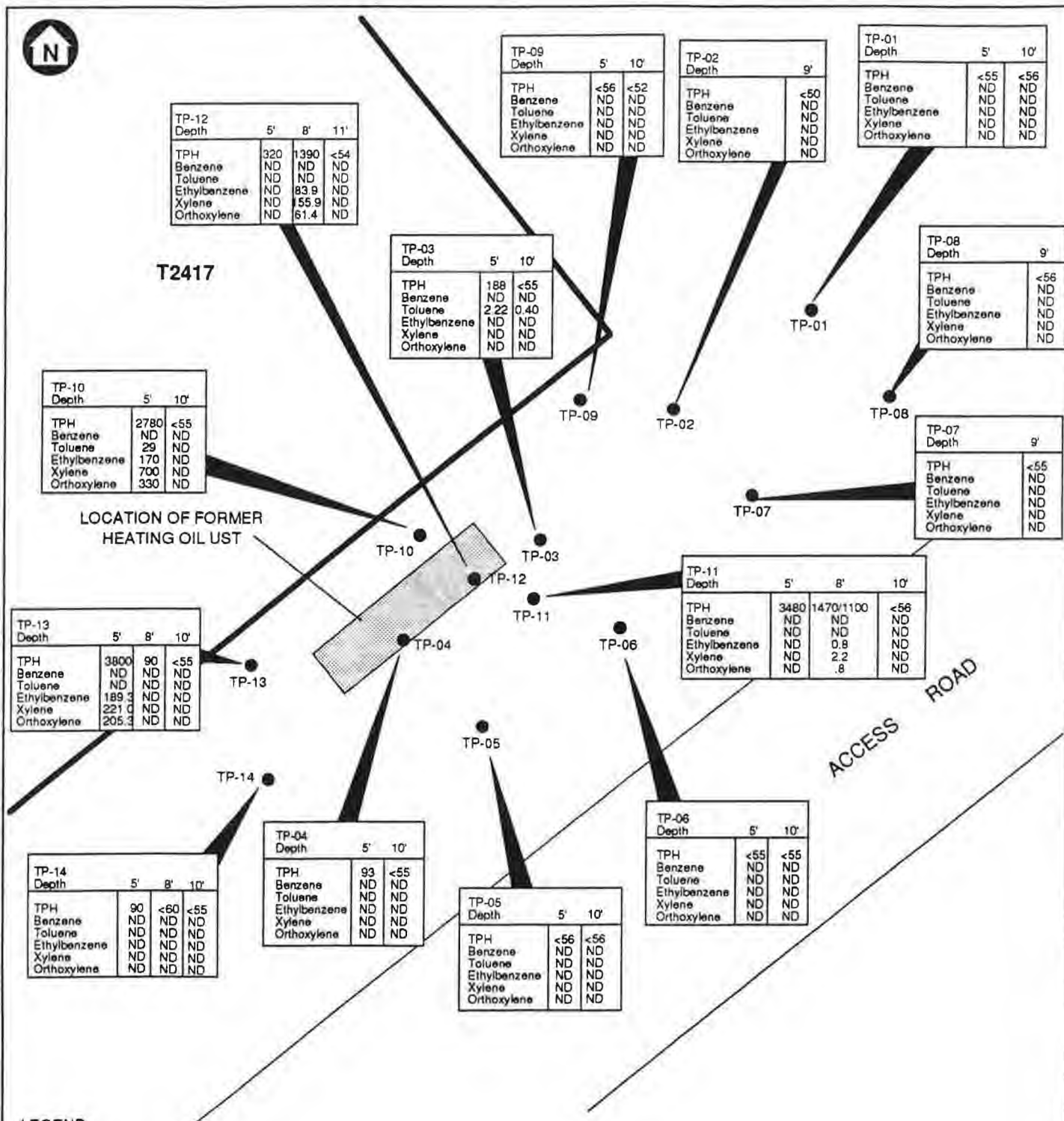
## REFERENCES

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- ABB Environmental Services, Inc. (ABB-ES), 1993. "Final Site Investigation Report - Groups 2, 7, & Historic Gas Stations, Fort Devens, Massachusetts"; Data Item A009; prepared for the U.S. Army Environmental Center by ABB Environmental Services, Inc., Portland, ME; May.
- Biang, C.A., R.W. Peters, R.H. Pearl, and S.Y. Tsai, 1992. "Master Environmental Plan for Fort Devens, Massachusetts"; prepared for U.S. Army Toxic and Hazardous Materials Agency; prepared by Argonne National Laboratory, Environmental Assessment and Information Sciences Division; Argonne, IL; Final, April.
- Jahns, R.H., 1953. "Surficial Geology of the Ayer Quadrangle, Massachusetts"; Scale 1:31,680; U.S. Geological Survey.
- Koteff, C., 1966. "Surficial Geologic Map of the Clinton Quadrangle, Worcester County, Massachusetts;" U.S. Geological Survey Map GQ-567.
- Massachusetts Department of Environmental Protection (MADEP), 1993. Revised Massachusetts Contingency Plan, 310 CMR 4.00 *et seq.*
- OHM Remediation Services Corporation, 1996. "Final Closure Report, Study Area 56, Fort Devens, Massachusetts"; prepared for the U.S. Army Corps of Engineers, Waltham, MA; Hopkinton, MA; March 4.
- U.S. Environmental Protection Agency (USEPA) Region III, 1993. "Risk-Based Concentration Table", Memo from Roy L. Smith, EPA Region III, to RBC mailing list; First Quarter 1993.
- Vanasse Hangen Brustlin, Inc., 1994. Devens Reuse Plan; prepared for the Boards of Selectmen: Town of Ayer, Town of Harvard, Town of Lancaster, Town of Shirley; and the Massachusetts Government Land Bank; November 14.







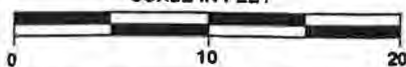
#### LEGEND

- TERRAPROBE LOCATION
- BTEX - BENZENE, TOLUENE, ETHYLBENZENE, XYLENE
- TPH - TOTAL PETROLEUM HYDROCARBONS
- ND - NON DETECT

#### NOTES

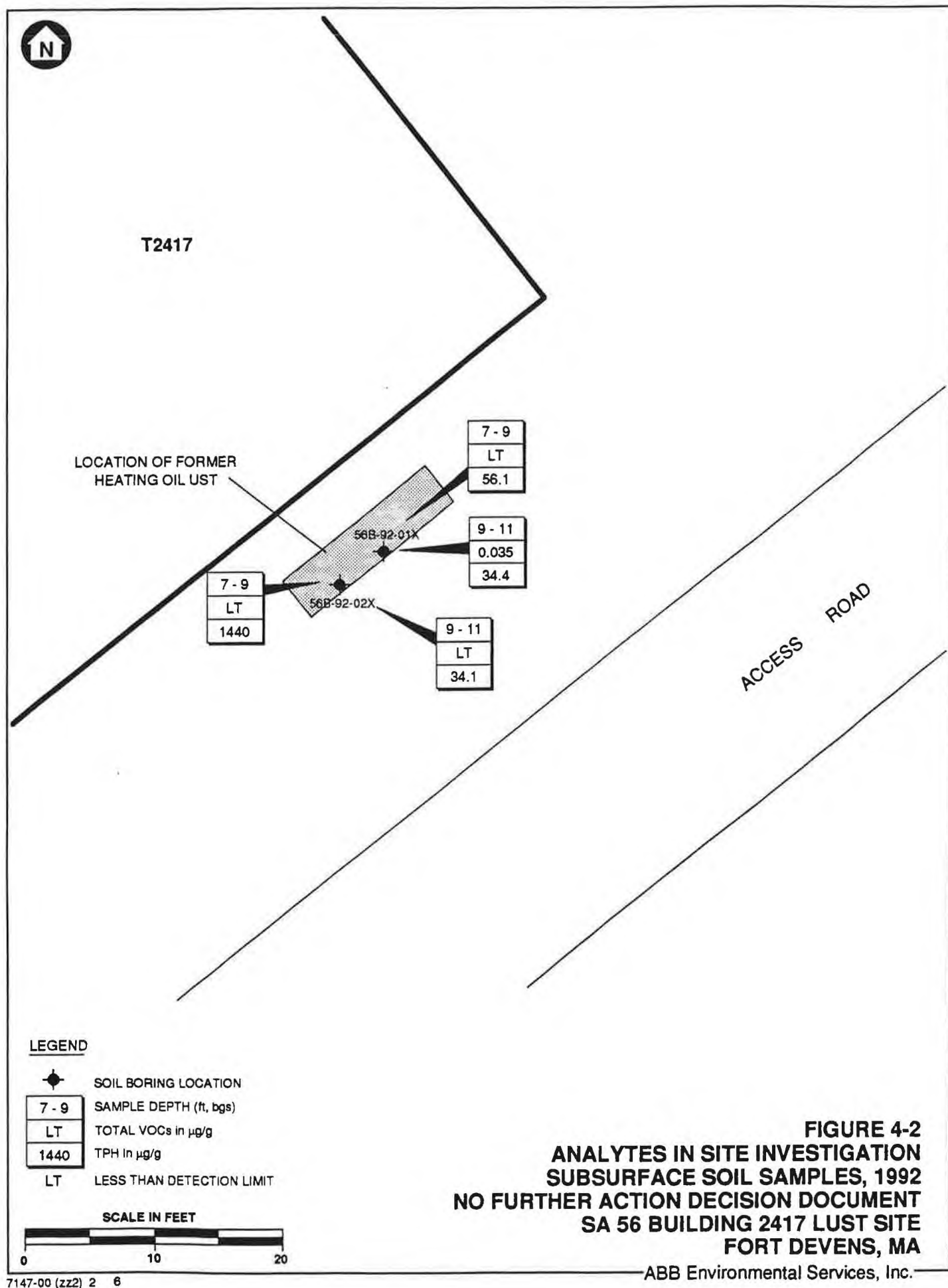
TPH CONCENTRATIONS IN ppm  
BTEX CONCENTRATIONS IN ppb

SCALE IN FEET



**FIGURE 4-1**  
**SITE INVESTIGATION FIELD SCREENING RESULTS, 1992**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**SA 56 BUILDING 2417 LUST SITE**  
**FORT DEVENS, MA**

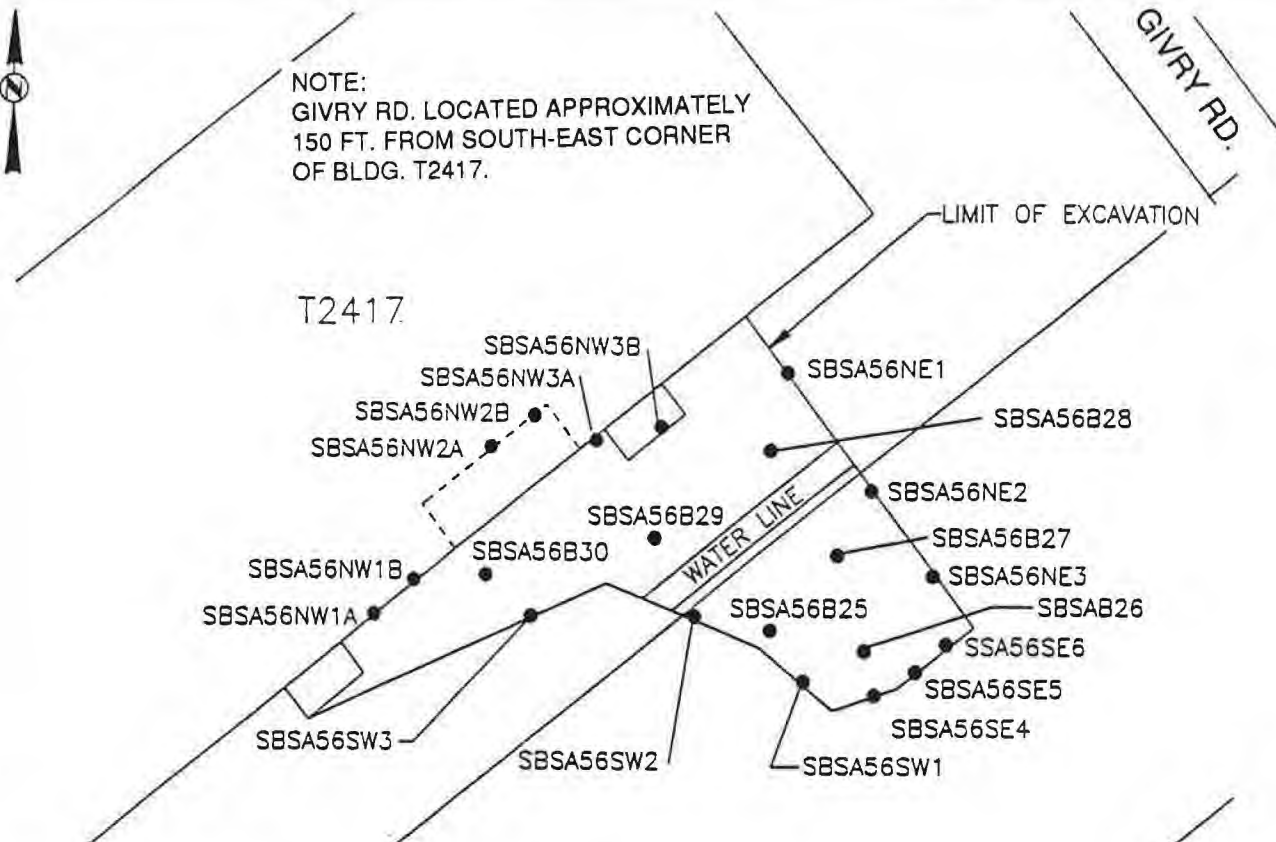
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**FIGURE 4-2**  
**ANALYTES IN SITE INVESTIGATION**  
**SUBSURFACE SOIL SAMPLES, 1992**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**SA 56 BUILDING 2417 LUST SITE**  
**FORT DEVENS, MA**



NOTE:  
GIVRY RD. LOCATED APPROXIMATELY  
150 FT. FROM SOUTH-EAST CORNER  
OF BLDG. T2417.



CONFIRMATORY COMPOSITE SAMPLE NUMBERS	DISCRETE SAMPLE LOCATIONS
SBSA56NWC1	SBSA56NW1A SBSA56NW1B
SBSA56NWC2	SBSA56NW2A SBSA56NW2B
SBSA56NWC3	SBSA56NW3A SBSA56NW3B
SBSA56NEC	SBSA56NE1 SBSA56NE2 SBSA56NE3
SBSA56SEC2	SBSA56SE4 SBSA56SE5 SBSA56SE6
SBSA56SWC	SBSA56SW1 SBSA56SW2 SBSA56SW3
SBSA56BC1	SBSA56B25 SBSA56B26 SBSA56B27
SBSA56BC2	SBSA56B28 SBSA56B29 SBSA56B30

#### LEGEND

● DISCRETE SAMPLE LOCATION

AVERAGE DEPTH = 11 FEET

--- DENOTES EXCAVATION BENEATH  
FOUNDATION



**FIGURE 4-3**  
**FINAL EXCAVATION LIMIT AND**  
**CONFIRMATION SAMPLE LOCATIONS**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**SA 56 BUILDING 2417 LUST SITE**  
**FORT DEVENS, MA**

**TABLE 4-1**  
**SOIL FIELD SCREENING RESULTS: SITE INVESTIGATION**  
**SA 56 - BUILDING 2417 LUST SITE**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS**

	TP-01	TP-01	TP-02	TP-03	TP-03	TP-04	TP-04
ANALYTE	56TSX01XX501XF	56TSX01X1001XF	56TSX02XX901XF	56TSX03XX501XF	56TSX03X1001XF	56TSX04XX501XF	56TSX04X1001XF
ORGANICS (ppb)	5 FT	10 FT	9 FT	5 FT	10 FT	5 FT	10 FT
BENZENE	<5	<5	<5	<5	<5	<5	<5
TOLUENE	<5	<5	<5	2.2	0.4	<5	<5
ETHYLBENZENE	<5	<5	<5	<5	<5	<5	<5
m/p-XYLENE	<10	<10	<10	<10	<10	<10	<10
o-XYLENE	<5	<5	<5	<5	<5	<5	<5
OTHER (ppm)							
TOTAL PETROLEUM HYDROCARBONS	< 55	< 56	< 50	188	< 56	93	< 55

Notes:

< Less than detection limit shown

ppb = parts per billion

ppm = parts per million

**TABLE 4-1, continued**  
**SOIL FIELD SCREENING RESULTS: SITE INVESTIGATION**  
**SA 56 - BUILDING 2417 LUST SITE**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS**

	TP-05	TP-05	TP-06	TP-06	TP-07	TP-08	TP-09	TP-09
ANALYTE	56TSX05XX501XF	56TSX05X1001XF	56TSX06XX501XF	56TSX06X1001XF	56TSX07XX901XF	56TSX08XX901XF	56TSX09XX501XF	56TSX09X1001XF
ORGANICS (ppb)	5 FT	10 FT	5 FT	10 FT	9 FT	9 FT	5 FT	10 FT
BENZENE	<5	<5	<5	<5	<5	<5	<5	<5
TOLUENE	<5	<5	<5	<5	<5	<5	<5	<5
ETHYLBENZENE	<5	<5	<5	<5	<5	<5	<5	<5
m/p-XYLENE	<10	<10	<10	<10	<10	<10	<10	<10
o-XYLENE	<5	<5	<5	<5	<5	<5	<5	<5
OTHER (ppm)								
TOTAL PETROLEUM HYDROCARBONS	< 56	< 56	< 55	< 57	< 55	< 56	< 56	< 52

Notes:

< Less than detection limit shown

ppb = parts per billion

ppm = parts per million

**TABLE 4-1, continued**  
**SOIL FIELD SCREENING RESULTS: SITE INVESTIGATION**  
**SA 56 - BUILDING 2417 LUST SITE**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS**

	TP-10	TP-10	TP-11	TP-11	TP-11	TP-12	TP-12
ANALYTE	56TSX10XX501XF	56TSX10X1001XF	56TSX11XX501XF	56TSX11XX801XF	56TSX11X1001XF	56TSX12XX501XF	56TSX12XX801XF
ORGANICS (ppb)	5 FT	10 FT	5 FT	8 FT	10 FT	5 FT	8 FT
BENZENE	<5	<5	<5	<5	<5	<5	<5
TOLUENE	29	<5	<5	<5	<5	<5	<5
ETHYLBENZENE	170	<5	<5	0.8	<5	<5	83.9
m/p-XYLENE	700	<10	<10	2.2	<10	<10	155.9
o-XYLENE	330	<5	<5	0.79	<5	<5	61.4
OTHER (ppm)							
TOTAL PETROLEUM HYDROCARBONS	2780	< 52	3480	1470/1100	< 56	320	1390

Notes:

< Less than detection limit shown

ppb = parts per billion

ppm = parts per million

**TABLE 4-1, continued**  
**SOIL FIELD SCREENING RESULTS: SITE INVESTIGATION**  
**SA 56 - BUILDING 2417 LUST SITE**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS**

	TP-12	TP-13	TP-13	TP-13	TP-14	TP-14	TP-14
ANALYTE	56TSX12X1101XF	56TSX13XX501XF	56TSX13XX801XF	56TSX13X1001XF	56TSX14XX501XF	56TSX14XX801XF	56TSX14X1001XF
ORGANICS (ppb)	11 FT	5 FT	8 FT	10 FT	5 FT	8 FT	10 FT
BENZENE	<5	<5	<5	<5	<5	<5	<5
TOLUENE	<5	<5	<5	<5	<5	<5	<5
ETHYLBENZENE	<5	189.2	<5	<5	<5	<5	<5
m/p-XYLENE	<10	220.9	<10	<10	<10	<10	<10
o-XYLENE	<5	205.3	<5	<5	<5	<5	<5
<b>OTHER (ppm)</b>							
TOTAL PETROLEUM HYDROCARBONS	< 54	3800	90	< 55	90	< 60	< 55

Notes:

< Less than detection limit shown

ppb = parts per billion

ppm = parts per million

**TABLE 4-2**  
**ANALYTES IN SOIL: SITE INVESTIGATION**  
**SA 56 - BUILDING 2417 LUST SITE**  
**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS, MA**

ANALYTE	BORING	56B-92-01X	56B-92-01X	56B-92-02X	56B-92-02X
	DEPTH	7 FT	9 FT	7 FT	9 FT
<b>VOLATILES (ug/g)</b>					
ACETONE		< 0.017	0.035	< 0.017	< 0.017
<b>OTHER (ug/g)</b>					
TOTAL PETROLEUM HYDROCARBONS		56.1	34.4	1440.0	34.1

**NOTES:**

Table lists identified analytes only.

< = less than detection limit shown

ug/g = micrograms per gram

TABLE 4-3  
FIELD SCREENING RESULTS: SOIL REMOVAL ACTION  
SA 56 - BUILDING 2417 LUST SITE  
NO FURTHER ACTION DECISION DOCUMENT  
FORT DEVENS, MA

Sample ID	Date Collected	Sample Location	Sample Depth (feet)	TPH (mg/kg)
SBSA56B1	13-Sept-94	bottom center	3.7	16
SBSA56W1	13-Sept-94	southeast sidewall	3.4	6,059
SBSA56W2	13-Sept-94	southeast sidewall	3.4	ND(42)
SBSA56W3	13-Sept-94	southeast sidewall	3.4	ND(42)
SBSA56W4	13-Sept-94	northwest sidewall	3.4	14J
SBSA56W5	13-Sept-94	northwest sidewall	3.4	22
SBSA56W6	13-Sept-94	northwest sidewall	3.4	ND(42)
SBSA56B2	14-Sept-94	southwest sidewall	4.0	40J
SBSA56B3	14-Sept-94	SE bottom/water line	4.0	9,935
SBSA56B4	14-Sept-94	southwest bottom	6.0	ND(42)
SBSA56W7	14-Sept-94	northwest sidewall	3.0	1,458
SBSA56W8	14-Sept-94	northwest sidewall	3.0	944
SBSA56W9	14-Sept-94	northwest sidewall	3.0	ND(42)
SBSA56B5	15-Sept-94	northwest bottom	9.5	ND(42)
SBSA56W10	15-Sept-94	northwest sidewall	8.0	ND(42)
SBSA56W11	15-Sept-94	northwest sidewall	6.0	ND(42)
SBSA56W12	15-Sept-94	southeast sidewall	6.5	ND(42)
SBSA56W13	15-Sept-94	southeast sidewall	6.5	ND(42)
SBSA56W14	15-Sept-94	southeast sidewall	8.0	ND(42)
SBSA56W15	15-Sept-94	northwest sidewall	8.0	ND(42)
SBSA56B16	15-Sept-94	northwest sidewall	5.5	2,742
SBSA56B6	15-Sept-94	south bottom	9.0	ND(42)
SBSA56B7	15-Sept-94	north bottom	9.0	ND(42)

NOTES:

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

ND = TPH was not detected above the method detection limit shown.

J = estimated concentration below the practical quantitation limit.

SOURCE: OHM Remediation Services Corp., 1996.

TABLE 4-3 (continued)  
FIELD SCREENING RESULTS: SOIL REMOVAL ACTION  
SA 56 - BUILDING 2417 LUST SITE  
NO FURTHER ACTION DECISION DOCUMENT  
FORT DEVENS, MA

Sample ID	Date Collected	Sample Location	Sample Depth (feet)	TPH (mg/kg)
SBSA56W17	15-Sept-94	northeast sidewall	7.0	233
SBSA56W18	15-Sept-94	southeast sidewall	5.0	1,950
SBSA56W19	15-Sept-94	southeast sidewall	5.0	817
SBSA56B8	15-Sept-94	east bottom	9.4	ND(42)
SBSA56B9	15-Sept-94	northwest bottom	9.0	ND(42)
SBSA56W20	15-Sept-94	northwest sidewall	6.0	2,425
SBSA56W21	15-Sept-94	northwest sidewall	8.0	ND(42)
SBSA56B10	16-Sept-94	east bottom	4.0	948
SBSA56B11	16-Sept-94	southeast bottom	4.0	2805
SBSA56W22	16-Sept-94	northeast sidewall	5.5	ND(42)
SBSA56W23	16-Sept-94	northeast sidewall	5.5	70
SBSA56W24	16-Sept-94	southeast sidewall	3.7	3,062
SBSA56W25	16-Sept-94	southeast sidewall	4.0	ND(42)
SBSA56B12	16-Sept-94	southeast bottom	4.7	1,342
SBSA56B13	16-Sept-94	east bottom	4.6	ND(42)
SBSA56B14	16-Sept-94	northeast bottom	4.9	ND(42)
SBSA56B15	16-Sept-94	east bottom	4.9	ND(42)
SBSA56B16	16-Sept-94	east bottom	5.8	ND(42)
SBSA56W26	16-Sept-94	southeast sidewall	4.3	540
SBSA56W27	16-Sept-94	southeast sidewall	4.2	ND(42)
SBSA56W28	16-Sept-94	northeast sidewall	5.4	ND(42)
SBSA56W29	19-Sept-94	southeast sidewall	6.0	1,028
SBSA56W30	19-Sept-94	southeast sidewall	6.0	ND(42)

**NOTES:**

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

ND = TPH was not detected above the method detection limit shown.

J = estimated concentration below the practical quantitation limit.

SOURCE: OHM Remediation Services Corp., 1996.

TABLE 4-3 (continued)  
FIELD SCREENING RESULTS: SOIL REMOVAL ACTION  
SA 56 - BUILDING 2417 LUST SITE  
NO FURTHER ACTION DECISION DOCUMENT  
FORT DEVENS, MA

Sample ID	Date Collected	Sample Location	Sample Depth (feet)	TPH (mg/kg)
SBSA56W31	19-Sept-94	southeast sidewall	6.0	1,693
SBSA56W32	19-Sept-94	southeast sidewall	6.0	1,700
SBSA56B17	19-Sept-94	east bottom	6.3	70
SBSA56B18	19-Sept-94	southeast bottom	6.3	1,086
SBSA56B19	19-Sept-94	southeast bottom	6.3	769
SBSA56W33	19-Sept-94	southeast bottom	6.0	153
SBSA56W34	19-Sept-94	southeast bottom	6.0	46
SBSA56W35	19-Sept-94	southeast bottom	5.0	ND(42)
SBSA56W36	19-Sept-94	southeast bottom	5.0	ND(42)
SBSA56W37	19-Sept-94	southeast bottom	5.0	786
SBSA56B20	19-Sept-94	south bottom	6.3	59
SBSA56W38	19-Sept-94	southeast sidewall	5.0	ND(42)
SBSA56W39	19-Sept-94	southeast sidewall	4.0	185
SBSA56W40	19-Sept-94	southeast sidewall	3.0	ND(42)
SBSA56W41	19-Sept-94	southeast sidewall	2.0	ND(42)
SBSA56W42	19-Sept-94	southeast sidewall	1.0	ND(42)
SBSA56B21	20-Sept-94	southeast bottom	6.0	67
SBSA56W43	20-Sept-94	southeast sidewall	7.5	1,975
SBSA56W44	20-Sept-94	southeast sidewall	5.0	ND(42)
SBSA56B22	20-Sept-94	southeast bottom	9.0	459
SBSA56W45	20-Sept-94	northeast sidewall	5.5	ND(42)
SBSA56W46	20-Sept-94	northeast sidewall	6.5	ND(42)
SBSA56W47	20-Sept-94	southwest sidewall	5.5	598

NOTES:

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

ND = TPH was not detected above the method detection limit shown.

J = estimated concentration below the practical quantitation limit.

SOURCE: OHM Remediation Services Corp., 1996.

TABLE 4-3 (continued)  
FIELD SCREENING RESULTS: SOIL REMOVAL ACTION  
SA 56 - BUILDING 2417 LUST SITE  
NO FURTHER ACTION DECISION DOCUMENT  
FORT DEVENS, MA

Sample ID	Date Collected	Sample Location	Sample Depth (feet)	TPH (mg/kg)
SBSA56W48	20-Sept-94	southwest sidewall	6.6	1,263
SBSA56B23	20-Sept-94	center bottom	9.0	ND(42)
SBSA56W49	21-Sept-94	southeast sidewall	7.0	629
SBSA56W50	21-Sept-94	southwest sidewall	7.0	ND(42)
SBSA56B24	21-Sept-94	southeast bottom	10.5	ND(42)
SBSA56W51	21-Sept-94	southeast sidewall	8.0	ND(42)
SBSA56W52	21-Sept-94	southeast sidewall	9.5	ND(42)
SBSA56W53	21-Sept-94	southwest sidewall	6.5	ND(42)
SBSA56W54	21-Sept-94	southwest sidewall	8.0	ND(42)
SBSA56W55	21-Sept-94	northwest sidewall	6.0	665
SBSA56BC1	22-Sept-94	composite sample	N/A	144
SBSA56BC2	22-Sept-94	composite sample	N/A	32J
SBSA56SEC	22-Sept-94	composite sample	N/A	252
SBSA56SWC	22-Sept-94	composite sample	N/A	43
SBSA56NEC	22-Sept-94	composite sample	N/A	44
SBSA56DUPC	22-Sept-94	composite sample	N/A	171
SBSA56SEC2	03-Oct-94	composite sample	N/A	31J
SBSA56DUP2	03-Oct-94	composite sample	N/A	44
SBSA56SE4	03-Oct-94	composite subsample	7.5	69
SBSA56SE5	03-Oct-94	composite subsample	7.5	ND(42)
SBSA56SE6	03-Oct-94	composite subsample	7.5	82
SBSA56W56	04-Oct-94	northwest sidewall	6.0	289
SBSA56W57	04-Oct-94	northwest sidewall	7.0	ND(42)

NOTES:

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

ND = TPH was not detected above the method detection limit shown.

J = estimated concentration below the practical quantitation limit.

SOURCE: OHM Remediation Services Corp., 1996.

TABLE 4-3 (continued)  
 FIELD SCREENING RESULTS: SOIL REMOVAL ACTION  
 SA 56 – BUILDING 2417 LUST SITE  
 NO FURTHER ACTION DECISION DOCUMENT  
 FORT DEVENS, MA

Sample ID	Date Collected	Sample Location	Sample Depth (feet)	TPH (mg/kg)
SBSA56W58	04-Oct-94	northwest sidewall	8.0	ND(42)
SBSA56W59	04-Oct-94	northwest sidewall	9.0	ND(42)
SBSA56W60	04-Oct-94	northwest sidewall	7.0	ND(42)
SBSA56W61	04-Oct-94	northwest sidewall	7.0	325
SBSA56NWC1	04-Oct-94	NW sidewall composite	N/A	ND(42)
SBSA56NWC2	04-Oct-94	NW sidewall composite	N/A	ND(42)
SBSA56NWC3	04-Oct-94	NW sidewall composite	N/A	ND(42)
SA56 Clean Pile	12-Oct-94	clean pile composite	0.5 – 1.0	70

**NOTES:**

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

ND = TPH was not detected above the method detection limit shown.

J = estimated concentration below the practical quantitation limit.

SOURCE: OHM Remediation Services Corp., 1996.

Source: OHM Remediation Services Corp., 1996.

TABLE 4-4  
CONFIRMATION SAMPLE RESULTS: SOIL REMOVAL ACTION  
SA 56 – BUILDING 2417 LUST SITE  
NO FURTHER ACTION DECISION DOCUMENT  
FORT DEVENS, MA

Sample ID	Date Collected	Naphthalene (mg/kg)	2-methyl naphthalene (mg/kg)	Phenanthrene (mg/kg)	TPH (mg/kg)
SBSA56NEC	22-Sept-94	<0.355	<0.355	<0.355	44.5
SBSA56SEC	22-Sept-94	<3.57	<3.57	<3.57	997
SBSA56SWC	22-Sept-94	<0.353	<0.353	<0.353	37.5
SBSA56BC1	22-Sept-94	<0.385	0.412	<0.385	40.9
SBSA56BC2	22-Sept-94	<0.375	ND (0.375)	0.562	15.3
SBSA56DUPC	22-Sept-94	<3.55	<3.55	<3.55	266
SBSA56SEC2	03-Oct-94	N/A	N/A	N/A	55.4
SBSA56DUP2	03-Oct-94	N/A	N/A	N/A	67.0
SBSA56NW1C	04-Oct-94	<0.327	<0.327	<0.327	<7.10
SBSA56NW2C	04-Oct-94	<0.333	<0.327	<0.327	<7.46
SBSA56NW3C	04-Oct-94	<0.327	<0.327	<0.327	<7.24

Sample ID	Date Collected	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
SBSA56B30	22-Sept-94	<0.001	<0.001	<0.001	0.003
SBSA56B25	22-Sept-94	<0.001	<0.001	0.004	0.004
SBSA56NE2	22-Sept-94	<0.001	<0.001	<0.001	<0.001
SBSA56SE2	22-Sept-94	<0.001	<0.001	<0.001	0.002
SBSA56SW2	22-Sept-94	<0.001	<0.001	<0.001	<0.001
SBSA56DUPG	22-Sept-94	<0.001	0.003	0.003	0.007
SBSA56NW1B	04-Oct-94	<0.001	<0.001	<0.001	<0.001
SBSA56NW2B	04-Oct-94	<0.001	<0.001	<0.001	<0.001
SBSA49NW3B	04-Oct-94	<0.001	<0.001	<0.001	<0.001

**NOTES:**

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram, which is equivalent to micrograms per gram.

N/A = not applicable

SOURCE: OHM Remediation Services Corp., 1996.

**TABLE 5-1**  
**HUMAN HEALTH PRE EVALUATION OF SUBSURFACE SOIL.**  
**SA 56 – BUILDING 2417 LUST SITE**

**NO FURTHER ACTION DECISION DOCUMENT**  
**FORT DEVENS, MA**

ANALYTE	FREQUENCY OF DETECTION	DETECTED CONCENTRATION [a]		REGION III COMMERCIAL/INDUSTRIAL SOIL CONCENTRATION ug/g	MAXIMUM EXCEEDS GUIDELINE CONCENTRATION?
		AVERAGE ug/g	MAXIMUM ug/g		
<b>ORGANICS</b>					
Acetone	1/4	0.035	0.035	100,000	NO
<b>OTHER</b>					
Total Petroleum Hydrocarbons [b]	4/4	391.2	1440	8,180	NO

**NOTES:**

[a] Subsurface soil sample from sampling station 56B-92-01X and 56B-92-02X

[b] The Region III Commercial/Industrial soil equation parameters were used by ABB to calculate a value for Diesel fuel.  
This value was used as a surrogate for No. 2 fuel oil that was associated with the SA.  
See associated text for additional information.

NA = not available

ug/g = micrograms per gram

**Responses to MADEP Comments On**  
**SA 56 Draft Final Closure Report**  
**Various Sites - Fort Devens, MA**

**Comment:** Documentation of the transportation and disposal of contaminated soil must be submitted in the final closure report.

**Response:** Documentation of the transportation and disposal of contaminated soil will be provided as an appendix in the final closure report.

**Comment:** Laboratory analytical reports for confirmation soil samples taken from the bottom and sidewall area of the excavation must be provided in the closure report.

**Response:** Laboratory analytical reports for confirmation soil samples taken from the bottom and sidewall area of the excavation will be provided as an appendix in the final closure report.

**Comment:** MADEP requires pending documentation be provided in the Final Closure Report for review.

**Response:** Pending documentation will be provided for review as an appendix in the Final Closure Report.



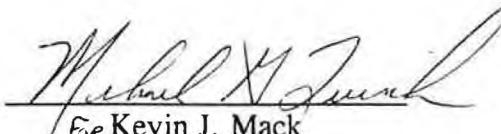
FINAL CLOSURE REPORT  
STUDY AREA 56  
FORT DEVENS, MASSACHUSETTS

Prepared for:

U.S. Army Corps of Engineers  
New England Division  
Waltham, Massachusetts  
Contract Number DACW45-89-D-0506

Prepared by:

OHM Remediation Services Corp.  
Hopkinton, Massachusetts

  
For Kevin J. Mack  
Project Manager

March 4, 1996  
OHM Job 16208

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Appendices	Title
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B	ASC Analytical Report - Confirmation Soil Sample Results
C	Chemical Quality Assurance Report
D	ASC Analytical Report - Topsoil Sample Results
E	ASC Analytical Report - Waste Characterization Sample Results
F	Transportation & Disposal Documentation <ul style="list-style-type: none"><li>• Contaminated Soil</li><li>• Demolition Debris</li><li>• Asbestos</li><li>• Asphalt</li></ul>
G	Site Photographs

## LIST OF ACRONYMS AND ABBREVIATIONS

ABB	ABB Environmental Services, Inc.
ACM	Asbestos Containing Material
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CQAR	Chemical Quality Assurance Report
EMO	Fort Devens Environmental Management Office
IR	Infrared Spectroscopy
NPL	National Priority List
MADEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
MEP	Master Environmental Plan
MSR	Material Shipping Record
NED	US Army Corps of Engineers New England Division
NPDES	National Pollutant Discharge Elimination System
PAHs	Polycyclic Aromatic Hydrocarbons
PID	Photoionization Detector
QA\QC	Quality Assurance\Quality Control
SA	Study Area
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
SVOC	Semi-volatile Organic Compound (includes the PAHs)
TPH	Total Petroleum Hydrocarbons
USAEC	U.S. Army Environmental Center
USACE	United States Army Corps of Engineers



## LIST OF ACCRONYMS AND ABBREVIATIONS

---

UST      Underground Storage Tank

VOC      Volatile Organic Compound

## EXECUTIVE SUMMARY

Fort Devens was placed on the National Priority List (NPL) on December 21, 1989, under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, Superfund Act) as amended by the Superfund Amendments and Reauthorization Act (SARA). Subsequently, under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens was selected for cessation of operations and closure. In accordance with these acts, several studies have been conducted that address Study Area (SA) 56, which was identified in the Federal Facilities Agreement between the U.S. Environmental Protection Agency and the U.S. Department of Defense as a potential site of contamination.

The information gathered through these studies indicated petroleum contamination in the subsurface soils. This closure report documents the historical information and investigation results leading to the recommendation to remove soil, and the remedial actions taken at Study Area (SA) 56.

SA 56 is located on an access road west of Givery Road in the central portion of the Main Post. The study area was established as the result of a release from a 1,000 gallon underground storage tank (UST), used to store No. 2 fuel oil to heat Building 2417. The UST, which was located on the southeast side of Building 2417, was removed in October 1990, by Franklin Environmental Services, Inc. Visual and olfactory observations made during the removal indicated that petroleum contamination was present in the subsurface soils. Additional excavation was performed in April 1991, but was terminated due to concern over the stability of Building 2417.

ABB conducted an investigation in 1992 to determine the areal extent of petroleum contamination in the subsurface soils. The results of this investigation indicated that petroleum contamination was present in the area of the former UST, primarily at a depth of 5 to 8 feet below ground surface (bgs).

The New England Division (NED) of the United States Army Corps (USACE) contracted OHM Remediation Services Corporation (OHM) to address the remaining petroleum contaminated soil. OHM removed 1,173 tons of contaminated soil from the excavation at SA 56. Confirmation soil samples were collected and analyzed for the total petroleum hydrocarbons (TPH), BTEX, and selected polycyclic aromatic hydrocarbon compounds (PAHs) to document that applicable site action levels for these constituents had been met. Selected PAHs were identified by the USACE from the Massachusetts Contingency Plan (MCP) and Document WSC-401-91, "Policy for the Investigation, Assessment, and Remediation of Petroleum Releases". The material was stockpiled on site in the soils storage facility for eventual reuse as cover material in the proposed Consolidation Landfill. To facilitate deeper excavation, Building 2417 was demolished. The foundation was left intact. Prior to demolition, an asbestos survey was performed and all asbestos-containing material was removed and transported to an approved disposal facility. Based upon previous investigations and the results of remedial activities described herein, OHM recommends no further action at this site.

# SECTION 1.0

## INTRODUCTION

Fort Devens was placed on the National Priority List (NPL) on December 21, 1989, under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA; Superfund) as amended by the Superfund Amendments and Reauthorization Act (SARA). Subsequently, under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens has been selected for cessation of operations and closure. This closure report has been prepared as part of the U.S. Department of Defense Base Realignment and Closure program to assess the nature and extent of contamination associated with site operations at Fort Devens. This report contains a summary of activities conducted under CERCLA at Study Area (SA) 56.

In conjunction with the Army's Installation Restoration Program, Fort Devens and the U.S. Army Environmental Center (USACE; formerly the U.S. Army Toxic and Hazardous Materials Agency) developed a Master Environmental Plan (MEP) in 1988. The MEP consisted of assessments of the environmental status of SAs, specified necessary investigations, and provided recommendations for response actions, with the objective of identifying priorities for environmental restoration at Fort Devens. The New England Division of the U.S. Army Corps of Engineers (NED) was tasked with removal efforts at the base. This closure report documents the historical findings leading to the response action recommendation and describes the measures taken at SA 56.

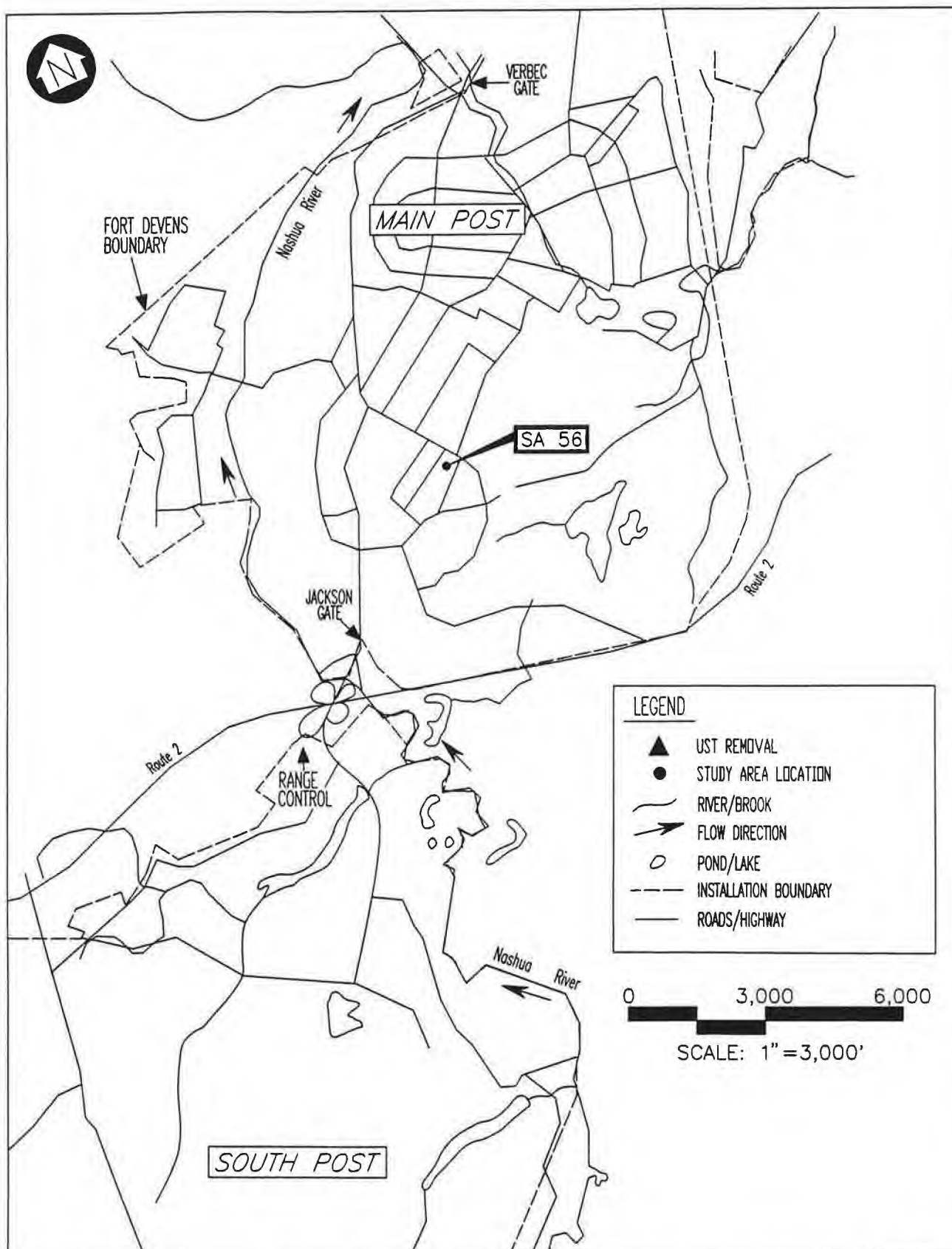
### 1.1 Site History and Background

SA 56 is located on an access road west of Givory Road in the central portion of the Main Post (Figure 1-1). The study area was established as a result of a release from a 1,000 gallon underground storage tank (UST), used to store No. 2 fuel oil to heat Building 2417. The tank was located on the southeast side of Building 2417 and the tank bottom depth is approximately 8 feet below ground surface (bgs). The tank was removed in October 1990 by Franklin Environmental Services, Inc. Soil was removed between the southeast side of Building 2417 and the asphalt access roadway adjacent to the building (Figure 1-2). Visual and olfactory observations made during the removal operation indicated that petroleum contamination was present in the subsurface soils.

Additional excavation was performed in April 1991, but was terminated due to structural concerns when the excavation reached a depth of 8 feet bgs, which was 2 feet below the foundation. Soil samples collected from the excavation indicated TPH concentrations of 226 and 234 mg/kg. The excavation was backfilled with clean soil. Following the backfilling, ABB Environmental Services Inc. (ABB) conducted an investigation and determined that further removal was necessary (Refer to Section 1.3 of this report).

### 1.2 Site Conditions

The area in which SA 56 is located is largely blanketed by unconsolidated surficial deposits of glacial and post-glacial origin. The surficial glacial units consist of till, deltaic deposits of glacial Lake Nashua, and glacial stream deposits. SA 56 is located on the east side of a bedrock high which Engineering Technologies Associates, Inc. has modeled as a groundwater recharge area. According to the model, groundwater at SA 56 flows generally eastward toward Mirror Lake, then southward and eventually westward to the Nashua River. Analysis of Borings 56B-92-01X and 56B-92-02X reveals clean gravelly sands generally to depths of approximately 6.5 to 7 feet bgs, and dense, gravelly sandy-silt and silty sand from 7 feet bgs to refusal at 11 feet. Shallow soil in the area of the UST was likely artificial fill associated with the UST and building, whereas the deeper material shows characteristics of a glacial till.



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION  
CORPS OF ENGINEERS  
WALTHAM, MASS

FORT DEVENS, MASSACHUSETTS  
CONTAMINATED SOIL REMOVAL, VARIOUS SITES  
COMPREHENSIVE  
SITE LOCATION MAP

FIGURE  
1-1



NOTE:  
GIVERY RD. LOCATED APPROXIMATELY  
150 FT. FROM SOUTH-EAST CORNER  
OF BLDG T2417.

GIVERY RD.

T2431

T2417

LOCATION OF FORMER  
HEATING OIL UST

LIMIT OF EXCAVATION

WATER LINE

ACCESS ROAD

T2419



FIGURE 1-2



**OHM Corporation**

SITE PLAN  
BUILDING 2417 LUST SITE (SA 56)  
FT. DEVENS CONTAMINATED SOIL REMOVAL  
FT. DEVENS, MASSACHUSETTS

PREPARED FOR  
U.S. ARMY CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

DATE 1-23-95	PREPARED BY KJM	CHN JOB NO. 16208
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### 1.3 Previous SA 56 Investigation Activities

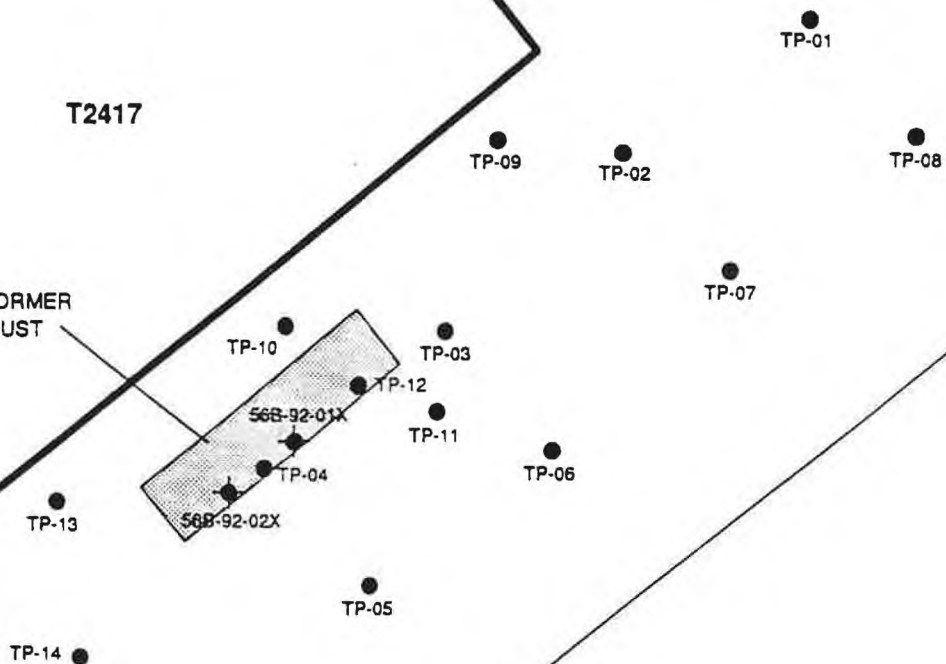
ABB was tasked by USACE with conducting the investigation at SA 56. The objective of the investigation was to determine the vertical and horizontal extent of contamination around the former UST ( Figure 1-2). A total of 29 subsurface soil samples were collected from 14 locations using ABB's TerraProbe unit. Up to three soil samples were collected at each boring location and analyzed on site for TPH and BTEX compounds by infrared spectroscopy (IR) and gas chromatography (GC), respectively. The results of the field analysis for the subsurface samples indicated that residual petroleum contamination was present in the area of the former UST at a depth of approximately 5 to 8 feet below ground surface. TPH concentrations ranged from 93 mg/kg to 3800 mg/kg in samples collected in the immediate vicinity of the former UST. The data indicated that contamination was primarily confined to less than 8 feet bgs and did not penetrate the glacial till. The maximum concentration of total BTEX compounds was 1.23 mg/kg, detected in a sample collected at a depth of 5 feet bgs from a location between building 2417 and the former UST location.

Based on the on-site screening results obtained during the TerraProbe investigation, two soil borings were installed in the "contaminated" area. Samples were collected to further define the geologic conditions at SA 56, and confirm the analytical data generated on site. Two samples were collected from each boring at depths of 7 to 9 feet and 9 to 11 feet and analyzed for volatile organic compounds (VOCs) and TPH. TPH was detected at a concentration of 1,440 mg/kg in one of the 7 to 9 feet depth samples and at 56.1 mg/kg in the other. The 9 to 11 feet samples indicated TPH concentrations of 34.1 mg/kg and 34.4 mg/kg. The only VOC detected was acetone, which is a common laboratory contaminant, at a concentration of 35 ug/kg. Figure 1-3 shows the location of the TerraProbe sampling points and borings.



T2417

LOCATION OF FORMER  
HEATING OIL UST



**LEGEND**

- TERRAPROBE LOCATION
- ✦ SOIL BORING LOCATION

SCALE IN FEET

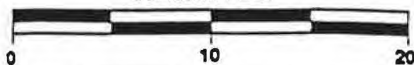


FIGURE 1-3



**OHM Corporation**

SOIL BORING & TERRAPROBE LOCATIONS  
SA 56 SITE INVESTIGATION REPORT  
FT. DEVENS CONTAMINATED SOIL REMOVAL  
FT. DEVENS, MASSACHUSETTS

PREPARED FOR  
U.S. ARMY CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

DATE: 1-23-95	PREPARED BY: KJM	OHM JCS NO. 16208
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Table 2-1  
Soil Sample Screening Results  
TPH by IR  
Final Closure Report  
SA 56

Sample ID	Sample Location	Sample Date	Sample Depth (ft)	TPH Result (mg/kg)
SBSA56B1	bottom center	13-Sept-94	3.7	16
SBSA56W1	southeast sidewall	13-Sept-94	3.4	6,059
SBSA56W2	southeast sidewall	13-Sept-94	3.4	ND (42)
SBSA56W3	southeast sidewall	13-Sept-94	3.4	ND (42)
SBSA56W4	northwest sidewall	13-Sept-94	3.4	14 J
SBSA56W5	northwest sidewall	13-Sept-94	3.4	22
SBSA56W6	northwest sidewall	13-Sept-94	3.4	ND (42)
SBSA56B2	southwest bottom	14-Sept-94	4.0	40 J
SBSA56B3	southeast bottom - water line	14-Sept-94	4.0	9,935
SBSA56B4	southwest bottom	14-Sept-94	6.0	ND (42)
SBSA56W7	northwest sidewall	14-Sept-94	3.0	1,458
SBSA56W8	northwest sidewall	14-Sept-94	3.0	944
SBSA56W9	northwest sidewall	14-Sept-94	3.0	ND (42)
SBSA56B5	northwest bottom	15-Sept-94	9.5	ND (42)
SBSA56W10	northwest sidewall	15-Sept-94	8.0	ND (42)
SBSA56W11	northwest sidewall	15-Sept-94	6.0	ND (42)
SBSA56W12	southeast sidewall	15-Sept-94	6.5	ND (42)
SBSA56W13	southeast sidewall	15-Sept-94	6.5	ND (42)
SBSA56W14	southeast sidewall	15-Sept-94	8.0	ND (42)
SBSA56W15	northwest sidewall	15-Sept-94	8.0	ND (42)
SBSA56W16	northwest sidewall	15-Sept-94	5.5	2,742
SBSA56B6	south bottom	15-Sept-94	9.0	ND (42)
SBSA56B7	north bottom	15-Sept-94	9.0	ND (42)

## SECTION 2.0

# PETROLEUM-CONTAMINATED SOIL REMOVAL

OHM was contracted by the USACE NED to excavate the remaining petroleum-contaminated soil at SA 56, coordinate disposal of the excavated material, and restore the site by backfilling and repaving.

### 2.1 Site Preparation Activities

OHM conducted pre-excavation activities at SA 56 to ensure that contaminants would be contained at the site and to prevent the general population from coming into contact with contaminants exposed through excavation activities. An exclusion zone was established using orange fencing, and staging cells were constructed for temporary storage of contaminated soils. Sand berms were constructed at the perimeter of each staging cell and the cells were double lined with polyethylene sheeting.

### 2.2 Excavation and Soil Screening Activities

Excavation at SA 56 began on September 13, 1994, in the area of the former UST location, where petroleum-contaminated soil was identified during the site investigation. Clean soil was removed and stockpiled separately prior to excavating contaminated material. Soils were screened using a photoionization detector (PID) instrument during the removal of clean soils in order to determine the exact depth of contaminated soil. Once PID readings indicated that contaminated material was encountered, soil samples were collected and screened on site in order to guide the excavation. All the samples collected during the excavation were screened for TPH by infrared spectroscopy (IR) to determine where additional excavation was necessary. The decision to proceed with the excavation was based on the site action level of 500 mg/kg for TPH in soil. The screening results are presented in Table 2-1 and the on-site analytical data are provided in Appendix A.

The first round of screening samples was collected on September 13, 1994, and results indicated one sidewall sample with a TPH concentration of 6,059 mg/kg. This sample was collected in the area of the former tank at an approximate depth of 3.5 feet bgs. Excavation, followed by on-site screening, continued for several rounds until screening results indicated that the site was ready to be confirmed clean.

In general, the excavation continued away from the building in a southeasterly direction. Samples collected from underneath the building foundation (northwest sidewall) indicated the presence of contamination above the site action level of 500 mg/kg which could not be removed without potentially jeopardizing the structural integrity of Building 2417. The USACE then directed OHM to demolish the building in order to remove the residual contamination under the building.

The single story building of timber construction was demolished in 1 day utilizing a tracked excavator and general duty excavation bucket. The concrete foundation and floor were left intact. The excavator was then equipped with a grappler to load approximately 60 tons of demolition debris into 6 rolloff containers. The demolition debris was disposed off site at the Fitchburg Municipal Landfill located in Westminster, Massachusetts.

Table 2-1 (continued)  
Soil Sample Screening Results  
TPH by IR  
Final Closure Report  
SA 56

Sample ID	Sample Location	Sample Date	Sample Depth (ft)	TPH Result (mg/kg)
SBSA56W17	northeast sidewall	15-Sept-94	7.0	233
SBSA56W18	southeast sidewall	15-Sept-94	5.0	1,950
SBSA56W19	southeast sidewall	15-Sept-94	5.0	817
SBSA56B8	east bottom	15-Sept-94	9.4	ND (42)
SBSA56B9	northwest bottom	15-Sept-94	9.0	ND (42)
SBSA56W20	northwest sidewall	15-Sept-94	6.0	2,425
SBSA56W21	northwest sidewall	15-Sept-94	8.0	ND (42)
SBSA56B10	east bottom	16-Sept-94	4.0	948
SBSA56B11	southeast bottom	16-Sept-94	4.0	2,805
SBSA56W22	northeast sidewall	16-Sept-94	5.5	ND (42)
SBSA56W23	northeast sidewall	16-Sept-94	5.5	70
SBSA56W24	southeast sidewall	16-Sept-94	3.7	3,062
SBSA56W25	southeast sidewall	16-Sept-94	4.0	ND (42)
SBSA56B12	southeast bottom	16-Sept-94	4.7	1,342
SBSA56B13	east bottom	16-Sept-94	4.6	ND (42)
SBSA56B14	northeast bottom	16-Sept-94	4.9	ND (42)
SBSA56B15	east bottom	16-Sept-94	4.9	ND (42)
SBSA56B16	east bottom	16-Sept-94	5.8	ND (42)
SBSA56W26	southeast sidewall	16-Sept-94	4.3	540
SBSA56W27	southeast sidewall	16-Sept-94	4.2	ND (42)
SBSA56W28	northeast sidewall	16-Sept-94	5.4	ND (42)
SBSA56W29	southeast sidewall	19-Sept-94	6.0	1,028
SBSA56W30	southeast sidewall	19-Sept-94	6.0	ND (42)

Table 2-1 (continued)  
Soil Sample Screening Results  
TPH by IR  
Final Closure Report  
SA 56

Sample ID	Sample Location	Sample Date	Sample Depth (ft)	TPH Result (mg/kg)
SBSA56W31	southeast sidewall	19-Sept-94	6.0	1,693
SBSA56W32	southeast sidewall	19-Sept-94	6.0	1,700
SBSA56B17	east bottom	19-Sept-94	6.3	70
SBSA56B18	southeast bottom	19-Sept-94	6.3	1,086
SBSA56B19	southeast bottom	19-Sept-94	6.3	769
SBSA56W33	southeast sidewall	19-Sept-94	6.0	153
SBSA56W34	southeast sidewall	19-Sept-94	6.0	46
SBSA56W35	southwest sidewall	19-Sept-94	5.0	ND (42)
SBSA56W36	southeast sidewall	19-Sept-94	5.0	ND (42)
SBSA56W37	southeast sidewall	19-Sept-94	5.0	786
SBSA56B20	south bottom	19-Sept-94	6.3	59
SBSA56W38	southeast sidewall	19-Sept-94	5.0	ND (42)
SBSA56W39	southeast sidewall	19-Sept-94	4.0	185
SBSA56W40	southeast sidewall	19-Sept-94	3.0	ND (42)
SBSA56W41	southeast sidewall	19-Sept-94	2.0	ND (42)
SBSA56W42	southeast sidewall	19-Sept-94	1.0	ND (42)
SBSA56B21	southeast bottom	20-Sept-94	6.0	67
SBSA56W43	southeast sidewall	20-Sept-94	7.5	1,975
SBSA56W44	southeast sidewall	20-Sept-94	5.0	ND (42)
SBSA56B22	southeast bottom	20-Sept-94	9.0	459
SBSA56W45	northeast sidewall	20-Sept-94	5.5	ND (42)
SBSA56W46	northeast sidewall	20-Sept-94	6.5	ND (42)
SBSA56W47	southwest sidewall	20-Sept-94	5.5	598

Table 2-1 (continued)  
Soil Sample Screening Results  
TPH by IR  
Final Closure Report  
SA 56

Sample ID	Sample Location	Sample Date	Sample Depth (ft)	TPH Result (mg/kg)
SBSA56W48	southwest sidewall	20-Sept-94	6.6	1,263
SBSA56B23	center bottom	20-Sept-94	9.0	ND (42)
SBSA56W49	southeast sidewall	21-Sept-94	7.0	629
SBSA56W50	southwest sidewall	21-Sept-94	7.0	ND (42)
SBSA56B24	southeast bottom	21-Sept-94	10.5	ND (42)
SBSA56W51	southeast sidewall	21-Sept-94	8.0	ND (42)
SBSA56W52	southeast sidewall	21-Sept-94	9.5	ND (42)
SBSA56W53	southwest sidewall	21-Sept-94	6.5	ND (42)
SBSA56W54	southwest sidewall	21-Sept-94	8.0	ND (42)
SBSA56W55	northwest sidewall	21-Sept-94	6.0	665
SBSA56BC1	composite sample	22-Sept-94	N/A	144
SBSA56BC2	composite sample	22-Sept-94	N/A	32 J
SBSA56SEC	composite sample	22-Sept-94	N/A	252
SBSA56SWC	composite sample	22-Sept-94	N/A	43
SBSA56NEC	composite sample	22-Sept-94	N/A	44
SBSA56DUPC	composite sample	22-Sept-94	N/A	171
SBSA56SEC2	composite sample	03-Oct-94	N/A	31 J
SBSA56DUP2	composite sample	03-Oct-94	N/A	44
SBSA56SE4	composite subsample	03-Oct-94	7.5	69
SBSA56SE5	composite subsample	03-Oct-94	7.5	ND (42)
SBSA56SE6	composite subsample	03-Oct-94	7.5	82
SBSA56W56	northwest sidewall	04-Oct-94	6.0	289
SBSA56W57	northwest sidewall	04-Oct-94	7.0	ND (42)

Table 2-1 (continued)  
Soil Sample Screening Results  
TPH by IR  
Final Closure Report  
SA 56

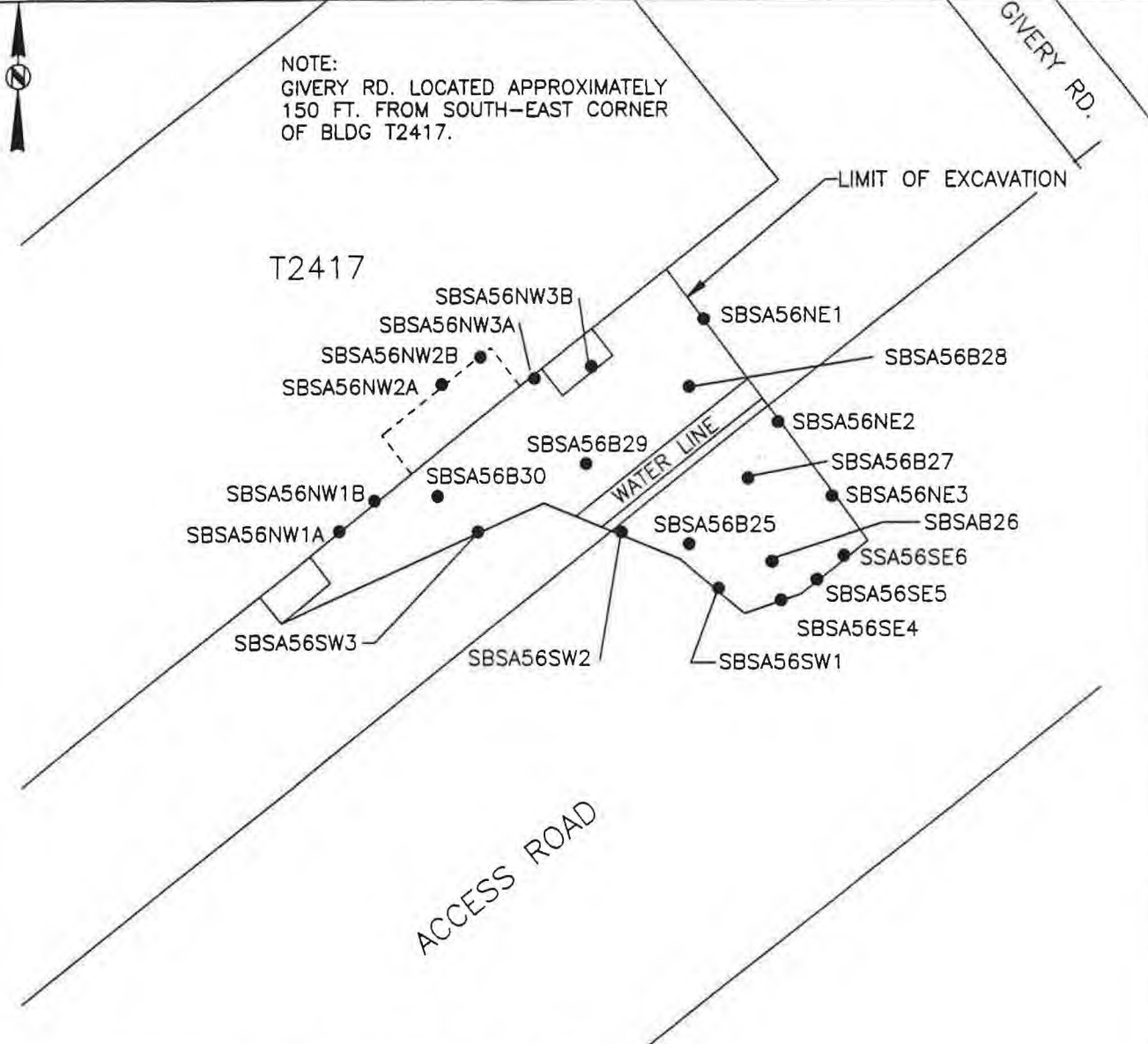
Sample ID	Sample Location	Sample Date	Sample Depth (ft)	TPH Result (mg/kg)
SBSA56W58	northwest sidewall	04-Oct-94	8.0	ND (42)
SBSA56W59	northwest sidewall	04-Oct-94	9.0	ND (42)
SBSA56W60	northwest sidewall	04-Oct-94	7.0	ND (42)
SBSA56W61	northwest sidewall	04-Oct-94	7.0	325
SBSA56NWC1	NW sidewall composite	04-Oct-94	N/A	ND (42)
SBSA56NWC2	NW sidewall composite	04-Oct-94	N/A	ND (42)
SBSA56NWC3	NW sidewall composite	04-Oct-94	N/A	ND (42)
SA56 Clean Pile	clean pile composite	12-Oct-94	0.5 - 1.0	70

NOTES: TPH= total petroleum hydrocarbons  
ND = indicates TPH was not detected; detection limit listed in parentheses  
J = Qualifier indicating estimated concentration below practical quantitation limit

During the excavation, a waterline was encountered approximately 12 feet east of and running parallel to Building 2417. This pipe was supported from the bottom to ensure its integrity during the removal operation. The access roadway to the southeast of the building was removed in order to properly bench the excavation. Water was encountered during excavation at a depth of approximately 7-8' bgs. In light of the geologic setting, groundwater is attributed to a perched water table condition and through the 20 days of open excavation approximately 36,000 gallons of water were removed. Although the rate of inflow was never measured, a 3" pneumatic pump was able to maintain a dry excavation. Dewatering was conducted as necessary to support the removal.

All water removed during the excavation was batch processed through OHM's water treatment facility which was located at the staging area and discharged on site. The treatment process consisted of first stage sediment filtration via sand filters followed by target organics removal via activated carbon. All water encountered during excavation was treated and discharged on site in compliance with NPDES (National Pollutant Discharge Elimination System) standards for BTEX, Lead and TPH as identified in the NPDES discharge permit.

Soil samples were relinquished to the on-site laboratory immediately following collection and screening results were generally provided to the site supervisor within two hours. Excavation would only continue in areas where screening results indicated concentrations of TPH in excess of the site action level. Confirmation sampling was initiated after screening results indicated that all contaminated material had been removed.



DISCRETE SAMPLE ID	CONFIRMATORY COMPOSITE SAMPLE ID
SBSA56NW1A SBSA56NW1B	SBSA56NWC1
SBSA56NW2A SBSA56NW2B	SBSA56NWC2
SBSA56NW3A SBSA56NW3B	SBSA56NWC3
SBSA56NE1 SBSA56NE2 SBSA56NE3	SBSA56NEC
SBSA56SE4 SBSA56SE5 SBSA56SE6	SBSA56SEC2
SBSA56SW1 SBSA56SW2 SBSA56SW3	SBSA56SWC
SBSA56B25 SBSA56B26 SBSA56B27	SBSA56BC1
SBSA56B28 SBSA56B29 SBSA56B30	SBSA56BC2

#### LEGEND


● DISCRETE SAMPLE LOCATION

AVERAGE DEPTH = 11 FEET

--- DENOTES EXCAVATION BENEATH  
FOUNDATION



FIGURE 2-1

 <b>OHM Corporation</b>		
CONFIRMATION SOIL SAMPLE LOCATION MAP BUILDING 2417 LUST SITE (SA 56) FT. DEVENS CONTAMINATED SOIL REMOVAL FT. DEVENS, MASSACHUSETTS		
PREPARED FOR U.S. ARMY CORPS OF ENGINEERS WALTHAM, MASSACHUSETTS		
DATE 1-23-95	PREPARED BY KJM	OHM JOB NO. 16208

### 2.3 Confirmation Sample Results

Confirmation samples were collected from the bottom of the excavation and three of the sidewalls on September 22, 1994. Two composite samples were collected from the bottom of the excavation and one from each of the three sidewalls. The northwest sidewall was not sampled at this time because the removal of petroleum-contaminated material from underneath the building foundation was not complete. On October 4, 1994, three composite samples were collected from the northwest sidewall. Figure 2-1 provides the confirmatory sample locations. Three subsamples were composited from each of the three sidewalls and two bottom composite samples. Laboratory results for the sample collected from the southeast sidewall exceeded the TPH action level of 500 mg/kg and as a result this sidewall was resampled on October 3, 1994. Limited hand excavation was conducted prior to resampling the southeast sidewall because it was unclear whether the problem was attributed to the off-site data or to superficial contamination on the face of the sidewall.

Building 2417 was demolished on October 3, 1994 and additional excavation and screening was conducted on the sidewall below the building foundation to remove residual petroleum contamination above the action level. On October 4, 1994, three composite samples were collected from the northwest sidewall. Figure 2-1 provides the confirmatory sample locations. The composite samples were analyzed for TPH and semivolatile compounds. In addition to meeting the TPH action level, OHM was required to meet action levels of 4 mg/kg, 0.7 mg/kg, and 700 mg/kg for naphthalene, 2-methyl naphthalene and phenanthrene, respectively in accordance with the MCP.

In addition, one of the subsamples from each composite was collected and analyzed for BTEX compounds. The action levels for benzene, toluene, ethylbenzene, and xylenes are 10 mg/kg, 90 mg/kg, 80 mg/kg, 500 mg/kg, respectively. The samples were analyzed by ASC laboratory located in Findlay, Ohio. The composite sample and discrete sample from the southeast sidewall of the excavation were collected in triplicate. Two of the split samples were sent to ASC and the third split was submitted to the USACE laboratory in Hubbardston, Massachusetts.

The results of the confirmation sample analyses are summarized in Tables 2-2a and 2-2b, and the ASC analytical report is presented as Appendix B. TPH analysis was performed by EPA method 418.1, BTEX by EPA method 8020 and SVOCs analysis by EPA method 8270. The confirmation composite soil samples were screened on site for TPH prior to being sent to ASC to ensure that the samples were below the action level of 500 mg/kg.

Table 2-2a  
Confirmation Composite Soil Sample Results  
Final Closure Report  
SA 56

Sample ID	Sample Date	Naphthalene (mg/kg)	2-methyl-Naphthalene (mg/kg)	Phenanthrene (mg/kg)	TPH (mg/kg)
SBSA56NEC	22-Sept-94	ND (0.355)	ND (0.355)	ND (0.355)	44.5
SBSA56SEC	22-Sept-94	ND (3.57)	ND (3.57)	ND (3.57)	997
SBSA56SWC	22-Sept-94	ND (0.353)	ND (0.353)	ND (0.353)	37.5
SBSA56BC1	22-Sept-94	ND (0.385)	0.412	ND (0.385)	40.9
SBSA56BC2	22-Sept-94	ND (0.375)	ND (0.375)	0.562	15.3
SBSA56DUPC	22-Sept-94	ND (3.55)	ND (3.55)	ND (3.55)	266
SBSA56SEC2	03-Oct-94	N/A	N/A	N/A	55.4
SBSA56DUP2	03-Oct-94	N/A	N/A	N/A	67.0
SBSA56NW1C	04-Oct-94	ND (0.327)	ND (0.327)	ND (0.327)	ND (7.10)
SBSA56NW2C	04-Oct-94	ND (0.333)	ND (0.333)	ND (0.333)	ND (7.46)
SBSA56NW3C	04-Oct-94	ND (0.327)	ND (0.327)	ND (0.327)	ND (7.24)

NOTES: mg/kg = milligrams per kilogram  
ND () = indicates not detected at specified detection limit  
N/A = not applicable

The analytical results from the confirmation sampling conducted on September 22, 1994, indicate that all the applicable action levels were attained with the exception of the sample collected from the southeast sidewall. TPH was detected in sample SBSA56SEC at a concentration of 997 mg/kg. On-site screening results indicated a concentration of 252 mg/kg for this sample and the duplicate sample analyzed in the on-site and off-site laboratory indicated similar concentrations of 171 mg/kg and 266 mg/kg, respectively. OHM suspected a problem with the off-site data for the original sample, but could not verify a problem by looking at the raw data. Additional excavation was conducted by hand and the sidewall was resampled. Phenanthrene was detected at a concentration of 0.562 in bottom sample SBSA56BC2 and 2-methyl naphthalene was detected in bottom sample SBSA56BC1 at a concentration of 0.412 mg/kg. These concentrations are below the applicable action levels of 700 mg/kg and 0.7 mg/kg, respectively.

Table 2-2b  
Confirmation Discrete Soil Sample Results  
Final Closure Report  
SA 56

Sample ID	Sample Date	benzene (mg/kg)	toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
SBSA56B30	22-Sept-94	ND (0.001)	ND (0.001)	ND (0.001)	0.003
SBSA56B25	22-Sept-94	ND (0.001)	ND (0.001)	0.004	0.004
SBSA56NE2	22-Sept-94	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
SBSA56SE2	22-Sept-94	ND (0.001)	ND (0.001)	ND (0.001)	0.002
SBSA56SW2	22-Sept-94	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
SBSA56DUPG	22-Sept-94	ND (0.001)	0.003	0.003	0.007
SBSA56NW1B	04-Oct-94	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
SBSA56NW2B	04-Oct-94	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
SBSA56NW3B	04-Oct-94	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)

NOTES: mg/kg = milligrams per kilogram  
ND () = indicates not detected at specified detection limit

BTEX compounds were detected in several discrete samples at trace concentrations well below the respective action levels for these compounds. The results of the confirmation samples indicate that petroleum soils have been removed to the site action levels for TPH, BTEX compounds, and the targeted PAH compounds.

#### 2.4 Quality Assurance\Quality Control

Appropriate quality assurance\quality control (QA\QC) measures were taken to ensure the collection of representative soil samples and the generation of accurate and reproducible analytical data.

##### 2.4.1 Sample Collection Quality Control

Soil samples were collected using either a stainless steel trowel or disposable polyethylene scoops. Composite samples were thoroughly homogenized in stainless steel sampling buckets and discrete samples were collected for BTEX analysis. The sampling equipment was decontaminated using the following procedure:

- 1) Non-phosphate soap & water rinse;
- 2) tap water rinse;
- 3) distilled water rinse;
- 4) 10% Nitric acid rinse;

- 5) distilled water rinse;
- 6) methanol rinse; and
- 7) distilled water rinse.

Sample integrity was also maintained by changing gloves between each sample location. The composite and discrete samples from the southeast sidewall of the excavation were collected in triplicate for QA\QC purposes. The resampling of the southeast sidewall was also collected in triplicate. A comparison of the results of the initial confirmation samples from the southeast sidewall, SBSA56SEC and SBSA56SE2, with their respective duplicate samples indicates a poor correlation. TPH was detected in the original sample at a concentration of 997 mg/kg and in the duplicate at a concentration of 266 mg/kg. Review of the raw data did not reveal any problem with the chain of custody, preparation or analysis of the sample. The results suggest that the sample was heterogeneous. The re-sample of the southeast wall indicated a much better correlation of 55.4 and 67 mg/kg for the QA pair.

All samples collected on site were entered on a chain of custody and documented on a sample collection log and a permanent logbook. Samples sent off site were properly preserved, packaged and overnight shipped to the proper laboratory.

#### 2.4.2 Laboratory Quality Control

Quality control measures were taken in the on-site laboratory to ensure the accuracy and precision of the analytical data. TPH concentration were determined by infrared spectrometer using a modification of EPA Method 418.1. A calibration curve was developed for the IR instrument, prior to the start up of sampling activities, to establish detection limits and document linearity of the detector. A single calibration point was run in triplicate to demonstrate measurement precision. Continuing calibrations were also performed on a daily basis thereafter to provide a check on instrument response.

In general, a comparison of TPH results from on-site and off-site confirmation sample analyses indicates a good correlation, with the exception of the initial confirmation sample collected from the southeast sidewall. For this sample, the on-site laboratory results for the original and duplicate correlated well with the duplicate result from the off-site laboratory, indicated the possibility of sample heterogeneity or laboratory error. The off-site laboratory took the proper quality control measures as specified in the methods used. Samples were properly preserved upon receipt by the laboratory and sample extraction and analysis were performed within the holding times specified in the methods. Blank and spike samples associated with the SA 56 samples were all within acceptable QC limits.

The USACE laboratory prepared a Chemical Quality Assurance Report (CQAR) to compare their data with the results generated by the contract laboratory. The CQAR is included in Appendix C of this report and the findings are summarized as follows:

Five QA samples were analyzed, resulting in a total of 156 target analyte determinations -

- Results from the primary and QA samples agreed quantitatively in 4 (57%) of the comparisons
- Results from the primary and QA samples agreed overall in 153 (98%) of the comparisons
- There were 0 (0%) major discrepancies between results from the primary and QA laboratory samples
- There were 3 (2%) minor discrepancies between results from the primary and QA laboratory samples; (1 each - BTEX, TPH, TCLP Metals)

## 2.5 Backfilling and Site Restoration

The area of the final excavation was approximately 50 ft. x 35 ft and the average depth of the excavation was approximately 11 feet. A composite sample was collected from the stockpiled "clean" material and screened on site for TPH before this material was used as backfill. Additional fill material was provided by Lagasse trucking to backfill the rest of the excavation. Backfill was placed and compacted in 12" lifts with a vibratory plate compactor. Once the excavation was backfilled and properly graded, asphalt restoration was initiated to repair the access roadway. The asphalt taken up during excavation (approximately 45 cubic yards) was shipped to American Reclamation Recyclers. On October 25, 1994, P.J. Keating restored the roadway. The area between the roadway and the building was backfilled with topsoil, provided by Lagasse Trucking, and the area was seeded and mulched per contract specifications. The contractor's topsoil was sampled at the source and tested for determination of pH. The pH was 6.4 as indicated in ASC's Analytical Report provided in Appendix D.

## 2.6 Waste Characterization & Disposal

An estimated 750 cubic yards (1173 tons) of contaminated material excavated at SA 56 has been characterized for disposal. Samples were collected at a frequency of one sample for every 100 cubic yards of petroleum-contaminated soil stockpiled at the site and analyzed for the following parameters: TPH, TCLP metals, TCLP organics, RCRA characteristics (ignitability, corrosivity, & reactivity), BTEX compounds, and SVOCs. In addition, RCRA metals and pesticides and polychlorinated biphenyls (PCBs) were analyzed at a frequency of one sample per every 200 cubic yards. The results of these tests indicate that the material can be reused as cover material in Massachusetts-regulated landfills. All TCLP results were below regulatory levels and the RCRA characteristic tests indicated negative results for ignitability, corrosivity, and reactive cyanide. Reactive sulfide was quantified in one sample at a concentration of 40.2 mg/kg, which is well below the regulatory guideline of 500 mg/kg. TPH concentrations ranged from 50.4 mg/kg to 616 mg/kg. The ASC Analytical Reports for the waste characterization samples are located in Appendix E.

All material has been transferred to a temporary soil storage facility on site pending reuse as cover material in the proposed Consolidation Landfill. A Material Shipping Record (MSR) was used to document the shipment of soils to the storage facility. As discussed in Section 2.2, demolition debris was disposed off site at the Fitchburg Municipal Landfill in Westminster, Massachusetts. Refer to Appendix F for a copy of the MSR and other transportation and disposal documentation.

## **SECTION 3.0**

# **ASBESTOS REMOVAL**

Prior to demolishing Building 2417, OHM contracted TRC Environmental Services (TRC) to conduct an asbestos survey to determine if asbestos was present in the building. Bulk samples were collected at various locations inside the building and analyzed by polarized light microscopy and in the case of the floor tiles, by transmission electron microscopy. The results of the survey indicated nonfriable asbestos in the floor tile and floor tile mastic, and friable asbestos in visible pipe covering. No asbestos was present in the ceiling, wallboard, or roof shingles sampled.

OHM developed an Asbestos Abatement Plan prior to removing the asbestos containing materials from Building 2417. OHM removed 120 square feet of nonfriable floor tile and 2 linear feet of pipe covering. The material was placed into 1 cubic yard boxes and shipped to Chicopee Sanitary Landfill, located in Chicopee, MA.

## SECTION 4.0 CONCLUSIONS

SA 56 is located on an access road west of Givervy Road in the central portion of the Main Post. The study area was established as a result of a release from a 1,000 gallon underground storage tank (UST), used to store No. 2 fuel oil to heat Building 2417. The UST, which was located on the southeast side of Building 2417, was removed in October 1990, by Franklin Environmental Services, Inc. Visual and olfactory observations made during the removal indicated that petroleum contamination was present in the subsurface soils. Additional excavation was performed in April 1991, but was terminated due to concern over the stability of Building 2417. ABB conducted an investigation in 1992 to determine the areal extent of petroleum contamination in the subsurface soils. The results of this investigation indicated that petroleum contamination was present in the area of the former UST, primarily at a depth of 5 to 8 feet bgs.

The USACE-NED contracted OHM to address the remaining petroleum contaminated soil at the site. OHM removed an estimated 750 cubic yards of contaminated soil from the excavation at SA 56. Site photographs are included in Appendix G. Samples were collected and screened on site for TPH analysis during removal activities in order to guide the excavation and minimize the volume of soil removed. Clean soil was stockpiled on site and later reused as backfill. OHM demolished Building 2417 in order to safely remove residual contamination from under the building foundation. Prior to the demolition, an asbestos survey was conducted, asbestos containing material (ACM) was identified, and this ACM was subsequently removed under an Asbestos Abatement Plan.

Confirmation soil samples were collected and analyzed by ASC for TPH, BTEX, and select PAHs to document that applicable site action levels for these constituents had been attained. Proper QA/QC measures were taken to ensure the collection of accurate and reproducible data. The site was properly restored through backfilling, paving and seeding. The petroleum-contaminated soil was transported to a temporary storage facility located on site for eventual use as cover material at the proposed Consolidation Landfill at Fort Devens. Based upon previous investigations and the results of remedial activities described herein, OHM recommends no further action at this site.

Appendix A  
On-site Laboratory Soil Screening Data

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-13-94

Site Name: SASL

Weather: COOL, MISTY; Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBS45881	1500	5	3'8"			<del>Brown sandy soil</del> Grey Pungent soil strong	1 each UGA
U1	1430	1	3'5"			Brown sandy soil	1
U2	1435		3'5"			" "	
U3	1440		3'5"			" "	
U4	1445		3'5"			" "	
U5	1450		3'5"			" "	
U6	1455	4	3'5"			" "	4

Ref. Pt. \_\_\_\_:

Ref. Pt. \_\_\_\_:

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE - coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): William 9-13-94/530 Received by(dd/tt): Michael J. [Signature]

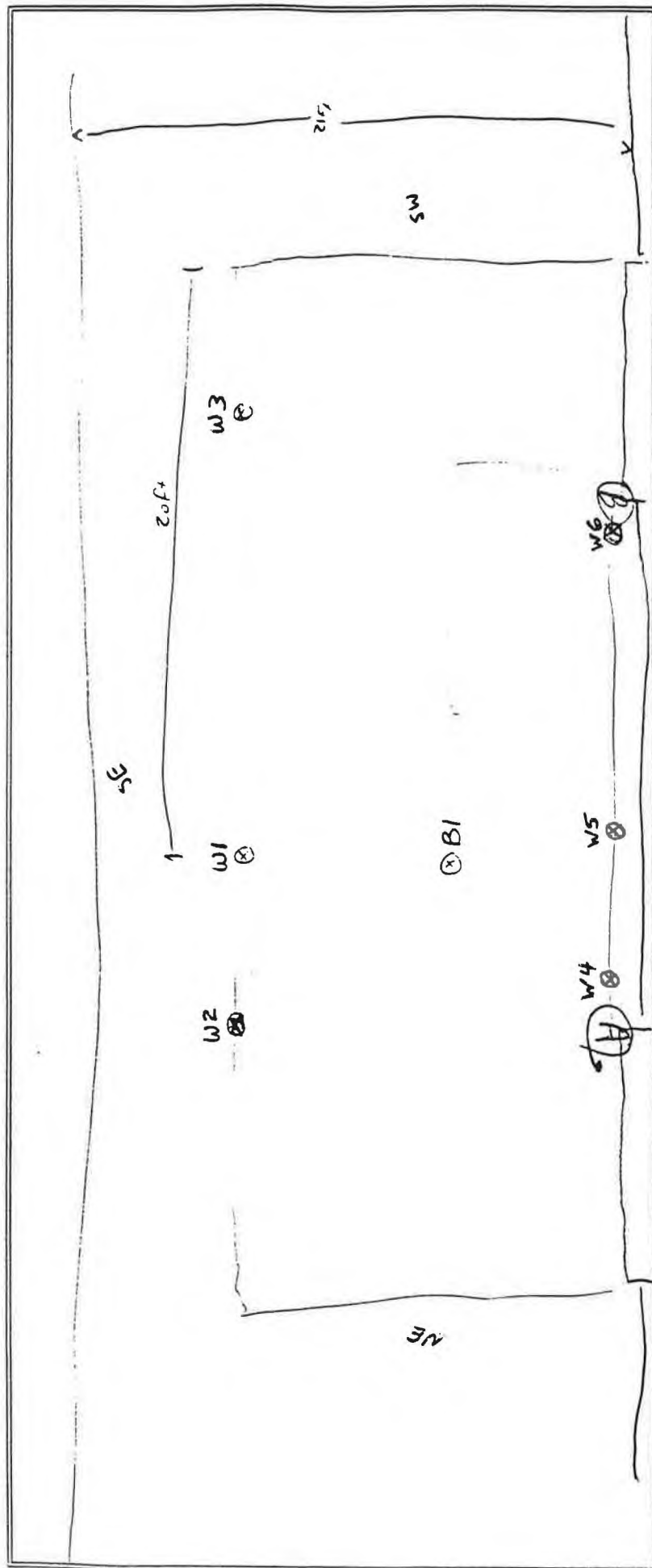
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SAS-6

Date: 09-13-94



Comments/Observations:

22

Prepared by: Bill D.

Page | of

Location No.: SA57  
 & SA56

Date: 9.13.94 GC Analyst: MCB

TPH Analyst: BD

## Method 8080

Sample ID SB5A57

[illegible]

### Percent Recovery

4,5,6-tcmx

Decachlorobiphenyl

[illegible]

### Method 418.1

Sample ID 5BSA56

[illegible]

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-14-94

Site Name: SASG

Weather: Cool, Partly Cloudy ; Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>B 2</u>	<u>1130</u>	<u>9</u>				<u>grey clay</u>	<u>1 x 4, 1 x 1/2</u>
<u>B 3</u>	<u>1135</u>	<u>9</u>				<u>grey clay</u>	<u>1</u>
<u>B 4</u>	<u>1140</u>	<u>9</u>				<u>prob black, brown clay</u>	<u>1</u>

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Ref. Pt. \_\_\_\_: \_\_\_\_\_

No Coordinates taken due to inability to access the excavation

Map Attached: Yes No (to follow)

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE - coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): [Signature] 9-14-94 1145 Received by(dd/tt): [Signature] 9-14-94 1145

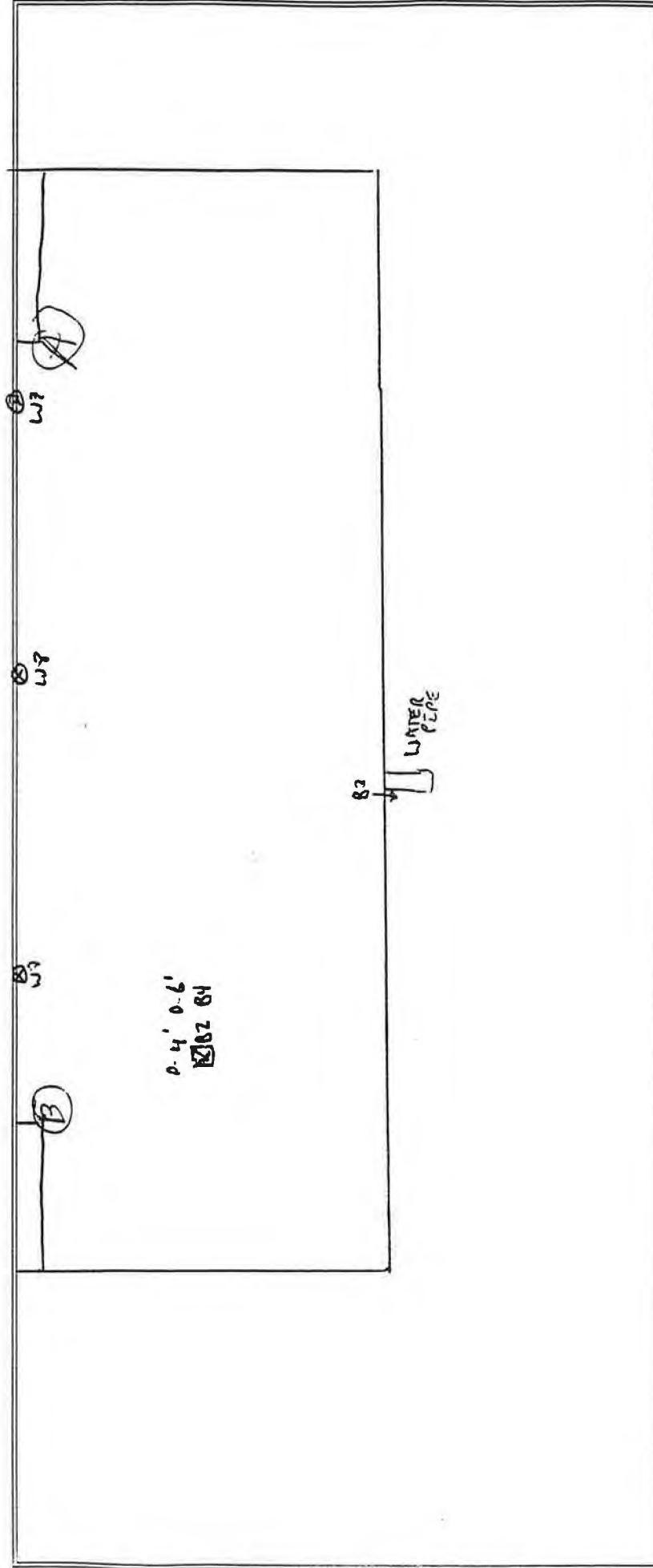
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

# Sample Location Map Fort Devens - Project #16208

Pg. 2 of 2

Date: 9-14-94

Site Name: SASC



## Comments/Observations:

- \* NOTE  
B3 is a bottom sample. The water main was located manually by digging with a shovel. AT THIS POINT IN TIME the sample location was even with the excavation bottom and was hence labeled B3

Prepared by: Will Del

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-14-94

Site Name: SA56

Weather: COOL, PARTLY CLOUDY Samplers: 30

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>S85456 W7</u>	<u>1400</u>	<u>9</u>	<u>~3'</u>	<u>-</u>	<u>-</u>	<u>grey clay</u>	<u>1 + 1 = 2</u>
<u>W8</u>	<u>1405</u>	<u>9</u>	<u>"</u>	<u>-</u>	<u>-</u>	<u>grey clay</u>	<u>1</u>
<u>W9</u>	<u>1410</u>	<u>9</u>	<u>"</u>	<u>-</u>	<u>-</u>	<u>Brown clay</u>	<u>1</u>

Ref. Pt. NA

Ref. Pt. UA

Map Attached: Yes No (to Follow)

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE - coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): R. M. DL 1420 9-14-94 Received by(dd/tt): R. M. DL 1420 9-14-94

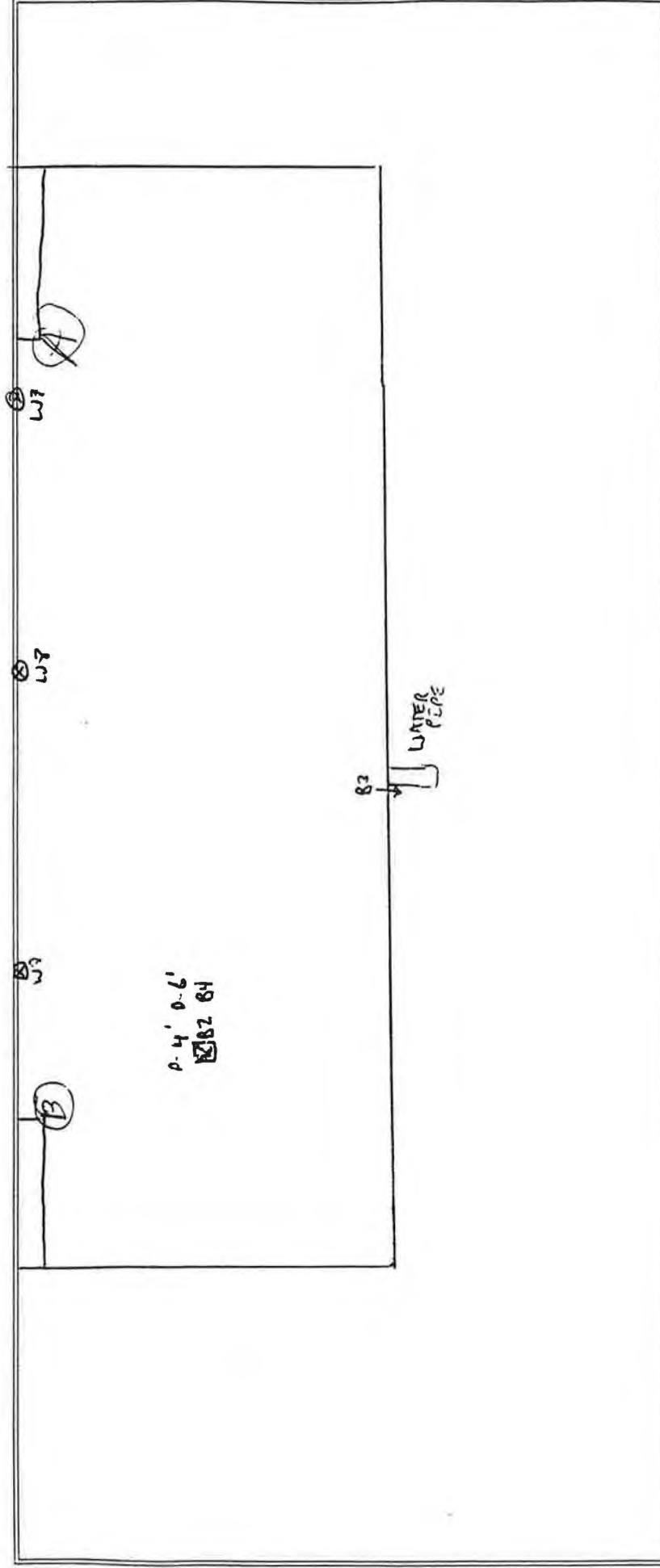
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Date: 9-14-94

Site Name: SASG



Comments/Observations:

\* NOTE  
B3 is a bottom sample. The water main was located manually by digging with a shovel. AT THIS POINT IN TIME the sample location was even with the excavation bottom and was hence labeled B3

Prepared by: Bill DeL...

**Location No.:**

Location No.: SA56

Date: 9.14.94 GC Analyst:

TPH Analyst:

Page 1 of 1  
MRB

## Method B080

Sample ID

[illegible]

### Percent Recovery

2,4,5,6-tcmx

decachlorobiphenyl

[illegible]

### Method 418.1

Sample ID

SBSA5b

[illegible]

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 09-15-94

Site Name: SAS 6

Weather: Sunny & Warm; Samplers: MGQ

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<del>SBSAS 6</del> <u>B5</u>	<u>1015</u>	<u>G</u>	<u>9.5'</u>	<u>See Map</u>		<u>yellowish clay, some small cobble, oilysand</u>	<u>1x40ml</u>
<u>W10</u>	<u>1020</u>	<u>↓</u>	<u>8'</u>			<u>yellowish clay - moist</u>	<u>↓</u>
<u>W11</u>	<u>1025</u>	<u>↓</u>	<u>6'</u>			<u>yellowish clay, some sm stones</u>	<u>↓</u>

Ref. Pt. \_\_\_\_:

Ref. Pt. \_\_\_\_:

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chloroane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): Michael J. Smith Received by (dd/tt): SN Blum 9.15.94  
09/15/94 1035 1035

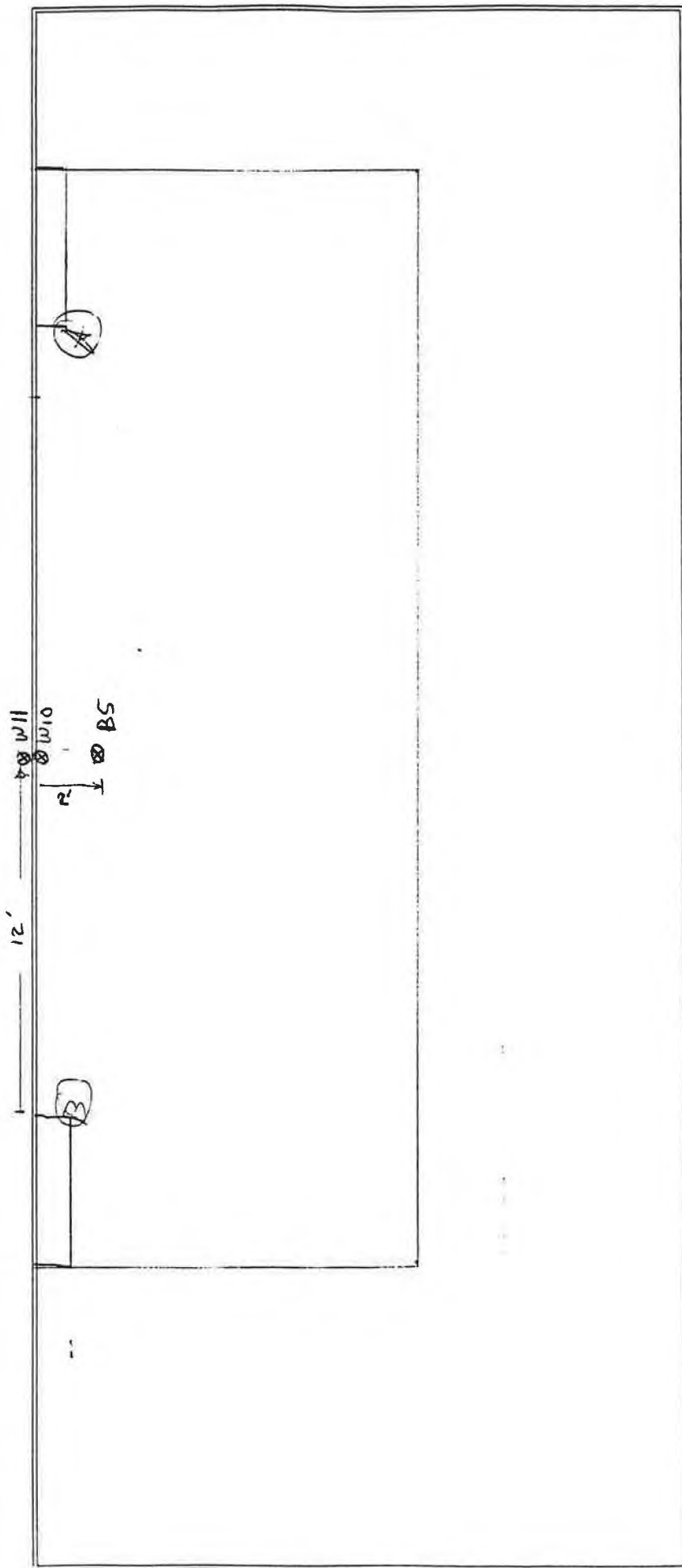
Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SASG

Date: 09-15-94



Comments/Observations:

Prepared by: M. Duenker

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 4

Date: 9.15.94

Site Name: SA56

Weather: Sunny, warm

Samplers: MRB/JB/mgq

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
W12	1215	G	6'6"			wet gold grey clay, small cobble	1x40ml vial
W13	1218		6'6"			dry gold grey clay, small cobble	1
W14	1220		8'			dry gold grey clay, small cobble	1
W15	1225		8'			gold grey clay, lots of small coarse cobble	"
W16	1230		5'6"			moist gold grey clay, lots of cobble, petroleum smell	
B6	1213		9'			wet gold grey clay, lots of small cobble	
B7	1235		9'			gold grey clay, lots of small cobble	1
W17	1236	✓	7'			grey gold clay, slight petroleum smell	✓

Ref. Pt. \_\_\_\_: see map - could not enter hole

Ref. Pt. \_\_\_\_:

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): MRB 9/15/94 1255 Received by (dd/tt): Sublen 9/15/94 1255

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 2 of 4

Date: 9.15.94

Site Name: SA 56

Weather:

Samplers: map / JB / MGA

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
W18	1238	G	5'			grey clay, wet, strong petroleum smell	1 x 40ml 10A
W19	1240	↓	5'			gold grey clay, strong petroleum smell	↓
B8	1245	↓	9'5"			clay gold grey clay, lots of small cobble	↓

Ref. Pt.   : see map

Ref. Pt.   :   

Map Attached: (Yes) No

Sample Type: (Screening) Confirmation Disposal/Characterization

Laboratory Destination: (Onsite Lab) ASC - coc #    USACE- coc #   

Duplicate Taken: Yes (No) Rinsate Taken: Yes (No)

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other   

Relinquished by(dd/tt): M. J. [Signature] 9.15.94 12<sup>55</sup> Received by (dd/tt): SA 131e 9.15.94 1255

Relinquished by(dd/tt):    Received by (dd/tt):

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 3 of 4

Date: 9.15.94

Site Name: SA56

Weather: Sunny, Clear

Samplers: JB / MGQ / MRB

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSA56B9	1458	G	9'			gold, grey clay, lots of small cobble	1 x 40 ml 10A
620	1508	G	6'			gold grey clay, lots of small cobble, small amt of gold sand, petrol small	
621	1504	G	8'			goldish clay, small cobble	

Ref. Pt.   : see map

Ref. Pt.   :   

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc #    USACE - coc #   

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other   

Relinquished by(dd/tt):    Received by (dd/tt): JBlen 1520 9.15.94

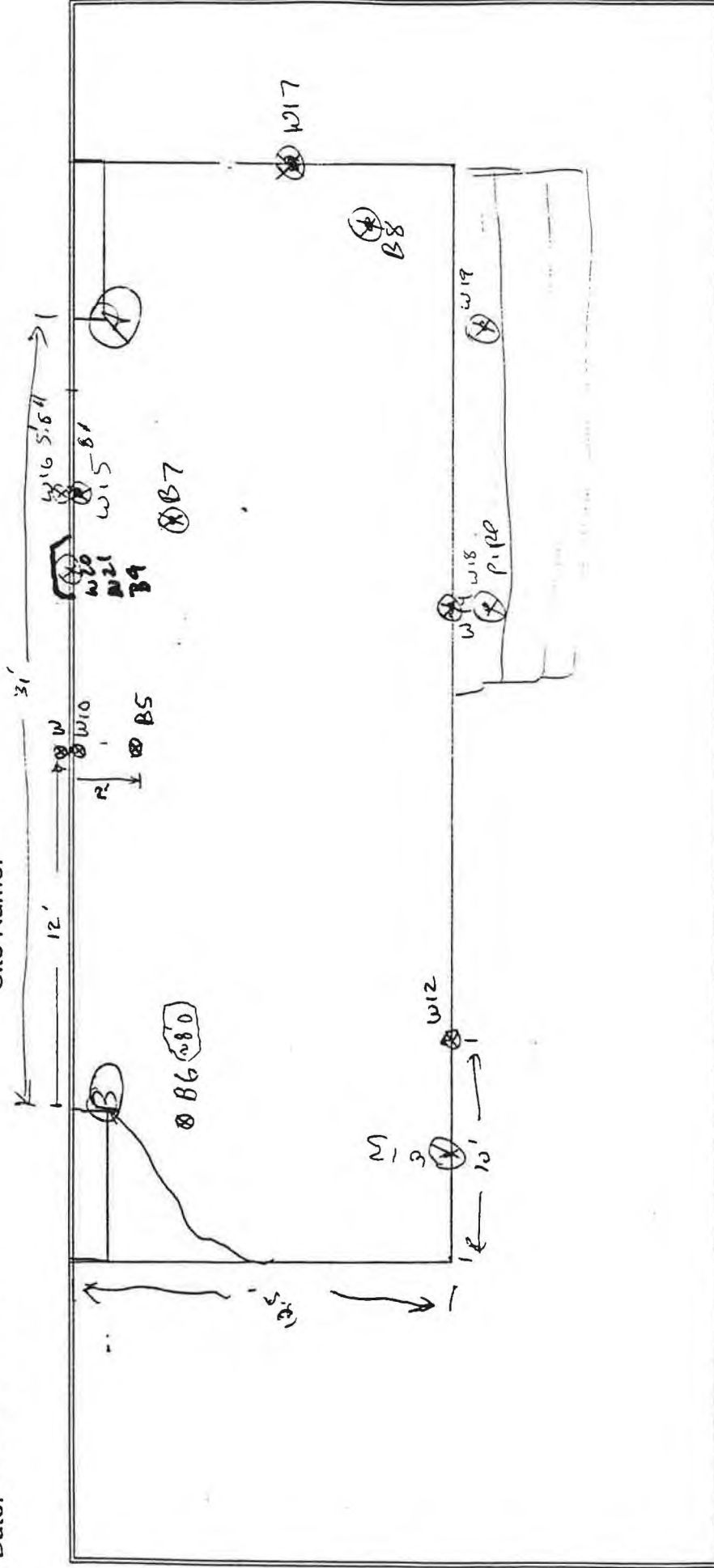
Relinquished by(dd/tt):    Received by (dd/tt):

Sample Location Map  
Fort Devens - Project #16208

Pg. 4 of 4

Site Name: SASG

Date: 09-15-94



Comments/Observations:

Prepared by: M. Dunder



**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-16-94

Site Name: SA56

Weather: COOL, CLOUDY

Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>SBSA56B10</u>	<u>1002</u>	<u>9</u>	<u>4'</u>			<u>Grey clay rocks</u>	<u>1 x 40 ml vial</u>
<u>B11</u>	<u>1005</u>	<u>1</u>	<u>4'</u>			<u>Grey Clay rocks</u>	<u>1</u>
<u>W21</u>	<u>1008</u>	<u>1</u>	<u>5'6"</u>			<u>TAN BROWN clay hard!</u>	<u>1</u>
<u>W22</u>	<u>1011</u>	<u>1</u>	<u>5'6"</u>			<u>"</u>	<u>1</u>
<u>W23</u>	<u>1014</u>	<u>1</u>	<u>5'6"</u>			<u>Grey colored clay "</u>	<u>1</u>
<u>W24</u>	<u>1017</u>	<u>1</u>	<u>3'8"</u>			<u>Grey colored clay "</u>	<u>1</u>
<u>W25</u>	<u>1020</u>	<u>4</u>	<u>4'</u>			<u>TAN Brown clay "</u>	<u>8</u>

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Map Attached: (Yes) No

Sample Type: (Screening) Confirmation Disposal/Characterization

Laboratory Destination: (Onsite Lab) ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes (No) Rinsate Taken: Yes (No)

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: (TPH) BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): William Dale 9-16-94 1046 Received by(dd/tt): [Signature] 9-16-94/040

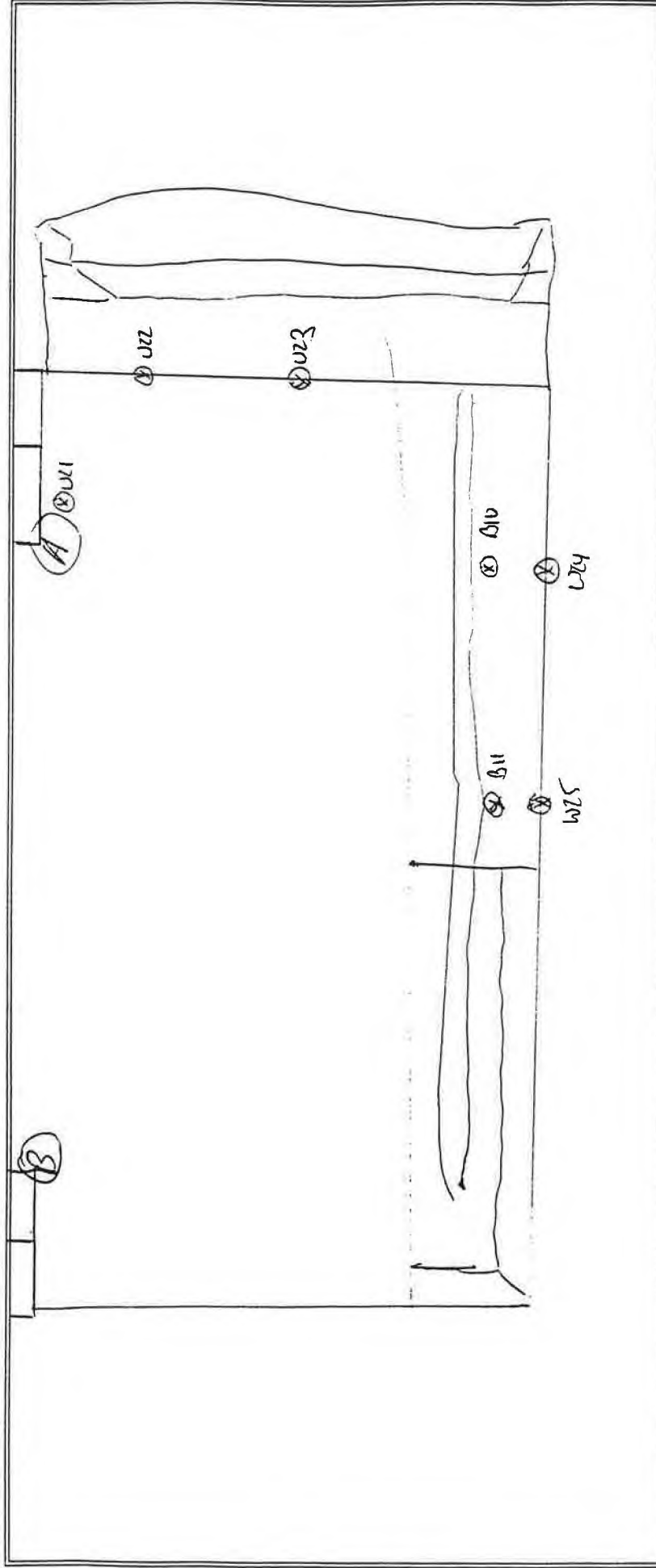
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Date: 9.16.94

Site Name: SA 56



Comments/Observations:

Prepared by: Bill Hall

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9.16.94

Site Name: SA 56

Weather: Cloudy, overcast Samplers: MRB

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
B12 SBSA56	1506	G	4'8"			gold grey clay w small cobble, petroleum smell	1 x 40 ml
B13	1510		4'7"			gold clay, some sand sm cobble, petrol smell	1
B14	1515		4'11"			goldenish sand w small cobble, some hard clay	
B15	1517		4'11"			coarse orange brown sand lots of small pebbles	
B16	1520		5'10"			coarse orange brown sand lots of small pebbles	
W26	1504		4'4"			grey, gold clay, lots of small pebbles, strong smell	
W27	1509		4'2"			Fine yellowish sand	
W28	1513	✓	5'5'			grey gold clay, small pebbles	✓

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by (dd/tt): WABlen 9.16.94 1539 Received by (dd/tt): WABlen 9.16.94 1539

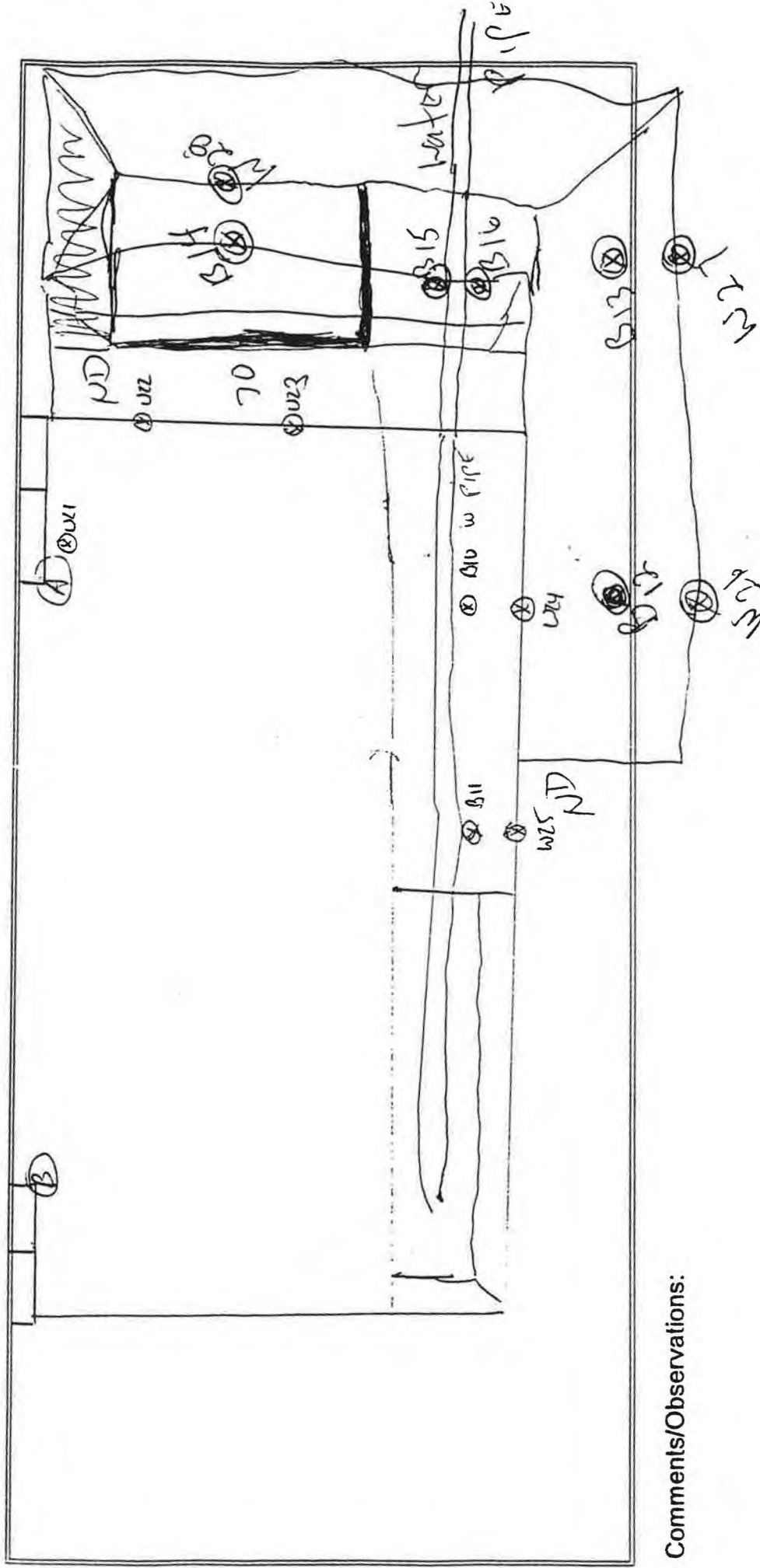
Relinquished by (dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Date: 9.16.94

Site Name: SAG

Pg 2 of 2



Comments/Observations:

Prepared by: Bill [Signature]



**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-19-04

Site Name: SA 56

Weather: COOL, PARTLY CLOUDY

Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSA <del>W24</del> <u>W24</u>	<u>1108</u>	<u>9</u>	<u>6'</u>	<u>SEE</u>	<u>MAP</u>	<u>Grey Green clay</u>	<u>1 x 40 ml</u> <u>1 x 1</u>
<u>W30</u>	<u>1111</u>	<u>9</u>	<u>6'</u>	<u>"</u>	<u>"</u>	<u>Brown clay</u>	
<u>W31</u>	<u>1113</u>	<u>9</u>	<u>6'</u>	<u>"</u>	<u>"</u>	<u>Grey Green clay</u>	
<u>W32</u>	<u>1115</u>	<u>9</u>	<u>6'</u>	<u>"</u>	<u>"</u>	<u>"</u>	
<u>B17</u>	<u>1058</u>	<u>9</u>	<u>6'3"</u>	<u>"</u>	<u>"</u>	<u>Grey Green clay</u>	
<u>B18</u>	<u>1102</u>	<u>9</u>	<u>6'3"</u>	<u>"</u>	<u>"</u>	<u>"</u>	
<u>B19</u>	<u>1105</u>	<u>9</u>	<u>6'3"</u>	<u>"</u>	<u>"</u>	<u>"</u>	

Ref. Pt. \_\_\_\_:

Ref. Pt. \_\_\_\_:

Map Attached: ☒ Yes ☐ No

Sample Type: ☒ Screening ☐ Confirmation ☐ Disposal/Characterization

Laboratory Destination: ☒ Onsite Lab ☐ ASC - coc # \_\_\_\_\_ ☐ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes ☒ No ☐ Rinsate Taken: Yes ☒ No ☐

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: ☒ TPH ☐ BTEX ☐ Chlordane ☐ PCBs ☐ Other

Relinquished by(dd/tt): [Signature] 9-19-04 1145 Received by (dd/tt): [Signature] 09-19-04 1145

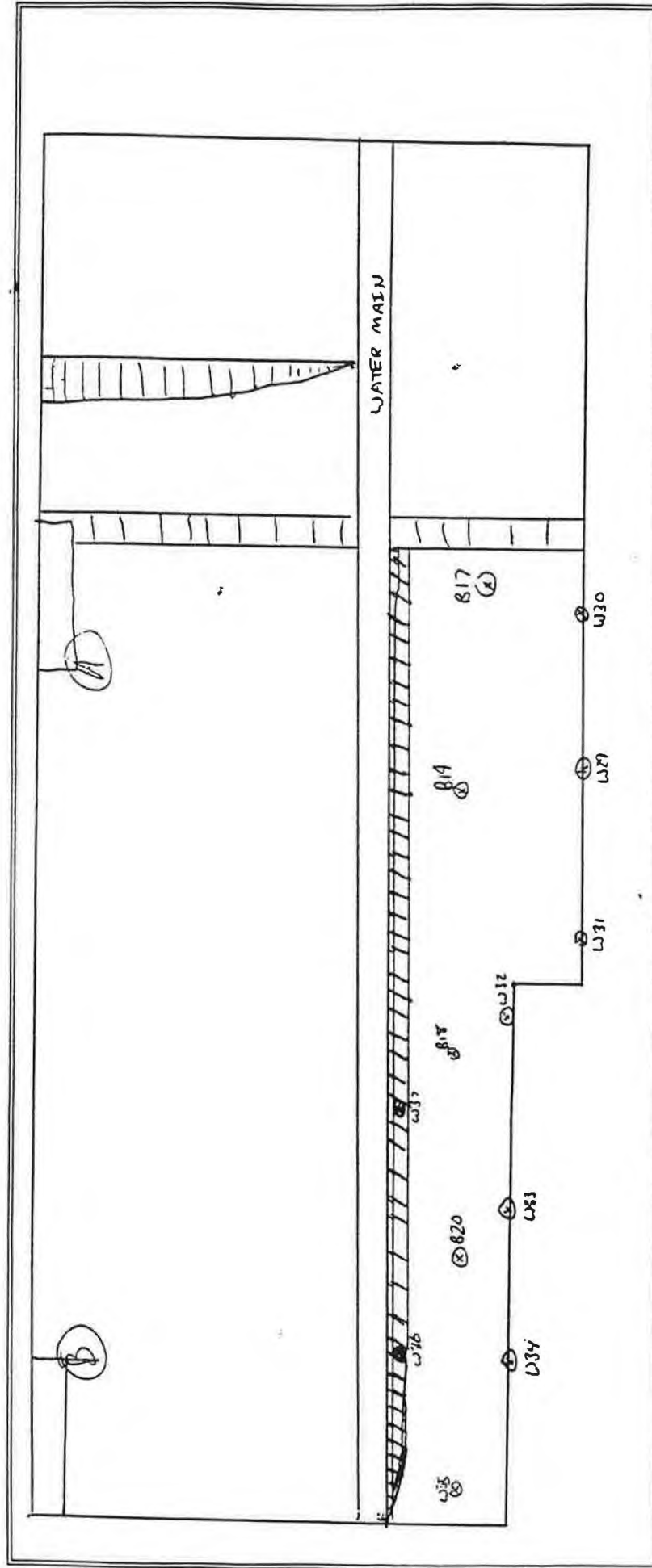
Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SASB

Date: 9-19-94



Comments/Observations:

WALL INSIDE EXCAVATION

Prepared by: Bill [Signature]

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-19-94

Site Name: SA 56

Weather: COOL, PARTLY CLOUDY Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSASE W33	1120	5	6'	SEE	MAP	grey clay	184001 V09
W34	1122	5	6'	"	"	grey brown clay	1
W35	1124	5	5'	"	"	grey clay	
W36	1127	5	5'	"	"	grey clay	
W37	1131	5	5'	"	"	grey green clay	
B20	1135	9	6'3"	"	"	Grey green clay	1

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE - coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): WLL 9-19-94 1145 Received by(dd/tt): Michael H. Zula 09-18-94 1145

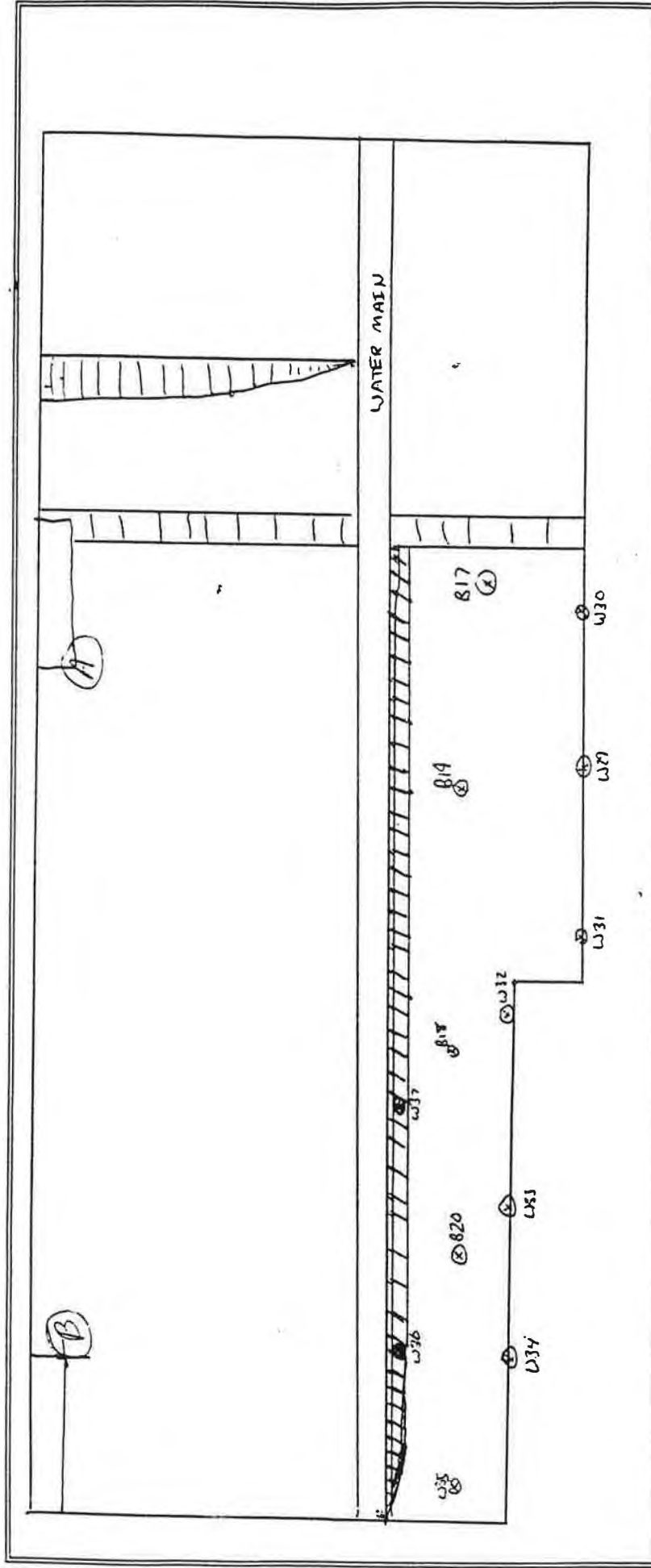
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SASB

Date: 7-19-94



Comments/Observations:

WALL INSIDE EXCAVATION

Prepared by: Bill D.

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-19-94

Site Name: SASZ

Weather: COOL, PARTLY CLOUDY Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>SBA56 W38</u>	<u>1347</u>	<u>g</u>	<u>5'</u>	<u>SEE</u>	<u>MAP</u>	<u>brown soil / grey clay</u>	<u>1 yrds n1</u> <u>USA</u>
<u>W39</u>	<u>1349</u>	<u>g</u>	<u>4'</u>	<u>"</u>	<u>"</u>	<u>grey clay</u>	
<u>W40</u>	<u>1351</u>	<u>g</u>	<u>3'</u>	<u>"</u>	<u>"</u>	<u>brn orange soil / rocky</u>	
<u>W41</u>	<u>1353</u>	<u>g</u>	<u>2'</u>	<u>"</u>	<u>"</u>	<u>"</u>	
<u>W42</u>	<u>1355</u>	<u>g</u>	<u>1'</u>	<u>"</u>	<u>"</u>	<u>"</u>	

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_ 1400

Relinquished by(dd/tt): Will DL 1400 9/19/94 Received by(dd/tt): SA Green 9.19.94

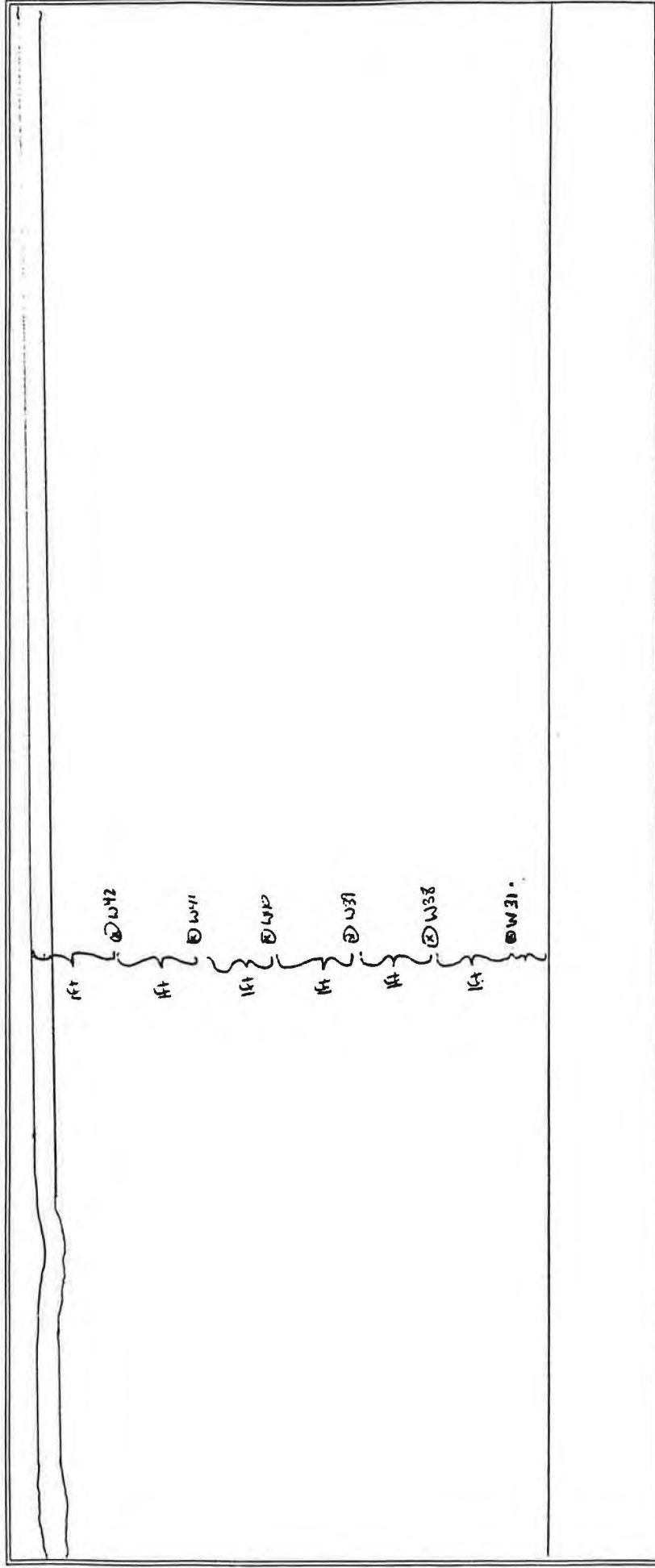
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Date: 9-19-94

Site Name: SA56



Comments/Observations:

Prepared by: Bill Oake



DAILY FIELD SCREENING RESULTS

Site: Ft. Devens, MA      Location No.: SAS6      Date: 9.19.94      GC Analyst: MRB      TPH Analyst:

Method 8020

		Sample ID																
Concentration (mg/kg)	Action Level	SAS6 56B 17																
benzene	10 ppm	ND																
toluene	90 ppm	ND																
ethylbenzene	80 ppm	ND																
m,p-xylene		ND																
o-xylene		ND																
tot. tyrene	500 ppm	ND																
chlorobenzene																		
1,2-dichlorobenz.																		
1,3-dichlorobenz.																		
1,4-dichlorobenz.																		

Percent Recovery

1,3-Dichlorobenzene																		
---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

• Note - BTEX analysis (screening) is not required at this site, however above sample was screened to check elevated aromatic response on TPH instrument.

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-20-94

Site Name: SAS6

Weather: COOL, CLEAR

Samplers: B0

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSAS6 B21	1035	9	6'	"	"	Brown rocky wet clay	1840-1 1002
W43	1040	9	7'6"	SEE	MAP	Blue grey w/Black	1
W44	1049	9	5'	"	"	Brown soil clay mixture	1
B22	1045	9	9'	"	"	GREY CLAY	1

Ref. Pt.   : N1

Ref. Pt.   : N4

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc #    USACE- coc #   

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other   

Relinquished by(dd/tt): Bill D 9-20-94 1100 Received by(dd/tt): Michael J. Link 9-20-94 1100

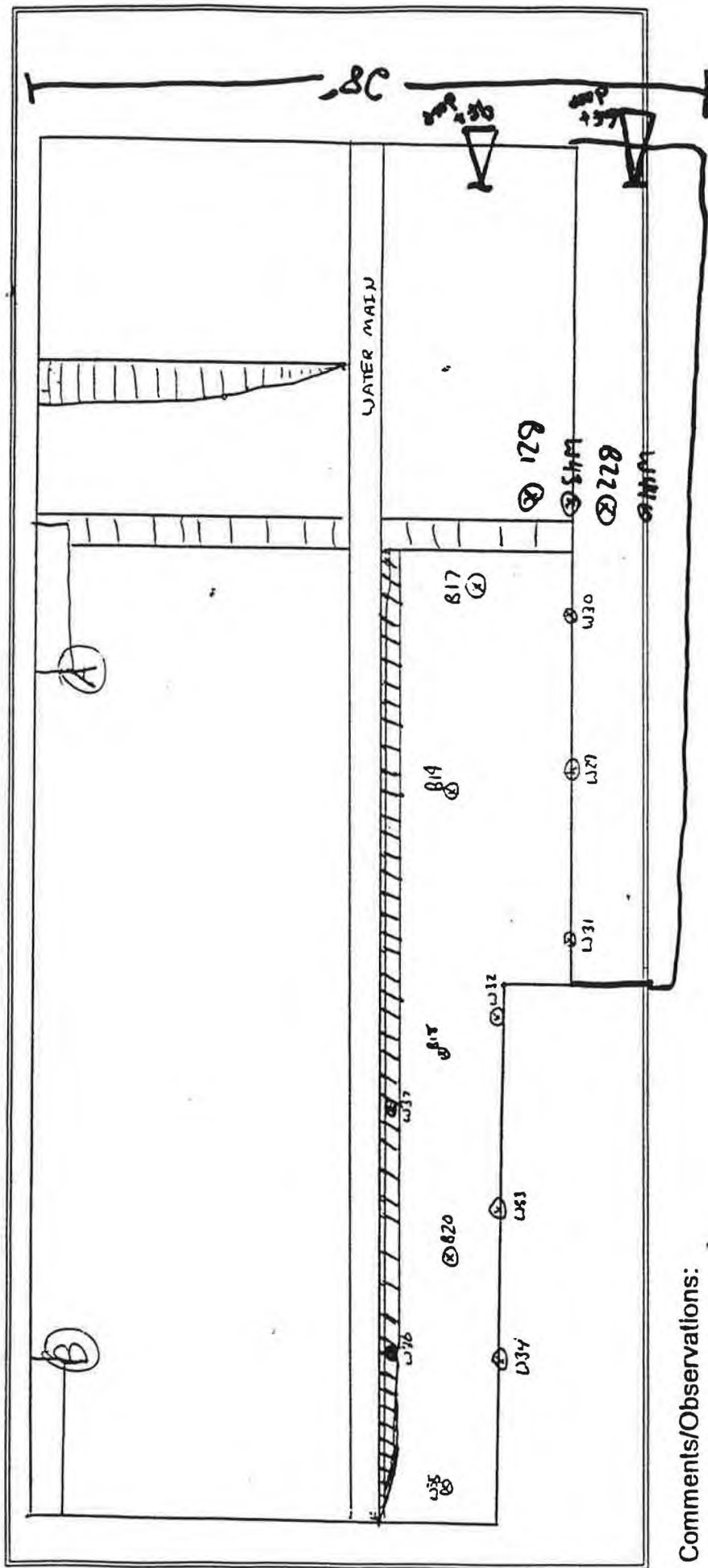
Relinquished by(dd/tt):    Received by(dd/tt):

# Sample Location Map Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SASB

Date: 9-19-94



Comments/Observations:

WALL INSIDE EXCAVATION

Prepared by: Bill D.

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 9-20-94

Site Name: S456

Weather: COOL, CLEAR

Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
S456 W45	1309	g	5'6"	SEE	MAD	Grey CLAY rock	1x40 ml VIA
W46	1311	g	6'6"	"	"	BROWN CLAY	
W47	1313	g	5'6"	"	"	Grey/Red shale like	
W48	1315	g	6'6"	"	"	"	
B23	1320	g	9'	"	"	Brown clay/mud wet	

Ref. Pt. VA: \_\_\_\_\_

Ref. Pt. NA: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): William Dele 9-20-94 1330 Received by (dd/tt): \_\_\_\_\_

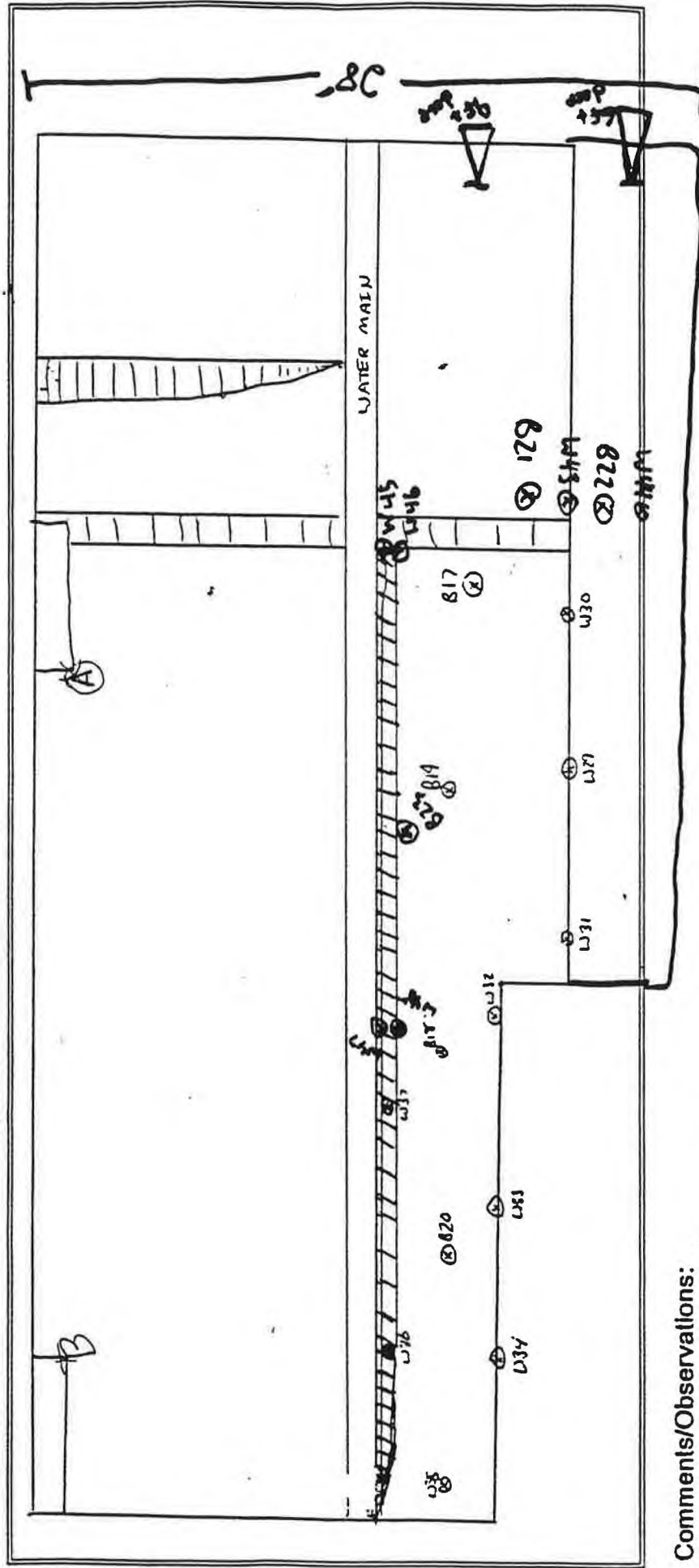
Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Site Name: SASB

Date: 9-10-94



Comments/Observations:

WALL INSIDE EXCAVATION

Prepared by: Bill J.

Site: Ft. Devens, MA

Location No.:

SA56

Date: 9.20.94 GC Analyst:

mRB

TPH Analyst:

Page 1 of 1

mRB

BD

Method 8080

Sample ID SBSA36

Concentration (mg/kg)	Action Level	B1	B2	B3	B4	W1	W2	AW4										
Aroclor 1260	2 ppm					2.5												
chlordane	1 ppm	ND	ND	ND	1.2	0.1	ND	ND										

Percent Recovery2,4,5,6-tcmx  
decachlorobiphenyl


Method 418.1

		Sample ID: SBSA56				SBSA57					SBSA56							
Concentration (mg/kg)	Action Level	B21	B22	W43	W44	W71	W72	W73	W74	W75	W45	W46	W47	W48	B23			
TRPH	500 ppm	67	459	1975	ND	355	ND	131	417	ND	ND	ND	598	1263	ND			
AHC		ND	85	351	ND	285	ND	ND	ND	ND	ND	ND	128	343	ND			
	500 ppm																	
	500 ppm																	

ND - Indicates compound(s) not detected

Note - will rerun SBSA36 on 9-21-94 to confirm Aroclor 1260 concentration.

Notes: Results for SA36 are for samples collected from the larger of the 2 excavations adjacent to the shed. The other excavation will carry and "A" designation in order to differentiate the 2.

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 3

Date: 9-21-94

Site Name: SAS6

Weather: COOL, CLEAR

Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>SAS6 WLA</u>	<u>0920</u>	<u>4</u>	<u>7'</u>			<u>Grey CLAY shale like</u>	<u>1 x 90 ml WLA</u>
<u>" WLA</u>	<u>0925</u>	<u>4</u>	<u>7'</u>			<u>TAN CLAY w/rocks</u>	<u>"</u>
<u>" B23</u>	<u>0930</u>	<u>5</u>	<u>10.5'</u>			<u>Brown mud / clay matrix</u> <u>rocks</u>	<u>"</u>
<u>B24</u> <u>WLA</u> <u>9/22/94</u>							

Ref. Pt. \_\_\_\_: See map

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Map Attached: ☒ Yes ☐ No

Sample Type: ☒ Screening ☐ Confirmation ☐ Disposal/Characterization

Laboratory Destination: ☒ Onsite Lab ☐ ASC - coc # \_\_\_\_\_ ☐ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes ☒ No ☐ Rinsate Taken: Yes ☒ No ☐

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: ☒ TPH ☐ BTEX ☐ Chlordane ☐ PCBs ☐ Other \_\_\_\_\_

Relinquished by(dd/tt): Gill Del 9-21-94/1945 Received by(dd/tt): E. V. B. 9-21-94 0945

Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg 2 of 3

Date: 09-21-94

Site Name: SAS 6

Weather: Sunny & warm

Samplers:

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBS256 WS1	1300	G	8'			Brown clayey soil some cobbles	1 x 40ml
WS2	1302	G	9.5'			" "	↓
WS3	1305	G	6.5'			" "	
WS4	1307	G	8'			" "	
WS5	1400	G	6'			" "	

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

} See map

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No

Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): M. J. Zwick 09/21/94 1430 Received by(dd/tt): U. M. L. 9.21.94 1430

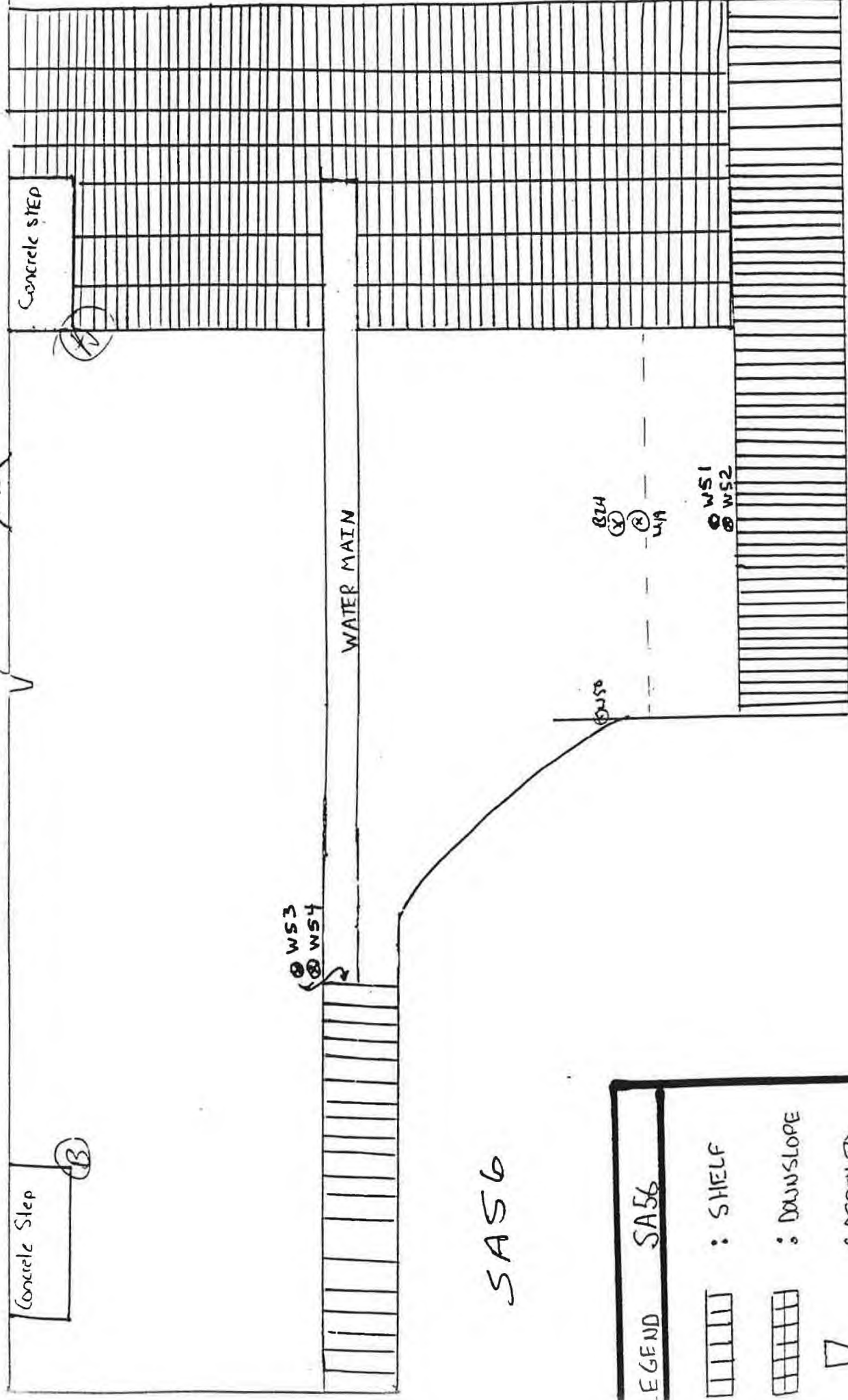
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

BUILDING

Z417

P. 3 of 3

WSS

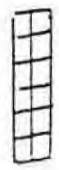


SAS6

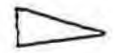
LEGEND SAS6



: SHELF



: DOWNSLOPE



: DEPTH TO  
BOTTOM

Prepared by: Bill Dele

Site: Ft. Devens, MA

Location No.: SA36/56

Date: 9.21.94 GC Analyst: MRRB

Page 1 of 1  
TPH Analyst: MRRB

Method 8080

Sample ID SB5A36

Concentration (mg/kg)	Action Level	W3	W4	W5	W6	W7	W8	AB1	AB2	AB3	AW1	AW2	AW3	SDB	W9	B6				
Aroclor 1260	2 ppm														ND					
chlordane	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	587	085	.073				

Percent Recovery

2,4,5,6-tcmx  
decachlorobiphenyl


Method 418.1

Sample ID SB5A56

SB5A36

Concentration (mg/kg)	Action Level	B24	W49	W50	W51	W52	W53	W54	W55	SDB										
TRPH	500 ppm	ND	629	ND	ND	NP	ND	ND	665	469										
AHC		ND	79	ND	NP	ND	ND	NP	92	45										
	500 ppm																			
	500 ppm																			

ND - Indicates compound(s) not detected

J - "

limit

~~concentration is~~ estimated concentration below practical quantification  
MEB 9/22/94

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 4

Date: 09.22.94

Site Name: SAS6

Weather: Overcast & cool

Samplers: BD/MG2

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSAS6 NEC	1510	C	6-7'			Brown sand w/ some clay	2 x 4 oz Amb Glass
NE2	1505	G	1			Grayish sandy clay	2 x 40 ml Vials
SEC	1515	C				Brown sand w/ cobble	2 x 4 oz Amb Glass
SE2	1512	G				Brown sand w/ cobble	2 x 40 ml Vials
SWC	1520	C				Brown clayey sand w/ cobble	2 x 4 oz Amb Glass
SW2	1513	G				Brown clayey sand w/ cobble	2 x 40 ml Vials
DUPC	1515	C				Brown sand w/ cobble	2 x 4 oz Amb Glass
DUPG	1512	G	▼			Brown sand w/ cobble	2 x 40 ml Vials

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

TRP's only

Laboratory Destination: Onsite Lab ASC - coc # 107682 & 83 USACE- coc # 140087

Duplicate Taken: Yes No

Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other\_\_\_\_\_

Relinquished by(dd/tt): Michael J. [Signature] 09/22/94 1630 Received by(dd/tt): [Signature] 9.22.94 1630

Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 2 of 4

Date: 09-22-94

Site Name: SASG

Weather: Overcast & Cool

Samplers: BD/MGQ

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSAS7 TRPC	1515	C	6-7'			Brown sand w/ some cobble	2 x 4 oz Amb. Glass
TRPG	1512	G	"			" "	2 x 40 ml Vials
BC2	1540	C	10'5"			Wet Grayish Clayey sand	2 x 4 oz Amb. Glass
B30	1532	G	10'5"			Wet Grayish clayey sand	2 x 40 ml Vials
BC1	1600	C	10'5"			Wet gray clayey sand	2 x 4 oz Amb. Glass
B25	1555	G	10'5"			Wet gray clayey sand	2 x 40 ml Vials

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Collection Log Supplemental Form  
Composite Sample Data  
Fort Devens - Project #16208

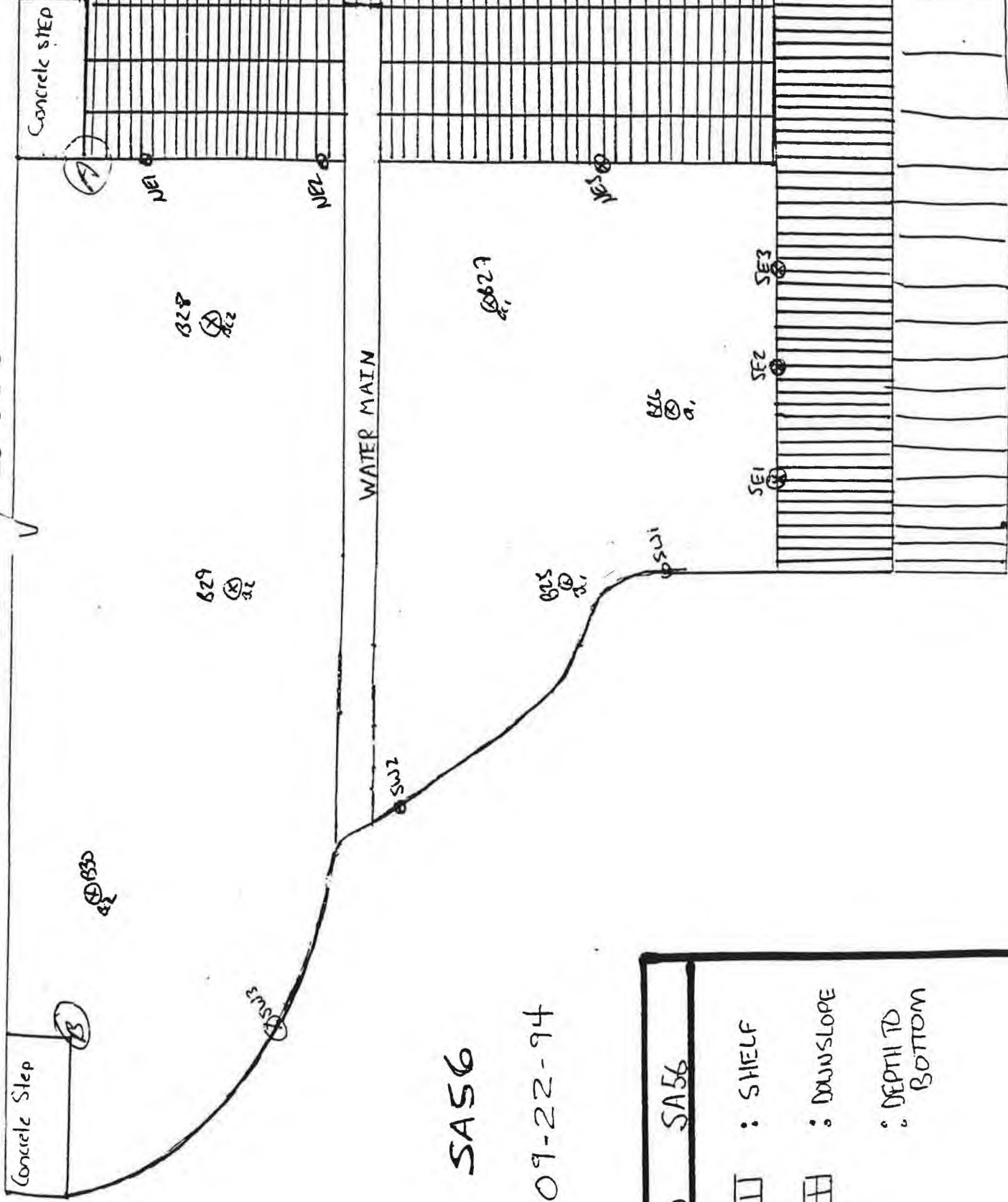
Pg. 3 of 4

Date: 09-22-94 Site: SASG

Sampler: BD/MGQ

Composite Sample ID	Discrete Sample ID	Coordinates		Sample Description
		Ref. Pt. A	Ref. Pt. B	
SBSA56  NEC		M62 9/22/94		
	NE1	7' 6"	35'	Brown/gray clayey sand
	NE2	12' 6"	35' 6"	Gray clayey sand
	NE3	19'	38' 6"	Brown/gray clayey sand
SEC  DUPC TRPC				
	SE1	29'	32' 6"	Brown sand & cobble
	SE2	28' 6"	34' 6" 34'	" "
	SE3	28'	36'	" "
SWC				
	SW1	25'	27'	Brown clayey sand w/ cobble
	SW2	25'	16'	" "
	SW3	26'	M62 9/22/94 <del>26'</del> 5'	" " "
BC1				
	B25	24'	M62 9/22/94 <del>22' 6"</del> 25'	Wet gray clayey sand
	B26	22'	29' 6"	" "
	B27	17' 6"	30'	" "
BC2				
	B28	<del>24'</del> 7'	24' 6"	Wet gray clayey sand
	B29	16'	16'	" " "
	B30	24'	8' 6"	" " "

# BUILDING Z417



SAS6

09-22-94

LEGEND	SAS6
	: SHELF
	: DOWNSLOPE
▽	: DEPTH TO BOTTOM

Site: Ft. Devens, MA

Location No.:

SA 36  
SA 56

Date:

7.22.94

GC Analyst:

MRB

TPH Analyst:

MRB

Page 1 of 1

## Method 8080

Sample ID

SBSA36

SB SA36

Concentration  
(mg/kg) Action  
Level

BC	EC	NE	SC	WC	DYP	TRP	ABC	AFL	ANC	ASC	AWC	ADYP	ATRP						
0.035	0.043	ND	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						

Aroclor 1260 2 ppm  
chlordane 1 ppm

## Percent Recovery

2,4,5,6-tcmx  
decachlorobiphenyl


## Method 418.1

Sample ID

SBSA56

Concentration  
(mg/kg) Action  
Level

BC1	BC2	SEC	SWC	NEC	DYC	TRP	BC1												
400	325	252	4.3	44	171	122	144												
129	ND	388	ND	ND	28	ND	ND												

TRPH 500 ppm

500 ppm

500 ppm

Note - BC1 was reextracted & rescreened due to erratic instrument response on initial run

ND - Indicates compound(s) was not detected

J - " estimated concentration below practical quantification limit

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 3

Date: 10-3-74

Site Name: SAS6

Weather: Sunny & cool

Samplers: BD

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSAS6 SE2	1255	C	7' 6"			grayish, brown sand & clay mixture - wet	1 x 4oz Amb Glass
↓ DUP2	"	C	"			" "	"
↓ TRP	"	C	"			" "	"
SBSAS6 SE4	1248	G	"			gray brown rocks, mud	1 x 40 ml 1/2A Vials
SE5	1244	G	"			gray brown shale like clay	"
SE6	1252	G	"			gray brown rocks, mud	"

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Ref. Pt.\_\_\_\_: \_\_\_\_\_

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): [Signature] 10-3-74 1300 Received by (dd/tt): [Signature] 10/3/74 1300

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

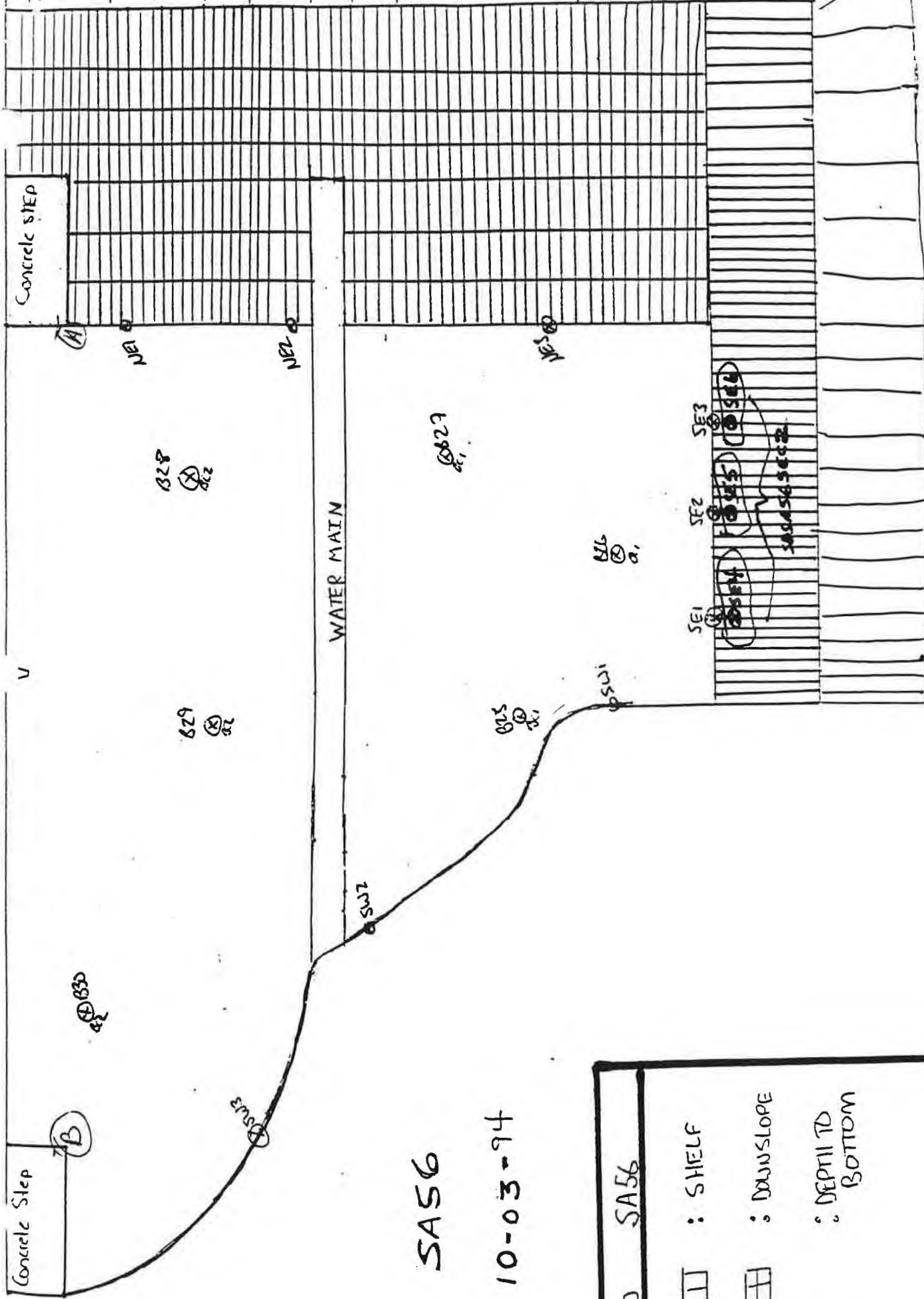
Pg. 2 of 3

Sampler: 60

Composite Sample ID	Discrete Sample ID	Coordinates		Sample Description
		Ref. Pt. A	Ref. Pt. B	
SBSA56SEU2	SE4	26'	M62 <del>27' 6"</del> 33'	wet gray clay w/ Brown Sand
	SE5	27'	1234 34'	wet grayish sandy clay
	SE6	27' 6"	36 6"	wet sand i cobble

# BUILDING 2417

1-1



SAS6

10-03-94

LEGEND SAS6	
	: SHELF
	: DOWNSLOPE
	: DEPTH TO BOTTOM

## Method 8080

[illegible]

### Percent Recovery

2,4,5,6-tcmx  
decachlorobiphenyl

[illegible]

### Method 418.1

[illegible]

**Soil Sample Collection Log**  
**Fort Devens - Project #16208**

Pg. 1 of 2

Date: 10-4-94

Site Name: SASB

Weather: COOL, PARTLY CLOUDY Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>SBSA56451</u>	<u>1230</u>	<u>9</u>				<u>Grey sand &amp; clay mixture</u>	<u>1x 40-1</u> <u>USC</u>
<u>1</u>	<u>452</u>	<u>12:35</u>	<u>9</u>			<u>Brown sandy clay</u>	<u>"</u>
	<u>453</u>	<u>12:38</u>	<u>9</u>			<u>Brown sandy clay w/ rubble</u>	<u>"</u>
	<u>454</u>	<u>12:42</u>	<u>9</u>			<u>Grey clay w/ rocks</u>	<u>"</u>
	<u>455</u>	<u>12:45</u>	<u>4</u>			<u>" "</u>	<u>"</u>
<u>1</u>	<u>456</u>	<u>12:50</u>	<u>9</u>			<u>Grey clay w/ sand &amp; cobble</u>	<u>"</u>

Ref. Pt. \_\_\_\_:

Ref. Pt. \_\_\_\_:

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # \_\_\_\_\_ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

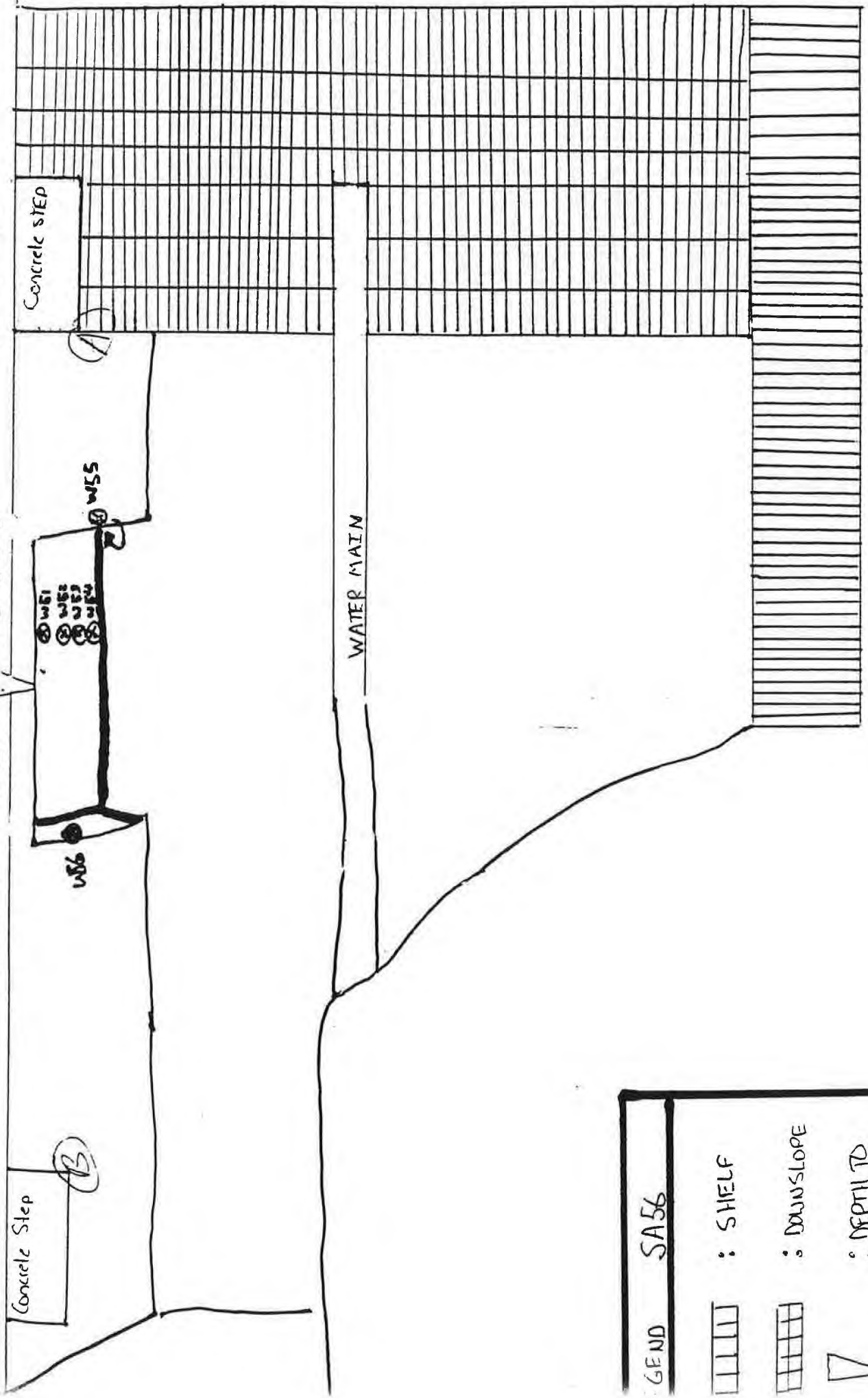
Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): [Signature] 10-4-94 1300 Received by (dd/tt): [Signature] 10-4-94 1300

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

# BUILDING 2417

10-4-94



GENO	SA56
	: SHELF
	: DOWNSLOPE
▽	: DEPTH TO BOTTOM

Location No.: Bldg 1435 Date: 10.4.94 GC Analyst:

TPII Analyst: m v l b z

Sample ID

[illegible][illegible][illegible]

Sample ID

[illegible]

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 3

Date: 10-04-94

Site Name: SAS6

Weather: Sunny & Cool

Samplers: BD/462

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
SBSAS6NWC1	1510	C	6.7'				2x 400ml Amb. Glass
NWC2	1520	C	1				1
NWC3	1530	C	1				1
SBSAS6NWIB	1505	G	1				2x 40ml Glass vials
NWIB	1515	G	1				1
NWIB	1525	G	1				1

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Map Attached: ☒ Yes ☐ No

Sample Type: Screening ☒ Confirmation ☐ Disposal/Characterization

Laboratory Destination: Onsite Lab ☒ ASC - coc # 107684 ☐ USACE - coc # N/A

Duplicate Taken: Yes ☒ No ☐ Rinsate Taken: Yes ☐ No ☒

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX ☒ Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): M. J. [Signature] 10/04/94 1545 Received by (dd/tt): \_\_\_\_\_

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Collection Log Supplemental Form  
Composite Sample Data  
Fort Devens - Project #16208

Pg. 2 of 3

Date: 10-4-94

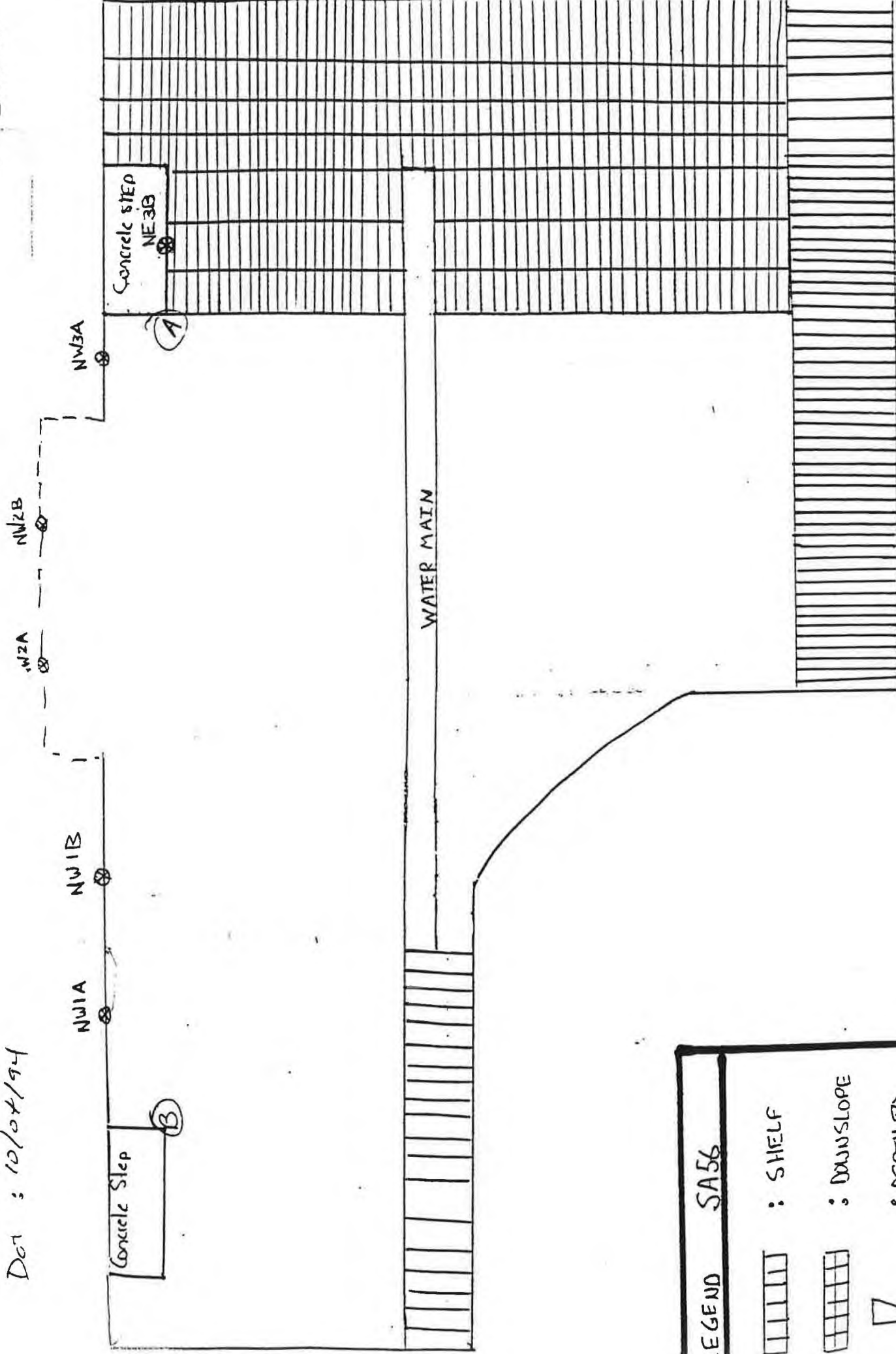
Site: 5A56

Sampler: BD/MGQ

Composite Sample ID	Discrete Sample ID	Coordinates		Sample Description
		Ref. Pt. A	Ref. Pt. B	
SBSASENW1	NW1A	22'	18'6" 8'6"	Gray sandy clay w/ rock
	NW1B	19'6"	12'	
SBSASENW2	NW2A	<del>10'6" 11'</del>	20'	Gray sandy clay w/ rock
	NW2B	9'	24'	
SBSASENW3	NW3A	3'	23'6"	Brown sandy clay w/ rock
	NW3B	3'6"	33'6"	

Site: JAS6  
 Date: 10/04/94

P 3 of 3



LEGEND SA56	
	: SHELF
	: DOWNSLOPE
	: DEPTH TO BOTTOM

Site: Ft. Devens, MA

Location No.: Bldg 1435 Date: 10.11.74 GC Analyst:

TPH Analyst: m v b

Method 8080

Sample ID

Concentration (mg/kg) Action Level  
Aroclor 1260 2 ppm  
chlordane 1 ppm


Percent Recovery

2,4,5,6-tcmx  
decachlorobiphenyl


Method 418.1

Sample ID

Bldg 1435

SP SA 56

Concentration (mg/kg) Action Level  
TRPH 500 ppm

B10	B11	B12	B13	B14	B15	B16	B17	W51	W52	W53	W54	W55	W56	NW1	NW2	NW3		
ND	ND	ND	5157	395	1089	67	ND	289	ND	ND	ND	ND	325	ND	ND	ND		

500 ppm

500 ppm

Soil Sample Collection Log  
Fort Devens - Project #16208

Pg. 1 of 2

Date: 10-12-94

Site Name: SA56

Weather: Sunny & Cool

Samplers: MGQ

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
<u>SA56</u> <u>CLEANPILE</u>	<u>1030</u>	<u>C</u>	<u>6-12'</u>			<u>Brown sand w/cobble</u>	<u>(1 x 0.5)</u>

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Ref. Pt. \_\_\_\_: \_\_\_\_\_

Map Attached: ☒ Yes ☐ No

Sample Type: ☒ Screening ☐ Confirmation ☐ Disposal/Characterization

Laboratory Destination: ☒ Onsite Lab ☐ ASC - coc # \_\_\_\_\_ ☐ USACE- coc # \_\_\_\_\_

Duplicate Taken: Yes ☒ No ☐ Rinsate Taken: Yes ☐ No ☒

On-site Laboratory Chain of Custody/Request for Analysis

Requested Testing: ☒ TPH ☐ BTEX ☐ Chlordane ☐ PCBs ☐ Other \_\_\_\_\_

Relinquished by(dd/tt): Michael H. Smith 10-12-94 1055 Received by (dd/tt): Michael H. Smith 10-12-94 1055

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_



**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 10-20-94

Site Name: SA56

Weather: COOL, OVERCAST Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
EXSASGAL	929	C	1'6"	SEE	MAP	Grey, Brown, Clay Soil, mixed	5 x 407 Amber
AG	925	G	1'6"	"	"		2 x 407 VGA
BC	945	C	1'6"	"	"		5 x 407 Amber
BG	940	G	1'6"	"	"		2 x 407 VGA
ACS	929	C	1'6"	"	"		5 x 407 Amber
AGS	925	G	1'6"	"	"		1 x 407 VGA

Ref. Pt. \_\_\_\_: SEE ATTACHED MAP FOR

Ref. Pt. \_\_\_\_: SAMPLE LOCATION

Map Attached: Yes No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # 107707 USACE - coc # 107710

Duplicate Taken: Yes No Rinsate Taken: Yes No

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other \_\_\_\_\_

Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

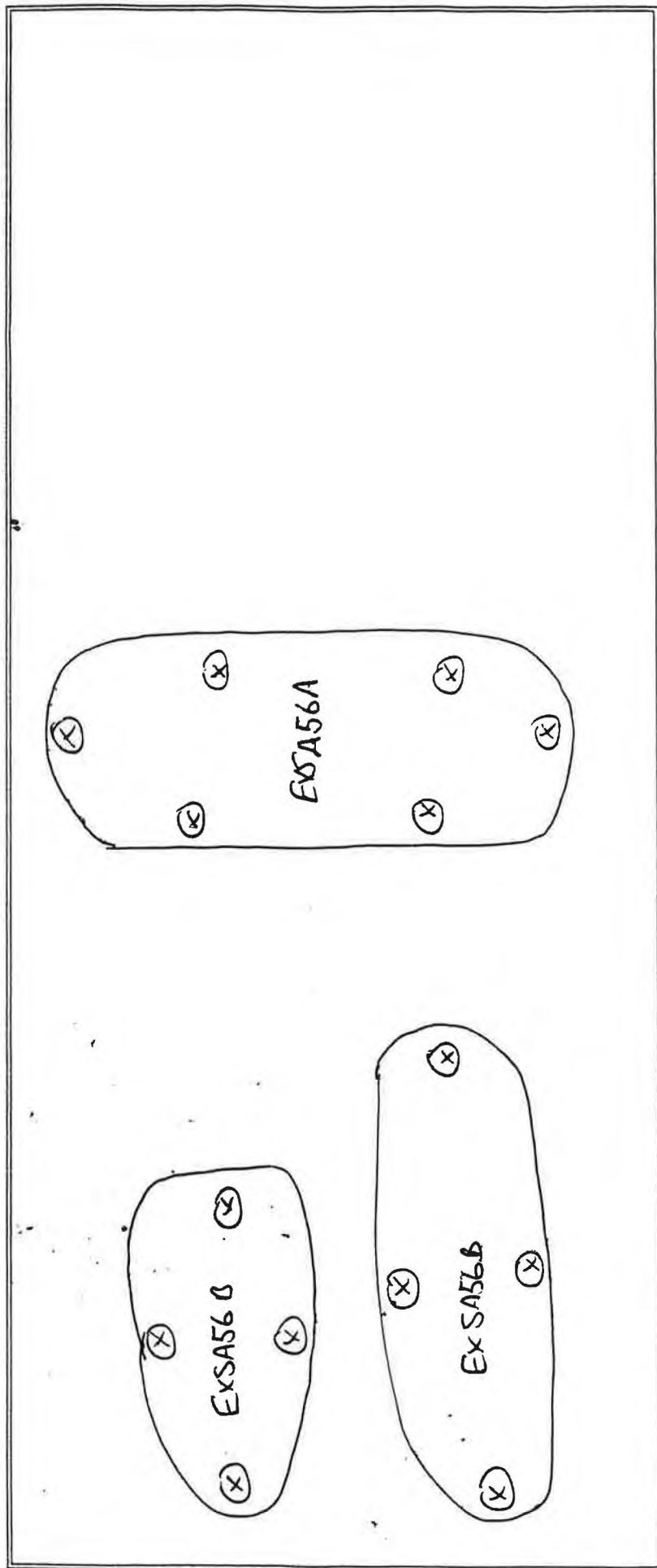
Relinquished by(dd/tt): \_\_\_\_\_ Received by (dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Date: 10-20-94

Site Name: SA56



Comments/Observations:

Prepared by: Bill M

Soil Sample Collection Log  
Fort Devens - Project #16208

Date: 12/24/94

Site Name: SATC

Pg. 1 of 2

Weather: Sunny

Samplers: BD

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
EXSA156 P2C	1135	C				Excavation pile 1 composite grab soil, lots of rubble, gravel	2
EXSA157 P2C (S)	1135	C	1023	1024.94		Split of EXSA156 P2C	2
EXSA158 P2C	1139	C				Excavation pile 2, fine grey clay, lots of rubble	2
EXSA159 P2C	1140	G				Excavation pile 2 grab soil, coarse	2
EXSA160 P2C	1140	G	1023	1024.94		Split of EXSA159 P2C	2
EXSA161 P2C	1148	G				Excavation pile 2 grab soil, fine grey clay, coarse	2

Ref. Pt. \_\_\_\_\_

Ref. Pt. \_\_\_\_\_

Map Attached: Yes ☒ No

Sample Type: Screening Confirmation Disposal/Characterization

not sent to corps

Laboratory Destination: Onsite Lab ASC - coc # 107709 USACE - coc # 107711

12/24/94

Duplicate Taken: Yes ☒ No

Rinsate Taken: Yes ☒ No

On-site Laboratory Chain of Custody/Request for Analysis

Requested Testing: TPH BTEX Chlordane PCBs Other BNA, TRPH

Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

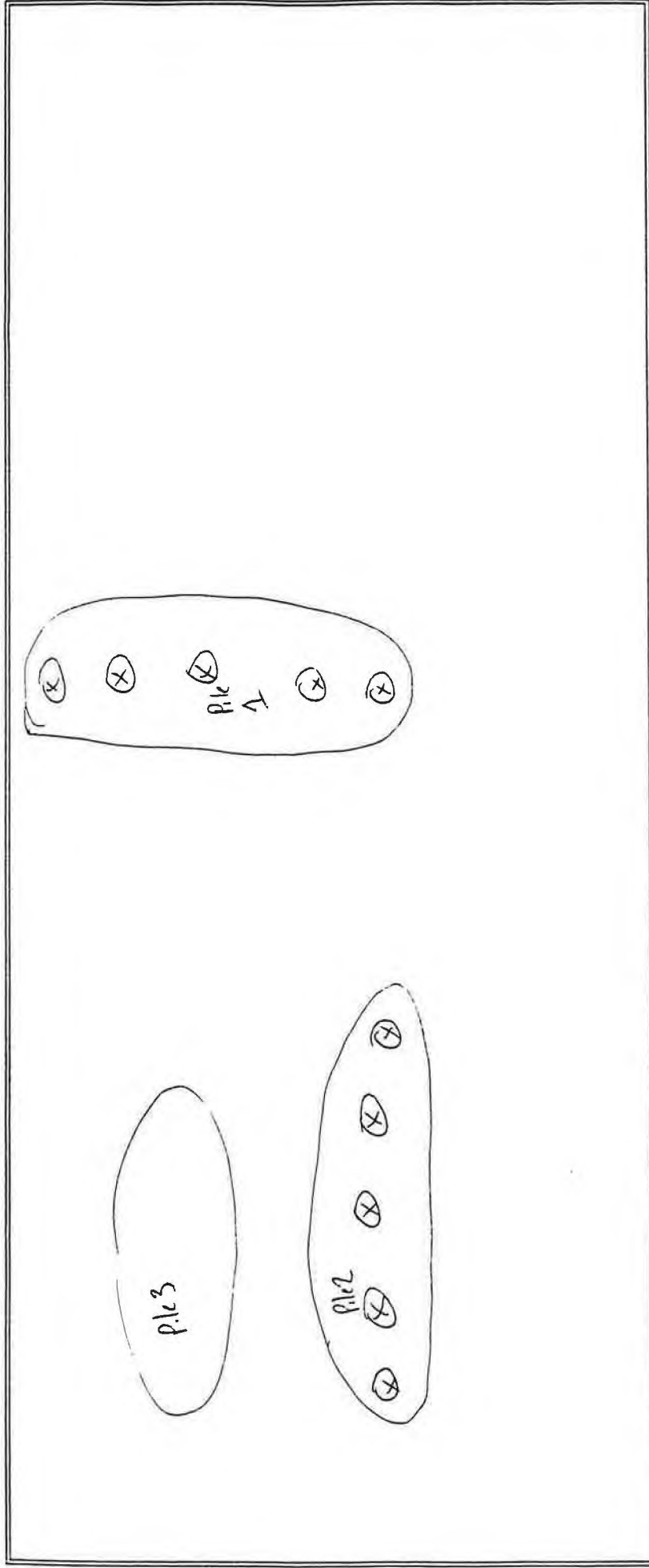
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Sample Location Map  
Fort Devens - Project #16208

Pg. 2 of 2

Date: 10-24-94

Site Name: SAS6



Comments/Observations:

Prepared by: Bill DL

**Soil Sample Collection Log  
Fort Devens - Project #16208**

Pg. 1 of 2

Date: 12.15.94

Site Name: 5A56  
Excavation Piles

Weather: Sunny, Cool

Samplers:

Sample ID Number	Time	Comp/Grab	Sample Depth (ft)	Coordinates Ref. Pt.	Coordinates Ref. Pt.	Sample Description	# of Bottles
EXSA56-1C	1150	C	3'-18"	NA	NA	clots of clay + ph. some cobble gold brown	1x1L 1x402
2C	1205					Lots of cobble clots of clay medium brown/gray	
3C	1230					lot of cobble medium yellow/brown clay little	
4C	1253					lots of cobble, clay goldish brown sand	
EXSA56AIC1253						Duplicate of EXSA56-4C	
EXSA56TRPC1253						Triplicate of EXSA56-4C	my 1x1L Full TCLP only

Ref. Pt. \_\_\_\_\_

Ref. Pt. \_\_\_\_\_

Map Attached: ☒ Yes ☐ No

Sample Type: Screening Confirmation Disposal/Characterization

Laboratory Destination: Onsite Lab ASC - coc # 107747 USACE - coc # 167245

Duplicate Taken: ☒ Yes ☐ No

Rinsate Taken: Yes ☐ No ☒

**On-site Laboratory Chain of Custody/Request for Analysis**

Requested Testing: TPH BTEX Chlordane PCBs Other Full TCLP, RCRM

Relinquished by(dd/tt): SN Blum 1312 12.15.94 Received by(dd/tt): SN Blum 1312 12.15.94

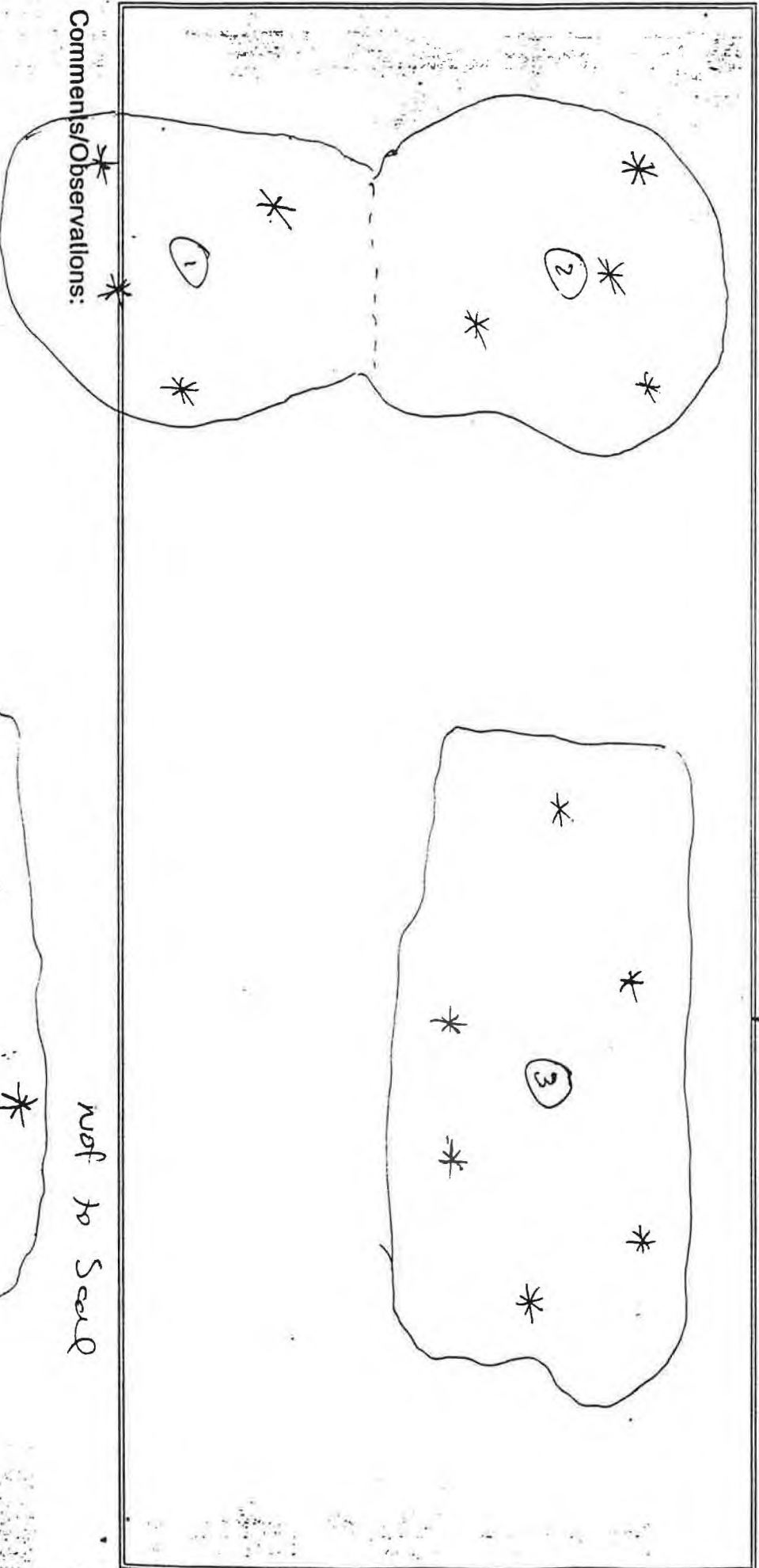
Relinquished by(dd/tt): \_\_\_\_\_ Received by(dd/tt): \_\_\_\_\_

Date: 12.15.94

Site Name:

SHA 56  
Excavation piles 1-4

Sample Location Map  
Fort Devens - Project #16208



Comments/Observations:

ref to Seal

4  
Dup  
4  
Trip

Prepared by: MERS

**Appendix B**  
**ASC Analytical Report - Confirmation Soil Sample Results**



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Liquid and Solid

**Analysis Performed:** Conventional and Organics

**Date Sample Received:** September 23, 1994

**Date Order Received:** September 23, 1994

**Joblink(s):** 616695

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:



Thomas E. Gran, Ph.D., Vice President

Date: October 7, 1994

## PROJECT NARRATIVE

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The following items relate to the samples and analytical data contained in this report.

- o All solid sample results are reported on a "dry weight" basis.
- o Sample #SBSA56SEC demonstrated variable results due to sample non-homogeneity for the TPHC/IR method. This was confirmed by replicate analysis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

**NOTE:** The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

# DATA SUMMARY REPORT

DATE: 09/29/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
ASC Sample Number:	JN2577	JN2578	JN2579	JN2580	JN2581	JN2582
Sample Date:	940922	940922	940922	940922	940922	940922
Facility Code:	016208C	016208C	016208C	016208C	016208C	016208C

Parameters Units

## Conventional Data (CV10)

Parameters	Units	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
Solids, Total	%	88.4	86.2	91.7	91.8	93.4	92.0

## Total Petroleum Hydrocarbon Analysis, IR (IR00)

Parameters	Units	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
Petroleum Hydrocarbons (IR)	mg/kg	15.3	40.9	44.5	997	37.5	266

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Parameters	Units	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
Benaphthene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Benaphthylene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Anthracene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Benididine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Benzo(a)anthracene	mg/kg	1.60	<.385	<.355	<3.57	<.353	<3.55
Benzo(b)fluoranthene	mg/kg	1.44	<.385	<.355	<3.57	<.353	<3.55
Benzo(k)fluoranthene	mg/kg	1.47	<.385	<.355	<3.57	<.353	<3.55
Benzo(ghi)perylene	mg/kg	.498	<.385	<.355	<3.57	<.353	<3.55
Benzo(a)pyrene	mg/kg	1.45	<.385	<.355	<3.57	<.353	<3.55
Bis(2-Chloroethyl) ether	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Bis(2-Chloroethoxy)methane	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Bis(2-Chloroisopropyl) ether	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Bis(2-Ethylhexyl)phthalate	mg/kg	<.375	1.04	.365	<3.57	3.50	<3.55
4-Bromophenyl phenyl ether	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Butyl benzyl phthalate	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Carbazole	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
4-Chloroaniline	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
o-Chloro-m-cresol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2-Chloronaphthalene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2-Chlorophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
4-Chlorophenyl phenyl ether	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Chrysene	mg/kg	1.83	<.385	<.355	<3.57	<.353	<3.55
Dibenz(a,h)anthracene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Dibenzofuran	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
Di-n-butyl phthalate	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1,2-Dichlorobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1,3-Dichlorobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1,4-Dichlorobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2,3'-Dichlorobenzidine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55

# DATA SUMMARY REPORT

DATE: 3/29/94

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
ASC Sample Number:	JN2577	JN2578	JN2579	JN2580	JN2581	JN2582
Sample Date:	940922	940922	940922	940922	940922	940922
Facility Code:	016208C	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## 1 Base/Neutral/Acid Analysis, MS, (MS02)

1-Dichlorophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1-Methyl phthalate	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2-Methyl phthalate	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2,4-Dimethylphenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
2,6-Dinitro-o-cresol	mg/kg	<.936	<.962	<.887	<8.93	<.883	<8.87
4-Dinitrophenol	mg/kg	<1.87	<1.92	<1.77	<17.9	<1.77	<17.7
4-Dinitrotoluene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
6-Dinitrotoluene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1-n-octyl phthalate	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
fluoranthene	mg/kg	2.26	<.385	.387	4.07	<.353	<3.55
fluorene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
hexachlorobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
hexachlorobutadiene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
hexachlorocyclopentadiene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
hexachloroethane	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
sophorone	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Methylnaphthalene	mg/kg	<.375	.412	<.355	<3.57	<.353	<3.55
-Methylphenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Methylphenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitrosodimethylamine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitrosodi-n-propylamine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitrosodiphenylamine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
naphthalene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitroaniline	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitroaniline	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitroaniline	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
nitrobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitrophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
-Nitrophenol	mg/kg	<1.87	<1.92	<1.77	<17.9	<1.77	<17.7
pentachlorophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
phenanthrene	mg/kg	.562	<.385	<.355	<3.57	<.353	<3.55
phenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
pyrene	mg/kg	2.37	<.385	.461	3.96	.413	<3.55
pyridine	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
1,2,4-Trichlorobenzene	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55

# DATA SUMMARY REPORT

DATE: 09/29/94

PAGE: 3

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	SBSA56BC2	SBSA56BC1	SBSA56NEC	SBSA56SEC	SBSA56SWC	SBSA56DUPC
ASC Sample Number:	JN2577	JN2578	JN2579	JN2580	JN2581	JN2582
Sample Date:	940922	940922	940922	940922	940922	940922
Facility Code:	016208C	016208C	016208C	016208C	016208C	016208C

Parameters

Units

## Cal Base/Neutral/Acid Analysis, MS, (MS02)

,4,5-Trichlorophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55
,4,6-Trichlorophenol	mg/kg	<.375	<.385	<.355	<3.57	<.353	<3.55

# DATA SUMMARY REPORT

DATE 09/29/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	SBSA56B30	SBSA56B25	SBSA56NE2	SBSA56SE2	SBSA56SW2	SBSA56DUPG
ASC Sample Number:	JN2583	JN2584	JN2585	JN2586	JN2587	JN2588
Sample Date:	940922	940922	940922	940922	940922	940922
Facility Code:	016208C	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Conventional Data (CV10)

Parameter	Unit	SBSA56B30	SBSA56B25	SBSA56NE2	SBSA56SE2	SBSA56SW2	SBSA56DUPG
Solids, Total	%	81.7	88.4	90.4	92.7	89.9	95.2

## RIE Volatile Analysis, GC, (GV33)

Parameter	Unit	SBSA56B30	SBSA56B25	SBSA56NE2	SBSA56SE2	SBSA56SW2	SBSA56DUPG
Benzene	mg/kg	<.001	<.001	<.001	<.001	<.001	<.001
Ethylbenzene	mg/kg	<.001	.004	<.001	<.001	<.001	.003
Toluene	mg/kg	<.001	<.001	<.001	<.001	<.001	.003
Xylenes	mg/kg	.003	.004	<.001	.002	<.001	.007

# DATA SUMMARY REPORT

DATE: 10/03/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: SBSA56WB  
ASC Sample Number: JN2589  
Sample Date: 940922  
Facility Code: 016208C

Parameters Units

## RIE Volatile Analysis, GC, (GV33)

Benzene	mg/L	<.001
Ethylbenzene	mg/L	<.001
Toluene	mg/L	<.001
Xylenes	mg/L	<.001

## Total Petroleum Hydrocarbon Analysis, IR (IR00)

Petroleum Hydrocarbons (IR)	mg/L	<.100
-----------------------------	------	-------

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Acenaphthene	mg/L	<.011
Acenaphthylene	mg/L	<.011
Anthracene	mg/L	<.011
Benzydine	mg/L	<.011
Benzo(a)anthracene	mg/L	<.011

Benzo(b)fluoranthene	mg/L	<.011
Benzo(k)fluoranthene	mg/L	<.011
Benzo(ghi)perylene	mg/L	<.011
Benzo(a)pyrene	mg/L	<.011
bis(2-Chloroethyl) ether	mg/L	<.011

bis(2-Chloroethoxy)methane	mg/L	<.011
bis(2-Chloroisopropyl)ether	mg/L	<.011
bis(2-Ethylhexyl)phthalate	mg/L	<.011
4-Bromophenyl phenyl ether	mg/L	<.011
Butyl benzyl phthalate	mg/L	<.011

Carbazole	mg/L	<.011
4-Chloroaniline	mg/L	<.011
3-Chloro-m-cresol	mg/L	<.011
2-Chloronaphthalene	mg/L	<.011
2-Chlorophenol	mg/L	<.011

4-Chlorophenyl phenyl ether	mg/L	<.011
Chrysene	mg/L	<.011
Dibenzo(a,h)anthracene	mg/L	<.011
Dibenzofuran	mg/L	<.011
Di-n-butyl phthalate	mg/L	<.011

1,2-Dichlorobenzene	mg/L	<.011
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# DATA SUMMARY REPORT

DATE: 5/03/94

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: SB5A56WB  
 ASC Sample Number: JN2589  
 Sample Date: 940922  
 Facility Code: 016208C

Parameters Units

## total Base/Neutral/Acid Analysis, MS, (MS02)

,3-Dichlorobenzene	mg/L	<.011
,4-Dichlorobenzene	mg/L	<.011
,3'-Dichlorobenzidine	mg/L	<.011
,4-Dichlorophenol	mg/L	<.011
1ethyl phthalate	mg/L	<.011
1methyl phthalate	mg/L	<.011
,4-Dimethylphenol	mg/L	<.011
,6-Dinitro-o-cresol	mg/L	<.027
,4-Dinitrophenol	mg/L	<.054
,4-Dinitrotoluene	mg/L	<.011
,6-Dinitrotoluene	mg/L	<.011
1-n-octyl phthalate	mg/L	<.011
luoranthene	mg/L	<.011
luorene	mg/L	<.011
exachlorobenzene	mg/L	<.011
exachlorobutadiene	mg/L	<.011
exachlorocyclopentadiene	mg/L	<.011
exachloroethane	mg/L	<.011
sophorone	mg/L	<.011
-Methylnaphthalene	mg/L	<.011
-Methylphenol	mg/L	<.011
-Methylphenol	mg/L	<.011
-Nitrosodimethylamine	mg/L	<.011
-Nitrosodi-n-propylamine	mg/L	<.011
-Nitrosodiphenylamine	mg/L	<.011
aphthalene	mg/L	<.011
-Nitroaniline	mg/L	<.011
-Nitroaniline	mg/L	<.011
-Nitroaniline	mg/L	<.011
ltrobenzene	mg/L	<.011
-Nitrophenol	mg/L	<.011
-Nitrophenol	mg/L	<.054
entachlorophenol	mg/L	<.011
henanthrene	mg/L	<.011
henol	mg/L	<.011

# DATA SUMMARY REPORT

DATE: 10/03/94

PAGE: 3

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: SBSA56WB  
ASC Sample Number: JN2589  
Sample Date: 940922  
Facility Code: 016208C

Parameters Units

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Pyrene	mg/L	<.011
Pyridine	mg/L	<.011
1,2,4-Trichlorobenzene	mg/L	<.011
2,4,5-Trichlorophenol	mg/L	<.011
2,4,6-Trichlorophenol	mg/L	<.011

# DATA SUMMARY REPORT

DATE: 10/07/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: TRIPBLK  
ASC Sample Number: JN2649  
Sample Date: 940922  
Facility Code: 016208C

Parameters

Units

## BTXE Volatile Analysis, GC, (GV33)

Benzene	mg/L	<.001
Ethylbenzene	mg/L	<.001
Toluene	mg/L	<.001
Xylenes	mg/L	<.001

**APPENDIX B**  
**QUANTITATIVE RESULTS**

### CONVENTIONAL DATA (CV10)

**Company Name**

### Facility

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56BC2**

JN2577

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	88.4	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

**Sample Point**

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56BC1**

**JN2578**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	86.2	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56NEC**

**JN2579**

[illegible]

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56SEC**

**JN2580**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	91.8	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56SWC**

**JN2581**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	93.4	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56DUPC**

**JN2582**

[illegible]

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56B30**

**JN2583**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	81.7	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

**Sample Point**

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56B25**

JN2584

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	88.4	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56NE2**

JN2585

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	90.4	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56SE2**

**JN2586**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	92.7	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56SW2**

**JN2587**

[illegible]

### CONVENTIONAL DATA (CV10)

**Company Name**

**Facility**

### Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56DUPG**

**JN2588**

Compounds	Sample Results %	Detection Limits %	Blank Results %	Batch Number
Solids, Total	95.2	.100	-	

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56B30

JN2583

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3884
Ethylbenzene	ND	.001	ND	Q2W3884
Toluene	ND	.001	ND	Q2W3884
Xylenes	.003	.001	ND	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56B25

JN2584

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3884
Ethylbenzene	.004	.001	ND	Q2W3884
Toluene	ND	.001	ND	Q2W3884
Xylenes	.004	.001	ND	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NE2

JN2585

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3884
Ethylbenzene	ND	.001	ND	Q2W3884
Toluene	ND	.001	ND	Q2W3884
Xylenes	ND	.001	ND	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56SE2

JN2586

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3884
Ethylbenzene	ND	.001	ND	Q2W3884
Toluene	ND	.001	ND	Q2W3884
Xylenes	.002	.001	ND	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56SW2**

JN2587

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3884
Ethylbenzene	ND	.001	ND	Q2W3884
Toluene	ND	.001	ND	Q2W3884
Xylenes	ND	.001	ND	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56DUPG

JN2588

[illegible]

BTXE VOLATILE ANALYSIS, GC, (GV33)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56WB

JN2589

[illegible]

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

TRIPBLK

JN2649

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.001	ND	Q1W3886
Ethylbenzene	ND	.001	ND	Q1W3886
Toluene	ND	.001	ND	Q1W3886
Xylenes	ND	.001	ND	Q1W3886

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56BC2**

JN2577

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	15.3	7.34	ND	Q2T41374

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56BC1

JN2578

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	40.9	7.69	ND	Q2T41374

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NEC

JN2579

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	44.5	7.17	ND	Q2T41374

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56SEC

JN2580

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	997	72.3	ND	Q2T41374

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56SWC**

JN2581

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	37.5	7.11	ND	Q2T41374

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56DUPC**

JN2582

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	266	14.1	ND	Q2T41374

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56WB**

JN2589

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Petroleum Hydrocarbons (IR)	ND	.100	ND	P1T41380

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56BC2	JN2577

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.375	ND	Q2C41372
Acenaphthylene	ND	.375	ND	Q2C41372
Anthracene	ND	.375	ND	Q2C41372
Benzidine	ND	.375	ND	Q2C41372
Benzo(a)anthracene	1.60	.375	ND	Q2C41372
Benzo(b)fluoranthene	1.44	.375	ND	Q2C41372
Benzo(k)fluoranthene	1.47	.375	ND	Q2C41372
Benzo(ghi)perylene	.498	.375	ND	Q2C41372
Benzo(a)pyrene	1.45	.375	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	.375	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	.375	ND	Q2C41372
bis(2-Chloroisopropyl) ether	ND	.375	ND	Q2C41372
bis(2-Ethylhexyl) phthalate	ND	.375	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	.375	ND	Q2C41372
Butyl benzyl phthalate	ND	.375	ND	Q2C41372
Carbazole	ND	.375	ND	Q2C41372
4-Chloroaniline	ND	.375	ND	Q2C41372
p-Chloro-m-cresol	ND	.375	ND	Q2C41372
2-Chloronaphthalene	ND	.375	ND	Q2C41372
2-Chlorophenol	ND	.375	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	.375	ND	Q2C41372
Chrysene	1.83	.375	ND	Q2C41372
benzo(a,h)anthracene	ND	.375	ND	Q2C41372
benzofuran	ND	.375	ND	Q2C41372
Di-n-butyl phthalate	ND	.375	ND	Q2C41372
1,2-Dichlorobenzene	ND	.375	ND	Q2C41372
1,3-Dichlorobenzene	ND	.375	ND	Q2C41372
1,4-Dichlorobenzene	ND	.375	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	.375	ND	Q2C41372
2,4-Dichlorophenol	ND	.375	ND	Q2C41372
Diethyl phthalate	ND	.375	ND	Q2C41372
Dimethyl phthalate	ND	.375	ND	Q2C41372
2,4-Dimethylphenol	ND	.375	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	.936	ND	Q2C41372
2,4-Dinitrophenol	ND	1.87	ND	Q2C41372
2,4-Dinitrotoluene	ND	.375	ND	Q2C41372
2,6-Dinitrotoluene	ND	.375	ND	Q2C41372
Di-n-octyl phthalate	ND	.375	ND	Q2C41372
Fluoranthene	2.26	.375	ND	Q2C41372
Fluorene	ND	.375	ND	Q2C41372
Hexachlorobenzene	ND	.375	ND	Q2C41372
Hexachlorobutadiene	ND	.375	ND	Q2C41372
Hexachlorocyclopentadiene	ND	.375	ND	Q2C41372
Hexachloroethane	ND	.375	ND	Q2C41372
Isophorone	ND	.375	ND	Q2C41372
2-Methylnaphthalene	ND	.375	ND	Q2C41372
2-Methylphenol	ND	.375	ND	Q2C41372
4-Methylphenol	ND	.375	ND	Q2C41372
N-Nitrosodimethylamine	ND	.375	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	.375	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56BC2	JN2577

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	.375	ND	Q2C41372
Naphthalene	ND	.375	ND	Q2C41372
2-Nitroaniline	ND	.375	ND	Q2C41372
3-Nitroaniline	ND	.375	ND	Q2C41372
4-Nitroaniline	ND	.375	ND	Q2C41372
Nitrobenzene	ND	.375	ND	Q2C41372
2-Nitrophenol	ND	.375	ND	Q2C41372
4-Nitrophenol	ND	1.87	ND	Q2C41372
Pentachlorophenol	ND	.375	ND	Q2C41372
Phenanthrene	.562	.375	ND	Q2C41372
Phenol	ND	.375	ND	Q2C41372
Pyrene	2.37	.375	ND	Q2C41372
Pyridine	ND	.375	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	.375	ND	Q2C41372
2,4,5-Trichlorophenol	ND	.375	ND	Q2C41372
2,4,6-Trichlorophenol	ND	.375	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56BC1	JN2578

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.385	ND	Q2C41372
Acenaphthylene	ND	.385	ND	Q2C41372
Anthracene	ND	.385	ND	Q2C41372
Benzidine	ND	.385	ND	Q2C41372
Benzo(a)anthracene	ND	.385	ND	Q2C41372
Benzo(b)fluoranthene	ND	.385	ND	Q2C41372
Benzo(k)fluoranthene	ND	.385	ND	Q2C41372
Benzo(ghi)perylene	ND	.385	ND	Q2C41372
Benzo(a)pyrene	ND	.385	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	.385	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	.385	ND	Q2C41372
bis(2-Chloroisopropyl)ether	ND	.385	ND	Q2C41372
bis(2-Ethylhexyl)phthalate	1.04	.385	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	.385	ND	Q2C41372
Butyl benzyl phthalate	ND	.385	ND	Q2C41372
Carbazole	ND	.385	ND	Q2C41372
4-Chloroaniline	ND	.385	ND	Q2C41372
p-Chloro-m-cresol	ND	.385	ND	Q2C41372
2-Chloronaphthalene	ND	.385	ND	Q2C41372
2-Chlorophenol	ND	.385	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	.385	ND	Q2C41372
Chrysene	ND	.385	ND	Q2C41372
benzo(a,h)anthracene	ND	.385	ND	Q2C41372
2,3-Benzofuran	ND	.385	ND	Q2C41372
Di-n-butyl phthalate	ND	.385	ND	Q2C41372
1,2-Dichlorobenzene	ND	.385	ND	Q2C41372
1,3-Dichlorobenzene	ND	.385	ND	Q2C41372
1,4-Dichlorobenzene	ND	.385	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	.385	ND	Q2C41372
2,4-Dichlorophenol	ND	.385	ND	Q2C41372
Diethyl phthalate	ND	.385	ND	Q2C41372
Dimethyl phthalate	ND	.385	ND	Q2C41372
2,4-Dimethylphenol	ND	.385	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	.962	ND	Q2C41372
2,4-Dinitrophenol	ND	1.92	ND	Q2C41372
2,4-Dinitrotoluene	ND	.385	ND	Q2C41372
2,6-Dinitrotoluene	ND	.385	ND	Q2C41372
Di-n-octyl phthalate	ND	.385	ND	Q2C41372
Fluoranthene	ND	.385	ND	Q2C41372
Fluorene	ND	.385	ND	Q2C41372
Hexachlorobenzene	ND	.385	ND	Q2C41372
Hexachlorobutadiene	ND	.385	ND	Q2C41372
Hexachlorocyclopentadiene	ND	.385	ND	Q2C41372
Hexachloroethane	ND	.385	ND	Q2C41372
Isophorone	ND	.385	ND	Q2C41372
2-Methylnaphthalene	.412	.385	ND	Q2C41372
2-Methylphenol	ND	.385	ND	Q2C41372
4-Methylphenol	ND	.385	ND	Q2C41372
N-Nitrosodimethylamine	ND	.385	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	.385	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56BC1	JN2578

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	.385	ND	Q2C41372
Naphthalene	ND	.385	ND	Q2C41372
2-Nitroaniline	ND	.385	ND	Q2C41372
3-Nitroaniline	ND	.385	ND	Q2C41372
4-Nitroaniline	ND	.385	ND	Q2C41372
Nitrobenzene	ND	.385	ND	Q2C41372
2-Nitrophenol	ND	.385	ND	Q2C41372
4-Nitrophenol	ND	1.92	ND	Q2C41372
Pentachlorophenol	ND	.385	ND	Q2C41372
Phenanthrene	ND	.385	ND	Q2C41372
Phenol	ND	.385	ND	Q2C41372
Pyrene	ND	.385	ND	Q2C41372
Pyridine	ND	.385	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	.385	ND	Q2C41372
2,4,5-Trichlorophenol	ND	.385	ND	Q2C41372
2,4,6-Trichlorophenol	ND	.385	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NEC	JN2579

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.355	ND	Q2C41372
Acenaphthylene	ND	.355	ND	Q2C41372
Anthracene	ND	.355	ND	Q2C41372
Benzidine	ND	.355	ND	Q2C41372
Benzo(a)anthracene	ND	.355	ND	Q2C41372
Benzo(b)fluoranthene	ND	.355	ND	Q2C41372
Benzo(k)fluoranthene	ND	.355	ND	Q2C41372
Benzo(ghi)perylene	ND	.355	ND	Q2C41372
Benzo(a)pyrene	ND	.355	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	.355	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	.355	ND	Q2C41372
bis(2-Chloroisopropyl)ether	ND	.355	ND	Q2C41372
bis(2-Ethylhexyl)phthalate	.365	.355	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	.355	ND	Q2C41372
Butyl benzyl phthalate	ND	.355	ND	Q2C41372
Carbazole	ND	.355	ND	Q2C41372
4-Chloroaniline	ND	.355	ND	Q2C41372
p-Chloro-m-cresol	ND	.355	ND	Q2C41372
2-Chloronaphthalene	ND	.355	ND	Q2C41372
2-Chlorophenol	ND	.355	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	.355	ND	Q2C41372
Chrysene	ND	.355	ND	Q2C41372
benzo(a,h)anthracene	ND	.355	ND	Q2C41372
benzofuran	ND	.355	ND	Q2C41372
Di-n-butyl phthalate	ND	.355	ND	Q2C41372
1,2-Dichlorobenzene	ND	.355	ND	Q2C41372
1,3-Dichlorobenzene	ND	.355	ND	Q2C41372
1,4-Dichlorobenzene	ND	.355	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	.355	ND	Q2C41372
2,4-Dichlorophenol	ND	.355	ND	Q2C41372
Diethyl phthalate	ND	.355	ND	Q2C41372
Dimethyl phthalate	ND	.355	ND	Q2C41372
2,4-Dimethylphenol	ND	.355	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	.887	ND	Q2C41372
2,4-Dinitrophenol	ND	1.77	ND	Q2C41372
2,4-Dinitrotoluene	ND	.355	ND	Q2C41372
2,6-Dinitrotoluene	ND	.355	ND	Q2C41372
Di-n-octyl phthalate	ND	.355	ND	Q2C41372
Fluoranthene	.387	.355	ND	Q2C41372
Fluorene	ND	.355	ND	Q2C41372
Hexachlorobenzene	ND	.355	ND	Q2C41372
Hexachlorobutadiene	ND	.355	ND	Q2C41372
Hexachlorocyclopentadiene	ND	.355	ND	Q2C41372
Hexachloroethane	ND	.355	ND	Q2C41372
Isophorone	ND	.355	ND	Q2C41372
2-Methylnaphthalene	ND	.355	ND	Q2C41372
2-Methylphenol	ND	.355	ND	Q2C41372
4-Methylphenol	ND	.355	ND	Q2C41372
N-Nitrosodimethylamine	ND	.355	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	.355	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NEC	JN2579

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	.355	ND	Q2C41372
Naphthalene	ND	.355	ND	Q2C41372
2-Nitroaniline	ND	.355	ND	Q2C41372
3-Nitroaniline	ND	.355	ND	Q2C41372
4-Nitroaniline	ND	.355	ND	Q2C41372
Nitrobenzene	ND	.355	ND	Q2C41372
2-Nitrophenol	ND	.355	ND	Q2C41372
4-Nitrophenol	ND	1.77	ND	Q2C41372
Pentachlorophenol	ND	.355	ND	Q2C41372
Phenanthrene	ND	.355	ND	Q2C41372
Phenol	ND	.355	ND	Q2C41372
Pyrene	.461	.355	ND	Q2C41372
Pyridine	ND	.355	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	.355	ND	Q2C41372
2,4,5-Trichlorophenol	ND	.355	ND	Q2C41372
2,4,6-Trichlorophenol	ND	.355	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56SEC	JN2580

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	3.57	ND	Q2C41372
Acenaphthylene	ND	3.57	ND	Q2C41372
Anthracene	ND	3.57	ND	Q2C41372
Benzidine	ND	3.57	ND	Q2C41372
Benzo(a)anthracene	ND	3.57	ND	Q2C41372
Benzo(b)fluoranthene	ND	3.57	ND	Q2C41372
Benzo(k)fluoranthene	ND	3.57	ND	Q2C41372
Benzo(ghi)perylene	ND	3.57	ND	Q2C41372
Benzo(a)pyrene	ND	3.57	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	3.57	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	3.57	ND	Q2C41372
bis(2-Chloroisopropyl)ether	ND	3.57	ND	Q2C41372
bis(2-Ethylhexyl)phthalate	ND	3.57	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	3.57	ND	Q2C41372
Butyl benzyl phthalate	ND	3.57	ND	Q2C41372
Carbazole	ND	3.57	ND	Q2C41372
4-Chloroaniline	ND	3.57	ND	Q2C41372
p-Chloro-m-cresol	ND	3.57	ND	Q2C41372
2-Chloronaphthalene	ND	3.57	ND	Q2C41372
2-Chlorophenol	ND	3.57	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	3.57	ND	Q2C41372
Chrysene	ND	3.57	ND	Q2C41372
Benzo(a,h)anthracene	ND	3.57	ND	Q2C41372
Benzenofuran	ND	3.57	ND	Q2C41372
Di-n-butyl phthalate	ND	3.57	ND	Q2C41372
1,2-Dichlorobenzene	ND	3.57	ND	Q2C41372
1,3-Dichlorobenzene	ND	3.57	ND	Q2C41372
1,4-Dichlorobenzene	ND	3.57	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	3.57	ND	Q2C41372
2,4-Dichlorophenol	ND	3.57	ND	Q2C41372
Diethyl phthalate	ND	3.57	ND	Q2C41372
Dimethyl phthalate	ND	3.57	ND	Q2C41372
2,4-Dimethylphenol	ND	3.57	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	8.93	ND	Q2C41372
2,4-Dinitrophenol	ND	17.9	ND	Q2C41372
2,4-Dinitrotoluene	ND	3.57	ND	Q2C41372
2,6-Dinitrotoluene	ND	3.57	ND	Q2C41372
Di-n-octyl phthalate	ND	3.57	ND	Q2C41372
Fluoranthene	4.07	3.57	ND	Q2C41372
Fluorene	ND	3.57	ND	Q2C41372
Hexachlorobenzene	ND	3.57	ND	Q2C41372
Hexachlorobutadiene	ND	3.57	ND	Q2C41372
Hexachlorocyclopentadiene	ND	3.57	ND	Q2C41372
Hexachloroethane	ND	3.57	ND	Q2C41372
Isophorone	ND	3.57	ND	Q2C41372
2-Methylnaphthalene	ND	3.57	ND	Q2C41372
2-Methylphenol	ND	3.57	ND	Q2C41372
4-Methylphenol	ND	3.57	ND	Q2C41372
N-Nitrosodimethylamine	ND	3.57	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	3.57	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56SEC	JN2580

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	3.57	ND	Q2C41372
Naphthalene	ND	3.57	ND	Q2C41372
2-Nitroaniline	ND	3.57	ND	Q2C41372
3-Nitroaniline	ND	3.57	ND	Q2C41372
4-Nitroaniline	ND	3.57	ND	Q2C41372
Nitrobenzene	ND	3.57	ND	Q2C41372
2-Nitrophenol	ND	3.57	ND	Q2C41372
4-Nitrophenol	ND	17.9	ND	Q2C41372
Pentachlorophenol	ND	3.57	ND	Q2C41372
Phenanthrene	ND	3.57	ND	Q2C41372
Phenol	ND	3.57	ND	Q2C41372
Pyrene	3.96	3.57	ND	Q2C41372
Pyridine	ND	3.57	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	3.57	ND	Q2C41372
2,4,5-Trichlorophenol	ND	3.57	ND	Q2C41372
2,4,6-Trichlorophenol	ND	3.57	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total  
- These reporting limits are higher than usual due to matrix interferences.

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56SWC	JN2581

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.353	ND	Q2C41372
Acenaphthylene	ND	.353	ND	Q2C41372
Anthracene	ND	.353	ND	Q2C41372
Benzidine	ND	.353	ND	Q2C41372
Benzo(a)anthracene	ND	.353	ND	Q2C41372
Benzo(b)fluoranthene	ND	.353	ND	Q2C41372
Benzo(k)fluoranthene	ND	.353	ND	Q2C41372
Benzo(ghi)perylene	ND	.353	ND	Q2C41372
Benzo(a)pyrene	ND	.353	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	.353	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	.353	ND	Q2C41372
bis(2-Chloroisopropyl)ether	ND	.353	ND	Q2C41372
bis(2-Ethylhexyl)phthalate	3.50	.353	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	.353	ND	Q2C41372
Butyl benzyl phthalate	ND	.353	ND	Q2C41372
Carbazole	ND	.353	ND	Q2C41372
4-Chloroaniline	ND	.353	ND	Q2C41372
p-Chloro-m-cresol	ND	.353	ND	Q2C41372
2-Chloronaphthalene	ND	.353	ND	Q2C41372
2-Chlorophenol	ND	.353	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	.353	ND	Q2C41372
Chrysene	ND	.353	ND	Q2C41372
Benzo(a,h)anthracene	ND	.353	ND	Q2C41372
Benzenofuran	ND	.353	ND	Q2C41372
Di-n-butyl phthalate	ND	.353	ND	Q2C41372
1,2-Dichlorobenzene	ND	.353	ND	Q2C41372
1,3-Dichlorobenzene	ND	.353	ND	Q2C41372
1,4-Dichlorobenzene	ND	.353	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	.353	ND	Q2C41372
2,4-Dichlorophenol	ND	.353	ND	Q2C41372
Diethyl phthalate	ND	.353	ND	Q2C41372
Dimethyl phthalate	ND	.353	ND	Q2C41372
2,4-Dimethylphenol	ND	.353	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	.883	ND	Q2C41372
2,4-Dinitrophenol	ND	1.77	ND	Q2C41372
2,4-Dinitrotoluene	ND	.353	ND	Q2C41372
2,6-Dinitrotoluene	ND	.353	ND	Q2C41372
Di-n-octyl phthalate	ND	.353	ND	Q2C41372
Fluoranthene	ND	.353	ND	Q2C41372
Fluorene	ND	.353	ND	Q2C41372
Hexachlorobenzene	ND	.353	ND	Q2C41372
Hexachlorobutadiene	ND	.353	ND	Q2C41372
Hexachlorocyclopentadiene	ND	.353	ND	Q2C41372
Hexachloroethane	ND	.353	ND	Q2C41372
Isophorone	ND	.353	ND	Q2C41372
2-Methylnaphthalene	ND	.353	ND	Q2C41372
2-Methylphenol	ND	.353	ND	Q2C41372
4-Methylphenol	ND	.353	ND	Q2C41372
N-Nitrosodimethylamine	ND	.353	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	.353	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56SWC	JN2581

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	.353	ND	Q2C41372
Naphthalene	ND	.353	ND	Q2C41372
2-Nitroaniline	ND	.353	ND	Q2C41372
3-Nitroaniline	ND	.353	ND	Q2C41372
4-Nitroaniline	ND	.353	ND	Q2C41372
Nitrobenzene	ND	.353	ND	Q2C41372
2-Nitrophenol	ND	.353	ND	Q2C41372
4-Nitrophenol	ND	1.77	ND	Q2C41372
Pentachlorophenol	ND	.353	ND	Q2C41372
Phenanthrene	ND	.353	ND	Q2C41372
Phenol	ND	.353	ND	Q2C41372
Pyrene	.413	.353	ND	Q2C41372
Pyridine	ND	.353	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	.353	ND	Q2C41372
2,4,5-Trichlorophenol	ND	.353	ND	Q2C41372
2,4,6-Trichlorophenol	ND	.353	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56DUPC

JN2582

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	3.55	ND	Q2C41372
Acenaphthylene	ND	3.55	ND	Q2C41372
Anthracene	ND	3.55	ND	Q2C41372
Benzidine	ND	3.55	ND	Q2C41372
Benzo(a)anthracene	ND	3.55	ND	Q2C41372
Benzo(b)fluoranthene	ND	3.55	ND	Q2C41372
Benzo(k)fluoranthene	ND	3.55	ND	Q2C41372
Benzo(ghi)perylene	ND	3.55	ND	Q2C41372
Benzo(a)pyrene	ND	3.55	ND	Q2C41372
bis(2-Chloroethyl) ether	ND	3.55	ND	Q2C41372
bis(2-Chloroethoxy)methane	ND	3.55	ND	Q2C41372
bis(2-Chloroisopropyl)ether	ND	3.55	ND	Q2C41372
bis(2-Ethylhexyl)phthalate	ND	3.55	ND	Q2C41372
4-Bromophenyl phenyl ether	ND	3.55	ND	Q2C41372
Butyl benzyl phthalate	ND	3.55	ND	Q2C41372
Carbazole	ND	3.55	ND	Q2C41372
4-Chloroaniline	ND	3.55	ND	Q2C41372
p-Chloro-m-cresol	ND	3.55	ND	Q2C41372
2-Chloronaphthalene	ND	3.55	ND	Q2C41372
2-Chlorophenol	ND	3.55	ND	Q2C41372
4-Chlorophenyl phenyl ether	ND	3.55	ND	Q2C41372
ysene	ND	3.55	ND	Q2C41372
enzo(a,h)anthracene	ND	3.55	ND	Q2C41372
Di-benzofuran	ND	3.55	ND	Q2C41372
Di-n-butyl phthalate	ND	3.55	ND	Q2C41372
1,2-Dichlorobenzene	ND	3.55	ND	Q2C41372
1,3-Dichlorobenzene	ND	3.55	ND	Q2C41372
1,4-Dichlorobenzene	ND	3.55	ND	Q2C41372
3,3'-Dichlorobenzidine	ND	3.55	ND	Q2C41372
2,4-Dichlorophenol	ND	3.55	ND	Q2C41372
Diethyl phthalate	ND	3.55	ND	Q2C41372
Dimethyl phthalate	ND	3.55	ND	Q2C41372
2,4-Dimethylphenol	ND	3.55	ND	Q2C41372
4,6-Dinitro-o-cresol	ND	8.87	ND	Q2C41372
2,4-Dinitrophenol	ND	17.7	ND	Q2C41372
2,4-Dinitrotoluene	ND	3.55	ND	Q2C41372
2,6-Dinitrotoluene	ND	3.55	ND	Q2C41372
Di-n-octyl phthalate	ND	3.55	ND	Q2C41372
Fluoranthene	ND	3.55	ND	Q2C41372
Fluorene	ND	3.55	ND	Q2C41372
Hexachlorobenzene	ND	3.55	ND	Q2C41372
Hexachlorobutadiene	ND	3.55	ND	Q2C41372
Hexachlorocyclopentadiene	ND	3.55	ND	Q2C41372
Hexachloroethane	ND	3.55	ND	Q2C41372
Isophorone	ND	3.55	ND	Q2C41372
2-Methylnaphthalene	ND	3.55	ND	Q2C41372
2-Methylphenol	ND	3.55	ND	Q2C41372
4-Methylphenol	ND	3.55	ND	Q2C41372
N-Nitrosodimethylamine	ND	3.55	ND	Q2C41372
N-Nitrosodi-n-propylamine	ND	3.55	ND	Q2C41372

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OEM REMEDIATION SERVICES CORPORATION	016208C	SBSA56DUPC	JN2582

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodiphenylamine	ND	3.55	ND	Q2C41372
Naphthalene	ND	3.55	ND	Q2C41372
2-Nitroaniline	ND	3.55	ND	Q2C41372
3-Nitroaniline	ND	3.55	ND	Q2C41372
4-Nitroaniline	ND	3.55	ND	Q2C41372
Nitrobenzene	ND	3.55	ND	Q2C41372
2-Nitrophenol	ND	3.55	ND	Q2C41372
4-Nitrophenol	ND	17.7	ND	Q2C41372
Pentachlorophenol	ND	3.55	ND	Q2C41372
Phenanthrene	ND	3.55	ND	Q2C41372
Phenol	ND	3.55	ND	Q2C41372
Pyrene	ND	3.55	ND	Q2C41372
Pyridine	ND	3.55	ND	Q2C41372
1,2,4-Trichlorobenzene	ND	3.55	ND	Q2C41372
2,4,5-Trichlorophenol	ND	3.55	ND	Q2C41372
2,4,6-Trichlorophenol	ND	3.55	ND	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total  
 - These reporting limits are higher than usual due to matrix interferences.

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56WB	JN2589

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Acenaphthene	ND	.011	ND	Q1C41361
Acenaphthylene	ND	.011	ND	Q1C41361
Anthracene	ND	.011	ND	Q1C41361
Benzidine	ND	.011	ND	Q1C41361
Benzo(a)anthracene	ND	.011	ND	Q1C41361
Benzo(b)fluoranthene	ND	.011	ND	Q1C41361
Benzo(k)fluoranthene	ND	.011	ND	Q1C41361
Benzo(ghi)perylene	ND	.011	ND	Q1C41361
Benzo(a)pyrene	ND	.011	ND	Q1C41361
bis(2-Chloroethyl) ether	ND	.011	ND	Q1C41361
bis(2-Chloroethoxy)methane	ND	.011	ND	Q1C41361
bis(2-Chloroisopropyl)ether	ND	.011	ND	Q1C41361
bis(2-Ethylhexyl)phthalate	ND	.011	ND	Q1C41361
4-Bromophenyl phenyl ether	ND	.011	ND	Q1C41361
Butyl benzyl phthalate	ND	.011	ND	Q1C41361
Carbazole	ND	.011	ND	Q1C41361
4-Chloroaniline	ND	.011	ND	Q1C41361
p-Chloro-m-cresol	ND	.011	ND	Q1C41361
2-Chloronaphthalene	ND	.011	ND	Q1C41361
2-Chlorophenol	ND	.011	ND	Q1C41361
4-Chlorophenyl phenyl ether	ND	.011	ND	Q1C41361
Chrysene	ND	.011	ND	Q1C41361
benzo(a,h)anthracene	ND	.011	ND	Q1C41361
benzofuran	ND	.011	ND	Q1C41361
Di-n-butyl phthalate	ND	.011	ND	Q1C41361
1,2-Dichlorobenzene	ND	.011	ND	Q1C41361
1,3-Dichlorobenzene	ND	.011	ND	Q1C41361
1,4-Dichlorobenzene	ND	.011	ND	Q1C41361
3,3'-Dichlorobenzidine	ND	.011	ND	Q1C41361
2,4-Dichlorophenol	ND	.011	ND	Q1C41361
Diethyl phthalate	ND	.011	ND	Q1C41361
Dimethyl phthalate	ND	.011	ND	Q1C41361
2,4-Dimethylphenol	ND	.011	ND	Q1C41361
4,6-Dinitro-o-cresol	ND	.027	ND	Q1C41361
2,4-Dinitrophenol	ND	.054	ND	Q1C41361
2,4-Dinitrotoluene	ND	.011	ND	Q1C41361
2,6-Dinitrotoluene	ND	.011	ND	Q1C41361
Di-n-octyl phthalate	ND	.011	ND	Q1C41361
Fluoranthene	ND	.011	ND	Q1C41361
Fluorene	ND	.011	ND	Q1C41361
Hexachlorobenzene	ND	.011	ND	Q1C41361
Hexachlorobutadiene	ND	.011	ND	Q1C41361
Hexachlorocyclopentadiene	ND	.011	ND	Q1C41361
Hexachloroethane	ND	.011	ND	Q1C41361
Isophorone	ND	.011	ND	Q1C41361
2-Methylnaphthalene	ND	.011	ND	Q1C41361
2-Methylphenol	ND	.011	ND	Q1C41361
4-Methylphenol	ND	.011	ND	Q1C41361
N-Nitrosodimethylamine	ND	.011	ND	Q1C41361
N-Nitrosodi-n-propylamine	ND	.011	ND	Q1C41361

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56WB	JN2589

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
N-Nitrosodiphenylamine	ND	.011	ND	Q1C41361
Naphthalene	ND	.011	ND	Q1C41361
2-Nitroaniline	ND	.011	ND	Q1C41361
3-Nitroaniline	ND	.011	ND	Q1C41361
4-Nitroaniline	ND	.011	ND	Q1C41361
Nitrobenzene	ND	.011	ND	Q1C41361
2-Nitrophenol	ND	.011	ND	Q1C41361
4-Nitrophenol	ND	.054	ND	Q1C41361
Pentachlorophenol	ND	.011	ND	Q1C41361
Phenanthrene	ND	.011	ND	Q1C41361
Phenol	ND	.011	ND	Q1C41361
Pyrene	ND	.011	ND	Q1C41361
Pyridine	ND	.011	ND	Q1C41361
1,2,4-Trichlorobenzene	ND	.011	ND	Q1C41361
2,4,5-Trichlorophenol	ND	.011	ND	Q1C41361
2,4,6-Trichlorophenol	ND	.011	ND	Q1C41361

3-Methyl- and 4-Methylphenol coelute and are reported as the total

**APPENDIX C**

**QUALITY ASSURANCE DATA**

## SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616695

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REFERENCE		TITLE
160.3	CAWW	Residue, Total, Gravimetric, Dried at 103-105 C
418.1	MCAWW	Petroleum Hydrocarbons, Total Recoverable
8020	SW-846	Aromatic Volatile Organics by GC
8270	SW-846	GC/MS for Semivolatile Organics: Capillary Column Technique

## METHODOLOGY REFERENCES

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<b>ASTM</b>	<i>American Society for Testing and Materials</i> , 1985 edition.
<b>CAWW</b>	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
<b>CLP</b>	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
<b>EPA-500</b>	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
<b>EPA-600</b>	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
<b>NIOSH</b>	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
<b>SMEWW</b>	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
<b>STOA</b>	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
<b>SW-846</b>	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
<b>(1)</b>	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
<b>Title 22</b>	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis In Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis In Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Benzene	ND	97	ND	82	4	Q2W3884
Ethylbenzene	ND	100	ND	82	5	Q2W3884
Toluene	ND	98	ND	82	5	Q2W3884
Xylenes	ND	98	ND	81	4	Q2W3884

**BTXE VOLATILE ANALYSIS, GC, (GV33)**

[illegible]

# QUALITY ASSURANCE DATA

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	100	997	-	-	Q2T41374

Matrix spike recoveries are not available due to the dilution of the QC matrix spike sample extracts during analysis.

# QUALITY ASSURANCE DATA

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	93	ND	76	21	P1T41380

# QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Acenaphthene	ND	71	ND	96	3	Q2C41372
Acenaphthylene	ND	78	ND	84	1	Q2C41372
Anthracene	ND	75	ND	88	1	Q2C41372
Benzidine	ND	84	ND	16	15	Q2C41372
Benzo (a) anthracene	ND	81	ND	15	14	Q2C41372
Benzo (b) fluoranthene	ND	89	ND	12	8	Q2C41372
Benzo (k) fluoranthene	ND	83	ND	41	20	Q2C41372
Benzo (ghi) perylene	ND	82	ND	14	4	Q2C41372
Benzo (a) pyrene	ND	83	ND	14	10	Q2C41372
bis (2-Chloroethyl) ether	ND	84	ND	80	4	Q2C41372
bis (2-Chloroethoxy) methane	ND	78	ND	93	2	Q2C41372
bis (2-Chloroisopropyl) ether	ND	71	ND	76	7	Q2C41372
bis (2-Ethylhexyl) phthalate	ND	189	ND	108	7	Q2C41372
4-Bromophenyl phenyl ether	ND	80	ND	87	1	Q2C41372
Butyl benzyl phthalate	ND	89	ND	127	2	Q2C41372
Carbazole	ND	80	ND	101	3	Q2C41372
4-Chloroaniline	ND	51	ND	66	3	Q2C41372
p-Chloro-m-cresol	ND	73	ND	87	3	Q2C41372
2-Chloronaphthalene	ND	72	ND	96	2	Q2C41372
2-Chlorophenol	ND	65	ND	81	1	Q2C41372
4-Chlorophenyl phenyl ether	ND	78	ND	96	1	Q2C41372
Chrysene	ND	80	ND	13	17	Q2C41372
Dibenzo (a, h) anthracene	ND	81	ND	55	4	Q2C41372
Dibenzofuran	ND	74	ND	101	1	Q2C41372
Di-n-butyl phthalate	ND	80	ND	109	2	Q2C41372
2-Dichlorobenzene	ND	69	ND	80	1	Q2C41372
1,3-Dichlorobenzene	ND	72	ND	79	1	Q2C41372
1,4-Dichlorobenzene	ND	71	ND	80	1	Q2C41372
3,3'-Dichlorobenzidine	ND	52	ND	53	5	Q2C41372
2,4-Dichlorophenol	ND	73	ND	88	3	Q2C41372
Diethyl phthalate	ND	80	ND	98	4	Q2C41372
Dimethyl phthalate	ND	79	ND	95	2	Q2C41372
2,4-Dimethylphenol	ND	53	ND	101	3	Q2C41372
4,6-Dinitro-o-cresol	ND	83	ND	8	55	Q2C41372
2,4-Dinitrophenol	ND	78	ND	-	-	Q2C41372
2,4-Dinitrotoluene	ND	90	ND	88	7	Q2C41372
2,6-Dinitrotoluene	ND	80	ND	80	5	Q2C41372
Di-n-octyl phthalate	ND	84	ND	164	2	Q2C41372
Fluoranthene	ND	81	4.07	-	26	Q2C41372
Fluorene	ND	76	ND	106	1	Q2C41372
Hexachlorobenzene	ND	79	ND	158	95	Q2C41372
Hexachlorobutadiene	ND	73	ND	75	3	Q2C41372
Hexachlorocyclopentadiene	ND	7	ND	-	-	Q2C41372
Hexachloroethane	ND	67	ND	60	4	Q2C41372
Isophorone	ND	77	ND	85	2	Q2C41372
2-Methylnaphthalene	ND	75	ND	102	2	Q2C41372
2-Methylphenol	ND	67	ND	85	1	Q2C41372
4-Methylphenol	ND	73	ND	88	1	Q2C41372
N-Nitrosodimethylamine	ND	64	ND	53	8	Q2C41372
N-Nitrosodi-n-propylamine	ND	90	ND	94	6	Q2C41372

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
N-Nitrosodiphenylamine	ND	75	ND	102	1	Q2C41372
Naphthalene	ND	74	ND	102	1	Q2C41372
3-Nitroaniline	ND	63	ND	71	2	Q2C41372
4-Nitroaniline	ND	81	ND	74	4	Q2C41372
Nitrobenzene	ND	75	ND	78	4	Q2C41372
2-Nitrophenol	ND	71	ND	88	4	Q2C41372
4-Nitrophenol	ND	87	ND	54	5	Q2C41372
Pentachlorophenol	ND	77	ND	39	10	Q2C41372
Phenanthrene	ND	78	ND	53	47	Q2C41372
Phenol	ND	65	ND	88	0	Q2C41372
Pyrene	ND	79	3.96	-	21	Q2C41372
Pyridine	ND	44	ND	48	6	Q2C41372
1,2,4-Trichlorobenzene	ND	75	ND	91	2	Q2C41372
2,4,5-Trichlorophenol	ND	78	ND	85	3	Q2C41372
2,4,6-Trichlorophenol	ND	73	ND	79	7	Q2C41372

3-Methyl- and 4-Methylphenol coelute and are reported as the total  
 Due to sample matrix interferences, the spiked sample does not provide  
 valid spike recovery data.

# QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Acenaphthene	ND	63	ND	63	7	Q1C41361
Acenaphthylene	ND	70	ND	67	8	Q1C41361
Anthracene	ND	74	ND	73	4	Q1C41361
Benzidine	ND	.7	ND	9	116	Q1C41361
Benzo(a)anthracene	ND	72	ND	69	3	Q1C41361
Benzo(b)fluoranthene	ND	65	ND	63	16	Q1C41361
Benzo(k)fluoranthene	ND	70	ND	67	1	Q1C41361
Benzo(ghi)perylene	ND	67	ND	61	4	Q1C41361
Benzo(a)pyrene	ND	70	ND	67	4	Q1C41361
bis(2-Chloroethyl) ether	ND	62	ND	65	16	Q1C41361
bis(2-Chloroethoxy)methane	ND	74	ND	72	9	Q1C41361
bis(2-Chloroisopropyl)ether	ND	74	ND	75	12	Q1C41361
bis(2-Ethylhexyl)phthalate	ND	77	ND	71	2	Q1C41361
4-Bromophenyl phenyl ether	ND	72	ND	68	1	Q1C41361
Butyl benzyl phthalate	ND	70	ND	68	2	Q1C41361
Carbazole	ND	74	ND	70	6	Q1C41361
4-Chloroaniline	ND	55	ND	52	5	Q1C41361
p-Chloro-m-cresol	ND	66	ND	65	4	Q1C41361
2-Chloronaphthalene	ND	67	ND	65	4	Q1C41361
2-Chlorophenol	ND	68	ND	66	18	Q1C41361
4-Chlorophenyl phenyl ether	ND	72	ND	70	3	Q1C41361
Chrysene	ND	74	ND	70	3	Q1C41361
Dibenzo(a,h)anthracene	ND	69	ND	63	7	Q1C41361
Dibenzofuran	ND	68	ND	67	3	Q1C41361
Di-n-butyl phthalate	ND	73	ND	71	7	Q1C41361
1,2-Dichlorobenzene	ND	56	ND	59	11	Q1C41361
1,3-Dichlorobenzene	ND	55	ND	61	12	Q1C41361
1,4-Dichlorobenzene	ND	54	ND	56	7	Q1C41361
3,3'-Dichlorobenzidine	ND	45	ND	43	2	Q1C41361
2,4-Dichlorophenol	ND	66	ND	68	12	Q1C41361
Diethyl phthalate	ND	67	ND	65	0	Q1C41361
Dimethyl phthalate	ND	59	ND	56	9	Q1C41361
2,4-Dimethylphenol	ND	64	ND	64	12	Q1C41361
4,6-Dinitro-o-cresol	ND	70	ND	73	4	Q1C41361
2,4-Dinitrophenol	ND	63	ND	65	5	Q1C41361
2,4-Dinitrotoluene	ND	71	ND	67	2	Q1C41361
2,6-Dinitrotoluene	ND	74	ND	69	4	Q1C41361
Di-n-octyl phthalate	ND	79	ND	76	3	Q1C41361
Fluoranthene	ND	72	ND	68	3	Q1C41361
Fluorene	ND	69	ND	66	5	Q1C41361
Hexachlorobenzene	ND	72	ND	70	5	Q1C41361
Hexachlorobutadiene	ND	50	ND	59	12	Q1C41361
Hexachlorocyclopentadiene	ND	48	ND	52	5	Q1C41361
Hexachloroethane	ND	45	ND	53	13	Q1C41361
Isophorone	ND	70	ND	72	11	Q1C41361
2-Methylnaphthalene	ND	64	ND	66	13	Q1C41361
2-Methylphenol	ND	66	ND	67	19	Q1C41361
4-Methylphenol	ND	62	ND	66	16	Q1C41361
N-Nitrosodimethylamine	ND	52	ND	60	12	Q1C41361
N-Nitrosodi-n-propylamine	ND	82	ND	80	11	Q1C41361

# QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
N-Nitrosodiphenylamine	ND	66	ND	67	8	Q1C41361
Naphthalene	ND	61	ND	62	9	Q1C41361
3-Nitroaniline	ND	63	ND	56	2	Q1C41361
4-Nitroaniline	ND	74	ND	69	2	Q1C41361
Nitrobenzene	ND	67	ND	67	7	Q1C41361
2-Nitrophenol	ND	67	ND	68	19	Q1C41361
4-Nitrophenol	ND	35	ND	44	1	Q1C41361
Pentachlorophenol	ND	60	ND	62	1	Q1C41361
Phenanthrene	ND	72	ND	67	4	Q1C41361
Phenol	ND	38	ND	50	14	Q1C41361
Pyrene	ND	71	ND	68	2	Q1C41361
Pyridine	ND	16	ND	34	50	Q1C41361
1,2,4-Trichlorobenzene	ND	57	ND	61	10	Q1C41361
2,4,5-Trichlorophenol	ND	69	ND	67	6	Q1C41361
2,4,6-Trichlorophenol	ND	66	ND	64	5	Q1C41361

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# QUALITY ASSURANCE DATA SURROGATE SUMMARY REPORT

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q1C41361 Aqueous (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	45	33	61	63	55	54	0
BLANK SPIKE	52	40	71	65	67	63	0
SBSA56WB	45	34	58	56	54	64	0
SBSA56WB MD	51	45	68	62	61	62	0
SBSA56WB MS	62	53	69	72	64	62	0
QC LIMITS	(21-110)	(10-110)	(10-123)	(35-114)	(43-116)	(33-141)	
QC BATCH: Q2C41372 Solid (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	65	72	61	69	71	84	0
BLANK SPIKE	75	74	87	77	71	75	0
SBSA56BC1	71	76	99	85	82	77	0
SBSA56BC2	71	76	87	78	77	82	0
SBSA56DUPC	85 D	103 D	0 D	86 D	102 D	88 D	0
SBSA56NEC	69	75	74	75	79	86	0
SBSA56SEC	77 D	93 D	0 D	74 D	93 D	86 D	0
SBSA56SEC MD	75 D	95 D	0 D	80 D	98 D	91 D	0
SBSA56SEC MS	74 D	89 D	42 D	76 D	94 D	88 D	0
SBSA56SWC	76	81	84	82	79	91	0
QC LIMITS	(25-121)	(24-113)	(19-122)	(23-120)	(30-115)	(18-137)	

SURROGATE ID	A228	# OUT
QC BATCH: Q1W3886 Aqueous (Volatile organics by GC)		
SAMPLE ID		
BLANK	101	0
BLANK SPIKE	96	0
SBSA56WB	101	0
SBSA56WB MD	98	0
SBSA56WB MS	98	0
TRIPBLK	96	0
QC LIMITS	(30-130)	

SURROGATE ID	A228	# OUT
QC BATCH: Q2W3884 Solid (Volatile organics by GC)		
SAMPLE ID		
BLANK	108	0
BLANK SPIKE	102	0
SBSA56B25	87	0
SBSA56B30	82	0
SBSA56DUPG	67	0
SBSA56NE2	95	0

SURROGATE ID	
A159	= 2-Fluorophenol
B732	= Phenol-D6
A121	= 2,4,6-Tribromophenol
A884	= Nitrobenzene-D5
A158	= 2-Fluorobiphenyl
B142	= Terphenyl-D14
A228	= a,a,a-Trifluorotoluene

\* Values outside of method quality control limits  
D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**QUALITY ASSURANCE DATA  
SURROGATE SUMMARY REPORT**

**SURROGATE ID                      A228                      # OUT**

**BATCH: Q2W3884 Solid (Volatile organics by GC)**

**SAMPLE ID**

SBSA56NE2 MD	86	0
SBSA56NE2 MS	84	0
SBSA56SE2	78	0
SBSA56SW2	91	0

**QC LIMITS                      (30-130)**

**SURROGATE ID**

A159 = 2-Fluorophenol  
B732 = Phenol-D6  
A121 = 2,4,6-Tribromophenol  
A884 = Nitrobenzene-D5  
A158 = 2-Fluorobiphenyl  
B142 = Terphenyl-D14  
A228 = a,a,a-Trifluorotoluene

\* Values outside of method quality control limits

D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program.

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



# CHAIN-OF-CUSTODY RECORD

Form 0019  
Technical Services  
Rev. 08/89

No. 107682

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>Et Devels</b>		PROJECT LOCATION <b>Ayer Me</b>		NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)										REMARKS		
PROJ. NO. <b>16208</b>	PROJECT CONTACT <b>Mike Quinlan</b>		PROJECT TELEPHONE NO. <b>(508) 772-2610</b>		<div style="display: flex; justify-content: space-around;"> <div>TRPH</div> <div>PNA</div> <div>BTEX</div> </div>												
CLIENT'S REPRESENTATIVE <b>Tom Best - USACE</b>		PROJECT MANAGER/SUPERVISOR <b>Bill Snow</b>															
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)											
1	SBSA56BC2	9-22 94	1540	✓		Wet Greyish Clayey Sand	2x402 Amber	✓	✓								* All Labels begin w/ SBSA57
2	" B30	"	1532		✓	Wet Greyish Clayey Sand	2x402-1 VIA			✓							
3	" B61	"	1600	✓		Wet greyish clayey Sand	2x402 Amber	✓	✓								
4	" B25	"	1555		✓	Wet grey clayey sand	2x402-1 VIA			✓							
5	SBSA56WB	"	1400		✓	Equipment Rinsate water blank for site SA56	2x402 2x1L Amber	✓	✓	✓							TRPH & BTEX acidified pH < 2 with HCL
6	TRIP BLK	9-1 94	1535		✓	D.I. WATER	2-WA										pres w/ HCL * not on C-C
7																	* Recd 4-1L Amber - Labels read 2-1L - SBSA56WB & 2-1L - SBSA57WB
8																	pH < 2
9																	
10																	

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-4	Villal	1777842080 Fedex Airbill #	9-24 94	1600	• 4°C • Temp Blank included
2	1-6	Fedex		9-23 94	1003	
3						Temp 2°C (050) 3°C (356)
4						

SAMPLER'S SIGNATURE  
**Villal**

LAB COPY



OHM Corporation

## CHAIN-OF-CUSTODY RECORD

Form 0019  
Technical Services  
Rev. 08/89

No. 107683

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME Ft Devers		PROJECT LOCATION Ayer M2		NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)										REMARKS		
PROJ. NO. 16208	PROJECT CONTACT Milce Quinlan	PROJECT TELEPHONE NO. (508) 772-2610			<div style="display: flex; justify-content: space-around;"> <div>TRM</div> <div>ANA</div> <div>STEX</div> </div>												
CLIENT'S REPRESENTATIVE Tom Best-USAEC		PROJECT MANAGER/SUPERVISOR Bill Snow															
ITEM NO.	SAMPLE NUMBER	DATE	TIME													COMP	GRAB
1	SBSA58 NE2	9-22-94	1510	✓		Brown sand w/ some clay	2x402 Amb g/100	✓	✓								← All Labels begin w/ SBSAST
2	" NE2		1505		✓	Greyish sandy clay	2x402-1 VOA			✓							
3	" SE2		1515	✓		Brown sand w/ cobble	2x402 Amb g/100	✓	✓								
4	" SE2		1512		✓	Brown sand w/ cobble	2x402-1 VOA			✓							
5	" SW2		1520	✓		Brown sand, clayey, with cobble	2x402 Amb g/100	✓	✓								
6	" SW2		1518		✓	Brown sand, clayey, with cobble	2x402-1 VOA			✓							
7	" DUPL		1515	✓		Brown sand w/ cobble	2x402 Amb g/100	✓	✓								
8	" DUPL		1512		✓	Brown sand w/ cobble	2x402-1 VOA			✓							
9	TRRE	9-22-94		✓			2x402 Amb g/100	✓	✓								9-22-94
10	TRPS	9-22-94	1512	✓			2x402-1 VOA		✓								9-22-94

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-8	Bill Del	1774842050 Fedex Airbill #	9-22-94	1500	40C Temp Blank included
2	1-8	Fedex		9-23-94	1003	
3						Temp 2°C (60°F) 3°C (35°F)
4						

SAMPLER'S SIGNATURE: Bill Del

LAB COPY



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Organics

**Date Sample Received:** September 23, 1994

**Date Order Received:** September 30, 1994

**Joblink(s):** 616737

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

Thomas E. Gran, Ph.D., Vice President

Date: October 25, 1994

## PROJECT NARRATIVE

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The following items relate to the samples and analytical data contained in this report.

- o All solid sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

NOTE: The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

## DATA SUMMARY REPORT

DATE: 10/04/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: SBSA56SEC  
ASC Sample Number: JN2773  
Sample Date: 940922  
Facility Code: 016208C

Parameters	Units
------------	-------

### Conventional Data (CV10)

Solids, Total	%	92.6
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### Total Petroleum Hydrocarbon Analysis, IR (IR00)

Petroleum Hydrocarbons (IR)	mg/kg	344
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**APPENDIX B**

**QUANTITATIVE RESULTS**

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56SEC**

JN2773

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	344	14.1	ND	Q2T41418

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

# SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616737

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REFERENCE	TITLE
418.1	MCAWW Petroleum Hydrocarbons, Total Recoverable

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## METHODOLOGY REFERENCES

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ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-600	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

QUALITY ASSURANCE DATA

TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	81	-	-	-	Q2T41418

- There was insufficient sample available to complete our standard matrix spike and matrix spike duplicate analyses.

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



OHM Corporation

## CHAIN-OF-CUSTODY RECORD

Form 0  
Field Technical Serv  
Rev. 08

No. 107683

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME		PROJECT LOCATION		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)								
FT Devers		Ayer Ma										
PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.										
16208	Mike Quinlan	(508) 772-2610										
CLIENT'S REPRESENTATIVE		PROJECT MANAGER/SUPERVISOR		REMARKS								
Tom Best-USACE		Bill Snow										
ITEM NO.	SAMPLE NUMBER	DATE	TIME			COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	TRAM	BNA	BTEX
1	SBSA 58 NE2	9-22-94	1510	✓		Brown sand w/ some clay	2x402 Amb glass	✓	✓		* All Labels begin w/ SBSA58	
2	" NE2		1505		✓	Grayish sandy clay	2x402-1 VOA			✓		
3	" SE2		1515	✓		Brown sand w/ cobble	2x402 Amb glass	✓	✓			
4	" SE2		1512	✓		Brown sand w/ cobble	2x402-1 VOA			✓		
5	" SW2		1520	✓		Brown sand, clayey, with cobble	2x402 Amb glass	✓	✓			
6	" SW2		1518	✓		Brown sand, clayey, with cobble	2x402-1 VOA			✓		
7	" DUPL		1515	✓		Brown sand w/ cobble	2x402 Amb glass	✓	✓			
8	" DUPL		1512	✓		Brown sand w/ cobble	2x402-1 VOA			✓		
9	TRRE	9-22-94					2x402 Amb glass	✓	✓		MRB 9-22-94	
10	TRPS	9-22-94					2x402-1 VOA	✓	✓		MRB 9-22-94	

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-8	Will Dal	1774842050 Fedex Airbill #	9-22-94	1800	40C Temp Blank included
2	1-8	Fedex		9-28-94	1003	
3						
4						

SAMPLER'S SIGNATURE: Will Dal

Temp 2°C (6)  
3°C (3)

LAB COPY



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional and Organics

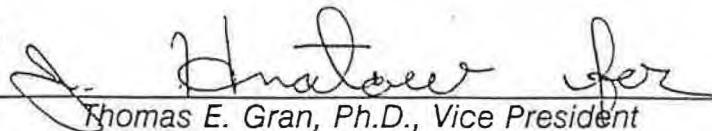
**Date Sample Received:** October 5, 1994

**Date Order Received:** October 5, 1994

**Joblink(s):** 616781

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

  
Thomas E. Gran, Ph.D., Vice President

Date: October 11, 1994

## PROJECT NARRATIVE

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The following items relate to the samples and analytical data contained in this report.

- o All sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

**NOTE:** The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

# DATA SUMMARY REPORT

1 : 05/19/95

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	SBSA56SEC2	SBSA56DUP2	SBSA56NW1C	SBSA56NW2C	SBSA56NW3C	SBSA56NW1B	SBSA56NW2B	SBSA56NW3B
ASC Sample Number:	JN2983	JN2984	JN2985	JN2986	JN2987	JN2988	JN2989	JN2990
Sample Date:	941003	941003	941004	941004	941004	941004	941004	941004
Facility Code:	016208C	016208C	016208C	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Conventional Data (CV10)

Solids, Total	%	90.2	88.5	93.3	89.1	90.3	91.1	90.0	88.4
---------------	---	------	------	------	------	------	------	------	------

Sample Point ID:	SBSA56NW1B	SBSA56NW2B	SBSA56NW3B
ASC Sample Number:	JN2988	JN2989	JN2990
Sample Date:	941004	941004	941004
Facility Code:	016208C	016208C	016208C

Parameters	Units
------------	-------

## BTXE Volatile Analysis, GC, (GV33)

Benzene	mg/kg	<.001	<.001	<.001
Ethylbenzene	mg/kg	<.001	<.001	<.001
Toluene	mg/kg	<.001	<.001	<.001
Xylenes	mg/kg	<.001	<.001	<.001

Sample Point ID:	SBSA56SEC2	SBSA56DUP2	SBSA56NW1C	SBSA56NW2C	SBSA56NW3C
ASC Sample Number:	JN2983	JN2984	JN2985	JN2986	JN2987
Sample Date:	941003	941003	941004	941004	941004
Facility Code:	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Total Petroleum Hydrocarbon Analysis, IR (IR00)

Petroleum Hydrocarbons (IR)	mg/kg	55.4	67.0	<7.10	<7.46	<7.24
-----------------------------	-------	------	------	-------	-------	-------

# DATA SUMMARY REPORT

DATE: 10/08/94

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

<b>Sample Point ID:</b>	<b>SBSA56NW1C</b>	<b>SBSA56NW2C</b>	<b>SBSA56NW3C</b>
<b>ASC Sample Number:</b>	JN2985	JN2986	JN2987
<b>Sample Date:</b>	941004	941004	941004
<b>Facility Code:</b>	016208C	016208C	016208C

Parameters	Units
------------	-------

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Acenaphthene	mg/kg	<.327	<.333	<.327
Acenaphthylene	mg/kg	<.327	<.333	<.327
Anthracene	mg/kg	<.327	<.333	<.327
Benzidine	mg/kg	<.327	<.333	<.327
Benzo(a)anthracene	mg/kg	<.327	<.333	<.327
Benzo(b)fluoranthene	mg/kg	<.327	<.333	<.327
Benzo(k)fluoranthene	mg/kg	<.327	<.333	<.327
Benzo(ghi)perylene	mg/kg	<.327	<.333	<.327
Benzo(a)pyrene	mg/kg	<.327	<.333	<.327
bis(2-Chloroethyl) ether	mg/kg	<.327	<.333	<.327
bis(2-Chloroethoxy)methane	mg/kg	<.327	<.333	<.327
bis(2-Chloroisopropyl)ether	mg/kg	<.327	<.333	<.327
bis(2-Ethylhexyl)phthalate	mg/kg	3.70	3.70	2.87
4-Bromophenyl phenyl ether	mg/kg	<.327	<.333	<.327
Butyl benzyl phthalate	mg/kg	<.327	<.333	<.327
Carbazole	mg/kg	<.327	<.333	<.327
4-Chloroaniline	mg/kg	<.327	<.333	<.327
p-Chloro-m-cresol	mg/kg	<.327	<.333	<.327
2-Chloronaphthalene	mg/kg	<.327	<.333	<.327
2-Chlorophenol	mg/kg	<.327	<.333	<.327
4-Chlorophenyl phenyl ether	mg/kg	<.327	<.333	<.327
Chrysene	mg/kg	<.327	<.333	<.327
Dibenzo(a,h)anthracene	mg/kg	<.327	<.333	<.327
Dibenzofuran	mg/kg	<.327	<.333	<.327
Di-n-butyl phthalate	mg/kg	<.327	<.333	<.327
1,2-Dichlorobenzene	mg/kg	<.327	<.333	<.327
1,3-Dichlorobenzene	mg/kg	<.327	<.333	<.327
1,4-Dichlorobenzene	mg/kg	<.327	<.333	<.327
3,3'-Dichlorobenzidine	mg/kg	<.327	<.333	<.327
2,4-Dichlorophenol	mg/kg	<.327	<.333	<.327
Diethyl phthalate	mg/kg	<.327	<.333	<.327
Dimethyl phthalate	mg/kg	<.327	<.333	<.327
2,4-Dimethylphenol	mg/kg	<.327	<.333	<.327
4,6-Dinitro-o-cresol	mg/kg	<.818	<.833	<.817
2,4-Dinitrophenol	mg/kg	<1.64	<1.67	<1.63

# DATA SUMMARY REPORT

DATE: 10/08/94

PAGE: 3

Company: OHM REMEDIATION SERVICES CORPORATION

<b>Sample Point ID:</b>	<b>SBSA56NW1C</b>	<b>SBSA56NW2C</b>	<b>SBSA56NW3C</b>
ASC Sample Number:	JN2985	JN2986	JN2987
Sample Date:	941004	941004	941004
Facility Code:	016208C	016208C	016208C

Parameters	Units
------------	-------

## Total Base/Neutral/Acid Analysis, MS, (MS02)

2,4-Dinitrotoluene	mg/kg	<.327	<.333	<.327
2,6-Dinitrotoluene	mg/kg	<.327	<.333	<.327
Di-n-octyl phthalate	mg/kg	<.327	<.333	<.327
Fluoranthene	mg/kg	<.327	<.333	<.327
Fluorene	mg/kg	<.327	<.333	<.327
Hexachlorobenzene	mg/kg	<.327	<.333	<.327
Hexachlorobutadiene	mg/kg	<.327	<.333	<.327
Hexachlorocyclopentadiene	mg/kg	<.327	<.333	<.327
Hexachloroethane	mg/kg	<.327	<.333	<.327
Indeno(1,2,3-cd)pyrene	mg/kg	<.327	<.333	<.327
Isophorone	mg/kg	<.327	<.333	<.327
2-Methylnaphthalene	mg/kg	<.327	<.333	<.327
2-Methylphenol	mg/kg	<.327	<.333	<.327
4-Methylphenol	mg/kg	<.327	<.333	<.327
N-Nitrosodimethylamine	mg/kg	<.327	<.333	<.327
N-Nitrosodi-n-propylamine	mg/kg	<.327	<.333	<.327
N-Nitrosodiphenylamine	mg/kg	<.327	<.333	<.327
Naphthalene	mg/kg	<.327	<.333	<.327
2-Nitroaniline	mg/kg	<.327	<.333	<.327
3-Nitroaniline	mg/kg	<.327	<.333	<.327
4-Nitroaniline	mg/kg	<.327	<.333	<.327
Nitrobenzene	mg/kg	<.327	<.333	<.327
2-Nitrophenol	mg/kg	<.327	<.333	<.327
4-Nitrophenol	mg/kg	<1.64	<1.67	<1.63
Pentachlorophenol	mg/kg	<.327	<.333	<.327
Phenanthrene	mg/kg	<.327	<.333	<.327
Phenol	mg/kg	<.327	<.333	<.327
Pyrene	mg/kg	<.327	<.333	<.327
Pyridine	mg/kg	<.327	<.333	<.327
1,2,4-Trichlorobenzene	mg/kg	<.327	<.333	<.327
2,4,5-Trichlorophenol	mg/kg	<.327	<.333	<.327
2,4,6-Trichlorophenol	mg/kg	<.327	<.333	<.327

**APPENDIX B**  
**QUANTITATIVE RESULTS**

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

### Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56SECZ**

JN2983

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	90.2	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56DUPZ**

**JN2984**

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	88.5	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW1C**

**JN2985**

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	93.3	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW2C**

JN2986

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	89.1	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW3C**

JN2987

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	90.3	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW1B**

JN2988

[illegible]

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW2B**

JN2989

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	90.0	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW3B**

JN2990

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	88.4	.100	-	

BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NW1B

JN2988

[illegible]

BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NW2B

JN2989

[illegible]

BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NW3B

JN2990

[illegible]

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56SEC2

JN2983

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	55.4	7.36	ND	Q2T41433A

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56DUP2	JN2984

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	67.0	7.35	ND	Q2T41433A

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW1C**

JN2985

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	ND	7.10	ND	Q2T41433A

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

**Company Name**

### Facility

Sample Point

ASC Sample No.

**OHM REMEDIATION SERVICES CORPORATION**

016208C

**SBSA56NW2C**

JN2986

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	ND	7.46	ND	Q2T41433A

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**SBSA56NW3C**

JN2987

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	ND	7.24	ND	Q2T41433A

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NW1C	JN2985

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.327	ND	Q2C41430
Acenaphthylene	ND	.327	ND	Q2C41430
Anthracene	ND	.327	ND	Q2C41430
Benzidine	ND	.327	ND	Q2C41430
Benzo (a) anthracene	ND	.327	ND	Q2C41430
Benzo (b) fluoranthene	ND	.327	ND	Q2C41430
Benzo (k) fluoranthene	ND	.327	ND	Q2C41430
Benzo (ghi) perylene	ND	.327	ND	Q2C41430
Benzo (a) pyrene	ND	.327	ND	Q2C41430
bis (2-Chloroethyl) ether	ND	.327	ND	Q2C41430
bis (2-Chloroethoxy) methane	ND	.327	ND	Q2C41430
bis (2-Chloroisopropyl) ether	ND	.327	ND	Q2C41430
bis (2-Ethylhexyl) phthalate	3.70	.327	ND	Q2C41430
4-Bromophenyl phenyl ether	ND	.327	ND	Q2C41430
Butyl benzyl phthalate	ND	.327	ND	Q2C41430
Carbazole	ND	.327	ND	Q2C41430
4-Chloroaniline	ND	.327	ND	Q2C41430
p-Chloro-m-cresol	ND	.327	ND	Q2C41430
2-Chloronaphthalene	ND	.327	ND	Q2C41430
2-Chlorophenol	ND	.327	ND	Q2C41430
4-Chlorophenyl phenyl ether	ND	.327	ND	Q2C41430
Chrysene	ND	.327	ND	Q2C41430
benzo (a, h) anthracene	ND	.327	ND	Q2C41430
benzofuran	ND	.327	ND	Q2C41430
di-n-butyl phthalate	ND	.327	ND	Q2C41430
1,2-Dichlorobenzene	ND	.327	ND	Q2C41430
1,3-Dichlorobenzene	ND	.327	ND	Q2C41430
1,4-Dichlorobenzene	ND	.327	ND	Q2C41430
3,3'-Dichlorobenzidine	ND	.327	ND	Q2C41430
2,4-Dichlorophenol	ND	.327	ND	Q2C41430
Diethyl phthalate	ND	.327	ND	Q2C41430
Dimethyl phthalate	ND	.327	ND	Q2C41430
2,4-Dimethylphenol	ND	.327	ND	Q2C41430
4,6-Dinitro-o-cresol	ND	.818	ND	Q2C41430
2,4-Dinitrophenol	ND	1.64	ND	Q2C41430
2,4-Dinitrotoluene	ND	.327	ND	Q2C41430
2,6-Dinitrotoluene	ND	.327	ND	Q2C41430
Di-n-octyl phthalate	ND	.327	ND	Q2C41430
Fluoranthene	ND	.327	ND	Q2C41430
Fluorene	ND	.327	ND	Q2C41430
Hexachlorobenzene	ND	.327	ND	Q2C41430
Hexachlorobutadiene	ND	.327	ND	Q2C41430
Hexachlorocyclopentadiene	ND	.327	ND	Q2C41430
Hexachloroethane	ND	.327	ND	Q2C41430
Indeno (1,2,3-cd) pyrene	ND	.327	-	Q2C41430
Isophorone	ND	.327	ND	Q2C41430
2-Methylnaphthalene	ND	.327	ND	Q2C41430
2-Methylphenol	ND	.327	ND	Q2C41430
4-Methylphenol	ND	.327	ND	Q2C41430
N-Nitrosodimethylamine	ND	.327	ND	Q2C41430

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NW1C

JN2985

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.327	ND	Q2C41430
N-Nitrosodiphenylamine	ND	.327	ND	Q2C41430
Naphthalene	ND	.327	ND	Q2C41430
2-Nitroaniline	ND	.327	ND	Q2C41430
3-Nitroaniline	ND	.327	ND	Q2C41430
4-Nitroaniline	ND	.327	ND	Q2C41430
Nitrobenzene	ND	.327	ND	Q2C41430
2-Nitrophenol	ND	.327	ND	Q2C41430
4-Nitrophenol	ND	1.64	ND	Q2C41430
Pentachlorophenol	ND	.327	ND	Q2C41430
Phenanthrene	ND	.327	ND	Q2C41430
Phenol	ND	.327	ND	Q2C41430
Pyrene	ND	.327	ND	Q2C41430
Pyridine	ND	.327	ND	Q2C41430
1,2,4-Trichlorobenzene	ND	.327	ND	Q2C41430
2,4,5-Trichlorophenol	ND	.327	ND	Q2C41430
2,4,6-Trichlorophenol	ND	.327	ND	Q2C41430

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NW2C	JN2986

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.333	ND	Q2C41430
Acenaphthylene	ND	.333	ND	Q2C41430
Anthracene	ND	.333	ND	Q2C41430
Benzidine	ND	.333	ND	Q2C41430
Benzo(a)anthracene	ND	.333	ND	Q2C41430
Benzo(b)fluoranthene	ND	.333	ND	Q2C41430
Benzo(k)fluoranthene	ND	.333	ND	Q2C41430
Benzo(ghi)perylene	ND	.333	ND	Q2C41430
Benzo(a)pyrene	ND	.333	ND	Q2C41430
bis(2-Chloroethyl) ether	ND	.333	ND	Q2C41430
bis(2-Chloroethoxy)methane	ND	.333	ND	Q2C41430
bis(2-Chloroisopropyl) ether	ND	.333	ND	Q2C41430
bis(2-Ethylhexyl)phthalate	3.70	.333	ND	Q2C41430
4-Bromophenyl phenyl ether	ND	.333	ND	Q2C41430
Butyl benzyl phthalate	ND	.333	ND	Q2C41430
Carbazole	ND	.333	ND	Q2C41430
4-Chloroaniline	ND	.333	ND	Q2C41430
p-Chloro-m-cresol	ND	.333	ND	Q2C41430
2-Chloronaphthalene	ND	.333	ND	Q2C41430
2-Chlorophenol	ND	.333	ND	Q2C41430
4-Chlorophenyl phenyl ether	ND	.333	ND	Q2C41430
Chrysene	ND	.333	ND	Q2C41430
benzo(a,h)anthracene	ND	.333	ND	Q2C41430
benzofuran	ND	.333	ND	Q2C41430
1-n-butyl phthalate	ND	.333	ND	Q2C41430
1,2-Dichlorobenzene	ND	.333	ND	Q2C41430
1,3-Dichlorobenzene	ND	.333	ND	Q2C41430
1,4-Dichlorobenzene	ND	.333	ND	Q2C41430
3,3'-Dichlorobenzidine	ND	.333	ND	Q2C41430
2,4-Dichlorophenol	ND	.333	ND	Q2C41430
Diethyl phthalate	ND	.333	ND	Q2C41430
Dimethyl phthalate	ND	.333	ND	Q2C41430
2,4-Dimethylphenol	ND	.333	ND	Q2C41430
4,6-Dinitro-o-cresol	ND	.833	ND	Q2C41430
2,4-Dinitrophenol	ND	1.67	ND	Q2C41430
2,4-Dinitrotoluene	ND	.333	ND	Q2C41430
2,6-Dinitrotoluene	ND	.333	ND	Q2C41430
Di-n-octyl phthalate	ND	.333	ND	Q2C41430
Fluoranthene	ND	.333	ND	Q2C41430
Fluorene	ND	.333	ND	Q2C41430
Hexachlorobenzene	ND	.333	ND	Q2C41430
Hexachlorobutadiene	ND	.333	ND	Q2C41430
Hexachlorocyclopentadiene	ND	.333	ND	Q2C41430
Hexachloroethane	ND	.333	ND	Q2C41430
Indeno(1,2,3-cd)pyrene	ND	.333	-	Q2C41430
Isophorone	ND	.333	ND	Q2C41430
2-Methylnaphthalene	ND	.333	ND	Q2C41430
2-Methylphenol	ND	.333	ND	Q2C41430
4-Methylphenol	ND	.333	ND	Q2C41430
N-Nitrosodimethylamine	ND	.333	ND	Q2C41430

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NW2C	JN2986

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.333	ND	Q2C41430
N-Nitrosodiphenylamine	ND	.333	ND	Q2C41430
Naphthalene	ND	.333	ND	Q2C41430
2-Nitroaniline	ND	.333	ND	Q2C41430
3-Nitroaniline	ND	.333	ND	Q2C41430
4-Nitroaniline	ND	.333	ND	Q2C41430
Nitrobenzene	ND	.333	ND	Q2C41430
2-Nitrophenol	ND	.333	ND	Q2C41430
4-Nitrophenol	ND	1.67	ND	Q2C41430
Pentachlorophenol	ND	.333	ND	Q2C41430
Phenanthrene	ND	.333	ND	Q2C41430
Phenol	ND	.333	ND	Q2C41430
Pyrene	ND	.333	ND	Q2C41430
Pyridine	ND	.333	ND	Q2C41430
1,2,4-Trichlorobenzene	ND	.333	ND	Q2C41430
2,4,5-Trichlorophenol	ND	.333	ND	Q2C41430
2,4,6-Trichlorophenol	ND	.333	ND	Q2C41430

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	SBSA56NW3C	JN2987

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.327	ND	Q2C41430
Acenaphthylene	ND	.327	ND	Q2C41430
Anthracene	ND	.327	ND	Q2C41430
Benzidine	ND	.327	ND	Q2C41430
Benzo(a)anthracene	ND	.327	ND	Q2C41430
Benzo(b)fluoranthene	ND	.327	ND	Q2C41430
Benzo(k)fluoranthene	ND	.327	ND	Q2C41430
Benzo(ghi)perylene	ND	.327	ND	Q2C41430
Benzo(a)pyrene	ND	.327	ND	Q2C41430
bis(2-Chloroethyl) ether	ND	.327	ND	Q2C41430
bis(2-Chloroethoxy)methane	ND	.327	ND	Q2C41430
bis(2-Chloroisopropyl) ether	ND	.327	ND	Q2C41430
bis(2-Ethylhexyl) phthalate	2.87	.327	ND	Q2C41430
4-Bromophenyl phenyl ether	ND	.327	ND	Q2C41430
Butyl benzyl phthalate	ND	.327	ND	Q2C41430
Carbazole	ND	.327	ND	Q2C41430
4-Chloroaniline	ND	.327	ND	Q2C41430
p-Chloro-m-cresol	ND	.327	ND	Q2C41430
2-Chloronaphthalene	ND	.327	ND	Q2C41430
2-Chlorophenol	ND	.327	ND	Q2C41430
4-Chlorophenyl phenyl ether	ND	.327	ND	Q2C41430
Chrysene	ND	.327	ND	Q2C41430
benzo(a,h)anthracene	ND	.327	ND	Q2C41430
benzofuran	ND	.327	ND	Q2C41430
1-n-butyl phthalate	ND	.327	ND	Q2C41430
1,2-Dichlorobenzene	ND	.327	ND	Q2C41430
1,3-Dichlorobenzene	ND	.327	ND	Q2C41430
1,4-Dichlorobenzene	ND	.327	ND	Q2C41430
3,3'-Dichlorobenzidine	ND	.327	ND	Q2C41430
2,4-Dichlorophenol	ND	.327	ND	Q2C41430
Diethyl phthalate	ND	.327	ND	Q2C41430
Dimethyl phthalate	ND	.327	ND	Q2C41430
2,4-Dimethylphenol	ND	.327	ND	Q2C41430
4,6-Dinitro-o-cresol	ND	.817	ND	Q2C41430
2,4-Dinitrophenol	ND	1.63	ND	Q2C41430
2,4-Dinitrotoluene	ND	.327	ND	Q2C41430
2,6-Dinitrotoluene	ND	.327	ND	Q2C41430
Di-n-octyl phthalate	ND	.327	ND	Q2C41430
Fluoranthene	ND	.327	ND	Q2C41430
Fluorene	ND	.327	ND	Q2C41430
Hexachlorobenzene	ND	.327	ND	Q2C41430
Hexachlorobutadiene	ND	.327	ND	Q2C41430
Hexachlorocyclopentadiene	ND	.327	ND	Q2C41430
Hexachloroethane	ND	.327	ND	Q2C41430
Indeno(1,2,3-cd)pyrene	ND	.327	-	Q2C41430
Isophorone	ND	.327	ND	Q2C41430
2-Methylnaphthalene	ND	.327	ND	Q2C41430
2-Methylphenol	ND	.327	ND	Q2C41430
4-Methylphenol	ND	.327	ND	Q2C41430
N-Nitrosodimethylamine	ND	.327	ND	Q2C41430

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

SBSA56NW3C

JN2987

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.327	ND	Q2C41430
N-Nitrosodiphenylamine	ND	.327	ND	Q2C41430
Naphthalene	ND	.327	ND	Q2C41430
2-Nitroaniline	ND	.327	ND	Q2C41430
3-Nitroaniline	ND	.327	ND	Q2C41430
4-Nitroaniline	ND	.327	ND	Q2C41430
Nitrobenzene	ND	.327	ND	Q2C41430
2-Nitrophenol	ND	.327	ND	Q2C41430
4-Nitrophenol	ND	1.63	ND	Q2C41430
Pentachlorophenol	ND	.327	ND	Q2C41430
Phenanthrene	ND	.327	ND	Q2C41430
Phenol	ND	.327	ND	Q2C41430
Pyrene	ND	.327	ND	Q2C41430
Pyridine	ND	.327	ND	Q2C41430
1,2,4-Trichlorobenzene	ND	.327	ND	Q2C41430
2,4,5-Trichlorophenol	ND	.327	ND	Q2C41430
2,4,6-Trichlorophenol	ND	.327	ND	Q2C41430

3-Methyl- and 4-Methylphenol coelute and are reported as the total

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

## SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616781

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REFERENCE		TITLE
<hr/>		
160.3	CAWW	Residue, Total, Gravimetric, Dried at 103-105 C
418.1	MCAWW	Petroleum Hydrocarbons, Total Recoverable
8020	SW-846	Aromatic Volatile Organics by GC
8270	SW-846	GC/MS for Semivolatile Organics: Capillary Column Technique

## METHODOLOGY REFERENCES

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<b>ASTM</b>	<i>American Society for Testing and Materials</i> , 1985 edition.
<b>CAWW</b>	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
<b>CLP</b>	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
<b>EPA-500</b>	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
<b>EPA-600</b>	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
<b>NIOSH</b>	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
<b>SMEWW</b>	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
<b>STOA</b>	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
<b>SW-846</b>	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
<b>(1)</b>	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
<b>Title 22</b>	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

BTXE VOLATILE ANALYSIS, GC, (GV33)

**TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)**

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	77	55.4	88	7	Q2T41433A

## QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Acenaphthene	ND	69	ND	106	6	Q2C41430
Acenaphthylene	ND	82	ND	138	7	Q2C41430
Anthracene	ND	89	ND	150	16	Q2C41430
Benzidine	ND	28	ND	-	-	Q2C41430
Benzo (a) anthracene	ND	88	ND	70	35	Q2C41430
Benzo (b) fluoranthene	ND	94	ND	47	78	Q2C41430
Benzo (k) fluoranthene	ND	102	ND	70	63	Q2C41430
Benzo (ghi) perylene	ND	87	ND	94	0	Q2C41430
Benzo (a) pyrene	ND	88	ND	104	30	Q2C41430
bis (2-Chloroethyl) ether	ND	86	ND	86	1	Q2C41430
bis (2-Chloroethoxy) methane	ND	86	ND	104	1	Q2C41430
bis (2-Chloroisopropyl) ether	ND	78	ND	95	4	Q2C41430
bis (2-Ethylhexyl) phthalate	ND	98	ND	115	2	Q2C41430
4-Bromophenyl phenyl ether	ND	87	ND	81	3	Q2C41430
Butyl benzyl phthalate	ND	106	ND	108	3	Q2C41430
Carbazole	ND	92	ND	126	8	Q2C41430
4-Chloroaniline	ND	58	ND	56	12	Q2C41430
p-Chloro-m-cresol	ND	83	ND	97	2	Q2C41430
2-Chloronaphthalene	ND	80	ND	106	5	Q2C41430
2-Chlorophenol	ND	75	ND	89	6	Q2C41430
4-Chlorophenyl phenyl ether	ND	85	ND	100	3	Q2C41430
Chrysene	ND	85	ND	57	60	Q2C41430
Dibenzo (a, h) anthracene	ND	85	ND	65	1	Q2C41430
Dibenzofuran	ND	83	ND	120	5	Q2C41430
Di-n-butyl phthalate	ND	92	ND	111	2	Q2C41430
1,2-Dichlorobenzene	ND	76	ND	86	4	Q2C41430
1,3-Dichlorobenzene	ND	76	ND	85	2	Q2C41430
1,4-Dichlorobenzene	ND	75	ND	92	1	Q2C41430
3,3'-Dichlorobenzidine	ND	58	ND	-	-	Q2C41430
2,4-Dichlorophenol	ND	82	ND	99	5	Q2C41430
Diethyl phthalate	ND	89	ND	110	4	Q2C41430
Dimethyl phthalate	ND	89	ND	-	-	Q2C41430
2,4-Dimethylphenol	ND	53	ND	68	15	Q2C41430
4,6-Dinitro-o-cresol	ND	110	ND	-	-	Q2C41430
2,4-Dinitrophenol	ND	99	ND	-	-	Q2C41430
2,4-Dinitrotoluene	ND	85	ND	69	12	Q2C41430
2,6-Dinitrotoluene	ND	85	ND	77	11	Q2C41430
Di-n-octyl phthalate	ND	95	ND	117	10	Q2C41430
Fluoranthene	ND	88	ND	74	60	Q2C41430
Fluorene	ND	81	ND	111	6	Q2C41430
Hexachlorobenzene	ND	88	ND	76	1	Q2C41430
Hexachlorobutadiene	ND	76	ND	85	1	Q2C41430
Hexachlorocyclopentadiene	ND	14	ND	-	-	Q2C41430
Hexachloroethane	ND	69	ND	62	1	Q2C41430
Indeno (1,2,3-cd) pyrene	ND	87	ND	80	4	Q2C41430
Isophorone	ND	82	ND	93	2	Q2C41430
2-Methylnaphthalene	ND	77	ND	129	2	Q2C41430
2-Methylphenol	ND	67	ND	86	11	Q2C41430
4-Methylphenol	ND	76	ND	94	9	Q2C41430
N-Nitrosodimethylamine	ND	66	ND	59	8	Q2C41430

**QUALITY ASSURANCE DATA**

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
N-Nitrosodi-n-propylamine	ND	91	ND	102	1	Q2C41430
N-Nitrosodiphenylamine	ND	87	ND	114	7	Q2C41430
Naphthalene	ND	77	ND	118	7	Q2C41430
3-Nitroaniline	ND	68	ND	-	-	Q2C41430
4-Nitroaniline	ND	90	ND	-	-	Q2C41430
Nitrobenzene	ND	79	ND	89	4	Q2C41430
2-Nitrophenol	ND	79	ND	39	20	Q2C41430
4-Nitrophenol	ND	92	ND	73	5	Q2C41430
Pentachlorophenol	ND	103	ND	41	18	Q2C41430
Phenanthrene	ND	87	ND	93	36	Q2C41430
Phenol	ND	77	ND	98	4	Q2C41430
Pyrene	ND	87	ND	56	72	Q2C41430
Pyridine	ND	45	ND	-	-	Q2C41430
1,2,4-Trichlorobenzene	ND	81	ND	96	4	Q2C41430
2,4,5-Trichlorophenol	ND	86	ND	95	7	Q2C41430
2,4,6-Trichlorophenol	ND	80	ND	91	9	Q2C41430

3-Methyl- and 4-Methylphenol coelute and are reported as the total  
 Due to sample matrix interferences, the spiked sample does not provide  
 valid spike recovery data.

# QUALITY ASSURANCE DATA SURROGATE SUMMARY REPORT

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q2C41430 Solid (Semi-Volatile organics by MS)							
SAMPLE ID							
10018 MD	82 D	110 D	62 D	91 D	110 D	86 D	0
10018 MS	77 D	106 D	61 D	87 D	106 D	84 D	0
BLANK	76	87	81	77	81	75	0
BLANK SPIKE	79	90	93	83	78	80	0
SBSA56NW1C	60	71	71	65	63	72	0
SBSA56NW2C	51	56	51	54	54	60	0
SBSA56NW3C	65	79	65	76	73	77	0
QC LIMITS	(25-121) (24-113) (19-122) (23-120) (30-115) (18-137)						

SURROGATE ID	A228	# OUT
QC BATCH: Q2W3910 Solid (Volatile organics by GC)		
SAMPLE ID		
BLANK	92	0
BLANK SPIKE	95	0
SBSA56NW1B	83	0
SBSA56NW2B	87	0
SBSA56NW3B	71	0
SBSA56NW3B MD	85	0
SBSA56NW3B MS	88	0
QC LIMITS	(30-130)	

SURROGATE ID

A159 = 2-Fluorophenol  
B732 = Phenol-D6  
A121 = 2,4,6-Tribromophenol  
A884 = Nitrobenzene-D5  
A158 = 2-Fluorobiphenyl  
B142 = Terphenyl-D14  
A228 = a,a,a-Trifluorotoluene

\* Values outside of method quality control limits  
D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**APPENDIX D**

**CHAIN-OF-CUSTODY RECORD(S)**



OHM Corporation

## CHAIN-OF-CUSTODY RECORD

Form 0019  
Field Technical Services  
Rev. 08/89

No. 107684

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME		PROJECT LOCATION		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)														
Fort Devens		AYER MA		<div style="display: flex; justify-content: space-between;"> <div>           TRPH BNA (Total) BTEX         </div> <div></div> </div>														
PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.																
16208	MIKE QUINLAN / MURIEL BLEA	508-772-2610																
CLIENT'S REPRESENTATIVE		PROJECT MANAGER/SUPERVISOR																
JDM BEST (USACE)		BILLS NOW																
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS											REMARKS
1	SBSA56SEZ	10-3-94	1255	✓		Greyish, Brown, sandy clay "wet"	1x402	✓										
2	SBSA56DUPZ	10-3-94	1255	✓		" "	1x402	✓										
3	SBSA56NEZC	10-4-94	1510	✓		Grey sandy clay w/rock fragments	2x402	✓	✓									* Sample # on Label is SBSA56NEC1 u(2)
4	SBSA56NEZC	10-4-94	1520	✓		" "	2x402	✓	✓									* Sample # on Label is SBSA56NEC2 u(2)
5	SBSA56NEZC	10-4-94	1530	✓		Grey sandy clay w/rocks	2x402	✓	✓									* Sample # on Label is SBSA56NEC3 u(2)
6	SBSA56NEIB	10-4-94	1505		✓	Grey sandy clay w/rock fragments	2x402-1 VOA			✓								
7	SBSA56NEZB	10-4-94	1515		✓	" "	2x402-1 VOA			✓								
8	SBSA56NEZB	10-4-94	1525		✓	Grey sandy clay w/rocks	2x402-1 VOA			✓								
9																		
10																		

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-8	Will RL	2989343722 Federal Express ACRBZL	10-4-94	1800	* 4°C
2	1-8	FedEx		10-5-94	0843	* TEMP BLANK INCLUDED
3						* 3.04% TAT
4						Temp 4°C

SAMPLER'S SIGNATURE  
Will RL

LAB COPY

Appendix C  
Chemical Quality Assurance Report

RECORD OF TRANSMITTAL

CENED-ED-GL

6 April 1995

FOR Project Engineer, Mr. Mark Applebee  
U.S. Army Corps of Engineer,  
New England Division  
424 Trapelo Rd.  
Waltham, MA 02254-9149

SUBJECT: Fort Devens - Study Area 56, Chemical Quality  
Assurance Report (CQAR)

1. References:

- a. Project No. E0251
- b. Contractor Data Report, Dated January 13, 1995.
- c. Memorandum, CEMRD-ED-GC, 16 Aug 1989, Subject: Minimum Chemistry Data Reporting Requirements for DERP and Superfund HTW Projects.

2. Five QA samples were analyzed, resulting in a total of 156 target analyte determinations. Results from analysis of QA samples were compared with results from analysis of the corresponding primary samples (ref 1b). Results of the comparison are as follows:

- a. The contractor's laboratory was Analytical Services Corporation, Findlay, OH, (ASC).
- b. Results from the primary and QA samples agreed overall in 153 (98%) of the comparisons.
- c. Results from the primary and QA samples agreed quantitatively in 4 (57%) of the comparisons.
- d. There were 0 (0%) major discrepancies between results from the primary and QA laboratory samples.
- e. There were 3 (2%) minor discrepancies between results from the primary and QA laboratory samples.

3. QA analyses were mostly performed in-house at the Environmental Laboratory. QA analyses were also performed at E3I, Sommerville, MA.

4. The CENED-ED-GL POC is Gary S. Rogowski, 508-928-4238.

Encl

CF (w/encl):

CEMP-RT Larry Becker

CEMRD-ED-EC Anand Mudambi

## QA Findings

(Ft. Devens SA56)

### 1. QA sample shipping and chain-of-custody deficiencies.

Three sample shipments of QA samples were received on September 23, October 4, and October 21, 1994. Proper sample handling protocols were mostly followed with the following exception: 9/23/94, The sample labels were incomplete and the sample labels did not agree with the custody papers, The chain-of-custody documents and cooler receipt form are appended to this report for reference. All shipment information was faxed to Mr. Tim Coleman or Mr. Mark Applebee within 24 hours of receipt.

### 2. Data comparison for BTEX.

There were 4 determinations. In 1 of these determinations BTEX were detected by the contractor's lab. There was an overall agreement in 3 (75%) and 0 (0%) quantitative agreement of the cases. There was 1 (25%) minor discrepancy between the QA and contractor's laboratory. No major discrepancies were noted.

### 3. Data comparison for TPH.

There were 2 determinations. In both determinations TPH was detected by both the QA lab and contractor's lab. There was an overall and quantitative agreement of 1 (50%). There was 1 (50%) minor discrepancy between the QA and contractor's laboratory. No major discrepancies were noted.

### 4. Data comparison for BNA.

There were 112 determinations. In 32 of these determinations BNA's were detected by the QA lab or contractor's laboratory. There was an overall and quantitative agreement of 112 (100%). No major or minor discrepancies were noted.

### 5. Data comparison for Pesticides/PCB.

There were 21 determinations. In 2 of these determinations either Pest/PCB's were detected by the QA lab or contractor's laboratory. There was an overall and quantitative agreement of 21 (100%). No major or minor discrepancies were noted.

### 6. Data comparison for TCLP BNA.

No comparison generated due to no contractor data available. The contractor did not send data for this samples. The QA laboratory results are attached for reference.

7. Data comparison for TCLP Metals.

There were 8 determinations. In 2 of these determinations metals were detected by the QA lab or contractor's laboratory. There was an overall agreement in 7 (88%) and 1 (50%) quantitative agreement of the cases. There was 1 (12%) minor discrepancies between the QA lab and the contractor's laboratory. No major discrepancies were noted.

8. Data comparison for TCLP Pesticides.

There were 7 determinations. In 0 of these determinations pesticides were detected by the QA lab or contractor's laboratory. There was 100% agreement. There were no major or minor discrepancies noted.

9. Data comparison for TCLP VOA.

No comparison generated due to no QA laboratory data available. The sample was not analyzed due to an error at the QA lab.

10. Data comparison for TCLP Herbicides.

There were 2 determinations. In these determinations no herbicides were detected by the QA lab or contractor's laboratory. There was 100% agreement. No major or minor discrepancies were noted.

10. Comments.

Contractor's data package was not in full compliance with Minimum Chemistry Data Reporting Requirements as sample receiving information, method numbers and surrogate recoveries for the organics were not provided.

Quality Assurance Split Sample  
Data Comparison Summary

Project: Ft. Devens - SA56

Test Parameter	Overall Agreement (1)		Quantitative Agreement (2)	
	Number	Percent	Number	Percent
BNA	112/112	100	0/0	N/A
Metals-TCLP	7/8	88	1/2	50
Pest-TCLP	7/7	100	0/0	100
Herb-TCLP	2/2	100	0/0	N/A
BTEX	3/4	75	0/1	0
TPH	1/2	50	1/2	50
Pest/PCB	21/21	100	2/2	100
Total	153/156	98	4/7	57

NOTES:

- (1) Represents the number and percentage agreement of all determinations including analytes not detected by either laboratory.
- (2) Represents the number and percentage agreement of only those determinations where an analyte was detected by at least one laboratory.

**APPENDIX B**  
**KEY TO COMMENTS ON DATA COMPARISON TABLES**

0 - Data agrees if any one of the following apply:

- both values are less than respective detection limit ( $N < MDL$ )
- $N_1 < MDL_1$  and  $N_2 > MDL_2$  but  $< MDL_1$
- both values are above respective detection limit ( $N > MDL$ ) and difference between two values satisfies conditions below

Metals	<2x difference for waters, TCLP extracts <3x difference for airs <10x difference for solids and oils
--------	--

Semivolatiles Volatiles TPH, BTEX	<5x difference for all matrices
---	---------------------------------

Pesticides Herbicides PCB's	<5x difference for liquids <10x difference for solids
-----------------------------------	--

Alkalinity Hardness, Ammonia (water quality, etc.)	<2x difference for all matrices
--	---------------------------------

- 1 - Minor contamination by laboratory contaminant
- 2 - Not tested by both laboratories
- 3 - Minor data discrepancy, disagreement not serious, if any one of the following apply:

- $N_1 < MDL_1$  and  $N_2 > MDL_2$  and the difference between values  $N_2$  and  $MDL_1$  does not exceed the upper limit (described below) defining a minor data discrepancy
- both values are above respective detection limit ( $N > MDL$ ) and conditions described below apply to the difference between the two values

Metals	2x<difference<5x for waters, TCLP extracts 10x<difference<20x for solids, oils 3x<difference<5x for airs
--------	--

Semivolatiles, VOA, TPH, BTEX	5x<difference<10x for all matrices
----------------------------------	------------------------------------

Pesticide/PCB Herbicides	5x<difference<10x for liquids 10x<difference<20x for solids
-----------------------------	--

Alkalinity Hardness, Ammonia (water quality, etc.)	2x<difference<5x for all matrices
--	-----------------------------------

4 - Major data discrepancy, disagreement serious, if any one of the following apply:

- $N_1 < MDL_1$  and  $N_2 > MDL_2$  and the difference between values  $N_2$  and  $MDL_1$  exceeds the limit (described below) defining a major data discrepancy
- both values are above respective detection limit ( $N > MDL$ ) and conditions described below apply to the difference between the two values

Metals                      >5x difference for waters, TCLP extracts, airs  
                             >20x difference for solids, oils

Semivolatiles,      >10x difference for all matrices  
VOA, TPH, BTEX

Pesticide/PCB      >10x difference for liquids  
Herbicides           >20x difference for solids

Alkalinity            >5x difference for all matrices  
Hardness, Ammonia  
(water quality, etc.)

MDL = Method Detection Limit

N    = Analytical result

Key to data qualifiers:

B - detected in method blank

J - estimated value, above MDL but below practical quantitation limit

NR - Not reported

## COMPARISON OF QA &amp; CONTRACTOR RESULTS

PROJECT: FORT DEVENS

QA SAMPLE NO.: 27709

CONTRACTOR'S SAMPLE NO.: JN2586

QA FIELD ID: SBSA56TRPG

CONTRACTOR'S FIELD ID: SBSA56SE2

QA ANALYSIS DATE: 10/18/94

CONTRACTOR'S ANALYSIS DATE: 09/29/94

MATERIAL DESCRIPTION: SOLID

DATE SAMPLED: 09/22/94

UNITS: ng/g

PARAMETER	RESULTS		RESULTS		COMPARISON CODE
	QA LAB MDL	QA LAB	CONTRACTOR MDL	CONTRACTOR	
Benzene	< 0.9		< 1		0
Toluene	< 0.8		< 1		0
Ethylbenzene	< 0.8		< 1		0
o/m/p-Xylenes	< 1.5		< 1	2.0	3

## SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
1,2-Dichloroethane D4 (76-114)	123	NR
Toluene D8 (88-110)	92	NR
4-Bromofluorobenzene (86-115)	76	NR

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

## COMPARISON OF QA AND CONTRACTOR RESULTS

PROJECT: FORT DEVENS

ANALYSIS PERFORMED: TOTAL PETROLEUM HYDROCARBONS  
UNITS: mg/kg SOIL, mg/L WATER

```
*****
*  SAMPLE  SAMPLE  CONTRACTOR  CONTRACTOR  QA LAB    QA FIELD  CONTRACTOR  QA LAB    C  *
*  DATE    MATRIX  SAMPLE NO.  FIELD ID   NO.       ID        RESULTS    RESULTS
*****
*  9/22/94  SOIL     JN2580     SBSA56SEC  C-27708   SBSA56TRPC  997         120       3  *
*-----*
*  10/20/94 SOIL     JN3553     EXSA56AC   C-27958   EXSA56ACS   100         110       0  *
*-----*
*-----*
*-----*
*-----*
*-----*
*-----*
*-----*
*-----*
*-----*
*-----*
```

PROJECT: FORT DEVENS

QA SAMPLE NO.: 27708

CONTRACTOR'S SAMPLE NO.: JN2580

QA FIELD ID: SBSA56TRPC

CONTRACTOR'S FIELD ID: SBSA56SEC

QA ANALYSIS DATE: 11/24/94

CONTRACTOR'S ANALYSIS DATE: 09/29/94

MATERIAL DESCRIPTION: SOIL

DATE SAMPLED: 09/22/94

UNITS: ug/g

PARAMETER	RESULTS		RESULTS		COMPARISON CODE
	QA LAB MDL	QA LAB	CONTRACTOR MDL	CONTRACTOR	
Aniline	< 0.1		NR	NA	2
Phenol	< 0.1		< 3.57		0
Bis(2-chloroethyl)ether	< 0.0		< 3.57		0
2-Chlorophenol	< 0.0		< 3.57		0
1,3-Dichlorobenzene	< 0.0		< 3.57		0
1,4-Dichlorobenzene	< 0.0		< 3.57		0
1,2-Dichlorobenzene	< 0.0		< 3.57		0
Benzyl alcohol	< 0.6		NR	NA	2
2-Methylphenol	< 0.2		< 3.57		0
Bis(2-chloroisopropyl)ether	< 0.0		< 3.57		0
4-Methylphenol	< 0.1		< 3.57		0
N-Nitroso-di-n-propylamine	< 0.0		< 3.57		0
Hexachloroethane	< 0.0		< 3.57		0
Nitrobenzene	< 0.0		< 3.57		0
Isophorone	< 0.0	J 0.10	< 3.57		0
2-Nitrophenol	< 0.0		< 3.57		0
2,4-Dimethylphenol	< 0.2		< 3.57		0
Benzoic acid	< 8		NR	NA	2
Bis(2-chloroethoxy)methane	< 0.0		< 3.57		0
2,4-Dichlorophenol	< 0.3		< 3.57		0
1,2,4-Trichlorobenzene	< 0.0		< 3.57		0
Napthalene	< 0.0	0.032	< 3.57		0
4-Chloroaniline	< 0.2		NR	NA	2
Hexachlorobutadiene	< 0.0		< 3.57		0
4-Chloro-3-methylphenol	< 0.2		< 3.57		0
2-Methylnapthalene	< 0.0		NR	NA	2
Hexachlorocyclopentadiene	< 0.1		< 3.57		0
2,4,6-Trichlorophenol	< 0.2		< 3.57		0
2,4,5-Trichlorophenol	< 0.2		< 3.57		0
2-Chloronapthalene	< 0.0		< 3.57		0
2-Nitroaniline	< 0.1		NR	NA	2
Dimethylphthalate	< 0.0		< 3.57		0
Acenaphthylene	< 0.0		< 3.57		0
3-Nitroaniline	< 1.1		NR	NA	2
Acenaphthene	< 0.0		< 3.57		0
2,4-Dinitrophenol	< 8		< 17.9		0
4-Nitrophenol	< 4		< 3.57		0
Dibenzofuran	< 0.0	J 0.026	NR	NA	2
2,6-Dinitrotoluene	< 0.0		< 3.57		0

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

PAGE 2 OF 2

QA SAMPLE NO.: 27708

CONTRACTOR'S SAMPLE NO.: JN2580

PARAMETER	RESULTS		RESULTS		COMPARISON CODE
	QA LAB MDL	QA LAB	CONTRACTOR MDL	CONTRACTOR	
2,4-Dinitrotoluene	< 0.1		< 3.57		0
Diethylphthalate	< 0.0	0.14	< 3.57		0
4-Chlorophenyl-phenylether	< 0.0		< 3.57		0
Fluorene	< 0.0	J 0.032	< 3.57		0
4-Nitroaniline	< 0.2		NR	NA	2
4,6-Dinitro-2-methylphenol	< 4		< 8.93		0
N-Nitrosodiphenylamine	< 0.0		< 3.57		0
4-Bromophenyl-phenylether	< 0.0		< 3.57		0
Hexachlorobenzene	< 0.0		< 3.57		0
Pentachlorophenol	< 4		< 3.57		0
Phenanthrene	< 0.0	0.47	< 3.57		0
Anthracene	< 0.0	0.19	< 3.57		0
Di-n-butylphthalate	< 0.0	J 0.13	< 3.57		0
Fluoranthene	< 0.0	1.5	< 3.57	4.07	0
Pyrene	< 0.0	1.7	< 3.57	3.96	0
Butylbenzylphthalate	< 0.0	J 0.050	< 3.57		0
3,3-Dichlorobenzidine	< 0.1		< 3.57		0
Benzo(a)anthracene	< 0.0	1.1	< 3.57		0
Bis(2ethylhexyl)phthalate	< 0.1	1.7	< 3.57		0
Chrysene	< 0.0	1.2	< 3.57		0
Di-n-octyl phthalate	< 0.2		< 3.57		0
Benzo(b)fluoranthene	< 0.0	1.4	< 3.57		0
Benzo(k)fluoranthene	< 0.0	1.5	< 3.57		0
Benzo(a)pyrene	< 0.0	1.3	< 3.57		0
Indeno(1,2,3-cd)pyrene	< 0.0		< 3.57		0
Dibenz(a,h)anthracene	< 0.0		< 3.57		0
Benzo(g,h,i)perylene	< 0.0	0.47	< 3.57		0

SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
2-Fluorophenol	102	NR
Phenol-d6	122	NR
Nitrobenzene-d5	127	NR
2-Fluorobiphenyl	104	NR
2,4,6-Tribromophenol	71	NR
Terphenyl-d14	149	NR

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

PAGE 1 OF 2

QA SAMPLE NO.: 27958  
QA FIELD ID: EXSA56ACS  
QA ANALYSIS DATE: 11/10/94

CONTRACTOR'S SAMPLE NO.: JN3553  
CONTRACTOR'S FIELD ID: EXSA56AC  
CONTRACTOR'S ANALYSIS DATE: 10/26/94

MATERIAL DESCRIPTION: SOIL  
DATE SAMPLED: 10/20/94  
UNITS: ug/g

PARAMETER	QA LAB MDL	RESULTS	CONTRACTOR MDL	RESULTS	COMPARISON CODE
		QA LAB		CONTRACTOR	
Aniline	< 0.090		NR	NA	2
Phenol	< 0.071		< 0.362		0
Bis (2-chloroethyl) ether	< 0.026		< 0.362		0
2-Chlorophenol	< 0.019		< 0.362		0
1,3-Dichlorobenzene	< 0.015		< 0.362		0
1,4-Dichlorobenzene	< 0.008		< 0.362		0
1,2-Dichlorobenzene	< 0.016		< 0.362		0
Benzyl alcohol	< 0.525		NR	NA	2
2-Methylphenol	< 0.145		< 0.362		0
Bis (2-chloroisopropyl) ether	< 0.043		< 0.362		0
4-Methylphenol	< 0.100		< 0.362		0
N-Nitroso-di-n-propylamine	< 0.027		< 0.362		0
Hexachloroethane	< 0.016		< 0.362		0
Nitrobenzene	< 0.034		< 0.362		0
Isophorone	< 0.034		< 0.362		0
2-Nitrophenol	< 0.034		< 0.362		0
2,4-Dimethylphenol	< 0.195		< 0.362		0
Benzoic acid	< 7.366		NR	NA	2
Bis (2-chloroethoxy) methane	< 0.024		< 0.362		0
2,4-Dichlorophenol	< 0.229		< 0.362		0
1,2,4-Trichlorobenzene	< 0.011		< 0.362		0
Napthalene	< 0.007		< 0.362		0
4-Chloroaniline	< 0.181		NR	NA	2
Hexachlorobutadiene	< 0.012		< 0.362		0
4-Chloro-3-methylphenol	< 0.156		< 0.362		0
2-Methylnapthalene	< 0.015		NR	NA	2
Hexachlorocyclopentadiene	< 0.100		< 0.362		0
2,4,6-Trichlorophenol	< 0.159		< 0.362		0
2,4,5-Trichlorophenol	< 0.140		< 0.362		0
2-Chloronaphthalene	< 0.019		< 0.362		0
2-Nitroaniline	< 0.122		NR	NA	2
Dimethylphthalate	< 0.018		< 0.362		0
Acenaphthylene	< 0.012	J 0.014	< 0.362		0
3-Nitroaniline	< 0.945		NR	NA	2
Acenaphthene	< 0.014		< 0.362		0
2,4-Dinitrophenol	< 6.720		< 1.81		0
4-Nitrophenol	< 3.644		< 1.81		0
Dibenzofuran	< 0.012		NR	NA	2
2,6-Dinitrotoluene	< 0.039		< 0.362		0

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

PAGE 2 OF 2

QA SAMPLE NO.: 27958

CONTRACTOR'S SAMPLE NO.: JN3553

PARAMETER	QA LAB MDL	RESULTS	CONTRACTOR MDL	RESULTS	COMPARISON CODE
		QA LAB		CONTRACTOR	
2,4-Dinitrotoluene	< 0.080		< 0.362		0
Diethylphthalate	< 0.013	B 0.19	< 0.362		1
4-Chlorophenyl-phenylether	< 0.020		< 0.362		0
Fluorene	< 0.017	J 0.034	< 0.362		0
4-Nitroaniline	< 0.199		NR	NA	2
4,6-Dinitro-2-methylphenol	< 3.221		< 0.906		0
N-Nitrosodiphenylamine	< 0.024		< 0.362		0
4-Bromophenyl-phenylether	< 0.017		< 0.362		0
Hexachlorobenzene	< 0.014		< 0.362		0
Pentachlorophenol	< 3.168		< 0.362		0
Phenanthrene	< 0.015	0.062	< 0.362		0
Anthracene	< 0.025		< 0.362		0
Di-n-butylphthalate	< 0.043	J 0.080	< 0.362		0
Fluoranthene	< 0.017	0.069	< 0.362		0
Pyrene	< 0.015	0.075	< 0.362		0
Butylbenzylphthalate	< 0.041	J 0.053	< 0.362		0
3,3-Dichlorobenzidine	< 0.054		< 0.362		0
Benzo(a)anthracene	< 0.014	0.053	< 0.362		0
Bis(2ethylhexyl)phthalate	< 0.066	18	< 0.362	4.06	0
Chrysene	< 0.014	0.061	< 0.362		0
Di-n-octyl phthalate	< 0.163		< 0.362		0
Benzo(b)fluoranthene	< 0.038	J 0.052	< 0.362		0
Benzo(k)fluoranthene	< 0.065		< 0.362		0
Benzo(a)pyrene	< 0.042	J 0.043	< 0.362		0
Indeno(1,2,3-cd)pyrene	< 0.014		< 0.362		0
Dibenz(a,h)anthracene	< 0.014		< 0.362		0
Benzo(g,h,i)perylene	< 0.014	J 0.037	< 0.362		0

SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
2-Fluorophenol	75	NR
Phenol-d6	87	NR
Nitrobenzene-d5	79	NR
2-Fluorobiphenyl	87	NR
2,4,6-Tribromophenol	78	NR
Terphenyl-d14	78	NR

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

QA SAMPLE NO.: 27958  
QA FIELD ID: EKSAS6ACS  
QA ANALYSIS DATE: 11/15/94

CONTRACTOR'S SAMPLE NO.: JN3553  
CONTRACTOR'S FIELD ID: EKSAS6AC  
CONTRACTOR'S ANALYSIS DATE: 10/26/94

MATERIAL DESCRIPTION: SOIL  
DATE SAMPLED: 10/20/94  
UNITS: ug/kg

PARAMETER	RESULTS		RESULTS		COMPARISON CODE
	QA LAB MDL	QA LAB	CONTRACTOR MDL	CONTRACTOR	
Alpha-BHC	< 0.53		< 18		0
Gamma-BHC	< 0.42		< 18		0
Beta-BHC	< 0.51		< 18		0
Heptachlor	< NR	J 0.86	< 18		0
Delta-BHC	< 0.58		< 18		0
Aldrin	< 0.47		< 18		0
Heptachlor epoxide	< 0.58		< 18		0
Endosulfan I	< 0.70		< 18		0
4,4'-DDE	< 0.91		< 18		0
Dieldrin	< 0.78		< 18		0
Endrin	< 1.60		< 18		0
4,4'-DDD	< 0.67		< 18		0
Endosulfan II	< 0.62		< 18		0
4,4'-DDT	< 1.20		< 18		0
Endrin aldehyde	< 0.65		< 18		0
Endosulfan sulfate	< 0.65		< 18		0
Methoxychlor	< 0.58		< 18		0
Endrin ketone	< 1.10		< 18		0
Toxaphene	< 37.0		< 362		0
Chlordane	< 0.91		< 181		0

SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
TCMX (60-150)	67	NR
DCB (60-150)	104	NR

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

## COMPARISON OF QA &amp; CONTRACTOR RESULTS

PROJECT: FORT DEVENS

QA SAMPLE NO.: 27958  
QA FIELD ID: EXSA56ACS  
QA ANALYSIS DATE: 11/18/94

CONTRACTOR'S SAMPLE NO.: JN3553  
CONTRACTOR'S FIELD ID: EXSA56AC  
CONTRACTOR'S ANALYSIS DATE: 10/26/94

MATERIAL DESCRIPTION: SOIL  
DATE SAMPLED: 10/20/94  
UNITS: mg/kg

PARAMETER	RESULTS		RESULTS		COMPARISON CODE
	QA LAB MDL	QA LAB	CONTRACTOR MDL	CONTRACTOR	
Total PCBs	< NR	0.017	< 0.181		0

## SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
TCMX (60-150)	80	NA

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

QA SAMPLE NO.: 28659  
QA FIELD ID: EXSA56ACS  
QA ANALYSIS DATE: 1/10/95

CONTRACTOR'S SAMPLE NO.: JN6332  
CONTRACTOR'S FIELD ID: EXSA56-4C  
CONTRACTOR'S ANALYSIS DATE: NR

MATERIAL DESCRIPTION: TCLP EXTRACT  
DATE SAMPLED: 12/15/94  
UNITS: ug/L

PARAMETER	QA LAB MDL	RESULTS		RESULTS CONTRACTOR	COMPARISON CODE
		QA LAB	CONTRACTOR MDL		
1,4-Dichlorobenzene	< 0.11		<100	NR	2
2-Methylphenol	< 2.0		<100	NR	2
4-Methylphenol	< 1.36		<100	NR	2
Hexachloroethane	< 0.21		<100	NR	2
Nitrobenzene	< 0.46		<100	NR	2
Hexachlorobutadiene	< 0.15		<100	NR	2
2,4,6-Trichlorophenol	< 2.1		<100	NR	2
2,4,5-Trichlorophenol	< 2.0		<100	NR	2
2,4-Dinitrotoluene	< 1.09		<100	NR	2
Hexchlorobenzene	< 0.18		<100	NR	2
Pentachlorophenol	< 43		<100	NR	2
3-Methylphenol (m-cresol)	< 3.7		NR	NR	2

SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
2-Fluorophenol (10-94)	82	NR
Phenol (21-100)	70	NR
Nitrobenzene-d5 (35-114)	112	NR
2-Fluorobiphenyl (43-116)	97	NR
2,4,6-Tribromophenol (10-123)	95	NR
4-Terphenyl-d4 (33-141)	111	NR

SEE APPENDIX B FOR KEY TO COMMENTS

## COMPARISON OF QA &amp; CONTRACTOR RESULTS

PROJECT: FORT DEVENS

QA SAMPLE NO.: 28659 CONTRACTOR'S SAMPLE NO.: JN6331  
QA FIELD ID: EXSA56ACS CONTRACTOR'S FIELD ID: EXSA56-4C  
QA ANALYSIS DATE: 3/5/95 CONTRACTOR'S ANALYSIS DATE: NR

MATERIAL DESCRIPTION: TCLP EXTRACT

DATE SAMPLED: 12/15/94

UNITS: MG/L

PARAMETER	QA LAB MDL	RESULTS		RESULTS CONTRACTOR	COMPARISON CODE
		QA LAB	CONTRACTOR MDL		
Silver	< 0.010		NR	0.021	3
Arsenic	< 0.004		< 0.10		0
Barium	< 0.006	0.2	NR	0.38	0
Cadmium	< 0.003		<0.005		0
Chromium	< 0.011		<0.020		0
Mercury	< 0.0002	NR	<0.001		2
Lead	< 0.840		<0.001		0
Selenium	< 0.260		<0.001		0

SEE APPENDIX B FOR KEY TO COMMENTS

## COMPARISON OF QA &amp; CONTRACTOR RESULTS

PROJECT: FORT DEVENS

QA SAMPLE NO.: 28659  
QA FIELD ID: EXSA56ACS  
QA ANALYSIS DATE: 1/23/95

CONTRACTOR'S SAMPLE NO.: JN6332  
CONTRACTOR'S FIELD ID: EXSA56-4C  
CONTRACTOR'S ANALYSIS DATE: NR

MATERIAL DESCRIPTION: TCLP EXTRACT  
DATE SAMPLED: 12/15/94  
UNITS: MG/L

PARAMETER	QA LAB MDL	RESULTS		RESULTS CONTRACTOR	COMPARISON CODE
		QA LAB	CONTRACTOR MDL		
Gamma-BHC (Lindane)	< 0.01		< 0.002		0
Heptachlor	< 0.01		< 0.002		0
Heptachlor epoxide	< 0.01		< 0.002		0
Endrin	< 0.02		< 0.002		0
Methoxychlor	< 0.10		< 0.002		0
Chlordane	< 0.10		< 0.020		0
Toxaphene	< 1.0		< 0.040		0

## SURROGATE RECOVERIES (%)

	QA	CONTRACTOR
TCMX (60-150)	*26	NR
DCB (60-150)	*44	NR

\* = SURROGATE RECOVERY OUTSIDE ACCEPTABLE RANGE

SEE APPENDIX B FOR KEY TO COMMENTS

COMPARISON OF QA & CONTRACTOR RESULTS  
PROJECT: FORT DEVENS

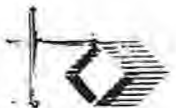
QA SAMPLE NO.: 28659  
QA FIELD ID: EXSA56ACS  
QA ANALYSIS DATE: 1/25/95

CONTRACTOR'S SAMPLE NO.: JN6332  
CONTRACTOR'S FIELD ID: EXSA56-4C  
CONTRACTOR'S ANALYSIS DATE: NR

MATERIAL DESCRIPTION: TCLP EXTRACT  
DATE SAMPLED: 12/15/94  
UNITS: UG/L

PARAMETER	QA LAB MDL	RESULTS	CONTRACTOR MDL	RESULTS	COMPARISON CODE
		QA LAB		CONTRACTOR	
2,4-D	< 15.0		<250		0
2,4,5-TP	< 3.00		<250		0

SEE APPENDIX B FOR KEY TO COMMENTS



OHM Corporation

E0251

## CHAIN-OF-CUSTODY RECORD

LAB COPY

Form 0019  
Field Technical Services  
Rev. 08/89

140087

O.H. MATERIALS CORP.		P.O. BOX 551		FINDLAY, OH 45839-0551		419-423-3526	
PROJECT NAME <b>FORT DEWINS</b>				PROJECT LOCATION <b>AYER MA</b>			
PROJ. NO. <b>16208</b>		PROJECT CONTACT <b>MARGIE BLEAU</b>		PROJECT TELEPHONE NO. <b>508-772-2610</b>			
CLIENT'S REPRESENTATIVE <b>TDN BEST (USACE)</b>				PROJECT MANAGER/SUPERVISOR <b>BILL SMY</b>			
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)
1	SBSA36 TRP	9-22-94	1010	✓		Brown sand w cobble	<div style="display: flex; justify-content: space-between;"> <div>             Pesticide Lead BTEX BNA TPH           </div> <div>             REMARKS              Triplicate of SBSA36 TRP           </div> </div>
2	SBSA36A TRP	9-22-94	1155	✓		moist brown sandy soil w cobble	<div style="display: flex; justify-content: space-between;"> <div>             Pesticide Lead BTEX BNA TPH           </div> <div>             REMARKS              Triplicate of SBSA36A TRP           </div> </div>
3	SBSA36C TRP	9-22-94	1223	✓		Brown sandy soil	<div style="display: flex; justify-content: space-between;"> <div>             Pesticide Lead BTEX BNA TPH           </div> <div>             REMARKS              Triplicate of SBSA36C TRP           </div> </div>
4	SBSA56 TRP	9-22-94	1515	✓		Brown sand w/some cobble	<div style="display: flex; justify-content: space-between;"> <div>             Pesticide Lead BTEX BNA TPH           </div> <div>             REMARKS              ✓ X X           </div> </div>
5	SBSA56 TRP	9-22-94	1512	✓		Brown sand w/some cobble	<div style="display: flex; justify-content: space-between;"> <div>             Pesticide Lead BTEX BNA TPH           </div> <div>             REMARKS              ✓           </div> </div>
6	(3)						
7	SHOULD READ "SBSA36C TRP" - SEE ATTACHED						
8	(4), (5) LABELS ON SAMPLE CONTAINERS CHANGED FROM SBSA56 TRP, SBSA57 TRP, RESP, TO SBSA56 TRP, SBSA56 TRP						
9							
10	(4) ANALYSIS IS BNA & TPH						
CORRECTIONS MADE BY 10/10/94, PHILIPPA LEE, ESR TMC/CLM/USACE, MARGIE BLEAU OHM.							
TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY		TRANSFERS ACCEPTED BY		DATE	TIME
1	1-5	Bill RL		1779842097 FEDEX APPROV		9-22-94	1600
2		FEDEX		[Signature]		9-23-94	1200
3							
4							
REMARKS						SAMPLER'S SIGNATURE	
4°C						[Signature]	
TEMP BLANK INCLUDED							

CENED-ED-GL  
SAMPLE CONTAINER RECEIPT FORM

PROJECT: CONTAINER 7677 Soil FT 1/2/94 Project #: 50251  
Work Order #: 94-352

Container received on 9/29/94 and inspected on 9-27-94 by: CA

1. Temperature 2.1 °C. Temperature taken on \_\_\_\_\_ (date)

2. Shipper \_\_\_\_\_ Shipper # 1779872094  
(USM, UPS, DHL, FEDEX, P/C, AIR EXP, HAND-DELIVERED)

3. Container type (Cooler) box, envelope, etc.) \_\_\_\_\_

4. Were custody seals on outside of container? N/A Yes No  
How many & where: 2 in package lid, seal date: 9-27-94, seal name: ?

5. Were custody papers taped to lid inside container? N/A Yes No

6. Custody papers properly filled out? (ink, signed, etc.) Yes No

7. Was project and project # identifiable from custody papers? Yes No

8. Did you sign custody papers in appropriate place? Yes No

9. Did you attach shipper's packing form to this form? N/A Yes No

10. Packing material (peanuts, vermiculite, bubble wrap, paper, cans, other)

11. Were all samples sealed in separate plastic bags? N/A Yes No

12. Did all samples arrive in good condition? Yes No

13. Sample labels complete? (#, date, analysis, preservation, sign.) Yes No

14. Were correct sample containers used for tests indicated? N/A Yes No

15. Were correct preservatives used? (TM pH\_\_\_\_, CN- pH\_\_\_\_) N/A Yes No  
(TOC pH\_\_\_\_, NUTRIENT pH\_\_\_\_, TOX pH\_\_\_\_, TPH pH\_\_\_\_, OTHER pH\_\_\_\_)

16. Were VOA vials bubble-free (H<sub>2</sub>O) or no headspace (soil)? N/A Yes No

17. Was sufficient amount of sample sent in each container? Yes No

18. Did all sample labels agree with custody papers? Yes No

19. Were air volumes noted for air samples? N/A Yes No

20. Were initial weights noted for pre-weighed filters? N/A Yes No

Discrepancies (13) & (18) DISCREPANCIES BETWEEN LABELS & C-C-C LABELS  
TO BE RESOLVED.



OHM Corporation

E0251

## CHAIN-OF-CUSTODY RECORD

Form 0019  
Field Technical Services  
Rev. 08/89

No. 107649

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME		PROJECT LOCATION		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)				
PROJ NO	PROJECT CONTACT	PROJECT TELEPHONE NO	CLIENT'S REPRESENTATIVE	PROJECT MANAGER/SUPERVISOR	REMARKS			
Ft Devers	Ayer me							
16208	Mike Quinlan	(508) 772-2610	Tdm Best - USACE	Bill Snow				
ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	EXSA36TRIC	9-30 94	1000	✓		Posthole Pile #1	1x12	TRIPlicate EXSA36IC
2	TRP2	10-3 94	1255	✓		Southwest composite (2nd)	1x402	TRIPlicate of SBSA56SEC2
3	EXSA36TRIC	9-30 94	1006	✓		Grp sample from pile #1	1x402	TRIP of EXSA36IC
4								
5								
6								
7								
8								
9								
10								

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-2	Will Deh	2489343696 Federal Express Aircall	10-3 94	1800	• 4°C • Temp blank included
2		FEDER		10-4 94	1200	
3						
4						

SAMPLER'S SIGNATURE  
Will Deh

LAB COPY

RECEIVED-ED-GT  
SAMPLE CONTAINER RECEIPT FORM

CONTAMINATED Soil For Analysis

Project #: E0251  
Work Order #: 14-352

Container received on 10-4-94 and inspected on 10-4-94 by: L. L. F.

Temperature 2.0 °C. Temperature taken on 10-4-94 (date)

Shipper (USM, UPS, DHL, FEDEX, P/C, AIR EXP, HAND-DELIVERED) Shipper # 2989343651

Container type (cooler, box, envelope, etc.)

Were custody seals on outside of container? N/A Yes No  
How many & where: 2/1000 N/A, seal date: 10-3-94, seal name: QUALITY

Were custody papers taped to lid inside container? N/A Yes No

Custody papers properly filled out? (link, signed, etc.) Yes No

Was project and project # identifiable from custody papers? Yes No

Did you sign custody papers in appropriate place? Yes No

Did you attach shipper's packing form to this form? N/A Yes No

Packing material: peanuts, vermiculite, bubble wrap, paper, cans, other

Were all samples sealed in separate plastic bags? N/A Yes No

Did all samples arrive in good condition? Yes No

Sample labels completed? (#, date, analysts, preservation, sign. Yes No

Were correct sample containers used for tests indicated? N/A Yes No

Were correct preservatives used? (TM pH, CN- pH, TOC pH, NUTRIENT pH, TOX pH, TAP pH, OTHER pH) N/A Yes No

Were VOA vials bubble-free (H<sub>2</sub>O) or no headspace, solid? N/A Yes No

Was sufficient amount of sample sent in each container? Yes No

Did all sample labels agree with custody papers? Yes No

Were air volumes noted for air samples? N/A Yes No

Were initial weights noted for pre-weighed filters? N/A Yes No

Discrepancies:



OHM Corporation

E0251

## CHAIN-OF-CUSTODY RECORD

Field Office

No. 107710

PAGE 2 OF 2

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>FORT DEVENUS</b>				PROJECT LOCATION <b>AYER MA</b>				NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)										REMARKS				
PROJ. NO. <b>16208</b>		PROJECT CONTACT <b>MIKE QUINLAN / MARIE BLEAU</b>				PROJECT TELEPHONE NO. <b>508-772-2014</b>			<div style="text-align: center;"> <b>TRPH</b>   <b>BNA (TOTAL)</b>   <b>VOLEATILES (TOTAL)</b>   <b>METALS</b>   <b>ASTM 100-100</b>   <b>ASTM 100-100</b> </div>														
CLIENT'S REPRESENTATIVE <b>TOM BEST (USACE)</b>						PROJECT MANAGER/SUPERVISOR <b>BILL SNOW</b>																	
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)																	
1	EXSA56ALS	10-20-94	929	✓		GREY, BROWN, Clay Sand Mixture	5x40z Amber	✓	✓		✓	✓	✓										
2	EXSA56AGS	10-20-94	925		✓	Grey, BROWN, Clay Sand Mixture	5x40z Amber				✓												
3	EX1435LS	10-20-94	1100	✓		GOLD SAND w/ ODR	5x40z Amber	✓	✓		✓	✓	✓										
4	EX1435GS	10-20-94	1115		✓	GOLD SAND w/ MIXED GRAINS	2x40z Amber				✓												
5																							
6																							
7																							
8																							
9																							
10																							

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-4	Will DL	AIRBELL 19445 70213 FEDERAL EXPRESS	10-20-94	1530	* Preserved at 4°C * TEMPERATURE BLANK INCLUDED
2		FWDOR	Ch. Lane	10-21-94	1200	
3						
4						

SAMPLER'S SIGNATURE  
Will DL

LAB COPY

## CENED-ED-GL

## SAMPLE CONTAINER RECEIPT FORM

SUBJECT: CONTAMINATED SOIL FT. DAVEN SProject #: EC251  
Work Order #: 94-352Container received on 10-21-94 and inspected on 10-21-94 by: ALFTemperature 41 °C. Temperature taken on 10-21-94 (date)Shipper (USM, UPS, DHL, FEDEX, P/C, AIR EXP, HAND-DELIVERED) Shipper # 1944570213Container type (Cooler) box, envelope, etc.)Were custody seals on outside of container? N/A (Yes) No  
How many & where: 14/around, seal date: 10-20-94, seal name: SigmundWere custody papers taped to lid inside container? N/A (Yes) NoCustody papers properly filled out? (ink, signed, etc.) (Yes) NoWas project and project # identifiable from custody papers? (Yes) NoDid you sign custody papers in appropriate place? (Yes) NoDid you attach shipper's packing form to this form? N/A (Yes) NoPacking material (peanuts, vermiculite, bubble wrap, paper, cans, other) (Yes) NoWere all samples sealed in separate plastic bags? N/A (Yes) NoDid all samples arrive in good condition? (Yes) NoSample labels completed? (#, date, analysis, preservation, sign.) (Yes) NoWere correct sample containers used for tests indicated? N/A (Yes) NoWere correct preservatives used? (TM pH, CN- pH, TOC pH, NUTRIENT pH, TOX pH, TPH pH, OTHER pH) (N/A) (Yes) NoWere VOA vials bubble-free (H<sub>2</sub>O) or no headspace (soil)? N/A (Yes) NoWas sufficient amount of sample sent in each container? (Yes) NoDid all sample labels agree with custody papers? (Yes) NoWere air volumes noted for air samples? (N/A) (Yes) NoWere initial weights noted for pre-weighed filters? (N/A) (Yes) No

Discrepancies: \_\_\_\_\_

**Appendix D**  
**ASC Analytical Report - Topsoil Sample Results**



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Subject:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional


**Date Sample Received:** September 10, 1994

**Date Order Received:** September 10, 1994

**Joblink(s):** 616604

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

  
Thomas E. Gran, Ph.D., Vice President

Date: September 14, 1994

## PROJECT NARRATIVE

---

The following items relate to the samples and analytical data contained in this report.

- o All sample results are reported on an as received "wet weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

**NOTE:** The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

## DATA SUMMARY REPORT

DATE: 09/12/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: LEGASSE-TP  
ASC Sample Number: JN2162  
Sample Date: 940909  
Facility Code: 016208C

Parameters

Units

Conventional Data (CV10)

pH (Electrode)                      std      6.40

**APPENDIX B**  
**QUANTITATIVE RESULTS**

CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

LEGASSE-TP

JN2162

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
pH (Electrode)                      std	6.40	-	-	

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

# SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616604

---

REFERENCE		TITLE
CLP 1.7.1.1		pH, Electrode (soil)

---

## METHODOLOGY REFERENCES

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ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-800	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

**Validated by:**

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

**Approvals:**

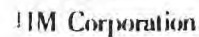
- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



Form 0019  
Field Technical Services  
Rev. 08/89

**No. 107639**

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

[illegible]

LAB COPY

# Soil Sample Collection Log Fort Devens - Project #16208

Pg. 1 of 1

Date: 9-9-94

Site Name: LEGASSE TOP SOIL

Weather: Cool, Partly Cloudy Samplers: BO

Sample ID Number	Time	Comp/ Grab	Sample Depth (ft)	Coordinates		Sample Description	# of Bottles
				Ref. Pt.	Ref. Pt.		
LEGASSE-TP	0835	G	NA	UA	NA	Brn, soil w/ some cobble	12402 amber

Ref. Pt.   : UA

Ref. Pt.   : UA

Map Attached: Yes ☒ No

Sample Type: ☒ Screening ☐ Confirmation ☐ Disposal/Characterization

Laboratory Destination: Onsite Lab ☒ ASC - coc # 107639 ☐ USACE- coc #   

Duplicate Taken: Yes ☒ No ☐ Rinsate Taken: Yes ☒ No ☐

## On-site Laboratory Chain of Custody/Request for Analysis

Requested Testing: TPH BTEX Chlordane PCBs Other pH

Relinquished by(dd/tt):    Received by (dd/tt):   

Relinquished by(dd/tt):    Received by (dd/tt):

Appendix E  
ASC Analytical Report - Waste Characterization Sample Results



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample(s):** EXSA56AC, EXSA56BC, EXSA56AG and EXSA56BG

**Sample Type(s):** Solid

**Analysis Performed:** Conventional and Organics

**Date Sample Received:** October 21, 1994

**Date Order Received:** October 21, 1994

**Joblink(s):** 616886

*This report is **"PROPRIETARY AND CONFIDENTIAL"** and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

Thomas E. Gran, Ph.D., Vice President

Date: November 2, 1994

## PROJECT NARRATIVE

---

The following items relate to the samples and analytical data contained in this report.

- o All sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

# DATA SUMMARY REPORT

DATE: 10/27/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56AC	EXSA56BC	EXSA56AG	EXSA56BG
ASC Sample Number:	JN3553	JN3554	JN3556	JN3557
Sample Date:	941020	941020	941020	941020
Facility Code:	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Conventional Data (CV10)

Solids, Total	%	91.9	89.4	89.1	89.1
---------------	---	------	------	------	------

Sample Point ID:	EXSA56AC	EXSA56BC
ASC Sample Number:	JN3553	JN3554
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## Total Pesticide and PCB Analysis, GC, (GS05)

Aldrin	mg/kg	<.018	<.018
Alpha-BHC	mg/kg	<.018	<.018
Beta-BHC	mg/kg	<.018	<.018
Chlordane	mg/kg	<.181	<.184
4,4'-DDD	mg/kg	<.018	<.018
4,4'-DDE	mg/kg	<.018	<.018
4,4'-DDT	mg/kg	<.018	<.018
Delta-BHC	mg/kg	<.018	<.018
Dieldrin	mg/kg	<.018	<.018
Endosulfan sulfate	mg/kg	<.018	<.018
Endosulfan I	mg/kg	<.018	<.018
Endosulfan II	mg/kg	<.018	<.018
Endrin	mg/kg	<.018	<.018
Endrin aldehyde	mg/kg	<.018	<.018
Endrin ketone	mg/kg	<.018	<.018
Gamma-BHC	mg/kg	<.018	<.018
Heptachlor	mg/kg	<.018	<.018
Heptachlor epoxide	mg/kg	<.018	<.018
Methoxychlor	mg/kg	<.018	<.018
Toxaphene	mg/kg	<.362	<.369
Aroclor 1016	mg/kg	<.181	<.184
Aroclor 1221	mg/kg	<.181	<.184
Aroclor 1232	mg/kg	<.181	<.184
Aroclor 1242	mg/kg	<.181	<.184

# DATA SUMMARY REPORT

DATE: 10/27/94

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56AC	EXSA56BC
ASC Sample Number:	JN3553	JN3554
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## tal Pesticide and PCB Analysis, GC, (GS05)

roclor 1248	mg/kg	<.181	<.184
roclor 1254	mg/kg	<.181	<.184
roclor 1260	mg/kg	<.181	<.184

Sample Point ID:	EXSA56AG	EXSA56BG
ASC Sample Number:	JN3556	JN3557
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## TXE Volatile Analysis, GC, (GV33)

Benzene	mg/kg	<.001	<.001
Ethylbenzene	mg/kg	<.001	.006
Toluene	mg/kg	<.001	<.001
Xylenes	mg/kg	<.001	.010

Sample Point ID:	EXSA56AC	EXSA56BC
ASC Sample Number:	JN3553	JN3554
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## total Petroleum Hydrocarbon Analysis, IR (IR00)

Petroleum Hydrocarbons (IR)	mg/kg	103	200
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# DATA SUMMARY REPORT

DATE: 10/27/94

PAGE: 3

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56AC	EXSA56BC
ASC Sample Number:	JN3553	JN3554
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## total Base/Neutral/Acid Analysis, MS, (MS02)

Acenaphthene	mg/kg	<.362	<.370
Acenaphthylene	mg/kg	<.362	<.370
Anthracene	mg/kg	<.362	<.370
Benzidine	mg/kg	<.362	<.370
Benzo(a)anthracene	mg/kg	<.362	<.370
Benzo(b)fluoranthene	mg/kg	<.362	<.370
Benzo(k)fluoranthene	mg/kg	<.362	<.370
Benzo(ghi)perylene	mg/kg	<.362	<.370
Benzo(a)pyrene	mg/kg	<.362	<.370
bis(2-Chloroethyl) ether	mg/kg	<.362	<.370
bis(2-Chloroethoxy)methane	mg/kg	<.362	<.370
bis(2-Chloroisopropyl)ether	mg/kg	<.362	<.370
bis(2-Ethylhexyl)phthalate	mg/kg	4.06	2.93
4-Bromophenyl phenyl ether	mg/kg	<.362	<.370
Butyl benzyl phthalate	mg/kg	<.362	<.370
Carbazole	mg/kg	<.362	<.370
4-Chloroaniline	mg/kg	<.362	<.370
p-Chloro-m-cresol	mg/kg	<.362	<.370
2-Chloronaphthalene	mg/kg	<.362	<.370
2-Chlorophenol	mg/kg	<.362	<.370
4-Chlorophenyl phenyl ether	mg/kg	<.362	<.370
Chrysene	mg/kg	<.362	<.370
Dibenzo(a,h)anthracene	mg/kg	<.362	<.370
Dibenzofuran	mg/kg	<.362	<.370
Di-n-butyl phthalate	mg/kg	<.362	<.370
1,2-Dichlorobenzene	mg/kg	<.362	<.370
1,3-Dichlorobenzene	mg/kg	<.362	<.370
1,4-Dichlorobenzene	mg/kg	<.362	<.370
3,3'-Dichlorobenzidine	mg/kg	<.362	<.370
2,4-Dichlorophenol	mg/kg	<.362	<.370
Diethyl phthalate	mg/kg	<.362	<.370
Dimethyl phthalate	mg/kg	<.362	<.370
2,4-Dimethylphenol	mg/kg	<.362	<.370
4,6-Dinitro-o-cresol	mg/kg	<.906	<.926
2,4-Dinitrophenol	mg/kg	<1.81	<1.85

# DATA SUMMARY REPORT

DATE: 10/27/94

PAGE: 4

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56AC	EXSA56BC
ASC Sample Number:	JN3553	JN3554
Sample Date:	941020	941020
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## Total Base/Neutral/Acid Analysis, MS, (MS02)

2,4-Dinitrotoluene	mg/kg	<.362	<.370
2,6-Dinitrotoluene	mg/kg	<.362	<.370
Di-n-octyl phthalate	mg/kg	<.362	<.370
Fluoranthene	mg/kg	<.362	<.370
Fluorene	mg/kg	<.362	<.370
Hexachlorobenzene	mg/kg	<.362	<.370
Hexachlorobutadiene	mg/kg	<.362	<.370
Hexachlorocyclopentadiene	mg/kg	<.362	<.370
Hexachloroethane	mg/kg	<.362	<.370
Indeno(1,2,3-cd)pyrene	mg/kg	<.362	<.370
Isophorone	mg/kg	<.362	<.370
2-Methylnaphthalene	mg/kg	<.362	<.370
2-Methylphenol	mg/kg	<.362	<.370
4-Methylphenol	mg/kg	<.362	<.370
N-Nitrosodimethylamine	mg/kg	<.362	<.370
N-Nitrosodi-n-propylamine	mg/kg	<.362	<.370
N-Nitrosodiphenylamine	mg/kg	<.362	<.370
Naphthalene	mg/kg	<.362	<.370
2-Nitroaniline	mg/kg	<.362	<.370
3-Nitroaniline	mg/kg	<.362	<.370
4-Nitroaniline	mg/kg	<.362	<.370
Nitrobenzene	mg/kg	<.362	<.370
2-Nitrophenol	mg/kg	<.362	<.370
4-Nitrophenol	mg/kg	<1.81	<1.85
Pentachlorophenol	mg/kg	<.362	<.370
Phenanthrene	mg/kg	<.362	<.370
Phenol	mg/kg	<.362	<.370
Pyrene	mg/kg	<.362	<.370
Pyridine	mg/kg	<.362	<.370
1,2,4-Trichlorobenzene	mg/kg	<.362	<.370
2,4,5-Trichlorophenol	mg/kg	<.362	<.370
2,4,6-Trichlorophenol	mg/kg	<.362	<.370

**APPENDIX B**

**QUANTITATIVE RESULTS**

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56AC**

JN3553

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	91.9	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56BC**

JN3554

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	89.4	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56AG**

**JN3556**

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	89.1	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56BG**

**JN3557**

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	89.1	.100	-	

# TOTAL PESTICIDE AND PCB ANALYSIS, GC, (GS05)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56AC	JN3553

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Aldrin	ND	.018	ND	Q2P41545
Alpha-BHC	ND	.018	ND	Q2P41545
Beta-BHC	ND	.018	ND	Q2P41545
Chlordane	ND	.181	ND	Q2P41545
4,4'-DDD	ND	.018	ND	Q2P41545
4,4'-DDE	ND	.018	ND	Q2P41545
4,4'-DDT	ND	.018	ND	Q2P41545
Delta-BHC	ND	.018	ND	Q2P41545
Dieldrin	ND	.018	ND	Q2P41545
Endosulfan sulfate	ND	.018	ND	Q2P41545
Endosulfan I	ND	.018	ND	Q2P41545
Endosulfan II	ND	.018	ND	Q2P41545
Endrin	ND	.018	ND	Q2P41545
Endrin aldehyde	ND	.018	ND	Q2P41545
Endrin ketone	ND	.018	ND	Q2P41545
Gamma-BHC	ND	.018	ND	Q2P41545
Heptachlor	ND	.018	ND	Q2P41545
Heptachlor epoxide	ND	.018	ND	Q2P41545
Methoxychlor	ND	.018	ND	Q2P41545
Toxaphene	ND	.362	ND	Q2P41545
Aroclor 1016	ND	.181	ND	Q2P41545
Aroclor 1221	ND	.181	ND	Q2P41545
Aroclor 1232	ND	.181	ND	Q2P41545
Aroclor 1242	ND	.181	ND	Q2P41545
Aroclor 1248	ND	.181	ND	Q2P41545
Aroclor 1254	ND	.181	ND	Q2P41545
Aroclor 1260	ND	.181	ND	Q2P41545

# TOTAL PESTICIDE AND PCB ANALYSIS, GC, (GS05)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56BC	JN3554

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Aldrin	ND	.018	ND	Q2P41545
Alpha-BHC	ND	.018	ND	Q2P41545
Beta-BHC	ND	.018	ND	Q2P41545
Chlordane	ND	.184	ND	Q2P41545
4,4'-DDD	ND	.018	ND	Q2P41545
4,4'-DDE	ND	.018	ND	Q2P41545
4,4'-DDT	ND	.018	ND	Q2P41545
Delta-BHC	ND	.018	ND	Q2P41545
Dieldrin	ND	.018	ND	Q2P41545
Endosulfan sulfate	ND	.018	ND	Q2P41545
Endosulfan I	ND	.018	ND	Q2P41545
Endosulfan II	ND	.018	ND	Q2P41545
Endrin	ND	.018	ND	Q2P41545
Endrin aldehyde	ND	.018	ND	Q2P41545
Endrin ketone	ND	.018	ND	Q2P41545
Gamma-BHC	ND	.018	ND	Q2P41545
Heptachlor	ND	.018	ND	Q2P41545
Heptachlor epoxide	ND	.018	ND	Q2P41545
Methoxychlor	ND	.018	ND	Q2P41545
Toxaphene	ND	.369	ND	Q2P41545
Aroclor 1016	ND	.184	ND	Q2P41545
Aroclor 1221	ND	.184	ND	Q2P41545
Aroclor 1232	ND	.184	ND	Q2P41545
Aroclor 1242	ND	.184	ND	Q2P41545
Aroclor 1248	ND	.184	ND	Q2P41545
Aroclor 1254	ND	.184	ND	Q2P41545
Aroclor 1260	ND	.184	ND	Q2P41545

BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56AG

JN3556

[illegible]

BTXE VOLATILE ANALYSIS, GC, (GV33)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56BG**

JN3557

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3957
Ethylbenzene	.006	.001	ND	Q2W3957
Toluene	ND	.001	ND	Q2W3957
Xylenes	.010	.001	ND	Q2W3957

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56AC

JN3553

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	103	7.17	ND	Q2T41547

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56BC

JN3554

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	200	7.36	ND	Q2T41547

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56AC	JN3553

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.362	ND	Q2C41530
Acenaphthylene	ND	.362	ND	Q2C41530
Anthracene	ND	.362	ND	Q2C41530
Benzidine	ND	.362	ND	Q2C41530
Benzo (a) anthracene	ND	.362	ND	Q2C41530
Benzo (b) fluoranthene	ND	.362	ND	Q2C41530
Benzo (k) fluoranthene	ND	.362	ND	Q2C41530
Benzo (ghi) perylene	ND	.362	ND	Q2C41530
Benzo (a) pyrene	ND	.362	ND	Q2C41530
bis (2-Chloroethyl) ether	ND	.362	ND	Q2C41530
bis (2-Chloroethoxy) methane	ND	.362	ND	Q2C41530
bis (2-Chloroisopropyl) ether	ND	.362	ND	Q2C41530
bis (2-Ethylhexyl) phthalate	4.06	.362	ND	Q2C41530
4-Bromophenyl phenyl ether	ND	.362	ND	Q2C41530
Butyl benzyl phthalate	ND	.362	ND	Q2C41530
Carbazole	ND	.362	ND	Q2C41530
4-Chloroaniline	ND	.362	ND	Q2C41530
p-Chloro-m-cresol	ND	.362	ND	Q2C41530
2-Chloronaphthalene	ND	.362	ND	Q2C41530
2-Chlorophenol	ND	.362	ND	Q2C41530
4-Chlorophenyl phenyl ether	ND	.362	ND	Q2C41530
Chrysene	ND	.362	ND	Q2C41530
Benzo (a, h) anthracene	ND	.362	ND	Q2C41530
Benzo (f) furan	ND	.362	ND	Q2C41530
Di-n-butyl phthalate	ND	.362	ND	Q2C41530
1,2-Dichlorobenzene	ND	.362	ND	Q2C41530
1,3-Dichlorobenzene	ND	.362	ND	Q2C41530
1,4-Dichlorobenzene	ND	.362	ND	Q2C41530
3,3'-Dichlorobenzidine	ND	.362	ND	Q2C41530
2,4-Dichlorophenol	ND	.362	ND	Q2C41530
Diethyl phthalate	ND	.362	ND	Q2C41530
Dimethyl phthalate	ND	.362	ND	Q2C41530
2,4-Dimethylphenol	ND	.362	ND	Q2C41530
4,6-Dinitro-o-cresol	ND	.906	ND	Q2C41530
2,4-Dinitrophenol	ND	1.81	ND	Q2C41530
2,4-Dinitrotoluene	ND	.362	ND	Q2C41530
2,6-Dinitrotoluene	ND	.362	ND	Q2C41530
Di-n-octyl phthalate	ND	.362	ND	Q2C41530
Fluoranthene	ND	.362	ND	Q2C41530
Fluorene	ND	.362	ND	Q2C41530
Hexachlorobenzene	ND	.362	ND	Q2C41530
Hexachlorobutadiene	ND	.362	ND	Q2C41530
Hexachlorocyclopentadiene	ND	.362	ND	Q2C41530
Hexachloroethane	ND	.362	ND	Q2C41530
Indeno (1,2,3-cd) pyrene	ND	.362	ND	Q2C41530
Isophorone	ND	.362	ND	Q2C41530
2-Methylnaphthalene	ND	.362	ND	Q2C41530
2-Methylphenol	ND	.362	ND	Q2C41530
4-Methylphenol	ND	.362	ND	Q2C41530
N-Nitrosodimethylamine	ND	.362	ND	Q2C41530

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56AC	JN3553

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.362	ND	Q2C41530
N-Nitrosodiphenylamine	ND	.362	ND	Q2C41530
Naphthalene	ND	.362	ND	Q2C41530
2-Nitroaniline	ND	.362	ND	Q2C41530
3-Nitroaniline	ND	.362	ND	Q2C41530
4-Nitroaniline	ND	.362	ND	Q2C41530
Nitrobenzene	ND	.362	ND	Q2C41530
2-Nitrophenol	ND	.362	ND	Q2C41530
4-Nitrophenol	ND	1.81	ND	Q2C41530
Pentachlorophenol	ND	.362	ND	Q2C41530
Phenanthrene	ND	.362	ND	Q2C41530
Phenol	ND	.362	ND	Q2C41530
Pyrene	ND	.362	ND	Q2C41530
Pyridine	ND	.362	ND	Q2C41530
1,2,4-Trichlorobenzene	ND	.362	ND	Q2C41530
2,4,5-Trichlorophenol	ND	.362	ND	Q2C41530
2,4,6-Trichlorophenol	ND	.362	ND	Q2C41530

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56BC	JN3554

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.370	ND	Q2C41530
Acenaphthylene	ND	.370	ND	Q2C41530
Anthracene	ND	.370	ND	Q2C41530
Benzidine	ND	.370	ND	Q2C41530
Benzo(a)anthracene	ND	.370	ND	Q2C41530
Benzo(b)fluoranthene	ND	.370	ND	Q2C41530
Benzo(k)fluoranthene	ND	.370	ND	Q2C41530
Benzo(ghi)perylene	ND	.370	ND	Q2C41530
Benzo(a)pyrene	ND	.370	ND	Q2C41530
bis(2-Chloroethyl) ether	ND	.370	ND	Q2C41530
bis(2-Chloroethoxy)methane	ND	.370	ND	Q2C41530
bis(2-Chloroisopropyl) ether	ND	.370	ND	Q2C41530
bis(2-Ethylhexyl) phthalate	2.93	.370	ND	Q2C41530
4-Bromophenyl phenyl ether	ND	.370	ND	Q2C41530
Butyl benzyl phthalate	ND	.370	ND	Q2C41530
Carbazole	ND	.370	ND	Q2C41530
4-Chloroaniline	ND	.370	ND	Q2C41530
p-Chloro-m-cresol	ND	.370	ND	Q2C41530
2-Chloronaphthalene	ND	.370	ND	Q2C41530
2-Chlorophenol	ND	.370	ND	Q2C41530
4-Chlorophenyl phenyl ether	ND	.370	ND	Q2C41530
Chrysene	ND	.370	ND	Q2C41530
benzo(a,h)anthracene	ND	.370	ND	Q2C41530
benzofuran	ND	.370	ND	Q2C41530
n-butyl phthalate	ND	.370	ND	Q2C41530
1,2-Dichlorobenzene	ND	.370	ND	Q2C41530
1,3-Dichlorobenzene	ND	.370	ND	Q2C41530
1,4-Dichlorobenzene	ND	.370	ND	Q2C41530
3,3'-Dichlorobenzidine	ND	.370	ND	Q2C41530
2,4-Dichlorophenol	ND	.370	ND	Q2C41530
Diethyl phthalate	ND	.370	ND	Q2C41530
Dimethyl phthalate	ND	.370	ND	Q2C41530
2,4-Dimethylphenol	ND	.370	ND	Q2C41530
4,6-Dinitro-o-cresol	ND	.926	ND	Q2C41530
2,4-Dinitrophenol	ND	1.85	ND	Q2C41530
2,4-Dinitrotoluene	ND	.370	ND	Q2C41530
2,6-Dinitrotoluene	ND	.370	ND	Q2C41530
Di-n-octyl phthalate	ND	.370	ND	Q2C41530
Fluoranthene	ND	.370	ND	Q2C41530
Fluorene	ND	.370	ND	Q2C41530
Hexachlorobenzene	ND	.370	ND	Q2C41530
Hexachlorobutadiene	ND	.370	ND	Q2C41530
Hexachlorocyclopentadiene	ND	.370	ND	Q2C41530
Hexachloroethane	ND	.370	ND	Q2C41530
Indeno(1,2,3-cd)pyrene	ND	.370	ND	Q2C41530
Isophorone	ND	.370	ND	Q2C41530
2-Methylnaphthalene	ND	.370	ND	Q2C41530
2-Methylphenol	ND	.370	ND	Q2C41530
4-Methylphenol	ND	.370	ND	Q2C41530
N-Nitrosodimethylamine	ND	.370	ND	Q2C41530

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56BC	JN3554

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.370	ND	Q2C41530
N-Nitrosodiphenylamine	ND	.370	ND	Q2C41530
Naphthalene	ND	.370	ND	Q2C41530
2-Nitroaniline	ND	.370	ND	Q2C41530
3-Nitroaniline	ND	.370	ND	Q2C41530
4-Nitroaniline	ND	.370	ND	Q2C41530
Nitrobenzene	ND	.370	ND	Q2C41530
2-Nitrophenol	ND	.370	ND	Q2C41530
4-Nitrophenol	ND	1.85	ND	Q2C41530
Pentachlorophenol	ND	.370	ND	Q2C41530
Phenanthrene	ND	.370	ND	Q2C41530
Phenol	ND	.370	ND	Q2C41530
Pyrene	ND	.370	ND	Q2C41530
Pyridine	ND	.370	ND	Q2C41530
1,2,4-Trichlorobenzene	ND	.370	ND	Q2C41530
2,4,5-Trichlorophenol	ND	.370	ND	Q2C41530
2,4,6-Trichlorophenol	ND	.370	ND	Q2C41530

3-Methyl- and 4-Methylphenol coelute and are reported as the total

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

# SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616886

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REFERENCE		TITLE
160.3	CAWW	Residue, Total, Gravimetric, Dried at 103-105 C
418.1	MCAWW	Petroleum Hydrocarbons, Total Recoverable
8020	SW-846	Aromatic Volatile Organics by GC
8080	SW-846	Organochlorine Pesticides and/or PCBs
8270	SW-846	GC/MS for Semivolatile Organics: Capillary Column Technique

## METHODOLOGY REFERENCES

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<b>ASTM</b>	<i>American Society for Testing and Materials</i> , 1985 edition.
<b>CAWW</b>	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
<b>CLP</b>	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
<b>EPA-500</b>	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
<b>EPA-600</b>	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
<b>NIOSH</b>	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
<b>SMEWW</b>	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
<b>STOA</b>	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
<b>SW-846</b>	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
<b>(1)</b>	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
<b>Title 22</b>	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

---

mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

# QUALITY ASSURANCE DATA

## TOTAL PESTICIDE AND PCB ANALYSIS, GC, (GS05)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Aldrin	ND	87	ND	69	3	Q2P41545
Alpha-BHC	ND	85	ND	59	1	Q2P41545
Beta-BHC	ND	89	ND	84	1	Q2P41545
Chlordane	ND	95	ND	91	1	Q2P41545
4,4'-DDD	ND	99	ND	77	1	Q2P41545
4,4'-DDE	ND	97	ND	85	2	Q2P41545
4,4'-DDT	ND	97	ND	75	5	Q2P41545
Delta-BHC	ND	92	ND	71	1	Q2P41545
Dieldrin	ND	98	ND	81	1	Q2P41545
Endosulfan sulfate	ND	98	ND	84	2	Q2P41545
Endosulfan I	ND	93	ND	88	1	Q2P41545
Endosulfan II	ND	96	ND	88	2	Q2P41545
Endrin	ND	98	ND	85	1	Q2P41545
Endrin aldehyde	ND	82	ND	74	1	Q2P41545
Endrin ketone	ND	97	ND	79	1	Q2P41545
Gamma-BHC	ND	89	ND	69	1	Q2P41545
Heptachlor	ND	94	ND	84	2	Q2P41545
Heptachlor epoxide	ND	96	ND	90	1	Q2P41545
Methoxychlor	ND	95	ND	95	10	Q2P41545

## BTXE VOLATILE ANALYSIS, GC, (GV33)

Benzene	ND	98	ND	89	19	Q2W3957
Ethylbenzene	ND	96	ND	89	18	Q2W3957
Toluene	ND	96	ND	91	20	Q2W3957
Xylenes	ND	98	ND	90	20	Q2W3957

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	90	ND	99	4	Q2T41547

# QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Acenaphthene	ND	67	ND	62	7	Q2C41530
Acenaphthylene	ND	75	ND	69	6	Q2C41530
Anthracene	ND	74	ND	72	6	Q2C41530
Benzidine	ND	11	ND	12	62	Q2C41530
Benzo (a) anthracene	ND	73	ND	71	3	Q2C41530
Benzo (b) fluoranthene	ND	73	ND	77	10	Q2C41530
Benzo (k) fluoranthene	ND	72	ND	82	4	Q2C41530
Benzo (ghi) perylene	ND	71	ND	42	6	Q2C41530
Benzo (a) pyrene	ND	71	ND	69	6	Q2C41530
bis (2-Chloroethyl) ether	ND	75	ND	62	13	Q2C41530
bis (2-Chloroethoxy) methane	ND	74	ND	64	12	Q2C41530
bis (2-Chloroisopropyl) ether	ND	66	ND	58	10	Q2C41530
bis (2-Ethylhexyl) phthalate	ND	70	ND	62	8	Q2C41530
4-Bromophenyl phenyl ether	ND	74	ND	70	7	Q2C41530
Butyl benzyl phthalate	ND	71	ND	74	5	Q2C41530
Carbazole	ND	78	ND	74	3	Q2C41530
4-Chloroaniline	ND	20	ND	25	5	Q2C41530
p-Chloro-m-cresol	ND	74	ND	67	7	Q2C41530
2-Chloronaphthalene	ND	70	ND	63	8	Q2C41530
2-Chlorophenol	ND	69	ND	58	13	Q2C41530
4-Chlorophenyl phenyl ether	ND	75	ND	70	4	Q2C41530
Chrysene	ND	72	ND	71	2	Q2C41530
Dibenzo (a, h) anthracene	ND	70	ND	45	6	Q2C41530
Dibenzofuran	ND	71	ND	67	5	Q2C41530
Di-n-butyl phthalate	ND	75	ND	71	4	Q2C41530
1,2-Dichlorobenzene	ND	67	ND	55	14	Q2C41530
1,3-Dichlorobenzene	ND	67	ND	53	14	Q2C41530
1,4-Dichlorobenzene	ND	67	ND	53	16	Q2C41530
3,3'-Dichlorobenzidine	ND	30	ND	29	5	Q2C41530
2,4-Dichlorophenol	ND	72	ND	64	12	Q2C41530
Diethyl phthalate	ND	74	ND	69	3	Q2C41530
Dimethyl phthalate	ND	76	ND	72	2	Q2C41530
2,4-Dimethylphenol	ND	72	ND	66	13	Q2C41530
4,6-Dinitro-o-cresol	ND	75	ND	65	5	Q2C41530
2,4-Dinitrophenol	ND	82	ND	43	13	Q2C41530
2,4-Dinitrotoluene	ND	74	ND	69	3	Q2C41530
2,6-Dinitrotoluene	ND	74	ND	71	2	Q2C41530
Di-n-octyl phthalate	ND	74	ND	100	16	Q2C41530
Fluoranthene	ND	75	ND	75	1	Q2C41530
Fluorene	ND	73	ND	68	4	Q2C41530
Hexachlorobenzene	ND	75	ND	71	6	Q2C41530
Hexachlorobutadiene	ND	67	ND	52	22	Q2C41530
Hexachlorocyclopentadiene	ND	52	ND	15	37	Q2C41530
Hexachloroethane	ND	67	ND	51	16	Q2C41530
Indeno (1,2,3-cd) pyrene	ND	71	ND	46	7	Q2C41530
Isophorone	ND	74	ND	65	11	Q2C41530
2-Methylnaphthalene	ND	73	ND	61	14	Q2C41530
2-Methylphenol	ND	67	ND	61	7	Q2C41530
4-Methylphenol	ND	67	ND	60	11	Q2C41530
N-Nitrosodimethylamine	ND	68	ND	57	9	Q2C41530

# QUALITY ASSURANCE DATA

## TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
N-Nitrosodi-n-propylamine	ND	75	ND	65	9	Q2C41530
N-Nitrosodiphenylamine	ND	77	ND	74	4	Q2C41530
Naphthalene	ND	70	ND	59	16	Q2C41530
3-Nitroaniline	ND	46	ND	46	2	Q2C41530
4-Nitroaniline	ND	72	ND	69	1	Q2C41530
Nitrobenzene	ND	69	ND	59	14	Q2C41530
2-Nitrophenol	ND	66	ND	56	10	Q2C41530
4-Nitrophenol	ND	87	ND	88	1	Q2C41530
Pentachlorophenol	ND	92	ND	103	2	Q2C41530
Phenanthrene	ND	74	ND	72	5	Q2C41530
Phenol	ND	66	ND	56	12	Q2C41530
Pyrene	ND	72	ND	78	6	Q2C41530
Pyridine	ND	40	ND	40	1	Q2C41530
1,2,4-Trichlorobenzene	ND	69	ND	56	17	Q2C41530
2,4,5-Trichlorophenol	ND	70	ND	71	4	Q2C41530
2,4,6-Trichlorophenol	ND	77	ND	74	6	Q2C41530

3-Methyl- and 4-Methylphenol coelute and are reported as the total

**QUALITY ASSURANCE DATA  
SURROGATE SUMMARY REPORT**

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q2C41530 Solid (Semi-Volatile organics by MS)							
<b>SAMPLE ID</b>							
BLANK	58	65	84	62	62	67	0
BLANK SPIKE	60	62	89	61	61	64	0
EX1435C	44	48	52	44	59	51	0
EXSA56AC	62	65	60	53	59	64	0
EXSA56BC	55	59	60	51	59	60	0
SBAR61MNC MD	58	59	87	62	58	65	0
SBAR61MNC MS	53	53	84	54	52	63	0
<b>QC LIMITS</b>	(25-121) (24-113) (19-122) (23-120) (30-115) (18-137)						

SURROGATE ID	B816	A500	# OUT
QC BATCH: Q2P41545 Solid (Pesticide compounds by GC)			
<b>SAMPLE ID</b>			
BLANK	50	79	0
BLANK SPIKE	78	81	0
EX1435C	60	85	0
EXSA56AC	79	100	0
EXSA56AC MD	66	88	0
EXSA56AC MS	68	87	0
EXSA56BC	66	89	0
<b>QC LIMITS</b>	(30-130) (30-130)		

SURROGATE ID	A228	# OUT
QC BATCH: Q2W3957 Solid (Volatile organics by GC)		
<b>SAMPLE ID</b>		
AST-1 MD	79	0
AST-1 MS	93	0
BLANK	102	0
BLANK SPIKE	99	0
EX1435G	103	0
EXSA56AG	78	0
EXSA56BG	75	0
<b>QC LIMITS</b>	(30-130)	

**SURROGATE ID**

A159 = 2-Fluorophenol  
 B732 = Phenol-D6  
 A121 = 2,4,6-Tribromophenol  
 A884 = Nitrobenzene-D5  
 A158 = 2-Fluorobiphenyl  
 B142 = Terphenyl-D14  
 A228 = a,a,a-Trifluorotoluene  
 B816 = 2,4,5,6-Tetrachloro-m-xylene  
 A500 = Decachlorobiphenyl

\* Values outside of method quality control limits

D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



HIM Corporation

## CHAIN-OF-CUSTODY RECORD

Form 0012  
File Technical Services  
Rev. 08/89

No. 107707

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>FORT DEVENS</b>		PROJECT LOCATION <b>AYER MA</b>		NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)	<div style="text-align: center;"> <b>TRPH</b>  <b>BNA (TOTAL)</b>  <b>VOLATILES</b>  <b>METALS</b>  <b>Pesticides</b>  <b>PCB'S</b>  <b>8080 (POS)</b> </div>										REMARKS		
PROJ. NO. <b>16208</b>	PROJECT CONTACT <b>MIKE QUINLAN / MARGIE BLEAU</b>	PROJECT TELEPHONE NO.	CLIENT'S REPRESENTATIVE <b>TOM BEST (USACE)</b>														PROJECT MANAGER/SUPERVISOR <b>BILL SNOW</b>	
SAMPLE NUMBER	DATE	TIME	COMP														GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)
EXSA56AC	10-20 94	929	✓		Grey, Brown, Clay Sand mixture	5 x 40z Amber	✓	✓		✓	✓	✓						
EXSA56AG	10-20 94	925		✓	Grey, Brown, Clay Sand mixture	2 x 40ml VOA			✓									
EXSA56BC	10-20 94	945	✓		Grey, Brown Clay Sand Mixture	5 x 40z Amber	✓	✓		✓	✓	✓						
EXSA56BG	10-20 94	940		✓	Grey, Brown Clay Sand Mixture	2 x 40ml VOA			✓									
EX1435C	10-20 94	1100	✓		Gold Sand with odor	5 x 40z Amber	✓	✓		✓	✓	✓						
EX1435G	10-20 94	1115		✓	Gold Sand with mixed grains	2 x 40ml VOA			✓									
TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY		TRANSFERS ACCEPTED BY		DATE	TIME	REMARKS										
1	1-6	William Dale		1944570180 FEDERAL EXPRESS AIRBIL		10-20 94	1530	* Preserved at 4°C Celsius										
2	1-6	Fed Ex #1944570180		[Signature]		10/21/94	1010	* <u>30</u> DAY TAT										
3								* TEMPERATURE BLANK INCLUDED										
4								SAMPLER'S SIGNATURE William Dale										

LAB COPY



Form 0010  
Field Technical Services  
Rev. 08/89

No. 107707

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

LAB COPY



Analytical Services Corp.

## ANALYTICAL REPORT

**Client:** OHM Remediation Services Corporation  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional, Metal and Organics

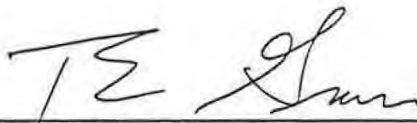
**Date Sample Received:** October 25, 1994

**Date Order Received:** October 25, 1994

**Joblink(s):** 616912

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Analytical Services Corporation assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:



Thomas E. Gran, Ph.D., Vice President

Date: November 1, 1994

## PROJECT NARRATIVE

---

The following items relate to the samples and analytical data contained in this report.

- o All sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o **ASC** will retain samples for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.
- o Elevated detection limits for the semi-volatile organics analysis due to matrix interferences. Due to the high level of bis-(2-ethylhexyl)phthalate in the unspiked sample, the matrix spike recoveries for this batch were unrecoverable. RPD values were outside QC levels due to possible sample non-homogeneity.
- o Valid Lead spike recoveries could not be reported due to the high level present in the unspiked sample. Batch acceptance is based on acceptable method spike recovery.

**APPENDIX A**  
**DATA SUMMARY REPORT**

NOTE: The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

# DATA SUMMARY REPORT

DATE: 10/28/94

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56P1C	EXSA56P1G	EXSA56P2C	EXSA56P2G
ASC Sample Number:	JN3715	JN3717	JN3716	JN3718
Sample Date:	941024	941024	941024	941024
Facility Code:	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Conventional Data (CV10)

Solids, Total	%	91.7	89.1	88.4	87.2
---------------	---	------	------	------	------

Sample Point ID:	EXSA56P1G	EXSA56P2G
ASC Sample Number:	JN3717	JN3718
Sample Date:	941024	941024
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## BTXE Volatile Analysis, GC, (GV33)

Benzene	mg/kg	<.001	<.001
Ethylbenzene	mg/kg	<.001	<.001
Toluene	mg/kg	<.001	<.001
Xylenes	mg/kg	.002	.002

Sample Point ID:	EXSA56P1C	EXSA56P2C
ASC Sample Number:	JN3715	JN3716
Sample Date:	941024	941024
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## Total Petroleum Hydrocarbon Analysis, IR (IR00)

Petroleum Hydrocarbons (IR)	mg/kg	50.4	616
-----------------------------	-------	------	-----

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Acenaphthene	mg/kg	<.360	<3.66
Acenaphthylene	mg/kg	<.360	<3.66
Anthracene	mg/kg	<.360	<3.66
Benzidine	mg/kg	<.360	<3.66
Benzo(a)anthracene	mg/kg	<.360	<3.66
Benzo(b)fluoranthene	mg/kg	<.360	<3.66

# DATA SUMMARY REPORT

DATE: 10/28/94

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56P1C	EXSA56P2C
ASC Sample Number:	JN3715	JN3716
Sample Date:	941024	941024
Facility Code:	016208C	016208C

Parameters	Units
------------	-------

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Benzo(k)fluoranthene	mg/kg	<.360	<3.66
Benzo(ghi)perylene	mg/kg	<.360	<3.66
Benzo(a)pyrene	mg/kg	<.360	<3.66
bis(2-Chloroethyl) ether	mg/kg	<.360	<3.66
bis(2-Chloroethoxy)methane	mg/kg	<.360	<3.66
bis(2-Chloroisopropyl)ether	mg/kg	<.360	<3.66
bis(2-Ethylhexyl)phthalate	mg/kg	3.24	<3.66
4-Bromophenyl phenyl ether	mg/kg	<.360	<3.66
Butyl benzyl phthalate	mg/kg	<.360	<3.66
Carbazole	mg/kg	<.360	<3.66
4-Chloroaniline	mg/kg	<.360	<3.66
p-Chloro-m-cresol	mg/kg	<.360	<3.66
2-Chloronaphthalene	mg/kg	<.360	<3.66
2-Chlorophenol	mg/kg	<.360	<3.66
4-Chlorophenyl phenyl ether	mg/kg	<.360	<3.66
Chrysene	mg/kg	<.360	<3.66
Dibenzo(a,h)anthracene	mg/kg	<.360	<3.66
Dibenzofuran	mg/kg	<.360	<3.66
Di-n-butyl phthalate	mg/kg	<.360	<3.66
1,2-Dichlorobenzene	mg/kg	<.360	<3.66
1,3-Dichlorobenzene	mg/kg	<.360	<3.66
1,4-Dichlorobenzene	mg/kg	<.360	<3.66
3,3'-Dichlorobenzidine	mg/kg	<.360	<3.66
2,4-Dichlorophenol	mg/kg	<.360	<3.66
Diethyl phthalate	mg/kg	<.360	<3.66
Dimethyl phthalate	mg/kg	<.360	<3.66
2,4-Dimethylphenol	mg/kg	<.360	<3.66
4,6-Dinitro-o-cresol	mg/kg	<.899	<9.16
2,4-Dinitrophenol	mg/kg	<1.80	<18.3
2,4-Dinitrotoluene	mg/kg	<.360	<3.66
2,6-Dinitrotoluene	mg/kg	<.360	<3.66
Di-n-octyl phthalate	mg/kg	<.360	<3.66
Fluoranthene	mg/kg	<.360	<3.66
Fluorene	mg/kg	<.360	<3.66
Hexachlorobenzene	mg/kg	<.360	<3.66

# DATA SUMMARY REPORT

DATE: 10/28/94

PAGE: 3

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: EXSA56P1C EXSA56P2C  
 ASC Sample Number: JN3715 JN3716  
 Sample Date: 941024 941024  
 Facility Code: 016208C 016208C

Parameters Units

## Total Base/Neutral/Acid Analysis, MS, (MS02)

Hexachlorobutadiene	mg/kg	<.360	<3.66
Hexachlorocyclopentadiene	mg/kg	<.360	<3.66
Hexachloroethane	mg/kg	<.360	<3.66
Indeno(1,2,3-cd)pyrene	mg/kg	<.360	<3.66
Isophorone	mg/kg	<.360	<3.66
2-Methylnaphthalene	mg/kg	<.360	<3.66
2-Methylphenol	mg/kg	<.360	<3.66
4-Methylphenol	mg/kg	<.360	<3.66
N-Nitrosodimethylamine	mg/kg	<.360	<3.66
N-Nitrosodi-n-propylamine	mg/kg	<.360	<3.66
N-Nitrosodiphenylamine	mg/kg	<.360	<3.66
Naphthalene	mg/kg	<.360	<3.66
2-Nitroaniline	mg/kg	<.360	<3.66
3-Nitroaniline	mg/kg	<.360	<3.66
4-Nitroaniline	mg/kg	<.360	<3.66
Nitrobenzene	mg/kg	<.360	<3.66
2-Nitrophenol	mg/kg	<.360	<3.66
4-Nitrophenol	mg/kg	<1.80	<18.3
Pentachlorophenol	mg/kg	<.360	<3.66
Phenanthrene	mg/kg	<.360	<3.66
Phenol	mg/kg	<.360	<3.66
Pyrene	mg/kg	<.360	<3.66
Pyridine	mg/kg	<.360	<3.66
1,2,4-Trichlorobenzene	mg/kg	<.360	<3.66
2,4,5-Trichlorophenol	mg/kg	<.360	<3.66
2,4,6-Trichlorophenol	mg/kg	<.360	<3.66

**APPENDIX B**  
**QUANTITATIVE RESULTS**

### CONVENTIONAL DATA (CV10)

Company Name

## Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P1C

JN3715

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	91.7	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P2C

JN3716

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	88.4	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P1G

JN3717

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	89.1	.100	-	

### CONVENTIONAL DATA (CV10)

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

**EXSA56P2G**

JN3718

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	87.2	.100	-	

# BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P1G

JN3717

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3966
Ethylbenzene	ND	.001	ND	Q2W3966
Toluene	ND	.001	ND	Q2W3966
Xylenes	.002	.001	ND	Q2W3966

BTXE VOLATILE ANALYSIS, GC, (GV33)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P2G

JN3718

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Benzene	ND	.001	ND	Q2W3966
Ethylbenzene	ND	.001	ND	Q2W3966
Toluene	ND	.001	ND	Q2W3966
Xylenes	.002	.001	ND	Q2W3966

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P1C

JN3715

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	50.4	7.19	ND	Q2T41561

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P2C

JN3716

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Petroleum Hydrocarbons (IR)	616	37.1	ND	Q2T41561

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56P1C	JN3715

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	.360	ND	Q2C41557
Acenaphthylene	ND	.360	ND	Q2C41557
Anthracene	ND	.360	ND	Q2C41557
Benzidine	ND	.360	ND	Q2C41557
Benzo(a)anthracene	ND	.360	ND	Q2C41557
Benzo(b)fluoranthene	ND	.360	ND	Q2C41557
Benzo(k)fluoranthene	ND	.360	ND	Q2C41557
Benzo(ghi)perylene	ND	.360	ND	Q2C41557
Benzo(a)pyrene	ND	.360	ND	Q2C41557
bis(2-Chloroethyl) ether	ND	.360	ND	Q2C41557
bis(2-Chloroethoxy)methane	ND	.360	ND	Q2C41557
bis(2-Chloroisopropyl)ether	ND	.360	ND	Q2C41557
bis(2-Ethylhexyl)phthalate	3.24	.360	ND	Q2C41557
4-Bromophenyl phenyl ether	ND	.360	ND	Q2C41557
Butyl benzyl phthalate	ND	.360	ND	Q2C41557
Carbazole	ND	.360	ND	Q2C41557
4-Chloroaniline	ND	.360	ND	Q2C41557
p-Chloro-m-cresol	ND	.360	ND	Q2C41557
2-Chloronaphthalene	ND	.360	ND	Q2C41557
2-Chlorophenol	ND	.360	ND	Q2C41557
4-Chlorophenyl phenyl ether	ND	.360	ND	Q2C41557
Chrysene	ND	.360	ND	Q2C41557
Dibenzo(a,h)anthracene	ND	.360	ND	Q2C41557
benzofuran	ND	.360	ND	Q2C41557
n-butyl phthalate	ND	.360	ND	Q2C41557
1,2-Dichlorobenzene	ND	.360	ND	Q2C41557
1,3-Dichlorobenzene	ND	.360	ND	Q2C41557
1,4-Dichlorobenzene	ND	.360	ND	Q2C41557
3,3'-Dichlorobenzidine	ND	.360	ND	Q2C41557
2,4-Dichlorophenol	ND	.360	ND	Q2C41557
Diethyl phthalate	ND	.360	ND	Q2C41557
Dimethyl phthalate	ND	.360	ND	Q2C41557
2,4-Dimethylphenol	ND	.360	ND	Q2C41557
4,6-Dinitro-o-cresol	ND	.899	ND	Q2C41557
2,4-Dinitrophenol	ND	1.80	ND	Q2C41557
2,4-Dinitrotoluene	ND	.360	ND	Q2C41557
2,6-Dinitrotoluene	ND	.360	ND	Q2C41557
Di-n-octyl phthalate	ND	.360	ND	Q2C41557
Fluoranthene	ND	.360	ND	Q2C41557
Fluorene	ND	.360	ND	Q2C41557
Hexachlorobenzene	ND	.360	ND	Q2C41557
Hexachlorobutadiene	ND	.360	ND	Q2C41557
Hexachlorocyclopentadiene	ND	.360	ND	Q2C41557
Hexachloroethane	ND	.360	ND	Q2C41557
Indeno(1,2,3-cd)pyrene	ND	.360	ND	Q2C41557
Isophorone	ND	.360	ND	Q2C41557
2-Methylnaphthalene	ND	.360	ND	Q2C41557
2-Methylphenol	ND	.360	ND	Q2C41557
4-Methylphenol	ND	.360	ND	Q2C41557
N-Nitrosodimethylamine	ND	.360	ND	Q2C41557

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

**Company Name**

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56P1C

JN3715

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	.360	ND	Q2C41557
N-Nitrosodiphenylamine	ND	.360	ND	Q2C41557
Naphthalene	ND	.360	ND	Q2C41557
2-Nitroaniline	ND	.360	ND	Q2C41557
3-Nitroaniline	ND	.360	ND	Q2C41557
4-Nitroaniline	ND	.360	ND	Q2C41557
Nitrobenzene	ND	.360	ND	Q2C41557
2-Nitrophenol	ND	.360	ND	Q2C41557
4-Nitrophenol	ND	1.80	ND	Q2C41557
Pentachlorophenol	ND	.360	ND	Q2C41557
Phenanthrene	ND	.360	ND	Q2C41557
Phenol	ND	.360	ND	Q2C41557
Pyrene	ND	.360	ND	Q2C41557
Pyridine	ND	.360	ND	Q2C41557
1,2,4-Trichlorobenzene	ND	.360	ND	Q2C41557
2,4,5-Trichlorophenol	ND	.360	ND	Q2C41557
2,4,6-Trichlorophenol	ND	.360	ND	Q2C41557

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56P2C	JN3716

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Acenaphthene	ND	3.66	ND	Q2C41557
Acenaphthylene	ND	3.66	ND	Q2C41557
Anthracene	ND	3.66	ND	Q2C41557
Benzidine	ND	3.66	ND	Q2C41557
Benzo(a)anthracene	ND	3.66	ND	Q2C41557
Benzo(b)fluoranthene	ND	3.66	ND	Q2C41557
Benzo(k)fluoranthene	ND	3.66	ND	Q2C41557
Benzo(ghi)perylene	ND	3.66	ND	Q2C41557
Benzo(a)pyrene	ND	3.66	ND	Q2C41557
bis(2-Chloroethyl) ether	ND	3.66	ND	Q2C41557
bis(2-Chloroethoxy)methane	ND	3.66	ND	Q2C41557
bis(2-Chloroisopropyl)ether	ND	3.66	ND	Q2C41557
bis(2-Ethylhexyl)phthalate	ND	3.66	ND	Q2C41557
4-Bromophenyl phenyl ether	ND	3.66	ND	Q2C41557
Butyl benzyl phthalate	ND	3.66	ND	Q2C41557
Carbazole	ND	3.66	ND	Q2C41557
4-Chloroaniline	ND	3.66	ND	Q2C41557
p-Chloro-m-cresol	ND	3.66	ND	Q2C41557
2-Chloronaphthalene	ND	3.66	ND	Q2C41557
2-Chlorophenol	ND	3.66	ND	Q2C41557
4-Chlorophenyl phenyl ether	ND	3.66	ND	Q2C41557
Chrysene	ND	3.66	ND	Q2C41557
Dibenzo(a,h)anthracene	ND	3.66	ND	Q2C41557
Dibenzofuran	ND	3.66	ND	Q2C41557
1-n-butyl phthalate	ND	3.66	ND	Q2C41557
1,2-Dichlorobenzene	ND	3.66	ND	Q2C41557
1,3-Dichlorobenzene	ND	3.66	ND	Q2C41557
1,4-Dichlorobenzene	ND	3.66	ND	Q2C41557
3,3'-Dichlorobenzidine	ND	3.66	ND	Q2C41557
2,4-Dichlorophenol	ND	3.66	ND	Q2C41557
Diethyl phthalate	ND	3.66	ND	Q2C41557
Dimethyl phthalate	ND	3.66	ND	Q2C41557
2,4-Dimethylphenol	ND	3.66	ND	Q2C41557
4,6-Dinitro-o-cresol	ND	9.16	ND	Q2C41557
2,4-Dinitrophenol	ND	18.3	ND	Q2C41557
2,4-Dinitrotoluene	ND	3.66	ND	Q2C41557
2,6-Dinitrotoluene	ND	3.66	ND	Q2C41557
Di-n-octyl phthalate	ND	3.66	ND	Q2C41557
Fluoranthene	ND	3.66	ND	Q2C41557
Fluorene	ND	3.66	ND	Q2C41557
Hexachlorobenzene	ND	3.66	ND	Q2C41557
Hexachlorobutadiene	ND	3.66	ND	Q2C41557
Hexachlorocyclopentadiene	ND	3.66	ND	Q2C41557
Hexachloroethane	ND	3.66	ND	Q2C41557
Indeno(1,2,3-cd)pyrene	ND	3.66	ND	Q2C41557
Isophorone	ND	3.66	ND	Q2C41557
2-Methylnaphthalene	ND	3.66	ND	Q2C41557
2-Methylphenol	ND	3.66	ND	Q2C41557
4-Methylphenol	ND	3.66	ND	Q2C41557
N-Nitrosodimethylamine	ND	3.66	ND	Q2C41557

# TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56P2C	JN3716

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
N-Nitrosodi-n-propylamine	ND	3.66	ND	Q2C41557
N-Nitrosodiphenylamine	ND	3.66	ND	Q2C41557
Naphthalene	ND	3.66	ND	Q2C41557
2-Nitroaniline	ND	3.66	ND	Q2C41557
3-Nitroaniline	ND	3.66	ND	Q2C41557
4-Nitroaniline	ND	3.66	ND	Q2C41557
Nitrobenzene	ND	3.66	ND	Q2C41557
2-Nitrophenol	ND	3.66	ND	Q2C41557
4-Nitrophenol	ND	18.3	ND	Q2C41557
Pentachlorophenol	ND	3.66	ND	Q2C41557
Phenanthrene	ND	3.66	ND	Q2C41557
Phenol	ND	3.66	ND	Q2C41557
Pyrene	ND	3.66	ND	Q2C41557
Pyridine	ND	3.66	ND	Q2C41557
1,2,4-Trichlorobenzene	ND	3.66	ND	Q2C41557
2,4,5-Trichlorophenol	ND	3.66	ND	Q2C41557
2,4,6-Trichlorophenol	ND	3.66	ND	Q2C41557

3-Methyl- and 4-Methylphenol coelute and are reported as the total

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

## SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 616912

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REFERENCE		TITLE
<hr/>		
160.3	CAWW	Residue, Total, Gravimetric, Dried at 103-105 C
418.1	MCAWW	Petroleum Hydrocarbons, Total Recoverable
8020	SW-846	Aromatic Volatile Organics by GC
8270	SW-846	GC/MS for Semivolatile Organics: Capillary Column Technique

## METHODOLOGY REFERENCES

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ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-600	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

BTXE VOLATILE ANALYSIS, GC, (GV33)

[illegible]

## TOTAL PETROLEUM HYDROCARBON ANALYSIS, IR (IR00)

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Petroleum Hydrocarbons (IR)	ND	85	50.4	83	8	Q2T41561

**QUALITY ASSURANCE DATA**

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Acenaphthene	ND	76	ND	65	31	Q2C41557
Acenaphthylene	ND	86	ND	73	24	Q2C41557
Anthracene	ND	84	ND	72	35	Q2C41557
Benzo(a)anthracene	ND	84	ND	78	28	Q2C41557
Benzo(b)fluoranthene	ND	82	ND	49	53	Q2C41557
Benzo(k)fluoranthene	ND	84	ND	99	25	Q2C41557
Benzo(ghi)perylene	ND	84	ND	69	29	Q2C41557
Benzo(a)pyrene	ND	75	ND	67	33	Q2C41557
bis(2-Chloroethyl) ether	ND	84	ND	71	41	Q2C41557
bis(2-Chloroethoxy)methane	ND	75	ND	71	35	Q2C41557
bis(2-Chloroisopropyl)ether	ND	77	ND	65	43	Q2C41557
bis(2-Ethylhexyl)phthalate	ND	127	3.24	.6	196	Q2C41557
4-Bromophenyl phenyl ether	ND	77	ND	70	35	Q2C41557
Butyl benzyl phthalate	ND	85	ND	73	29	Q2C41557
Carbazole	ND	89	ND	78	36	Q2C41557
4-Chloroaniline	ND	35	ND	46	3	Q2C41557
p-Chloro-m-cresol	ND	72	ND	67	36	Q2C41557
2-Chloronaphthalene	ND	78	ND	67	31	Q2C41557
2-Chlorophenol	ND	73	ND	61	46	Q2C41557
4-Chlorophenyl phenyl ether	ND	85	ND	76	28	Q2C41557
Chrysene	ND	86	ND	80	30	Q2C41557
Dibenzo(a,h)anthracene	ND	80	ND	70	30	Q2C41557
Dibenzofuran	ND	80	ND	67	28	Q2C41557
Di-n-butyl phthalate	ND	84	ND	72	33	Q2C41557
1,2-Dichlorobenzene	ND	71	ND	62	40	Q2C41557
3-Dichlorobenzene	ND	73	ND	61	42	Q2C41557
4-Dichlorobenzene	ND	73	ND	62	42	Q2C41557
1,3'-Dichlorobenzidine	ND	37	ND	30	3	Q2C41557
2,4-Dichlorophenol	ND	70	ND	69	32	Q2C41557
Diethyl phthalate	ND	85	ND	71	31	Q2C41557
Dimethyl phthalate	ND	87	ND	77	28	Q2C41557
2,4-Dimethylphenol	ND	45	ND	46	26	Q2C41557
4,6-Dinitro-o-cresol	ND	88	ND	75	33	Q2C41557
2,4-Dinitrophenol	ND	91	ND	75	30	Q2C41557
2,4-Dinitrotoluene	ND	84	ND	70	26	Q2C41557
2,6-Dinitrotoluene	ND	90	ND	74	31	Q2C41557
Di-n-octyl phthalate	ND	85	ND	74	33	Q2C41557
Fluoranthene	ND	80	ND	75	37	Q2C41557
Fluorene	ND	82	ND	71	29	Q2C41557
Hexachlorobenzene	ND	80	ND	70	36	Q2C41557
Hexachlorobutadiene	ND	67	ND	62	42	Q2C41557
Hexachloroethane	ND	69	ND	60	40	Q2C41557
Indeno(1,2,3-cd)pyrene	ND	81	ND	68	32	Q2C41557
Isophorone	ND	73	ND	71	31	Q2C41557
2-Methylnaphthalene	ND	72	ND	68	36	Q2C41557
2-Methylphenol	ND	68	ND	62	37	Q2C41557
4-Methylphenol	ND	70	ND	63	43	Q2C41557
N-Nitrosodimethylamine	ND	69	ND	58	35	Q2C41557
N-Nitrosodi-n-propylamine	ND	79	ND	69	40	Q2C41557
N-Nitrosodiphenylamine	ND	80	ND	68	33	Q2C41557

**QUALITY ASSURANCE DATA**

**TOTAL BASE/NEUTRAL/ACID ANALYSIS, MS, (MS02)**

Compounds	Blank Results mg/kg	Blank Spike Recov	Unspiked Sample Results mg/kg	Matrix Spike Recov	Relative Percent Diff	Batch Number
Naphthalene	ND	70	ND	68	31	Q2C41557
3-Nitroaniline	ND	60	ND	61	17	Q2C41557
4-Nitroaniline	ND	85	ND	68	18	Q2C41557
Nitrobenzene	ND	69	ND	65	35	Q2C41557
2-Nitrophenol	ND	68	ND	63	34	Q2C41557
4-Nitrophenol	ND	92	ND	71	24	Q2C41557
Pentachlorophenol	ND	98	ND	81	27	Q2C41557
Phenanthrene	ND	84	ND	74	35	Q2C41557
Phenol	ND	69	ND	63	40	Q2C41557
Pyrene	ND	87	ND	79	33	Q2C41557
Pyridine	ND	48	ND	39	46	Q2C41557
1,2,4-Trichlorobenzene	ND	70	ND	69	30	Q2C41557
2,4,5-Trichlorophenol	ND	86	ND	74	34	Q2C41557
2,4,6-Trichlorophenol	ND	76	ND	68	33	Q2C41557

3-Methyl- and 4-Methylphenol coelute and are reported as the total  
- The RPD of replicate matrix spikes is not within two standard deviations of our data base average, indicating possible sample nonhomogeneity with respect to this analyte.

# QUALITY ASSURANCE DATA SURROGATE SUMMARY REPORT

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q2C41557 Solid (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	68	72	73	75	71	70	0
BLANK SPIKE	70	72	80	75	75	74	0
EXSA56P1C	52	57	59	58	58	57	0
EXSA56P1C MD	91	97	93	96	90	92	0
EXSA56P1C MS	61	63	70	67	65	67	0
EXSA56P2C	110 D	135 D	100 D	120 D	114 D	104 D	0
QC LIMITS	(25-121)	(24-113)	(19-122)	(23-120)	(30-115)	(18-137)	

SURROGATE ID	A228	# OUT
QC BATCH: Q2W3966 Solid (Volatile organics by GC)		
SAMPLE ID		
BLANK	99	0
BLANK SPIKE	100	0
EXSA49PCG MD	53	0
EXSA49PCG MS	47	0
EXSA56P1G	81	0
EXSA56P2G	84	0
QC LIMITS	(30-130)	

## SURROGATE ID

A159 = 2-Fluorophenol  
 B732 = Phenol-D6  
 A121 = 2,4,6-Tribromophenol  
 A884 = Nitrobenzene-D5  
 A158 = 2-Fluorobiphenyl  
 B142 = Terphenyl-D14  
 A228 = a,a,a-Trifluorotoluene

\* Values outside of method quality control limits

D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



OHM Corporation

## CHAIN-OF-CUSTODY RECORD

Form 0015  
Technical Services  
Rev. 08/89

No. 107709

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>Ft Devers</b>						PROJECT LOCATION <b>Axon Mo</b>						NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)									
PROJ. NO. <b>16208</b>		PROJECT CONTACT <b>Mike Cernick</b>				PROJECT TELEPHONE NO. <b>776-2011</b>							<div style="text-align: center;"> <b>BWA-Galilist</b>  <b>IRPH</b>  <b>BTX</b> </div>									
CLIENT'S REPRESENTATIVE <b>Tom Best USAF</b>						PROJECT MANAGER/SUPERVISOR <b>Bill Snow</b>																
ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)													REMARKS			
1	EXSA56 P1C	10.24.94	1135	/		Ex pile 1 composite, gold grey clay, lots of cobble	2X402	✓	✓													
2	EXSA56 P2C	"	1159	/		Ex pile 2 composite gold grey clay, lots of cobble	"	✓	✓													
3	EXSA56 P3C	"	1140	/		Ex pile 1 grade, gold grey clay, lots of cobble	2X401			✓												
4	EXSA56 P2C	"	1148	/		Ex pile 2 grade gold grey clay, lots of cobble	2X401			✓												
5																						
6																						
7																						
8																						
9																						
10																						

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	10.24.94 1-4	WHL DL	Feed Ex Airbill - 1944520865	10.24 94	1700	• 3 day TAT • preserved at 4°C • Temp blank included
2	1-4	Feed X	M. Kaskaberg	10/25/94	1001	
3						
4						

SAMPLER'S SIGNATURE *WHL DL*

LAB COPY



OHM Remediation  
Services Corp.

A Subsidiary of OHM Corporation

## ANALYTICAL DIVISION

### Laboratory Analysis Report

**Client:** OHM Remediation Services Corp.  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional and RCRA TCLP Leachate Parameters

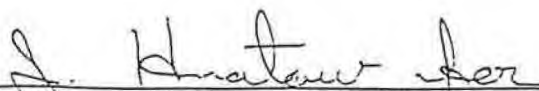
**Date Sample Received:** December 16, 1994

**Date Order Received:** December 16, 1994

**Joblink(s):** 617283

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. OHM Remediation Services Corp., Analytical Division, assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

  
Thomas E. Gran, Ph.D., Vice President

Date: January 18, 1995

## PROJECT NARRATIVE

---

The following items relate to the samples and analytical data contained in this report.

- o All solid sample results are reported on an as received "wet weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o Samples will be retained for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.
- o Surrogate compounds were not added to the method spike for the TCLP Semi-volatile Organics Batch #Q7C41884. All spike recoveries, sample and method blank surrogate recoveries met method criteria, therefore, the batch was accepted. This anomaly will not impact the validity of the data reported.

**APPENDIX A**

**DATA SUMMARY REPORT**

NOTE: The Tentatively Identified Volatile (GC/MS) Screen result(s), if applicable, is included in Appendix B.

# DATA SUMMARY REPORT

DATE: 01/10/95

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56-1C	EXSA56-2C	EXSA56-3C	EXSA56-4C	EXSA56DUPC
ASC Sample Number:	JN6329	JN6330	JN6331	JN6332	JN6333
Sample Date:	941215	941215	941215	941215	941215
Facility Code:	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## Conventional Data (CV10)

Flash Point, Seta Flash	Deg C	>93	>93	>93	>93	>93
Reactive Cyanide	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0
Reactive Sulfide	mg/kg	<20.0	40.2	<20.0	<20.0	<20.0
pH (Electrode)	std	6.91	6.67	6.58	6.62	6.52

## ERA TCLP Leachate Herbicide Analysis, GC, (GS52)

2,4-D	mg/L	<.250	<.250	<.250	<.250	<.250
2,4,5-TP (Silvex)	mg/L	<.250	<.250	<.250	<.250	<.250

## ERA TCLP Leachate Pesticide Analysis, GC, (GS54)

Alordane	mg/L	<.020	<.020	<.020	<.020	<.020
Adrin	mg/L	<.002	<.002	<.002	<.002	<.002
Heptachlor	mg/L	<.002	<.002	<.002	<.002	<.002
Heptachlor epoxide	mg/L	<.002	<.002	<.002	<.002	<.002
Endane	mg/L	<.002	<.002	<.002	<.002	<.002
Chloroxychlor	mg/L	<.002	<.002	<.002	<.002	<.002
Oxaphene	mg/L	<.040	<.040	<.040	<.040	<.040

## ERA TCLP Leachate Metals Analysis, (ME52)

Arsenic	mg/L	<.100	<.100	<.100	<.100	<.100
Barium	mg/L	.444	.391	.332	.378	.323
Cadmium	mg/L	<.005	<.005	<.005	<.005	<.005
Chromium	mg/L	<.020	<.020	<.020	<.020	<.020
Lead	mg/L	<.100	<.100	<.100	<.100	.444
Mercury	mg/L	<.001	<.001	<.001	<.001	<.001
Selenium	mg/L	<.100	<.100	<.100	<.100	<.100
Silver	mg/L	<.020	<.020	<.020	.022	.021
Copper	mg/L	<.020	<.020	<.020	<.020	<.020
Zinc	mg/L	<.200	<.200	<.200	<.200	<.200

# DATA SUMMARY REPORT

DATE: 01/10/95

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56-1C	EXSA56-2C	EXSA56-3C	EXSA56-4C	EXSA56DUPC
ASC Sample Number:	JN6329	JN6330	JN6331	JN6332	JN6333
Sample Date:	941215	941215	941215	941215	941215
Facility Code:	016208C	016208C	016208C	016208C	016208C

Parameters	Units
------------	-------

## CRA TCLP Leachate Base/Neutral/Acid Analysis, MS, (MS52)

2,4-Dinitrotoluene	mg/L	<.100	<.100	<.100	<.100	<.100
Hexachlorobenzene	mg/L	<.100	<.100	<.100	<.100	<.100
Hexachloroethane	mg/L	<.100	<.100	<.100	<.100	<.100
Hexachlorobutadiene	mg/L	<.100	<.100	<.100	<.100	<.100
p-Methylphenol	mg/L	<.100	<.100	<.100	<.100	<.100
m-Methylphenol	mg/L	<.100	<.100	<.100	<.100	<.100
o-Toluenes	mg/L	<.100	<.100	<.100	<.100	<.100
o-Chlorophenol	mg/L	<.100	<.100	<.100	<.100	<.100
Pyridine	mg/L	<.100	<.100	<.100	<.100	<.100
2,4,5-Trichlorophenol	mg/L	<.100	<.100	<.100	<.100	<.100
2,4,6-Trichlorophenol	mg/L	<.100	<.100	<.100	<.100	<.100

## CRA TCLP Leachate (ZHE) Volatile Analysis, MS, (MV50)

Benzene	mg/L	<.125	<.125	<.125	<.125	<.125
Carbon tetrachloride	mg/L	<.125	<.125	<.125	<.125	<.125
Chlorobenzene	mg/L	<.125	<.125	<.125	<.125	<.125
Chloroform	mg/L	<.125	<.125	<.125	<.125	<.125
1,4-Dichlorobenzene	mg/L	<.125	<.125	<.125	<.125	<.125
1,2-Dichloroethane	mg/L	<.125	<.125	<.125	<.125	<.125
1,1-Dichloroethylene	mg/L	<.125	<.125	<.125	<.125	<.125
Methyl ethyl ketone	mg/L	<.125	<.125	<.125	<.125	<.125
Tetrachloroethylene	mg/L	<.125	<.125	<.125	<.125	<.125
Trichloroethylene	mg/L	<.125	<.125	<.125	<.125	<.125
Vinyl chloride	mg/L	<.125	<.125	<.125	<.125	<.125

**APPENDIX B**  
**QUANTITATIVE RESULTS**

CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.91	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	40.2	20.0	ND	Q2I4067
pH (Electrode)	std	6.67	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.58	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.62	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

# CONVENTIONAL DATA (CV10)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56DUPC	JN6333

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.52	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.444	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.391	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-3C	JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.332	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.378	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	.022	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.323	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	.444	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	.021	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-1C	JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

# RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

# RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-1C	JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-2C	JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-3C	JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name Facility Sample Point ASC Sample No.  
OHM REMEDIATION SERVICES CORPORATION 016208C EXSA56-4C JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56DUPC	JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-1C	JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-2C	JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-3C	JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-4C	JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56DUPC	JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4113
Carbon tetrachloride	ND	.125	ND	Q7V4113
Chlorobenzene	ND	.125	ND	Q7V4113
Chloroform	ND	.125	ND	Q7V4113
1,4-Dichlorobenzene	ND	.125	ND	Q7V4113
1,2-Dichloroethane	ND	.125	ND	Q7V4113
1,1-Dichloroethylene	ND	.125	ND	Q7V4113
Methyl ethyl ketone	ND	.125	ND	Q7V4113
Tetrachloroethylene	ND	.125	ND	Q7V4113
Trichloroethylene	ND	.125	ND	Q7V4113
Vinyl chloride	ND	.125	ND	Q7V4113

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

# SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 617283

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REFERENCE	TITLE
1020	SW-846 Flash Point, Setaflash
1311	SW-846 Toxicity Characteristic Leaching Procedure
6010	SW-846 Inductively Coupled Plasma Atomic Emmision Spectroscopy
7470	SW-846 Mercury in Liquid Waste (Manual Cold-Vapor Technique)
8080	SW-846 Organochlorine Pesticides and/or PCBs
8150	SW-846 Chlorinated Herbicides
8240	SW-846 GC/MS for Volatile Organics
8270	SW-846 GC/MS for Semivolatile Organics: Capillary Column Technique
CLP 1.7.1.1	CLP pH, Electrode
SECTION 7.3.3.2	SW-846 Test Method to Determine HCN Released from Wastes
SECTION 7.3.4.2	SW-846 Test Method to Determine HS Released from Wastes

## METHODOLOGY REFERENCES

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ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-600	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work



# QUALITY ASSURANCE DATA

## RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Arsenic	ND	82	ND	85	1	Q7M5777
Barium	ND	84	.364	84	1	Q7M5777
Cadmium	ND	84	.019	86	1	Q7M5777
Chromium	ND	82	ND	83	1	Q7M5777
Lead	ND	81	ND	80	1	Q7M5777
Mercury	ND	99	ND	94	6	Q7G5795
Selenium	ND	77	ND	79	2	Q7M5777
Silver	ND	94	ND	81	1	Q7M5777
Copper	ND	81	.036	85	1	Q7M5777
Zinc	ND	81	ND	85	1	Q7M5777

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
2,4-D	ND	71	ND	60	16	Q7H41872A
2,4,5-TP (Silvex)	ND	102	ND	90	13	Q7H41872A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Chlordane	ND	109	ND	112	3	Q7P41892A
Endrin	ND	109	ND	128	15	Q7P41892A
Heptachlor	ND	92	ND	104	5	Q7P41892A
Heptachlor epoxide	ND	102	ND	106	5	Q7P41892A
Lindane	ND	63	ND	65	3	Q7P41892A
Methoxychlor	ND	88	ND	92	3	Q7P41892A

## RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
2,4-Dinitrotoluene	ND	82	ND	73	3	Q7C41884
Hexachlorobenzene	ND	82	ND	53	13	Q7C41884
Hexachloroethane	ND	58	ND	33	21	Q7C41884
Hexachlorobutadiene	ND	73	ND	35	22	Q7C41884
2-Methylphenol	ND	60	ND	64	2	Q7C41884
4-Methylphenol	ND	83	ND	75	6	Q7C41884
Nitrobenzene	ND	69	ND	62	1	Q7C41884
Pentachlorophenol	ND	73	ND	57	12	Q7C41884
Pyridine	ND	62	ND	59	1	Q7C41884
2,4,5-Trichlorophenol	ND	63	ND	32	4	Q7C41884
2,4,6-Trichlorophenol	ND	78	ND	69	2	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

## RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Benzene	ND	97	ND	99	9	Q7V4132
Carbon tetrachloride	ND	97	ND	100	13	Q7V4132
Chlorobenzene	ND	91	ND	90	5	Q7V4132
Chloroform	ND	97	ND	94	4	Q7V4132
1,4-Dichlorobenzene	ND	74	ND	80	6	Q7V4132
1,2-Dichloroethane	ND	99	ND	93	2	Q7V4132
1,1-Dichloroethylene	ND	90	ND	83	1	Q7V4132
Methyl ethyl ketone	ND	90	ND	82	0	Q7V4132
Tetrachloroethylene	ND	95	ND	93	7	Q7V4132
Trichloroethylene	ND	98	ND	99	7	Q7V4132
Vinyl chloride	ND	86	ND	79	5	Q7V4132

## RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Benzene	ND	95	ND	101	3	Q7V4113
Carbon tetrachloride	ND	97	ND	101	3	Q7V4113
Chlorobenzene	ND	91	ND	96	0	Q7V4113
Chloroform	ND	94	ND	98	3	Q7V4113
1,4-Dichlorobenzene	ND	80	ND	80	4	Q7V4113
1,2-Dichloroethane	ND	96	ND	104	2	Q7V4113
1,1-Dichloroethylene	ND	91	ND	84	6	Q7V4113
Methyl ethyl ketone	ND	91	ND	90	1	Q7V4113
Tetrachloroethylene	ND	90	ND	92	1	Q7V4113
Trichloroethylene	ND	95	ND	99	1	Q7V4113
Vinyl chloride	ND	84	ND	78	4	Q7V4113

QUALITY ASSURANCE DATA  
SURROGATE SUMMARY REPORT

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q7C41884 Leachate (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	66	57	103	74	78	16 *	1
BLANK SPIKE	0 *	0 *	0 *	0 *	0 *	0 *	6
EX1435-1C MD	68	60	87	70	68	65	0
EX1435-1C MS	74	65	93	76	76	68	0
EXSA56-1C	67	58	85	69	73	64	0
EXSA56-2C	88	79	118	94	100	82	0
EXSA56-3C	62	55	85	67	72	61	0
EXSA56-4C	58	54	81	67	70	60	0
EXSA56DUPC	71	62	94	74	81	67	0
QC LIMITS	(21-110)	(10-110)	(10-123)	(35-114)	(43-116)	(33-141)	

SURROGATE ID	F047	# OUT
QC BATCH: Q7H41872A Leachate (Herbicide compounds by GC)		
SAMPLE ID		
BLANK	59	0
BLANK SPIKE	100	0
EX1435-1C MD	130	0
EX1435-1C MS	99	0
EXSA56-1C	38	0
EXSA56-2C	76	0
EXSA56-3C	33	0
EXSA56-4C	81	0
EXSA56DUPC	75	0
QC LIMITS	(30-130)	

SURROGATE ID	B816	A500	# OUT
QC BATCH: Q7P41892A Leachate (Pesticide compounds by GC)			
SAMPLE ID			
BLANK	89	65	0
BLANK SPIKE	89	46	0
EX1435-1C MD	90	82	0
EX1435-1C MS	94	84	0
EXSA56-1C	86	75	0
EXSA56-2C	90	78	0
EXSA56-3C	83	80	0
EXSA56-4C	88	76	0
EXSA56DUPC	87	78	0
QC LIMITS	(30-130)	(30-130)	

SURROGATE ID	
A047 = 1,2-Dichloroethane-D4	A500 = Decachlorobiphenyl
B185 = Toluene-D8	F047 = 2,4-Dichlorophenylacetic-acid
B668 = Bromofluorobenzene	
A159 = 2-Fluorophenol	
B732 = Phenol-D6	
A121 = 2,4,6-Tribromophenol	
A884 = Nitrobenzene-D5	
A158 = 2-Fluorobiphenyl	
B142 = Terphenyl-D14	
B816 = 2,4,5,6-Tetrachloro-m-xylene	

\* Values outside of method quality control limits  
D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

QUALITY ASSURANCE DATA  
SURROGATE SUMMARY REPORT

SURROGATE ID	A047	B185	B668	# OUT
--------------	------	------	------	-------

QC BATCH: Q7V4113 Leachate (Volatile organics by MS)

**SAMPLE ID**

BLANK	102	96	96	0
BLANK SPIKE	103	98	97	0
EXSA56DUPC	101	99	104	0
WST05 MD	109	98	104	0
WST05 MS	107	96	99	0

QC LIMITS (70-121) (81-117) (74-121)

QC BATCH: Q7V4132 Leachate (Volatile organics by MS)

**SAMPLE ID**

BLANK	105	100	98	0
BLANK SPIKE	109	102	98	0
EX63BEDP2A MD	102	98	96	0
EX63BEDP2A MS	105	98	95	0
EXSA56-1C	104	103	100	0
EXSA56-2C	102	94	93	0
EXSA56-3C	102	99	94	0
EXSA56-4C	103	93	93	0

QC LIMITS (70-121) (81-117) (74-121)

SURROGATE ID

A047 = 1,2-Dichloroethane-D4	A500 = Decachlorobiphenyl
B185 = Toluene-D8	F047 = 2,4-Dichlorophenylacetic-acid
B668 = Bromofluorobenzene	
A159 = 2-Fluorophenol	
B732 = Phenol-D6	
A121 = 2,4,6-Tribromophenol	
A884 = Nitrobenzene-D5	
1158 = 2-Fluorobiphenyl	
1142 = Terphenyl-D14	
B816 = 2,4,5,6-Tetrachloro-m-xylene	

\* Values outside of method quality control limits

D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



OHM Corporation

## CHAIN-OF-CL BODY RECORD

Form 0019  
J Technical Services  
Rev. 08/99

No. 107747

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>Ft Devens</b>		PROJECT LOCATION <b>Ayer Ma</b>	
PROJ. NO. <b>16208</b>	PROJECT CONTACT <b>Mike Quinlan</b>	PROJECT TELEPHONE NO. <b>(508) 772-2019</b>	
CLIENT'S REPRESENTATIVE <b>Tim Coleman USALE</b>		PROJECT MANAGER/SUPERVISOR	

ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)	REMARKS
1	EX SA 56-1C	12.15 94	1150	✓		clods of clay, TPH small, some cobble, gold brown color	2	✓	
2	EX SA 56-2C		1205	✓		medium brown / grey clods of clay, lots of cobble	2	✓	
3	EX SA 56-3C		1230	✓		yellow brown clay, some sand lots of cobble	2	✓	
4	EX SA 56-4C		1253	✓		goldish brown sandy clay, lots of cobble	2	✓	
5	EX SA 56 DUC	✓	1253	✓		goldish brown sandy clay, lots of cobble	2	✓	
6									
7									
8									
9									
10									

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-5	<i>ENBlen</i>	Fed Ex A-11 2989315940	12.15 94	1900	• Temp blank included • 4°C
2	1-5	<i>Fed</i>	<i>M. Radabaugh</i>	12/16/94	1021	• 3 day TAT
3						
4						SAMPLER'S SIGNATURE <i>ENBlen</i>

LAB COPY



OHM Remediation  
Services Corp.

A Subsidiary of OHM Corporation

## ANALYTICAL DIVISION

### Laboratory Analysis Report

**Client:** OHM Remediation Services Corp.  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional and Metals

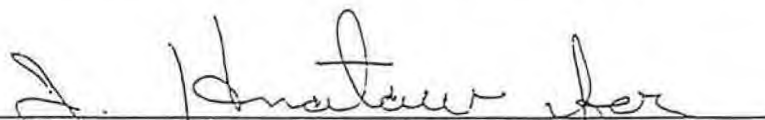
**Date Sample Received:** December 16, 1994

**Date Order Received:** January 12, 1995

**Joblink(s):** 617411

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Reviewed and  
Approved by:

  
Thomas E. Gran, Ph.D., Vice President

Date: January 23, 1995

## PROJECT NARRATIVE

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The following items relate to the samples and analytical data contained in this report.

- o All solid sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o Samples will be retained for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.91	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	40.2	20.0	ND	Q2I4067
pH (Electrode)	std	6.67	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.58	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.62	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Reactive Cyanide	mg/kg	ND	10.0	ND	Q2I4065
Reactive Sulfide	mg/kg	ND	20.0	ND	Q2I4067
pH (Electrode)	std	6.52	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-1C	JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.444	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.391	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.332	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	ND	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

# RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.378	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	ND	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	.022	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

## RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.100	ND	Q7M5777
Barium	.323	.100	ND	Q7M5777
Cadmium	ND	.005	ND	Q7M5777
Chromium	ND	.020	ND	Q7M5777
Lead	.444	.100	ND	Q7M5777
Mercury	ND	.001	ND	Q7G5795
Selenium	ND	.100	ND	Q7M5777
Silver	.021	.020	ND	Q7M5777
Copper	ND	.020	ND	Q7M5777
Zinc	ND	.200	ND	Q7M5777

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

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ASC Sample No.

JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE HERBICIDE ANALYSIS, GC, (GS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	Q7H41872A
2,4,5-TP (Silvex)	ND	.250	ND	Q7H41872A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-3C

JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN6332

[illegible]

# RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	Q7P41892A
Endrin	ND	.002	ND	Q7P41892A
Heptachlor	ND	.002	ND	Q7P41892A
Heptachlor epoxide	ND	.002	ND	Q7P41892A
Lindane	ND	.002	ND	Q7P41892A
Methoxychlor	ND	.002	ND	Q7P41892A
Toxaphene	ND	.040	ND	Q7P41892A

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-1C

JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-2C	JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-3C	JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-4C	JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56DUPC	JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	Q7C41884
Hexachlorobenzene	ND	.100	ND	Q7C41884
Hexachloroethane	ND	.100	ND	Q7C41884
Hexachlorobutadiene	ND	.100	ND	Q7C41884
2-Methylphenol	ND	.100	ND	Q7C41884
4-Methylphenol	ND	.100	ND	Q7C41884
Nitrobenzene	ND	.100	ND	Q7C41884
Pentachlorophenol	ND	.100	ND	Q7C41884
Pyridine	ND	.100	ND	Q7C41884
2,4,5-Trichlorophenol	ND	.100	ND	Q7C41884
2,4,6-Trichlorophenol	ND	.100	ND	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-1C	JN6329

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-2C	JN6330

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name	Facility	Sample Point	ASC Sample No.
OHM REMEDIATION SERVICES CORPORATION	016208C	EXSA56-3C	JN6331

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name Facility Sample Point ASC Sample No.  
OHM REMEDIATION SERVICES CORPORATION 016208C EXSA56-4C JN6332

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4132
Carbon tetrachloride	ND	.125	ND	Q7V4132
Chlorobenzene	ND	.125	ND	Q7V4132
Chloroform	ND	.125	ND	Q7V4132
1,4-Dichlorobenzene	ND	.125	ND	Q7V4132
1,2-Dichloroethane	ND	.125	ND	Q7V4132
1,1-Dichloroethylene	ND	.125	ND	Q7V4132
Methyl ethyl ketone	ND	.125	ND	Q7V4132
Tetrachloroethylene	ND	.125	ND	Q7V4132
Trichloroethylene	ND	.125	ND	Q7V4132
Vinyl chloride	ND	.125	ND	Q7V4132

# RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56DUPC

JN6333

Compounds	Sample Results mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	Q7V4113
Carbon tetrachloride	ND	.125	ND	Q7V4113
Chlorobenzene	ND	.125	ND	Q7V4113
Chloroform	ND	.125	ND	Q7V4113
1,4-Dichlorobenzene	ND	.125	ND	Q7V4113
1,2-Dichloroethane	ND	.125	ND	Q7V4113
1,1-Dichloroethylene	ND	.125	ND	Q7V4113
Methyl ethyl ketone	ND	.125	ND	Q7V4113
Tetrachloroethylene	ND	.125	ND	Q7V4113
Trichloroethylene	ND	.125	ND	Q7V4113
Vinyl chloride	ND	.125	ND	Q7V4113

**APPENDIX C**  
**QUALITY ASSURANCE DATA**

## SUMMARY OF ANALYTICAL METHODOLOGY

ASC Joblink # 617283

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REFERENCE		TITLE
<hr/>		
1020	SW-846	Flash Point, Setaflash
1311	SW-846	Toxicity Characteristic Leaching Procedure
6010	SW-846	Inductively Coupled Plasma Atomic Emmision Spectroscopy
7470	SW-846	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
8080	SW-846	Organochlorine Pesticides and/or PCBs
8150	SW-846	Chlorinated Herbicides
8240	SW-846	GC/MS for Volatile Organics
8270	SW-846	GC/MS for Semivolatile Organics: Capillary Column Technique
CLP 1.7.1.1	CLP	pH, Electrode
SECTION 7.3.3.2	SW-846	Test Method to Determine HCN Released from Wastes
SECTION 7.3.4.2	SW-846	Test Method to Determine HS Released from Wastes

## METHODOLOGY REFERENCES

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ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-600	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## ASC Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

---

mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventional
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

### CONVENTIONAL DATA (CV10)

Compounds		Blank Results	Blank Spike Recov	Unspiked Sample Results	Matrix Spike Recov	Relative Percent Diff	Batch Number
Reactive Cyanide	mg/kg	ND	87	-	-	-	Q2I4065
Reactive Sulfide	mg/kg	ND	91	-	-	-	Q2I4067

QUALITY ASSURANCE DATA

RCRA TCLP LEACHATE METALS ANALYSIS, (ME52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Arsenic	ND	82	ND	85	1	Q7M5777
Barium	ND	84	.364	84	1	Q7M5777
Cadmium	ND	84	.019	86	1	Q7M5777
Chromium	ND	82	ND	83	1	Q7M5777
Lead	ND	81	ND	80	1	Q7M5777
Mercury	ND	99	ND	94	6	Q7G5795
Selenium	ND	77	ND	79	2	Q7M5777
Silver	ND	94	ND	81	1	Q7M5777
Copper	ND	81	.036	85	1	Q7M5777
Zinc	ND	81	ND	85	1	Q7M5777

## RCRA TCLP Leachate Herbicide Analysis, GC, (GS52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
2,4-D	ND	71	ND	60	16	Q7H41872A
2,4,5-TP (Silvex)	ND	102	ND	90	13	Q7H41872A

## RCRA TCLP LEACHATE PESTICIDE ANALYSIS, GC, (GS54)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Chlordane	ND	109	ND	112	3	Q7P41892A
Endrin	ND	109	ND	128	15	Q7P41892A
Heptachlor	ND	92	ND	104	5	Q7P41892A
Heptachlor epoxide	ND	102	ND	106	5	Q7P41892A
Lindane	ND	63	ND	65	3	Q7P41892A
Methoxychlor	ND	88	ND	92	3	Q7P41892A

## RCRA TCLP LEACHATE BASE/NEUTRAL/ACID ANALYSIS, MS, (MS52)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
2,4-Dinitrotoluene	ND	82	ND	73	3	Q7C41884
Hexachlorobenzene	ND	82	ND	53	13	Q7C41884
Hexachloroethane	ND	58	ND	33	21	Q7C41884
Hexachlorobutadiene	ND	73	ND	35	22	Q7C41884
2-Methylphenol	ND	60	ND	64	2	Q7C41884
4-Methylphenol	ND	83	ND	75	6	Q7C41884
Nitrobenzene	ND	69	ND	62	1	Q7C41884
Pentachlorophenol	ND	73	ND	57	12	Q7C41884
Pyridine	ND	62	ND	59	1	Q7C41884
2,4,5-Trichlorophenol	ND	63	ND	32	4	Q7C41884
2,4,6-Trichlorophenol	ND	78	ND	69	2	Q7C41884

3-Methyl- and 4-Methylphenol coelute and are reported as the total

## RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Benzene	ND	97	ND	99	9	Q7V4132
Carbon tetrachloride	ND	97	ND	100	13	Q7V4132
Chlorobenzene	ND	91	ND	90	5	Q7V4132
Chloroform	ND	97	ND	94	4	Q7V4132
1,4-Dichlorobenzene	ND	74	ND	80	6	Q7V4132
1,2-Dichloroethane	ND	99	ND	93	2	Q7V4132
1,1-Dichloroethylene	ND	90	ND	83	1	Q7V4132
Methyl ethyl ketone	ND	90	ND	82	0	Q7V4132
Tetrachloroethylene	ND	95	ND	93	7	Q7V4132
Trichloroethylene	ND	98	ND	99	7	Q7V4132
Vinyl chloride	ND	86	ND	79	5	Q7V4132

## RCRA TCLP LEACHATE (ZHE) VOLATILE ANALYSIS, MS, (MV50)

Compounds	Blank Results mg/L	Blank Spike Recov	Unspiked Sample Results mg/L	Matrix Spike Recov	Relative Percent Diff	Batch Number
Benzene	ND	95	ND	101	3	Q7V4113
Carbon tetrachloride	ND	97	ND	101	3	Q7V4113
Chlorobenzene	ND	91	ND	96	0	Q7V4113
Chloroform	ND	94	ND	98	3	Q7V4113
1,4-Dichlorobenzene	ND	80	ND	80	4	Q7V4113
1,2-Dichloroethane	ND	96	ND	104	2	Q7V4113
1,1-Dichloroethylene	ND	91	ND	84	6	Q7V4113
Methyl ethyl ketone	ND	91	ND	90	1	Q7V4113
Tetrachloroethylene	ND	90	ND	92	1	Q7V4113
Trichloroethylene	ND	95	ND	99	1	Q7V4113
Vinyl chloride	ND	84	ND	78	4	Q7V4113

# SURROGATE SUMMARY REPORT

SURROGATE ID	A159	B732	A121	A884	A158	B142	# OUT
QC BATCH: Q7C41884 Leachate (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	66	57	103	74	78	16 *	1
BLANK SPIKE	0 *	0 *	0 *	0 *	0 *	0 *	6
EX1435-1C MD	68	60	87	70	68	65	0
EX1435-1C MS	74	65	93	76	76	68	0
EXSA56-1C	67	58	85	69	73	64	0
EXSA56-2C	88	79	118	94	100	82	0
EXSA56-3C	62	55	85	67	72	61	0
EXSA56-4C	58	54	81	67	70	60	0
EXSA56DUPC	71	62	94	74	81	67	0
QC LIMITS	(21-110)	(10-110)	(10-123)	(35-114)	(43-116)	(33-141)	

SURROGATE ID	F047	# OUT
QC BATCH: Q7H41872A Leachate (Herbicide compounds by GC)		
SAMPLE ID		
BLANK	59	0
BLANK SPIKE	100	0
EX1435-1C MD	130	0
EX1435-1C MS	99	0
EXSA56-1C	38	0
EXSA56-2C	76	0
EXSA56-3C	33	0
EXSA56-4C	81	0
EXSA56DUPC	75	0
QC LIMITS	(30-130)	

SURROGATE ID	B816	A500	# OUT
QC BATCH: Q7P41892A Leachate (Pesticide compounds by GC)			
SAMPLE ID			
BLANK	89	65	0
BLANK SPIKE	89	46	0
EX1435-1C MD	90	82	0
EX1435-1C MS	94	84	0
EXSA56-1C	86	75	0
EXSA56-2C	90	78	0
EXSA56-3C	83	80	0
EXSA56-4C	88	76	0
EXSA56DUPC	87	78	0
QC LIMITS	(30-130)	(30-130)	

SURROGATE ID	
A047 = 1,2-Dichloroethane-D4	A500 = Decachlorobiphenyl
B185 = Toluene-D8	F047 = 2,4-Dichlorophenylacetic-acid
B668 = Bromofluorobenzene	
A159 = 2-Fluorophenol	
B732 = Phenol-D6	
A121 = 2,4,6-Tribromophenol	
A884 = Nitrobenzene-D5	
A158 = 2-Fluorobiphenyl	
B142 = Terphenyl-D14	
B816 = 2,4,5,6-Tetrachloro-m-xylene	
* Values outside of method quality control limits	
D Sample was diluted, however, some surrogates may be reported if results were observed.	

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

QUALITY ASSURANCE  
SURROGATE SUMMARY REPORT

SURROGATE ID	A047	B185	B668	# OUT
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QC BATCH: Q7V4113 Leachate (Volatile organics by MS)

SAMPLE ID				
BLANK	102	96	96	0
BLANK SPIKE	103	98	97	0
EXSA56DUPC	101	99	104	0
WST05 MD	109	98	104	0
WST05 MS	107	96	99	0

QC LIMITS (70-121) (81-117) (74-121)

QC BATCH: Q7V4132 Leachate (Volatile organics by MS)

SAMPLE ID				
BLANK	105	100	98	0
BLANK SPIKE	109	102	98	0
EX63BEDP2A MD	102	98	96	0
EX63BEDP2A MS	105	98	95	0
EXSA56-1C	104	103	100	0
EXSA56-2C	102	94	93	0
EXSA56-3C	102	99	94	0
EXSA56-4C	103	93	93	0

QC LIMITS (70-121) (81-117) (74-121)

SURROGATE ID

A047 = 1,2-Dichloroethane-D4	A500 = Decachlorobiphenyl
B185 = Toluene-D8	F047 = 2,4-Dichlorophenylacetic-acid
B668 = Bromofluorobenzene	
A159 = 2-Fluorophenol	
B732 = Phenol-D6	
A121 = 2,4,6-Tribromophenol	
A884 = Nitrobenzene-D5	
A158 = 2-Fluorobiphenyl	
B142 = Terphenyl-D14	
B816 = 2,4,5,6-Tetrachloro-m-xylene	

\* Values outside of method quality control limits

D Sample was diluted, however, some surrogates may be reported if results were observed.

It is ASC's laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**



OHM Corporation

## CHAIN-OF-CU ODY RECORD

Form 0019  
Technical Services  
Rev. 08/99

No. 107747

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>Ft Devens</b>		PROJECT LOCATION <b>Ayer Ma</b>	
PROJ. NO. <b>16208</b>	PROJECT CONTACT <b>Mike Quinlan</b>	PROJECT TELEPHONE NO. <b>(508) 772-2019</b>	
CLIENT'S REPRESENTATIVE <b>Tim Coleman USALE</b>		PROJECT MANAGER/SUPERVISOR	

ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)
1	EX SA 56-1C	12.15 94	1150	✓		clouds of clay, TPH small, some cobble, gold brown color
2	EX SA 56-2C		1205	✓		medium brown / grey dls of clay, lots of cobble
3	EX SA 56-3C		1230	✓		yellow brown clay, some sand, lots of cobble
4	EX SA 56-4C		1253	✓		goldish brown sandy clay, lots of cobble
5	EX SA 56 DUPLICATE	✓	1253	✓		goldish brown sandy clay, lots of cobble
6						
7						
8						
9						
10						

NUMBER  
OF CONTAINERSANALYSIS DESIRED  
(INDICATE  
SEPARATE  
CONTAINERS)

REMARKS

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-5	EMBLE	Fed Ex Air-bill 2989315940	12.15 94	1900
2	1-5	Fed Ex	M. Radebaugh	12/16/94	1002
3					
4					

REMARKS

• Temp blank included  
• 4°C  
• 3 day TAT

SAMPLER'S SIGNATURE

EMBLE

LAB COPY



OHM Remediation  
Services Corp.

A Subsidiary of OHM Corporation

## ANALYTICAL DIVISION

### Laboratory Analysis Report

**Client:** OHM Remediation Services Corp.  
Eastern Region (Hopkinton, MA)

**Attn:** William Snow  
Ron Kenyon  
Mike Quinlan

**Project:** 16208C - USACE; Fort Devens, MA

**Sample Type(s):** Solid

**Analysis Performed:** Conventional and Metals


**Date Sample Received:** December 16, 1994

**Date Order Received:** January 12, 1995

**Joblink(s):** 617411

*This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. OHM Remediation Services Corp., Analytical Division, assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.*

Reviewed and  
Approved by:

  
Thomas E. Gran, Ph.D., Vice President

Date: January 23, 1995

## PROJECT NARRATIVE

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The following items relate to the samples and analytical data contained in this report.

- o All solid sample results are reported on a "dry weight" basis.
- o Note any and all comments at the bottom of the tables in Appendix B and/or Appendix C.
- o Samples will be retained for a maximum of thirty (30) days after completion of the analysis, samples will be held for a longer period of time, if appropriate arrangements are made in advance. A nominal disposal charge of \$5.00/sample will be imposed for unreturned samples.

**APPENDIX A**  
**DATA SUMMARY REPORT**

**APPENDIX B**

**QUANTITATIVE RESULTS**

# DATA SUMMARY REPORT

DATE: 01/19/95

PAGE: 1

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID:	EXSA56-2C	EXSA56-4C
ASC Sample Number:	JN7192	JN7193
Sample Date:	941215	941215
Facility Code:	016208C	016208C

Parameters	Units		
------------	-------	--	--

## Conventional Data (CV10)

Solids, Total	%	90.8	91.9
---------------	---	------	------

## RA Total Metals Analysis, (ME50)

Arsenic	mg/kg	18.1	19.0
Barium	mg/kg	37.1	29.1
Cadmium	mg/kg	<1.05	<1.01
Chromium	mg/kg	16.4	14.9
Lead	mg/kg	9.39	25.1
Mercury	mg/kg	<.048	<.048
Selenium	mg/kg	<5.26	<5.03
Silver	mg/kg	<1.05	<1.01

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN7192

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	90.8	.100	-	

### CONVENTIONAL DATA (CV10)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN7193

Compounds	Sample Results	Detection Limits	Blank Results	Batch Number
Solids, Total %	91.9	.100	-	

# RCRA TOTAL METALS ANALYSIS, (ME50)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-2C

JN7192

Compounds	Sample Results mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Arsenic	18.1	5.26	ND	Q2M5858
Barium	37.1	1.05	ND	Q2M5858
Cadmium	ND	1.05	ND	Q2M5858
Chromium	16.4	1.05	ND	Q2M5858
Lead	9.39	2.11	ND	Q2M5858
Mercury	ND	.048	ND	Q2G5868
Selenium	ND	5.26	ND	Q2M5858
Silver	ND	1.05	ND	Q2M5858

## RCRA TOTAL METALS ANALYSIS, (ME50)

Company Name

Facility

Sample Point

ASC Sample No.

OHM REMEDIATION SERVICES CORPORATION

016208C

EXSA56-4C

JN7193

[illegible]

**APPENDIX C**

**QUALITY ASSURANCE DATA**

## SUMMARY OF ANALYTICAL METHODOLOGY

Joblink # 617411

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REFERENCE		TITLE
<hr/>		
160.3	CAWW	Residue, Total, Gravimetric, Dried at 103-105 C
6010	SW-846	Inductively Coupled Plasma Atomic Emmision Spectroscopy
7471	SW-846	Mercury in Solid Waste (Manual Cold-Vapor Technique)

## METHODOLOGY REFERENCES

---

ASTM	<i>American Society for Testing and Materials</i> , 1985 edition.
CAWW	<i>Methods for Chemical Analysis of Water and Wastes</i> , April 1979 and Updated #1 March 1983.
CLP	<i>USEPA Contract Laboratory Program</i> , Document #OLMO1.0, updates December 1990 #OLMO1.1 and February 1991 #OLMO1.1.1.
EPA-500	<i>USEPA Methods for the Determination of Organic Compounds in Drinking Water</i> , EPA-600/4-88/039 December 1988.
EPA-600	<i>USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</i> , EPA-600/4-82-057 July 1982.
NIOSH	<i>National Institute for Occupational Safety and Health</i> , 3rd edition, 1984.
SMEWW	<i>Standard Methods for the Examination of Water and Wastewater</i> , 17th edition, 1989.
STOA	<i>Spot Tests In Organic Analysis</i> , 7th edition, 1966.
SW-846	<i>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</i> , 3rd edition, September 1986 and Update #1 July 1992.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF <sub>3</sub> ) as the derivatizing reagent according to Method 6640 in <i>SMEWW</i> , 17th edition, 1989.
Title 22	<i>Waste Extraction Test</i> , Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.

## Laboratory Certifications

State	Agency	Certification #
Alabama	ADEM	40830
California	CADOH	1178
Colorado	CODOH	OH113
Delaware	DEHSS	OH113
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Jersey	NJDEPE	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

### Validated by:

- o US Army Corps of Engineers ..... Chemical Analysis in Various Matrices

### Approvals:

- o Chemical Waste Management ..... Waste Characterization Analysis
- o EnviroSAFE ..... Waste Characterization Analysis
- o USDA ..... Permit for Importing Soils
- o Florida DEP ..... Quality Assurance Plan #930034G
- o Naval Facilities Engineering Service Center ..... Chemical Analysis in Various Matrices

## REPORT KEY

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mg/kg	= milligram per kilogram (ppm)
Mg/m <sup>3</sup>	= milligram per cubic meter
ug/kg	= microgram per kilogram (ppb)
mg/L	= milligram per liter (ppm)
ug/L	= microgram per liter (ppb)
mg/W	= milligram per wipe
ug/W	= microgram per wipe
mg/SMP	= milligram per sample
ug/SMP	= microgram per sample (Tedlar Bag)
ug/smp	= microgram per sample
um/cm	= microMho per centimeter
pCi/l	= picocurie per liter
gm/cc	= grams per cubic centimeter
ppm	= parts per million
ppb	= parts per billion
ND	= Not detected at or above stated detection limit
<	= less than
>	= greater than
%	= percent
BTU/lb	= British Thermal Units per pound
Deg. C	= Degrees Celsius
n/a	= not applicable
Unk	= unknown
std	= result is relative to standard pH units
CV	= Conventionals
IR	= Infrared Spectrophotometric
GC	= Gas Chromatograph Instrument
GC/MS	= Gas Chromatography/Mass Spectrometer Instrument
GRO	= Gasoline Range Organics
DRO	= Diesel Range Organics
PCB	= Polychlorinated Biphenyls (PCBs)
EP TOX	= Extraction Procedure Toxicity
TCLP	= Toxicity Characteristic Leaching Procedure
RCRA	= Resource Conservation and Recovery Act
SOW	= Statement of Work

## RCRA TOTAL METALS ANALYSIS, (ME50)

**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORD(S)**

# CHAIN-OF-C CDDY RECORD

Form 0019  
Technical Services  
Rev. 08/89

No. 107747

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME <b>Ft Devens</b>		PROJECT LOCATION <b>Ayer Mz</b>		ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)													
PROJ NO <b>16208</b>	PROJECT CONTACT <b>Mike Quinn</b>	PROJECT TELEPHONE NO <b>(508) 772-2019</b>															
CLIENT'S REPRESENTATIVE <b>Tim Coleman USAE</b>		PROJECT MANAGER/SUPERVISOR															
ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS									
1	EX SA 56-1C	12.15 94	1150	✓		clouds of clay, TPH small, some cobble gold brown color	2	<div style="transform: rotate(-45deg); position: absolute; top: 0; right: 0;">                         Full TCLP (1x1L) PCRA char (1x4oz)                     </div>									
2	EX SA 56-2C		1205	✓		medium brown / grey dits of clay, lots of cobble	2										
3	EX SA 56-3C		1230	✓		yellow brown clay, some sand lots of cobble	2										
4	EX SA 56-4C		1253	✓		goldish brown sandy clay, lots of cobble	2										
5	EX SA 56 DUC		1253	✓		goldish brown sandy clay, lots of cobble	2										
6																	
7																	
8																	
9																	
10																	
TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY		TRANSFERS ACCEPTED BY		DATE	TIME	REMARKS									
1	1-5	S. N. Blum		Fed Ex Air-bill 2989315940		12.15 94	1900	Temp blank included 4°C 3dzy TAT									
2	1-5	Fed Ex		M. Radebaugh		12/16/94	1021										
3																	
4								SAMPLER'S SIGNATURE <b>S. N. Blum</b>									

LAB COPY

Appendix F  
Transportation & Disposal Documentation

- ▶ Soil
- ▶ Demolition Debris
- ▶ Asbestos
- ▶ Asphalt/Concrete



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

## A Location Information

1. Provide the following information on the location where the waste was generated:

SA-56 (Bldg 2417)

Release name (optional)

access road west of Givry Road, central portion of Main Post

Street

Fort Devens

Location and

MA

01433

City/Town

State

Zip code

2. Date/Period of generation:

09/13/94

10/04/94

From

To

5. List additional tracking documents associated with this document:

3. U.S. EPA ID number:

MA7210025154

4. 21E release

☐ yes

☒ no

## B Generator Information

1. Provide the following generator information:

U.S. Army - Fort Devens

Name of organization

James C. Chambers

BRAC Environmental Officer

Contact name

Title

AFZD-BEO-Box 1

Street address

Fort Devens

MA

01433

City/Town

State

Zip code

(508) 796-3114

Telephone number and extension

## C Owner and/or Operator Information

1. If the owner and/or operator is different from the generator as indicated in Section B, provide the following information:

Check applicable:

☐ owner

☐ operator

U.S. Army - Fort Devens

Name of organization

James C. Chambers

BRAC Environmental Officer

Contact name

Title

AFZD-BEO-Box 1

Street address

Fort Devens

MA

01433

City/Town

State

Zip code

(508) 796-3114

Telephone number and extension



# Material Shipping Record & Log

2-0662-SAS6

Tracking Number

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

## D Transporter/Common Carrier Information

1. Provide the following information:

P.J. Keating Company	N/A	N/A
<small>Transporter/Common carrier name</small>	<small>Hazardous waste license number (if applicable)</small>	<small>Licensing state (if applicable)</small>
Mark Nikitas		
<small>Contract person</small>	<small>Title</small>	
998 Reservoir Road		
<small>Street</small>		
Lunenburg	MA	01462
<small>City/Town</small>	<small>State</small>	<small>Zip code</small>
(508) 582-9931		
<small>Telephone number and extension</small>		

## E Receiving Facility Information

1. Provide the following information on the receiving facility:

U.S. Army - Fort Devens - Building 202		
<small>Operator/Facility name</small>		
James C. Chambers	BRAC Environmental Officer	
<small>Contract person</small>	<small>Title</small>	
AFZD-BEO-Box 1	Fort Devens, MA	01433
<small>Street</small>	<small>State</small>	<small>Zip code</small>
(508) 796-3114		
<small>Telephone number and extension</small>		

2. Type of facility:

- ☐ asphalt batch/cold mix      ☐ landfill/disposal      ☐ thermal processing  
☐ asphalt batch/hot mix      ☐ landfill/daily cover      ☐ landfill/structural fill  
☒ other: Temporary Storage Facility

3. Permit number: N/A

## F Description of Material

Check all that apply:

1. a. ☒ soil ☐ dredge material ☐ fill

b. Description:

GREY/BEN SAND/CLAY, w/  
T. GRAVEL.

c. Classification: ☐ MIT ☐ USOA  
☐ USAEC ☐ ASEE

2. ☒ Other

Modified Burmeister  
describe

3. Type of contamination:

a. ☐ gasoline ☐ diesel fuel ☒ #2 oil ☐ #4 oil  
☐ #6 oil ☐ waste oil ☐ kerosene ☐ jet fuel

b. ☐ Debris:

☐ demolition ☐ vegetative ☐ inorganic

c. ☐ Other:describe



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

## F Description of Material (cont.)

4. Constituents of concern (check all that apply):

☒ As ☐ Cd ☒ Cr ☒ Pb ☐ Hg ☐ Na ☐ PCBs  
☐ HVOCs ☐ PATH ☐ VOCs ☐ PAHs ☐ BNAs  
☒ TPH ☒ Other:

BTEX, Barium  
describe

7. Estimated volume of materials:

782 cubic yards  
Cubic Yards  
1172.5 tons  
Tons  
Other

5. Analyses performed (check all that apply):

☒ As ☒ Cd ☒ Cr ☒ Pb ☒ Hg ☒ Na ☒ PCBs  
☐ HVOCs ☐ PATH ☒ VOCs ☐ PAHs ☒ BNAs  
☒ TPH ☒ TCLP (inorganic) ☒ TCLP (organic)  
☐ Other:

Particulates, BTEX, PCRA Characteristics  
describe

8. Contaminant source (check one/specify):

☐ transportation accident ☐ spill ☒ other:  
former 1000 gallon No. 2 fuel oil VST location  
describe

6. Screening performed

None  
Type  
Instrument Used  
Constituents

9. Indicate which waste characterization support documentation is attached

☐ site history information  
☐ sampling and analytical methods/procedure  
☒ laboratory data ☐ field screening data

If supporting documentation is not appended, provide an attachment stating the date and in connection with what document such information was previously submitted to the facility.

## G Qualified Environmental Professional Opinion

T.S. Alving & Associates

Name of organization

Todd Alving

Licensed Site Professional

Name of professional

Title

(508) 435-3679

Telephone number and extension

I have personally examined and am familiar with the information contained on and submitted with this form. Based on this information, it is my opinion that the testing and assessment actions undertaken were adequate to characterize the waste, and that the facility or location can accept wastes with the characteristics described in this submittal. I am aware that significant penalties including, but not limited to, possible fines and imprisonment may result if I willfully submit information which I know to be false, inaccurate, or materially incomplete.

Signature

Date

License number:

Seal





# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

## H Certification of Generator

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information contained herein is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

James C. Chambers  
Signature  
1/24/96  
Date  
Name (print)

## I Acknowledgment of Receipt by Receiving Facility

U.S. Army - Fort Devens - Bldg 202  
Receiving Facility  
James C. Chambers  
Responsible (print)  
BRAC Environmental Officer  
The James C. Chambers  
Signature  
1/24/96  
Date



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000 B. 2417

## J Load Information

LOAD #: 269

Signature of transporter

B. 202

Receiving facility

10-23-95

Date received

0857

Time received

10-23-95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

69,280 lbs. / 34.68 ton

Load size (cubic feet/tons)

LOAD #: 270

Signature of transporter

Robert A. Eaton

Receiving facility B. 202 Cell A, Soil Storage Area

10-23-95

Date received

0858

Time received

10-23-95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA 27020

Trailer registration

60,510 lbs. / 30.25 ton

Load size (cubic feet/tons)

LOAD #: 271

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0900

Time received

10-23-95

Date of shipment

Time of shipment

MA B44609

Truck/Tractor registration

MA 21421

Trailer registration

55,060 lbs. / 27.53 ton

Load size (cubic feet/tons)

LOAD #: 272

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0907

Time received

10-23-95

Date of shipment

Time of shipment

MA E40038

Truck/Tractor registration

MA 12363

Trailer registration

57,800 lbs. / 28.90 ton

Load size (cubic feet/tons)

## K Log Sheet Volume Information

242,650 lbs. / 121.32 ton

Total volume this page (cubic feet/tons)

Total carried forward (cubic feet/tons)

242,650 lbs. / 121.32 ton

Total carried forward and this page (cubic feet/tons)

Page 1 of 10



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B. 2417

## J Load Information

LOAD #: 273

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0909

Time received

10-23-95

Date of shipment

Time of shipment

MA C34867

Truck/Tractor registration

MA 10207

Trailer registration

59,160 lbs. / 29.88 ton

Load size (cubic yards/tons)

LOAD #: 274

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0930

Time received

10-23-95

Date of shipment

Time of shipment

MA E40038

Truck/Tractor registration

MA 12363

Trailer registration

62,740 lbs. / 31.37 ton

Load size (cubic yards/tons)

LOAD #: 275

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0938

Time received

10-23-95

Date of shipment

Time of shipment

MA C34867

Truck/Tractor registration

MA 10207

Trailer registration

60,780 lbs. / 30.39 ton

Load size (cubic yards/tons)

LOAD #: 276

Signature of transporter

B 202 Cell A, Soil Storage Area

Receiving facility

10-23-95

Date received

Time received

10-23-95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 32583

Trailer registration

69,840 lbs. / 34.92 tons

Load size (cubic yards/tons)

## K Log Sheet Volume Information

252,520 lbs. / 126.26 ton

Total volume this page (cubic yards/tons)

242,650 lbs. / 121.32 ton

Total carried forward (cubic yards/tons)

495,170 lbs. / 247.58 ton

Total carried forward and this page (cubic yards/tons)

Page 2 of 10



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B. 2417

## J Load Information

LOAD #: 277

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0954

Time received

10-23-95

Date of shipment

Time of shipment

MA E40033

Truck/Tractor registration

MA 12363

Trailer registration

63,720 lbs. / 31.86 tons

Load size (cubic yards/tons)

LOAD #: 278

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

0957

Time received

10-23-95

Date of shipment

Time of shipment

MA 32583

Truck/Tractor registration

MA 27020

Trailer registration

54,510 lbs. / 27.25 tons

Load size (cubic yards/tons)

LOAD #: 279

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1000

Time received

10-23-95

Date of shipment

Time of shipment

MA B44609

Truck/Tractor registration

MA 21421

Trailer registration

57,340 lbs. / 29.92 tons

Load size (cubic yards/tons)

LOAD #: 280

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1007

Time received

10-23-95

Date of shipment

Time of shipment

MA C34807

Truck/Tractor registration

MA 10207

Trailer registration

62,440 lbs. / 31.22 tons

Load size (cubic yards/tons)

## K Log Sheet Volume Information

238,510 lbs. / 119.25

Total volume this page (cubic yards/tons)

495,170 lbs. / 247.58 tons

Total carried forward (cubic yards/tons)

733,680 lbs. / 366.83 tons

Total carried forward and this page (cubic yards/tons)

Page 3 of 10



# Material Shipping Record & Log

2-0667-S456

Tracking Number

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B-2417

## Load Information

LOAD #: 281

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1015

Time received

10-23-95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

60,180 lbs. / 30.09 tons

Load size (cubic feet/tons)

LOAD #: 282

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1024

Time received

10-23-95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA

Trailer registration

59,910 lbs. / 29.95

Load size (cubic feet/tons)

LOAD #: 283

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1027

Time received

10-23-95

Date of shipment

Time of shipment

MA 634867 E40038

Truck/Tractor registration

MA 16207 12863

Trailer registration

65,740 lbs. / 32.87 tons

Load size (cubic feet/tons)

LOAD #: 284

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1030

Time received

10-23-95

Date of shipment

Time of shipment

MA E4095

Truck/Tractor registration

MA 61631

Trailer registration

55,420 lbs. / 27.21

Load size (cubic feet/tons)

## Log Sheet Volume Information

241,250 lbs. / 120.62 tons

Total volume this page (cubic feet/tons)

733,680 lbs. / 366.83 tons

Total carried forward (cubic feet/tons)

974,930 lbs. / 487.45 tons

Total carried forward and this page (cubic feet/tons)

Page 4 of 10



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B. 2417

## J Load Information

LOAD #: 285

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1036

Time received

10-23-95

Date of shipment

Time of shipment

MA 34867

Truck/Tractor registration

MA 10207

Trailer registration

64,640 lbs. / 32.32 ton

Load size (cubic yards/tons)

LOAD #: 286

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

Time received

10-23-95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

61,940 lbs. / 30.97 tons

Load size (cubic yards/tons)

LOAD #: 287

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1050

Time received

10-23-95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA 27020

Trailer registration

61,530 lbs. / 30.76 ton

Load size (cubic yards/tons)

LOAD #: 288

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1056

Time received

10-23-95

Date of shipment

Time of shipment

MA E40038

Truck/Tractor registration

MA 12363

Trailer registration

62,320 lbs. / 31.16 ton

Load size (cubic yards/tons)

## K Log Sheet Volume Information

250,430 lbs. / 125.21 ton

Total volume this page (cubic yards/tons)

974,930 lbs. / 487.45 ton

Total carried forward (cubic yards/tons)

1,225,360 lbs. / 612.68

Total carried forward and this page (cubic yards/tons)

Page 5 of 10



# Material Shipping Record & Log

2-0667-5456

Tracking Number

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B. 2417

## Load Information

LOAD #: 289

PAN

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1100

Time received

10-23-95

Date of shipment

Time of shipment

MAE24095

Truck/Tractor registration

MA 61631

Trailer registration

73,740 lbs / 36.87 tons

Load size (cubic yards/tons)

LOAD #: 290

Viel Hagen

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1104

Time received

10-23-95

Date of shipment

Time of shipment

MAC 34867

Truck/Tractor registration

MA 10207

Trailer registration

62,640 lbs / 31.32 ton

Load size (cubic yards/tons)

LOAD #: 291

[Signature]

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

Time received

10-23-95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

72,780 lbs / 36.39 ton

Load size (cubic yards/tons)

LOAD #: 292

Robert A Eaton

Signature of transporter

B 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

Time received

10-23-95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA 27020

Trailer registration

68,250 lbs / 34.12 ton

Load size (cubic yards/tons)



## Log Sheet Volume Information

277,410 lbs / 130.70 ton

Total volume this page (cubic yards/tons)

1,225,360 lbs / 612.68 ton

Total carried forward (cubic yards/tons)

1,502,770 lbs / 751.38 tons

Total carried forward and this page (cubic yards/tons)

Page 6 of 10



# Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

B. 2417

## J Load Information

LOAD #: 293

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10.23.95

Date received

1123

Time received

10.23.95

Date of shipment

Time of shipment

MAE40038

Truck/Tractor registration

MA12363

Trailer registration

66,180 lbs / 33.09 ton

Load size (cubic yards/tons)

LOAD #294

Signature of transporter

B. 202 Soil Storage Area

Receiving facility

10.23.95

Date received

1125

Time received

10.23.95

Date of shipment

Time of shipment

MAE24095

Truck/Tractor registration

MA61631

Trailer registration

60,720 lbs / 30.36 ton

Load size (cubic yards/tons)

LOAD #: 295

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10.23.95

Date received

1130

Time received

10.23.95

Date of shipment

Time of shipment

MAC34867

Truck/Tractor registration

MA10207

Trailer registration

57,220 lbs / 28.61 ton

Load size (cubic yards/tons)

LOAD #: 296

Signature of transporter

B. 202 Soil Storage Area, Cell A

Receiving facility

10.23.95

Date received

1138

Time received

10.23.95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA47499

Trailer registration

65,550 lbs / 32.75

Load size (cubic yards/tons)

## K Log Sheet Volume Information

2,49670 lbs / 124.83 tons

Total volume this page (cubic yards/tons)

1,502,770 lbs / 751.38 tons

Total carried forward (cubic yards/tons)

1,752,440 lbs / 876.21 tons

Total carried forward and this page (cubic yards/tons)

Page 7 of 10



## Material Shipping Record &amp; Log

2-066 (- 21456)  
Tracking Number

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000 B. 2417

## J Load Information

LOAD #: 287

Signature of transporter: Robert A Eaton

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1149

Time received

10-23-95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA 27020

Trailer registration

65,350 lbs / 32.67 ton

Load size (cubic feet/tons)

LOAD #: 298

Signature of transporter: [Signature]

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1150

Time received

10-23-95

Date of shipment

Time of shipment

MA B44609

Truck/Tractor registration

MA 21421

Trailer registration

49,960 lbs / 24.98 ton

Load size (cubic feet/tons)

LOAD #: 299

Signature of transporter: [Signature]

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1156

Time received

10-23-95

Date of shipment

Time of shipment

MA E40038

Truck/Tractor registration

MA 12363

Trailer registration

67,480 lbs / 33.74 ton

Load size (cubic feet/tons)

LOAD #: 300

Signature of transporter: [Signature]

B. 202 Soil Storage Area, Cell A

Receiving facility

10-23-95

Date received

1159

Time received

10-23-95

Date of shipment

Time of shipment

MA C34867

Truck/Tractor registration

MA 10207

Trailer registration

55620 lbs / 27.81 ton

Load size (cubic feet/tons)

## K Log Sheet Volume Information

238,410 lbs. / 119.20 ton

Total volume this page (cubic feet/tons)

1,752,440 lbs. / 876.21 tons

Total carried forward (cubic feet/tons)

1,990,850 lbs. / 995.41 ton

Total carried forward and this page (cubic feet/tons)

Page 8 of 10

Make additional copies of this log as necessary.



## Material Shipping Record &amp; Log

12-0667-SASS6

Tracking Number

Bldg 2417

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

**J** Load Information

LOAD #: 301

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

1300

Time received

10/23/95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

63200 lbs / 31.6 tons

Load size (cubic yards/tons)

LOAD #: 302

x

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

1306

Time received

10/23/95

Date of shipment

Time of shipment

MA 32588

Truck/Tractor registration

MA 27020

Trailer registration

59030 lbs / 29.52 tons

Load size (cubic yards/tons)

LOAD #: 303

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

1308

Time received

10/23/95

Date of shipment

Time of shipment

MA E40038

Truck/Tractor registration

MA 12363

Trailer registration

56040 lbs / 28.02 tons

Load size (cubic yards/tons)

LOAD #: 304

x

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

1311

Time received

10/23/95

Date of shipment

Time of shipment

MA B44609

Truck/Tractor registration

MA 21421

Trailer registration

53480 lbs / 26.74 tons

Load size (cubic yards/tons)

**K** Log Sheet Volume Information

231750 lbs / 115.88 tons

Total volume this page (cubic yards/tons)

1990850 lbs / 995.41 tons

Total carried forward (cubic yards/tons)

2222600 lbs / 1111.29

Total carried forward and this page (cubic yards/tons)

Page 9 of 10



# Material Shipping Record & Log

2-0662-SAS6

Tracking Number

Bldg 2417

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

## Load Information

LOAD #: 305

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

B320

Time received

10/23/95

Date of shipment

Time of shipment

MA C34867

Truck/Tractor registration

MA 10207

Trailer registration

56100 lbs / 2505 tons

Load size (cubic yards/tons)

LOAD #: 307

Signature of transporter

~~Bldg 202 - Soil Staging Area, Cell A~~

Receiving facility

Date received

Time received

Date of shipment

Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

LOAD #: 306

Signature of transporter

Bldg 202 - Soil Staging Area, Cell A

Receiving facility

10/23/95

Date received

B332

Time received

10/23/95

Date of shipment

Time of shipment

MA 22685

Truck/Tractor registration

MA 47499

Trailer registration

66440 lbs / 3322 tons

Load size (cubic yards/tons)

LOAD #: \_\_\_\_\_

Signature of transporter

Receiving facility

Date received

Time received

Date of shipment

Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

## Log Sheet Volume Information

122540 lbs / 61.27 tons

Total volume this page (cubic yards/tons)

2222600 lbs / 995.44 tons

Total carried forward (cubic yards/tons)

2345140 lbs / 1056.68 tons

Total carried forward and this page (cubic yards/tons)

1172.56 tons

Page 10 of 10

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. \_\_\_\_\_

Carrier No. \_\_\_\_\_

Page 1 of 1

Waste Management of Central Massachusetts  
(Name of carrier) (SCAC)

Date 10/19/94

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in item 430, Sec 1

TO: Consignee Fitchburg Landfill

Street RT 31

City Westminster State MA Zip Code 01473

FROM: Shipper USACE

Street 2613 Lake George St

City Sand Devers State MA Zip Code 01432

24 hr. Emergency Contact Tel. No. \_\_\_\_\_

Route	<u>Bldg 2417 SA 56 : 5K49 Bldg 3602</u>					Vehicle Number
No. of Units & Container Type	11M	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
<u>1 30yd No HOPF</u>		<u>General Construction Debris</u>				

PLACARDS TENDERED: YES ☐ NO ☐

REMIT C O D TO: ADDRESS

COD Amt: \$

C O D FEE: PREPAID ☐ COLLECT ☐ \$

TOTAL CHARGES: \$

FREIGHT CHARGES: FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect ☐

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ \_\_\_\_\_ per \_\_\_\_\_

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by ☒ Rail ☐ Highway ☐ Water (DELETE NON APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations

Signature \_\_\_\_\_

(Signature of Consignor)

RECEIVED: subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (circumstances and condition of contents of packages unknown), marked, receipted, and delivered as indicated above, which said carrier (the word carrier being understood throughout this contract to mean any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any said property, that every invoice to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER US Army Corp of Engineers

PER Signature

CARRIER

PER Signature

1



ATTENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

## STRAIGHT BILL OF LADING

ORIGINAL — NOT NEGOTIABLE

Shipper No. \_\_\_\_\_

Carrier No. \_\_\_\_\_

Page 1 of 1Wash Management of Central Massachusetts  
(Name of carrier) (SCAC)Date 10/19/94

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

TO:

Consignee Hitchburg CaudillStreet RT 31City Westminster State MAZip Code 01473

FROM:

Shipper USACEStreet 2613 Lake George StCity Fort DevensState MAZip Code 01432

24 hr. Emergency Contact Tel. No. \_\_\_\_\_

Route

Bridge 2417 SR 56Vehicle  
Number

No. of Units & Container Type	IIM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
<u>1 30yd Roll-off</u>		<u>General Construction Debris</u>				

PLACARDS TENDERED: YES ☐ NO ☐REMIT  
C.O.D. TO:  
ADDRESS

COD

Amt: \$

C.O.D. FEE  
PREPAID ☐  
COLLECT ☐

\$

TOTAL  
CHARGES: \$FREIGHT CHARGES  
FREIGHT PREPAID ☐ Check box if charges  
are to be collect

Note: — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$ \_\_\_\_\_ per

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by ☐ Rail ☐ Highway ☐ Water (DELETE NON APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations.

Signature

(Signature of Consignor)

RECEIVED: subject to the classifications and lawfully used, limits in rates on the date of the issue of this Bill of Lading, the property described above in apparent good order (except as noted) contents and condition of contents of packages unknown, marked, consigned, and destined, is, against above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of

said route to be delivered to and as to each party at any time when said or any said property that every carrier to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

US Army Corp of Engineers

CARRIER

PER

D. Y. B.

PER

1



ATTENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

## STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. \_\_\_\_\_

Carrier No. \_\_\_\_\_

Page 1 of 1*Waste Management of Central Massachusetts*  
(Name of carrier)

(SCAC)

Date 10/19/94

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO:

Consignee

Street RT 31City WestminsterState MAZip Code 01473

FROM:

Shipper

Street

City Fort DevensState MAZip Code 01432

24 hr. Emergency Contact Tel. No. \_\_\_\_\_

Route

Vehicle  
Number

No. of Units & Container Type	ITEM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 30yd roll-off		General Construction Debris				

PLACARDS TENDERED: YES ☐ NO ☐REMIT  
C.O.D. TO:  
ADDRESS

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$

per

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by ☒ Rail ☒ Highway ☒ Water (DELETE NON APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations.

Signature

COD

Amt: \$

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE:

PREPAID ☐COLLECT ☐

TOTAL

CHARGES: \$

FREIGHT CHARGES

FREIGHT PREPAID

except when box is

right is checked ☐

Check box if charges

are to be

collected ☐

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order except as noted (consignee's and condition of contents of packages unknown), marked, weighed, and delivered as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route; otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of

said route to destination and as to each party, at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification or the rate of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

45 Army Corp of Engineers

PER

Smithy of Colman

CARRIER

PER

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ATTENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

## STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

Shipper No. \_\_\_\_\_

Carrier No. \_\_\_\_\_

Page 1 of 1

WASTE MATERIALS OF CENTRAL MA

(Name of carrier)

(SCAC)

Date 10/21/94

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

TO:

Consignee ATCHEBURG/WESTMINSTER LANDFILL

Street

RT 31

City

WESTMINSTER

State

MAZip Code 01473

FROM:

Shipper

US ARMY

Street

2613 LAKE GEORGE ST

City

FT DRIFT VS

State

MAZip Code 01432

24 hr. Emergency Contact Tel. No. \_\_\_\_\_

Route

SH-56Vehicle  
Number

No. of Units & Container Type	HIM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 Roll-off		GENERAL CONSTRUCTION DEBRIS				

PLACARDS TENDERED: YES ☐ NO ☐REMIT  
C.O.D. TO:  
ADDRESS

COD

Amt: \$

C.O.D. FEE  
PREPAID ☐  
COLLECT ☐

\$

Note -- Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$

per

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by ☐ Rail ☐ Highway ☐ Water (DELETE NON APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations.

Signature

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:  
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

FREIGHT CHARGES

FREIGHT PREPAID ☐ Check box if charges are to be collect  
except when box is checked ☐

RECEIVED: subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above is accepted as noted (contents and condition of contents of packages unknown), marked, packaged and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of

said route to destination and as to each party at any time interested in all or any said property that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted by himself and his assigns.

SHIPPER

US Army Corps of Engineers

CARRIER

Shelton

PER

Samuel J. Blum

PER

1



FOR HELP IN CHEMICAL EMERGENCIES INVOLVING SPILL, LEAK, FIRE OR EXPOSURE CALL TOLL-FREE 1-800-424-9300 DAY OR NIGHT

<b>STRAIGHT BILL OF LADING</b> <b>ORIGINAL - NOT NEGOTIABLE</b>		Shipper's No. <b>N<sup>o</sup> 0708</b>	
CARRIER: <b>FLEET ENVIRONMENTAL SERVICES, INC.</b>		SCAC	Carrier's No. Date <b>11/14/94</b>
<b>TO:</b> Partyka Resource Management Consignee 645 Shawinigan Drive Street Chicopee, MA 01020 Destination Zip		<b>FROM:</b> U.S. Army Corp. of Engineers Shipper Fort Devens Street 2613 Lake George St. Origin Fort Devens, MA Zip 01433	
Route:		Vehicle Number	
No. Shipping Units	Kind of Packages, Description of Articles (If Hazardous Materials, Proper Shipping Name)	HAZARD CLASS	C.O.D. Number WEIGHT (subject to collection) RATE LABELS REQUIRED (or exemption)
7cy	Non-Friable Asbestos	NONE	
Remit C.O.D. to:		C.O.D. FEE:	
Address:		Prepaid <input type="checkbox"/>	
City:	State: Zip:	Collect <input type="checkbox"/> \$	
NOTE — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ Per		<b>COD Aml: \$</b> <b>FREIGHT CHARGES</b> <input type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT	
RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.		Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignment, the consignee shall sign the following statement: The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges. (Signature of Consignee)	
This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. For <i>[Signature]</i>		<b>PLACARDS REQUIRED</b> <input type="checkbox"/> YES <input type="checkbox"/> NO — FURNISHED BY CARRIER <b>PLACARDS SUPPLIED</b> DRIVER SIGNATURE:	
SHIPPER: <b>U.S. Army Corp of Engineers</b>		CARRIER:	
PER:		PER:	
DATE: <b>11-14-94</b>		DATE:	
EMERGENCY RESPONSE TELEPHONE NUMBER: <b>(800) 537-4540</b>		Manned 24 hours/day by a person with knowledge of the hazards of the material and emergency response information or who has access to a person with that knowledge	

FOR HELP IN CHEMICAL EMERGENCIES INVOLVING SPILL, LEAK, FIRE OR EXPOSURE CALL TOLL-FREE 1-800-424-9300 DAY OR NIGHT

<b>STRAIGHT BILL OF LADING</b>				Shipper's No. <b>N<sup>o</sup> 0708</b>	
<b>ORIGINAL - NOT NEGOTIABLE</b>					
CARRIER: <b>FLEET ENVIRONMENTAL SERVICES, INC.</b>			SCAC		Carrier's No. _____
					Date <b>11/14/94</b>
<b>TO:</b> Partyka Resource Management Consignee 645 Shawinigan Drive Street Destination Chicopee, MA 01020 Zip			<b>FROM:</b> U.S. Army Corp. of Engineers Shipper Fort Devens Street Origin 2613 Lake George St. Zip 01433 Fort Devens, MA		
Route:				Vehicle Number	
No. of Packages	Kind of Packages/Description of Articles (IF HAZARDOUS MATERIALS, PROPER SHIPPING NAME)	HAZARD CLASS	I.D. Number	WEIGHT (subject to correction)	RATE
7cy	Non-Friable Asbestos	NONE		2800	P
Remit C.O.D. to:			<b>COD Amt: \$</b>		C.O.D. FEE:
Address:					Prepaid <input type="checkbox"/>
City: _____ State: _____ Zip: _____					Collect <input type="checkbox"/> \$
NOTE — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ Per _____			Subject to Section 7 of the conditions, if the shipment is to be delivered to the consignee without receipt on the consignee, the shipper shall sign the following statement: The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges. (Signature of Consignor)		
RECEIVED: subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment. Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.			<b>FREIGHT CHARGES</b> <input type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT		
This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per: <i>[Signature]</i>			<b>PLACARDS SUPPLIED</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO — FURNISHED BY CARRIER DRIVER SIGNATURE: _____		
SHIPPER: <b>U.S. Army Corp of Engineers</b>			CARRIER: <b>Fleet Environmental Services</b>		
PER: _____			PER: <i>[Signature]</i>		
DATE: <b>11-14-94</b>			DATE: <b>11-14-94</b>		
EMERGENCY RESPONSE			Manned 24 hours/day by a person with knowledge of the hazards of the material and emergency response information or who has access to a person with that knowledge		
TELEPHONE NUMBER: <b>(800) 537-4540</b>					

FOR HELP IN CHEMICAL EMERGENCIES INVOLVING SPILL, LEAK, FIRE OR EXPOSURE CALL TOLL-FREE 1-800-424-9300 DAY OR NIGHT



**Partyka  
Resource  
Management**

## Chicopee Sanitary Landfill Facility

### SPECIAL WASTE LOG

Date: Nov. 14, 1994 Time: \_\_\_\_\_ Ticket Number: \_\_\_\_\_

1. U.S. Army Corp of Engineers

Generator's Name

2613 Lake George St., Fort Devens

Generator's Address

Ayer, MA 01020

Generator's Phone

2. OHM Corporation

Operator's Name

88C Elm St.

Operator's Address

Hopkington, MA 01748

Operator's Phone (508) 435-9561

3. Waste Disposal Site Name, Mailing Address, Physical Site Name and Location, and Telephone #:

Connecticut Valley Sanitary Waste Disposal, Inc., 645 Shawinigan Drive, Chicopee, MA 01020

Chicopee Sanitary Landfill Facility, New Lombard Road, Chicopee, MA - (413) -785-1581

4. Name and Address of Responsible Agency:

Regional Asbestos Coordinator, US EPA, Region I, JFK Federal Building, Boston, MA 02203 or

DEP, Western Region, State House West, 436 Dwight Street, Springfield, MA 01103

5. Description of Waste Disposed: Non-Friable Asbestos

6. # and Type of Containers: 1 lined box 7. Total Quantity (yds): 7

8. Special Handling Instruction and Other Additional Information None

9. Michael P. Docherty  
Operator's Certification (Printed Name and Title)

Michael P. Docherty  
(Signature)

11.14.94  
(Date)

(I certify above that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labeled; and, are in all respects in proper condition for transport by highway and for disposal according to applicable international and governmental regulations)

10. Fleet Environmental Services, Inc. 11.

Transporter 1 (Name, Title, Address & Tele. #)

Transporter 2 (Name, Title, Address & Tele. #)

P.O. Box 939

Assonet, MA 02702

12. Discrepancies:

13.

Disposal Certification (Print Name and Title) (Signature)

(Date)

CUSTOMER: OHM  
MAILING ADDRESS: 88C Elm St.  
Hopkinton, MA ZIP: 01748  
CONTACT PERSON: Kelly Carey  
TEL. #: (508) 435-9561 P.O. #: 0210777-0000  
\*\*\*\*\*  
JOB SITE: Fort Devens ADDRESS: 2613 1st St  
Avon, MA ZIP: 01435 ZIP: \_\_\_\_\_  
SITE CONTACT PERSON: Kevin Mack TEL. #: \_\_\_\_\_  
SITE TEL. #: (508) 772-2275 FAX #: \_\_\_\_\_  
EPA #: \_\_\_\_\_ CONTACT PERSON: \_\_\_\_\_  
DIG SAFE #: \_\_\_\_\_ START DATE: \_\_\_\_\_  
\*\*\*\*\*

ON SITE TIME: \_\_\_\_\_  
SCOPE OF WORK: Pick-up 67C yd Containers  
take to Bertys  
Avon, MA

Left PES Yard 5:20 a.m./p.m. Departed Site \_\_\_\_\_ a.m./p.m.  
Arrived @ Site 6:40 a.m./p.m. Return to Yard \_\_\_\_\_ a.m./p.m.

LABORER	REG.	O.T.	EQUIPMENT	HOURS
<u>Mike I.</u>	<u>1</u>		<u>Backhoe</u>	

SUPPLIES - QUANTITY	SUPPLIES - QUANTITY	SUPPLIES - QUANTITY
Speedi Dry	Poly.	Dry Ice
Absorb. Pads	Suits	Tyvek
Boom. Absorb.	Gloves	Drums
Boom. Contain.	Misc.	Misc.

SUBCONTRACTOR: \_\_\_\_\_ HRS. SUBCONTRACTOR: \_\_\_\_\_ HRS.

PRODUCT - QTY WASTE DESCRIPTION WASTE CODE/MANIFEST # T.I.D.P.

Bulk Liquid:			
Drum Liquid:			
Bulk Solid:			
Drum Solid:			

FACILITY TIME - Arrived: \_\_\_\_\_ Departed: \_\_\_\_\_  
Site Left Clean & Satisfactory? YES: \_\_\_\_\_ NO: \_\_\_\_\_  
Job Completed? YES: \_\_\_\_\_ NO: \_\_\_\_\_  
Customer Signature: Kevin Mack Date: 11/14/94  
X Mark Mack WBS Representative: Mark Mack  
\*\*\*\*\*

CONTRACT: \_\_\_\_\_ T&M: \_\_\_\_\_ FIXED PRICING: \_\_\_\_\_  
QUOTED PRICE: \_\_\_\_\_ OFFICE APPROVAL BY: \_\_\_\_\_  
WHITE - Work Crew YELLOW - Customer Copy PINK - Billing



Partyka  
Resource  
Management

645 Shawinigan Drive  
Chicopee, MA 01020  
(413) 785-1581

Dear Customer:

In compliance with the notification requirements of Federal and state regulations, find enclosed a completed asbestos disposal and documentation form acknowledging that the listed asbestos wastes have been disposed of at our facility.

The enclosed duplicate copy of the form(s) indicate the date of disposal, type of material and quantity. If you have any questions or comments, please do not hesitate to contact us. Thank you for your business.

Very truly yours,

*A. Ronald Wesolowski*

A. Ronald Wesolowski  
Office Manager

ARW/jk

Enc.

FOR HELP IN CHEMICAL EMERGENCIES INVOLVING SPILL, LEAK, FIRE OR EXPOSURE CALL TOLL-FREE 1-800-424-9300 DAY OR NIGHT

# THIS MEMORANDUM

is an acknowledgment that a bill of lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. **0708**

CARRIER: **FLEET ENVIRONMENTAL SERVICES, INC.**

SCAC

Carrier's No.   
 Date **11/14/94**

TO: Partyka Resource Management  
Consignee 645 Shawinigan Drive  
Street Chicopee, MA 01000 Zip

FROM: U.S. Army Corp. of Engineers  
Shipper Port Devens  
Street 2613 Lake George St. Zip  
Origin Port Devens, MA 01433

Route:

Vehicle Number

No. Shipping Units	Kind of Packages, Description of Articles (IF HAZARDOUS MATERIALS - PROPER SHIPPING NAME)	HAZARD CLASS	I.D. Number	WEIGHT (subject to correction)	RATE	LABELS REQUIRED (or exemption)
7cy	Non-Friable Asbestos	NONE		2800	P	

Remit C.O.D. to:

Address:   
 City: State: Zip:

COD Amt: \$

C.O.D. FEE:   
 Prepaid ☐   
 Collect ☐ \$

NOTE — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property hereby specifically stated by the shipper to be not exceeding \$ Per

Subject to Section 7 of the conditions of this agreement, if the agreement is to be delivered to the consignee without recourse on the part of the carrier, the carrier shall sign the following statement:   
 The carrier and our agent hereby of the agreement without recourse of freight and all other local charges.   
 (Signature of Carrier)

FREIGHT CHARGES   
 ☐ PREPAID ☐ COLLECT

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.   
 Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

It is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

PLACARDS SUPPLIED

☐ YES ☐ NO — FURNISHED BY CARRIER   
 DRIVER SIGNATURE:

SHIPPER: U.S. Army Corp of Engineers  
PER:   
DATE: 11/14/94

CARRIER: Fleet Environmental Services  
PER:   
DATE: 11/14/94

EMERGENCY RESPONSE   
 TELEPHONE NUMBER: 1-800-1-537-7640

Manned 24 hours/day by a person with knowledge of the hazards of the material and emergency response information or who has access to a person with that knowledge.

FOR HELP IN CHEMICAL EMERGENCIES INVOLVING SPILL, LEAK, FIRE OR EXPOSURE CALL TOLL-FREE 1-800-424-9300 DAY OR NIGHT

9-BLS-A3   
 (Rev. 9/88)



ATTENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

# STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. \_\_\_\_\_

Carrier No. \_\_\_\_\_

Page 1 of 1

LAGASSE TRUCKING

(Name of carrier)

(SCAC)

Date 10/18/94

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO:

Consignee American Reclamation Corp

Street 130 STURBRIDGE

City Charlestown State MA Zip Code 01508

FROM:

Shipper US AR

Street 2615 LAKE GEORGE ST

City FT DRIVEN State MA Zip Code 01432

24 hr. Emergency Contact Tel. No. \_\_\_\_\_

Route

1 CONT S4-S6

Vehicle Number

No. of Units & Container Type	IIM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
<u>Dump Trailer</u>		<u>Asphalt For Recycling</u>				

PLACARDS TENDERED: YES ☐ NO ☐

REMIT  
C.O.D. TO:  
ADDRESS

Note — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$ \_\_\_\_\_ per \_\_\_\_\_

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by ☒ Rail ☒ Highway ☒ Water (DELETE NON-APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations.

Signature \_\_\_\_\_

COD

Amt: \$ \_\_\_\_\_

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:  
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE:  
PREPAID ☐  
COLLECT ☐ \$ \_\_\_\_\_

TOTAL CHARGES: \$ \_\_\_\_\_

FREIGHT CHARGES  
FREIGHT PREPAID ☒ except when box of right is checked. Check box if charges are to be collect ☐

RECEIVED subject to the classifications and lawfully listed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and, in each party at any time interested in all or any said property that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification and on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER US ARMY CORP OF ENGINEERS

PER Simultaneous & Cole

CARRIER

PER



**Appendix G**  
**Site Photographs**

