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U.S. Army Environmental Center

FORT DEVENS
FEASIBILITY STUDY
FOR GROUP 1A SITES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION DATA ITEM A009

CONTRACT DAAA15-91-D-0008
DELIVERY ORDER NUMBER 0004

U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND

SEPTEMBER 1995

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Prepared for:

U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland

Prepared by:

ABB Environmental Services, Inc.
Portland, ME
Project No. 07005-15

SEPTEMBER 1995

RAILROAD ROUNDHOUSE
SUPPLEMENTAL SITE INVESTIGATION

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EXECUTIVE SUMMARY

This Supplemental Site Investigation (SSI) report summarizes field observations, laboratory analytical data, and interpretation of data gathered during investigations to supplement the Draft Railroad Roundhouse Site Investigation (SI). Field investigations conducted in 1993 during the Feasibility Study for Group 1A sites included SI sampling to assess the presence or absence of contamination at the area of a former railroad roundhouse designated as Study Area 71. The SI and SSI were both conducted by ABB Environmental Services, Inc. (ABB-ES), at the direction of the U.S. Army Environmental Center under Contract No. DAAA15-91-D-0008.

From approximately 1900 to 1935, the Boston and Maine Railroad (B&MRR) operated a railroad roundhouse south of Plow Shop Pond in Ayer, Massachusetts. The railroad roundhouse was associated with an extensive freight yard serving the Fitchburg Division, Worcester, Nashua, and Portland Branch of the B&MRR. Freight yard operations over approximately one-half the area were discontinued in 1927; however, the roundhouse (or at least the office) was still in operation in 1931. By 1942, all of the buildings except the brick storeroom and the water tower had been removed. From aerial photographs taken in 1943, it appears that the roundhouse and associated facilities had been inactive for several years. The location of the former railroad roundhouse has been inferred from survey data, site observations, and from overlaying a B&MRR drawing (Right-of-Way and Track Map) prepared by B&MRR Office of Valuation Engineer on existing maps.

The land formerly occupied by the roundhouse and approximately the western one-half of the associated freight yard are now owned by the Army. Although all buildings and track on the land have been removed, a number of concrete foundations still remain where the roundhouse was located. The ash pit, which resembles a building foundation constructed of large stone blocks, also remains. Comparison of the railroad drawing with recent survey data and field observations, suggests that the western third of the area occupied by the roundhouse was excavated during construction of the cover system for Shepley's Hill Landfill to create a channel for surface runoff to Plow Shop Pond.

Roundhouses were used for routine locomotive maintenance and repair and for turning locomotives (i.e., reversing direction). Normal maintenance activities included cleaning, lubricating, wheel removal and servicing, smelting and pouring of babbitt (an antifriction alloy consisting of lead, tin, and antimony, or alternately tin, antimony, and copper), and machining of brass, babbitt, iron, and steel. Roundhouses would have received dripping oil and grease, and dirt scraped from the locomotives. Steam was used to clean equipment rather than solvents. Lubricants included oils varying in viscosity from approximately 60 to 220 weight, as well as soft and hard grease.

Ash was removed from locomotives by dumping into ash pits. Ash was usually dumped dry, not sluiced, and it was unusual for facilities to quench hot ash. A conveyor was often used to remove ash from the pit. Specific information is not available on ash disposal practices at this roundhouse facility.

SI activities at the railroad roundhouse consisted of collecting three shallow soil samples and one sediment sample in 1993 and analyzing them for semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), inorganics, and total organic carbon. In addition, the soil samples were analyzed for volatile organic compounds (VOCs). The analytical results showed relatively low concentrations of several SVOCs and inorganics. However, concentrations of antimony (up to 3,000 micrograms per gram [μg/g] in soil), copper (up to 2,800 μg/g in soil and 13,000 μg/g in sediment), and lead (up to 2,800 μg/g in soil and 9,800 μg/g in sediment) stood out in comparison to the evaluation criteria. Pesticides were detected at low concentrations. PCBs and VOCs were not identified as site contaminants. The human health Preliminary Risk Evaluation (PRE) identified potential human health concerns based on the concentrations of inorganics in sediment and soil samples. The ecological PRE also identified potential risks from inorganics in sediment and soil. High concentrations of antimony, copper, and lead were of greatest concern.

Following an assessment of additional data needs, the Army initiated SSI sampling at the railroad roundhouse site in 1994. Activities included collection and analysis of four shallow sediment samples from Plow Shop Pond adjacent to the site, collection and analysis of a total of 46 soil samples from 15 shallow hand-excavated pits across the site, installation of two downgradient groundwater monitoring wells, and collection and analysis of groundwater samples from the two new wells and two existing upgradient wells.

Data gathered during the SSI indicated the widespread presence of coal ash on and beneath the ground surface across much of the site. Concentrations of inorganics were, in general, consistent with concentrations reported for coal ash and indicate the presence of anthropogenic background conditions over most of the site. However, high concentrations of antimony, copper, and lead, and observation of metal and other debris mixed with coal ash at the northern extreme of the site suggest that area was used for disposal of maintenance by-products from activities at the former roundhouse. These deposits appear to extend approximately 15 to 25 feet out into Plow Shop Pond. An area with relatively high SVOC concentrations was also identified near the northern end of the site. Groundwater samples did not indicate that the site is a source of current groundwater contamination.

Although the updated PRE identified chemicals of potential concern (COPCs) in soil samples collected across the site, the substantial majority of screening value exceedances occurred in samples collected in the maintenance by-products disposal area. Because of this, there is potential that COPCs in the maintenance by-product disposal area may pose unacceptable risks to human and ecological receptors. Soil COPCs in the area include antimony, arsenic, copper, lead, and tin.

In addition, SVOCs in soil samples collected in the vicinity of RHS-94-09X and RHS-94-11X may pose unacceptable risks. These SVOCs include the following polynuclear aromatic hydrocarbons (PAHs): benzo(a)anthracene; benzo(a)pyrene; benzo(a)fluoranthene; dibenzo(a,h)anthracene; indeno(1,2,3-cd)pyrene.

COPCs identified for sediments include PAHs, antimony, beryllium, copper, lead, and mercury. The PRE for sediment is generally driven by the ecological PRE, which indicates unacceptable risk is most likely associated with antimony, copper, and lead detected in the near-shore sediment samples associated with the maintenance by-products deposits.

Because the majority of soil COPCs occur in the maintenance by-products disposal area and because concentrations of antimony, copper, and lead in soil from that area are substantially above concentrations in the local background area, remediation of these soils may be appropriate. It is recommended that the remediation/removal of soils in the maintenance by-products area be further evaluated. To efficiently expedite such a remediation, the concentrations of analytes found in the local background soils could be used as preliminary remediation goals in the development of a decision document that would address various remediation options.

Plow Shop Pond sediments immediately adjacent to the maintenance by-products disposal area share similar characteristics with those deposits, and remediation/removal of these sediments may be appropriate at the same time.

The Army believes that use of site-specific anthropogenic background concentrations to assess soil contamination at this site is consistent with and supported by the Massachusetts Contingency Plan (MCP) definition of background at 310 CMR 40.0006 which states:

> Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are:
>
> (a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and
>
> (b) attributable to geologic or ecologic conditions, atmospheric deposition of industrial process or engine emissions, fill materials containing wood waste or coal ash, and/or petroleum residues that are incidental to the normal operation of motor vehicles.

The Army interprets available data to indicate: (a) that coal ash is widespread and ubiquitous at the railroad roundhouse site; and (b) coal ash is present as fill material at the site. Therefore, use of site-specific background to evaluate contamination is consistent with the MCP definition. In contrast to general site conditions, high concentrations of antimony, copper, and lead at the northern extreme of the railroad roundhouse site adjacent to Plow Shop Pond, and observations noted in the test pit logs suggest that area was a maintenance by-products disposal area.

The presence of coal ash at the site is not seen as an impediment to site reuse.

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), prepared this Supplemental Site Investigation (SSI) report in accordance with U.S. Army Environmental Center (USAEC, formerly the U.S. Army Toxic and Hazardous Materials Agency) Contract DAAA15-91-D-0008, Delivery Order 0004, for conducting environmental investigations at Group 1A sites at Fort Devens, Massachusetts. This SSI report summarizes field observations and laboratory chemical data results which were gathered to fill data gaps identified in the Draft Railroad Roundhouse Site Investigation (SI) Report (ABB-ES, 1993a). Field investigations conducted in 1993 during the Feasibility Study (FS) for Group 1A sites included SI sampling to assess the presence or absence of contamination at the area of a former railroad roundhouse designated as Study Area (SA) 71. Figure 1-1 shows the location of the former railroad roundhouse at Fort Devens.

During the 1993 SI, one pond sediment sample and three surface soil samples were collected from the railroad roundhouse area. Analytical results showed contamination with several semivolatile organic compounds (SVOCs), pesticides, and inorganics. Human health and ecological Preliminary Risk Evaluations (PREs) indicated that inorganics in soil and sediment might pose risks to human and ecological receptors at the area of the former railroad roundhouse (ABB-ES, 1993b).

1.1 Purpose and Scope

The purposes of this SSI report are to present available data collected at the railroad roundhouse, assess the presence and spatial distribution of contamination, present a PRE, and make recommendations concerning future actions at the site.

This report is based on data collected during 1993 and reported in the Remedial Investigation (RI) Addendum (ABB-ES, 1993b) and Draft Railroad Roundhouse SI Report (ABB-ES, 1993a), and data collected in 1994 during SSI activities.

1.2 Report Organization

This SSI report consists of 6 sections. The remainder of Section 1 provides a brief description of the railroad roundhouse site and its history, and summarizes the results of the initial SI activities.

Section 2 describes SSI activities, including the field program, analytical program, chemical data management, and handling of investigation derived waste. Section 3 describes site physical characteristics. Section 4 presents the results of laboratory chemical analysis and assesses the presence and distribution of site contamination. Section 5 presents human health and ecological PREs. Section 6 contains SSI conclusions and recommendations.

1.3 Site Description

For the purpose of this study, the former railroad roundhouse site is assumed to consist of a strip of land extending south from Plow Shop Pond along the installation boundary for approximately 1,100 feet and ending just north of monitoring well SHL-24 (Figure 1-2). The railroad roundhouse site tapers from a width of about 250 feet at Plow Shop Pond to 100 feet near monitoring well SHL-24. The area is sparsely vegetated with small trees, brush, and grass, and is discernable from adjacent areas to the west that have been excavated and are not vegetated. With the exception of a steep bank at the edge of the pond, the area has little discernable slope. The elevation of the land surface is approximately 235 feet above sea level.

Evidence of prior use includes a long, narrow, rock-walled trench inferred to be an ash pit, several concrete foundations, five interconnected steel tanks (estimated volume of 750 gallons each) (Figure 1-3), and a concrete structure resembling a wet well or pump well at the edge of Plow Shop Pond.

Material with the characteristics of coal ash has been observed on the ground surface at several locations across the site. An area interpreted to be a maintenance by-products disposal area exists along the northern site boundary. These disposal deposits appear to extend approximately 15 to 25 feet into the pond based on site reconnaissance.

Sampling in the area south of the roundhouse enabled development of a local background data set which reflects anthropogenic contributions associated with coal ash fill and with typical railroad roundhouse operations.

1.4 SITE HISTORY AND ACTIVITIES

From approximately 1900 to 1935, the Boston and Maine Railroad (B&MRR) operated a railroad roundhouse south of Plow Shop Pond (E&E, 1993). The railroad roundhouse was associated with an extensive freight yard serving the Fitchburg Division, Worcester, Nashua, and Portland Branch of the B&MRR. The location of the former railroad roundhouse has been inferred from site observations and from overlaying a B&MRR drawing (Right-of-Way and Track Map) prepared by the Office of Valuation Engineer (B&MRR, 1919) on existing maps (see Figure 1-2). Several concrete foundations south of Plow Shop Pond correspond with the roundhouse location inferred from the drawing overlay. To better correlate the historic drawings with the Fort Devens site plans, three points on the roundhouse turntable foundation, which is still visible, were surveyed in the field. This data, along with global positioning system data on the ash pit and edge of Shepley Hill Landfill were used to create Figure 1-3 as a base map for this site.

In addition to the roundhouse, named structures on the B&MRR drawing include an ash pit, coal trestle, water tower, office, oil house, and a 8-inch drain leading northeast from the ash pit. Several numbered, but otherwise unidentified, small buildings are also shown. Review of the drawing shows that the roundhouse and ancillary structures occupied approximately 6 acres, while tracks and sidings in the adjacent freight yard occupied approximately 35 additional acres. Freight yard operations were discontinued in 1927; however, the roundhouse (or at least the office) was still in operation in 1931 (B&MRR, 1931). By 1942, all of the buildings except the brick storeroom and the water tower had been removed (Sanborn, 1942). From aerial photographs taken in 1943, it appears that the roundhouse and associated facilities had been inactive for several years (152 OBSN SQ., 1943). Approximately one-half of the freight yard, now known as the Hill Yard, remains.

The land formerly occupied by the roundhouse and approximately the western one-half of the associated freight yard are now owned by the Army. Although all buildings and track on the land have been removed, a number of concrete foundations still remain where the roundhouse was located. The pump house identified by Sanborn (Sanborn, 1921 and 1942) probably corresponds to a partially buried concrete structure still visible at the edge of Plow Shop Pond, and several concrete footings that may have supported a water tower remain just north of the roundhouse. Two partially buried concrete structures are also visible in this area. The ash pit, which resembles a building foundation constructed of large stone blocks, also remains.

Comparison of the railroad drawing with recent survey data and field observations, suggests that the western third of the area occupied by the roundhouse was excavated during construction of the cover system for Shepley's Hill Landfill to create a channel for surface runoff to Plow Shop Pond. Concrete and brick rubble visible on the ground surface near monitoring wells SHL-3 and SHL-10 may have come from this excavation activity.

Roundhouses were used for routine locomotive maintenance and repair, and for turning locomotives (i.e., reversing direction). Roundhouses consisted of a center turntable for turning locomotives, a number of radial tracks (similar to spokes of a wheel) for receiving locomotives from the turntable, and a building over the radial tracks to house the locomotives and tenders during maintenance.

Normal maintenance activities included cleaning, lubricating, wheel removal and servicing, smelting and pouring of babbitt, and machining of brass, babbitt, iron, and steel (Bensman, 1994; Harper, 1994; Lancaster, 1994; Poppa, 1993). Large roundhouses, in the category that likely included the B&MRR roundhouse, would have had pits, about 3 feet deep, beneath the length of most of the tracks in the roundhouse to allow access to the underside of the locomotives (Bensman, 1994). The pits would have received dripping oil and grease, and dirt scraped from the locomotives. Steam was used to clean equipment rather than solvents (Briggs, 1994). A large roundhouse would also have had a drop pit up to 20 feet deep running perpendicular to several of the tracks to facilitate removal and servicing of wheels. Lubricants included oils, varying in viscosity from approximately 60 to 220 weight, and soft and hard grease (Bensman, 1994). Soft grease was similar in consistency to modern lubrication greases; hard grease had the consistency of candle wax.

Babbitt, an antifriction alloy, was used on several surfaces, including the crosshead slippers on the locomotive and as freightcar wheel bearing liners (Bensman, 1994). A soft alloy, the babbitt would have required regular inspection and servicing. To service the crosshead slippers, workers would disassemble the crosshead and remove the shoe holding the babbitt, melt off the old babbitt with a torch, build a dam and mold and repour the babbitt, and machine the babbitt to the required dimension (Bensman, 1994). Freightcar wheel bearings were predominantly brass and were called "brasses"; however, they were lined with babbitt (Bensman, 1994). Brass bearings were purchased and were not poured on-site. Babbitt machine cuttings and brass bearings may have been discarded on-site. The *Kirk-Othmer Encyclopedia of Chemical Technology* discusses two major classes of babbitt: lead babbitt and tin babbitt. Lead babbitts commonly contain 9 to 16 percent antimony and zero to 12 percent tin, with lead making up the balance. Tin babbitts commonly contain 3 to 8 percent copper and 5 to 8 percent antimony, with tin making up the balance (Kroschwitz, 1992). The reference also lists the lead babbitt formulation SAE 14/ASTM B23-7 as frequently used in railroad applications.

Ash from locomotives was dumped into ash pits. Ash was usually dumped dry, not sluiced, and it was unusual for facilities to quench hot ash (Bensman, 1994). A conveyor was often used to remove ash from the pit. Specific information is not available on ash disposal practices at this facility.

1.5 Initial Site Investigation Activities

Three shallow soil samples (SHS-93-01X through SHS-93-03X) and one pond sediment sample (SHD-93-01X) were collected from the railroad roundhouse area in March 1993 (ABB-ES, 1993b) (see Figure 1-3). The first soil sample (SHS-93-01X) was collected north of the railroad roundhouse on a narrow (10 to 20 feet wide) terrace that borders the pond. The second soil sample (SHS-93-02X) was collected from an area of old foundations near the top of the bank which slopes down to the aforementioned terrace. The third soil sample (SHS-93-03X) was collected slightly downslope from the five abandoned, 750-gallon tanks. The sediment sample (SHD-93-01X) was collected from Plow Shop Pond in shallow water about 4 feet from the shore just north of the first soil sample.

All four samples were analyzed for Project Analyte List (PAL) SVOCs, pesticides, polychlorinated biphenyls (PCBs), inorganics, and total organic carbon (TOC). In addition, the three shallow soil samples were analyzed for PAL volatile organic compounds (VOCs). Table 1-1 summarizes the analytical results.

Review of the analytical data for organic compounds shows that the VOC toluene was reported at 0.002 micrograms per gram (μg/g) in soil sample SHS-93-02X, and acetone was reported at 0.025 μg/g in soil sample SHS-93-01X (duplicate). Acetone was also detected in one of 21 rinsate blanks, and toluene was detected in five of 21 rinsate blanks. Neither was considered a contaminant in the soil samples because of their low concentrations and presence in rinsate blanks (ABB-ES, 1993a). No other VOCs were reported.

Thirteen PAL SVOCs were reported at individual concentrations up to 6 μg/g. The SVOC 2-methylnaphthalene (up to 6 μg/g) and naphthalene (up to 3 μg/g) were reported in all four samples. Samples from sites SHS-93-01X and SHS-93-02X had the greatest number of detections as well as the highest SVOC concentrations. Sample SHS-93-03X, collected adjacent to the abandoned 750-gallon tanks, contained six SVOCs (chrysene, 0.24 μg/g; fluoranthene, 0.13 μg/g; 2-methylnaphthalene, 0.11 μg/g; naphthalene, 0.063 μg/g; phenanthrene, 0.22 μg/g; and pyrene, 0.14 μg/g). Two pesticides were detected: gamma-chlordane at 0.027S μg/g in SHS-93-01X and 2,2-bis(para-chlorophenyl)-1,1-dichloroethene (DDE) at 0.011 μg/g in SHS-93-02X.

The source of the SVOCs was not established; however, the five interconnected tanks did not appear to be a source. SVOC contamination was less extensive adjacent to the tanks than at the other three sample locations. Low-concentration pesticide contamination appears to be widespread at Fort Devens.

Comparison in the draft SI report of inorganic analytical data for the sediment sample SHD-93-01X with Ontario Ministry of the Environment (MOE) sediment criteria (Persaud, et al., 1992) (Table 1-2) indicated four exceedances: arsenic (11.5 versus 6.0 μg/g), copper (13,000 versus 16 μg/g), lead (4,800 versus 31 μg/g), and zinc (156 versus 120 μg/g). Except for antimony, copper, and lead, inorganic concentrations did not stand out in comparison to the analytical data for Plow Shop Pond sediment samples discussed in the RI Addendum (ABB-ES, 1993b).

The human health PRE, based on U.S. Environmental Protection Agency (USEPA) Region III commercial/industrial soil concentrations, identified potential human health concerns based on the concentrations of inorganics in sediment and soil samples (ABB-ES, 1993a). The ecological PRE, based on USEPA interim sediment criteria, also identified potential risks from inorganics in sediment and soil (ABB-ES, 1993a). High concentrations of antimony, copper, and lead were of greatest concern.

1.6 Initial Site Investigation Conclusions

The source of inorganic contamination, in particular antimony, copper, and lead, was not established. The high observed concentrations were associated with deposits along the edge of Plow Shop Pond.

Material with the appearance of coal ash was observed in deposits at the location of sediment sample SHD-93-01X and soil sample SHS-93-01X. However, comparison of analytical results for inorganics presented in Table 1-1 with reference values presented in Table 1-3 suggests that coal ash may not be the source of the high concentrations of antimony, copper, and lead in the deposits. The reported concentrations of antimony, copper, and lead in the soil samples typically exceed reference values by an order of magnitude or more, while other inorganics are approximately equal to or less than reference values.

A more probable source of these three elements is the disposal of maintenance by-products from the former roundhouse, notably babbitt cuttings and scrap bearings. Because of this probable source, the SSI data gathering activities focused on distribution of inorganic contaminants at the site.

It is believed that coal ash and possibly on-going vehicle emissions may have resulted in an elevated, site-specific anthropogenic background for several chemicals. While the Massachusetts Contingency Plan (MCP) (310 CMR 40) may not be an Applicable or Relevant and Appropriate Requirement for the site, the concept of anthropogenic background is consistent with the Massachusetts Department of Environmental Protection (MADEP) definition (310 CMR 40.0006) which states that:

> Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are:
>
> (a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and

(b) attributable to geologic or ecologic conditions, atmospheric deposition of industrial process or engine emissions, fill materials containing wood or coal ash, and/or petroleum residues that are incidental to the normal operation of motor vehicles.

2.0 SUPPLEMENTAL SITE INVESTIGATION ACTIVITIES

The following subsections summarize the SSI field activities and sampling rationale, the laboratory analytical program, chemical data management, and handling of investigation-derived waste.

2.1 FIELD PROGRAM SUMMARY

This subsection provides a narrative description of the field sampling program. Appendix A contains associated test pit logs, soil boring logs, and monitoring well construction reports.

2.1.1 Sediment Sampling and Analysis

Four shallow sediment samples were collected to confirm analytical data from the March 1993 sampling and to provide information on the distribution of inorganic analytes. Sample RHD-94-02X was collected as close as practicable to the location of SHD-93-01X. Samples RHD-94-03X, -04X, and -05X were collected approximately 50 feet west, north, and east of RHD-94-02X as shown on Figures 2-1 and 2-2. The horizontal location of each sample was surveyed by a surveyor registered in the Commonwealth of Massachusetts.

Samples were collected at the pond-substrate interface with a hand auger and submitted for laboratory analyses of PAL SVOCs, PAL inorganics, tin, TOC, grain size distribution, and percent solids. Sediments at RHD-94-02X, RHD-94-03X, and RHD-94-05X, located just off-shore from the maintenance by-products deposits, had the texture and coloring of coal ash with aquatic organics. Sediments at RHD-94-04X, located approximately 50 feet further off-shore, had the texture and coloring of peat with other vegetative matter.

To better assess the extent of the maintenance by-products deposits along the Plow Shop Pond shoreline, additional hand auger probes were made. These probes indicated that the deposits extend 15 to 25 feet offshore. Odors, initially interpreted to be petroleum-like in nature, were noted from some of the probes made as part of this effort. Similar odors were also noted in the soil boring for monitoring well RHM-94-01X. However, as discussed in Subsection 4.3.1, this initial interpretation does not correlate with the results of photoionization detector (PID) screening or laboratory analyses.

2.1.2 Soil Sampling and Analysis

Shallow soil samples were collected from 15 shallow (approximately 3 feet deep), hand-excavated test pits (RHS-94-04X through RHS-94-18X)(see Figures 2-1 and 2-2). Up to three soil samples were collected from each test pit. A total of 46 samples were collected. RHS-94-04X was located as close as practicable to SHS-93-01X to confirm previous analytical results. RHS-94-05X through RHS-94-07X were established east and west of RHS-94-04X to assess analyte distribution along the edge of Plow Shop Pond within the area of maintenance by-products deposits. RHS-94-08X was established just down slope from an 8-inch diameter drain outlet, east of the maintenance by-products deposits. RHS-94-09X through RHS-94-13X were established in and around the turntable and the location of the former roundhouse building to characterize analyte distribution directly associated with maintenance activities. RHS-94-14X through RHS-94-18X were located south of the roundhouse building to assess local background conditions associated with railyard operations. Soil samples were typically collected from the ground surface (i.e., zero to 6 inches below ground surface [bgs]), and from 12 to 18 inches and 20 to 24 inches bgs at each sampling location. Soil samples were analyzed for PAL SVOCs, PAL inorganics, tin, and TOC. Samples from locations RHS-94-10X, RHS-94-14X, and RHS-94-17X were also submitted for determination of grain size distribution (Appendix B).

Conditions observed in the test pits were indicative of fill soils. Test pits located in the area of the maintenance by-products deposits had the thickest amounts of fill material. Much of the fill material, particularly in this area, had the appearance of mixed coal ash, brick, asphalt, and metal debris.

2.1.3 Monitoring Well Installation

Two new water table monitoring wells, RHM-94-01X and RHM-94-02X were installed to characterize groundwater quality downgradient of the railroad roundhouse (Figure 2-3). Well RHM-94-01X was installed as close to soil sample location SHS-93-01X as practicable, within the area of maintenance by-products deposits. Well RHM-94-02X was installed approximately 200 feet east southeast of RHM-94-01X where the ground surface is approximately 13 feet higher than

RHM-94-01X. This location is interpreted to be downgradient of the roundhouse and is southeast of the inferred location of the former oil house.

Borings for the wells were advanced using 6⅝-inch hollow-stem augers, and both wells were constructed with 4-inch diameter polyvinyl chloride (PVC) riser and screen (Appendix A).

Both wells were constructed as shallow water table wells. RHM-94-01X, where the water table is near the ground surface, is screened from 3 to 13 feet bgs. RHM-94-02X, where the water table is deeper, is screened from 14 to 24 feet bgs. Well screens were installed such that they extend approximately 2 feet above the water table. Split-spoon samples were collected at five-foot intervals for geologic logging. A soil sample was collected from the screened interval of each well for TOC analysis.

Soils encountered in the monitoring well boring RHM-94-01X indicate that the maintenance by-products deposits are approximately 6 feet thick at this location. The ash-like deposits were underlain by poorly graded fine to coarse sands. A discolored layer with petroleum-like odors was detected at approximately 9.1 feet bgs. However, as discussed in Subsection 4.3.1, the characterization of the odors as petroleum-like was not confirmed by analytical results. The origin of the odors was not established. Peat was encountered at 9.6 feet bgs.

In RHM-94-02X, poorly graded sands were encountered to an approximate depth of 15 feet bgs. From 15 to 19 feet bgs, soils were characterized as low plasticity silt. At the bottom of the boring, from 19 to 26 feet bgs, soils were characterized as poorly graded sands.

2.1.4 Aquifer Characterization and Testing

In situ measurements were made to assess groundwater flow paths and aquifer characteristics.

Groundwater flow patterns were established from quarterly installation-wide water-level measurements. Water levels were recorded in monitoring wells and surface water bodies. Measurements in wells were made from surveyors' marks using electronic water-level sensors. Surface water measurements were made by measuring from survey marks on stakes placed in or near the water. Water levels were measured to the nearest 0.01 foot and were referenced to the National Geodetic Vertical Datum (NGVD) of 1929.

To obtain an estimate of hydraulic conductivity within the unconsolidated aquifer, permeability tests were performed on the two new monitoring wells installed within the railroad roundhouse area. Water displacement for the tests was accomplished by lowering a 3-foot-long, 3-inch-diameter, solid PVC cylinder 4 to 5 feet below the water table. The water level in the well was allowed to equilibrate and the slug was withdrawn causing the water level to fall. The head recovery was recorded using an In-Situ™ Hermit SE1000C Data Logger and a 20 pound-per-square-inch (psi) pressure transducer.

Two tests, a rising head and a falling head test, were performed on each well to assess variations associated with testing. Test data were analyzed using the methods of Hvorslev (1951) and Bouwer and Rice (1976). Test data and calculations are provided in Appendix C.

2.1.5 Monitoring Well Development

The two newly installed monitoring wells, RHM-94-01X and RHM-94-02X were developed prior to the first round of groundwater sampling. Development was conducted to:

- remove foreign substances potentially introduced during drilling;
- increase the efficiency of the wells;
- restore the hydrogeologic integrity of the formation immediately adjacent to the well; and
- reduce the turbidity of groundwater samples.

Development of RHM-94-01X and RHM-94-02X was initiated no sooner than 48 hours and no later than seven days after monitoring well completion. A mechanically operated Watera pump was used for development. The pump was decontaminated before use in each well.

During development, each well volume of removed water was monitored for specific conductance, temperature, pH, and turbidity. A well volume was calculated as the volume of standing water in the well plus the amount in the annular sandpack (assuming 30 percent porosity).

Wells were considered fully developed when the following criteria were met:

- Well water was clear to the unaided eye.
- Sediment thickness in the well was less than 1 percent of the screen length.
- Total water removed from the well equaled five well volumes plus five times the volume of any drilling water lost.
- Where possible, turbidity measurements varied by less than approximately 10 percent.

Any changes in the above-mentioned development criteria were approved by the USAEC. Groundwater purged from wells was contained in drums for disposal characterization. Procedures for handling investigation-derived waste are described in Subsection 2.5.

2.1.6 Groundwater Sampling and Analysis

Two rounds of groundwater samples from two existing and the two new groundwater monitoring wells were collected and analyzed to assess whether the roundhouse site is a current source of groundwater contamination. Samples from existing water table monitoring wells SHL-7 and SHL-18 were used to characterize shallow groundwater arriving at the upgradient site boundary.

The first round of groundwater sampling began 14 days after development of the new monitoring wells. The second round of groundwater sampling began 90 days after the first round. Prior to sample collection, five well volumes of groundwater were purged from the monitoring wells in accordance with Subsection 4.5.2 of the Fort Devens Project Operation Plan (POP) (ABB-ES, 1993e). Specific conductance and turbidity readings varied by less than 10 percent between the final two well volumes.

Groundwater samples were analyzed on-site for pH, conductivity, oxidation-reduction potential, temperature, and turbidity. Round I samples were analyzed on-site for dissolved oxygen. Table 2-1 presents the results of the on-site measurements. Laboratory analyses of the groundwater samples included PAL SVOCs, total and dissolved PAL metals and tin, total suspended solids (TSS), total dissolved solids (TDS), TOC, alkalinity, and total hardness. Samples to be analyzed for dissolved metals were field filtered through a 0.45 micron filter.

2.2 Analytical Program

The analytical samples collected from surface and shallow subsurface soil, sediment, and groundwater were submitted to a USAEC Contractor Laboratory for laboratory analysis to quantify contaminants that were expected, based on available information, to be present at the railroad roundhouse site.

Analytical parameters were selected from the Fort Devens PAL (Appendix D). Laboratory analytical methods for PAL organics, inorganics, and explosives are similar to USEPA Contract Laboratory Program (CLP) Routine Analytical Services and support Level III data quality.

2.2.1 Analytical Program Quality Assurance/Quality Control

All water and soil environmental samples collected during the railroad roundhouse sampling effort at Fort Devens were submitted to Environmental Science and Engineering, Inc. (ESE), Gainesville, Florida. The following subsections summarize the laboratory quality assurance/quality control (QA/QC) program.

2.2.2 Laboratory Performance Demonstration

In accordance with the USAEC QA Program, laboratories must achieve a satisfactory performance demonstration for analytical methods conducted in association with site investigations (USAEC, 1993). The USAEC requires that a laboratory demonstrate proficiency in performing chemical analysis for specific analytes. Table E-1 of Appendix E lists and briefly describes analytical methods for which ESE has demonstrated performance proficiency and provides equivalent USEPA method numbers where they exist. Appendix C of the POP describes the analytical methods used by ESE (ABB-ES, 1993).

Laboratories demonstrate performance by first submitting data from analysis of calibration standards and then performance samples sent to the laboratory by USAEC. The concentrations of the analytes in these performance samples are unknown by the laboratory. The data are sent to USAEC where the precision and accuracy of the analyses are determined. Approval is either awarded to or denied the laboratory based on this performance. An analytical method code is assigned to each method and reported with results. Certified Reporting Limits (CRLs) are also determined from this process. CRLs of the target analytes for the railroad roundhouse samples are listed in Tables E-2, E-3, and E-4 of Appendix E.

Some methods such as alkalinity, TOC, and TSS do not require performance demonstration. USAEC recognizes standard USEPA protocols or internal laboratory methods for these parameters. Laboratories are required to submit information on procedures for analyzing samples using these methods to the USAEC Chemistry Branch before they are implemented.

2.2.3 Laboratory Methods Quality Control

The laboratory organizes all submitted samples into lots which are assigned a three or four digit code using letters of the alphabet. Each lot consists of the maximum number of samples, including QC samples that can be processed through the rate-limiting step of the method during a single time period (not exceeding 24 hours). Lots may consist of samples from multiple installations provided the data quality objectives are the same. The rate-limiting step is usually determined by time or equipment limitations.

Associated with each lot are laboratory control samples. Control samples are spikes of both high and low concentrations of specific analytes that help monitor laboratory precision and accuracy. The recoveries of these spikes are plotted on control charts generated by the laboratory and submitted to USAEC. Data generated from the performance demonstration process are used to calculate a mean of the recoveries. Control and warning limits are statistically generated by the USAEC Chemistry Branch to help measure laboratory data quality.

Method blanks are also run at the laboratory to evaluate the potential for target analytes to be introduced during the processing and analysis of samples. One method blank is included in each analytical lot. Method blank results are found in Table E-5 of Appendix E.

2.2.4 Data Reduction and Validation

Initial responsibility for accuracy and completeness of data packages rests with the laboratory itself. All data submissions to USAEC must first undergo a review process. This review includes checks on the data quality which evaluate completeness of laboratory data, accuracy of reporting limits, compliance with QC limits and holding times, and correlation of laboratory data to associated laboratory tests.

Laboratories also review the following items before data is submitted to USAEC:

- Chain of custody records.
- Instrument printouts to see if these agree with handwritten results.
- Calibration records to ensure a particular lot is associated with only one calibration.
- Chromatograms and explanations for operator corrective actions (such as manual integrations).
- Standard preparation and documentation of source.
- Calculations on selected samples.
- Notebooks and sheets of paper to ensure all pages are dated and initialed, and explanations of procedure changes.
- Gas chromatograph/mass spectrograph library search of unknown compounds.
- Transfer files and records to ensure agreement with analysis results.

To document the data review and evaluation process, a data review checklist is submitted as part of the data package.

2.2.5 Data Reporting

Once the data have undergone review and evaluation by the laboratory, they are encoded for transmission into the USAEC Installation Restoration Data Management Information System (IRDMIS) as Level 1 data. Once in IRDMIS, the data are subjected to a group and records check.

Data are then transferred to an army data management contractor. During this phase, the data are considered to be Level 2. Another group and records check is performed and data are reviewed by the USAEC Chemistry Branch. If errors are identified, the data are returned to the laboratory for correction. Once data have been reviewed by the USAEC Chemistry Branch, the determination is made on a lot by lot basis whether the data are acceptable. The data that are accepted are then elevated to Level 3. The data are available to USAEC personnel and contractors by modem to a main frame computer.

2.2.6 Field Quality Control Samples

QC samples collected in the field include rinsate samples, matrix spike (MS) and matrix spike duplicate (MSD) samples, and field duplicate samples. Trip blanks were not analyzed for railroad roundhouse samples since VOC analyses were not performed at the laboratory.

Rinsate blanks were collected and analyzed for inorganics, SVOCs, and other methodologies including alkalinity, hardness, TDS, TSS, and TOC. They were collected by running laboratory "chemically pure" deionized water through the sampling apparatus that was used to collect the samples. Analysis of this water provides information to evaluate the potential for sample contamination during sample collection. The results also determine whether an adequate job was done during the decontamination of the equipment. Rinsate blanks were collected at a rate of one per 20 samples per decontamination event. Rinsate blank results are reported in Table E-6 of Appendix E.

MS and MSD samples were collected at a rate of one set per 20 samples. Site investigators made the determination of which samples were to be designated as MS/MSDs. This was noted on the chain of custody forms submitted to the laboratory. Samples designated as MS/MSDs were spiked at the laboratory with analytes that were requested for the regular field samples to see what matrix effects may have occurred on the target analytes. MS/MSD results are presented in Table E-7 of Appendix E.

Duplicate samples were also collected at the same rate of one per 20 samples. The samples were submitted to the laboratory to be analyzed for the same compounds as the corresponding primary samples. The purpose of submitting these samples was to assess laboratory precision for a particular method. Duplicate sample results are presented in Table E-8 of Appendix E.

2.2.7 Evaluation of Potential Field or Laboratory Introduced Contamination

Laboratory data collected during the railroad roundhouse soil sampling were evaluated for possible laboratory- or sampling-related contamination. This evaluation did not include validation according to USEPA guidelines. Sample results were not adjusted for reported analytes that were also detected at similar concentrations in blanks associated with that sample. Action levels were not established, and the 10X rule was not applied to compounds considered to be common laboratory contaminants by the USEPA. These compounds include the VOCs acetone, methylene chloride, and toluene, and SVOC phthalate esters (i.e. bis(2-ethylhexyl)phthalate). Action levels for other analytes using the 5X rule application were not established. Analytes which would have been below these action levels were not removed from the data as they would be in the USEPA validation process.

General trends relating to blank and sample contamination were examined. Comparison of blank data with results from the entire data set are discussed as a data assessment. Assessments were made based on analyte detection in blanks, the frequency of this detection and the concentrations of these analytes. These assessments are made in Appendix E.

2.3 Chemical Data Management

Chemical data were managed by the ABB-ES Sample Management System and the USAEC IRDMIS. These systems are described in the following subsections.

2.3.1 Sample Tracking System

ABB-ES used its computerized Sample Management System to track environmental samples from field collection to shipment to the laboratory. ABB-ES also tracked the status of analyses and reporting by the laboratory.

Each day, the field sampling teams carried computer-generated sample labels into the field which stated the sample control number, sample identification, size and type of container, sample preservation summary, analysis method code, and sample medium. The labels also provided space for sampling date and time and the collector's initials to be added at the time of collection.

Samples were temporarily stored in the ABB-ES field office refrigerator. They were checked-in on the computer, and the collector's initials and the sampling date and time were entered. The system would then indicate the sample status as "COLLECTION IN PROGRESS."

When the samples were prepared for shipment, they were "RELEASED" by the sample management system. Upon request, the system printed an Analysis Request Form and a chain of custody form, which were signed and included with the samples in the shipment. The system would then indicate the sample status as "SENT TO LAB."

This system substantially reduced the time required for preparation of sample tracking documentation, and it provided an automated record of sample status.

After shipment of samples to the laboratory, ABB-ES continued to track and record the status of the samples, including the date analyzed (to establish actual holding times), the date a transfer file was established by ESE, and the date the data were sent to IRDMIS.

2.3.2 Installation Restoration Data Management Information System

IRDMIS is an integrated system for collection, validation, storage, retrieval, and presentation of data of the USAEC Installation Restoration and Base Closure Program. It uses personal computers, a UNIX-based minicomputer, printers, plotters, and communications networks to link these devices.

For each sample lot, ABB-ES developed a "provisional" map file for the sample locations, which was entered into IRDMIS by Potomac Research Institute (PRI), the USAEC data management contractor.

Following analysis of the sample lot, ESE created chemical files using data codes provided by ABB-ES, and entered the analytical results (Level 1) on a personal computer in accordance with the User's Manual (PRI, 1993). For each sample lot, a hard copy was printed which was reviewed and checked by the ESE Laboratory Program Manager. ESE created a transfer file from accepted records that was sent to ABB-ES (Level 2). ABB-ES performed a group and record check and sent approved records in a chemical transfer file to PRI. PRI checked the data and, if accepted, entered it into the IRDMIS minicomputer (Level 3). Level 3 chemical data are the data used for evaluating site conditions and are the data used in reports and decision-making.

2.4 Survey of Sampling Locations

The horizontal location of sediment and surface soil sample points and of groundwater monitoring wells was surveyed by a Massachusetts-licensed land surveyor following completion of field sampling activities. In addition, the surveyor measured the ground surface elevation at surface soil sample locations, and ground surface, top of riser, and top of protective casing elevations at the location of groundwater monitoring wells installed during the SSI. Horizontal locations are referenced to the Massachusetts Planar Coordinate System. Elevations are referenced to the NVGD of 1929. Appendix F presents the survey data.

2.5 Investigation-derived Waste

Wastes were generated in association with personal protection, drilling, monitoring well construction and development, sampling, and decontamination.

Drill cuttings and drilling fluids were inspected for discoloration or other indications of contamination. PID screening was conducted at 5-foot intervals or with every split-spoon collected, whichever was more frequent. Drilling fluids and cuttings were disposed on the ground surface after the PID screening indicated less than 5 parts per million (ppm). This was done in accordance with Subsection 4.10 of the POP.

Purge water was disposed on the ground surface after PID screening indicated results less than 5 ppm. This was done in accordance with Subsection 4.10 of the POP.

All pre-sampling purge water was discharged at the point of collection.

3.0 PHYSICAL CHARACTERISTICS

This section describes the physical characteristics at Fort Devens and the railroad roundhouse site. Discussion of the climate, vegetation, ecology, physiography, soils, surficial and bedrock geology, and regional hydrogeology of Fort Devens is included in the subsections that follow.

3.1 FORT DEVENS

Fort Devens is located in the towns of Ayer and Shirley (Middlesex County) and Harvard and Lancaster (Worcester County), approximately 35 miles northwest of Boston, Massachusetts. It lies within the Ayer, Shirley, and Clinton map quadrangles (7½-minute series). The installation occupies approximately 9,260 acres and is divided into the North Post, the Main Post, and the South Post (see Figure 1-1).

More than 6,000 acres at Fort Devens are used for training and military maneuvers, and more than 3,000 acres are developed for housing, buildings, and other facilities; the installation has been reported as the largest undeveloped land holding under a single owner in north-central Massachusetts (USFWS, 1992).

The South Post is located south of Massachusetts Route 2 and is largely undeveloped. The Main Post and North Post primarily contain developed lands, including recreational areas (e.g., a golf course and Mirror Lake), training areas, and an airfield. Group 1A sites are located on the Main Post.

The following subsections describe the history and physical setting of Fort Devens.

3.1.1 Fort Devens History

Camp Devens was created as a temporary cantonment in 1917 for training soldiers from the New England area. It was named after Charles Devens - a Massachusetts Brevet Major General in the Union Army during the Civil War who later became Attorney General under President Rutherford Hayes. Camp Devens, served as a reception center for selectees, as a training facility, and, at the end of World War I, as a demobilization center (Marcoa Publishing Inc., 1990). At Camp Devens, the 1918 outbreak of Spanish influenza infected 14,000 people, killed 800, and caused the installation to be quarantined (McMaster et al., 1982). Peak military strength during World War I was 38,000. After World War II, Fort Devens became an installation of the U.S. Army Field Forces, CONARC in 1962 and the U.S. Army Forces Command (FORSCOM) in 1973 (Biang et al., 1992).

In 1921, Camp Devens was placed in caretaker status. During summers from 1922 to 1931, it was used as a training camp for National Guard troops, Reserve units, Reserve Officer Training Corps (ROTC) cadets, and the Civilian Military Training Corps (CMTC). In 1929, Dr. Robert Goddard used Camp Devens to test his early liquid-fuel rockets, and there is a monument to him on Sheridan Road near Jackson Gate (Fort Devens Dispatch, 1992).

In 1931, troops were again garrisoned at Camp Devens. It was declared a permanent installation, and in 1932 it was formally dedicated as Fort Devens. During the 1930s, there was a limited building program, and beautification projects were conducted by the Works Progress Administration (WPA) and Civilian Conservation Corps (CCC).

In 1940, Fort Devens became a reception center for New England draftees, and was expanded to more than 10,000 acres. Approximately 1,200 wooden buildings were constructed, and two 1,200-bed hospitals were built. In 1941, the Army Airfield was constructed by the WPA in 113 days (Fort Devens Dispatch, 1992). In 1942, the Whittemore Service Command Base Shop for motor vehicle repair (Building 3713) was built, and at the time it was known as the largest garage in the world (U.S. Army, 1979). The installation's current wastewater treatment plant was also constructed in 1942 (Biang et al., 1992).

During World War II, more than 614,000 inductees were processed. The Fort Devens population reached a peak of 65,000. Three Army divisions and the Fourth Women's Army Corps trained at Fort Devens, and it was the location of the Army's Chaplain School, the Cook and Baker School, and a basic training center for Army nurses. A prisoner-of-war camp for 5,000 German and Italian soldiers was operated from 1944 to 1946. At the end of the war, Fort Devens again became a demobilization center, and in 1946 it reverted to caretaker status.

Fort Devens was reactivated in July 1948 and again became a reception center during the Korean Conflict. It has been an active Army facility since that time.

Currently, the mission at Fort Devens is to command and train its assigned duty units; operate the South Boston Support Activity in Boston, the Sudbury Training Annex, and the Hingham USAR Annex; and to support the 10th Special Forces Group (A), the U.S. Army Intelligence School, Fort Devens, the U.S. Army Reserves, Massachusetts Army National Guard, and ROTC Training Programs. No major industrial operations occur at Fort Devens, although several small-scale industrial operations are performed under the Directorate of Plans, Training, and Security; the Directorate of Logistics; and the Directorate of Engineering and Housing. The major waste-producing operations by these groups are photographic processing and maintenance of vehicles, aircraft, and small engines. Past artillery fire, mortar fire, and waste explosive disposal at Fort Devens are potential sources for explosives contamination (USAEC, 1993).

Under Public Law 101-510, the Base Closure and Realignment Act of 1990, Fort Devens has been identified for closure by July 1997. Four thousand six hundred acres are to be retained to establish a Reserve Component enclave and regional training center.

3.1.2 Fort Devens Physical Setting

The climate, vegetation, ecology, physiography, soils, surficial and bedrock geology, and regional hydrogeology of Fort Devens are described in the subsections that follow.

3.1.2.1 Climate. The climate of Fort Devens is typical of the northeastern United States, with long cold winters and short hot summers. Climatological data were reported for Fort Devens by the U.S. Department of the Army (1979), based in part on a 16-year record from Moore Army Airfield (MAAF).

The mean daily minimum temperature in the coldest months (January and February) is 17 degrees Fahrenheit (°F), and the mean daily maximum temperature in the hottest month (July) is 83°F. The average annual temperature is 58°F. There are normally 12 days per year when the temperature reaches or exceeds 90°F and 134 days when it falls to or below freezing.

The average annual rainfall is 39 inches. Mean monthly precipitation varies from a low of 2.3 inches (in June) to a high of 5.5 inches (in September). The average annual snowfall is 65 inches, and snowfall has been recorded in the months of September through May (falling most heavily from December through March).

Wind speed averages 5 miles per hour, ranging from the highest monthly average of 7 mph (March-April) to the lowest monthly average of 4 miles per hour (September).

Average daytime relative humidities range from 71 percent (January) to 91 percent (August), and average nighttime relative humidities range from 46 percent (April) to 60 percent (January).

3.1.2.2 Vegetation. The Main and North Posts at Fort Devens are characterized primarily by urban and developed cover types. Approximately 56 percent of these areas are covered by developed lands, the golf course, the airfield, and the wastewater infiltration beds. Early successional forest cover types (primarily black cherry-aspen hardwoods) encompass approximately 2 percent of the area, mixed oak-red maple hardwoods approximately 20 percent, and white pine-hardwood mixes approximately 11 percent. The rest of the North and Main Posts are characterized by various coniferous species, shrub habitat, and herbaceous cover types.

Much of the South Post is undeveloped forested land. The area includes approximately 8 percent early successional forest (black cherry, red birch, grey birch, quaking aspen, red maple); 26 percent mixed oak hardwoods; and 9 percent coniferous forest (white pine, pitch pine, red pine). Four percent of the area comprises a mixed shrub community. The 200-acre Turner Drop Zone is maintained as a grassland that represents a "prairie" habitat. Vegetative cover in the large "impact area" of the central South Post has not been mapped in detail. It is dominated by fire-tolerant species such as pitch pine and scrub oak.

Extensive sandy glaciofluvial soils are found in the Nashua River Valley, particularly in the South and North Post areas of Fort Devens. Extensive accumulations of these soils are unusual in Massachusetts outside of Cape Cod and adjacent areas of southeastern Massachusetts, and they account for some of the floral and faunal diversity at the installation.

3.1.2.3 Ecology. Fort Devens encompasses numerous terrestrial, wetland, and aquatic habitats in various successional stages. Floral and faunal diversity is strengthened by the installation's close proximity to the Nashua River; the amount, distribution, and nature of wetlands; and the undeveloped state and size of the South Post (USFWS, 1992). Much of Fort Devens was formerly agricultural land and included pastures, woodlots, orchards, and cropped fields.

Existing habitat types reflect this agrarian history, ranging from abandoned agricultural land to secondary growth forested regions. Fort Devens is generally reverting back to a forested state.

There are 1,313 acres of wetlands at Fort Devens. The wetlands are primarily palustrine, although riverine and lacustrine types are also found. Forested palustrine floodplain wetlands associated with the Nashua River and its tributary Nonacoicus Brook are located on Fort Devens Main and North Posts. These include 191 acres of flooded areas, emergent marsh, and shrub wetlands. Also present are 245 acres of isolated regions of palustrine wetlands and lacustrine systems. On the South Post, there are 877 acres of wetlands, consisting of deciduous forested wetlands, deciduous shrub swamps, emergent marsh, open lacustrine waters in ponds, and open riverine waters (USFWS, 1992).

Approximately half of Fort Devens land area abuts the northern boundary of the Oxbow National Wildlife Refuge (NWR), a federal resource administered as part of the Great Meadows NWR (USFWS, 1992).

Fort Devens supports an abundance and diversity of wildlife. Identified taxa include 771 vascular plant species, 538 species of butterflies and moths, eight tiger beetle species, 30 vernal pool invertebrates, 15 amphibian species (six salamanders, two toads, seven frogs), 19 reptile species (seven turtles, 12 snakes), 152 bird species, and 42 mammal species. The status of fish populations in Fort Devens aquatic systems has not been fully defined (ABB-ES, 1993f).

Rare and endangered species at Fort Devens include the federally listed (endangered) bald eagle and peregrine falcon (both occasional transients); the state-listed (endangered) upland sandpiper, ovoid spike rush, and Houghton's flatsedge; the state-listed (threatened) Blanding's turtle, cattail sedge, pied-billed grebe, and northern harrier; and the state-listed (special concern) blue-spotted salamander, grasshopper sparrow, spotted turtle, wood turtle, water shrew, blackpoll warbler, American bittern, Cooper's hawk, sharp-shinned hawk, and Mystic Valley amphipod. Also state-listed as rare or endangered are three Lepidoptera (butterfly and moth) species identified at Fort Devens.

The Massachusetts Natural Heritage Program (MNHP) has developed Watch Lists of unprotected species that are uncommon or rare in Massachusetts. From the Watch Lists, 14 plant species, two amphibian species, and 15 bird species have been observed at Fort Devens.

Additional detail concerning the ecological characteristics of the railroad roundhouse can be found in Section 5.

3.1.2.4 Physiography. Fort Devens is in a transitional area between the coastal lowland and central upland regions of Massachusetts. All of the landforms are products of glacial erosion and deposition on a crystalline bedrock terrain. Glacial erosion was superimposed on ancient bedrock landforms that were developed by the erosional action of preglacial streams. Generally, what were bedrock hills and ridges before the onset of Pleistocene glaciation were only moderately modified by glacial action, and they remain bedrock hills and ridges today. Similarly, preglacial bedrock valleys are still bedrock valleys. In post-glacial time, streams have locally modified the surficial glacial landforms but generally have not affected bedrock.

The predominant physiographic (and hydrologic) feature in the Fort Devens area is the Nashua River. It forms the eastern installation boundary on the South Post, where its valley varies from a relatively narrow channel (at Still River Gate), to an extensive floodplain with a meandering river course and numerous cutoff meanders (at Oxbow NWR). The Nashua River forms the western boundary of much of the Main Post, and there its valley is deep and comparatively steep-sided with extensive bedrock outcroppings on the eastern bank. The river flows through the North Post in a well-defined channel within a broad forested floodplain.

Terrain at Fort Devens falls generally into three types. The least common is bedrock terrain, where rocks that have been resistant to both glacial and fluvial erosion remain as topographic highs, sometimes thinly veneered by glacial deposits. Shepley's Hill on the Main Post is the most prominent example.

A similar but more common terrain at Fort Devens consists of materials (tills) deposited directly by glaciers as they advanced through the area or as the ice masses wasted (melted). These landforms often conform to the shape of the underlying bedrock surface. They range from areas of comparatively low topographic relief (such as near Lake George Street on the Main Post) to elongated hills (drumlins) whose orientations reflect the direction of glacier movement (such as Whittemore Hill on the South Post).

The third type of terrain was formed by sediment accumulations in glacial-meltwater streams and lakes (glaciofluvial and glaciolacustrine deposits). This is the most common terrain at Fort Devens, comprising most of the North and

South Posts and much of the Main Post. Its form bears little or no relationship to the shape of the underlying bedrock surface. Landforms include extensive flat uplands such as the hills on which MAAF and the wastewater infiltration beds are located on the North Post. Those are large remnants of what was once a continuous surface that was later incised and divided by downcutting of the Nashua River. Another prominent glacial meltwater feature is the area around Cranberry Pond and H-Range on the South Post. This is classic kame-and-kettle topography formed by sand and gravel deposition against and over large isolated ice blocks, followed by melting of the ice and collapse of the sediments. The consistent elevations of the tops of these ice-contact deposits are an indication of the glacial-lake stage with which they are associated. Mirror Lake and Little Mirror Lake on the Main Post occupy another conspicuous kettle.

3.1.2.5 Soils. Fort Devens lies within Worcester County and Middlesex County in Massachusetts (see Figure 1-1). The soils of Worcester County have been mapped by the Soil Conservation Service (SCS) of the U.S. Department of Agriculture (USDA). Mapping of the soils of Middlesex County has not been completed. However, an interim report (USDA, 1991), field sheet #19 (USDA, 1989), and an unpublished general soil map (USDA, undated) are available.

Soil mapping units ("soil series") that occur together in intricate characteristic patterns in given geographic areas are grouped into soil "associations." Soils in the Worcester County portions of Fort Devens consist generally of three associations. Three associations also have been mapped in the Middlesex County portions of Fort Devens. Although the mapped associations are not entirely the same on both sides of the county line, the differences reflect differences in definition and the interim status of Middlesex County mapping. The general distributions of the soil associations are shown in Figure 3-1, and descriptions of the soil series in those associations are provided below.

WORCESTER COUNTY (USDA, 1985)

<u>Winooski-Limerick-Saco Association:</u>

> <u>Winooski Series</u>. Very deep; moderately well drained; slopes zero to 3 percent; occurs on floodplains; forms in silty alluvium.
>
> <u>Limerick Series</u>. Very deep; poorly drained; slopes zero to 3 percent; occurs on floodplains; forms in silty alluvium.

Saco Series. Very deep; very poorly drained; slopes zero to 3 percent; occurs on floodplains; derived mainly from schist and gneiss.

Hinckley-Merrimac-Windsor Association:

Hinckley Series. Very deep; excessively drained; slopes zero to 35 percent; occurs on stream terraces, eskers, kames, and outwash plains.

Merrimac Series. Very deep; excessively drained; slopes zero to 25 percent; occurs on stream terraces, eskers, kames, and outwash plains.

Windsor Series. Very deep; moderately well drained; slopes zero to 3 percent; occurs on floodplains.

Paxton-Woodbridge-Canton Association:

Paxton Series. Very deep; well drained; slopes 3 to 35 percent; occurs on glacial till uplands; formed in friable till overlying firm till.

Woodbridge Series. Very deep; moderately well drained; slopes zero to 15 percent; occurs on glacial till uplands; formed in firm till.

Canton Series. Very deep; well drained; slopes 3 to 35 percent; occurs on glaciated uplands; formed in friable till derived mainly from gneiss and schist.

MIDDLESEX COUNTY (USDA, 1991)

Hinckley-Freetown-Windsor Association (This is a continuation of the Hinckley-Merrimac-Windsor Association mapped in Worcester County):

Hinckley Series. Deep; excessively drained; nearly level to very steep; occurs on glacial outwash terraces, kames, and eskers; formed in gravelly and cobbley coarse-textured glacial outwash.

Freetown Series. Deep; very poorly drained; nearly level, organic; occurs in depressions and on flat areas of uplands and glacial outwash plains.

Windsor Series. Deep; excessively drained; nearly level to very steep; occurs on glacial outwash plains, terraces, deltas, and escarpments; formed in sandy glacial outwash.

Quonset-Carver Association:

Quonset Series. Deep; excessively drained; nearly level to very steep; occurs on glacial outwash plains, terraces, eskers, and kames; formed in water-sorted sands derived principally from dark phyllite, shale, or slate.

Carver Series. Deep; excessively drained; nearly level to steep; occurs on glacial outwash plains, terraces, and deltas; formed in coarse, sandy, water-sorted material.

Winooski-Limerick-Saco Association (This is a continuation of the same association mapped along the Nashua River floodplain in Worcester County).

3.1.2.6 Surficial Geology. Fort Devens lies in three topographic quadrangles: Ayer, Clinton, and Shirley. The surficial geology of Fort Devens has been mapped only in the Ayer quadrangle (Jahns, 1953) and Clinton quadrangle (Koteff, 1966); the Shirley quadrangle is unmapped.

Unconsolidated surficial deposits of glacial and postglacial origin comprise nearly all of the exposed geologic materials at Fort Devens. The glacial units consist of till, deltaic deposits of glacial Lake Nashua, and deposits of glacial meltwater streams.

The till ranges from unstratified gravel to silt, and it is characteristically bouldery. Jahns (1953) and Koteff (1966) recognize a deeper unit of dense, subglacial till, and an upper, looser material that is probably a slightly younger till of englacial or superglacial origin. Till is exposed in ground-moraine areas of the Main Post (such as in the area of Lake George Street) and on the South Post at and south of Whittemore Hill. It also underlies some of the water-laid deposits (Jahns, 1953). Till averages approximately 10 feet in thickness, but reaches 60 feet in drumlin areas (Koteff, 1966).

Most of the surficial glacial units in the Nashua Valley are associated with deposition in glacial Lake Nashua, which formed against the terminus of the Wisconsinan ice sheet as it retreated northward along the valley. Successively lower outlets were uncovered by the retreating glacier, and the lake level was correspondingly lowered. Koteff (1966) and Jahns (1953) recognize six lake levels (stages) in the Fort Devens area, distinguished generally by the elevations and distribution of their associated deposits. The stages are, in order of development: Clinton Stage; Pin Hill Stage; Old Mill Stage; Harvard Stage; Ayer Stage; and Groton Stage.

The glacial lake deposits consist chiefly of sand and gravelly sand. Coarser materials are found in topset beds of deltas built out into the lakes and in glacial streambeds graded to the lakes. Delta foreset beds are typically composed of medium to fine sand, silt, and clay. Lake-bottom deposits, which consist of fine sand, silt, and clay, are mostly covered by delta deposits and are seldom observed in glacial Lake Nashua deposits. One of the few known exposures of glacial lake-bottom sediments in the region is on the South Post near A- and C-Ranges. There, a section of more than 14 feet of laminated clay was mined for brick-making in the early part of this century (Alden, 1925). The general physical characteristics of glacial lake deposits are the same regardless of the particular lake stage in which the deposits accumulated (Koteff, 1966; Jahns, 1953). Although glaciofluvial and glaciolacustrine sediments are typically well stratified, correlations between borings are difficult because of laterally abrupt changes characteristic of these generally high-energy depositional environments.

Postglacial deposits consist mostly of river-terrace sands and gravels; fine alluvial sands and silts beneath modern floodplains; and muck, peat, silt, and sand in swampy areas.

Jahns (1953) also observed a widespread veneer of windblown sand and ventifacts above the glacial materials (and probably derived from them in the brief interval between lake drainage and the establishment of vegetative cover).

3.1.2.7 Bedrock Geology. Fort Devens is underlain by low-grade metasedimentary rocks, gneisses, and granites. The rocks range in age from Late Ordovician to Early Devonian (approximately 450 million to 370 million years old). The installation is situated approximately 2 miles west of the Clinton-Newbury-Bloody Bluff fault zone, which developed when the ancestral European continental plate collided with and underthrust the ancestral North American plate. The continents reseparated in the Mesozoic to form the modern Atlantic Ocean. Fort Devens is located on the very eastern edge of the ancestral North American continental plate. A piece of the ancestral European continent (areas now east of the Bloody Bluff fault) broke off and remained attached to North America.

Preliminary bedrock maps (at scale 2,000 feet/inch) are available for the Clinton quadrangle (Peck, 1975 and 1976) and Shirley quadrangle (Russell and Allmendinger, 1975; Robinson, 1978). Bedrock information for the Ayer quadrangle is from the Massachusetts state bedrock map (at a regional scale of 4 miles/inch) (Zen, 1983) and associated references (Robinson and Goldsmith, 1991; Wones and Goldsmith, 1991). Among these sources, there is some disagreement about unit names and stratigraphic sequence; however, there is general agreement about the distribution of rock types.

In contrast to the high metamorphic grade and highly sheared rocks of the Clinton-Newbury zone, the rocks in the Fort Devens area are low grade metamorphics (generally below the biotite isograd) and typically exhibit less brittle deformation. Major faults have been mapped, however, including the Wekepeke fault exposed west of Fort Devens (in an outcrop 0.25 mile west of the old Howard Johnson rest stop on Route 2).

Figure 3-2 is a generalized summary of the bedrock geology of Fort Devens. It is compiled from Peck (1975), Robinson (1978), Russell and Allmendinger (1975), and Zen (1983), and it adopts the nomenclature of Zen (1983). Because of limited bedrock exposures, the locations of mapped contacts are considered approximate, and the mapped faults are inferred. Rock units strike generally northward to northeastward but vary locally. The bedrock units underlying Fort Devens are as follows:

DSw **WORCESTER FORMATION** (Lower Devonian and Silurian) Carbonaceous slate and phyllite, with minor metagraywacke to the west (Zen, 1983; Peck, 1975). Bedding is typically obscure because of a lack of compositional differences. It is relatively resistant to erosion and forms locally prominent outcrops. The abandoned Shaker slate quarry on the South Post is in rocks of the Worcester Formation. The unit corresponds to the "DSgs" and "DSs" units of Peck (1975) and the "e3" unit of Russell and Allmendinger (1975).

So **OAKDALE FORMATION** (Silurian) Metasiltstone and phyllite. It is fine-grained and consists of quartz and minor feldspar and ankerite, and it is commonly deformed by kink banding (Zen, 1983; Peck, 1975; Russell and

Allmendinger, 1975). In outcrop it has alternating layers of brown siltstone and greenish phyllite. The Oakdale Formation crops out most visibly on Route 2 just east of the Jackson Gate exit. It corresponds to the "DSsp" unit of Peck (1975), the "e2" unit of Russell and Allmendinger (1975), and "ms" unit of Robinson (1978).

Sb **BERWICK FORMATION** (Silurian) Thin- to thick-bedded metamorphosed calcareous metasiltstone, biotitic metasiltstone, and fine-grained metasandstone, interbedded with quartz-muscovite-garnet schist and feldspathic quartzite (Zen, 1983; Robinson and Goldsmith, 1991). In areas northwest of Fort Devens, cataclastic zones have been observed (Robinson, 1978).

Dcgr **CHELMSFORD GRANITE** (Lower Devonian) Light-colored and gneissic, even and medium grained, quartz-microcline-plagioclase-muscovite-biotite, pervasive ductile deformation visible in elongate quartz grains aligned parallel to mica. It intrudes the Berwick Formation and Ayer granite (Wones and Goldsmith, 1991).

AYER GRANITE

Sacgr **Clinton facies** (Lower Silurian) Coarse-grained, porphyritic, foliated biotite granite with a nonporphyritic border phase; it intrudes the Oakdale and Berwick Formations and possibly the Devens-Long Pond Facies (Zen, 1983; Wones and Goldsmith, 1991).

SOad **Devens-Long Pond facies** (Upper Ordovician and Lower Silurian) Gneissic, equigranular to porphyoblastic biotite granite and granodiorite. Its contact relationship with the Clinton facies is unknown (Wones and Goldsmith, 1991). Observations of mapped exposures of this unit on Fort Devens indicate that it may not be intrusive.

Bedrock is typically unweathered to only slightly weathered at Fort Devens. Glaciers stripped away virtually all of the preglacially weathered materials, and there has been insufficient time for chemical weathering of rocks in the comparatively brief geologic interval since glacial retreat.

3.1.2.8 Regional Hydrogeology. Fort Devens is in the Nashua River drainage basin, and the Nashua River is the eventual discharge locus for all surface water and groundwater flow at the installation.

The water of the Nashua River has been assigned to Class B under Commonwealth of Massachusetts regulations. Class B surface water is "designated for the uses of protection and propagation of fish, other aquatic life and wildlife, and for primary and secondary contact recreation" (314 CMR 4.03).

The principal tributaries of the north-flowing Nashua River at Fort Devens are Nonacoicus Brook and Walker Brook on the North Post; Cold Spring Brook (which is a tributary of Nonacoicus Brook) on the Main Post; and Spectacle Brook and Ponakin Brook (tributaries of the North Nashua River), Slate Rock Brook, and New Cranberry Pond Brook on the South Post.

There are two ponds on Fort Devens' South Post that are called Cranberry Pond. For the purpose of this report, the isolated kettle pond located east of H-Range is referred to as Cranberry Pond, and the pond impounded in the 1970s, 0.5-mile west of the Still River gate, is referred to as New Cranberry Pond.

Glacial meltwater deposits constitute the primary aquifer at Fort Devens. In aquifer tests performed as part of the Groups 2 and 7 SI (ABB-ES, 1993d), measured hydraulic conductivities in meltwater deposits were comparatively high - typically $1x10^{-3}$ to $1x10^{-2}$ centimeters per second (cm/sec). In till and in clayey lake-bottom sediments, measured hydraulic conductivities were lower and ranged generally from $1x10^{-6}$ to $1x10^{-4}$ cm/sec. Groundwater also occurs in the underlying bedrock; however, flow is limited because the rocks have very little primary porosity and water moves primarily in fractures and dissolution voids.

Groundwater in the surficial aquifer at Fort Devens has been assigned to Class I under Commonwealth of Massachusetts regulations. Class I consists of groundwaters that are "found in the saturated zone of unconsolidated deposits or consolidated rock and bedrock and are designated as a source of potable water supply" (314 CMR 6.03).

The transmissivity of an aquifer is the product of its hydraulic conductivity and saturated thickness, and as such is a good measure of groundwater availability. Figure 3-3 shows aquifer transmissivities at Fort Devens, based on the regional work of Brackley and Hansen (1977). Transmissivities in the meltwater deposits range from 10 square feet per day (ft^2/day) to more than 4,000 ft^2/day. Aquifer transmissivities between 10 and 1,350 ft^2/day correspond to potential well yields generally between 10 and 100 gallons per minute (gpm); transmissivities from 1,350 to 4,000 ft^2/day typically yield from 100 to 300 gpm; and where transmissivities exceed 4,000 ft^2/day, well yields greater than 300 gpm can be expected. Most domestic wells in the area are drilled 100 to 200 feet into bedrock and yield less than 10 gpm. Higher yields are associated with deeper bedrock wells.

In Figure 3-3, the zones of highest transmissivity are found in areas of thick glacial meltwater deposits on the North and Main Posts, and these encompass the Sheboken, Patton, and McPherson production wells and the largely inactive Grove Pond wellfield. The zones of lowest transmissivity are associated with exposed till and bedrock and are located on the Main Post surrounding Shepley's Hill and between Jackson Gate and the parade ground, and on the South Post at Whittemore Hill and isolated areas to the north and west.

A regional study of water resources in the Nashua River basin was reported by Brackley and Hansen (1977). A digital model of groundwater flow at Fort Devens is available in a report by Engineering Technologies Associates, Inc. (1995).

According to Engineering Technologies Associates, Inc. (1995), in the absence of pumping or other disturbances, groundwater recharge occurs in upland areas (e.g., the high ground on the Main Post between Queenstown, Givry, and Lake George Streets, and on the South Post the area around Whittemore Hill). The groundwater flows generally from the topographic highs to topographic lows. It discharges in wetlands, ponds, streams, and directly into the Nashua River. Groundwater discharge maintains the dry-weather flow of the rivers and streams.

3.2 Railroad Roundhouse

For the purposes of this SSI, the former railroad roundhouse site is assumed to consist of a strip of land extending south from Plow Shop Pond along the installation boundary for approximately 1,100 feet and ending just north of monitoring well SHL-24 (see Figure 1-2). The site is bordered to the east by the B&MRR "Hill Yard" and to the west by Shepley's Hill Landfill. The railroad roundhouse site tapers from a width of about 250 feet at Plow Shop Pond to 100 feet near monitoring well SHL-24. The area is sparsely vegetated with small trees, brush, and grass, and is discernable from adjacent areas to the west that have been excavated and are not vegetated. With the exception of a steep bank near the edge of the pond, the area has little slope.

3.2.1 Railroad Roundhouse Geology

The following subsections describe the surficial and bedrock geology of the railroad roundhouse area.

3.2.1.1 Surficial Geology. The railroad roundhouse lies within the Ayer topographic quadrangle. The surficial geology of the Ayer quadrangle was mapped in 1941 by Jahns (Jahns, 1953). Soils in the roundhouse area are part of the Hinckley-Merrimack (Freetown)-Windsor Association and are associated with deposition in glacial Lake Nashua, which formed against the terminus of the Wisconsinan ice sheet. Soils in this association are characterized as being very deep, moderately well to excessively drained, and having slopes of zero to 35 percent.

Surficial soils at the railroad roundhouse are composed of coal ash fill, maintenance by-product deposits, and naturally deposited sand, silty sand, and peat. A layer of coal, coal ash, and clinker exists across most of the site. The layer is typically about 1 foot thick and is found at or within a few inches of the ground surface. Occasionally, the layer extends to over 2 feet bgs.

The maintenance by-products consist of sand and gravel sized pieces of coal, coal ash, and clinker, with wood, metal, metal cuttings or filings, and brick fragments in a loose matrix of moderately graded, subrounded to angular sand and gravel with 10 to 30 percent silt. The by-product deposits extend for approximately 150 feet along the southern shore of Plow Shop Pond and southward from the shore towards the former roundhouse for approximately 60 feet. The observed thickness of these deposits ranges from approximately 6 feet near the base of the existing slope to approximately 18 feet at the northwest corner of the deposit adjacent to the pond. The debris is observed above, in, and below peat deposits at 14 to 17 feet bgs indicating that the pond may have extended to the base of the slope. The presence of peat fibers vertically throughout the debris indicates that deposition may have occurred over many years in conjunction with natural sedimentation.

Native soils at the site are comprised of fine to medium, poorly graded sand and silty sand overlying silt and poorly graded, medium to coarse sand with fewer than 5 percent fines. Adjacent to Plow Shop Pond the by-products deposits overly a highly organic peat which in turn overlies a poorly graded, fine to medium, loose, subrounded sand.

3.2.1.2 Bedrock Geology. Bedrock was not encountered in borings at the railroad roundhouse site. Bedrock underlying Shepley's Hill Landfill immediately to the west of the roundhouse is comprised of low grade meta-siltstone (phyllite), belonging to the Silurian Berwick Formation, and biotite-rich gneiss associated with the Devens-Long Pond facies of the Ayer Granite (Upper Ordovician and Lower Silurian). It is believed that phyllite underlies the railroad roundhouse site at an undetermined depth.

3.2.2 Railroad Roundhouse Groundwater Hydrogeology

Groundwater present in the overburden represents the primary aquifer in the area of the railroad roundhouse and Shepley's Hill Landfill.

Groundwater flow in the vicinity of the railroad roundhouse site is primarily from southwest to northeast (see Figure 3-3). Groundwater north of the former roundhouse discharges to Plow Shop Pond while groundwater to the south of the former roundhouse discharges to Grove Pond. Groundwater level data collected on May 9, 1995 yield an upward vertical gradient between the deep overburden monitoring well SHL-18 and the water table monitoring well SHM-93-18B of 0.07 feet per foot. These wells are located approximately 200 feet west of the site. This data set also showed an upward vertical gradient between the deep overburden monitoring well SHL-24 and the water-table monitoring well SHM-93-24A, located at the southern extremity of the site of 0.008 feet per foot. The observed upward gradients are interpreted to indicate that upward vertical hydraulic gradients exist across the site.

Horizontal hydraulic gradients were calculated between the monitoring wells SHL-18 and RHM-94-01X, SHL-7 and RHM-94-02X, and SHL-18 and RHM-94-02X using the May 9, 1995 groundwater level data set. These well pairs were chosen because they are approximately perpendicular to interpreted potentiometric surface contours. The average calculated horizontal hydraulic gradient was 0.003 feet per foot.

Rising and falling head permeability tests were performed at monitoring wells RHM-94-01X and RHM-94-02X, both of which were installed as part of the SSI. Hydraulic conductivities were estimated using the methods of Hvorslev (1951) and Bouwer and Rice (1976). The method of Hvorslev yielded hydraulic conductivity estimates of 7.2×10^{-4} cm/sec (falling head) and 9.1×10^{-4} cm/sec (rising head) for RHM-94-01X and 1×10^{-3} cm/sec (falling head) and 6.7×10^{-3} cm/sec (rising head) for RHM-94-02X. Values for the Bouwer and Rice analysis, as well as complete data sets and hydrographs, are provided in Appendix C. The calculated values are consistent with hydraulic conductivities commonly associated with silty sands.

Average linear flow velocity was calculated assuming an average hydraulic conductivity of 0.003 feet per foot, a soil porosity of 0.3, and an average hydraulic conductivity of 9×10^{-3} cm/sec (1.1 feet per hour). Groundwater at the railroad roundhouse site was calculated to have an average flow velocity of 0.01 feet per hour.

3.2.3 Railroad Roundhouse Surface Water Hydrology

The railroad roundhouse site is bordered to the north by Plow Shop Pond, a shallow 30-acre pond outside the installation boundary. The water level in Plow Shop Pond is maintained by a dam located at the northwest corner of the pond. Flow into Plow Shop Pond is through a culvert from Grove Pond to the east. The railroad causeway separating Plow Shop Pond and Grove Pond is thought to have been constructed in the late 1800s. Before construction of the causeway and dams, Plow Shop Pond and Grove Pond were most likely a continuous swampy area fed by a number of small streams. Both ponds are believed to be local discharge areas for groundwater.

4.0 PRESENCE AND DISTRIBUTION OF CONTAMINATION

Analytical data used in this contamination assessment include surface soil and sediment samples collected at the roundhouse during the 1993 and 1994 field programs, and groundwater samples collected at the roundhouse during the 1994 field program. Samples collected during the 1993 field program were analyzed for PAL VOCs, SVOCs, pesticides, PCBs, and PAL inorganics. Samples collected during the 1994 field program were analyzed for PAL SVOCs, PAL inorganics, and tin. For each medium, data from the 1993 and 1994 field programs were summarized as follows:

- data from surface soil samples collected at sample depths between zero and 3 feet bgs at sampling locations SHS-93-01X to SHS-93-03X, and RHS-94-04X to RHS-94-13X (see Figures 1-3, 2-1, and 2-2). For a given surface soil sampling location, each depth at which a sample was collected was treated as a separate sample;
- data from shallow (zero-to-6-inches bgs) sediment samples collected at locations SHD-93-01X and RHD-94-02X to RHD-94-05X (see Figures 1-3 and 2-1);
- data from groundwater samples collected during both rounds of sampling at monitoring wells RHM-94-01X and RHM-94-02X (see Figure 2-3). For a given monitoring well, samples collected during each round of sampling were treated as separate samples.

The following subsections address the SSI sampling rationale, field observations, and the results of laboratory analysis. Summary tables presenting laboratory results are provided to supplement the text and figures.

4.1 SEDIMENT

The laboratory results for the sediment sample (SHD-93-01X) collected during the SI are summarized in Table 1-1, while the laboratory results for the sediment samples collected as part of the SSI (RHD-94-02X, RHD-94-03X, RHD-94-04X, and RHD-94-05X) are presented in Table 4-1. The RHD-94-02X sample location was located as close as practicable to the SHD-93-01X sample location. For comparison purposes, a summary of inorganic data from shallow Plow Shop Pond sediment samples collected during RI and Supplemental RI activities in Plow Shop Pond is presented in Table 4-2.

4.1.1 SVOC Results

Thirteen separate SVOCs were detected in the SSI sediment samples. The highest SVOC concentration reported was 5 $\mu g/g$ of fluoranthene in the RHD-94-03X sample. This sample also had the highest concentration of total SVOCs at 27.4 $\mu g/g$. A duplicate sample, collected with RHD-94-03X, had 2 $\mu g/g$ of fluoranthene and a total SVOC concentration of 10.1 $\mu g/g$. In the remaining three samples, total SVOC concentrations ranged from nondetect in RHD-94-04X to 5.7 $\mu g/g$ in RHD-94-02X.

Eleven of the 13 SVOCs detected during the SSI were also detected during the SI. The exceptions are benzo(a)pyrene, which was reported during the SI but not the SSI, and acenaphthene which was reported during the SSI but not the SI. The results reported for RHD-94-02X correlate well with the results from SHD-93-01X. Total SVOC concentrations in sediment samples exceeded the MOE total polynuclear aromatic hydrocarbon (PAH) lowest effect level tentative guideline of 2 $\mu g/g$, but were one-to-two orders of magnitude less than the severe effect level.

4.1.2 Inorganics Results

Twenty-one PAL inorganics and tin (total of 22) were detected in the SSI sediment samples. Cadmium and thallium were not reported. A review of Table 4-1 indicates that RHD-94-04X, located in peaty material approximately 50 feet offshore, had generally lower concentrations of most inorganics in comparison to the other sediment samples. This correlates well with the observations made during sampling which suggest that the maintenance by-products deposits extend 15 to 25 feet into Plow Shop Pond from the shoreline. RHD-94-02X, RHD-94-03X, and RHD-94-05X, located just offshore from the maintenance by-products deposits generally had the higher concentrations of most inorganics. This was particularly true for antimony (9.13 to 19.6 $\mu g/g$), copper (220 to 3,450 $\mu g/g$) and lead (282 to 1,210 $\mu g/g$).

Visual comparison of railroad roundhouse SI and SSI sediment data (see Tables 1-1 and 4-1) with historical Plow Shop Pond sediment data for antimony, arsenic, barium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc (see Table 4-2) shows that concentrations of arsenic, chromium, manganese and mercury, are typically less than Plow Shop Pond concentrations. However, roundhouse sediment concentrations of antimony, barium, copper, lead, and zinc may be greater than typical Plow Shop Pond values. Little difference is apparent for iron and nickel. Antimony, copper, and lead are also found in high concentrations in soil samples collected in the area of maintenance by-products deposits. It appears that concentrations of antimony, copper, and lead in Plow Shop Pond sediments located within 15 to 25 feet of the shore near the railroad roundhouse site are affected by the maintenance by-products deposits.

Comparison of the inorganic sediment data in Table 4-1 with the MOE sediment criteria (Persaud, et al., 1992), presented in Table 1-2 indicates the following:

- arsenic, five exceedances in five samples
- cadmium, no exceedances (not detected) in five samples
- chromium, one exceedance in five samples
- cobalt, no exceedances in five samples
- copper, five exceedances in five samples
- iron, one exceedance in five samples
- lead, four exceedances in five samples
- manganese, no exceedance in five samples
- mercury, three exceedances in five samples
- nickel, one exceedance in five samples
- zinc, one exceedance in five samples

Concentrations of lead and copper are typically well above the sediment criteria. The arsenic sediment criterion was also exceeded in each of the five samples, although this appears to reflect a relatively low arsenic sediment criteria (6.0 $\mu g/g$). The remaining exceedances occurred in the near-shore samples that appear to be affected by maintenance by-products deposits. MOE sediment criteria are not available for the other reported inorganics.

4.1.3 Total Organic Carbon

The TOC concentrations ranged from 20,000 to 490,000 $\mu g/g$. The lower concentrations were associated with RHD-94-02X and RHD-94-05X where sediments appear to be most influenced by the presence of maintenance by-products. The higher TOC concentration is associated with RHD-94-04X, which is located further offshore and was noted as being "primarily peat and other vegetative matter" in the field data record. This TOC concentration correlates well with the Plow Shop Pond sediment data from 1992, which had a TOC range of 110,000 to 840,000 μg/g in sediment samples collected at the pond/sediment interface in offshore areas.

4.2 SOILS

The laboratory results for the soil samples (test pits SHS-93-01X through SHS-93-03X) collected during the SI are presented in Table 1-1. The laboratory results for the soil samples collected as part of the SSI (test pits RHS-94-04X through RHS-94-18X) are summarized in Table 4-3. The laboratory analyses include PAL SVOCs, PAL inorganics and tin, and TOC. In discussing each of these analyte groups, the samples will be subdivided into the following groupings:

1. The local background conditions in the vicinity of railroad tracks formerly located approximately 200 to 800 feet south of the railroad roundhouse (RHS-94-14X through RHS-94-18X).

2. Maintenance by-products deposits (RHS-94-04X through RHS-94-07X, [RHS-94-08X was located east of this area]).

3. The railroad roundhouse and turntable area (RHS-94-09X through RHS-94-13X).

4.2.1 SVOC Results

Specific SVOC results are reported on Table 4-3. Overall, the SVOC results are unremarkable and do not suggest the presence of a SVOC contaminant source.

Tentatively identified compounds detected in these SVOC soil samples are typically characterized as high molecular weight, straight chain alkanes. These compounds are often associated with residues from combustion. Their presence in soil samples containing coal ash is to be expected.

Background Samples. Twelve samples were collected from the five test pits (RHS-94-14X through RHS-94-18X) in the local background area of the railroad corridor south of the roundhouse and turntable area. Overall, the SVOC concentrations and number of detections were lower in these samples than in other samples collected at the site. Four of the 12 samples had no detectable SVOCs and two other samples had only trace concentrations of one or two SVOCs (less than 2 μg/g of bis(2-ethylhexyl)phthalate). The 0.5-foot sample from RHS-94-16X had the highest number of SVOC detections (8). This sample, along with the 1.5-foot-deep sample from RHS-94-16X, shared the highest SVOC concentration (6 μg/g of 2-methylnaphthalene).

Maintenance By-Products Deposits. Twelve samples were collected from the four test pits (RHS-94-04X through RHS-94-07X) in the maintenance by-products deposits. Overall, the SVOC results in soil samples from the maintenance by-products area were unremarkable. A review of Table 2-3 indicates that five of the 12 samples in this area had no reportable SVOCs. The number of SVOCs reported, as well as their concentrations, generally decreased with deeper soil samples. For example, in the four soil samples collected at the ground surface, the total number of reported SVOCs ranged from nine to 14; whereas for the four deeper soil samples collected at 1.5 to 2 feet bgs, one sample had seven reported SVOCs while the remaining three samples had no reported SVOCs.

The surficial sample from RHS-94-05X had the highest number of reported SVOCs with 14. The surficial sample from RHS-94-04X had the highest individual SVOC concentration 40 μg/g of 2-methylnaphthalene. The surficial sample at RHS-94-04X was collocated with the SHS-93-01X sample to confirm the earlier analytical results. A comparison of sample results on Tables 1-1 and 2-3 indicates generally good agreement (i.e., similar SVOCs were detected). However, the SVOC concentrations are slightly higher in the RHS-94-04X sample, while the SVOCs benzo[a]anthracene, benzo[a]pyrene, and benzo[b]fluoranthene reported in SHS-93-01X were not reported in RHS-94-04X.

Three samples were collected from the RHS-94-08X test pit located downslope of the 8-inch drain outlet. The SVOCs reported in these samples appear to be more characteristic of fuels (2-methylnaphthalene, naphthalene, and phenanthrene) than coal ash. However, their concentrations, while higher than concentrations in samples collected in test pits RHS-94-04X through RHS-94-07X, are relatively low. The sample from the 1.1-foot-depth at RHS-94-08X generally had higher SVOC concentrations than either the surface or 0.8-foot-deep sample at that location. The maximum individual concentration reported in the 1.1-foot sample from RHS-94-08X was for naphthalene (20 μg/g).

Railroad Roundhouse and Turntable Area. Sixteen samples (including one duplicate) were collected from the five test pits (RHS-94-09X through RHS-94-13X) in the railroad roundhouse and turntable area. Six of the 16 samples had no reported SVOCs. Generally, the number of SVOCs reported, as well as their concentrations, decreased with deeper soil samples. The exception to this is the 1.5-foot sample from RHS-94-11X, which was collected from a soil layer containing coal, coal ash, and other debris. This sample had the highest number of reported SVOCs (18) of the samples in the railroad roundhouse area. The distribution of SVOCs reported in this sample is similar, although at somewhat lower concentrations, than the surficial sample from RHS-94-09X where the highest SVOC result (70 $\mu g/g$ of phenanthrene) was measured in samples from the railroad roundhouse area. In comparison to the samples from the maintenance by-products disposal area, the samples from RHS-94-09X and RHS-94-11X have higher concentrations of the SVOCs benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and chrysene.

4.2.2 Inorganics Results

Specific inorganic results for soils are presented on Table 4-3. Table 4-4 summarizes the results by tabulating arithmetic means, maximum concentrations, minimum concentrations, and 95th percentile of the upper confidence level (UCL) for the local background samples, railroad roundhouse turntable samples, and maintenance by-products area samples.

Local Background Samples. Twelve samples were collected from the five test pits (RHS-94-14X through RHS-94-18X) in the local background area of the railroad corridor south of the roundhouse and turntable area. With few exceptions, average and maximum concentrations of aluminum, beryllium, calcium, cobalt, iron, magnesium, manganese, nickel, and sodium detected in these background samples were not notably above the results from the other soil samples collected as part of this SSI.

The log from test pit RHS-94-15X reports a soil layer containing "coal ash, clinker, size from dust to 1" diam., very dense...". Laboratory analysis on a soil sample collected from this layer reported the maximum concentration of aluminum (19,400 $\mu g/g$), arsenic (52 $\mu g/g$), beryllium (4.39 $\mu g/g$), potassium (2,080 $\mu g/g$), and sodium (1,390 $\mu g/g$).

The log from test pit RHS-94-16X reports a soil layer containing "coal ash, coal, and clinker ..." Laboratory analysis on a soil sample collected from this layer reported the maximum concentration of calcium (11,500 $\mu g/g$), cobalt (15.5 $\mu g/g$), iron (85,000 $\mu g/g$), manganese (513 $\mu g/g$), and nickel (37.6 $\mu g/g$).

Maintenance By-Products Deposits. Twelve samples were collected from four test pits (RHS-94-04X through RHS-94-07X) in the maintenance by-products deposits. Inorganic concentrations were generally higher in these samples than others. Antimony, arsenic, barium, chromium, copper, lead, potassium, selenium, thallium, vanadium, tin, and zinc had higher average concentrations for the samples collected from this area. With the exception of arsenic, barium, potassium and zinc, the maximum sample concentration was also reported from samples in this set. In this sample set, the minimum concentration of antimony, copper, lead, and tin were either near or above the 95th percent UCL calculated for the local background samples.

A comparison of the concentrations for the inorganics noted above in Table 4-4 with the concentrations of trace elements in coal ash presented in Table 1-3, indicates that the concentrations of arsenic, barium, chromium, selenium, vanadium, and zinc are reasonably close to the concentrations of trace elements in coal ash. However, the concentrations of antimony, copper, and lead are well above the reported concentrations of trace elements in coal ash.

The higher concentrations of antimony, copper, and lead in samples from this area likely reflect the presence of maintenance by-products in these samples. As noted in Subsection 1.3 of this SSI report, routine maintenance and repair activities at railroad roundhouses includes smelting, pouring, and machining of babbitt. Babbitt, an antifriction alloy, is composed of antimony, copper, lead, and tin. This is consistent with the logs from test pits RHS-94-04X through RHS-94-07X which indicate the presence of metallic waste.

The log from test pit RHS-94-06X reports a soil layer containing "coal ash and/or metal filings, aggregate of coarse sand size fragments cemented together, cuprous green to blue-green". Laboratory analysis on a soil sample collected from this layer reported the maximum concentration of antimony (1,400 $\mu g/g$) and copper (6,900 $\mu g/g$).

The log from test pit RHS-94-04X reports a soil layer containing "coal ash ... coal fragments ... and fire brick". Laboratory analysis on a soil sample collected from this layer reported the maximum concentration of lead (7,100 $\mu g/g$) and tin (130 $\mu g/g$). The high lead concentrations do not appear to extend below the depth of the maintenance by-products deposits, as illustrated by the analysis of a soil sample from 9 feet bgs in RHM-94-01X (located adjacent to RHS-94-04X) where lead was detected at 3 $\mu g/g$.

Soil samples from RHS-94-08X, located east of the maintenance by-products deposits had concentrations of antimony, copper, lead, and tin that are consistent with the concentrations found in the railroad roundhouse turntable area and local background area. At sample location RHS-94-08X, the highest inorganic concentrations were generally found in the 1.1-foot-deep sample.

Railroad Roundhouse and Turntable Area. Sixteen soil samples were collected from the five test pits (RHS-94-09X through RHS-94-13X) located in the railroad roundhouse turntable area. Overall, the inorganic concentrations reported in these samples are unremarkable. None of the samples analyzed from this area or had high individual maximum concentrations. This indicates that the railroad roundhouse turntable area has similar inorganic concentrations to the local background samples.

4.3 GROUNDWATER

The laboratory results for the two rounds of groundwater sampling at the four monitoring wells conducted as part of this SSI are summarized on Table 4-5. Monitoring wells RHM-94-01X and RHM-94-02X are located at the railroad roundhouse site to assess the potential for groundwater contamination from the maintenance by-products deposits and the railroad roundhouse and turntable area, respectively. Monitoring wells SHL-07 and SHL-18 represent background wells.

4.3.1 SVOC Results

Bis(2-ethylhexyl)phthalate was reported in monitoring well RHM-94-02X at a concentration of 4.5 micrograms per liter ($\mu g/L$). This is the only SVOC reported in the groundwater sampling results. Although the boring log for RHM-94-01X reported "...black layer with petroleum odor..." at 9.1 to 9.2 feet bgs, (within the screened interval) no fuel-related compounds were detected in the SVOC analysis from this monitoring well. In addition, field screening of the soil layer with a PID did not detect VOCs. This is interpreted to mean that the field characterization of these odors as petroleum-like was incorrect and that the observed odors and staining were not associated with petroleum contamination.

4.3.2 Inorganics Results

Overall, the background groundwater samples from SHL-07 and SHL-18 had lower inorganic concentrations in comparison to the samples from the railroad roundhouse area. This result may reflect low-level groundwater contamination from the railroad roundhouse site, or it may reflect the fact that the new monitoring wells (RHM-94-01X and RHM-94-02X) have yet to achieve long-term equilibrium.

Both filtered and unfiltered groundwater samples were collected from the four monitoring wells. As expected, the filtered results show lower inorganic concentrations. This is particularly true for RHM-94-01X, located near the center of the maintenance by-products deposits. The unfiltered sample from RHM-94-01X contained concentrations of antimony (25.1 μg/L) in excess of the federal Maximum Contaminant Level (MCL) (6 μg/L) and lead (400 μg/L) in excess of the federal action level (15 μg/L). However, the corresponding filtered samples had concentrations (antimony $<$3.03 μg/L and lead $<$1.26 μg/L) below the respective standards. The unfiltered sample results likely reflect the presence of antimony and lead in the suspended sediments.

The boring log and well construction documentation for RHM-94-01X indicate that the water table occurs approximately 3 feet above the base of the maintenance by-products deposits. As a result, RHM-94-01X intersects a saturated sequence of the maintenance by-products deposits. As a result, higher inorganic concentrations are expected from groundwater samples from this monitoring well.

5.0 PRELIMINARY RISK EVALUATIONS

This section contains PREs for the railroad roundhouse area. These PREs are based on the analytical data collected during the SI and the SSI. The PREs are screening-level evaluations of potential risks that environmental contaminants may pose to human and ecological receptors. The specific objectives of this PRE are to:

- review the existing analytical data for surface soil, sediment, and groundwater at the roundhouse site;
- characterize the current and potential future land uses and ecological status of the site to identify potential human and ecological receptors and contaminant exposure pathways; and
- compare the analytical data to available human health and ecological screening guidelines and criteria to identify Chemicals of Potential Concern (COPCs).

5.1 PRE METHODOLOGIES

The PRE methodology has been described in detail in Fort Devens SI reports for the Groups 3, 5, and 6 Study Areas (ABB-ES, 1993c) and the Groups 2, 7, and Historic Gas Stations Study Areas (ABB-ES, 1993d). A summary of the methodology used for the Human Health and the Ecological PREs follows.

For each data set, summary statistics included the range of detected concentrations, arithmetic mean concentration, frequency of detection, and the range of detection limits. One-half the detection limit, defined as the CRL (or the sample quantitation limit [SQL] when a sample was diluted), was assigned to non-detected analytes for the calculation of averages. For all media evaluated, maximum and minimum detected concentrations were selected prior to averaging duplicate samples. Selecting the maximum in a duplicate pair results in conservative estimates of exposure point concentrations. Average concentrations were calculated after duplicate samples were averaged.

To determine site-related soil and groundwater contaminants, inorganics detected in surface soils and groundwater were compared to regional background screening values. For surface soils, the local background data used in this PRE are considered representative of ambient surface soil conditions associated with anthropogenic activities at the railroad corridor adjacent to the site. The local background soil samples were collected from five sample locations (RHS-94-14X to RHS-94-18X) in this area (see Figure 2-1). Up to three soil samples were collected at each location from depths between zero and 3 feet bgs, resulting in a total of 12 background surface soil samples. The background surface soil data have been summarized using the same methods as for the site surface soil. The 95 percent UCL on the mean background analyte concentration was calculated in accordance with methodology described in the *Supplemental Guide to RAGS: Calculating the Concentration Term* (USEPA, 1992), assuming a log-normal distribution of the data. This value was used as the background screening value. Comparison of maximum site analyte concentrations to the 95 percent UCL background value provides a conservative screening approach.

The background screening for the roundhouse groundwater data consisted of comparison of maximum site analyte concentrations to the Fort Devens groundwater background data set presented in Table 4-1 of the Final RI Addendum Report (ABB-ES, 1993b). In addition, data are compared to the maximum inorganic concentrations detected in two monitoring wells (SHL-7 and SHL-18) upgradient of the roundhouse. Background data were unavailable for Plow Shop Pond sediment.

5.1.2 Public Health PRE Methodology

For the public health PRE, public health standards and/or guidelines exist that can be used as screening criteria for the evaluation of the analytical data. To provide a conservative screen of potential risks associated with media at the site, the maximum detected concentrations of analytes in each medium were compared to available local background data and to risk screening guidelines.

Screening values used in the public health PRE include the following:

- **USEPA Region III Risk-Based Concentration Table.** USEPA Region III risk-based concentrations (RBCs) (USEPA, 1994a) for soil were used to evaluate the results of the soil sampling programs. At this time, neither the USEPA headquarters nor USEPA Region I have published soil cleanup guidelines. The Region III RBC table is used by USEPA Region III toxicologists as a risk-based screening tool for Superfund sites as a benchmark for evaluating preliminary SI data and preliminary remediation goals. Although it has no official status either as regulation or guidance, it is useful as a screening tool. The risk-based concentrations are based on toxicity constants and "standard" exposure scenarios, and correspond to fixed levels of risk (i.e., a hazard quotient of 1, or lifetime cancer risk of $1x10^{-6}$, whichever occurs at a lower concentration) in water, air, fish tissue, and soil. For soil, Region III risk-based concentrations have been developed for commercial/industrial soil exposure and residential exposure.

- **Office of Solid Waste and Emergency Response Lead Guidance (OSWER Directive 9355.4-12).** The Region III table does not include inorganic lead, an analyte detected in media at the railroad roundhouse. However, the USEPA Office of Solid Waste and Emergency Response (OSWER) has published a revised interim soil cleanup level for total lead of 400 milligrams per kilogram (mg/kg), which is protective for direct contact exposure in residential settings (USEPA, 1994c). This interim cleanup level was used in the Public Health PRE.

- **MCP Method 1 Soil Standards.** Massachusetts Method 1 soil standards (promulgated July 30, 1993) from the revised MCP were also used as screening guidelines for soils (MADEP, 1993). Although the Method 1 standards were developed for use in a Method 1 risk characterization, the PRE is not intended to be a Method 1 risk characterization and, therefore, these standards are used only as guideline values for comparison to analytical data. Method 1 standards have been developed for different land uses based on the types of receptors that could be present (e.g., children or adults), the accessibility of the soil, and varying frequencies and intensities of land use. Method 1 soils are classified as Category S-1, S-2, and S-3, with S-1 standards being applicable to soils with the greatest potential for exposure, and S-3 standards being applicable for soils with the least potential for exposure. For risk screening, maximum detected concentrations of analytes in surface soil are compared to the appropriate Method 1 soil standard.

Under the revised MCP, compliance with the appropriate Method 1 soil standard constitutes a demonstration of no significant health risk from exposure to oil or hazardous material in soil.

- **Federal Maximum Contaminant Levels.** Federal MCLs (USEPA, 1994b) were used to evaluated maximum groundwater analyte concentrations. The MCLs (both final and proposed) have been extracted from the USEPA Office of Water "Drinking Water Regulations and Health Advisories", which is updated periodically by USEPA to reflect any changes in federal drinking water standards and guidelines (USEPA, 1994b).

- **Massachusetts Maximum Contaminant Levels.** Massachusetts MCLs (MADEP, 1994) were also used to evaluate groundwater sampling results. The Massachusetts standards have been extracted from the MADEP Office of Research and Standards "Drinking Water Standards & Guidelines for Chemicals in Massachusetts Drinking Waters" which is updated periodically by MADEP to reflect any changes in drinking water standards and guidelines (MADEP, 1994).

- **MCP Method 1 Groundwater Standards.** Massachusetts Method 1 groundwater standards (promulgated July 30, 1993) from the revised MCP were used also used as screening guidelines for groundwater (MADEP, 1993). For the evaluation of groundwater, the lesser of MCP Method 1 Category GW-1, GW-2, or GW-3 groundwater standards was used, although the GW-1 and GW-3 standards are most applicable for the roundhouse. Comparison of the lowest groundwater standard to maximum groundwater analyte concentrations provides a conservative evaluation.

According to a map presented in the *Devens Reuse Plan* prepared for the Massachusetts Government Land Bank, the railroad roundhouse area is classified as open space surrounded by industrial land (Vanasse Hangen Brustlin, 1994). A field reconnaissance conducted by ABB-ES risk assessors in January 1995 showed the area to be covered with open grasslands and sparsely-to-moderately forested areas. In general, the ground at the site is scattered with debris including railroad ties, metal fragments and concrete debris. The northern portion of the site, near Plow Shop Pond, contains a steep slope and is scattered with boulders, large pieces of concrete debris, and fallen trees. No portion of the site contains land that supports intensive recreational use, such as ball playing. However, the location and seclusion of the site, and abandoned structures (e.g., abandoned tanks and maintenance pits) may invite trespassers. During the field reconnaissance, fishing lures and several discarded beer cans were observed near the edge of Plow Shop Pond, suggesting that trespassers may use this site.

According to the *Devens Reuse Plan*, the future use of the roundhouse area is expected to remain as open space, bordered by a railroad transportation facility. Therefore, residential exposures are not anticipated. As a result, the Region III commercial/industrial risk-based concentrations and the MCP S-2 soil standards are used for comparison to the analytical data in this SI.

The commercial/industrial concentrations, which are based on an assumption that a worker ingests soil 250 days per year for 25 years at an ingestion rate of 100 milligrams per day (mg/day), are associated with a lower magnitude of exposure than residential RBCs for soil. The commercial/industrial RBCs are based on exposure assumptions which are expected be protective for potential exposures of workers and trespassers to contaminated soil. Category S-2 soils are associated with a low frequency/low intensity land use by children, and high frequency/low intensity land use by adults. As described above, intensive recreation is unlikely under current land use, and the future use of this site is expected to remain as open space, bordered by industrial land. Workers and trespassers may be exposed to contaminated media. Since these receptors would potentially be exposed to contaminated media at a much lower frequency and duration than that assumed for residential exposures, MCP S-2 soil standards are expected to be adequately protective.

Soil at the roundhouse is assumed to overlie MCP Method 1 Category GW-1 groundwater, groundwater that represents a potential source of drinking water. However, the potential may exist for some groundwater to discharge to surface water bodies, thereby also placing the groundwater in Category GW-3. The MCP requires that the correct soil standard be used for the type of groundwater present at the site. Therefore, although the category S-2/GW-1 and S-2/GW-3 groundwater standards are most applicable for the roundhouse site, the lesser of the S-2/GW-1, S-2/GW-2, or S-2/GW-3 soil standards is used as a risk screening guideline for soil. Comparison of the lowest S-2 soil standard to maximum surface soil analyte concentrations provides a conservative evaluation.

No public health standards or guidelines exist for sediment contact. In their absence, USEPA Region III RBCs for industrial soil and Massachusetts Method 1 soil standards for S-2 soils were used to evaluate maximum detected concentrations of chemicals in sediment. Although the Region III RBCs and MCP Method 1 standards were not developed to screen potential exposures to sediment, they are used as surrogate screening values in this PRE in lieu of media-specific screening values. The use of soil screening values represents a conservative, or health-protective, approach. In most, if not all situations, the magnitude of the exposure associated with contact with sediment in Plow Shop Pond would be substantially less than that associated with soil. Both the frequency and duration of exposure would be expected to be less than that assumed for industrial soil. In addition, it appears that the Plow Shop Pond sediment located adjacent to the maintenance by-products disposal area shares similar physical and chemical characteristics with the soils in this area.

The calculations used to derive the USEPA Region III RBCs do not include the dermal exposure pathway. The calculations (that is, quantitative evaluation of ingestion, but not dermal contact) are generally consistent with Region I guidance, which recommends following the USEPA guidance document entitled "Dermal Exposure Assessment: Principles and Applications" (USEPA, 1992a) for assessing dermal exposures. Region I interprets this guidance by performing quantitative dermal evaluations for soil for only three compounds (cadmium, dioxins, and 3,3',4,4'-tetrachlorobiphenyl). Region I has indicated that insufficient information on dermal absorption exists for most other compounds.

Industrial soil RBCs are adequately protective for child trespassers. The industrial soil RBCs are modelled for oral exposures to an adult who is assumed to ingest 100 mg of contaminated media per day, 250 days per year, for 25 years. It is improbable that a child trespasser would be exposed to the site 250 days per year. In addition, the exposure duration of a child trespasser would be shorter (approximately 12 years for a child age 6 through 18). Therefore, the potential exposures to child trespassers are unlikely to exceed those that the industrial soil RBCs are based on.

5.1.3 Ecological PRE Methodology

The Ecological PRE consists of a preliminary ecological characterization of the railroad roundhouse area, including brief descriptions of the vegetative cover in the railroad roundhouse area and in Plow Shop Pond, and a comparison of the SI analytical data to available background data and to ecological standards and criteria. The evaluation of exposure to receptors was conducted through comparison of the concentrations of detected analytes to state and federal standards and criteria.

Sediment guidelines used in the Ecological PRE to select chemical-specific sediment benchmark values include the following:

- **USEPA Sediment Quality Guidelines.** Sediment Quality Guidelines (SQG) for several hydrophobic organic compounds have been developed and published by the USEPA (1988; 1993a; 1993b; 1993c). No USEPA SQG are available to evaluate the effects of inorganic constituents on aquatic life. The USEPA SQG are intended to protect benthic organisms which are primarily affected by contaminants in the interstitial water between sediment particles. The toxicity of sediments containing hydrophobic compounds varies on a site-specific basis in an inverse relationship with the fraction of sediment that is organic carbon (e.g., equilibrium partitioning). For this reason, when appropriate, the sediment toxicity threshold criteria were TOC-normalized. Carbon-normalized criteria were calculated by multiplying the average TOC content of the sediment in the roundhouse samples by the appropriate SQG. Ecological risk was evaluated through direct comparison of this carbon-normalized value with the sediment analytical data.

- **New York State Department of Environmental Conservation Sediment Quality Criteria.** The New York State Department of Environmental Conservation (NYSDEC) Bureau of Environmental Protection, Division of Fish and Wildlife has published a document entitled "Sediment Criteria - December 1989" (NYSDEC, 1989). This report is a guidance document, not a NYSDEC standard or policy. The NYSDEC guidance document contains criteria for several organic and inorganic constituents found in sediment samples collected at the roundhouse. Since these criteria are based on the equilibrium partitioning theory, when appropriate, the NYSDEC criteria for organic analytes were normalized for TOC content.

- **National Oceanic and Atmospheric Administration Sediment Threshold Values.** Long and Morgan have developed biological effects-based criteria for evaluating sediment concentration data. Although this National Oceanic and Atmospheric Administration (NOAA) study is designed primarily for evaluating the toxicity of marine and estuarine sediments, USEPA Region I has suggested that Long and Morgan (1990) criteria may be used as a source of information for the evaluation of freshwater sediments at hazardous waste sites. The Effects Range-Low (ER-L) of Long and Morgan (1990) represents the 10th percentile concentration of contamination in estuarine sediments with observed (or predicted) effects, and the Effects Range-Median (ER-M) represents the 50th percentile concentration of contaminants with observed effects. For this PRE, the NOAA ER-L values were chosen for comparison to the analytical data. In 1993, NOAA re-issued a version of the 1990 NOAA ER-L and ER-M sediment values (NOAA, 1993). The 1993 version did not include data for freshwater sediments in the guideline concentration calculations. Therefore, the 1993 NOAA guidelines are less applicable to sediments at Fort Devens than the 1990 guidelines. However, the 1993 guidelines have been included in this assessment as a point of comparison for sediment guidelines from other sources.

- **Ontario Ministry of the Environment Provincial Sediment Quality Guidelines (PSQGs).** Persaud et al. (1992) have developed guidelines for use in evaluating sediments throughout Ontario. These biologically-based guidelines were derived to protect those organisms directly effected by contaminated sediment: the bottom-dwelling, or benthic, species. The PSQGs are intended to provide guidance for sediment-related decisions, ranging from prevention of adverse effects to remedial action. Maximum sediment analyte concentrations were compared against the Lowest Effect Level PSQGs, which represent the level of contamination with no effect on the majority of sediment-dwelling organisms.

No state or federal standards or guidelines exist for surface soil exposure, so this exposure pathway was evaluated through comparison of analyte concentrations in surface soil to Protective Contaminant Levels (PCLs) for terrestrial vertebrate receptors, phytotoxicity benchmark values for plants, and invertebrate toxicity benchmark values for terrestrial invertebrates.

- The terrestrial vertebrate PCLs were obtained through a computer-generated chronic exposure food web model; the methodology for PCL calculation is discussed in detail in Appendix G. PCLs for the roundhouse were based on potential contaminant exposure to the most sensitive receptor evaluated in the food web model. In general, small mammals such as the short-tailed shrew had the lowest PCL. These small mammals are expected to receive maximum contaminant intake as a result of their high food ingestion rate and small foraging area. Therefore, PCLs based on exposures to these receptors are likely to be conservatively protective for other terrestrial ecological receptors occurring at the roundhouse. Table G-5, Appendix G, presents PCLs for various ecological receptors evaluated for potential contaminant exposures at the roundhouse.

- Terrestrial phytotoxicity data were obtained from literature sources. Generally, data were sought that represented significant phytotoxic endpoints, such as reduction in root weight or decreases in top weight. For several classes of contaminants, a single representative benchmark was generated from phytotoxicity data presented by Oak Ridge National Laboratory (ORNL). For instance, the benchmark for 2,4-dinitrophenol was used in this PRE to screen all other phenolic compounds; the benchmark for di-n-butylphthalate was used in this PRE to screen all other phthalate esters; the benchmark for toluene was used in this PRE to screen all other aromatic VOCs; and the benchmark for 2,2-bis(p-chlorophenyl)-1,1-trichloroethane (DDT) was used in this PRE to screen all other pesticides (ORNL, 1992).

- In order to assess potential effects of surface soil contaminants on terrestrial invertebrates (e.g., earthworms), toxicity data for earthworms were obtained from the literature. Toxicity data for inorganic analytes were obtained from Bouche (1988), Malecki et al. (1982), and Molnar et al. (1989). In general, toxicity data for reproductive effects, which are generally more sensitive toxicity endpoints than lethality effects, were chosen as benchmarks. When reproductive data were unavailable, appropriate mortality endpoints were chosen as benchmarks. Data on earthworm toxicity from organic chemicals are limited. Neuhauser et al. (1985) conducted 14-day soil tests on one to two chemicals from each of several organic chemical classes (i.e., phenols, amines, aromatic VOCs, halogenated aliphatic VOCs, PAHs, and phthalate esters). A single representative benchmark was generated for each class of compounds. All compounds within a chemical class were assigned the same benchmark value. For instance, the lowest PAH soil test lethal concentration with 50 percent mortality (LC_{50}) result in the Neuhauser et al. (1985) study was used as a surrogate to represent the toxicity of all PAHs. Because LC_{50} data do not represent protective soil chemical concentrations (e.g., they represent chemical concentrations lethal to 50 percent of the tested population), one-fifth of the LC_{50} value was used. The resultant chemical concentration (selected as the benchmark) is expected to be protective of 99.9 percent of the exposed population from lethal effects (USEPA, 1986).

5.2 Human Health PRE

The purpose of the human health PRE is to provide a screening-level evaluation of potential risks to people exposed to contaminants detected in the samples collected in the roundhouse area. For this PRE, the future use of the roundhouse area is assumed to remain open space bordered by industrial land. Tables 5-1 through 5-4 present summary statistics and human health guidelines used in the PRE.

5.2.1 Soils

Table 5-1 presents summary statistics on the 33 soil samples collected from the 13 sample locations at the roundhouse site area, and a comparison of these data to background screening concentrations (inorganics only), USEPA Region III commercial/industrial RBCs, and MCP S-2 soil standards. The inclusion of soil samples collected from zero to 24 inches bgs in the evaluation is consistent with MCP guidance, which considers surface soil, or "Accessible Soil", to be zero to 36 inches bgs. Since the PRE evaluates maximum concentrations (as opposed to average concentrations), the evaluation remains conservative by including additional soil samples that were collected 12 to 24 inches bgs. An assessment of the organic analyte data indicates the presence of SVOCs, mainly PAHs. In addition, two pesticides (DDE and alpha-chlordane) were detected. Although the VOCs acetone and methylene chloride were reported as detected in the data collected in the 1993 field program (ABB-ES, 1993c), these analytes have been interpreted as not being site-related because of rinsate blank contamination. Therefore, these two analytes were not evaluated in this PRE.

As indicated in Table 5-1, the maximum detected concentrations of benzo(a)anthracene (20 μg/g), benzo(a)pyrene (30 μg/g), benzo(b)fluoranthene (10 μg/g), dibenzo(a,h)anthracene (3 μg/g), and indeno(1,2,3-cd)pyrene (9 μg/g) exceeded Region III commercial/industrial soil RBCs and the most stringent MCP S-2 soil standards. In addition, the maximum detected concentrations of 2-methylnaphthalene (20 μg/g), benzo(k)fluoranthene (10 μg/g), chrysene (30 μg/g), and naphthalene (10 μg/g) exceeded the most stringent MCP S-2 soil standards. These four PAHs were also detected in the anthropogenic background soil samples.

At many of the roundhouse soil sample locations, at least one soil sample contained PAHs at concentrations between 1 and 4 μg/g. These concentrations marginally exceeded the most stringent MCP S-2 soil standard of 0.7 μg/g. In addition, most benzo(a)pyrene detections in these samples marginally exceeded the Region III commercial/industrial RBC of 0.39 μg/g. However, four of the PAHs that exceeded MCP soil standards (2-methylnaphthalene, benzo(k)fluoranthene, chrysene, and naphthalene) were also detected in background soil samples. The localized background screening values for two of these PAHs (2-methylnaphthalene and naphthalene) exceeded their respective MCP S-2 soil standards. This suggests that the presence of some PAHs in roundhouse surface soil may be representative of localized anthropogenic background conditions (e.g., coal ash).

The maximum concentrations of most PAHs were detected in one of two roundhouse sample locations (RHS-94-09X at zero feet bgs and RHS-94-11X at 1.5 feet bgs) at concentrations up to 30 μg/g. Several PAH detections in these samples were well in excess of Region III commercial/industrial RBCs (0.39 μg/g to 3.9 μg/g) and the most stringent MCP S-2 soil standards (0.7 μg/g). However, the high soil PAH concentrations in the vicinity of these two sample locations appear to represent an isolated area of PAH contamination, and not the site soil conditions as a whole.

Twenty-four inorganic analytes were detected in roundhouse surface soil. Antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc were detected at maximum concentrations above their respective background soil screening values. In addition, the maximum concentrations of calcium, iron, and potassium exceeded background screening values. Since the magnitude of the background exceedances were relatively low (e.g., less than a factor of three), and essential nutrients are toxic only at very high concentrations, none of the essential nutrients were further evaluated in this PRE. The maximum detected concentrations of antimony (3,000 $\mu g/g$) and arsenic (49 $\mu g/g$) exceeded Region III commercial/industrial RBCs and the most stringent MCP S-2 soil standards. The maximum lead concentration (9,500 $\mu g/g$) exceeded the Superfund interim soil lead cleanup level of 400 $\mu g/g$ and the MCP S-2 soil standard of 600 $\mu g/g$. The maximum concentration of zinc (3,380 $\mu g/g$) exceeded the most stringent MCP S-2 soil standard, but not the Region III RBC. In addition, the maximum detected concentration of beryllium exceeded the Region III commercial/industrial RBC and MCP S-2 soil standard. However, this analyte was not detected at a concentration above background and, therefore, is not considered a site-related contaminant.

Arsenic was detected at all sample locations at concentrations in excess of the Region III commercial/industrial soil standard (1.6 $\mu g/g$). However, only five sample locations (SHS-93-01X, RHS-94-04X, RHS-94-05X, RHS-94-06X, and RHS-94-07X) were associated with arsenic concentrations that exceeded the MCP S-2 soil standard (30 $\mu g/g$). In addition, arsenic was not detected at concentrations above the background screening value at any other sample location, suggesting that arsenic is present at the roundhouse at background levels that are above the Region III RBC.

In general, inorganic analytes detected at concentrations in excess of screening values are co-located in the northwestern portion of the site, along the edge of Plow Shop Pond. Antimony and lead were detected in at least one of the soil samples collected from each of the locations SHS-93-01X, RHS-94-04X, RHS-94-05X, RHS-94-06X, and RHS-94-07X at maximum concentrations well in excess of screening values. Lead was also detected at concentrations that exceeded screening values at sample locations RHS-94-08X and RHS-94-12X. At sample location RHS-94-12X, zinc was detected at a concentration slightly in excess of the MCP S-2 soil standard.

5.2.2 Sediment

Table 5-2 presents summary statistics on sediment samples collected from the five sample locations at the roundhouse site area and a comparison of these data to USEPA Region III commercial/industrial RBCs and MCP S-2 soil standards. An assessment of the organic analyte data indicates the presence of 13 SVOCs, 12 of which are PAHs. No SVOCs were detected in sediment at concentrations that exceeded Region III commercial/industrial RBCs. However, the most stringent MCP S-2 soil standard for 2-methylnaphthalene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(k)fluoranthene (0.7 μg/g for each compound) was exceeded by the maximum detected concentrations of these compounds. 2-methylnaphthalene was detected in four sediment samples, two of which had a concentration (2 μg/g) that marginally exceeded the MCP S-2 soil standard (0.7 μg/g). With the exception of this compound, all other PAHs which exceeded the MCP S-2 standards were each detected in one sediment sample, RHD-94-03X, at a concentration of 2 μg/g. However, these compounds were not detected in the duplicate of sample RHD-94-03X, suggesting that caution should be exercised when interpreting the magnitude of potential risk from PAHs in sediment.

Twenty-two inorganic analytes were detected in sediment. Because background data were unavailable, a background screening to determine potential site-related contaminants was not performed. The maximum detected concentrations of beryllium and lead exceeded both screening values. In addition, the maximum detected concentration of arsenic (23 μg/g) exceeded its Region III RBC (1.6 μg/g), and the maximum detected concentration of antimony (170 μg/g) exceeded its MCP S-2 soil standard (40 μg/g). With the exception of sample RHD-94-04X, in which beryllium was not detected, the beryllium screening values were exceeded by a factor of less than four at all sediment sample locations. The Region III RBC for arsenic was exceeded at all sediment sample locations. Lead concentrations detected in samples SHD-93-01X, RHD-94-02X, and RHD-94-05X, which ranged from 945 μg/g to 4,800 μg/g, were well in excess of the Superfund interim soil lead cleanup level of 400 μg/g and the MCP S-2 soil standard of 600 μg/g. Only sample SHD-93-01X contained antimony at a concentration (170 μg/g) that exceeded the MCP S-2 soil standard (40 μg/g).

5.2.3 Groundwater

Summary statistics on the four unfiltered and filtered groundwater samples (collected during the two rounds of sampling) from the two monitoring wells at the roundhouse site are presented in Tables 5-3 and 5-4, respectively. Both tables also present a comparison of these data to the maximum inorganic analyte concentrations detected in upgradient wells, federal drinking water MCLs, Massachusetts drinking water MCLs, and MCP Method 1 groundwater standards. The unfiltered data are also compared to Fort Devens Group 1A background groundwater screening values.

An assessment of the unfiltered data indicates the presence of one SVOC (bis(2-ethylhexyl)phthalate) and 15 inorganic analytes. Antimony, arsenic, barium, calcium, chromium, copper, lead, magnesium, mercury, sodium, and zinc were detected at maximum concentrations above their respective background screening values. The maximum detected concentrations of bis(2-ethylhexyl)phthalate, antimony, and lead exceeded their respective federal MCLs, Massachusetts MCLs, and the most stringent MCP groundwater standard. In addition, the maximum concentrations of aluminum, iron, and manganese exceeded their respective screening values. However, these analytes were not detected at concentrations above their background screening values, suggesting that they are not site-related contaminants. Further, since the Secondary Maximum Contaminant levels (SMCLs) for these analytes are not health-based standards, these analytes are not considered substantial contributors to potential health risks.

An assessment of the filtered groundwater data indicates that 11 inorganic analytes were detected. The analytes chromium, copper, lead, and mercury, which were detected in unfiltered groundwater, were not detected in the filtered groundwater samples. Barium, calcium, magnesium, and sodium were detected in filtered groundwater at concentrations above the upgradient groundwater concentrations. Aluminum was detected in filtered groundwater at a maximum concentration (417 μg/L) that exceeded its available screening guidelines of 200 μg/L. Since these guidelines are not health-based standards (i.e, are SMCLs), aluminum is not considered a substantial contributor to potential health risks. No other analytes were detected in filtered groundwater at concentrations that exceeded screening values.

Bis(2-ethylhexyl)phthalate was detected in well RHM-94-01X in the second round of sampling, and well RHM-94-02X in both rounds of sampling. However, it was not detected in the duplicate Round 1 sample for well RHM-94-02X. In addition, bis(2-ethylhexylphthalate) was detected in the upgradient monitoring well samples at a higher concentration (12 μg/L) than in the roundhouse wells (10 μg/L). These factors suggest that the presence of bis(2-ethylhexyl)phthalate in roundhouse groundwater is an artifact of sampling and analysis and/or an upgradient source.

Antimony was detected at a concentration (25.1 μg/L) above the three screening values (6 μg/L each) in the Round 1 unfiltered sample collected from monitoring well RHM-94-01X. Antimony was not detected in the Round 2 unfiltered sample collected from this monitoring well, nor was it detected in any filtered groundwater samples from this well. Antimony was detected in one filtered Round 2 sample collected from monitoring well RHM-94-02X at a concentration of 3.12 μg/L, which is below the screening guideline of 6 μg/L. However, antimony was not detected in the duplicate of this sample, nor was it detected in any unfiltered samples collected from this well. The detected concentration in well RHM-94-02X is very close to the reporting limit for this analyte (3.03 μg/L) and is consistent with the antimony background screening value (3.03 μg/L). Antimony was not detected in the upgradient monitoring wells. Because it was detected at high concentrations in soil at the roundhouse, it is possible that the antimony detected in the roundhouse groundwater is site-related. In addition, these data suggest that the elevated antimony concentration detected in monitoring well RHM-94-01X may be a result of elevated suspended solids concentrations. Analysis of monitoring well RHM-94-02X data suggest that antimony in roundhouse groundwater is present at concentrations consistent with the both the screening background concentration and the reporting limit, and that antimony is not present in dissolved concentrations above the screening guideline values.

Lead was detected at a concentration (400 μg/L) above the three screening values (15 μg/L each) in the Round 1 unfiltered sample collected from monitoring well RHM-94-01X. Lead was not detected in the Round 2 unfiltered sample collected from well RHM-94-01X, nor was it detected in either the Round 1 or Round 2 filtered groundwater samples collected from this well. Lead was detected in the original and duplicate Round 1 samples collected from monitoring well RHM-94-02X. However, the concentrations detected (2.93 to 3.9 μg/L) were well below the screening guideline concentrations of 15 μg/L and the basewide background screening value of 4.25 μg/L. Lead was not detected in any of the filtered samples collected from monitoring well RHM-94-02X. Since lead was not detected in the upgradient groundwater wells, but was detected at elevated concentrations in roundhouse soil, it is possible that the lead detected in the roundhouse groundwater is site-related. However, the analysis of these data suggest that the elevated lead concentration detected in a single unfiltered groundwater sample (RHM-94-01X, Round 1) may not be representative of groundwater conditions at the roundhouse. This sample contained the maximum concentrations of several other inorganic analytes detected in roundhouse groundwater. Because lead was not detected in any filtered groundwater samples, it is likely that the presence of the elevated lead concentration is a result of TSS in the unfiltered Round 1 sample collected from monitoring well RHM-94-01X. It is likely that dissolved lead concentrations are well below screening guideline concentrations.

5.3 ECOLOGICAL PRE

The purpose of the Ecological PRE at the railroad roundhouse is to provide a screening-level evaluation of potential risks that environmental contaminants may pose to the resident and migratory ecological receptors in the roundhouse area. The following subsections provide a brief ecological characterization of the site, and a risk-screening of the soils and sediment.

5.3.1 Ecological Characterization

The following five vegetative cover types occur in the vicinity of the railroad roundhouse: (1) sand barren; (2) early successional forest with grassy understory; (3) grassland with early successional forest; oak/aspen forest; (4) shoreline wetland; and, (5) floating-leaved deep marsh. The approximate location of these cover types is depicted on Figure 5-1.

A strip of land approximately 10 to 30 feet wide along the western edge of the site is characterized as a sand barren. This area contains open sand and limited vegetation, with occasional little bluestem grass (*Andropogon scoparius*), sweet fern (*Comptonia peregrina*), and young grey birch (*Betula populifolia*) sparsely distributed throughout the sandy substrate.

The predominant cover type to the south of the site, occurring in a band approximately 500 feet long and 100 to 200 feet wide, is an early successional forest with a grassy understory. This approximate 1.8-acre area is dominated by young grey birch, scrub oaks (*Quercus* spp.), and occasional pitch pine (*Pinus rigida*), white pine (*Pinus strobus*), and grey birch. This area contains a sparse understory, dominated by grasses (e.g., little bluestem) and sweet fern. The ground in this area is strewn with coal ash and other debris, including railroad ties, pieces of metal, and concrete. Soil samples collected in this region are assumed to be unaffected by the types of activities that occurred at the roundhouse and turntable area and represent the local coal ash background locations.

The eastern edge of the site is characterized as a grassland with an early successional forest. This area, totaling approximately 2.6 acres, covers much of the central portion of the site area. The cover in this area is dominated by grasses including little bluestem. Other herbaceous species observed in this region include bush clover (*Lespedeza capitata*), aster (*Aster* sp.), common St. Johnswort (*Hypericum perforatum*), goldenrod (*Solidago rugosa*), and shepherds purse (*Capsella bursa-pastoris*). Shrubs occurring in this region include sweet fern, staghorn sumac (*Rhus typhina*), and ground juniper (*Juniperus communis*). The area also contains occasional young grey birch, quaking aspen (*Populus tremuloides*), and white pine. Much of this cover type at the roundhouse is underlain by coal ash. Soil samples collected from this area were also used as background samples, representing historic railyard land use.

The cover in the northern 1.7 acres of the site (e.g., the roundhouse site area) is characterized as an oak/aspen forest. Trees in this region include scarlet oak (*Quercus coccinea*), red oak (*Quercus rubra*), quaking aspen, bigtooth aspen (*Populus grandidentata*), and grey birch. The understory in this area is sparse, and includes club mosses (*Lycopodium obscurum*, *L. complanatum*), goldenrod, and sparsely spaced tufts of grass. Occasional grape vine (*Vitis* sp.) and staghorn sumac also occur in this area. Much of the ground in this portion of the site is covered with a loamy detrital layer, and is scattered with debris, including old concrete pilings, railroad ties, boulders, metal tanks, coal ash, and pieces of metal. Portions of the area around the old roundhouse turntable are paved with asphalt.

A thin band (1 to 10 feet wide) of shoreline wetland exists along the edge of Plow Shop Pond. Red maple (*Acer rubrum*) is the dominant tree in this region. The dense sapling and shrub layer includes red maple, silky dogwood (*Cornus amomum*), witch hazel (*Hamamelis virginiana*), and smooth alder (*Alnus serrulata*). Marsh fern (*Thelypteris thelypteroides*) and spotted jewel weed (*Impatiens capensis*) also occur in this region.

Plow Shop Pond, a floating-leaved deep marsh, is a eutrophic pond whose waters are designated as Class B by the Commonwealth of Massachusetts. Class B waters are "designated for the uses of, protection, and propagation of fish, other aquatic life and wildlife, and for primary and secondary contact recreation" (314 CMR 4.03). Seasonally, more than 80 percent of the surface area of the pond is covered with aquatic macrophytes, including sweet water lily (*Nymphaea odorata*) and water shield (*Brasenia schreberi*). Submerged macrophytes (primarily water marigold [*Megalodonta beckii*]) seasonally cover more than 75 percent of the submerged portions of the pond.

As part of the supplemental RI sampling at Shepley's Hill Landfill, a Wetland Evaluation Technique (WET) evaluation was conducted on Plow Shop Pond. The WET is a standardized evaluation technique that provides a rapid assessment of many of the recognized values and functions of a wetland. The WET analysis for Plow Shop Pond determined that the Social Significance is "high" for Groundwater Recharge, Groundwater Discharge, Wildlife Diversity and Abundance, and Uniqueness and Heritage. The remainder of the WET parameters scored "low" to "moderate" in Social Significance. For Effectiveness, the WET scored Sediment/Toxicant Retention and Wildlife Breeding and Migration as "high", and other parameters as "low". In terms of Opportunity, the opportunity for Plow Shop Pond to perform the Sediment/Toxicant Retention and Nutrient Removal/Transportation functions was rated "high". The findings of this evaluation are reported in detail in the Final FS for the Shepley's Hill Landfill Operable Unit (ABB-ES, 1995).

Soil samples collected in the southern portion of the site, which includes the early successional forest with grassy understory, were evaluated as anthropogenic background samples. This background area may provide habitat for small mammals and small birds such as the white-footed mouse (*Peromyscus leucopus*), the meadow vole (*Microtus pennsylvanicus*), and various passerine songbirds, and limited grazing area for larger herbivorous mammals such as the white-tailed deer (*Odocoileus virginianus*). An eastern cottontail (*Sylvilagus floridanus*) was observed in this area during the ABB-ES site visit. This area may also provide habitat or foraging area for predatory mammals and birds such as the red fox (*Vulpes vulpes*) or red-tailed hawk (*Buteo jamaicensis*). The northern portion of the roundhouse site, including the oak/aspen forest, the shoreline wetland area, and the portion of Plow Shop Pond abutting the roundhouse area, are considered the roundhouse site. The roundhouse site area, with its forested canopy, close proximity to Plow Shop Pond, and abundance of ground debris, may provide habitat for small mammals such as the short-tailed shrew (*Blarina brevicauda*). American woodcock (*Scolopax minor*) may also forage in this region. In addition, some of the abandoned debris may provide habitat for denning animals such as the red fox. Evidence of historic beaver (*Castor canadensis*) and deer grazing activities was observed in the shoreline wetland area along the edge of Plow Shop Pond.

The area was not included in the roundhouse site area because historical information suggests that it was not affected by the types of activities that occurred at the roundhouse turntable area. These areas are considered to be local background typical of coal ash fill and historic railroad use.

Potential contaminant exposure pathways exist in the roundhouse area for terrestrial receptors via incidental soil ingestion and terrestrial food web exposure. In addition, wetlands and semi-terrestrial receptors associated with Plow Shop Pond may be exposed to contaminants in the surface water and sediment. A detailed ecological risk assessment of Plow Shop Pond has already been conducted (ABB-ES, 1993c). PCLs for the roundhouse site were derived for receptors that may occur in the habitat offered by the oak/aspen forest and shoreline wetland area. These receptors include the short-tailed shrew (*Blarina brevicauda*), the American woodcock (*Scolopax minor*), the red fox (*Vulpes vulpes*), and the red-tailed hawk (*Buteo jamaicensis*). The lowest PCL for each analyte for these receptors was chosen as the PCL for comparison to the analytical soil data at the roundhouse.

5.3.2 Soils

The screening-level evaluation of potential effects from surface soil exposures was conducted by comparing the maximum concentrations of all detected analytes to their respective background screening values (inorganics only) and their respective surface soil PCLs. Tables 5-5 and 5-6 present summary statistics on the 33 soil samples collected from the 13 sample locations at the roundhouse site area. Table 5-5 presents a comparison of these data to background screening concentrations and ecological PCLs for terrestrial vertebrates. Table 5-6 provides a comparison of summary statistics for the soil data to background screening values and available terrestrial invertebrate and phytotoxicity benchmark values.

An assessment of the organic analyte data indicates the presence of 23 SVOCs, including 17 PAHs. In addition, two pesticides (DDE and alpha-chlordane) were detected. Although the VOCs acetone and methylene chloride were reported in the data collected in the 1993 field program (ABB-ES, 1993c), these analytes have been interpreted as not being site-related because of rinsate blank contamination. Therefore, these two analytes were not evaluated in this PRE.

No terrestrial PCL values or phytotoxicity screening values for organic analytes were exceeded. The maximum detected concentrations of fluoranthene (60 μg/g), phenanthrene (70 μg/g), and pyrene (50 μg/g) each exceeded their terrestrial invertebrate screening values of 34 μg/g. These PAHs were each detected at concentrations associated with screening value exceedances at only one sample location (RHS-94-09X). Although the screening values are exceeded by less than a factor of two at only one sample location, the total PAH concentration at this sample location (370 μg/g) suggests that there may be potential for additive and/or synergistic effects from exposures to PAHs.

Twenty-four inorganic analytes were detected in roundhouse surface soil. Antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc were detected at maximum concentrations above their respective background soil screening values. Aluminum, beryllium, cobalt, and silver were detected at concentrations below their respective background screening values and, therefore, were not further evaluated in this PRE. The maximum concentrations of the essential nutrients calcium, iron, and potassium also exceeded background screening values, but the essential nutrients magnesium and sodium did not. Since the magnitude of the background exceedances were relatively low (e.g., less than a factor of three), and essential nutrients are toxic only at very high concentrations, none of the essential nutrients were further evaluated in this PRE.

The maximum detected concentrations of antimony (3,000 μg/g), copper (6,900 μg/g), lead (9,500 μg/g), tin (140 μg/g), and zinc (3,380 μg/g) exceeded terrestrial PCL values. For these analytes, terrestrial PCL values were exceeded by factors of approximately four (antimony and tin) to 35 (lead). In addition, the maximum, but not the average, concentrations of cadmium and selenium exceeded their respective PCLs by a factor of approximately three. However, the PCLs for both cadmium and selenium are generally consistent with background concentrations. These PCL values are conservative, since it is unlikely that terrestrial receptors would experience adverse effects from exposure to background analyte concentrations. It is likely that the assumptions used in the derivation of the PCLs do not take into account site-specific variables, such as soil pH, which could alter the bioaccumulation and/or toxicological assumptions from those which were used in the derivation of the PCL values.

The maximum detected concentrations of antimony (3,000 μg/g), cadmium (6.57 μg/g), copper (6,900 μg/g), mercury (0.332 μg/g), nickel (35 μg/g), silver (4.47 μg/g), tin (140 μg/g), and zinc (3,380 μg/g) exceeded available phytotoxicity screening values. With the exception of antimony, phytotoxicity screening values were exceeded by factors of less than approximately three. The phytotoxicity screening values for cadmium, mercury, nickel, selenium, and thallium are generally consistent with or less than background concentrations and, therefore, are likely to be conservative for the roundhouse site area. The phytotoxicity screening values for chromium, lead, and selenium are less than the background screening values. In addition, cadmium and silver were detected in only two and six of 33 samples, respectively, and mercury was detected in approximately one-third of the samples. Based on the relatively low frequencies of detection of these analytes, and the general consistency with background concentrations, it is unlikely that cadmium, mercury, nickel, and silver are substantial site-related contaminants, or that they pose substantial risks to plants occurring at the roundhouse site area. Although an ecological vegetative investigation was not conducted at this site, results of a qualitative walkover showed no signs of gross vegetative stress.

The maximum concentrations of chromium (299 μg/g), lead (9,500 μg/g), and zinc (3,380 μg/g) exceeded available terrestrial invertebrate screening values. Lead and zinc were each detected at relatively high frequencies, at concentrations that exceeded the screening values by factors of eight (lead) to 26 (zinc). However, chromium was detected at only one sample location (RHS-94-05X) at a concentration that exceeded background levels and the invertebrate screening value. Therefore, it is unlikely that the presence of chromium in roundhouse surface soil would result in substantial risks to terrestrial invertebrate receptors occurring at the roundhouse. Based on the magnitude of screening value exceedances and the relatively high frequencies of detection, it appears that antimony, copper, lead, tin, and zinc are the primary inorganic analytes of ecological concern in surface soil at the roundhouse site area.

Copper, lead, and tin were detected in at least one of the soil samples collected from each of the locations RHS-94-04X, RHS-94-05X, RHS-94-06X, and RHS-94-07X at maximum concentrations well in excess of screening values. Lead was also detected at concentrations that exceeded screening values at sample locations RHS-94-08X, RHS-94-12X, and SHS-93-01X. In addition, antimony and copper were detected at sample location SHS-93-01X at concentrations that exceeded screening values. Antimony and zinc were detected at concentrations that exceeded screening values at sample location RHS-94-06X. Zinc was also detected at sample location RHS-94-12X at a concentration in excess of screening values. In general, inorganic analytes detected at concentrations in excess of screening values are co-located in the northwestern portion of the site, in the oak/aspen forest bordering Plow Shop Pond.

5.3.3 Sediment

Risks to ecological receptors in Plow Shop Pond from exposure to the sediments collected at the five locations near the shore of the roundhouse site were evaluated through comparison of maximum analyte concentrations to sediment benchmark values (Table 5-7).

An assessment of the organic analyte data indicates the presence of 13 SVOCs, 12 of which are PAHs. As indicated in Table 5-7, the maximum detected concentrations of all SVOCs exceeded sediment benchmarks based on NOAA ER-L values. In general, maximum analyte concentrations exceeded these screening values by one to two orders of magnitude. However, no screening values based on the equilibrium partitioning approach (e.g., USEPA SQG and NYSDEC guidelines) were exceeded by maximum concentrations of SVOCs. In general, maximum SVOC concentrations were approximately one order of magnitude lower than these screening concentrations. The PAH concentrations in sediment collected from Plow Shop Pond were generally low, ranging from 0.4 μg/g to 4 μg/g. In addition, several of the PAHs were detected in only one sediment sample (RHD-94-03X). However, these compounds were not detected in the duplicate of sample RHD-94-03X. Based on this apparent analytical anomaly and the wide range of available screening concentrations, it is unlikely that the magnitude of potential risk to benthic aquatic receptors from PAHs in sediment is high.

Twenty-two inorganic analytes were detected in sediment. Since background data were unavailable, a background screening evaluation to determine potential site-related contaminants was not performed. The maximum detected concentrations of antimony, copper, iron, lead, mercury, silver, and zinc exceeded both the minimum and maximum available screening values. The maximum detected concentrations of arsenic, chromium, and nickel exceeded only the minimum available screening values.

Antimony, copper, and lead were detected at concentrations that exceeded sediment screening values at all sample locations except location RHD-94-04X. Mercury was detected at concentrations in excess of available screening values at all locations except SHD-93-01X and RHD-94-04X. For other analytes that were detected at concentrations above screening guidelines, exceedances were generally isolated to one or two sediment sample locations. Chromium and iron were detected at concentrations exceeding guidelines at sample location RHD-94-05X, silver at locations SHD-93-01X and RHD-94-02X, and nickel at locations SHD-93-01X and RHD-94-05X. Zinc was detected at a concentration above the maximum screening value (150 μg/g) at location SHD-93-01X (156 μg/g), but above the minimum screening value (85 μg/g) at most other sample locations. The minimum screening value for arsenic (5 μg/g) was exceeded at all sample locations, while the maximum arsenic screening value (33 μg/g) was not exceeded at any sample locations.

The lack of sediment screening values for several inorganic analytes detected in roundhouse sediment represents an uncertainty in this evaluation. It is unknown what potential adverse effects may occur to aquatic receptors as a result of exposure to these analytes. However, the magnitude of screening value exceedances for antimony, copper, lead, and mercury in Plow Shop Pond sediments collected near the shore of the roundhouse site area suggests that these analytes may pose risks to sensitive aquatic receptors occurring in this part of Plow Shop Pond.

5.4 SUMMARY OF PREs

The following paragraphs summarize the public health and ecological PREs for the railroad roundhouse.

- The maximum concentrations of many PAHs and the greatest magnitude of Region III RBC and MCP soil standard exceedances were associated with PAH concentrations in two of the 13 surface soil sample locations (RHS-94-09X and RHS-94-11X). The soil in the vicinity of these sample locations appears to represent an isolated area of PAH contamination, and not the overall site conditions. Elevated PAH concentrations at these two sample locations may present a risk to sensitive terrestrial invertebrate receptors. PAHs detected at other roundhouse sample locations were detected at concentrations slightly in excess of MCP soil standards. The presence of PAHs at these locations may be attributable to ambient site conditions.

- Antimony, arsenic, and lead were detected at concentrations above human health screening values at several surface soil sample locations, including SHS-93-01X, RHS-94-04X, RHS-94-05X, RHS-94-06X, and RHS-94-07X in the area of the maintenance by-products deposits. Lead was also detected at elevated concentrations at sample locations RHS-94-08X and RHS-94-12X. Antimony, copper, lead, tin, and zinc were detected at these sample locations at concentrations in excess of available ecological screening concentrations. The magnitude of many of the screening value exceedances suggests that potential risks to human and ecological receptors may occur.

- Sediment samples located near shore where a layer of coal ash-like material was encountered had concentrations of several PAHs, antimony, beryllium, and lead which exceeded MCP soil standards, and concentrations of arsenic, beryllium, and lead exceeded Region III soil RBCs. With the exceptions of lead and beryllium, most of these analytes were only detected at one sediment sample location (RHD-94-03X) at concentrations in excess of screening values. Lead concentrations in three sediment samples (SHD-93-01X, RHD-94-02X, and RHD-94-05X) exceeded screening values. Beryllium concentrations in four samples exceeded screening values. Because sediment data were screened against soil standards that were developed for exposures of much greater magnitude than those anticipated for sediment, the human health evaluation of sediment represents a conservative approach.

- Sediment concentrations of several PAHs and several inorganics exceeded the lowest ecological screening values in the four near-shore sediment samples. The wide range of available sediment screening values, and the lack of screening values for several inorganics, represent an uncertainty in this evaluation. However, the magnitude of screening value exceedances for several organic and inorganic analytes suggests that potential risk to sensitive ecological receptors may occur in Plow Shop Pond near-shore sediments at the railroad roundhouse.

- Bis(2-ethylhexyl)phthalate, antimony, and lead were detected in unfiltered roundhouse groundwater samples at concentrations above screening values. A review of the data suggests that the presence of bis(2-ethylhexyl)phthalate is not site-related, and that the concentrations of antimony and lead in unfiltered groundwater are a result of elevated suspended solids concentrations, as neither analyte was detected above screening values in filtered groundwater samples. Analytes that were detected at concentrations that exceeded SMCLs (i.e., aluminum, iron, and manganese) are not considered substantial contributors to potential health risks, since SMCLs are not health-based standards.

The following table summarizes COPCs that may contribute to potential risks at the railroad roundhouse. With the exception of the results from RHS-94-09X and RHS-94-11X, the soil and sediment samples collected in the maintenance by-products area and associated near-shore sediment samples generally have the most frequent detects and highest concentrations of COPCs.

	COPCs IN SOIL	COPCs IN SEDIMENT	COPCs IN GROUNDWATER
Human Health Risk	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Antimony Arsenic Lead	Beryllium Lead	None[3]
Ecological Risk	PAHs[1] Antimony Copper Lead Tin Zinc	PAHs[2] Antimony Copper Lead Mercury	Not evaluated

Notes:

[1] Cumulative concentration of PAHs detected in samples RHS-94-09X and RHS- 94-11X.
[2] Cumulative concentration of PAHs detected in sample RHD-94-03X.
[3] Although bis(2-ethylhexyl)phthalate, antimony, and lead were detected at concentrations above screening levels in unfiltered groundwater, they are considered artifacts of sampling and/or TSS concentrations.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This section of the SSI reiterates the conclusions from previous sections. The conclusions are followed by recommendations for this site.

6.1 CONCLUSIONS: SITE HISTORY AND DEVELOPMENT

The railroad roundhouse site was historically used as a railroad maintenance facility. The area immediately east of the site continues to support active railroad operations.

Based on site history and vegetative cover, the site was segregated into three separate areas: the local background area, the railroad roundhouse and turntable area, and the maintenance by-products area.

6.2 CONCLUSIONS: SOILS

Fill soils with varying amounts of ash-like materials extend across the site. The approximate depths of these fill soils appear to range from 3 to 6 feet.

Samples from the local background area and the railroad roundhouse and turntable area have similar analytical results and indicate that these two areas have similar characteristics. Concentrations of metals in these samples are consistent with concentrations reported for coal ash. However, concentrations of PAHs in samples RHS-94-09X (zero feet bgs) and RHS-94-11X (1.5 feet bgs) collected from the northern part of the roundhouse turntable area are approximately 10 times higher than in other samples.

Samples from the maintenance by-products area have much higher (typically 10 to 1,000 times higher) concentrations of the metals antimony, copper, and lead.

Although COPCs were detected in sample collected across the site, the substantial majority of screening value exceedances occurred in samples collected in the maintenance by-products disposal area. Because of this, there is potential that COPCs in the maintenance by-product disposal area may pose unacceptable risks to human and ecological receptors. COPCs in the area include antimony, arsenic, copper, lead, and tin.

In addition, PAHs in the vicinity of RHS-94-09X and RHS-94-11X may pose unacceptable risks. This includes the following PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene.

With the exception of antimony, copper, and lead, the COPCs have been detected at concentrations which are consistent with coal ash. In accordance with 310 CMR 40.0006, this indicates these COPCs are present at site-specific background concentrations. The Army believes that use of site-specific anthropogenic background concentrations to assess soil contamination at this site is consistent with and supported by the Massachusetts Contingency Plan (MCP) definition of background at 310 CMR 40.0006 which states:

> Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are:
>
> (a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and
>
> (b) attributable to geologic or ecologic conditions, atmospheric deposition of industrial process or engine emissions, fill materials containing wood waste or coal ash, and/or petroleum residues that are incidental to the normal operation of motor vehicles.

The Army interprets available data to indicate: (a) that coal ash is widespread and ubiquitous at the railroad roundhouse site; and (b) coal ash is present as fill material at the site. Therefore, use of site-specific background to evaluate contamination is consistent with the MCP definition. In contrast to general site conditions, high concentrations of antimony, copper, and lead at the northern extreme of the railroad roundhouse site adjacent to Plow Shop Pond, and observations noted in the test pit logs suggest that area was a maintenance by-products disposal area.

6.3 Conclusions: Sediments

A layer of coal ash-like material extends approximately 15 to 25 feet from the shoreline into the pond. This area extends approximately 300 feet along the shoreline at the railroad roundhouse. Within this area the thickness of the coal ash-like sediments is on the order of 0.5 to 2 feet thick.

Outside the area of coal ash-like sediments, the substrate of the pond typically has a muck-to-peat texture.

Sediment samples collected within the layer of coal ash-like material had concentrations of lead and copper that were well above the PSQC and above the typical concentrations found in previous sediment samples from other Plow Shop Pond locations. COPCs identified for sediments in the PRE include PAHs, antimony, beryllium, copper, lead, and mercury. The overall PRE for sediment is generally driven by the ecological PRE, which indicates unacceptable risk is most likely associated with the concentrations of antimony, copper, and lead detected in the near shore sediment samples associated with the maintenance by-products deposits.

6.4 Conclusions: Groundwater

The results of laboratory analyses from two rounds of groundwater samples indicate slightly higher concentrations of inorganics in the wells downgradient of the railroad roundhouse site. However, the results may reflect the fact that the new wells have not reached long-term equilibrium. Overall, concentrations of inorganics in the new wells decreased significantly between the first and second round of samples.

The PRE did not identify COPCs in groundwater. Although bis(2-ethylhexyl)phthalate, antimony, and lead were detected at concentrations above screening levels in unfiltered groundwater, they are considered artifacts of sampling and/or TSS concentrations.

6.5 Recommendations

Because the majority of soil COPCs occur in the maintenance by-products disposal area and because concentrations of antimony, copper, and lead in soil from that area are substantially above concentrations in the local background area, remediation of these soils may be appropriate. It is recommended that the remediation/removal of soils in the maintenance by-products area be further evaluated in a decision document that would address various remediation options.

Plow Shop Pond sediments immediately adjacent to the maintenance by-products disposal area share similar characteristics with those deposits, and remediation/removal of these sediments may be appropriate at the same time.

ABB-ES	ABB Environmental Services, Inc.
bgs	below ground surface
B&MRR	Boston and Maine Railroad
CCC	Civilian Conservation Corps
CLP	Contract Laboratory Program
CMR	Code of Massachusetts Regulations
cm/sec	centimeters per second
CMTC	Civilian Military Training Corps
COPCs	Chemicals of Potential Concern
CRL	certified reporting limit
DDE	2,2-bis(p-chlorophenyl)-1,1-dichloroethene
DDT	2,2-bis(p-chlorophenyl)-1,1,1-trichloroethane
E&E	Ecology and Environment, Inc.
ER-L	effects range-low
ER-M	effects range-median
ESE	Environmental Science and Engineering, Inc.
°F	degrees Fahrenheit
FORSCOM	U.S. Army Forces Command
FS	Feasibility Study
ft^2/day	square feet per day
gpm	gallons per minute
IRDMIS	Installation Restoration Data Management Information System
LC_{50}	lethal concentration with 50 percent mortality
MAAF	Moore Army Airfield
MADEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCP	Massachusetts Contingency Plan
mg/day	milligrams per day
μg/g	milligrams per kilogram

MIBK	methyl isobutyl ketone
MNHP	Massachusetts Natural Heritage Program
MOE	Ministry of the Environment
MS	matrix spike
MSD	matrix spike duplicate
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NWR	National Wildlife Refuge
NYSDEC	New York State Department of Environmental Conservation
ORNL	Oak Ridge National Laboratory
OSWER	Office of Solid Waste and Emergency Response
PAH	polynuclear aromatic hydrocarbon
PAL	Project Analyte List
PCB	polychlorinated biphenyl
PCL	Protective Contaminant Level
PID	photo-ionization detector
ppm	parts per million
POP	Project Operations Plan
PRE	Preliminary Risk Evaluation
PRI	Potomac Research Institute
PSI	pounds per quare inch
PSQG	Provincial Sediment Quality Guidelines
PVC	polyvinyl chloride
QA	Quality Assurance
QC	Quality Control
RBC	risk-based concentration
RI	Remedial Investigation
ROTC	Reserve Officer Training Corps
RPD	relative percent difference
SA	Study Area
SCS	Soil Conservation Service
SI	Site Investigation

SQG	Sediment Quality Guideline
SQL	Sample Quantitation Limit
SMCL	Secondary Maximum Contaminant Level
SSI	Supplemental Site Investigation
SVOC	semivolatile organic compound
TDS	total dissolved solids
TOC	total organic carbon
TSS	total suspended solids
μg/g	microgram per gram (equivalent to part per million)
μg/L	microgram per liter (equivalent to part per billion)
UCL	upper confidence level
USAEC	U.S. Army Environmental Center
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WET	Wetland Evaluation Technique
WPA	Works Progress Administration

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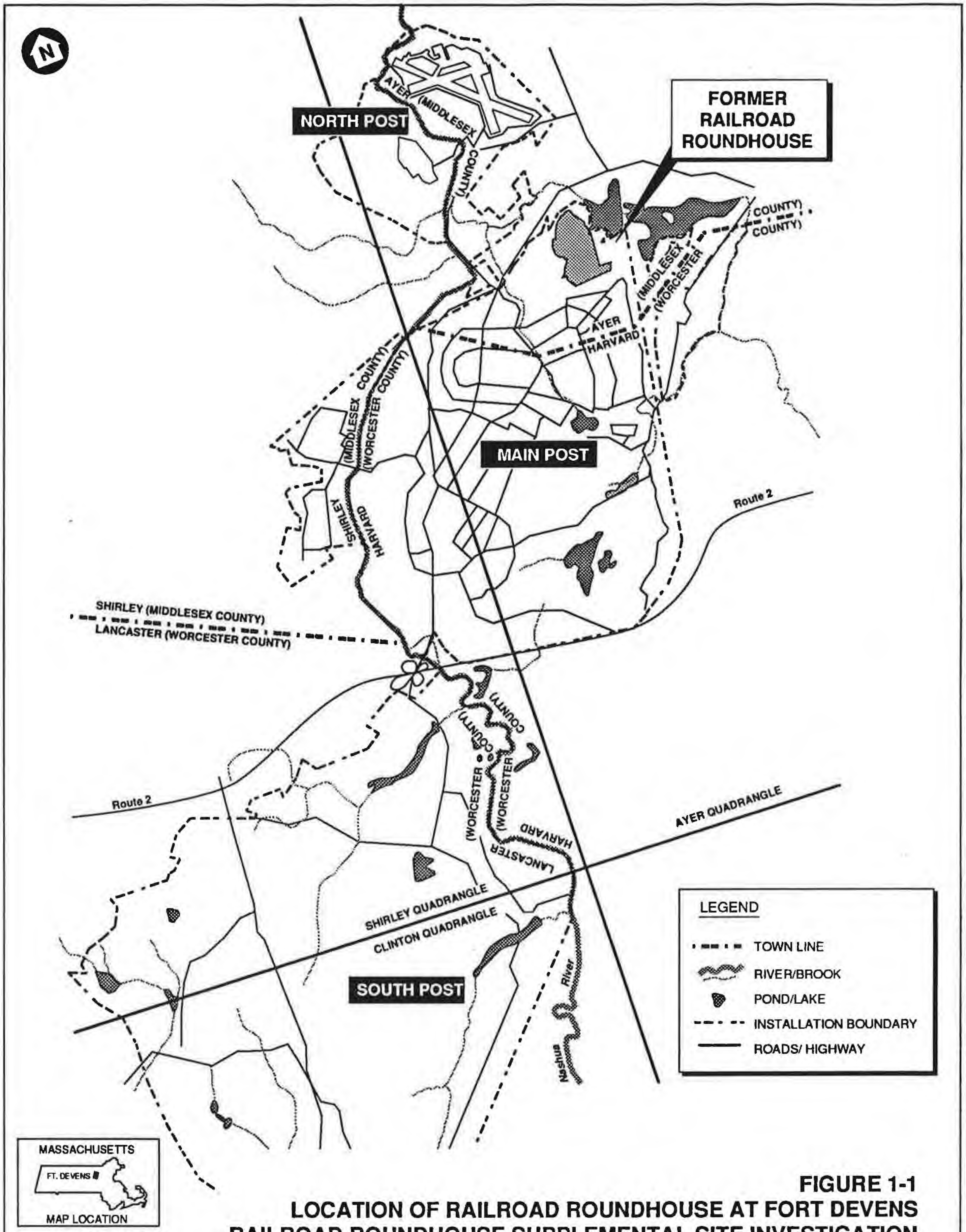

FIGURE 1-1
LOCATION OF RAILROAD ROUNDHOUSE AT FORT DEVENS
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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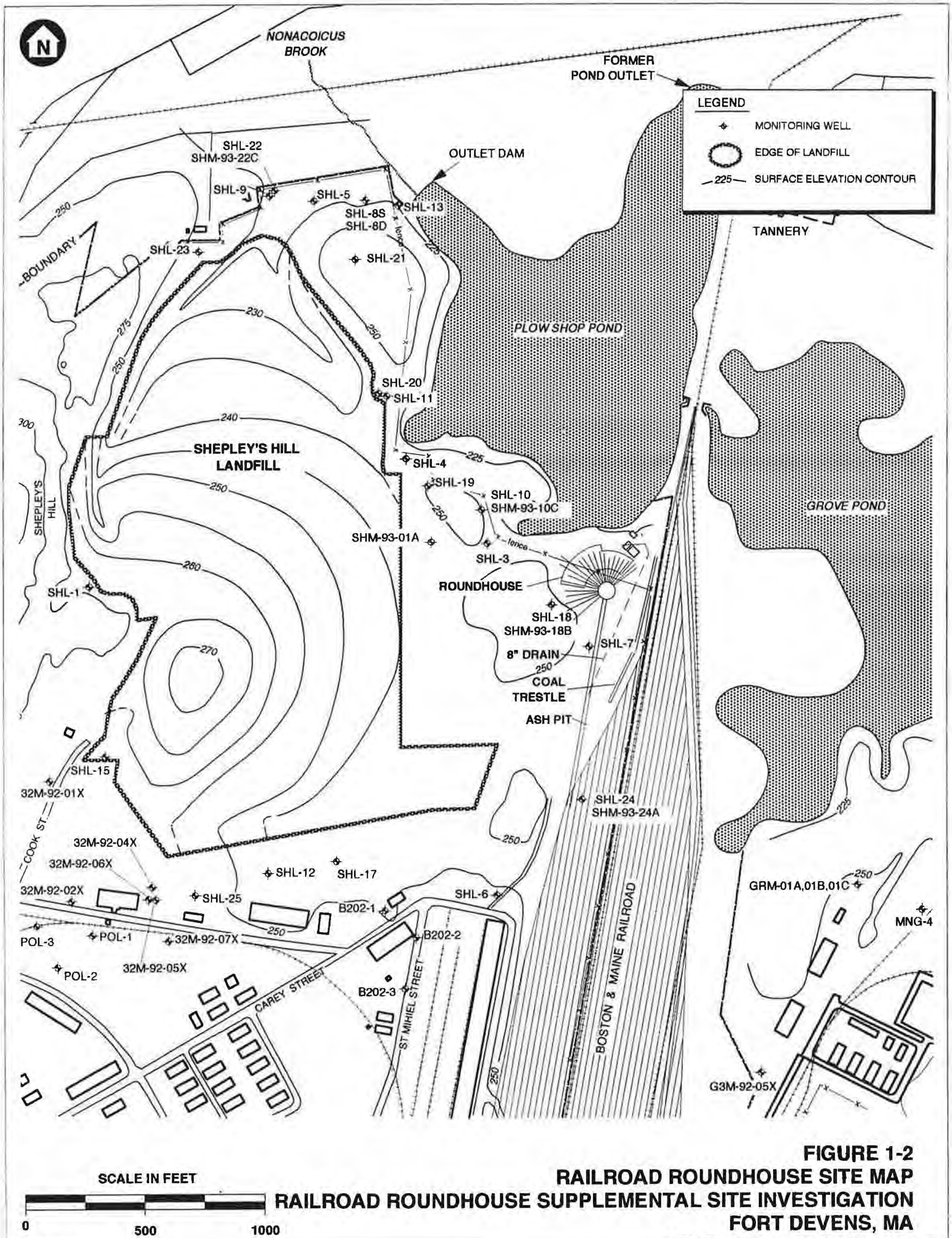

FIGURE 1-2
RAILROAD ROUNDHOUSE SITE MAP
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

9502035D1S6BD

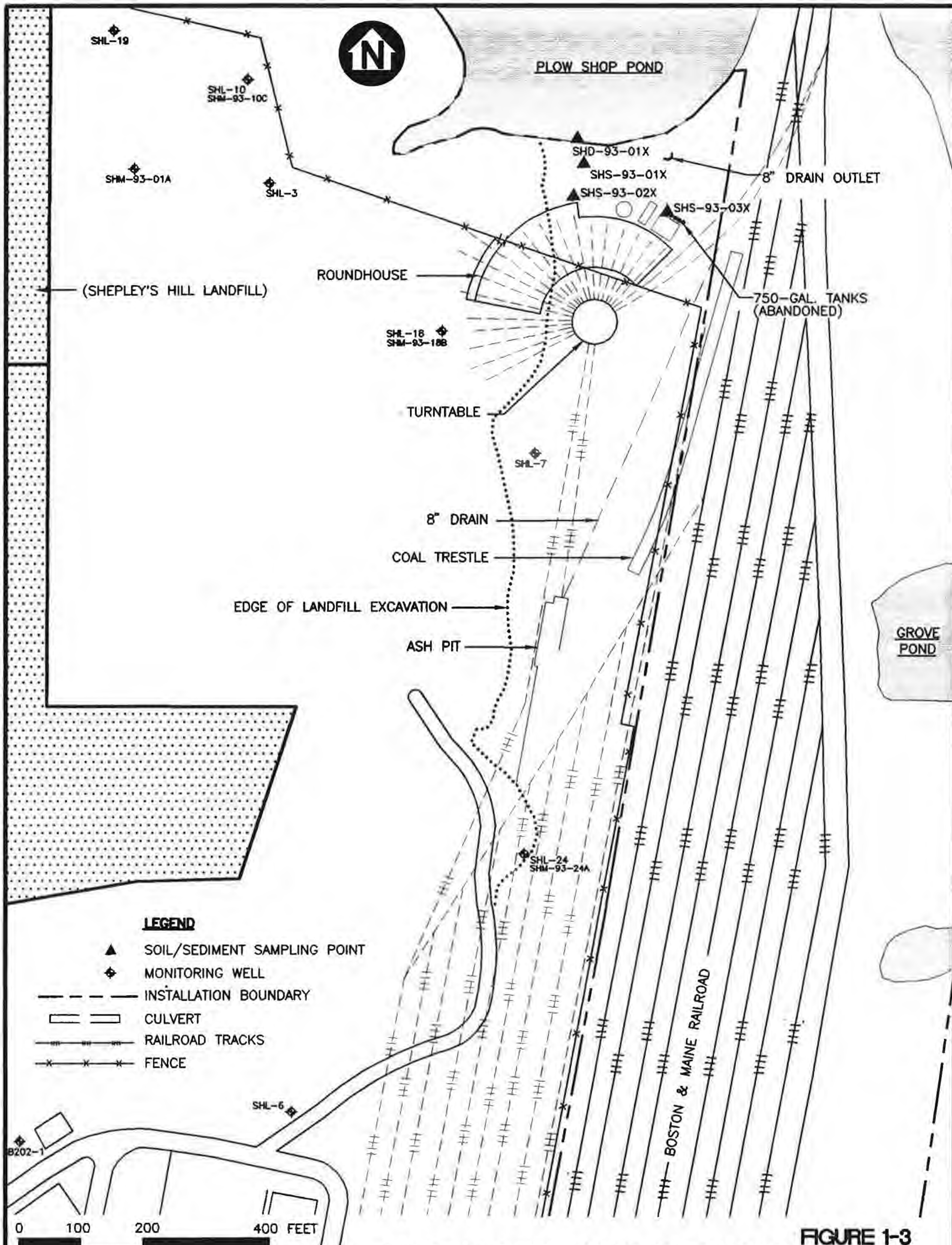

FIGURE 1-3
RAILROAD ROUNDHOUSE 1993 SAMPLE LOCATIONS
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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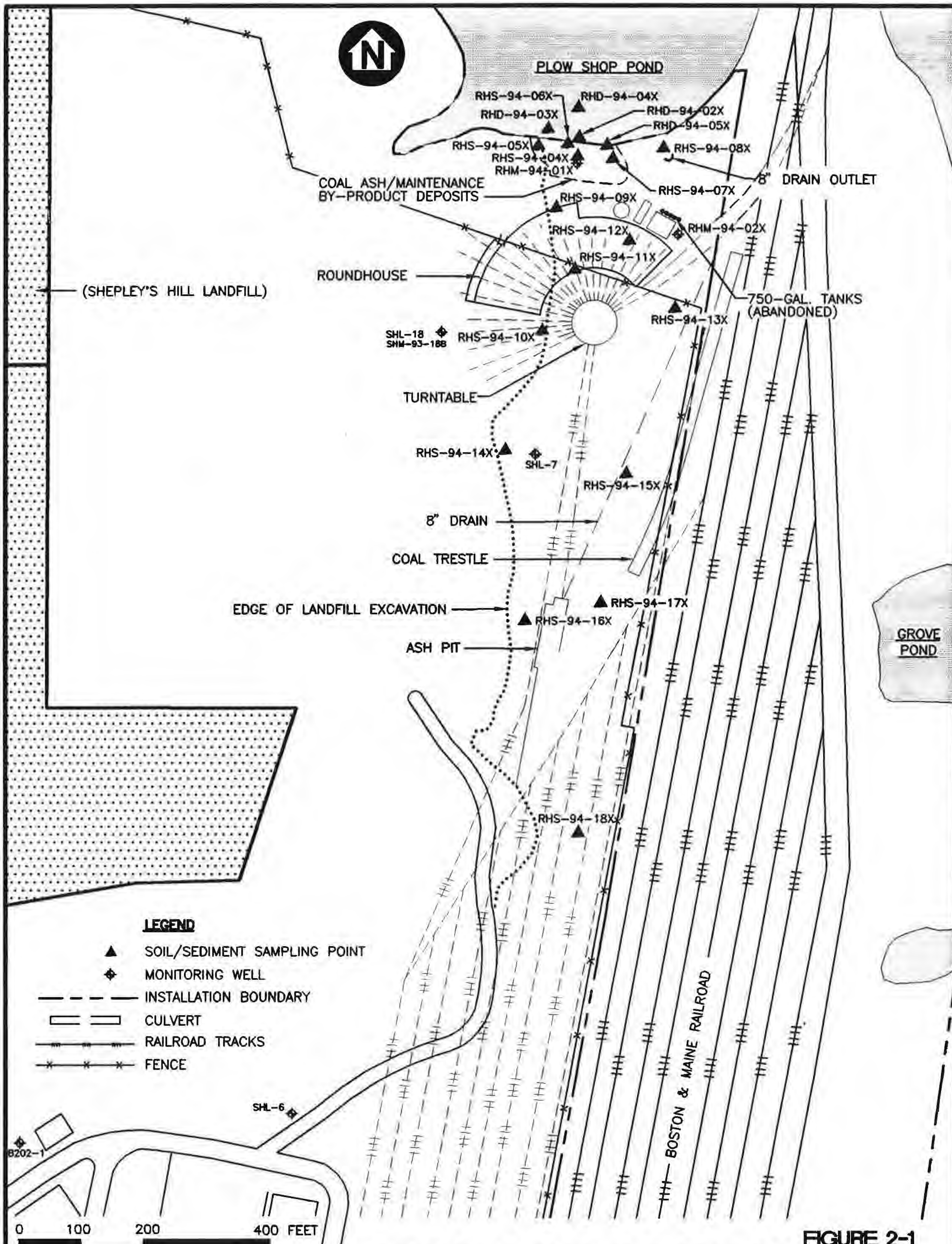

FIGURE 2-1
RAILROAD ROUNDHOUSE 1994 SAMPLE LOCATIONS
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

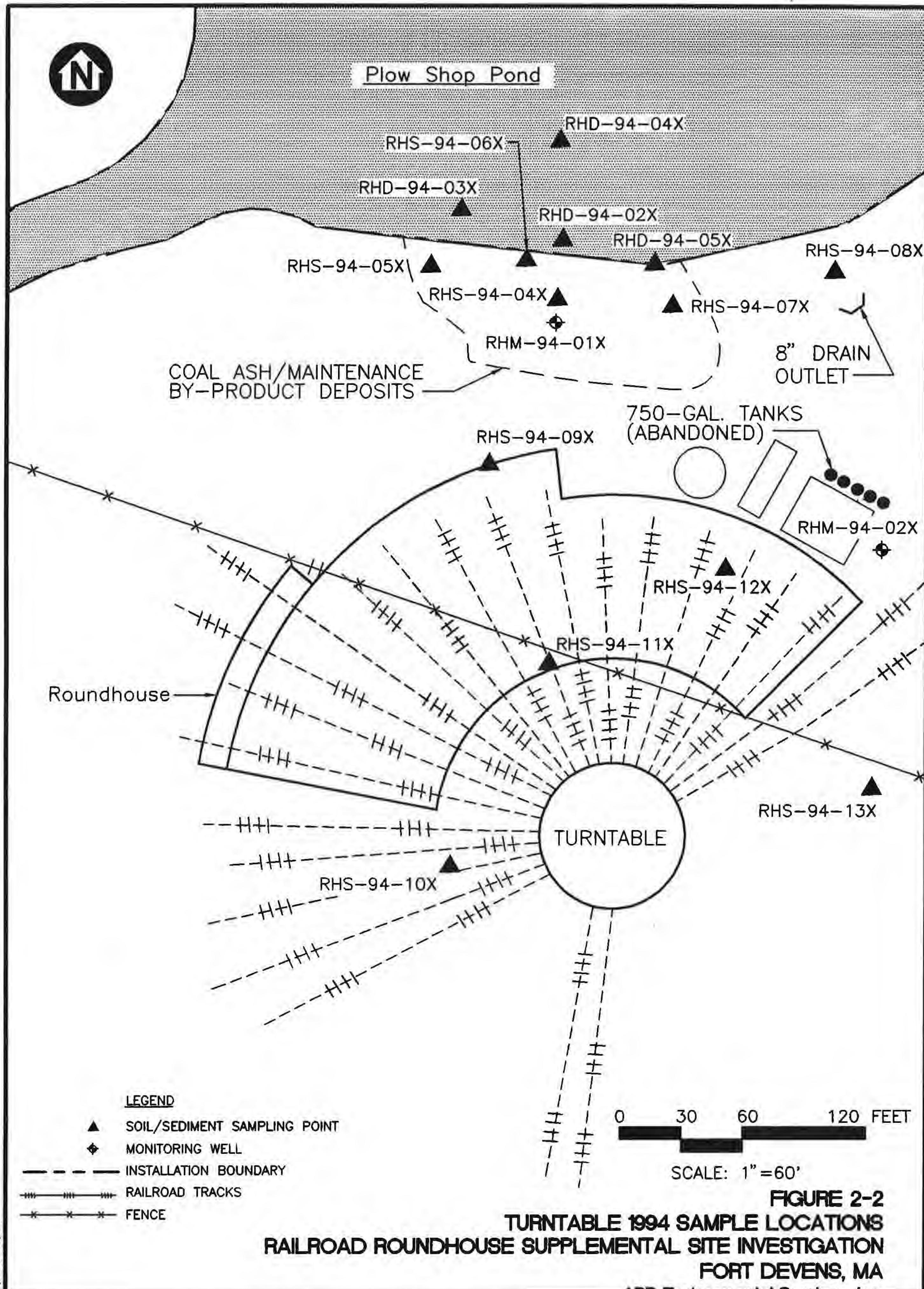

FIGURE 2-2
TURNTABLE 1994 SAMPLE LOCATIONS
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

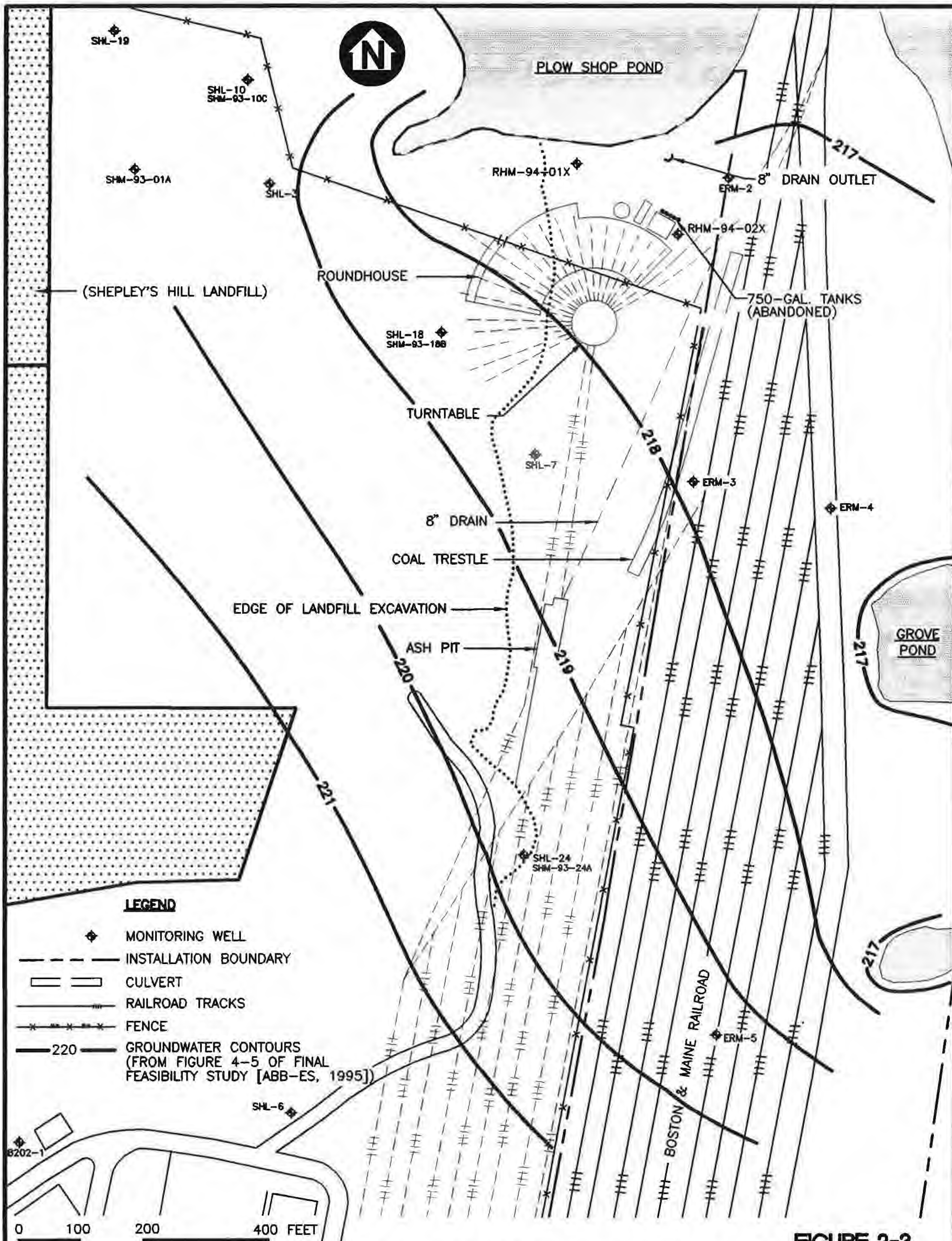

FIGURE 2-3
MONITORING WELLS LOCATED NEAR RAILROAD ROUNDHOUSE
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA
ABB Environmental Services, Inc.

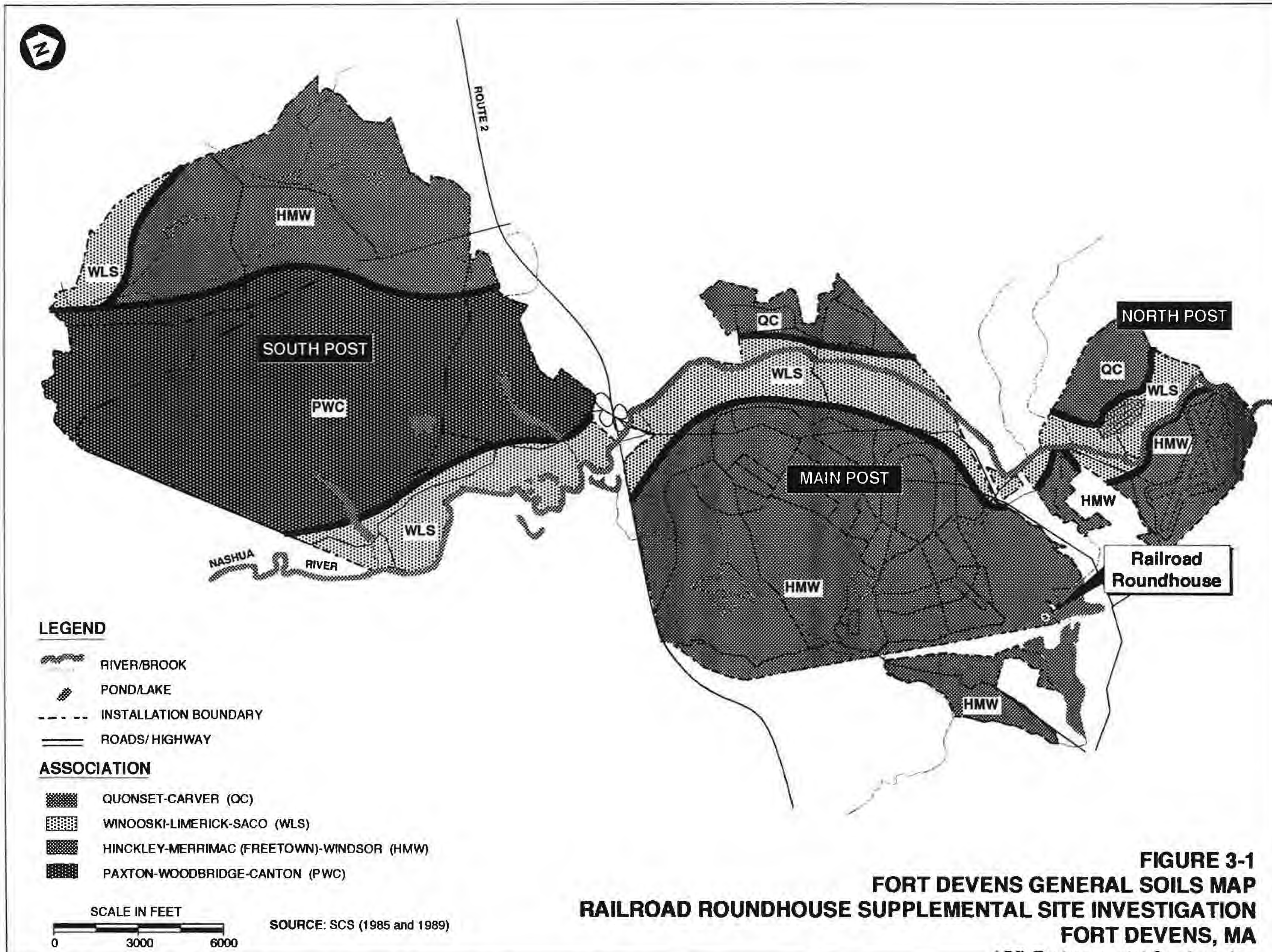

FIGURE 3-1
FORT DEVENS GENERAL SOILS MAP
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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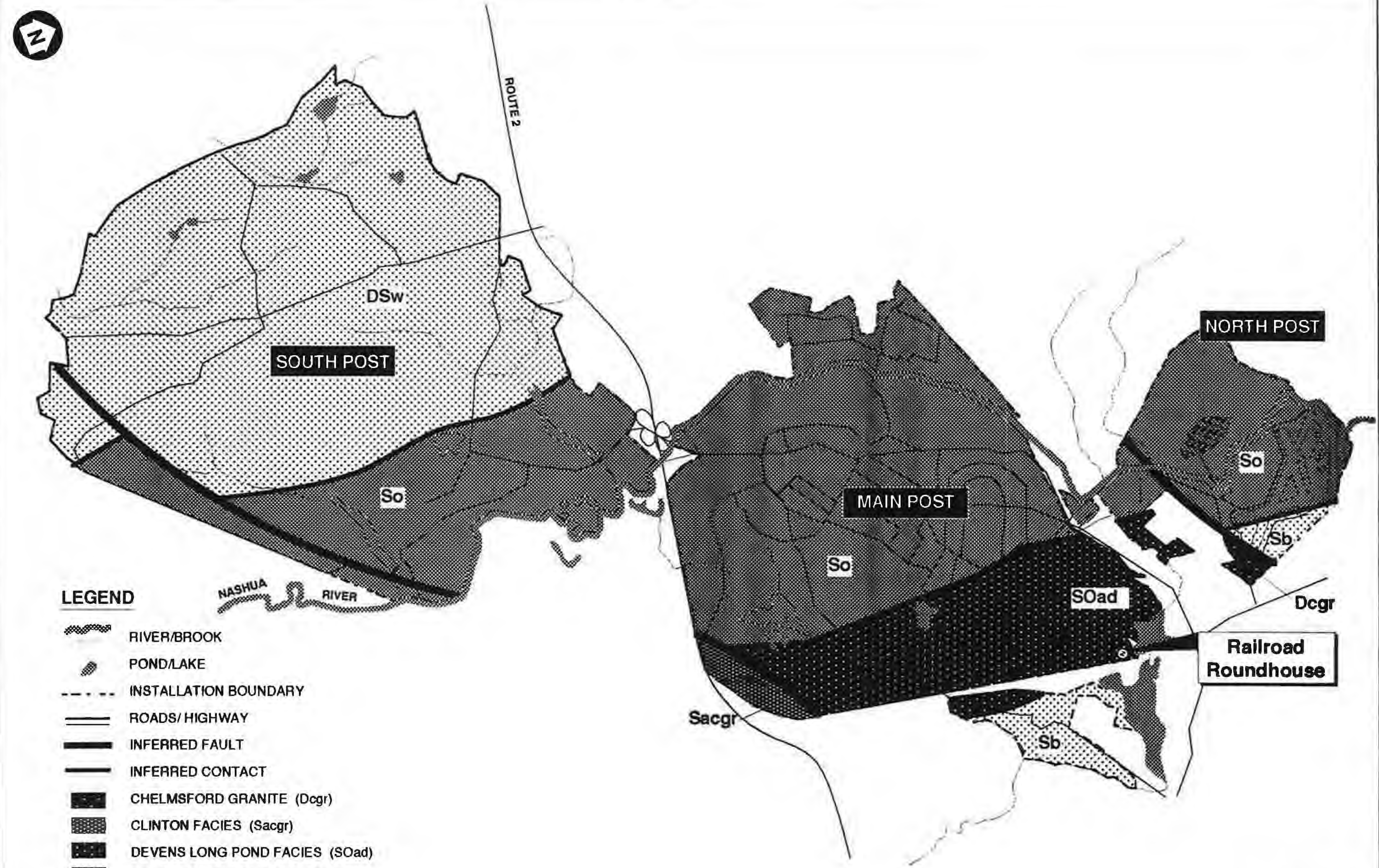

LEGEND

RIVER/BROOK
POND/LAKE
INSTALLATION BOUNDARY
ROADS/ HIGHWAY
INFERRED FAULT
INFERRED CONTACT
CHELMSFORD GRANITE (Dcgr)
CLINTON FACIES (Sacgr)
DEVENS LONG POND FACIES (SOad)
WORCESTER FORMATION (DSw)
OAKDALE FORMATION (So)
BERWICK FORMATION (Sb)

SCALE IN FEET
0 3000 6000

SOURCE: ZEN (1983); PECK (1975), RUSSELL AND ALLMENDINGER (1975), AND ROBINSON (1978).

FIGURE 3-2
FORT DEVENS BEDROCK GEOLOGY
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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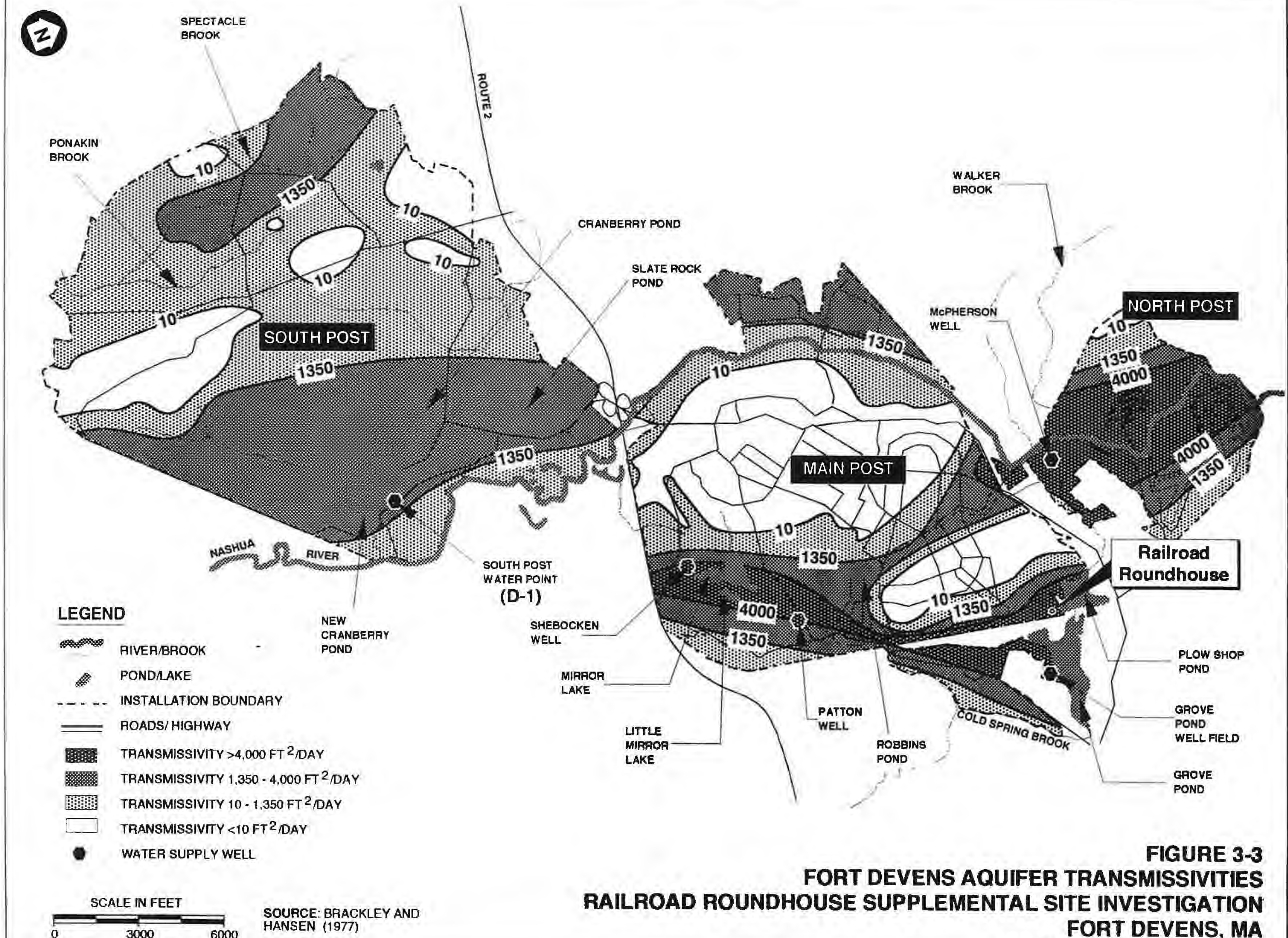

SOURCE: BRACKLEY AND HANSEN (1977)

FIGURE 3-3
FORT DEVENS AQUIFER TRANSMISSIVITIES
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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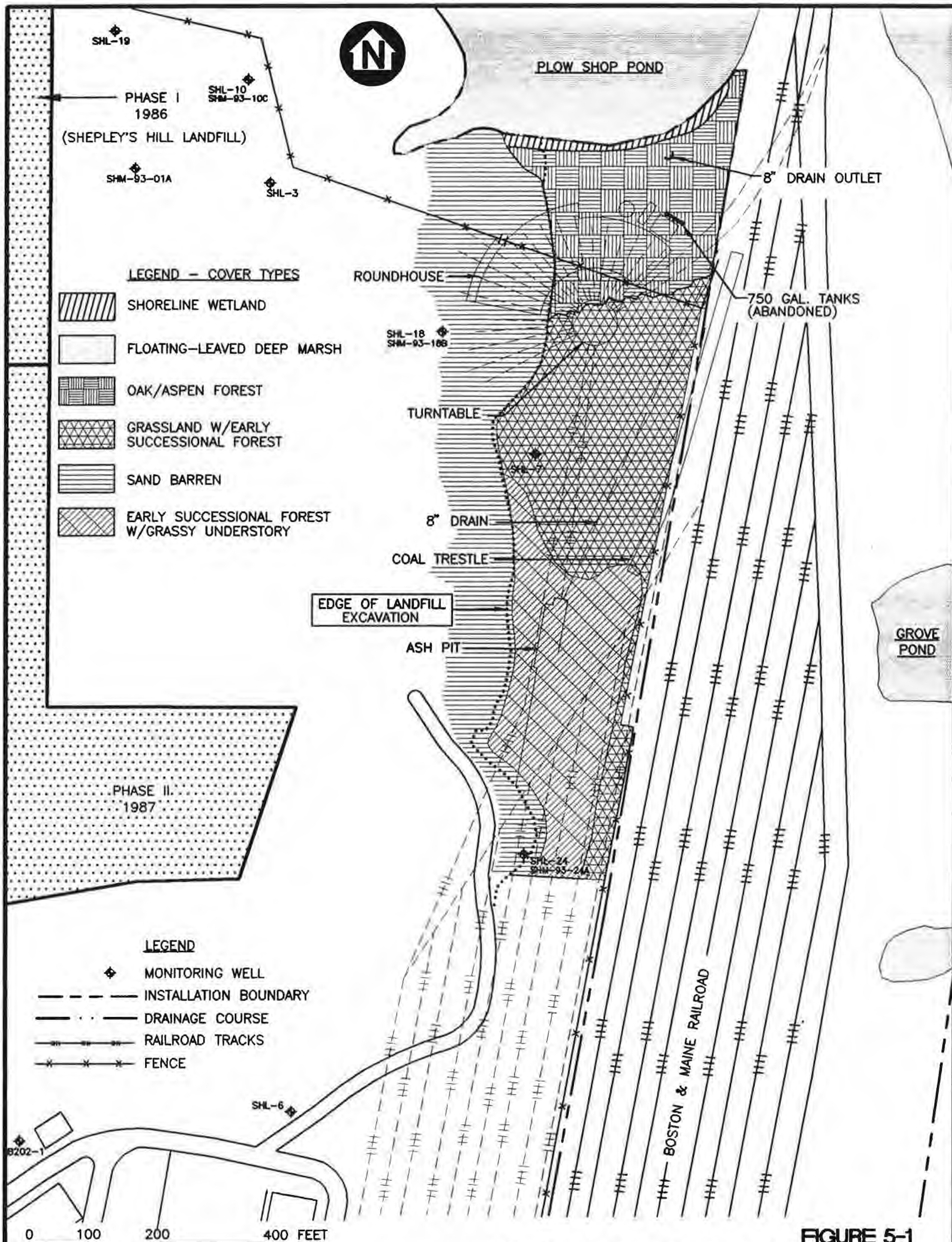

FIGURE 5-1
RAILROAD ROUNDHOUSE COVER TYPES
RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ABB Environmental Services, Inc.

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TABLE 1-1
RAILROAD ROUNDHOUSE 1993 ANALYTICAL SOIL AND SEDIMENT SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	SHD-93-01X 0 FT	SHS-93-01X 0 FT	SHS-93-01X 0 FT (DUP)	SHS-93-02X 0 FT	SHS-93-03X 0 FT
PAL ORGANICS (μg/g)					
Acetone	NA	< 0.017	0.025 D	< 0.017	< 0.017
Toluene	NA	< 0.001	< 0.001 D	0.002	< 0.001
2-methylnaphthalene	0.35	0.9	0.6 D	6	0.11
Anthracene	< 0.033	0.2	0.1 D	0.3	< 0.033
Benzo (a) anthracene	< 0.17	0.9	0.7 D	0.7	< 0.17
Benzo (a) pyrene	< 0.25	0.9	< 0.5 D	< 0.5	< 0.25
Benzo (b) fluoranthene	< 0.21	2	1 D	1	< 0.21
Benzo (k) fluoranthene	< 0.066	< 0.1	< 0.1 D	0.2	< 0.066
Chrysene	< 0.12	3	2 D	1	0.24
Dibenzofuran	0.13	0.3	0.2 D	1	< 0.035
Fluoranthene	0.12	0.3	0.3 D	2	0.13
Fluorene	< 0.033	< 0.07	< 0.07 D	0.2	< 0.033
Naphthalene	0.26	0.6	0.3 D	3	0.063
Phenanthrene	0.35	1	1 D	2	0.22
Pyrene	0.087	0.6	0.6 D	1	0.14
PESTICIDES/PCBs (μg/g)					
Gamma-chlordane	0.005 ND R	0.027 S	0.031 S	0.005 ND R	0.005 ND R
DDE	< 0.008	< 0.008	< 0.008 D	0.011	< 0.008
PAL INORGANICS (μg/g)					
Aluminum	11000	3180	3340 D	4510	3960
Antimony	170	3000	370 D	7.08	< 1.09
Arsenic	11.5	35	39 D	25	15
Barium	124	141	312 D	138	57.2
Beryllium	2.45	< 0.5	0.697 D	1.1	< 0.5
Calcium	18800	500	834 D	3440	11200
Chromium	14.5	11.3	10.5 D	8.87	6.14
Cobalt	4.93	1.98	2.43 D	3.85	2.02
Copper	13000	2800	2400 D	121	25.4
Iron	21100	31300	26300 D	12300	6050
Lead	4800	8100	9500 D	180	97
Magnesium	936	424	462 D	918	1160
Manganese	113	39.6	57.6 D	96.6	77.6
Mercury	0.076	< 0.05	< 0.05 D	0.142	< 0.05
Nickel	28.8 I	7.56 I	7.47 DI	12.6 I	5.19 I
Potassium	803	1010	1020 D	466	532
Selenium	1.06	0.671	0.913 D	3.58	0.476
Silver	4.15	4.47	4.2 D	< 0.589	2.97
Sodium	539	361	279 D	317	289
Vanadium	27.6	14.2	14.6 D	13.6	7.72
Zinc	156	64.5	56.2 D	83.7	35.9
OTHER					
Total organic carbon (μg/g)	28000	110000	104000 D	89700	13200
Solids (% WET WT.)	68.3	82.1	81.9	83.4	91.9

NOTES:
μg/g = micrograms per gram
< = Less than
S = Results based on internal standard.
NA = Not analyzed
ND = Not detectable
R = Analyte required for reporting purposes, but not currently certified.
D = Duplicate sample
I = Interferences in sample make quantitation and/or identification suspect.

TABLE 1-2
ONTARIO MINISTRY OF THE ENVIRONMENT SEDIMENT CRITERIA

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	CONCENTRATION (μg/g)
INORGANICS	
Arsenic	6.0
Cadmium	0.6
Chromium	26
Cobalt	50
Copper	16
Iron	20000
Lead	31
Manganese	460
Mercury	0.2
Nickel	16
Zinc	120

NOTES:
Source: Lowest Effect Level (LEL) values reported in "Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario" (Persaud et al., 1992)

TABLE 1-3
CONCENTRATIONS OF TRACE ELEMENTS IN COAL ASH

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ELEMENT (1)	CONCENTRATIONS IN PPM						
	SOURCE A (2)	SOURCE B	SOURCE C	SOURCE D	SOURCE E	SOURCE F	SOURCE G
Antimony	n.a.	0.64	n.a.	n.a.	n.a.	n.a.	n.a.
Arsenic	n.a.	18	1	1	3	2	5.8
Barium	866	500	n.a.	n.a.	n.a.	n.a.	n.a.
Beryllium	9	n.a.	3	7	2	5	7.3
Chromium	304	152	15	30	70	30	124
Cobalt	81	20.8	n.a.	n.a.	n.a.	n.a.	n.a.
Copper	405	20	37	48	33	40	48
Lead	81	6.2	27	30	20	30	8.1
Manganese	270	295	366	700	150	100	229
Mercury	n.a.	0.028	0.01	0.01	0.01	0.01	0.51
Nickel	220	85	10	22	15	10	62
Selenium	n.a.	0.08	0.2	0.7	1	1	5.6
Silver	<1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Vanadium	n.a.	260	70	85	70	70	353
Zinc	n.a.	100	24	30	27	45	150

NOTES:
(1) = Reported in Roundhouse soil/ sediment samples
(2) = Average for anthracite coal
ppm = parts per million
n.a. = not available
< = less than
SOURCES:
A = Table 2-7, Coal Ash Disposal Manual, Electric Power Research Institute, December 1979.
B = Table V-30, Development Document for Effluent Limitations Guidelines and Standards for the Steam Electric Point Source Category (Proposed), EPA 440/1-80/029-b, September 1980.
C, D, E, F, G = Table 16, Characterization of Ash from Coal-fired Power Plants, Tennessee Valley Authority, Power Research Staff, EPA-600/7-77-010, January 1977.

TABLE 2-1
RESULTS OF ON-SITE GROUNDWATER ANALYSIS

RAILROAD ROUNDHOUSE SUPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	SHL-7	SHL-18	RHM-94-01	RHM-94-02
Round 1 Groundwater Sampling				
pH, s.u.	5.9	5.8	6.1	6.0
Conductivity, umhos/cm	65	74	180	100
Dissolved Oxygen, mg/L	3.5	10.6	2.5	9.2
Oxidation-reduction Potential, mv	*	*	*	250
Temperature, °C	13.0	13.0	14.2	15.8
Turbidity, NTU	0.94	0.41	125	1.61
Round 2 Groundwater Sampling				
pH, s.u.	6.1	6.4	6.3	5.2
Conductivity, umhos/cm	104	52	226	111
Oxidation-reduction Potential, mv	265	305	272	386
Temperature, °C	11.7	12.1	10.8	12.8
Turbidity, NTU	2.51	0.16	0.53	0.24

NOTES:
* = oxidation reduction probe damaged
s.u. = standard units
umhos/cm = reciprocal ohms per centimeter
mg/L = milligrams per liter
mv = millivolts
°C = degrees Celsius
NTU = Nephelos Turbidity Units

TABLE 4-1
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SEDIMENT SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHD-94-02X 0 FT	RHD-94-03X 0 FT	RHD-94-03X 0 FT (DUP)	RHD-94-04X 0 FT	RHD-94-05X 0 FT
PAL SEMIVOLATILE ORGANICS (µg/g)					
2-methylnaphthalene	2	2	2 D	< 0.2	1
Acenaphthene	< 0.2	0.4	< 0.2 D	< 0.2	< 0.2
Anthracene	< 0.2	0.8	0.4 D	< 0.2	< 0.2
Benzo [a] anthracene	< 0.8	2	< 0.8 D	< 0.8	< 0.8
Benzo [b] fluoranthene	< 1	2 1	< 1 D	< 1	< 1
Benzo [k] fluoranthene	< 0.3	2	< 0.3 D	< 0.3	< 0.3
Chrysene	< 0.6	3	< 0.6 D	< 0.6	< 0.6
Dibenzofuran	0.4	0.8	0.8 D	< 0.2	< 0.2
Fluoranthene	< 0.3	5	2 D	< 0.3	1
Fluorene	< 0.2	0.4	< 0.2 D	< 0.2	< 0.2
Naphthalene	2	2	2 D	< 0.2	0.7
Phenanthrene	0.8	4	2 D	< 0.2	1
Pyrene	0.5	3	0.9 D	< 0.2	0.8
PAL INORGANICS (µg/g)					
Aluminum	20500	5090	5710 D	2180	6690
Antimony	17.6	12.3	9.13 D	< 1.09	19.6
Arsenic	9.88	16	11 D	23.1	14.7
Barium	290	113	72.4 D	< 5.18	76
Beryllium	2.69	0.99	1.07 D	< 0.5	1.76
Calcium	20600	1760	2670 D	24700	3940
Chromium	14.8	12.8	15.4 D	< 4.05	79.4
Cobalt	4.93	3.3	4.07 D	< 1.42	5.81
Copper	3450	220	276 D	17.2	1750
Iron	11400	11700	14400 D	4220	52900
Lead	945	282	344 D	10.5	1210
Magnesium	1820	1520	1560 D	13.6	1120
Manganese	59	72	74.8 D	268	153
Mercury	0.116	0.312	0.213 D	< 0.05	0.496
Nickel	14.8	10.5	13.2 D	< 1.71	19.1
Potassium	1870	327	387 D	< 100	443
Selenium	0.814	2.32	1.23 D	< 0.25	1.77
Silver	1.13	< 0.589	< 0.589 D	< 0.589	0.589
Sodium	1290	573	632 D	2880	777
Tin	275 Z	8.13 Z	13.1 DZ	< 4.9 T	114 Z
Vanadium	28.1	14	12.6 D	< 3.39	19
Zinc	84	93.7	96.2 D	< 8.03	141
OTHER					
Total Organic Carbon (µg/g)	36000	79000	41000 D	490000	20000

NOTES:
µg/g = micrograms per gram
T = a non-target analyte that was analyzed for but not detected
Z = a non-target analyte that was analyzed for and detected
D = duplicate sample

TABLE 4-2
SUMMARY OF PLOW SHOP POND SHALLOW SEDIMENT INORGANIC DATA

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RI DATA SET			SUPPLEMENTAL DATA SET		
	FREQUENCY OF DETECTION	MAXIMUM VALUE	AVERAGE VALUE	FREQUENCY OF DETECTION	MAXIMUM VALUE	AVERAGE VALUE
Aluminum	13/13	24000	13100	28/28	13500	5540
Arsenic	13/13	3200	997	28/28	510	221
Barium	13/13	310	174	25/28	344	77
Beryllium	8/13	2.72	1.14	0/28	n/a	n/a
Cadmium	12/13	60.2	29	1/28	19.2	1
Calcium	11/13	13000	5990	28/28	20100	9040
Chromium	11/13	10000	3250	27/28	6170	1400
Cobalt	0/13	n/a	n/a	8/28	58.7	7.3
Copper	9/13	132	63	21/28	105	29
Iron	13/13	330000	73485	28/28	68400	19060
Lead	13/13	632	241	27/28	260	75
Magnesium	13/13	6900	2607	23/28	2120	1420
Manganese	10/13	8800	1940	27/28	54800	2960
Mercury	13/13	130	29	24/28	89	13
Nickel	9/13	79.3	38	16/28	70.1	16
Potassium	13/13	2350	1093	4/28	817	130
Selenium	0/13	n/a	n/a	12/28	6.62	1.52
Sodium	7/13	896	371	28/28	2870	1460
Vanadium	9/13	166	63	6/28	61.7	7.0
Zinc	1/13	42.8	40	16/28	403	111

NOTES:
All concentrations in $\mu g/g$
Averages based on one-half the sample quantitation limit for nondetects.
n/a = not applicable

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHM-94-01X 9 FT	RHS-94-04X 0 FT	RHS-94-04X 0.5 FT	RHS-94-04X 1.5 FT
PAL SEMIVOLATILE ORGANICS (μg/g)				
2-methylnaphthalene		4	< 0.2	< 0.049
2-methylphenol / 2-cresol		< 0.1	< 0.1	< 0.029
4-methylphenol / 4-cresol		< 1	< 1	< 0.24
Acenaphthene		< 0.2	< 0.2	< 0.036
Acenaphthylene		< 0.2	< 0.2	< 0.033
Anthracene		0.4	< 0.2	< 0.033
Benzo (a) anthracene		< 0.8	< 0.8	< 0.17
Benzo (a) pyrene		< 1	< 1	< 0.25
Benzo (b) fluoranthene		< 1	< 1	< 0.21
Benzo (g,h,i) perylene		< 1	< 1	< 0.25
Benzo (k) fluoranthene		0.4	0.6	< 0.066
Bis (2-ethylhexyl) phthalate		< 3	< 3	< 0.62
Chrysene		2	2	< 0.12
Di-n-butyl phthalate		< 0.3	< 0.3	< 0.061
Dibenzo (a,h) anthracene		< 1	< 1	< 0.21
Dibenzofuran		1	< 0.2	< 0.035
Fluoranthene		1	< 0.3	< 0.068
Fluorene		< 0.2	< 0.2	< 0.033
Indeno (1,2,3-c,d) pyrene		< 1	< 1	< 0.29
Naphthalene		3	< 0.2	< 0.037
Phenanthrene		3	0.6	< 0.033
Phenol		2	< 0.6	< 0.11
Pyrene		1	0.5	< 0.033
PAL INORGANICS (μg/g)				
Aluminum		5070	1360	7930
Antimony		18	410	420
Arsenic		16	18	42
Barium		110	148	273
Beryllium		0.824	< 0.5	1.48
Cadmium		< 0.7	< 0.7	< 0.7
Calcium		2420	323	187
Chromium		8.74	< 4.05	24
Cobalt		< 1.42	< 1.42	< 1.42
Copper		448	648	1840
Iron		9130	17100	43400
Lead	3	573	7100	4320
Magnesium		638	238	386
Manganese		36.4	18.7	35.5
Mercury		0.131	< 0.05	< 0.05
Nickel		7.07	2.96	12.9
Potassium		719	1230	4020
Selenium		1.58	< 0.25	1.73
Silver		< 0.589	0.886	< 0.589
Sodium		470	435	691
Thallium		< 0.5	< 0.5	0.852
Vanadium		28.2	10.8	21.8
Tin		18.5 S	130 S	28.9 S
Zinc		32.5	133	77.9
OTHER (μg/g)				
Total Organic Carbon	65,000	67,000	89,000	12,000

NOTES:
μg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-05X 0 FT	RHS-94-05X 1 FT	RHS-94-05X 1.5 FT	RHS-94-06X 0 FT
PAL SEMIVOLATILE ORGANICS (µg/g)				
2-methylnaphthalene	0.58	< 0.049	< 0.049	3.8
2-methylphenol / 2-cresol	< 0.029	< 0.029	< 0.029	1.1
4-methylphenol / 4-cresol	< 0.24	< 0.24	< 0.24	2.6
Acenaphthene	0.048	< 0.036	< 0.036	< 0.036
Acenaphthylene	< 0.033	< 0.033	< 0.033	< 0.033
Anthracene	0.23	< 0.033	< 0.033	0.36
Benzo (a) anthracene	0.68	< 0.17	< 0.17	0.79
Benzo (a) pyrene	0.65	< 0.25	< 0.25	< 0.25
Benzo (b) fluoranthene	0.88	< 0.21	< 0.21	< 0.21
Benzo (g,h,i) perylene	0.45	< 0.25	< 0.25	< 0.25
Benzo (k) fluoranthene	0.5	< 0.066	< 0.066	0.54
Bis (2-ethylhexyl) phthalate	< 0.62	< 0.62	< 0.62	< 0.62
Chrysene	1.1	< 0.12	< 0.12	1.9
Di-n-butyl phthalate	< 0.061	< 0.061	< 0.061	< 0.061
Dibenzo (a,h) anthracene	< 0.21	< 0.21	< 0.21	< 0.21
Dibenzofuran	0.32	0.043	< 0.035	1.2
Fluoranthene	1.2	< 0.068	< 0.068	1.1
Fluorene	< 0.033	< 0.033	< 0.033	< 0.033
Indeno (1,2,3-c,d) pyrene	< 0.29	< 0.29	< 0.29	< 0.29
Naphthalene	0.42	< 0.037	< 0.037	3.1
Phenanthrene	1.7	0.1	< 0.033	3.3
Phenol	< 0.11	< 0.11	< 0.11	1.4
Pyrene	1.1	< 0.033	< 0.033	0.95
PAL INORGANICS (µg/g)				
Aluminum	3170	2950	4540	4910
Antimony	4.88	570	66	30
Arsenic	13	14	9.77	21
Barium	36.8	68.9	117	154
Beryllium	0.589	0.963	1.79	0.996
Cadmium	< 0.7	< 0.7	< 0.7	< 0.7
Calcium	1690	2010	3590	1790
Chromium	7.65	299	7.27	13.6
Cobalt	2.48	2.91	4.85	2.58
Copper	209	2210	209	825
Iron	7400	12300	10800	17800
Lead	145	681	1850	1040
Magnesium	814	530	436	832
Manganese	108	52.8	111	53.9
Mercury	0.0776	< 0.05	< 0.05	0.201
Nickel	7.56	7.32	11.8	13.4
Potassium	288	297	440	704
Selenium	1.25	2.62	0.659	2.64
Silver	< 0.589	1.25	< 0.589	< 0.589
Sodium	322	332	384	415
Thallium	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	11.7	13	16.4	18.6
Tin	8.12 S	119 S	45.1 S	37.3 S
Zinc	72.9	69.9	63.7	47.6
OTHER (µg/g)				
Total Organic Carbon	38,000	47,000	54,000	79,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-06X 0.5 FT	RHS-94-06X 1.5 FT	RHS-94-07X 0 FT	RHS-94-07X 1 FT
PAL SEMIVOLATILE ORGANICS (µg/g)				
2-methylnaphthalene	< 0.049	0.25	0.66	< 0.049
2-methylphenol / 2-cresol	< 0.029	< 0.029	< 0.029	< 0.029
4-methylphenol / 4-cresol	< 0.24	< 0.24	< 0.24	< 0.24
Acenaphthene	< 0.036	< 0.036	< 0.036	< 0.036
Acenaphthylene	< 0.033	< 0.033	< 0.033	< 0.033
Anthracene	< 0.033	0.077	0.099	< 0.033
Benzo (a) anthracene	< 0.17	< 0.17	< 0.17	< 0.17
Benzo (a) pyrene	< 0.25	< 0.25	< 0.25	< 0.25
Benzo (b) fluoranthene	< 0.21	< 0.21	< 0.21	< 0.21
Benzo (g,h,i) perylene	< 0.25	< 0.25	< 0.25	< 0.25
Benzo (k) fluoranthene	< 0.066	< 0.066	0.14	< 0.066
Bis (2-ethylhexyl) phthalate	< 0.62	< 0.62	< 0.62	< 0.62
Chrysene	< 0.12	0.19	0.49	< 0.12
Di-n-butyl phthalate	< 0.061	< 0.061	< 0.061	< 0.061
Dibenzo (a,h) anthracene	< 0.21	< 0.21	< 0.21	< 0.21
Dibenzofuran	< 0.035	0.053	0.23	< 0.035
Fluoranthene	< 0.068	< 0.068	0.54	< 0.068
Fluorene	< 0.033	< 0.033	< 0.033	< 0.033
Indeno (1,2,3-c,d) pyrene	< 0.29	< 0.29	< 0.29	< 0.29
Naphthalene	< 0.037	0.13	0.57	< 0.037
Phenanthrene	< 0.033	0.19	0.8	< 0.033
Phenol	< 0.11	< 0.11	< 0.11	< 0.11
Pyrene	< 0.033	0.14	0.37	< 0.033
PAL INORGANICS (µg/g)				
Aluminum	6070	5880	4100	1150
Antimony	1400	7.2	40	41
Arsenic	49	9.81	19	23
Barium	257	152	194	121
Beryllium	1.56	0.821	0.849	< 0.5
Cadmium	< 0.7	< 0.7	< 0.7	< 0.7
Calcium	2290	8490	1960	179
Chromium	16.8	6.31	10.7	6.09
Cobalt	5.97	3.95	2.12	< 1.42
Copper	6900	574	1210	212
Iron	27500	13700	24900	30000
Lead	3820	310	967	760
Magnesium	1170	902	337	172
Manganese	158	113	37.1	13.6
Mercury	< 0.05	< 0.05	0.131	< 0.05
Nickel	35.2	14.8	9.1	4.63
Potassium	782	482	1000	428
Selenium	0.618	< 0.25	1.4	4.63
Silver	1.85	< 0.589	< 0.589	0.806
Sodium	485	607	518	536
Thallium	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	21.2	15	28.6	13.6
Tin	71 S	8.64 S	45.1 S	140 S
Zinc	401	139	32.5	13.4
OTHER (µg/g)				
Total Organic Carbon	33,000	56,000	58,000	110,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE		RHS-94-07X 2 FT		RHS-94-08X 0 FT		RHS-94-08X 0.8 FT		RHS-94-08X 1.1 FT
PAL SEMIVOLATILE ORGANICS (µg/g)								
2-methylnaphthalene	<	0.049		1	<	0.049		20
2-methylphenol / 2-cresol	<	0.029	<	0.1	<	0.029	<	0.1
4-methylphenol / 4-cresol	<	0.24	<	1	<	0.24	<	1
Acenaphthene	<	0.036		0.4	<	0.036	<	0.2
Acenaphthylene	<	0.033	<	0.2	<	0.033	<	0.2
Anthracene	<	0.033		1	<	0.033		0.9
Benzo (a) anthracene	<	0.17		1	<	0.17		2
Benzo (a) pyrene	<	0.25	<	1	<	0.25	<	1
Benzo (b) fluoranthene	<	0.21	<	1	<	0.21		3
Benzo (g,h,i) perylene	<	0.25	<	1	<	0.25	<	1
Benzo (k) fluoranthene	<	0.066		1	<	0.066		2
Bis (2-ethylhexyl) phthalate	<	0.62	<	3	<	0.62	<	3
Chrysene	<	0.12		2	<	0.12		5
Di-n-butyl phthalate	<	0.061	<	0.3	<	0.061	<	0.3
Dibenzo (a,h) anthracene	<	0.21	<	1	<	0.21	<	1
Dibenzofuran	<	0.035		0.5	<	0.035		4
Fluoranthene	<	0.068		4	<	0.068		7
Fluorene	<	0.033		0.3	<	0.033	<	0.2
Indeno (1,2,3-c,d) pyrene	<	0.29	<	1	<	0.29	<	1
Naphthalene	<	0.037		0.7	<	0.037		9
Phenanthrene	<	0.033		4	<	0.033		8
Phenol	<	0.11	<	0.6	<	0.11	<	0.6
Pyrene	<	0.033		3	<	0.033		4
PAL INORGANICS (µg/g)								
Aluminum		4030		2840		2680		3290
Antimony		5.77		3.71	<	1.09		6.85
Arsenic		16		13		9.4		18
Barium		173		38.9		13.1		63.4
Beryllium	<	0.5	<	0.5	<	0.5	<	0.5
Cadmium	<	0.7	<	0.7	<	0.7	<	0.7
Calcium		693		498		278		1080
Chromium		10.9		6.46	<	4.05		14
Cobalt	<	1.42	<	1.42	<	1.42		2.84
Copper		199		55.8		18.3		132
Iron		12900		6420		4450		15300
Lead		578		164		44.8		456
Magnesium		171		540		617		656
Manganese		8.96		41.5		69.6		86.8
Mercury	<	0.05		0.332	<	0.05		0.214
Nickel		6.24		4.67		4.96		8.86
Potassium		1880		210		233		199
Selenium		0.716		1.1	<	0.25		2.68
Silver	<	0.589	<	0.589	<	0.589	<	0.589
Sodium		509		356		289		455
Thallium	<	0.5	<	0.5	<	0.5	<	0.5
Vanadium		19.9		11.6		4.23		12.6
Tin		37.1 S		6.73 S		16.7 S		16.7 S
Zinc	<	8.03		31.3		15		70.5
OTHER (µg/g)								
Total Organic Carbon		31,000		40,000		15,000		110,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-09X 0 FT	RHS-94-09X 1.1 FT	RHS-94-09X 2.2 FT	RHS-94-10X 0.6 FT
PAL SEMIVOLATILE ORGANICS (µg/g)				
2-methylnaphthalene	9	< 0.049	< 0.049	3
2-methylphenol / 2-cresol	< 0.3	< 0.029	< 0.029	< 0.1
4-methylphenol / 4-cresol	< 2	< 0.24	< 0.24	< 1
Acenaphthene	10	< 0.036	< 0.036	< 0.2
Acenaphthylene	< 0.3	< 0.033	< 0.033	0.6
Anthracene	30	< 0.033	< 0.033	0.6
Benzo (a) anthracene	20	< 0.17	< 0.17	2
Benzo (a) pyrene	30	< 0.25	< 0.25	< 1
Benzo (b) fluoranthene	10	< 0.21	< 0.21	3
Benzo (g,h,i) perylene	9	< 0.25	< 0.25	< 1
Benzo (k) fluoranthene	10	< 0.066	< 0.066	1
Bis (2-ethylhexyl) phthalate	< 6	< 0.62	< 0.62	< 3
Chrysene	30	< 0.12	< 0.12	3
Di-n-butyl phthalate	< 0.6	< 0.061	< 0.061	< 0.3
Dibenzo (a,h) anthracene	3	< 0.21	< 0.21	< 1
Dibenzofuran	10	< 0.035	< 0.035	1
Fluoranthene	60	< 0.068	< 0.068	5
Fluorene	10	< 0.033	< 0.033	< 0.2
Indeno (1,2,3-c,d) pyrene	9	< 0.29	< 0.29	< 1
Naphthalene	10	< 0.037	< 0.037	3
Phenanthrene	70	< 0.033	< 0.033	3
Phenol	< 1	< 0.11	< 0.11	< 0.6
Pyrene	50	< 0.033	< 0.033	3
PAL INORGANICS (µg/g)				
Aluminum	1970	1940	1580	2070
Antimony	6.55	< 1.09	< 1.09	5.25
Arsenic	22	13	12	15
Barium	110	8.21	5.81	37.1
Beryllium	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium	< 0.7	< 0.7	< 0.7	< 0.7
Calcium	1380	503	486	343
Chromium	8.74	5.3	< 4.05	6.87
Cobalt	1.86	2.12	2.19	1.67
Copper	136	11.6	7.87	90.1
Iron	18900	4550	3920	17100
Lead	217	6.93	4.31	213
Magnesium	459	994	831	688
Manganese	38.9	71.8	57.7	61
Mercury	0.164	< 0.05	< 0.05	0.0892
Nickel	6.81	7.48	5.74	5.8
Potassium	276	230	245	248
Selenium	4.2	< 0.25	< 0.25	1.66
Silver	< 0.589	< 0.589	< 0.589	< 0.589
Sodium	318	280	304	344
Thallium	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	12.3	4.16	< 3.39	7.59
Tin	15.5 S	< 4.8 T	< 5 T	13.6 S
Zinc	65	9.63	10.8	18.5
OTHER (µg/g)				
Total Organic Carbon	140,000	530	<360	45,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE		RHS-94-10X 1.1 FT		RHS-94-10X 1.7 FT		RHS-94-11X 0 FT		RHS-94-11X 0.5 FT
PAL SEMIVOLATILE ORGANICS (µg/g)								
2-methylnaphthalene	<	0.049	<	0.049		0.1	<	0.049
2-methylphenol / 2-cresol	<	0.029	<	0.029	<	0.06	<	0.029
4-methylphenol / 4-cresol	<	0.24	<	0.24	<	0.5	<	0.24
Acenaphthene	<	0.036	<	0.036		0.2	<	0.036
Acenaphthylene	<	0.033	<	0.033	<	0.07	<	0.033
Anthracene		0.082	<	0.033		0.5	<	0.033
Benzo (a) anthracene		0.19	<	0.17		1	<	0.17
Benzo (a) pyrene	<	0.25	<	0.25		1	<	0.25
Benzo (b) fluoranthene	<	0.21	<	0.21		2	<	0.21
Benzo (g,h,i) perylene	<	0.25	<	0.25		0.8	<	0.25
Benzo (k) fluoranthene	<	0.066	<	0.066		0.4	<	0.066
Bis (2-ethylhexyl) phthalate	<	0.62	<	0.62	<	1	<	0.62
Chrysene		0.25	<	0.12		1	<	0.12
Di-n-butyl phthalate	<	0.061	<	0.061	<	0.1	<	0.061
Dibenzo (a,h) anthracene	<	0.21	<	0.21	<	0.4	<	0.21
Dibenzofuran	<	0.035	<	0.035		0.2	<	0.035
Fluoranthene		0.5	<	0.068		2		0.11
Fluorene	<	0.033	<	0.033		0.1	<	0.033
Indeno (1,2,3-c,d) pyrene	<	0.29	<	0.29		0.9	<	0.29
Naphthalene	<	0.037	<	0.037		0.1	<	0.037
Phenanthrene		0.4	<	0.033		2		0.084
Phenol	<	0.11	<	0.11	<	0.2	<	0.11
Pyrene		0.43	<	0.033		2		0.12
PAL INORGANICS (µg/g)								
Aluminum		3330		1990		2900		3840
Antimony	<	1.09	<	1.09	<	1.09	<	1.09
Arsenic		7.19		11		12		9.9
Barium		9.59		5.97		18.5		8.38
Beryllium	<	0.5	<	0.5	<	0.5	<	0.5
Cadmium	<	0.7	<	0.7	<	0.7	<	0.7
Calcium		171		257		1040		242
Chromium		6.3	<	4.05		5.68		6.42
Cobalt		2.82		1.78		2.75		2.25
Copper		24.6		12		40.9		8.92
Iron		5150		3710		7000		4550
Lead		19		6.9		97.5		25.8
Magnesium		1150		698		812		872
Manganese		109		72.2		108		73.9
Mercury		0.11	<	0.05		0.0617		0.153
Nickel		7.24		6.32		7.02		7.3
Potassium		279		237		224		307
Selenium	<	0.25	<	0.25		0.416	<	0.25
Silver	<	0.589	<	0.589	<	0.589	<	0.589
Sodium		300		276		275		262
Thallium	<	0.5	<	0.5	<	0.5	<	0.5
Vanadium		4.79	<	3.39		6.42		5.37
Tin	<	4.8 T	<	4.7 T	<	4.7 T	<	5 T
Zinc		177		24.2		53.9		23.1
OTHER (µg/g)								
Total Organic Carbon		5,100		<360		9,600		9,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4–3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS–94–11X 1.5 FT	RHS–94–12X 0 FT	RHS–94–12X 0 FT	RHS–94–12X 0.5 FT
PAL SEMIVOLATILE ORGANICS (µg/g)				
2–methylnaphthalene	3	< 0.1 D	0.2	< 0.049
2–methylphenol / 2–cresol	< 0.1	< 0.06 D	< 0.06	< 0.029
4–methylphenol / 4–cresol	< 1	< 0.5 D	< 0.5	< 0.24
Acenaphthene	3	0.1 D	0.8	< 0.036
Acenaphthylene	0.2 1	< 0.07 D	< 0.07	< 0.033
Anthracene	6	0.5 D	0.7	< 0.033
Benzo (a) anthracene	10	1 D	2	< 0.17
Benzo (a) pyrene	10	1 D	2	< 0.25
Benzo (b) fluoranthene	10	2 D	3	< 0.21
Benzo (g,h,i) perylene	5	1 D	1	< 0.25
Benzo (k) fluoranthene	3	0.7 D	0.9	< 0.066
Bis (2–ethylhexyl) phthalate	< 3	< 1 D	< 1	< 0.62
Chrysene	10	2 D	2	< 0.12
Di–n–butyl phthalate	< 0.3	< 0.1 D	< 0.1	< 0.061
Dibenzo (a,h) anthracene	1 1	< 0.4 D	< 0.4	< 0.21
Dibenzofuran	2	0.09 D	0.2	< 0.035
Fluoranthene	30	2 D	2	0.095
Fluorene	2	0.1 D	0.2	< 0.033
Indeno (1,2,3–c,d) pyrene	6	0.9 D	1	< 0.29
Naphthalene	2	0.1 D	0.2	< 0.037
Phenanthrene	20	2 D	4	< 0.033
Phenol	< 0.6	< 0.2 D	< 0.2	< 0.11
Pyrene	30	2 D	5	0.085
PAL INORGANICS (µg/g)				
Aluminum	2160	4620 D	4710	3320
Antimony	3.07	5.46 D	2.84	< 1.09
Arsenic	18	12 D	12	11
Barium	35	105 D	107	13.7
Beryllium	< 0.5	< 0.5 D	< 0.5	< 0.5
Cadmium	< 0.7	6.57 D	5.24	0.953
Calcium	2050	1370 D	1280	422
Chromium	7.04	12.9 D	15.8	8.7
Cobalt	3.57	3.82 D	4.77	3.4
Copper	71.5	144 D	153	9.14
Iron	12600	19200 D	20300	5820
Lead	285	549 D	441	6.75
Magnesium	983	1540 D	1730	1500
Manganese	131	288 D	291	179
Mercury	0.0739	< 0.05 D	< 0.05	< 0.05
Nickel	7.28	18.6 D	19.5	10.4
Potassium	181	497 D	626	374
Selenium	1.22	< 0.25 D	< 0.25	< 0.25
Silver	< 0.589	< 0.589 D	< 0.589	< 0.589
Sodium	308	613 D	582	283
Thallium	0.5	< 0.5 D	< 0.5	< 0.5
Vanadium	8.61	13.8 D	15.8	5.71
Tin	9.22 S	9.15 S	13.8 S	< 5 T
Zinc	63.9	3380 D	3170	305
OTHER (µg/g)				
Total Organic Carbon	41,000	18,000 D	8,200	810

NOTES:
µg/g = micrograms per gram
S = non–target analyte that was analyzed for and detected
T = non–target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-12X 1 FT	RHS-94-13X 0.2 FT	RHS-94-13X 0.8 FT	RHS-94-13X 1.5 FT
PAL SEMIVOLATILE ORGANICS (μg/g)				
2-methylnaphthalene	< 0.049	2	< 0.049	< 0.049
2-methylphenol / 2-cresol	< 0.029	< 0.06	< 0.029	< 0.029
4-methylphenol / 4-cresol	< 0.24	< 0.5	< 0.24	< 0.24
Acenaphthene	< 0.036	< 0.07	< 0.036	< 0.036
Acenaphthylene	< 0.033	1	< 0.033	< 0.033
Anthracene	< 0.033	0.7	< 0.033	< 0.033
Benzo (a) anthracene	< 0.17	2	< 0.17	< 0.17
Benzo (a) pyrene	< 0.25	2	< 0.25	< 0.25
Benzo (b) fluoranthene	< 0.21	3	< 0.21	< 0.21
Benzo (g,h,i) perylene	< 0.25	1	< 0.25	< 0.25
Benzo (k) fluoranthene	< 0.066	0.7	< 0.066	< 0.066
Bis (2-ethylhexyl) phthalate	< 0.62	< 1	< 0.62	< 0.62
Chrysene	< 0.12	3	< 0.12	< 0.12
Di-n-butyl phthalate	< 0.061	0.5	< 0.061	< 0.061
Dibenzo (a,h) anthracene	< 0.21	< 0.4	< 0.21	< 0.21
Dibenzofuran	< 0.035	0.7	< 0.035	< 0.035
Fluoranthene	< 0.068	2	< 0.068	< 0.068
Fluorene	< 0.033	< 0.07	< 0.033	< 0.033
Indeno (1,2,3-c,d) pyrene	< 0.29	1	< 0.29	< 0.29
Naphthalene	< 0.037	1	< 0.037	< 0.037
Phenanthrene	< 0.033	2	< 0.033	< 0.033
Phenol	< 0.11	< 0.2	< 0.11	< 0.11
Pyrene	< 0.033	1	< 0.033	< 0.033
PAL INORGANICS (μg/g)				
Aluminum	2950	2740	2550	1990
Antimony	< 1.09	2.92	< 1.09	< 1.09
Arsenic	8.66	12	11	12
Barium	10.7	18.4	6.2	6.37
Beryllium	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium	< 0.7	< 0.7	< 0.7	< 0.7
Calcium	418	424	265	386
Chromium	7.47	6.81	5.96	< 4.05
Cobalt	3.54	2.79	2.66	2.36
Copper	9.84	51.2	12.4	8.48
Iron	6560	10300	4540	3560
Lead	5.8	122	12	4.05
Magnesium	1580	865	840	619
Manganese	125	91.3	82.3	83.2
Mercury	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	12.7	7.41	8	5.98
Potassium	443	282	230	234
Selenium	< 0.25	0.86	< 0.25	< 0.25
Silver	< 0.589	< 0.589	< 0.589	< 0.589
Sodium	240	318	281	236
Thallium	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	5.14	9.1	3.96	< 3.39
Tin	< 4.9 T	6.72 S	< 4.7 T	< 4.9 T
Zinc	184	17.7	11.4	< 8.03
OTHER (μg/g)				
Total Organic Carbon	< 360	63,000	960	1,300

NOTES:
μg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-14X 0.4 FT	RHS-94-14X 1.2 FT	RHS-94-14X 1.6 FT	RHS-94-15X 0.7 FT
PAL SEMIVOLATILE ORGANICS (μg/g)				
2-methylnaphthalene	5 V	< 0.049 V	< 0.049 V	< 0.049 V
2-methylphenol / 2-cresol	< 0.6 V	< 0.029 V	< 0.029 V	< 0.029 V
4-methylphenol / 4-cresol	< 5 V	< 0.24 V	< 0.24 V	< 0.24 V
Acenaphthene	< 0.7 V	< 0.036 V	< 0.036 V	< 0.036 V
Acenaphthylene	< 0.7 V	< 0.033 V	< 0.033 V	< 0.033 V
Anthracene	< 0.7 V	< 0.033 V	< 0.033 V	< 0.033 V
Benzo (a) anthracene	< 3 V	< 0.17 V	< 0.17 V	< 0.17 V
Benzo (a) pyrene	< 5 V	< 0.25 V	< 0.25 V	< 0.25 V
Benzo (b) fluoranthene	< 4 V	< 0.21 V	< 0.21 V	< 0.21 V
Benzo (g,h,i) perylene	< 4 V	< 0.25 V	< 0.25 V	< 0.25 V
Benzo (k) fluoranthene	< 1 V	< 0.066 V	< 0.066 V	< 0.066 V
Bis (2-ethylhexyl) phthalate	< 10 V	1.9 V	< 0.62 V	< 0.62 V
Chrysene	< 2 V	< 0.12 V	< 0.12 V	< 0.12 V
Di-n-butyl phthalate	< 1 V	< 0.061 V	< 0.061 V	< 0.061 V
Dibenzo (a,h) anthracene	< 4 V	< 0.21 V	< 0.21 V	< 0.21 V
Dibenzofuran	1 V	< 0.035 V	< 0.035 V	< 0.035 V
Fluoranthene	< 1 V	< 0.068 V	< 0.068 V	0.082 V
Fluorene	< 0.7 V	< 0.033 V	< 0.033 V	< 0.033 V
Indeno (1,2,3-c,d) pyrene	< 6 V	< 0.29 V	< 0.29 V	< 0.29 V
Naphthalene	2 V	< 0.037 V	< 0.037 V	< 0.037 V
Phenanthrene	2 V	< 0.033 V	< 0.033 V	< 0.033 V
Phenol	< 2 V	< 0.11 V	< 0.11 V	< 0.11 V
Pyrene	1 V	< 0.033 V	< 0.033 V	0.06 V
PAL INORGANICS (μg/g)				
Aluminum	6150 V	3830 V	3250 V	3320 V
Antimony	3.43 V	< 1.09 V	< 1.09 V	< 1.09 V
Arsenic	17 V	8.11 V	12 V	13 V
Barium	69.8 V	9.38 V	19.9 V	9.19 V
Beryllium	0.558 V	< 0.5 V	< 0.5 V	< 0.5 V
Cadmium	< 0.7 V	< 0.7 V	< 0.7 V	< 0.7 V
Calcium	1210 V	276 V	730 V	589 V
Chromium	17.5 V	7.39 V	6.29 V	10.6 V
Cobalt	4.68 V	1.99 V	1.81 V	2.72 V
Copper	159 V	9.71 V	7.12 V	5.74 V
Iron	21800 V	5990 V	5420 V	6950 V
Lead	138 V	3.06 V	2.07 V	3.96 V
Magnesium	1680 V	1510 V	1230 V	1980 V
Manganese	110 V	91.2 V	95.4 V	121 V
Mercury	0.112 V	< 0.05 V	< 0.05 V	< 0.05 V
Nickel	16 V	7.51 V	6.76 V	11.5 V
Potassium	553 V	434 V	697 V	361 V
Selenium	1.14 V	< 0.25 V	< 0.25 V	< 0.25 V
Silver	< 0.589 V	< 0.589 V	< 0.589 V	< 0.589 V
Sodium	474 V	346 V	311 V	321 V
Thallium	< 0.5 V	< 0.5 V	< 0.5 V	< 0.5 V
Vanadium	24.8 V	5.68 V	6.08 V	6.54 V
Tin	10.6 VZ	< 5 VT	< 4.8 VT	< 5 VT
Zinc	49.7 V	14.3 V	13.7 V	15.3 V
OTHER (μg/g)				
Total Organic Carbon	140,000 V	840 V	370 V	1,100 V

NOTES:
μg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHS-94-15X 1.3 FT	RHS-94-15X 1.7 FT	RHS-94-16X 0.5 FT	RHS-94-16X 1.5 FT
PAL SEMIVOLATILE ORGANICS (µg/g)				
2-methylnaphthalene	1 V	< 0.1 V	6	6
2-methylphenol / 2-cresol	< 0.1 V	< 0.06 V	< 0.1	< 0.1
4-methylphenol / 4-cresol	< 1 V	< 0.5 V	< 1	< 1
Acenaphthene	< 0.2 V	< 0.07 V	< 0.2	< 0.2
Acenaphthylene	< 0.2 V	< 0.07 V	< 0.2	< 0.2
Anthracene	< 0.2 V	< 0.07 V	< 0.2	< 0.2
Benzo (a) anthracene	< 0.8 V	< 0.3 V	< 0.8	< 0.8
Benzo (a) pyrene	< 1 V	< 0.5 V	< 1	< 1
Benzo (b) fluoranthene	< 1 V	< 0.4 V	< 1	< 1
Benzo (g,h,i) perylene	< 1 V	< 0.5 V	< 1	< 1
Benzo (k) fluoranthene	0.5 V	< 0.1 V	0.4	< 0.3
Bis (2-ethylhexyl) phthalate	< 3 V	< 1 V	< 3	< 3
Chrysene	0.7 1V	< 0.2 V	1	1
Di-n-butyl phthalate	< 0.3 V	< 0.1 V	< 0.3	< 0.3
Dibenzo (a,h) anthracene	< 1 V	< 0.4 V	< 1	< 1
Dibenzofuran	0.5 V	< 0.07 V	2	2
Fluoranthene	0.7 V	0.2 V	1	0.6
Fluorene	< 0.2 V	< 0.07 V	< 0.2	< 0.2
Indeno (1,2,3-c,d) pyrene	< 1 V	< 0.6 V	< 1	< 1
Naphthalene	1 V	0.1 V	5	5
Phenanthrene	1 V	0.2 V	4	5
Phenol	< 0.6 V	< 0.2 V	< 0.6	< 0.6
Pyrene	0.7 V	0.1 V	1	0.6
PAL INORGANICS (µg/g)				
Aluminum	19400 V	2810 V	8760	11500
Antimony	1.61 V	1.61 V	2.91	2.97
Arsenic	52 V	47 V	22	16
Barium	329 V	34 V	122	139
Beryllium	4.39 V	1.26 V	1.63	3.59
Cadmium	< 0.7 V	< 0.7 V	< 0.7	< 0.7
Calcium	3070 V	1760 V	5870	11500
Chromium	27.4 V	6.24 V	35.4	31.8
Cobalt	8.11 V	< 1.42 V	9.14	13.5
Copper	75 V	24.2 V	112	137
Iron	23000 V	16500 V	50000	85000
Lead	129 V	52 V	210	200
Magnesium	925 V	414 V	1210	1270
Manganese	161 V	34.4 V	289	513
Mercury	0.101 V	< 0.05 V	0.11	< 0.05
Nickel	21.6 V	5.12 V	25.9	37.6
Potassium	2080 V	554 V	258	223
Selenium	1.85 V	3.88 V	0.867	< 0.25
Silver	< 0.589 V	< 0.589 V	< 0.589	< 0.589
Sodium	1390 V	518 V	573	612
Thallium	< 0.5 V	0.719 V	< 0.5	< 0.5
Vanadium	60.2 V	10.4 V	22.9	33.5
Tin	< 4.9 VT	< 5 VT	9.17 Z	12.4 Z
Zinc	37.6 V	< 8.03 V	55.7	40.6
OTHER (µg/g)				
Total Organic Carbon	87,000 V	250,000 V	200,000	470,000

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-3
RAILROAD ROUNDHOUSE 1994 ANALYTICAL SOIL SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE		RHS-94-17X 0.5 FT		RHS-94-17X 1.5 FT		RHS-94-18X 0.5 FT		RHS-94-18X 1.5 FT
PAL SEMIVOLATILE ORGANICS (µg/g)								
2-methylnaphthalene	<	0.049	<	0.049		0.7	<	0.049
2-methylphenol / 2-cresol	<	0.029	<	0.029	<	0.1	<	0.029
4-methylphenol / 4-cresol	<	0.24	<	0.24	<	1	<	0.24
Acenaphthene	<	0.036	<	0.036	<	0.2	<	0.036
Acenaphthylene	<	0.033	<	0.033	<	0.2	<	0.033
Anthracene	<	0.033	<	0.033	<	0.2	<	0.033
Benzo (a) anthracene	<	0.17	<	0.17	<	0.8	<	0.17
Benzo (a) pyrene	<	0.25	<	0.25	<	1	<	0.25
Benzo (b) fluoranthene	<	0.21	<	0.21	<	1	<	0.21
Benzo (g,h,i) perylene	<	0.25	<	0.25	<	1	<	0.25
Benzo (k) fluoranthene	<	0.066	<	0.066	<	0.3	<	0.066
Bis (2-ethylhexyl) phthalate	<	0.62	<	0.62	<	3	<	0.62
Chrysene	<	0.12	<	0.12		0.7 1	<	0.12
Di-n-butyl phthalate	<	0.061	<	0.061	<	0.3	<	0.061
Dibenzo (a,h) anthracene	<	0.21	<	0.21	<	1	<	0.21
Dibenzofuran	<	0.035	<	0.035	<	0.2	<	0.035
Fluoranthene	<	0.068	<	0.068	<	0.3	<	0.068
Fluorene	<	0.033	<	0.033	<	0.2	<	0.033
Indeno (1,2,3-c,d) pyrene	<	0.29	<	0.29	<	1	<	0.29
Naphthalene	<	0.037	<	0.037		0.4	<	0.037
Phenanthrene	<	0.033	<	0.033		1	<	0.033
Phenol	<	0.11	<	0.11	<	0.6	<	0.11
Pyrene	<	0.033	<	0.033		0.4	<	0.033
PAL INORGANICS (µg/g)								
Aluminum		3560		3910		2940		7120
Antimony	<	1.09	<	1.09		1.41	<	1.09
Arsenic		14		13		12		9.75
Barium		8.16		8.03		67.4		15.1
Beryllium	<	0.5	<	0.5		0.882	<	0.5
Cadmium	<	0.7	<	0.7	<	0.7	<	0.7
Calcium		601		599		327		403
Chromium		10.8		11.7		9.56		15.5
Cobalt		3.25		3.07		3.75		2.73
Copper		7.31		7.43		44.6		9.47
Iron		7670		7980		20500		9160
Lead		3.71		3.67		67.5		3.45
Magnesium		2150		2370		695		2740
Manganese		139		125		69.7		130
Mercury	<	0.05	<	0.05		0.138	<	0.05
Nickel		12.6		12.9		10.8		12.4
Potassium		363		346		346		657
Selenium	<	0.25	<	0.25		1.27	<	0.25
Silver	<	0.589	<	0.589	<	0.589	<	0.589
Sodium		370		324		546		390
Thallium	<	0.5	<	0.5	<	0.5	<	0.5
Vanadium		6.78		7.59		16.1		11.4
Tin	<	4.9 T	<	5 T	<	4.8 T	<	4.8 T
Zinc		18.3		16.1		21.5		20.6
OTHER (µg/g)								
Total Organic Carbon		780		590		200,000		1,800

NOTES:
µg/g = micrograms per gram
S = non-target analyte that was analyzed for and detected
T = non-target analyte that was analyzed for but not detected
D = duplicate sample
V = sample subjected to unusual storage (received at > 4° C).
1 = sample value is less than the certified reporting limit, but greater than the criteria of detection.

TABLE 4-4
SUMMARY OF INORGANIC CONCENTRATIONS IN SOILS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

	LOCAL BACKGROUND RAILROAD AREA				RAILROAD ROUNDHOUSE & TURNTABLE AREA			MAINTANENCE BY-PRODUCTS AREA		
ANALYTE	AVERAGE CONC.	MAXIMUM CONC.	MINIMUM CONC.	95% UPPER CONF. LEVEL	AVERAGE CONC.	MAXIMUM CONC.	MINIMUM CONC.	AVERAGE CONC.	MAXIMUM CONC.	MINIMUM CONC.
PAL INORGANICS (μg/g)										
Aluminum	6379.17	19400	2810	9701	2791.25	4710	1580	4263.33	7930	1150
Antimony	1.43	3.43	1.41	2.7	1.97	6.55	<1.09	251.07	1400	4.88
Arsenic	19.66	52	8.11	28.5	12.42	22	7.19	20.88	49	9.77
Barium	69.25	329	8.03	287.2	31.62	110	5.81	150.39	273	36.8
Beryllium	1.15	4.39	0.558	3.4	0.24	<0.5	<0.5	0.89	1.79	<0.5
Cadmium	0.35	<0.7	<0.7	NA	1.08	6.57	<0.7	0.35	<0.7	<0.7
Calcium	2244.58	11500	276	6905	689.81	2050	171	2135.17	8490	179
Chromium	15.85	35.4	6.24	24.5	6.88	15.8	<4.05	34.42	299	<4.05
Cobalt	4.62	13.5	1.81	8.9	2.77	4.77	1.67	2.37	5.97	<1.42
Copper	49.88	159	5.74	159	49.47	144	7.87	1290.33	6900	199
Iron	21664.17	85000	5420	44.356	9235.00	19200	3560	18910.83	43400	7400
Lead	68.04	210	2.07	210	126.00	549	4.31	1845.33	7100	145
Magnesium	1514.50	2740	414	2231	1010.06	1730	459	552.17	1170	171
Manganese	156.56	513	34.4	254.7	116.46	291	38.9	62.25	158	8.96
Mercury	0.06	0.138	0.101	0.1	0.06	0.164	<0.05	0.06	0.201	<0.05
Nickel	15.06	37.6	5.12	22.4	8.97	19.5	5.74	11.08	35.2	4.63
Potassium	572.67	2080	223	837.2	307.06	626	181	1022.50	1880	288
Selenium	0.82	3.88	0.867	3.8	0.61	4.2	<0.25	1.51	4.63	<0.25
Silver	0.29	<0.589	<0.589	NA	0.29	<0.589	<0.589	0.59	1.85	<0.589
Sodium	514.58	1390	311	658.5	326.25	613	236	475.33	691	322
Thallium	0.29	0.719	0.719	0.34	0.27	0.5	<0.5	0.30	0.852	<<0.5
Vanadium	4.52	12.4	9.17	31.8	6.74	15.8	<3.39	18.23	28.6	10.8
Tin	17.66	60.2	5.68	7.17	5.76	15.5	<4.7	57.40	130	8.12
Zinc	25.62	55.7	13.7	46.5	469.88	3380	<8.03	90.62	401	<8.03

NOTES:
1. Local Background Railroad Area includes samples from test pits RHS-94-14X, RHS-94-15X, RHS-94-16X RHS-94-17X, and RHS-94-18X.
2. Maintainence By-Products Area includes samples from test pits RHS-94-04X, RHS-94-05X, RHS-94-06X, and RHS-94-07X.
3. Railroad Roundhouse And Turntable Area includes samples from test pits RHS-94-09X, RHS-94-10X, RHS-94-11X, RHS-94-12X, and RHS-94-13X.
4. Results with non-detects were averaged at one-half the SQL.
5. Duplicates were treated as separate samples.
6. 95% Upper Confidence Level assumes data has a log-normal distribution.

TABLE 4–5
RAILROAD ROUNDHOUSE 1994 ANALYTICAL GROUNDWATER SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHM–94–01X Round 1 filtered	RHM–94–01X Round 1 unfiltered	RHM–94–01X Round 2 filtered	RHM–94–01X Round 2 unfiltered	RHM–94–02X Round 1 filtered	RHM–94–02X Round 1 filtered (dup)	RHM–94–02X Round 1 unfiltered	RHM–94–02X Round 1 unfiltered (dup)
PAL SEMIVOLATILE ORGANICS (µg/L)								
Bis (2–ethylhexyl) Phthalate		< 4.8		9.1			4.5	< 4.8 D
PAL INORGANICS (µg/L)								
Aluminum	< 141 F	3340	< 141 F	< 141	190 F	160 DF	2550	2610 D
Antimony	< 3.03 F	25.1	< 3.03 F	< 3.03	< 3.03 F	3.12 DF	< 3.03	< 3.03 D
Arsenic	12.2 F	35.8	2.77 F	< 2.54	2.54 F	< 2.54 DF	10.1	10.1 D
Barium	9.03 F	50.1	5.89 F	5.24	30.8 F	30.4 DF	40.5	40.7 D
Calcium	27900 F	25000	30900 F	31700	13500 F	13600 DF	13900	13900 D
Chromium	< 6.02 F	17.6	< 6.02 F	< 6.02	< 6.02 F	< 6.02 DF	< 6.02	< 6.02 D
Copper	< 8.09 F	249	< 8.09 F	< 8.09	< 8.09 F	< 8.09 DF	22.6	< 8.09 D
Iron	860 F	9050	295 F	345	< 38.8 F	< 38.8 DF	2760	2880 D
Lead	< 1.26 F	400	< 1.26 F	< 1.26	< 1.26 F	< 1.26 DF	2.93	3.9 D
Magnesium	3360 F	3250	3970 F	4140	909 F	900 DF	1210	1150 D
Manganese	48.9 F	70.2	30 F	31.6	171 F	170 DF	238	225 D
Mercury	< 0.243 F	0.418	< 0.243 F	< 0.243	< 0.243 F	0.243 DF	< 0.243	< 0.243 D
Potassium	1230 F	1740	1760 F	1290	1040 F	1290 DF	1420	1700 D
Sodium	9710 F	8190	11500 F	12200	2950 F	2970 DF	3060	3340 D
Zinc	< 21.1 F	46.4	< 21.1 F	< 21.1	38.8 F	< 21.1 DF	133	25.9 D
WATER QUALITY PARAMETERS (µg/L)								
Alkalinity		74000		47000			< 5000	5000 D
Total Dissolved Solids		110000		88000			77000	77000 D
Total Hardness		69000		98000			37000	36000 D
Total Suspended Solids		16000		8000			67000	65000 D
OTHER								
Total Organic Carbon (µg/L)		1500		< 1000			1200	< 1000 D

NOTES:
µg/L = micrograms per liter
F = filtered
D = duplicate
V = sample subjected to unusual storage,
(received at > 4° C).

TABLE 4–5
RAILROAD ROUNDHOUSE 1994 ANALYTICAL GROUNDWATER SAMPLE RESULTS

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	RHM–94–02X Round 2 filtered	RHM–94–02X Round 2 unfiltered	SHL–07 Round 1 filtered	SHL–07 Round 1 unfiltered	SHL–07 Round 2 filtered	SHL–07 Round 2 unfiltered	SHL–18 Round 1 filtered	SHL–18 Round 1 unfiltered	SHL–18 Round 2 filtered	SHL–18 Round 2 unfiltered
PAL SEMIVOLATILE ORGANICS (µg/L)										
Bis (2–ethylhexyl) Phthalate		10		< 4.8 V		< 4.8		< 4.8 V		12
PAL INORGANICS (µg/L)										
Aluminum	417 F	504	< 141 F	345	< 141 F	< 141	< 141 F	210	< 141 F	< 141
Antimony	< 3.03 F	< 3.03	< 3.03 FV	< 3.03 V	< 3.03 F	< 3.03	< 3.03 FV	< 3.03 V	< 3.03 F	< 3.03
Arsenic	< 2.54 F	< 2.54	2.54 FV	3.52 V	< 2.54 F	< 2.54	< 2.54 FV	< 2.54 V	< 2.54 F	< 2.54
Barium	33.4 F	34.3	< 5 F	6.61	6.62 F	7.72	< 5 F	< 5	< 5 F	< 5
Calcium	13200 F	12900	5850 F	5770	10900 F	10100	4320 F	4180	5780 F	5860
Chromium	< 6.02 F	< 6.02	< 6.02 F	< 6.02	< 6.02 F	< 6.02	< 6.02 F	< 6.02	< 6.02 F	< 6.02
Copper	< 8.09 F	< 8.09	< 8.09 F	< 8.09	< 8.09 F	< 8.09	< 8.09 F	< 8.09	< 8.09 F	< 8.09
Iron	49.3 F	76.2	1200 F	6660	3480 F	4380	< 38.8 F	404	< 38.8 F	197
Lead	< 1.26 F	< 1.26	< 1.26 FV	< 1.26 V	< 1.26 F	< 1.26	< 1.26 FV	< 1.26 V	< 1.26 F	< 1.26
Magnesium	987 F	981	522 F	591	1060 F	1100	548 F	593	879 F	866
Manganese	145 F	150	619 F	691	2000 F	1350	3.79 F	22.4	< 2.75 F	< 2.75
Mercury	< 0.243 F	< 0.243	< 0.243 FV	< 0.243 V	< 0.243 F	< 0.243	< 0.243 FV	< 0.243 V	< 0.243 F	< 0.243
Potassium	1270 F	1240	1780 F	1690	2850 F	2770	740 F	583	619 F	509
Sodium	2860 F	2760	3000 F	2710	3740 F	3410	2170 F	1890	2080 F	1930
Zinc	< 21.1 F	< 21.1	< 21.1 F	< 21.1	< 21.1 F	< 21.1	< 21.1 F	< 21.1	< 21.1 F	< 21.1
WATER QUALITY PARAMETERS (µg/L)										
Alkalinity		8000		19000		35000		9000		12000
Total Dissolved Solids		95000		39000 V		75000		30000 V		47000
Total Hardness		36000		28000 V		34000		15000 V		18000
Total Suspended Solids		5000		28000 V		35000		< 4000		6000
OTHER										
Total Organic Carbon (µg/L)		1330		< 1000		< 1000		< 1000		< 1000

NOTES:
µg/L = micrograms per liter
F = filtered
D = duplicate
V = sample subjected to unusual storage, (received at > 4° C).

TABLE 5-1
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF SURFACE SOIL[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection[2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations[3]	Background Screening Value[4]	Maximum Exceeds Background?	USEPA Region III RBC[5]	Maximum Exceeds USEPA Region III RBC?	MCP S-2 Soil Standard[6]	Maximum Exceeds MCP S-2 Soil Standard?
PAL SEMIVOLATILE ORGANICS (µg/g)										
2-Methylnaphthalene	16 / 33	0.049 to 0.2	0.1 to 20	1.66	3.18	YES	41,000	NO	0.7	YES
2-Methylphenol	1 / 33	0.029 to 0.3	1.1 to 1.	0.060	ND	YES	51,000	NO	NA	NA
4-Methylphenol	1 / 33	0.24 to 2	2.6 to 2.	0.31	ND	YES	5,100	NO	NA	NA
Acenaphthene	6 / 33	0.036 to 0.2	0.048 to 10	0.45	ND	YES	61,000	NO	20	NO
Acenaphthylene	3 / 33	0.033 to 0.3	0.2 to 1	0.086	ND	YES	31,000	NO	100	NO
Anthracene	16 / 33	0.033 to 0.2	0.077 to 30	1.28	ND	YES	310,000	NO	1,000	NO
Benzo (a) anthracene	13 / 33	0.17 to 0.8	0.19 to 20	1.36	ND	YES	3.9	YES	0.7	YES
Benzo (a) pyrene	7 / 33	0.25 to 1	0.65 to 30	1.54	ND	YES	0.39	YES	0.7	YES
Benzo (b) fluoranthene	10 / 33	0.21 to 1	0.88 to 10	1.23	ND	YES	3.9	YES	0.7	YES
Benzo (g,h,i) perylene	6 / 33	0.25 to 1	0.45 to 9	0.69	ND	YES	31,000	NO	30	NO
Benzo (k) fluoranthene	14 / 33	0.066 to 0.1	0.14 to 10	0.66	0.268	YES	39	NO	0.7	YES
Carbazole	6 / 33	NA	0.2 to 8	0.42	ND	YES	140	NO	NA	NA
Chrysene	18 / 33	0.12 to 0.12	0.19 to 30	2.08	0.657	YES	390	NO	0.7	YES
Dibenzofuran	16 / 33	0.035 to 0.2	0.043 to 10	0.70	0.974	YES	4,100	NO	NA	NA
Dibenzo(a,h) anthracene	2 / 33	0.21 to 1	1 to 3	0.29	ND	YES	0.39	YES	0.7	YES
Di-n-butylphthalate	1 / 33	0.061 to 0.6	0.5 to 0.	0.077	ND	YES	100,000	NO	0.7	NO
Fluoranthene	18 / 33	0.068 to 0.3	0.095 to 60	3.62	0.497	YES	41,000	NO	600	NO
Fluorene	6 / 33	0.033 to 0.2	0.1 to 10	0.41	ND	YES	41,000	NO	400	NO
Indeno (1,2,3-cd) pyrene	5 / 33	0.29 to 1	0.9 to 9	0.73	ND	YES	3.9	YES	0.7	YES
Naphthalene	16 / 33	0.037 to 0.2	0.063 to 10	1.12	2.36	YES	41,000	NO	4	YES
Phenanthrene	20 / 33	0.033 to0.033	0.084 to 70	3.81	2.21	YES	31,000	NO	100	NO
Phenol	2 / 33	0.11 to 1	1.4 to 2	0.21	ND	YES	610,000	NO	60	NO
Pyrene	20 / 33	0.033 to0.033	0.085 to 50	3.13	0.58	YES	31,000	NO	500	NO
PAL PESTICIDES/PCBs (µg/g)										
DDE	1 / 3	0.008 to0.008	0.011 to 0.	0.006	NA	YES	8.4	NO	2	NO
Chlordane-gamma	1 / 3	0.005 to0.005	0.027 to 0.	0.029	NA	YES	2.2	NO	2	NO
PAL INORGANICS (µg/g)										
Aluminum	33 / 33	NA	1,150 to****	3,385	9701	NO	1,000,000	NO	NA	NA
Antimony	21 / 33	1.09 to 1.09	2.84 to****	144	2.7	YES	410	YES	40	YES
Arsenic	33 / 33	NA	7.19 to 49	16.8	28.5	YES	1.6	YES	30	YES
Barium	33 / 33	NA	5.81 to****	83.1	287.2	YES	72,000	NO	2,500	NO
Beryllium	11 / 33	0.5 to 0.5	0.589 to 1.	0.514	3.4	YES	0.67	YES	0.8	YES
Cadmium	2 / 33	0.7 to 0.7	0.953 to 6.	0.537	NA	NA	510	NO	80	NO
Calcium	33 / 33	NA	171 to****	1,591	6905	YES	NA	NA	NA	NA
Chromium	28 / 33	4.05 to 4.05	5.3 to****	16.9	24.5	YES	5,100	NO	600	NO
Cobalt	26 / 33	1.42 to 1.42	1.67 to 5.	2.45	8.9	NO	61,000	NO	NA	NA
Copper	33 / 33	NA	7.87 to****	578	159	YES	38,000	NO	NA	NA
Iron	33 / 33	NA	3,560 to****	12,978	44.356	NO	NA	NA	NA	NA
Lead	33 / 33	NA	4.05 to****	1,012	210	YES	400	YES	600	YES
Magnesium	33 / 33	NA	171 to****	772	2231	NO	NA	NA	NA	NA
Manganese	33 / 33	NA	8.96 to****	83.1	254.7	YES	5,100	NO	NA	NA
Mercury	13 / 33	0.05 to 0.05	0.0617 to 0.	0.0721	0.1	YES	310	NO	60	NO
Nickel	33 / 33	NA	2.96 to 35	9.13	22.4	YES	20,000	NO	700	NO
Potassium	33 / 33	NA	181 to****	584	837.2	YES	NA	NA	NA	NA
Selenium	20 / 33	0.25 to 0.25	0.416 to 4.	1.10	3.8	YES	5,100	NO	2,500	NO
Silver	6 / 33	0.589 to0.589	0.806 to 4.	0.608	NA	YES	5,100	NO	200	NO
Sodium	33 / 33	NA	236 to****	374	658.5	YES	NA	NA	NA	NA
Thallium	1 / 33	0.5 to 0.5	0.852 to 0.	0.268	0.34	YES	82	NO	30	NO

TABLE 5-1
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF SURFACE SOIL[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value[4]	Maximum Exceeds Background?	USEPA Region III RBC [5]	Maximum Exceeds USEPA Region III RBC?	MCP S-2 Soil Standard [6]	Maximum Exceeds MCP S-2 Soil Standard?
PAL INORGANICS cont.										
Tin	20 / 30	NA	6.72 to****	27.0	7.17	YES	610,000	NO	NA	NA
Vanadium	30 / 33	3.39 to 3.39	3.96 to 28	11.4	31.8	NO	7,200	NO	2,000	NO
Zinc	31 / 33	8.03 to 8.03	9.63 to****	171	46.5	YES	310,000	NO	2,500	YES
OTHER (µg/g)										
Total Organic Carbon	27 / 30	360 to 360	530 to****	38,965	207,425	NO	NA	NA	NA	NA

NOTES:
[1] Based on analytical data from the following sampling locations: SHS-93-01X (plus duplicate), SHS-93-02X, SHS-93-03X, and RHS-94-04X through RHS-94-13X (including the duplicate RHS-94-12X; 0 ft bgs) at all depths sampled.
[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.
[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.
[4] Background sample locations include: RHS-94-14X through RHS-94-18X, at all depths sampled. Site data were screened against the 95^{th} percent upper confidence level (UCL) value on the arithmetic mean.
[5] Values are from USEPA Region III RBC table, Fourth Quarter, 1994 (USEPA, 1994a). RBCs are for residential/industrial soil and are based on a hazard quotient of 1 or an excess lifetime cancer risk of 1 in 1 million.
Value for pyrene used as a conservative surrogate for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
Value for naphthalene used as a surrogate for 2-methylnaphthalene.
Value for alpha- and gamma-chlordane based on value for chlordane.
Value for arsenic based on arsenic's properties as a carcinogen.
Value for chromium based on hexavalent chromium.
RBC is not available for lead; value is from Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355.4-12).
Value for nickel is based on value for nickel-soluble salts.
Value for thallium based on thallium chloride.
[6] MCP Soil Standards published in 310 CMR 40.0975 (MADEP, 1993). Value is the lesser of the S-2/GW-1, S-2/GW-2, or S-2/GW-3 soil standard.
Value for diethylphthalate used for all phthalate ester compounds which do not have a value.
Value for alpha- and gamma-chlordane based on value for chlordane.
Value for barium is a proposed value.
Value for chromium based on hexavalent chromium.
Value for vanadium is a proposed value.
µg/g = micrograms per gram
NA = Not available/Not applicable
ND = Not Detected
RBC = Risk-based concentration
USEPA = United States Environmental Protection Agency
MCP = Massachusetts Contingency Plan
PCB = Polychlorinated biphenyl
PAL = Project Analyte List
Shading indicates the exceedance of a guideline value. Inorganic analytes that were detected at maximum concentrations that are less than the background screening value were not shaded.

TABLE 5-2
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF SEDIMENT[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	USEPA Region III RBC [4]	Maximum Exceeds USEPA Region I III RBC?	MCP S-2 Soil Standard [5]	Maximum Exceeds MCP S-2 Soil Standard?
PAL SEMIVOLATILE ORGANICS (µg/g)								
2-Methylnaphthalene	4 / 5	0.2 to 0.2	0.35 to 2	1.09	41,000	NO	0.7	YES
Acenaphthene	1 / 5	0.036 to 0.2	0.4 to 0.4	0.114	61,000	NO	20	NO
Anthracene	1 / 5	0.033 to 0.2	0.4 to 0.8	0.183	310,000	NO	1,000	NO
Benzo (a) anthracene	1 / 5	0.17 to 0.8	2 to 2	0.497	3.9	NO	0.7	YES
Benzo (b) fluoranthene	1 / 5	0.21 to 1	2 to 2	0.571	3.9	NO	0.7	YES
Benzo (k) fluoranthene	1 / 5	0.066 to 0.3	2 to 2	0.312	39	NO	0.7	YES
Chrysene	1 / 5	0.12 to 0.6	3 to 3	0.522	390	NO	10	NO
Dibenzofuran	3 / 5	0.2 to 0.2	0.13 to 0.8	0.306	4,100	NO	NA	NA
Fluoranthene	3 / 5	0.3 to 0.3	0.12 to 5	0.984	41,000	NO	600	NO
Fluorene	1 / 5	0.033 to 0.2	0.4 to 0.4	0.113	41,000	NO	400	NO
Naphthalene	4 / 5	0.2 to 0.2	0.26 to 2	1.01	41,000	NO	4	NO
Phenanthrene	4 / 5	0.2 to 0.2	0.35 to 4	1.05	31,000	NO	100	NO
Pyrene	4 / 5	0.2 to 0.2	0.087 to 3	0.687	31,000	NO	500	NO
PAL INORGANICS (µg/g)								
Aluminum	5 / 5	NA	2,180 to 20,500	9,154	1,000,000	NO	NA	NA
Antimony	4 / 5	1.09 to 1.09	9.13 to 170	43.7	410	NO	40	YES
Arsenic	5 / 5	NA	9.88 to 23.1	14.5	1.6	YES	30	NO
Barium	4 / 5	5.18 to 5.18	72.4 to 290	117	72,000	NO	2,500	NO
Beryllium	4 / 5	0.5 to 0.5	0.99 to 2.69	1.64	0.67	YES	0.8	YES
Calcium	5 / 5	NA	1,760 to 24,700	14,051	NA	NA	NA	NA
Chromium	4 / 5	4.05 to 4.05	12.8 to 79.4	25.0	5,100	NO	600	NO
Cobalt	4 / 5	1.42 to 1.42	3.3 to 5.81	4.01	61,000	NO	NA	NA
Copper	5 / 5	NA	17.2 to 13,000	3,693	38,000	NO	NA	NA
Iron	5 / 5	NA	4,220 to 52,900	20,534	NA	NA	NA	NA
Lead	5 / 5	NA	10.5 to 4,800	1,456	400	YES	600	YES
Magnesium	5 / 5	NA	936 to 1,820	1,355	NA	NA	NA	NA
Manganese	5 / 5	NA	59 to 268	133	5,100	NO	NA	NA
Mercury	4 / 5	0.05 to 0.05	0.077 to 0.496	0.195	310	NO	60	NO
Nickel	4 / 5	1.71 to 1.71	10.5 to 28.8	15.1	20,000	NO	700	NO
Potassium	4 / 5	100 to 100	327 to 1,870	705	NA	NA	NA	NA
Selenium	4 / 5	0.25 to 0.25	0.814 to 2.32	1.11	5,100	NO	2,500	NO
Silver	2 / 5	0.589 to 0.58	1.13 to 4.15	1.23	5,100	NO	200	NO
Sodium	5 / 5	NA	539 to 2,880	1,218	NA	NA	NA	NA
Tin	3 / 4	4.9 to 4.9	8.13 to 275	101	610,000	NO	NA	NA
Vanadium	4 / 5	3.39 to 3.39	12.6 to 28.1	17.9	7,200	NO	2,000	NO
Zinc	4 / 5	8.03 to 8.03	84 to 156	96.0	310,000	NO	2,500	NO
OTHER (µg/g)								
Total Organic Carbon	4 / 4	360 to NA	20,000 to 490,000	151,500	NA	NA	NA	NA

TABLE 5-2
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF SEDIMENT[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

NOTES:

[1] Based on analytical data from the following sampling locations: SHD-93-01X, and RHD-94-02X through RHD-94-05X (plus the duplicate of RHD-94-03X). Background data are unavailable for this medium.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.

[4] Values are from USEPA Region III RBC table, Fourth Quarter, 1994 (USEPA, 1994a). RBCs are for residential/industrial soil and are based on a hazard quotient of 1 or an excess lifetime cancer risk of one in one million.
- Value for pyrene used as a conservative surrogate for phenanthrene.
- Value for naphthalene used as a surrogate for 2-methylnaphthalene.
- Value for arsenic based on arsenic's properties as a carcinogen.
- Value for chromium based on hexavalent chromium.
- RBC is not available for lead; value is from Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355.4-12).
- Value for nickel based on value for nickel-soluble salts.

[5] MCP Soil Standards published in 310 CMR 40.0975 (MADEP, 1993). Value is the lesser of the S-2/GW-1, S-2/GW-2, or S-2/GW-3 soil standard.
- Value for barium is a proposed value.
- Value for chromium based on hexavalent chromium.
- Value for vanadium is a proposed value.

μg/g = micrograms per gram
NA = Not available/Not Applicable
ND = Not detected
RCB = Risk-based Concentration
USEPA = U.S. Environmental Protection Agency
MCP = Massachusetts Contingency Plan
PAL = Project Analyte List
Shading indicates the exceedance of a guideline value.

TABLE 5-3
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF UNFILTERED GROUNDWATER[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value [4]	Maximum Exceeds Background?	Upgradient Screening Value [5]	Maximum Exceeds Upgradient?	Federal MCL[6]	Maximum Exceeds Federal MCL ?	MA MCL[7]	Maximum Exceeds MA MCL ?	MCP Groundwater Standard [8]	Maximum Exceeds MCP Standard?
PAL SEMIVOLATILE ORGANICS (µg/L)														
bis (2-Ethylhexyl) phthalate	3 / 4	4.8 to 4.8	4.5 to 30	6.24	NA	NA	12	NO	6	YES	6	YES	6	YES
PAL INORGANICS (µg/L)														
Aluminum	3 / 4	141 to 141	504 to 3,340	1,624	6,870	NO	345	YES	200	YES	200	YES	NA	NA
Antimony	1 / 4	3.03 to 3.03	23.1 to 23.1	7.41	3.03	YES	ND	NA	6	YES	6	YES	6	YES
Arsenic	2 / 4	2.54 to 2.54	10.1 to 35.8	12.1	10.5	YES	3.52	YES	50	NO	50	NO	50	NO
Barium	4 / 4	NA	5.24 to 50.1	32.6	39.6	YES	7.72	YES	2,000	NO	2,000	NO	2,000	NO
Calcium	4 / 4	NA	12,900 to 31,700	20,875	14,700	YES	10,100	YES	NA	NA	NA	NA	NA	NA
Chromium	1 / 4	6.02 to 6.02	17.6 to 17.6	6.66	14.7	YES	ND	NA	100	NO	100	NO	50	NO
Copper	2 / 4	8.09 to 8.09	22.6 to 249	67.6	8.09	YES	ND	NA	1,300	NO	1,300	NO	NA	NA
Iron	4 / 4	NA	76.2 to 9,050	3,073	9,100	NO	6,660	YES	300	YES	300	YES	NA	NA
Lead	2 / 4	1.26 to 1.26	2.93 to 400	101	4.25	YES	ND	NA	15	YES	15	YES	15	YES
Magnesium	4 / 4	NA	981 to 4,140	2,388	3,480	YES	1,100	YES	NA	NA	NA	NA	NA	NA
Manganese	4 / 4	NA	31.6 to 238	121	291	NO	1,350	NO	50	YES	50	YES	NA	NA
Mercury	1 / 4	0.243 to 0.243	0.418 to 0.418	0.196	0.243	YES	ND	NA	2	NO	2	NO	1	NO
Potassium	4 / 4	NA	1,240 to 1,740	1,458	2,370	NO	2,770	NO	NA	NA	NA	NA	NA	NA
Sodium	4 / 4	NA	2,760 to 12,200	6,588	10,800	YES	3,410	YES	20,000	NO	20,000	NO	NA	NA
Zinc	2 / 4	21.1 to 21.1	25.9 to 133	36.7	21.1	YES	ND	NA	5,000	NO	5,000	NO	900	NO
WATER QUALITY PARAMETERS (µg/L)														
Alkalinity	4 / 4	NA	5,000 to 74,000	33,188	NA	NA	35,000	YES	NA	NA	NA	NA	NA	NA
Hardness	4 / 4	NA	36,000 to 98,000	59,875	NA	NA	34,000	YES	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	4 / 4	NA	77,000 to 110,000	92,500	NA	NA	75,000	YES	500,000	NO	500,000	NO	NA	NA
Total Suspended Solids	4 / 4	NA	5,000 to 67,000	23,750	NA	NA	35,000	YES	NA	NA	NA	NA	NA	NA
OTHER (µg/L)														
Total Organic Carbon	3 / 4	1,000 to 1,000	1,200 to 1,300	1,045	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

[1] Based on unfiltered groundwater analytical data from the following sample locations: RHM-94-01X (Round 1 and Round 2), and RHM-94-02X (Round 1 (plus its duplicate) and Round 2).

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.

[4] Background screening values are excerpted from Table 4-1 in the Final RI Addendum Report for Group 1A Sites (ABB-ES, 1993d) and are the 68th percentile upperbound concentration for inorganic analytes detected in the Fort Devens Group 1A groundwater background data set.

[5] Upgradient screening values are the maximum inorganic concentrations detected in the upgradient monitoring wells SHL-07 and SHL-18, each sampled in Round 1 and Round 2.

[6] Federal MCL published in Drinking Water Regulations and Health Advisories, May 1994 (USEPA, 1994b).
Value for aluminum is a secondary MCL and represents the upper limit of the range (50 - 200 µg/L).
Value for copper is the treatment technique action level; the secondary MCL is 1,000 µg/L.
Value for iron is a secondary MCL.
Value for lead is the action level triggering treatment techniques.
Value for manganese is a secondary MCL.
Value for sodium is a health advisory guideline value.
Value for zinc is a lifetime health advisory; the secondary MCL is 5,000 µg/L.
Value for TDS is a secondary MCL.

[7] Massachusetts MCL published in Drinking Water Standards & Guidelines for Chemicals in Massachusetts Drinking Waters, Autumn 1994 (MADEP, 1994).
Value for aluminum is a secondary MCL and represents the upper limit of the range (50 - 200 µg/L).
Value for copper is the treatment technique action level; the secondary MCL is 1,000 µg/L.
Value for iron is a secondary MCL.
Value for lead is the action level triggering treatment techniques.
Value for manganese is a secondary MCL.
Value for sodium is a guideline value.
Value for zinc is a secondary MCL.
Value for TDS is a secondary MCL.

[8] Massachusetts MCP Groundwater Standards published in 310 CMR 40.0974 (MADEP, 1993). Value is the lesser of the GW-1, GW-2, or GW-3 groundwater standard.
Value for barium is a proposed value.
Value for chromium is based on value for hexavalent chromium.

µg/L = micrograms per liter
NA = Not Available/Not Applicable
ND = Not detected
MCL = Maximum Contaminant Level
TDS = Total Dissolved Solids
PAL = Project Analyte List
MCP = Massachusetts Contingency Plan
CMR = Code of Massachusetts Regulations
MADEP = Massachusetts Department of Environmental Protection
USEPA = U.S. Environmental Protection Agency
Shading indicates the exceedance of a guideline value for an analyte that was detected at a concentration greater than the background screening value.

TABLE 5-4
HUMAN HEALTH PRELIMINARY RISK EVALUATION OF FILTERED GROUNDWATER[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Upgradient Screening Value [4]	Maximum Exceeds Upgradient?	Background Screening Value [5]	Maximum Exceeds Background?	Federal MCL[6]	Maximum Exceeds Federal MCL ?	MA MCL[7]	Maximum Exceeds MA MCL ?	MCP Groundwater Standard [8]	Maximum Exceeds MCP Standard?
PAL INORGANICS (µg/L)														
Aluminum	2 / 4	141 to 141	160 to 417	183	ND	NA	NA	NA	200	YES	200	YES	NA	NA
Antimony	1 / 4	3.03 to 3.03	3.12 to 3.12	1.72	ND	NA	NA	NA	6	NO	6	NO	6	NO
Arsenic	2 / 4	2.54 to 2.54	2.77 to 12.2	4.38	ND	NA	NA	NA	50	NO	50	NO	50	NO
Barium	4 / 4	NA	5.89 to 33.4	19.7	6.62	YES	NA	NA	2,000	NO	2,000	NO	2,000	NO
Calcium	4 / 4	NA	13,200 to 30,900	21,388	10,900	YES	NA	NA	NA	NA	NA	NA	NA	NA
Iron	3 / 4	38.8 to 38.8	49.3 to 860	306	3,480	NO	NA	NA	300	YES	300	YES	NA	NA
Magnesium	4 / 4	NA	900 to 3,970	2,305	1,060	YES	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	4 / 4	NA	30 to 171	98.6	2,000	NO	NA	NA	50	YES	50	YES	NA	NA
Potassium	4 / 4	NA	1,040 to 1,760	1,356	2,850	NO	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	4 / 4	NA	2,860 to 11,500	6,758	3,740	YES	NA	NA	20,000	NO	20,000	NO	NA	NA
Zinc	1 / 4	21.1 to 21.1	38.8 to 38.8	14.1	ND	NA	NA	NA	5,000	NO	5,000	NO	900	NO

NOTES:

[1] Based on filtered groundwater analytical data from the following sample locations: RHM-94-01X (Round 1 and Round 2), and RHM-94-02X, (Round 1 (plus its duplicate) and Round 2).

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.

[4] Upgradient screening values are the maximum filtered inorganic concentrations detected in the upgradient monitoring wells SHL-07 and SHL-18, each sampled in Round 1 and Round 2.

[5] Background screening values are not available for analytes detected in filtered groundwater (ABB-ES, 1993d).

[6] Federal MCL published in Drinking Water Regulations and Health Advisories, May 1994 (USEPA, 1994b).
Value for aluminum is a secondary MCL and represents the upper limit of the range (50 - 200 µg/l).
Value for iron is a secondary MCL.
Value for manganese is a secondary MCL.
Value for sodium is a health advisory guideline value.
Value for zinc is a lifetime health advisory; the secondary MCL is 5,000 µg/L.

[7] Massachusetts MCL published in Drinking Water Standards & Guidelines for Chemicals in Massachusetts Drinking Waters, Autumn 1994 (MADEP, 1994).
Value for aluminum is a secondary MCL and represents the upper limit of the range (50 - 200 µg/L).
Value for iron is a secondary MCL.
Value for manganese is a secondary MCL.
Value for sodium is a guideline value.
Value for zinc is a secondary MCL.

[8] Massachusetts MCP Groundwater Standards published in 310 CMR 40.0974 (MADEP, 1993). Value is the lesser of the GW-1, GW-2, or GW-3 groundwater standard.
Value for barium is a proposed value.

µg/L = micrograms per liter
NA = Not Available/Not Applicable
ND = Not detected
MCL = Maximum Contaminant Level
MCP = Massachusetts Contingency Plan
CMR = Code of Massachusetts Regulations
MADEP = Massachusetts Department of Environmental Protection
USEPA = United States Department of Environmental Protection
Shading indicates the exceedance of a guideline value for an analyte that was detected at a concentration greater than the background screening value.

TABLE 5–5
ECOLOGICAL PRELIMINARY RISK EVALUATION OF SURFACE SOIL – TERRESTRIAL VERTEBRATE RECEPTORS[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value [4]	Maximum Exceeds Background?	Ecological Screening Value [5]	Maximum Exceeds Ecological Screening Value?
PAL SEMIVOLATILE ORGANICS (µg/g)								
2–Methylnaphthalene	16 / 33	0.049 to 0.2	0.1 to 20	1.66	3.18	YES	214	NO
2–Methylphenol	1 / 33	0.029 to 0.3	1.1 to 1.1	0.060	ND	YES	1,051	NO
4–Methylphenol	1 / 33	0.24 to 2	2.6 to 2.6	0.31	ND	YES	1,051	NO
Acenaphthene	6 / 33	0.036 to 0.2	0.048 to 10	0.45	ND	YES	214	NO
Acenaphthylene	3 / 33	0.033 to 0.3	0.2 to 1	0.086	ND	YES	214	NO
Anthracene	16 / 33	0.033 to 0.2	0.077 to 30	1.28	ND	YES	214	NO
Benzo (a) anthracene	13 / 33	0.17 to 0.8	0.19 to 20	1.36	ND	YES	214	NO
Benzo (a) pyrene	7 / 33	0.25 to 1	0.65 to 30	1.54	ND	YES	214	NO
Benzo (b) fluoranthene	10 / 33	0.21 to 1	0.88 to 10	1.23	ND	YES	214	NO
Benzo (g,h,i) perylene	6 / 33	0.25 to 1	0.45 to 9	0.69	ND	YES	214	NO
Benzo (k) fluoranthene	14 / 33	0.066 to 0.1	0.14 to 10	0.66	0.268	YES	214	NO
Carbazole	6 / 33	NA	0.2 to 8	0.42	ND	YES	214	NO
Chrysene	18 / 33	0.12 to 0.12	0.19 to 30	2.08	0.657	YES	214	NO
Dibenzofuran	16 / 33	0.035 to 0.2	0.043 to 10	0.70	0.974	YES	2,626	NO
Dibenzo(a,h) anthracene	2 / 33	0.21 to 1	1 to 3	0.29	ND	YES	214	NO
Di–n–butylphthalate	1 / 33	0.061 to 0.6	0.5 to 0.5	0.077	ND	YES	2,691	NO
Fluoranthene	18 / 33	0.068 to 0.3	0.095 to 60	3.62	0.497	YES	214	NO
Fluorene	6 / 33	0.033 to 0.2	0.1 to 10	0.41	ND	YES	214	NO
Indeno (1,2,3–c,d) pyrene	5 / 33	0.29 to 1	0.9 to 9	0.73	ND	YES	214	NO
Naphthalene	16 / 33	0.037 to 0.2	0.063 to 10	1.12	2.36	YES	877	NO
Phenanthrene	20 / 33	0.033 to 0.033	0.084 to 70	3.81	2.21	YES	214	NO
Phenol	2 / 33	0.11 to 1	1.4 to 2	0.21	ND	YES	2,521	NO
Pyrene	20 / 33	0.033 to 0.033	0.085 to 50	3.13	0.58	YES	214	NO
PAL PESTICIDES/PCBs (µg/g)								
DDE	1 / 3	0.008 to 0.008	0.011 to 0.011	0.006	NA	YES	0.3	NO
Chlordane–gamma	1 / 3	0.005 to 0.005	0.027 to 0.031	0.029	NA	YES	0.9	NO
PAL INORGANICS (µg/g)								
Aluminum	33 / 33	NA	1,150 to 7,930	3,385	9701	NO	NA	NE
Antimony	21 / 33	1.09 to 1.09	2.84 to 3,000	144	2.7	YES	851	YES
Arsenic	33 / 33	NA	7.19 to 49	16.8	28.5	YES	107	NO
Barium	33 / 33	NA	5.81 to 312	83.1	287.2	YES	6,395	NO
Beryllium	11 / 33	0.5 to 0.5	0.589 to 1.79	0.514	3.4	NO	NA	NE
Cadmium	2 / 33	0.7 to 0.7	0.953 to 6.57	0.537	NA	NA	2	YES
Calcium	33 / 33	NA	171 to 11,200	1,591	6905	YES	NA	NA
Chromium	28 / 33	4.05 to 4.05	5.3 to 299	16.9	24.5	YES	15,349	NO
Cobalt	26 / 33	1.42 to 1.42	1.67 to 5.97	2.45	8.9	NO	NA	NE
Copper	33 / 33	NA	7.87 to 6,900	578	159	YES	662	YES
Iron	33 / 33	NA	3,560 to 43,400	12,978	44,356	NO	NA	NA
Lead	33 / 33	NA	4.05 to 9,500	1,012	210	YES	220	YES
Magnesium	33 / 33	NA	171 to 1,730	772	2231	NO	NA	NE
Manganese	33 / 33	NA	8.96 to 291	83.1	254.7	YES	6,646	NO

TABLE 5-5
ECOLOGICAL PRELIMINARY RISK EVALUATION OF SURFACE SOIL – TERRESTRIAL VERTEBRATE RECEPTORS[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value [4]	Maximum Exceeds Background?	Ecological Screening Value [5]	Maximum Exceeds Ecological Screening Value?
PAL INORGANICS cont.								
Mercury	13 / 33	0.05 to 0.05	0.0617 to 0.332	0.0721	0.1	YES	10	NO
Nickel	33 / 33	NA	2.96 to 35.2	9.13	22.4	YES	414	NO
Potassium	33 / 33	NA	181 to 4,020	584	837.2	YES	NA	NA
Selenium	20 / 33	0.25 to 0.25	0.416 to 4.63	1.10	3.8	YES	1	YES
Silver	6 / 33	0.589 to 0.589	0.806 to 4.47	0.608	NA	NA	194	NO
Sodium	33 / 33	NA	236 to 691	374	658.5	YES	NA	NE
Thallium	1 / 33	0.5 to 0.5	0.852 to 0.852	0.268	0.34	YES	1	NO
Tin	20 / 30	NA	6.72 to 140	27.0	7.17	YES	31	YES
Vanadium	30 / 33	3.39 to 3.39	3.96 to 28.6	11.4	31.8	NO	195	NO
Zinc	31 / 33	8.03 to 8.03	9.63 to 3,380	171	46.5	YES	251	YES
OTHER (µg/g)								
Total Organic Carbon	27 / 30	360 to 360	530 to 140,000	38,965	470,000	NO	NA	NA

NOTES:

[1] Based on analytical data from the following sampling locations: SHS-93-01X (plus duplicate), SHS-93-02X, SHS-93-03X, and RHS-94-04X through RHS-94-13X (including the duplicate RHS-94-12X; 0 ft bgs) at all depths sampled.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SOL to all non-detects.

[4] Background sample locations include: RHS-94-14X through RHS-94-18X, at all depths sampled. Site data were screened against the 95th percent upper confidence level (UCL) value on the arithmetic mean concentration.

[5] Screening values are Protective Contaminant Levels (PCLs) from Table G-1, and are derived as described in Appendix G. The value presented represents the lowest PCL for the shrew, woodcock, fox and hawk.

µg/g = micrograms per gram
NA = Not available/Not applicable
ND = Not Detected
NE = Not Evaluated; analyte was detected at a maximum concentration less than the background screening value.
PAL = Project Analyte List
Shading indicates the exceedance of a guideline value.

TABLE 5-6
ECOLOGICAL PRELIMINARY RISK EVALUATION OF SURFACE SOIL – TERRESTRIAL INVERTEBRATE AND PLANT RECEPTORS[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value [4]	Maximum Exceeds Background?	Phytotoxicity Screening Value [5]	Maximum Exceeds Phytotoxicity Screening Value?	Invertebrate Screening Value [6]	Maximum Exceeds Invertebrate Screening Value?
PAL SEMIVOLATILE ORGANICS (µg/g)										
2-Methylnaphthalene	16 / 33	0.049 to 0.2	0.1 to 20	1.66	3.18	YES	NA	NA	34	NO
2-Methylphenol	1 / 33	0.029 to 0.3	1.1 to 1.1	0.060	ND	YES	[7] 20	NO	8	NO
4-Methylphenol	1 / 33	0.24 to 2	2.6 to 2.6	0.31	ND	YES	[7] 20	NO	8	NO
Acenaphthene	6 / 33	0.036 to 0.2	0.048 to 10	0.45	ND	YES	NA	NA	34	NO
Acenaphthylene	3 / 33	0.033 to 0.3	0.2 to 1	0.086	ND	YES	NA	NA	34	NO
Anthracene	16 / 33	0.033 to 0.2	0.077 to 30	1.28	ND	YES	NA	NA	34	NO
Benzo (a) anthracene	13 / 33	0.17 to 0.8	0.19 to 20	1.36	ND	YES	NA	NA	34	NO
Benzo (a) pyrene	7 / 33	0.25 to 1	0.65 to 30	1.54	ND	YES	NA	NA	34	NO
Benzo (b) fluoranthene	10 / 33	0.21 to 1	0.88 to 10	1.23	ND	YES	NA	NA	34	NO
Benzo (g,h,i) perylene	6 / 33	0.25 to 1	0.45 to 9	0.69	ND	YES	NA	NA	34	NO
Benzo (k) fluoranthene	14 / 33	0.066 to 0.1	0.14 to 10	0.66	0.268	YES	NA	NA	34	NO
Carbazole	6 / 33	NA	0.2 to 8	0.42	ND	YES	NA	NA	34	NO
Chrysene	18 / 33	0.12 to 0.12	0.19 to 30	2.08	0.657	YES	NA	NA	34	NO
Dibenzofuran	16 / 33	0.035 to 0.2	0.043 to 10	0.70	0.974	YES	NA	NA	NA	NA
Dibenzo(a,h) anthracene	2 / 33	0.21 to 1	1 to 3	0.29	ND	YES	NA	NA	34	NO
Di-n-butylphthalate	1 / 33	0.061 to 0.6	0.5 to 0.5	0.077	ND	YES	200	NO	630	NO
Fluoranthene	18 / 33	0.068 to 0.3	0.095 to 60	3.62	0.497	YES	NA	NA	34	YES
Fluorene	6 / 33	0.033 to 0.2	0.1 to 10	0.41	ND	YES	NA	NA	34	NO
Indeno (1,2,3-c,d) pyrene	5 / 33	0.29 to 1	0.9 to 9	0.73	ND	YES	NA	NA	34	NO
Naphthalene	16 / 33	0.037 to 0.2	0.063 to 10	1.12	2.36	YES	NA	NA	34	NO
Phenanthrene	20 / 33	0.033 to 0.033	0.084 to 70	3.81	2.21	YES	NA	NA	34	YES
Phenol	2 / 33	0.11 to 1	1.4 to 2	0.21	ND	YES	20	NO	8	NO
Pyrene	20 / 33	0.033 to 0.033	0.085 to 50	3.13	0.58	YES	NA	NA	34	YES
PAL PESTICIDES/PCBs (µg/g)										
DDE	1 / 3	0.008 to 0.008	0.011 to 0.011	0.006	NA	YES	[8] 12.5	NO	12	NO
Chlordane-gamma	1 / 3	0.005 to 0.005	0.027 to 0.031	0.029	NA	YES	[8] 12.5	NO	NA	NA
PAL INORGANICS (µg/g)										
Aluminum	33 / 33	NA	1,150 to 7,930	3,385	9,547	NO	–	NE	–	NE
Antimony	21 / 33	1.09 to 1.09	2.84 to 3,000	144	2.14	YES	5	YES	NA	NA
Arsenic	33 / 33	NA	7.19 to 49	16.8	28.9	YES	NA	NA	100	NO
Barium	33 / 33	NA	5.81 to 312	83.1	130	YES	500	NO	NA	NA
Beryllium	11 / 33	0.5 to 0.5	0.589 to 1.79	0.514	2.06	NO	–	NE	–	NE
Cadmium	2 / 33	0.7 to 0.7	0.953 to 6.57	0.537	ND	YES	3	YES	50	NO
Calcium	33 / 33	NA	171 to 11,200	1,591	4,390	YES	NA	NA	NA	NA
Chromium	28 / 33	4.05 to 4.05	5.3 to 299	16.9	22.4	YES	[9] 1	YES	50	YES
Cobalt	26 / 33	1.42 to 1.42	1.67 to 5.97	2.45	7.03	NO	–	NE	–	NE
Copper	33 / 33	NA	7.87 to 6,900	578	86.4	YES	[9] 100	YES	NA	NA
Iron	33 / 33	NA	3,560 to 43,400	12,978	36,836	YES	NA	NA	NA	NA
Lead	33 / 33	NA	4.05 to 9,500	1,012	120	YES	[9] 50	YES	1,190	YES
Magnesium	33 / 33	NA	171 to 1,730	772	1963	NO	–	NE	–	NE
Manganese	33 / 33	NA	8.96 to 291	83.1	239	YES	500	NO	NA	NA
Mercury	13 / 33	0.05 to 0.05	0.0617 to 0.332	0.0721	0.084	YES	0.3	YES	36	NO
Nickel	33 / 33	NA	2.96 to 35.2	9.13	21.0	YES	30	YES	400	NO
Potassium	33 / 33	NA	181 to 4,020	584	893	YES	NA	NA	NA	NA
Selenium	20 / 33	0.25 to 0.25	0.416 to 4.63	1.10	1.55	YES	[9] 1	YES	NA	NA
Silver	6 / 33	0.589 to 0.589	0.806 to 4.47	0.608	ND	YES	2	YES	NA	NA
Sodium	33 / 33	NA	236 to 691	374	705	NO	–	NE	–	NE
Thallium	1 / 33	0.5 to 0.5	0.852 to 0.852	0.268	0.38	YES	1	NO	NA	NA

TABLE 5-6
ECOLOGICAL PRELIMINARY RISK EVALUATION OF SURFACE SOIL – TERRESTRIAL INVERTEBRATE AND PLANT RECEPTORS[1]

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	Background Screening Value [4]	Maximum Exceeds Background?	Phytotoxicity Screening Value [5]	Maximum Exceeds Phytotoxicity Screening Value?	Invertebrate Screening Value [6]	Maximum Exceeds Invertebrate Screening Value?
PAL INORGANICS cont.										
Tin	20 / 30	NA	6.72 to 140	27.0	12.4	YES	50	YES	NA	NA
Vanadium	30 / 33	3.39 to 3.39	3.96 to 28.6	11.4	28.0	YES	NA	NA	NA	NA
Zinc	31 / 33	8.03 to 8.03	9.63 to 3,380	171	36.0	YES	50	YES	130	YES
OTHER (µg/g)										
Total Organic Carbon	27 / 30	360 to 360	530 to 140,000	38,965	207,425	NO	NA		NA	

NOTES:

[1] Based on analytical data from the following sampling locations: SHS-93-01X (plus duplicate), SHS-93-02X, SHS-93-03X, and RHS-94-04X through RHS-94-13X (including the duplicate RHS-94-12X; 0 ft bgs) at all depths sampled.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.

[4] Background sample locations include: RHS-94-14X through RHS-94-18X, at all depths sampled. Site data were screened against the 95[th] percent upper confidence level (UCL) value on the arithmetic mean.

[5] Phytotoxicity Screening Values from Will, M.E., G.W. Suter II, 1994 unless otherwise noted. The screening value is the lowest Lowest Observed Effect Level (LOEC) from among plant growth studies conducted in solid media.

[6] Invertebrate Screening Value from Neuhauser et al., 1985 unless otherwise noted. For organic compounds, the screening value is the lowest LC_{50} (14-day soil test on Eisenia foetida) from among chemicals in the same chemical class; a conservatrive factor of 0.2 was applied and the resultant value should be protective of 99.9% of the population from acute effects (USEPA, 1986).

[7] Value for phenol used as a surrogate.

[8] Value for 4,4'-DDT used as a surrogate.

[9] Background screening value is greater than phototoxicity screening value.

µg/g = micrograms per gram

NA = Not available/Not applicable

ND = Not Detected

NE = Not Evaluated; analyte was detected at a maximum concentration less than the background screening value.

PAL = Project Analyte List

Shading indicates the exceedance of a guideline value.

TABLE 5-7
ECOLOGICAL PRELIMINARY RISK EVALUATION OF SEDIMENT[1]

RAILROAD ROUNDHOUS SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

ANALYTE [1]	Frequency of Detection [2]	Range of Detection Limits	Range of Detected Concentrations	Average of all Concentrations [3]	USEPA SQG [4]	NOAA, 1990 ER-L [5]	NOAA, 1993 ER-L [5]	NYSDEC Guidelines [6]	Ontario LEL [7]	Range of Screening Values	Maximum Exceeds Minimum Screening Value?	Maximum Exceeds Maximum Screening Value?
PAL SEMIVOLATILE ORGANICS (µg/g)												
2-Methylnaphthalene	4 / 5	0.2 to 0.2	0.35 to 2	1.09	19.5	0.065	0.07	NA	NA	0.065 to 19.5	YES	NO
Acenaphthene	1 / 5	0.036 to 0.2	0.4 to 0.4	0.114	19.5	NA	0.016	109.5	NA	0.016 to 109.5	YES	NO
Anthracene	1 / 5	0.033 to 0.2	0.4 to 0.8	0.183	19.5	0.085	0.0853	NA	NA	0.085 to 19.5	YES	NO
Benzo (a) anthracene	1 / 5	0.17 to 0.8	2 to 2	0.497	197.55	0.23	0.261	NA	NA	0.23 to 197.55	YES	NO
Benzo (b) fluoranthene	1 / 5	0.21 to 1	2 to 2	0.571	19.5	NA	NA	NA	NA	19.5 to 19.5	NO	NO
Benzo (k) fluoranthene	1 / 5	0.066 to 0.3	2 to 2	0.312	19.5	NA	NA	NA	NA	19.5 to 19.5	NO	NO
Chrysene	1 / 5	0.12 to 0.6	3 to 3	0.522	19.5	0.4	0.384	NA	NA	0.384 to 19.5	YES	NO
Dibenzofuran	3 / 5	0.2 to 0.2	0.13 to 0.8	0.306	NA	NA	NA	NA	NA	NA to NA	NA	NA
Fluoranthene	3 / 5	0.3 to 0.3	0.12 to 5	0.984	93	0.6	0.6	NA	NA	0.6 to 93	YES	NO
Fluorene	1 / 5	0.033 to 0.2	0.4 to 0.4	0.113	19.5	0.035	0.019	NA	NA	0.019 to 19.5	YES	NO
Naphthalene	4 / 5	0.2 to 0.2	0.26 to 2	1.01	19.5	0.34	0.16	NA	NA	0.16 to 19.5	YES	NO
Phenanthrene	4 / 5	0.2 to 0.2	0.35 to 4	1.05	27	0.225	0.24	20.85	NA	0.225 to 27	YES	NO
Pyrene	4 / 5	0.2 to 0.2	0.087 to 3	0.687	196.65	0.35	0.665	NA	NA	0.35 to 196.65	YES	NO
PAL INORGANICS (µg/g)												
Aluminum	5 / 5	NA	2,180 to 20,500	9,154	NA	NA	NA	NA	NA	NA to NA	NA	NA
Antimony	4 / 5	1.09 to 1.09	9.13 to 170	43.7	NA	2	NA	NA	NA	2 to 2	YES	YES
Arsenic	5 / 5	NA	9.88 to 23.1	14.5	NA	33	8.2	5	6	5 to 33	YES	NO
Barium	4 / 5	5.18 to 5.18	72.4 to 290	117	NA	NA	NA	NA	NA	NA to NA	NA	NA
Beryllium	4 / 5	0.5 to 0.5	0.99 to 2.69	1.64	NA	NA	NA	NA	NA	NA to NA	NA	NA
Calcium	5 / 5	NA	1,760 to 24,700	14,051	NA	NA	NA	NA	NA	NA to NA	NA	NA
Chromium	4 / 5	4.05 to 4.05	12.8 to 79.4	25.0	NA	80	81	26	26	26 to 81	YES	NO
Cobalt	4 / 5	1.42 to 1.42	3.3 to 5.81	4.01	NA	NA	NA	NA	50	50 to 50	NO	NO
Copper	5 / 5	NA	17.2 to 13,000	3,693	NA	70	34	19	16	16 to 70	YES	YES
Iron	5 / 5	NA	4,220 to 52,900	20,534	NA	NA	NA	24,000	20,000	20,000 to 24,000	YES	YES
Lead	5 / 5	NA	10.5 to 4,800	1,456	NA	35	46.7	27	31	27 to 46.7	YES	YES
Magnesium	5 / 5	NA	936 to 1,820	1,355	NA	NA	NA	NA	NA	NA to NA	NA	NA
Manganese	5 / 5	NA	59 to 268	133	NA	NA	NA	428	460	428 to 460	NO	NO
Mercury	4 / 5	0.05 to 0.05	0.077 to 0.496	0.195	NA	0.15	0.15	0.11	0.2	0.11 to 0.2	YES	YES
Nickel	4 / 5	1.71 to 1.71	10.5 to 28.8	15.1	NA	30	20.9	22	16	16 to 30	YES	NO
Potassium	4 / 5	100 to 100	327 to 1,870	705	NA	NA	NA	NA	NA	NA to NA	NA	NA
Selenium	4 / 5	0.25 to 0.25	0.814 to 2.32	1.11	NA	NA	NA	NA	NA	NA to NA	NA	NA
Silver	2 / 5	0.589 to 0.589	1.13 to 4.15	1.23	NA	1	1	NA	NA	1 to 1	YES	YES
Sodium	5 / 5	NA	539 to 2,880	1,218	NA	NA	NA	NA	NA	NA to NA	NA	NA
Tin	3 / 4	4.9 to 4.9	8.13 to 275	101	NA	NA	NA	NA	NA	NA to NA	NA	NA
Vanadium	4 / 5	3.39 to 3.39	12.6 to 28.1	17.9	NA	NA	NA	NA	NA	NA to NA	NA	NA
Zinc	4 / 5	8.03 to 8.03	84 to 156	96.0	NA	120	150	85	120	85 to 150	YES	YES
OTHER (µg/g)												
Total Organic Carbon	4 / 4	360 to NA	20,000 to 490,000	151,500	NA	NA	NA	NA	NA	NA to NA	NA	NA

NOTES:

[1] Based on analytical data from the following sampling locations: SHD-93-01X, and RHD-94-02X through RHD-94-05X (plus the duplicate of RHD-94-03X). Background data are unavailable for this medium.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The average of all concentrations assigns a value of 1/2 the SQL to all non-detects.

[4] Organic carbon-normalized mean values from USEPA (1988) Sediment Quality Guidelines (SQG), using 15.1 % total organic carbon in sediments. Value for acenaphthene was used as a conservative surrogate for all PAHs that do not have published values.

[5] Effects range-low (ER-L) and Effects range-medium (ER-M) values from Long and Morgan (1990) and NOAA (1993).

[6] New York State Department of Environmental Conservation ([NYSDEC], 1989), organics normalized to 15.1 % total organic carbon in sediment.

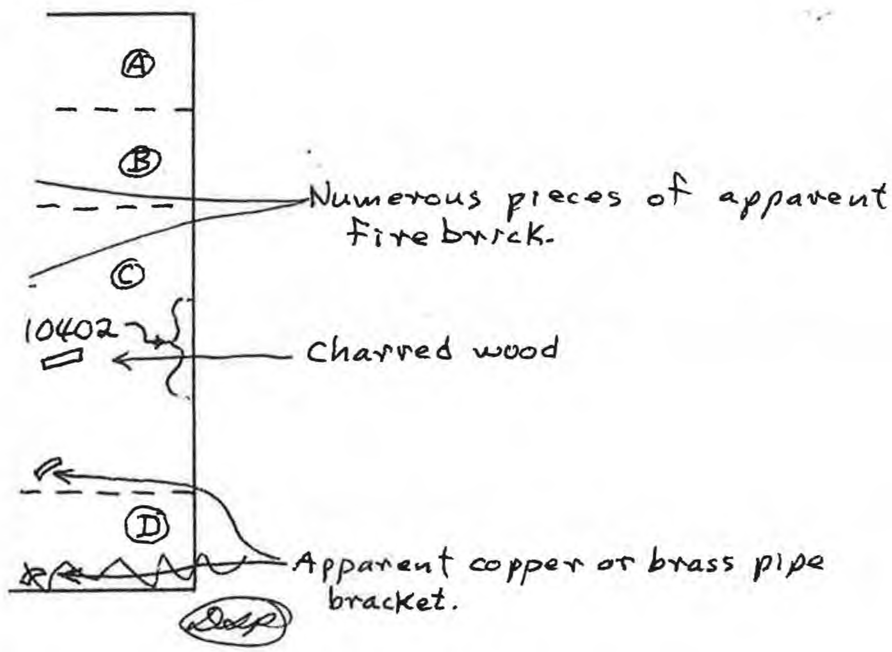
[7] Lowest Effect Level (LEL) values reported in "Guidelines for the Protection and Mangement of Aquatic Sediment Quality in Ontario" (Persaud et al., 1992).

µg/g = micrograms per gram
NA = Not available/Not Applicable
ND = Not detected
NOAA = National Oceanic and Atmospheric Administration
PAL = Project Analyte List
USEPA = United States Environmental Protection Agency
Shading indicates the exceedance of a guideline value.

TEST PIT LOGS, SOIL BORING LOGS, AND WELL CONSTRUCTION REPORTS

4X …pling Record	COMP. BY DSP	JOB NO. 07005.13
	CHK. BY	DATE 7/8/94

…face soil samples. Oriented north-south.
… feet long x 3 feet deep. Two photos.



…al ash, coal ash, coal, clinker, < 20% fine sand, considerable organic (humic) matter, fine fibrous roots; moist, loose, dark reddish brown (5 YR/3/3)

…oal ash, similar to Layer A, except less humic material, larger coal fragments (to 1" diam.), black. Cobble-size pieces of apparent fire brick

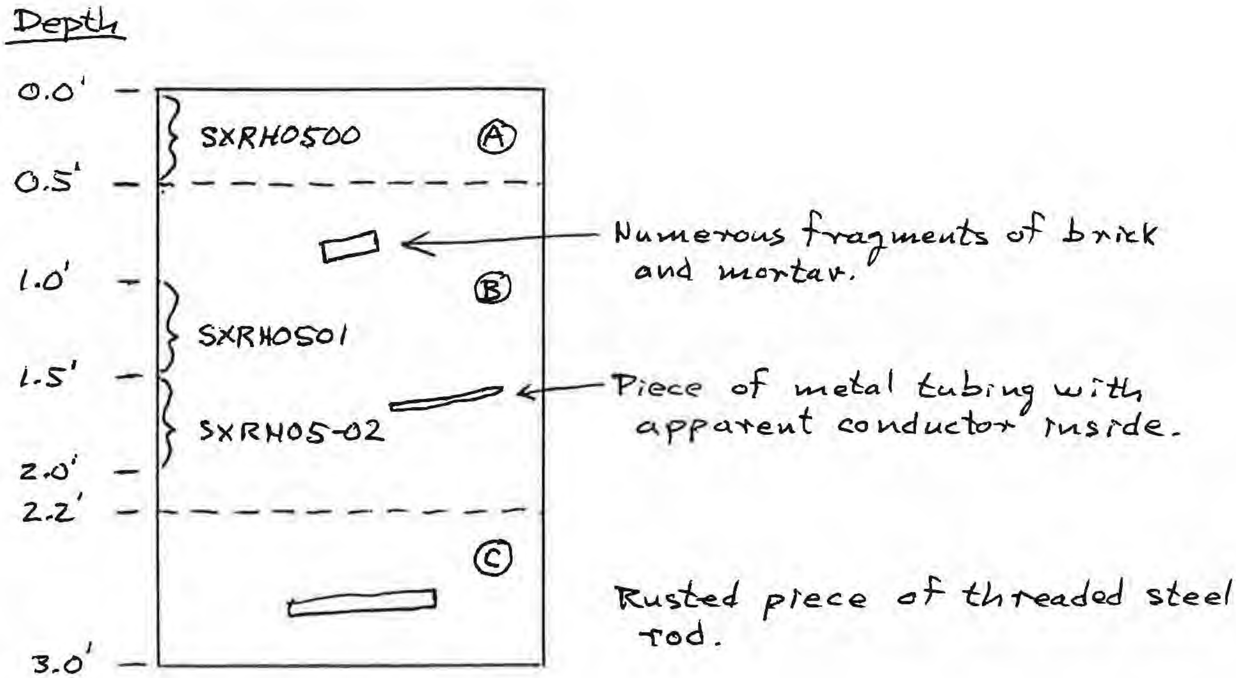
…oal ash, mostly coal ash and clinker, minor coal, numerous chunks of apparent fire brick, metal fragments including apparent steel and copper, yellowish red (5YR 5/6) to cuprous green.

Fire bricks, concentrated layer, fragments to 10" average width, yellowish red (5YR/5/6) to cuprous green.

Silty sand, poorly graded, fine, 12-25% fines, slightly plastic, moist, loose, dark yellowish brown (10YR/4/4), SM.

PROJECT RHS-94-05X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP CHK. BY	JOB NO. 07005-13 DATE 7/7/94

Trench for surface soil samples. Oriented north-south.
2' long × 1' wide × 3' deep. 3 photographs.



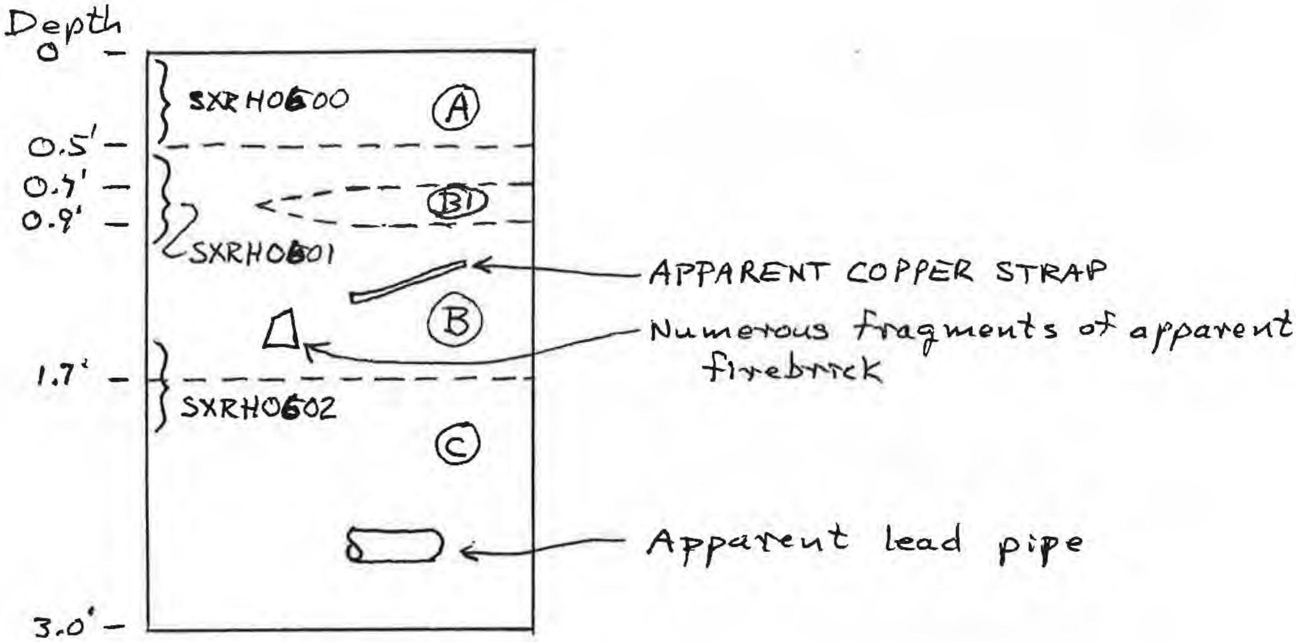
LAYER (A) – Silty sand, poorly graded, fine to medium, angular to subangular, 12-20% fines, loose, dry, olive brown (2.5Y/4/3), many small fibrous roots and tiny leaf fragments. SM (May be wind-blown sand from nearby glaciodeltaic exposures.)

LAYER (B) – Coal ash, contains coal, ash, clinker and other anthropogenic debris such as bricks and metal parts, particle size from fine sand to cobble; has some small shaley particles (<0.25"); black.

LAYER (C) – Coal ash, similar to layer B except red (2.5YR/4/8); possibly greater proportion of clinker; color change may reflect differing oxidizing conditions in-situ.

PROJECT RHS-94-06X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 07005-13
	CHK. BY	DATE 7/7/94

Trench for surface soil sample Oriented north-south. 2' long x 1' wide x 3' deep. No photographs due to rain.



LAYER (A) - Coal ash, contains coal ash + clinker fragments, coal, and other debris ranging from fine sand size to fine gravel size; rich in humic material and fibrous ~~roots~~ (DSP) roots; loose, dry, dark olive brown 2.5Y/3/3

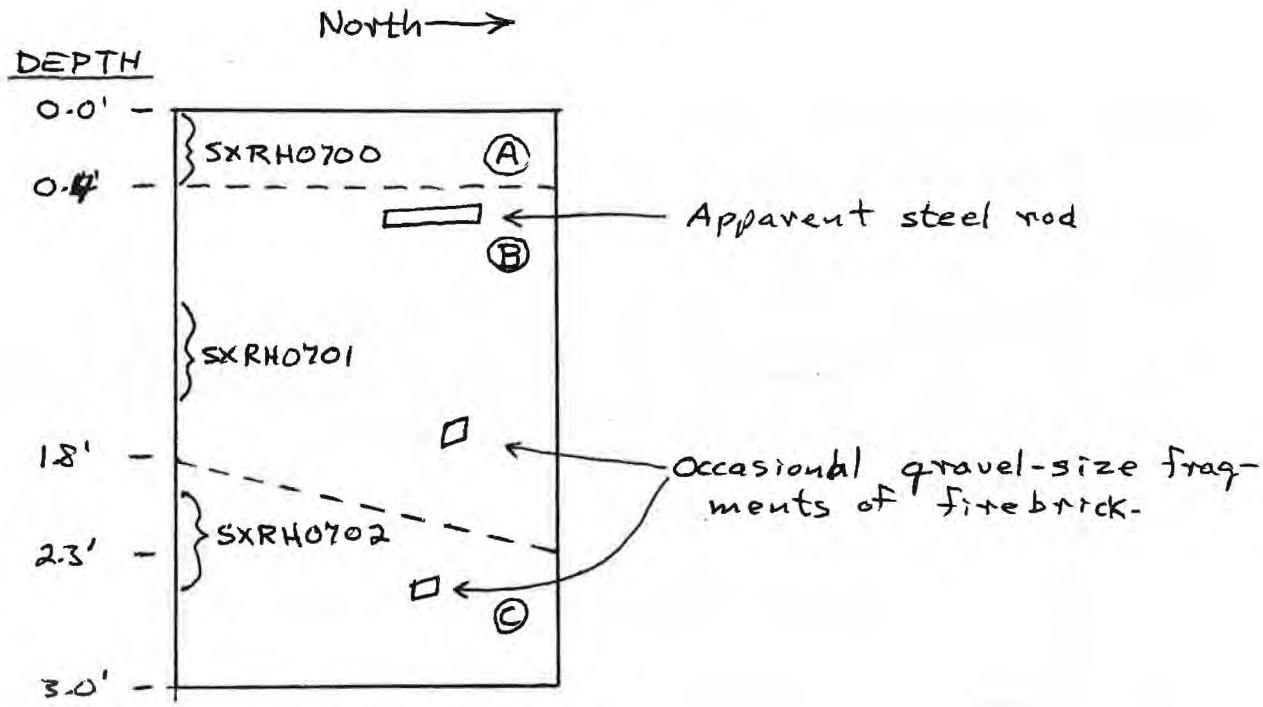
LAYER (B) - Coal ash, similar to layer A except distinctly less humic material, and color dark red (2.5YR/3/6); loose, ~~dry~~ dry; some clinker fragments with glossy surface of iridescent blue-green.

LAYER (B1) - Coal ash and/or metal filings, aggregate of coarse-sand size fragments cemented together, cuprous green to blue-green; dry, hard; some included in sample SXRH0501.

LAYER (C) - Coal ash, similar to Layer (B) except black and moist.

PROJECT RHS-94-07X	COMP. BY DSP	JOB NO. 07005.13
SURFACE SOIL SAMPLING RECORD	CHK. BY	DATE 7/8/94

Trench for surface soil sampling. Oriented Nort-south. 1' wide x 2' long x 3' deep. Located at top edge of topographic slope. Two photographs.



LAYER Ⓐ - Coal ash, coalash, coal, and clinker to 3/4" max, minor development of humic material (only moss was growing on it), moist, dense, dark reddish brown (5YR/3/2).

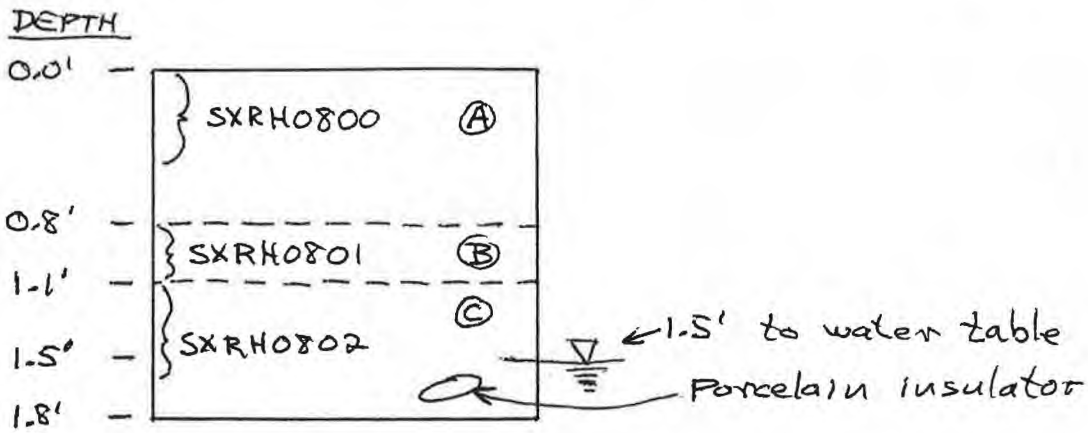
LAYER Ⓑ - Coal ash, same as above, except no humic material, loose, and black. (some red lenses)

LAYER Ⓒ - Coal ash, same as LAYER Ⓐ, except pink (7.5YR/7/4)

FORM 00.01 REV. 4/81 ABB Environmental Services, Inc.

PROJECT	COMP. BY	JOB NO.
RHS-94-08X	DSP	07005-13
SURFACE SOIL SAMPLING RECORD	CHK. BY	DATE 7/8/94

Trench for surface soil sampling. Oriented North-south. Located in area of gray birch, skunk cabbage, and moss, near apparently inactive stormwater outfall. Trench is 2' long x 1' wide x 1.8' deep. Two photographs



LAYER (A) - Coal ash/fill, 20-40% fine to med. sand, fragments of coal ash, clinker and coal to 3/4" diam., loose, damp, humic content decreases downward, dark reddish brown (5YR/3/3). Occasional ~~lay~~ lenses of sandier fill.

LAYER (B) - Sand, poorly graded, ~~med.~~ coarse (DSP) to fine, ~~12-20%~~ (DSP) 5-12% nonplastic fines, dense, wet, yellowish brown (10YR/5/6), SP-SM

LAYER (C) - Coalash/fill, similar to layer A, except saturated, black.

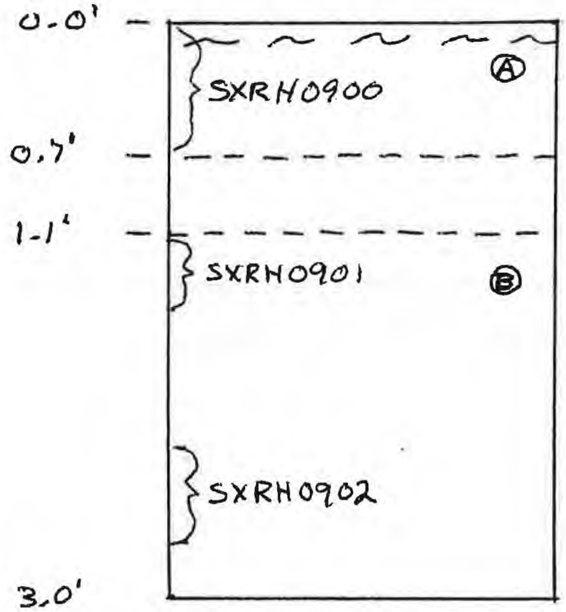
FORM 00.01 REV. 4/81

ABB Environmental Services, Inc.

PROJECT RHS-94-09X	COMP. BY DSP	JOB NO. 07005-13
SURFACE SOIL SAMPLING RECORD	CHK. BY	DATE 7/8/94

Trench for surface soil samples. Oriented north-south. 1' wide x 2' long x 3' deep. Two photographs.

DEPTH



← Sheets of roofing material; tar-impregnated paper.

Interlayering and gradation of materials associated with Layers (A) and (B)

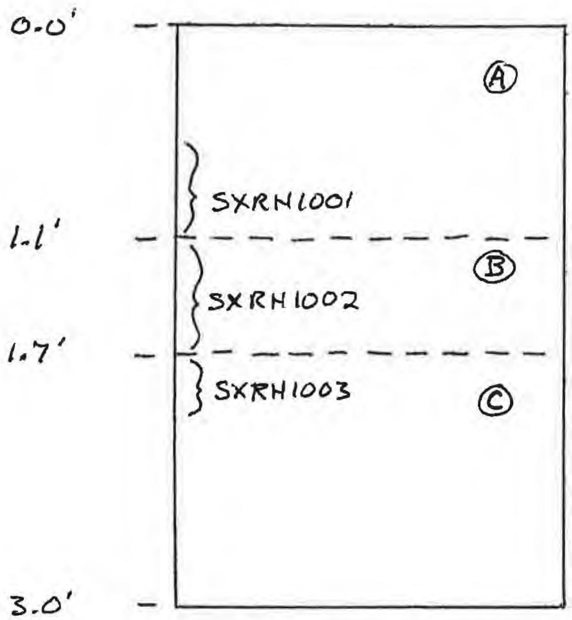
LAYER (A) – Coal, with <20% sand and with ash. Grain size from fine sand to 1" diam, dry, loose, black.

LAYER (B) – Sand, uniform, fine, <5% fines, moist, loose, very pale brown (10YR/8/3), SP. Fine horizontal layering is visible throughout.

PROJECT RHS-94-10X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP CHK. BY	JOB NO. 07005.13 DATE 7/18/94

Test pit for surface soil sampling. Oriented north-south. 1 foot wide x 2 feet long x 3 feet deep. One photograph, looking south.

DEPTH



LAYER Ⓐ - Sand, poorly graded, coarse to fine, mostly fine, <5% fines, 20% coal from dust size to 3/4" max., brick fragments, black, SP

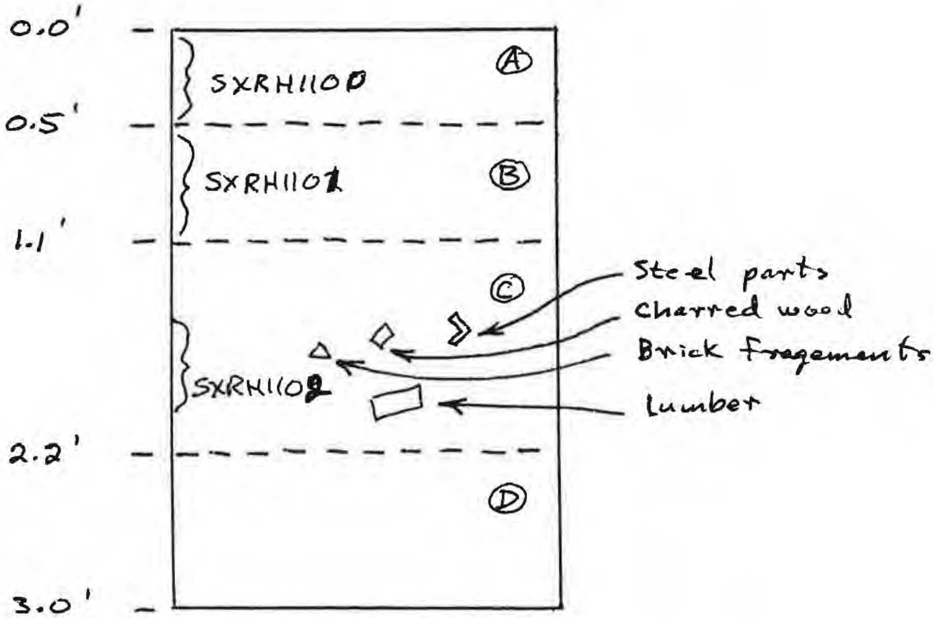
LAYEB Ⓑ - Sand, similar to above, except no visible coal, olive yellow (2.5/YR/6/6), loose, moist, SP

LAYER Ⓒ Sand, similar to above, except. pale yellow (2.5YR/8/3).

PROJECT	COMP. BY	JOB NO.
RHS-94-11X SURFACE SOIL SAMPLING RECORD	DSP	07005.13
	CHK. BY	DATE 7/18/94

Test pit for surface soil sampling. Oriented ~~north~~-south. 1 foot wide x 2 feet long x 3 feet deep. ~~Two~~ One photo.

DEPTH



LAYER (A) - Sand, poorly graded, <10% gravel to 3/8" max, fine to coarse sand, mostly fine, 5-12% slightly plastic fines, roots, humic material, apparent coal dust, very dark grayish brown (2.5YR/3/2), SP-SM

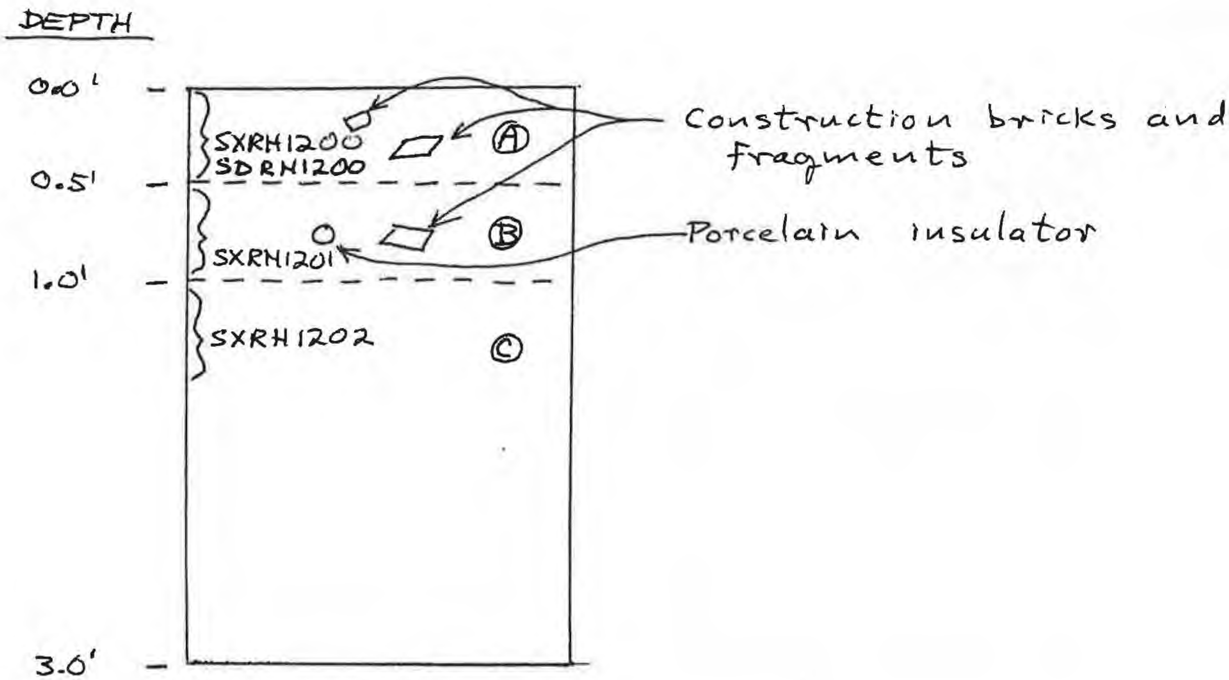
LAYER (B) - Sand, similar to above, except no visible coal dust, occasional cobbles, light olive brown (2.5YR/5/6).

LAYER (C) - Mixture of coal, coal ash, sand (mostly fine), construction debris (steel straps and brackets, lumber, brick, charred wood), black, moist

LAYER (D) - Sand, poorly graded, mostly fine, loose, moist, pale yellow (2.5YR/8/3).

PROJECT RHS-94-12X	COMP. BY DSP	JOB NO. 07005.13
SURFACE SOIL SAMPLING RECORD	CHK. BY	DATE 7/15/94

Test pit for surface soil samples. Oriented North-south. 1 ft. x 2 ft. long x 3 ft. deep. One photograph (looking west).



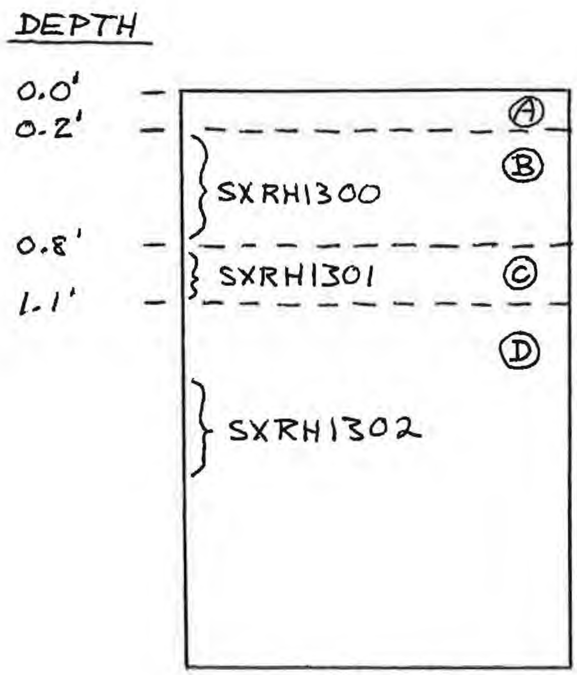
LAYER (A) - Sand, poorly graded, fine to coarse, <5% fines, loose, dry, very dark grayish brown (10YR/3/1), construction debris, humic matter. SP

LAYER (B) - Sand, similar to above, except less humic matter, very pale brown (10YR/8/3) SP

LAYER (C) - Sand, similar to layer A, except no humic material, ~~con~~ no construction debris, white (10YR/8/1); poorly developed stratification based on grain size segregation. SP

PROJECT RHS-94-13X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 07005.13
	CHK. BY	DATE 7/15/94

Test pit for surface soil sampling. Oriented north-south. 1 ft. wide x 2 ft. long x 3 ft. deep. One photo (looking north).



LAYER A – Coal ash, coal, Sand mixture. Sand is poorly graded, coarse to fine, mostly medium, <5% fines, loose, dry, pinkish gray (7.5 YR/7/2) to red (2.5 YR/4/8); coal and coal ash generally < 50% by volume.

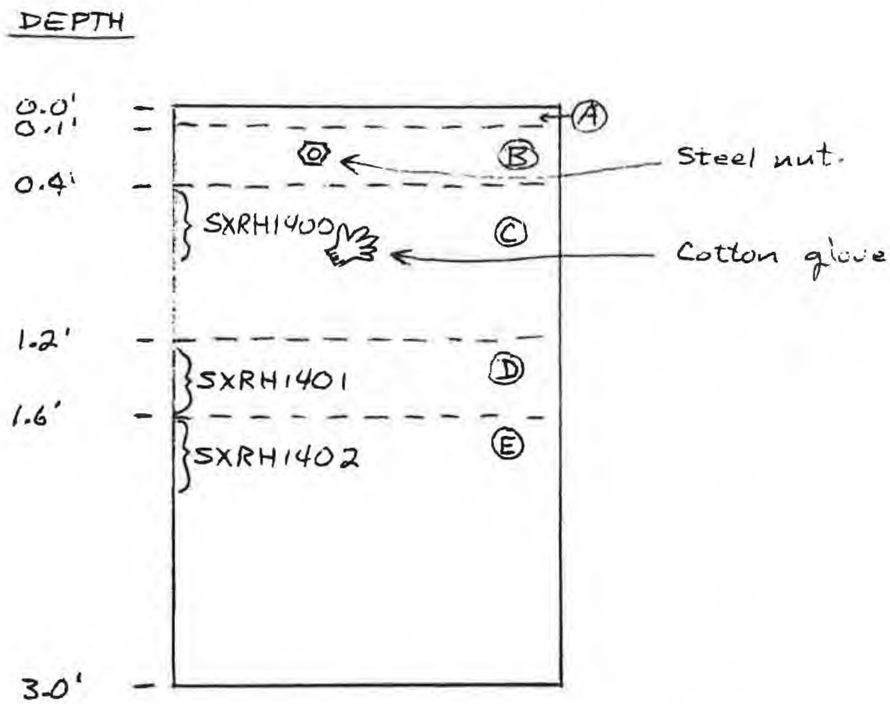
LAYER B – Sand, poorly graded, fine to medium, mostly fine, <5% fines, loose, dry, silt-size fraction may be coal dust, black. SP

LAYER C – Sand, poorly graded, fine to coarse, mostly fine, <5% fines, loose, moist, very pale brown (10YR/7/4) SP

LAYER D – Sand, same as layer C, except sand fine to medium, white (10YR/8/1), stratified SP

PROJECT RHS-94-14X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 7005.13
	CHK. BY	DATE 7/19/94

Trench for surface soil sampling. Oriented east-west. 1 foot wide, 2 feet long, 3 feet deep. One photograph, looking west.



LAYER Ⓐ - Sand, poorly graded, fine, < 5% fines, loose, moist, pale yellow (2.5Y/8/3), SP. (Veneer of probable post-railyard windblown sand from landfill area)

LAYER Ⓑ - Sand, similar to above, except minor medium and coarse sand component, probable coal-dust component, dark olive brown (2.5Y/3/3), SP.

LAYER Ⓒ - Coal ash, coal, and clinker, grain size from fine sand-equivalent near top of layer to gravel size (1.5" max.) near bottom of layer, very dense, dry to moist.

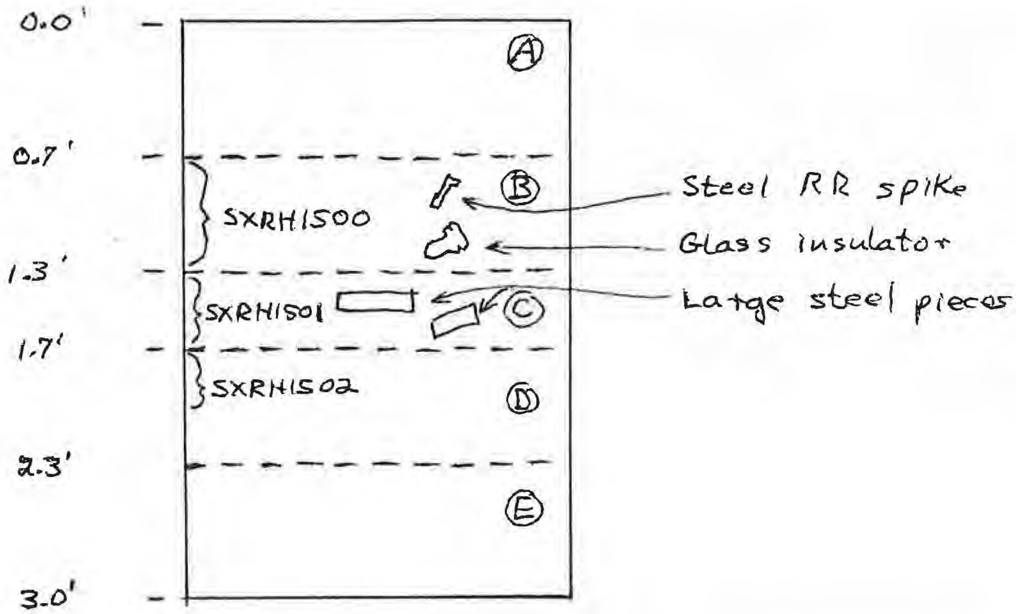
LAYER Ⓓ - Sand, poorly graded, fine to coarse, mostly fine to medium, <5% fines, loose, moist, olive yellow (2.5Y/6/6), SP. (contact with underlying sand is very irregular; may be reworked.)

LAYER Ⓔ - Sand, poorly graded, fine, <5% fines, loose, moist, pale yellow (2.5/8/3), SP.

PROJECT RHS-94-15X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 7005.13
	CHK. BY	DATE 7/19/94

Test pit for surface soil sampling. Oriented north-south. 1 foot ~~four~~ wide x 2 feet long x ~~2~~ 2 to 3 feet deep (large pieces of steel obstruct digging at about 2½ feet deep. One photograph (looking east).

DEPTH



LAYER Ⓐ - Sand, poorly graded, fine to coarse, mostly fine to med., <5% fines, ~10% coal dust, fibrous roots, humic material, loose, dry, dark olive brown (2.5Y/3/3), SP. Cobbles to 3".

LAYER Ⓑ - Sand, same as above, except no coal dust, pale yellow (2.5Y/7/3). Cobbles to 3".

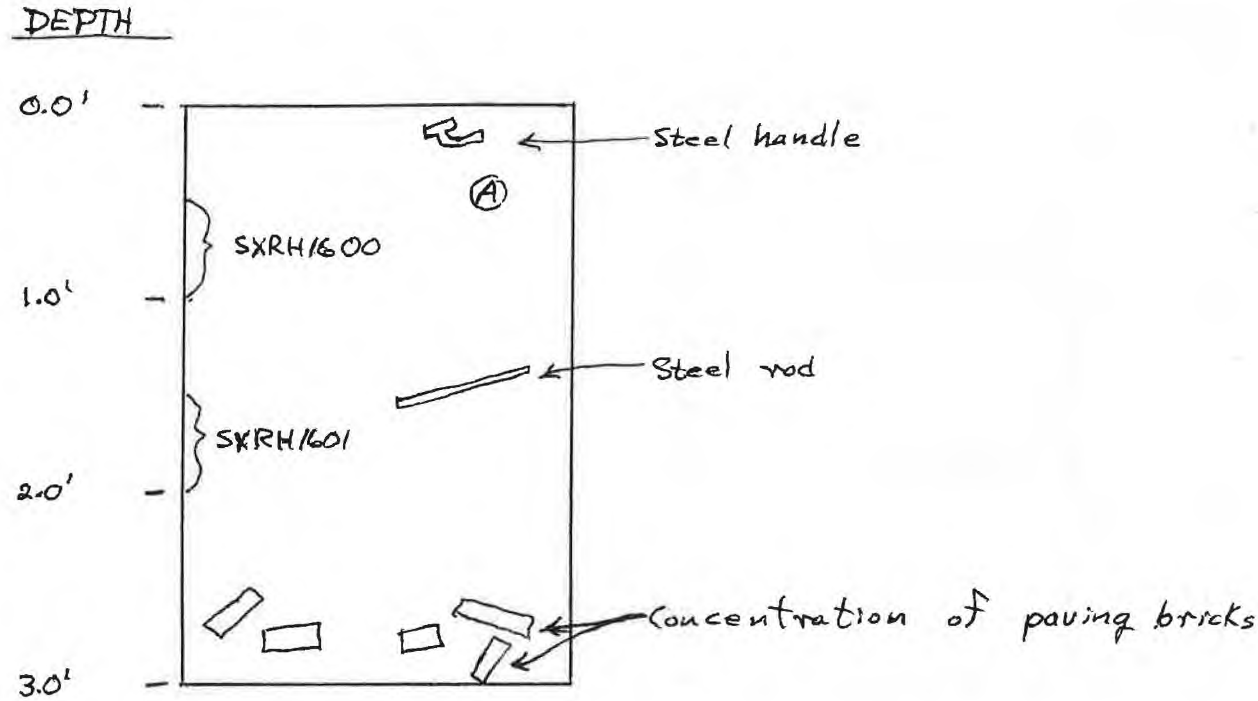
LAYER Ⓒ - Coal ash, clinker, size from dust to 1" diam., very dense, dry, light reddish brown (2.5YR/6/3)

LAYER Ⓓ - Coal, coal ash, clinker, charred wood, dust size to 1½" diam., very dense, dry, black.

LAYER Ⓔ - Sand, poorly graded, <10% gravel, fine to coarse sand, mostly fine to medium, <5% fines, dense, dry, reddish yellow (5YR/6/8).

PROJECT RHS-94-16X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 07005.13
	CHK. BY	DATE 7/21/94

Test pit for surface soil sampling. Oriented east-west. 1 foot wide x 2 feet long x 3 feet deep. One photograph.



LAYER (A) - Coal ash, coal, and clinker, from dust-size grains to cobble-size clinker, some fine sand (<20%) in upper 1 foot, dense, dry, dark gray (5Y/4/1)

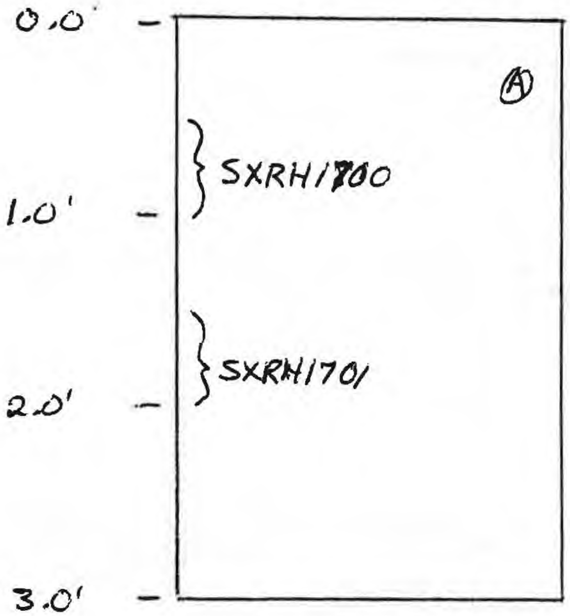
FORM 00.01 REV. 4/81

ABB Environmental Services, Inc.

PROJECT RHS-94-17X SURFACE SOIL SAMPLING RECORD	COMP. BY DSP	JOB NO. 07005.13
	CHK. BY	DATE 7/21/94

Test pit for surface soil sampling. Oriented east-west. 1 ft. wide x 2 feet long x 3 ft. deep. One photograph, looking south.

DEPTH

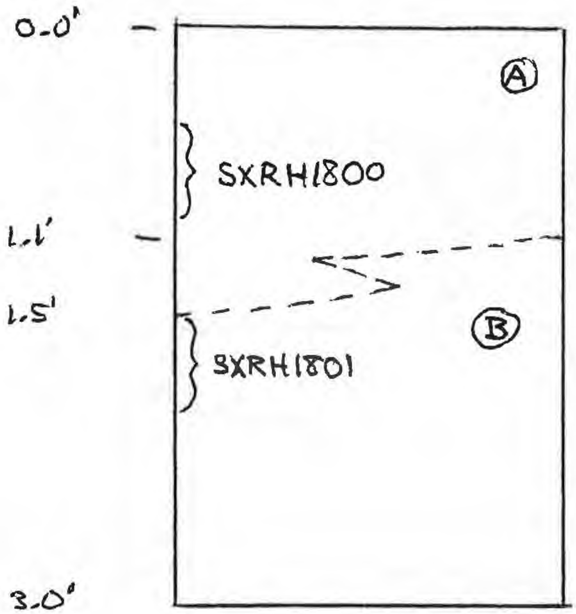


LAYER (A) – Gravelly sand, well graded, cobbles to 6" max., coarse to fine sand, 10-15% fine gravel, <5% fines, loose to medium dense, moist, very pale brown (10YR/7/3) SW

PROJECT	COMP. BY	JOB NO.
RHS-94-18X SURFACE SOIL SAMPLING RECORD	DSP	07005.13
	CHK. BY	DATE 7/21/94

Test pit for surface soil sampling. Oriented east-west. 1 Foot wide x 2 feet long x 3 feet deep. ~~Tw~~ Two photos, looking southwest.

DEPTH



LAYER Ⓐ - Mixture of coalash, coal, clinkers and sand (fine to coarse). Mixture is finer-grained and sandier near top of layer, and it has more and larger clinkers near bottom of layer. Bottom 0.5 ft is very dense - difficult to dig through; dry, dark gray (5YR/4/1).

LAYER Ⓑ - Sand, poorly graded, <10% gravel to 3/4" max., fine to coarse sand, mostly fine, 5-12% sl. plastic fines, dense to very dense, moist, yellow (10 YR/7/6), SP

FIELD BORING LOG | BORING NO.: RHM-94-02X

PROJECT NO.: 7005.13 | PROJECT NAME: Ft. Devens Railroad Roundhouse | PAGE 1 OF 1

DRILLING CONTRACTOR: Maher Environmental | DRILLER: John Graglia | DATE STARTED: 7/15/94 | COMPLETED: 7/15/94

METHOD: HSA | CASING SIZE: 6-5/8" | PI METER TYPE: OVM 580-B | PROTECTION LEVEL: D

GROUND ELEV.: 234.1 | SOIL DRILLED: 24 FT. | WATER LEVEL: 16.2 FT. | TOTAL DEPTH: 24 ft

LOGGED BY: T. Dame | CHECKED BY: DP | DATE:

DEPTH (FT.)	SAMPLE NUMBER	BLOWS PER 6-INCHES	PEN. / REC.	DESCRIPTION	MONITORING PID	LEL		
0-2'	S-1	3-4-5-5	2.0 / 1.0	Sand, poorly graded, fine, 12-20% fines, <10% gravel to 1" max. <5% organic material, yellowish-brown 10YR (5/6), loose SM	BKgd			
4-6'	S-2	6-6-6-7	2.0 / 1.1	Sand, fine to medium, poorly graded, fines <5%. gravel <10%. to 0.5" max SP	BKgd			
9-11	S-3	5-5-6-11	2.0 / 1.3	2 Layers: 9-10' Same as S-2, SP; 10-11' - Similar to S-1 except no gravel, very pale yellow (10yr/7/2) SM	BKgd			
14-16'	S-4	8-5-12-11	2.0 / 1.7	2 Layers: 14-15': Sand, medium to coarse, med. dense SP; 15-16': ~~Sand~~ Silt, nonplastic to sl. plastic, very stiff wet, pale brown (10YR/6/3) ML	BKgd			
19-21'	S-5	6-6-10-17	2.0 / 1.8	19' - Silt same as above ML; 20' - Sand, medium/coarse, poorly graded, saturated light brownish gray, (10YR/6/2) medium dense SP [Bottom of Borehole = 24']	BKgd			
24-26'	S-6	5-3-6-7	2.0 / 2.0	Sand, fine to coarse, mostly medium, poorly graded <5% fines, saturated, med. dense, light brownish gray (10YR/6/2) SP	BKgd			

FIELD BORING LOG			BORING NO.: RHM-94-01X	
PROJECT NO.: 7005.13	PROJECT NAME: FORT DEVENS ROUNDHOUSE		PAGE 1	OF
DRILLING CONTRACTOR: D.L. Maher		DRILLER: Graglia	DATE STARTED: 7/14/94	COMPLETED:
METHOD: 6¼ HSA	CASING SIZE: 6¼"	PI METER TYPE: TE 580B	PROTECTION LEVEL: D	
GROUND ELEV.: 220.9	SOIL DRILLED: 13.0 FT.	WATER LEVEL: 8.7 FT.	TOTAL DEPTH:	
LOGGED BY: TCD/DSP		CHECKED BY: DP		DATE:

DEPTH (FT.)	SAMPLE NUMBER	BLOWS PER 6-INCHES	PEN. / REC.	DESCRIPTION	MONITORING PID	MONITORING LEL		
0-2'	S1	2-2-2-1	2.0 / 0.5	Coal ash, coal, and clinkers; grain size 0.01" to 0.5"; loose, dry, reddish black (10R/2.5/1), leaf fragments.	0.0	—		
4-6'	S2	1-2-1-1	2.0 / 0.6'	Coal ash, similar to above, except generall fine gravel size, saturated, black. (Driller thinks bottom of ash may be at about 6 ft bgs.)	0.0	—		
9-11'	S-3	2-1-1-2	2.0 / 0.9	9.0-9.6': Sand, poorly graded, fine to medium, coarse sand <10%, fines <5%, loose, saturated. Contains black layer with petroleum odor (9.1-9.2'); dark gray 2.5YR/N4/0. (SP) PID = 0.0 9.6-9.9': Peat, some wood fragments (Pt) dark brown.	0.0	—		
				B.O.B. 13.0'				

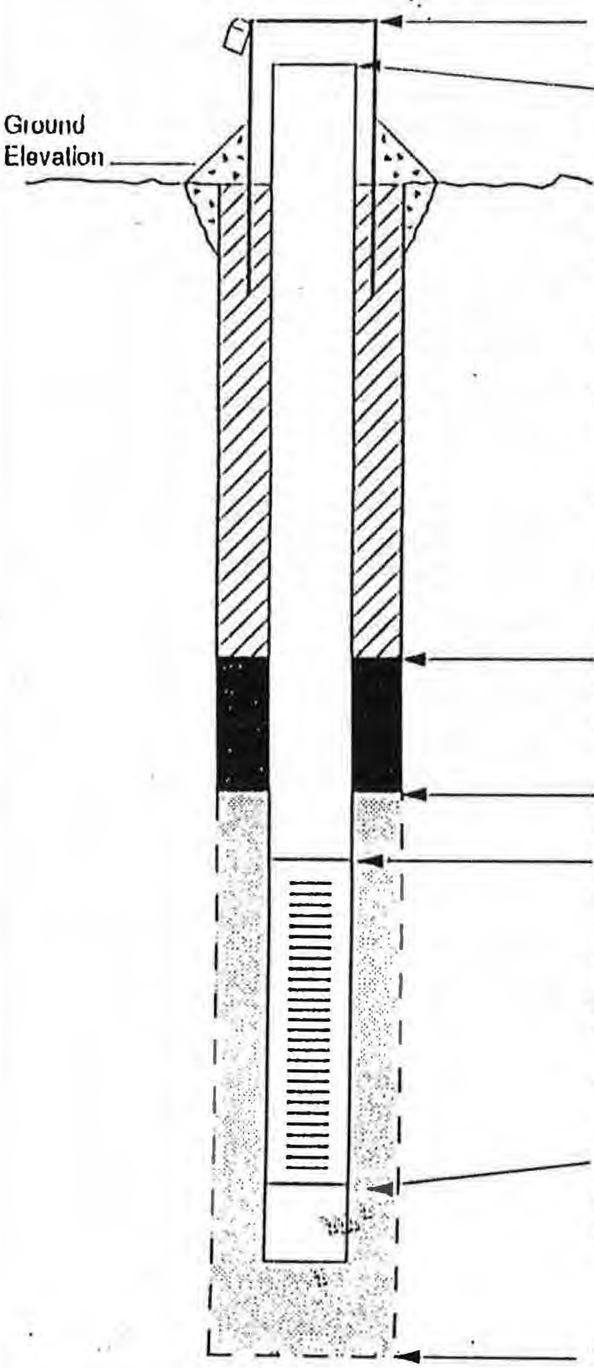
MONITORING WELL CONSTRUCTION DIAGRAM

Project Fort Devens Study Area Round House Driller D. L. Maher/J. Graglia

Project No. 07005.13 Boring No. RHM-94-01X Drilling Method HSA -6 5/8"

Date Installed 7/14/94 Development Method Watera pump

Field Geologist Pierce/Dame



Elevation of Top of Surface Casing: ______
Stick-up of Casing Above Ground Surface: NA
Elevation of Top of Riser Pipe: ______
Type of Surface Seal: Concrete (Portland Type I/II
Type of Surface Casing: Gatebox

ID of Surface Casing: 6"

Diameter of Borehole: 10"

Riser Pipe ID: 4"
Type of Riser Pipe: Sched. 40 PVC

Type of Backfill: None

Elevation of Top of Seal: ______
Depth of Top of Seal: 1.0 ft.
Type of Seal: Bentonite chips

Elevation of Top of Sand: ______
Depth of Top of Sand: 2.0 ft.
Elevation of Top of Screen: ______
Depth of Top of Screen: 3.0 ft

Type of Screen: Sched. 40 PVC
Slot Size x Length: 0.010" x 10'
ID of Screen: 4"

Type of Sandpack: Morie silica Grade #0

Elevation of Bottom of Screen: ______
Depth of Bottom of Screen: 13.0 ft.
Depth of Sediment Sump with Plug: ______

Elevation of Bottom of Borehole: ______
Depth of Bottom of Borehole: 13.0 ft

MONITORING WELL CONSTRUCTION DIAGRAM

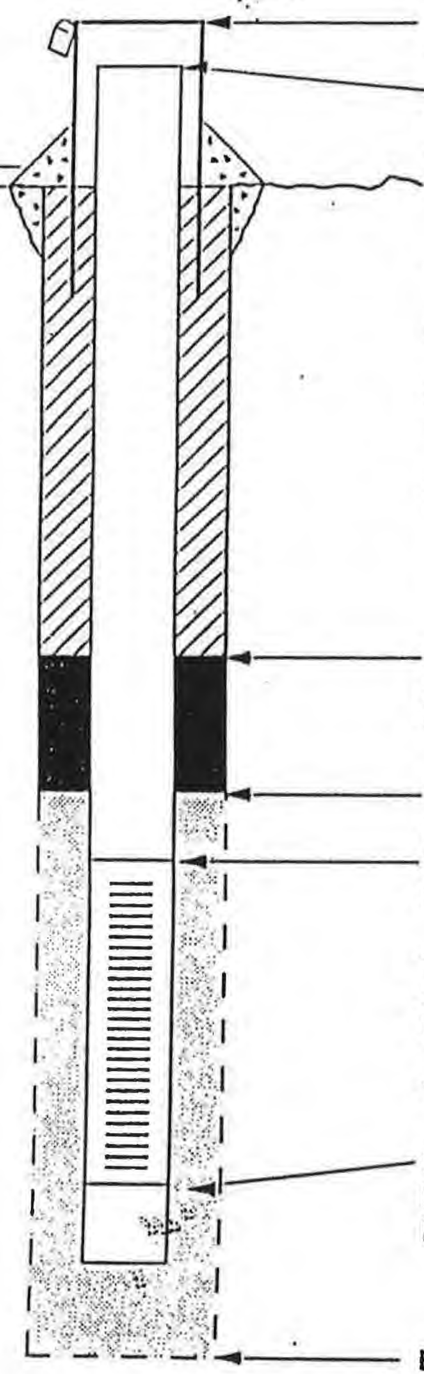
Project: Fort Devens
Study Area: RR Roundhouse
Driller: Maher / John Graglia

Project No.: 7005.13
Boring No.: RHM-94-02X
Drilling Method: 6-5/8" HSA

Date Installed: 7/15/94
Development Method: Waterra pump

Field Geologist: DP/TD* *onsite

Ground Elevation



Elevation of Top of Surface Casing:
Stick-up of Casing Above Ground Surface: 2.92
Elevation of Top of Riser Pipe: 2.3 ft above ground level
Type of Surface Seal: Cement Type I/II
Type of Surface Casing: Steel 6 ft.

ID of Surface Casing: 6"

Diameter of Borehole: 10"

Riser Pipe ID:
Type of Riser Pipe: Sched. 40 PVC

Type of Backfill: Cement Portland type II

Elevation of Top of Seal: ~~9 ft.~~
Depth of Top of Seal: 4 ft.
Type of Seal: Bentonite chips

Elevation of Top of Sand:
Depth of Top of Sand: ~~14 ft~~ 9 ft.
Elevation of Top of Screen:
Depth of Top of Screen: 14 ft.

Type of Screen: Sched 40 PVC
Slot Size x Length: 0.010" x 10'
ID of Screen: 4"

Type of Sandpack: Morie Silica grade 0

Elevation of Bottom of Screen:
Depth of Bottom of Screen: 24 ft.
Depth of Sediment Sump with Plug:

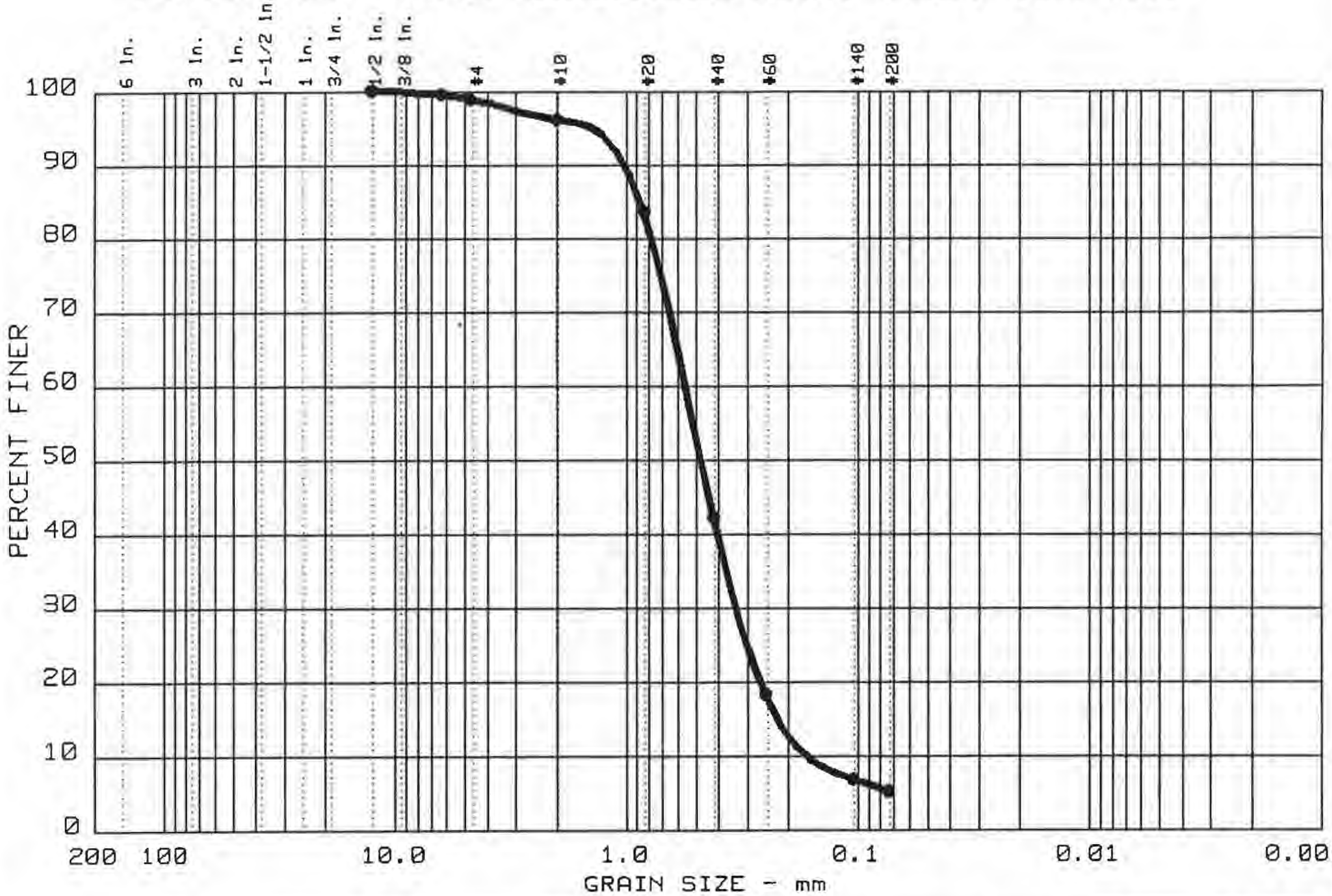
Elevation of Bottom of Borehole:
Depth of Bottom of Borehole: ~~26 ft.~~ 24

7/15/94

ABB Environmental Services, Inc.

GRAIN SIZE DISTRIBUTION REPORTS

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	1.1	93.7	5.2				

SIEVE inches size	PERCENT FINER ●		
0.5	100.0		
0.25	99.5		
	GRAIN SIZE		
D_{60}	0.55		
D_{30}	0.33		
D_{10}	0.16		
	COEFFICIENTS		
C_c	1.22		
C_u	3.3		

SIEVE number size	PERCENT FINER ●		
4	98.9		
10	96.1		
20	83.7		
40	42.3		
60	18.3		
140	6.9		
200	5.2		

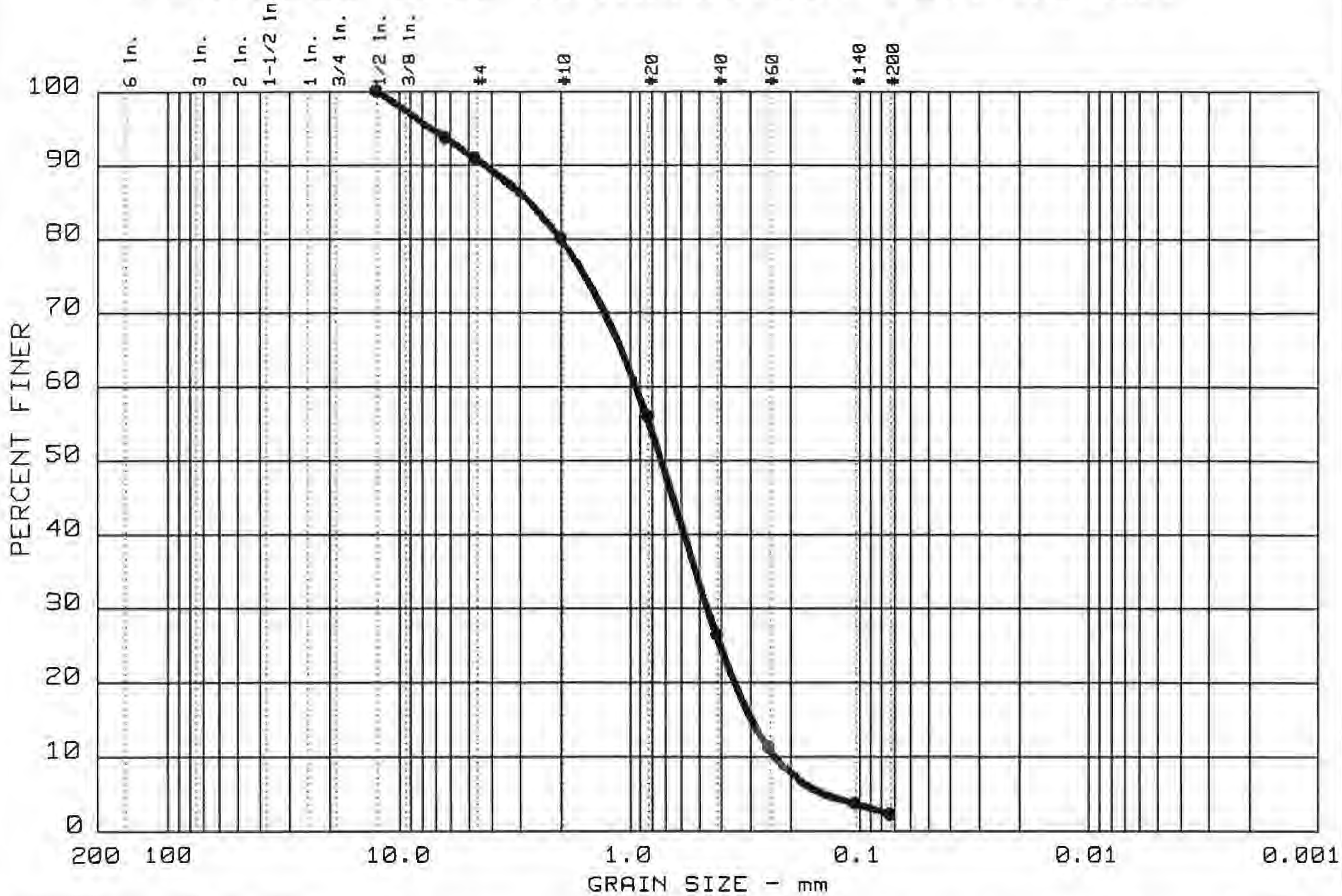
Sample information:
● RHS-94-10X

Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROADHOUSE FORT DEVENS
Date: 8/18/94
Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	9.0	88.7	2.3				

SIEVE inches size	PERCENT FINER ●		
0.5	100.0		
0.25	93.6		
	GRAIN SIZE		
D_{60}	0.93		
D_{30}	0.46		
D_{10}	0.23		
	COEFFICIENTS		
C_c	0.97		
C_u	4.0		

SIEVE number size	PERCENT FINER ●		
4	91.0		
10	80.1		
20	56.0		
40	26.5		
60	11.3		
140	3.7		
200	2.3		

Sample information:
● RHS-94-14X

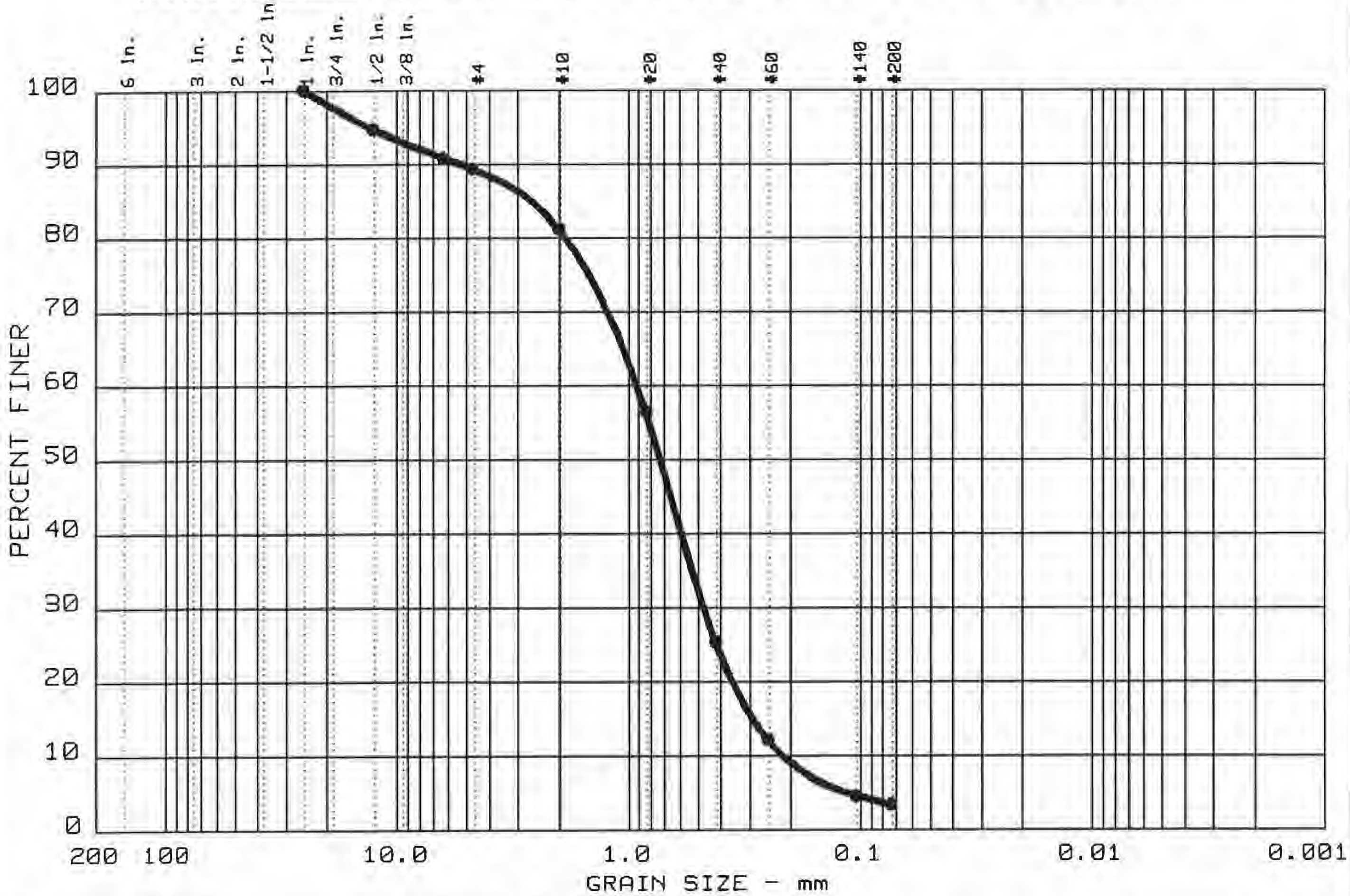
Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROAD HOUSE FORT DEVENS

Date: 8/18/94 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	10.7	85.9	3.4				

SIEVE inches size	PERCENT FINER ●		
1	100.0		
0.5	94.7		
0.25	90.8		
	GRAIN SIZE		
D_{60}	0.92		
D_{30}	0:47		
D_{10}	0.21		
	COEFFICIENTS		
C_c	1.12		
C_u	4.3		

SIEVE number size	PERCENT FINER ●		
4	89.3		
10	81.1		
20	56.4		
40	25.5		
60	12.2		
140	4.6		
200	3.4		

Sample information:
● SXRH-17X

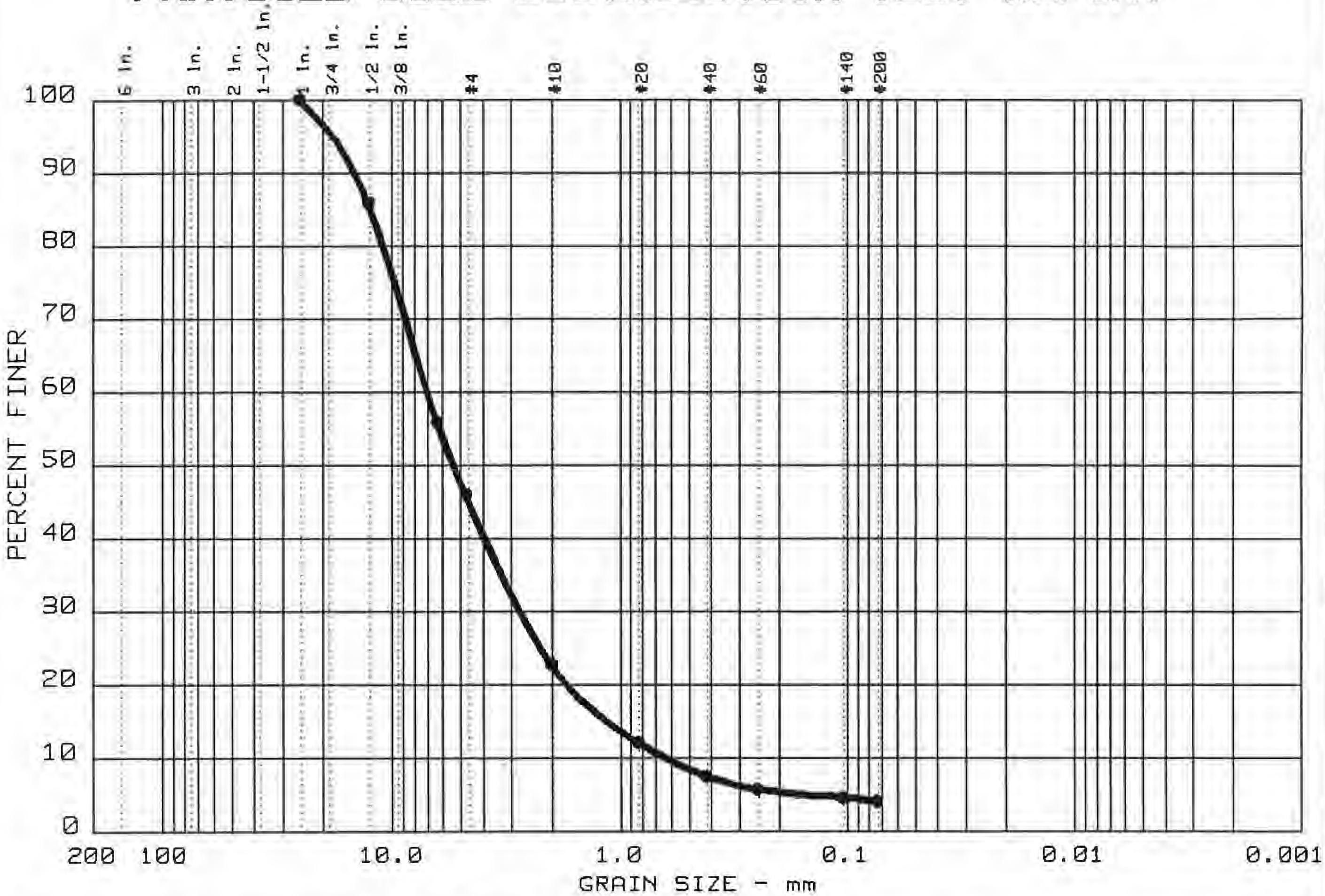
Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROAD HOUSE FORT DEVENS

Date: 8/18/94 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	54.0	41.8	4.2				

SIEVE inches size	PERCENT FINER ●		
1	100.0		
0.5	85.9		
0.25	55.9		
	GRAIN SIZE		
D_{60}	7.01		
D_{30}	2.75		
D_{10}	0.63		
	COEFFICIENTS		
C_c	1.71		
C_u	11.1		

SIEVE number size	PERCENT FINER ●		
4	46.0		
10	22.8		
20	12.1		
40	7.5		
60	5.7		
140	4.6		
200	4.1		

Sample information:
● DXRHO 200

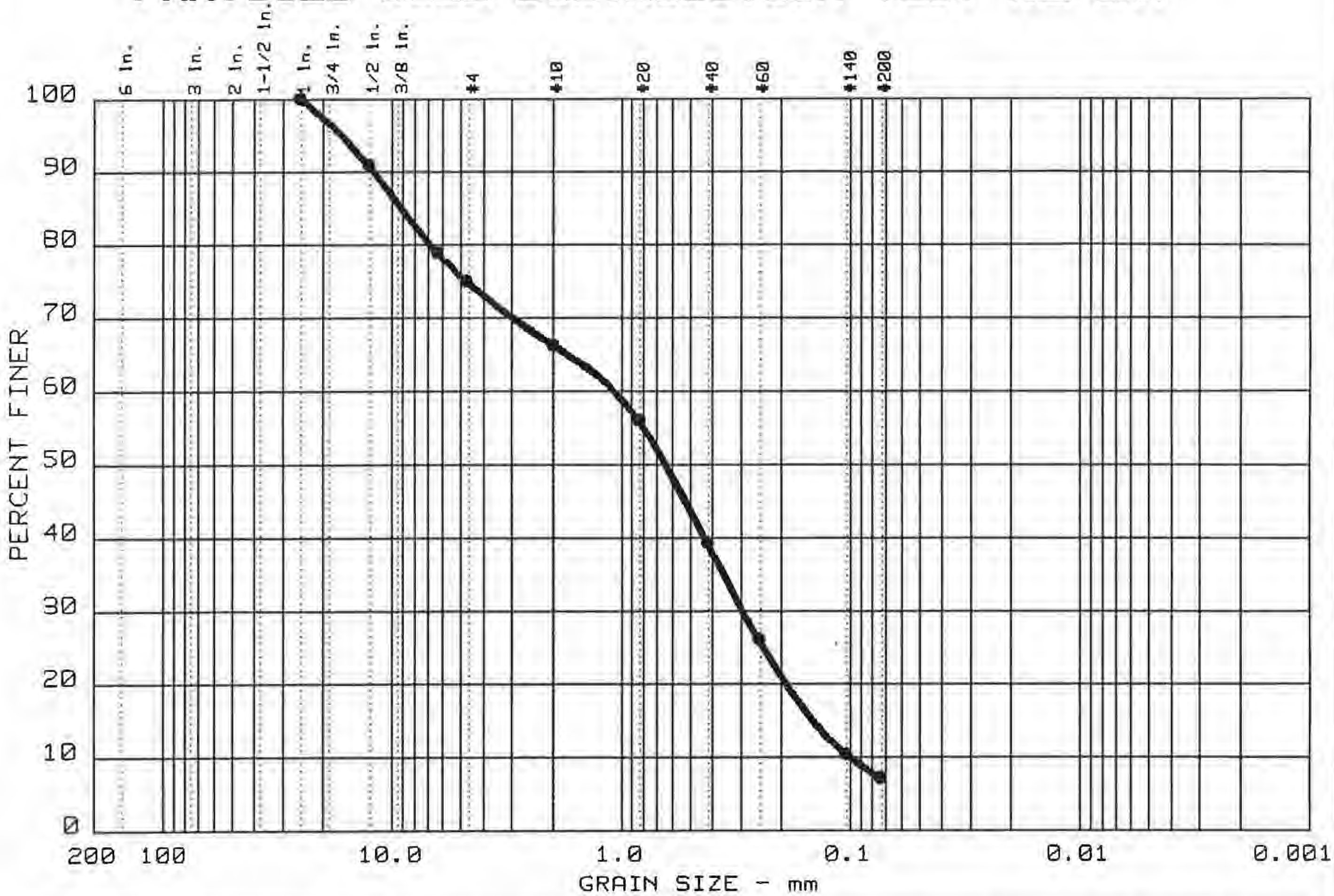
Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROAD HOUSE FT DEVENS

Date: 8/18/94 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	25.1	67.8	7.1				

SIEVE inches size	PERCENT FINER ●		
1	100.0		
0.5	90.9		
0.25	78.8		
	GRAIN SIZE		
D_{60}	1.07		
D_{30}	0.29		
D_{10}	0.10		
	COEFFICIENTS		
C_c	0.79		
C_u	10.7		

SIEVE number size	PERCENT FINER ●		
4	74.9		
10	66.2		
20	56.1		
40	39.3		
60	26.2		
140	10.4		
200	7.2		

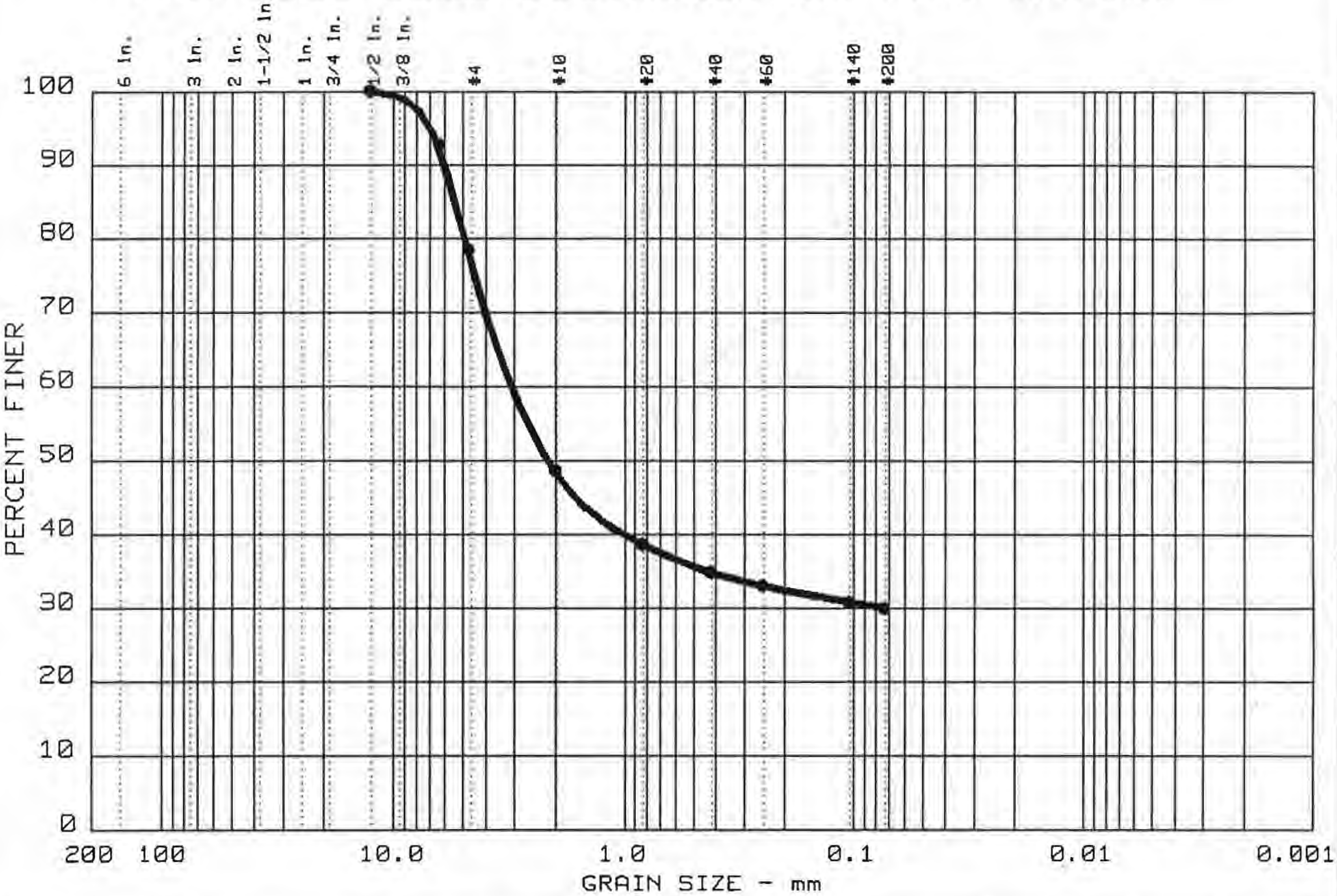
Sample information:
● DXRH 0300

Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROAD HOUSE FORT DEVENS
Date: 8/18/94 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	21.6	48.4	30.0				

SIEVE inches size	PERCENT FINER ●		
0.5	100.0		
0.25	92.6		
	GRAIN SIZE		
D_{60}	3.08		
D_{30}			
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	78.4		
10	48.6		
20	38.6		
40	34.8		
60	33.0		
140	30.8		
200	30.0		

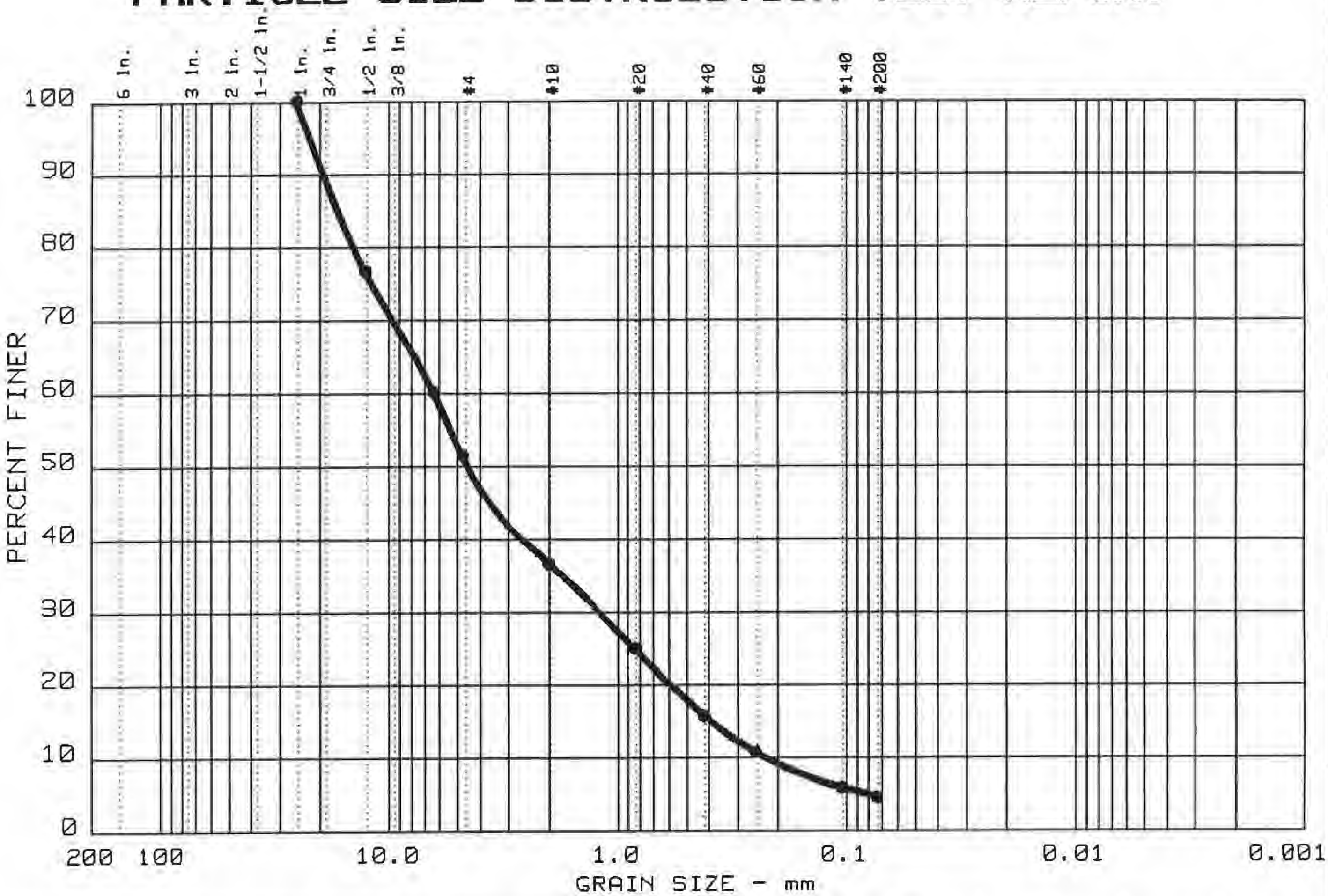
Sample information:
● DXRH0400

Remarks:
sieve only

ABB Environmental Services, Inc.

Project No.: 07005.13
Project: Railroad Roundhouse Ft. Devens
Date: 8/18/94 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	48.6	46.7	4.7				

SIEVE inches size	PERCENT FINER ●		
1	100.0		
0.5	76.6		
0.25	60.1		
	GRAIN SIZE		
D_{60}	6.33		
D_{30}	1.19		
D_{10}	0.22		
	COEFFICIENTS		
C_c	1.01		
C_u	28.6		

SIEVE number size	PERCENT FINER ●		
4	51.4		
10	36.7		
20	25.1		
40	15.7		
60	10.7		
140	5.9		
200	4.6		

Sample information:
● DXRH 0500

Remarks:

ABB Environmental Services, Inc.

Project No.: 94-08-007
Project: RAILROAD HOUSE FORT DEVENS

Date: 8/18/94 Data Sheet No. ____

AQUIFER TEST DATA AND CALCULATIONS

PROJECT USAEC	COMP. BY RRR	JOB NO. 07005-15
RAILROAD ROUNDHOUSE, FORT DEVENS	CHK. BY	DATE

VERTICAL HYDRAULIC GRADIENT CALCULATIONS

MAY 9, 1995 WATER LEVELS

SHL-18 / SHM-93-18B

∇ SHL-18 - 19.81' (PVC) — MIDPOINT OF SCREEN = 21' BGS

∇ SHM-93-18B - 19.50' (PVC) — MIDPOINT OF SCREEN = 83.5' BGS

Δ = 62.5'

ELEV OF ∇

SHL-18: 238.36 (ELEV PVC) - 19.81 = 218.55' MSL

SHM-93-18B: 238.12 (ELEV PVC) - 19.50 = 218.62' MSL

Δ = 0.07'

↑ GRADIENT AT 0.001 FT/FT

∇ SHL-24 - 16.53' (PVC) — MIDPOINT OF SCREEN 115' BGS

∇ SHM-93-24A - 16.97' (PVC) — MIDPOINT OF SCREEN 18.2' BGS

Δ = 96.8'

ELEV OF ∇

SHL-24: 239.57 - 16.53 = 223.04

SHM-93-24A: 239.25 - 16.97 = 222.28

Δ = 0.76

(RR) ~~0.0~~ 0.76 FT / 96.8' = 0.008 FT/FT ↑

PROJECT USAEC / FORT DEVENS RAILROAD ROUNDHOUSE	COMP. BY RRR	JOB NO. 7005.15
AVG FLOW VELOCITIES	CHK. BY	DATE

$\bar{V}$ = AVERAGE LINEAR VELOCITY = $\frac{K i}{n}$

i = AVG HYDRAULIC GRADIENT = 0.003 FT/F

n = POROSITY = 0.3

K = AVG HYDRAULIC CONDUCTIVITY (USING HVORSLEV) = 9×10^{-3} cm/sec

= 3×10^{-4} FT/SEC

= ~~1.1 X10~~ RRR

= 1.1 FT/HOUR

$\bar{V} = \frac{1.1 \text{ FT/HOUR} (0.003 \text{ FT/FT})}{0.3}$

$\bar{V}$ = 0.01 FT/HOUR

PROJECT USAEC / FORT DEVENS RAILROAD ROUNDHOUSE HORIZONTAL HYDRAULIC GRADIENT CALCULATIONS	COMP. BY RRR	JOB NO. 7005-15
	CHK. BY	DATE

MAY 9, 1995 DATA SET

∇ :		ELEV OF PVC	∇ ELEV.
RHM·94·01X	= 3.77 (PVC)	220.74	216.97
RHM. 94·02X	= 18.71 (PVC)	236.13	217.42
SHL-7	= 18.81 (PVC)	237.13	218.32
SHL-18	= 19.81 (PVC)	238.39	218.58
PLOW SHOP POND	= 4.54 (COLUMN)	221.35	216.81

— SHL-18 APPROXIMATELY UPGRADIENT OF RHM.94.01X

340 FT AREAL SEPERATION

1.61 FT CHANGE IN ∇ ELEV.

SHL-18 → RHM.94.01X : 1.61 FT / 340 FT = 0.005 FT/FT

— SHL-7 APPROXIMATELY UPGRADIENT OF RHM.94.02X

415 FT AREAL SEPERATION

0.9 FT CHANGE IN ∇ ELEV

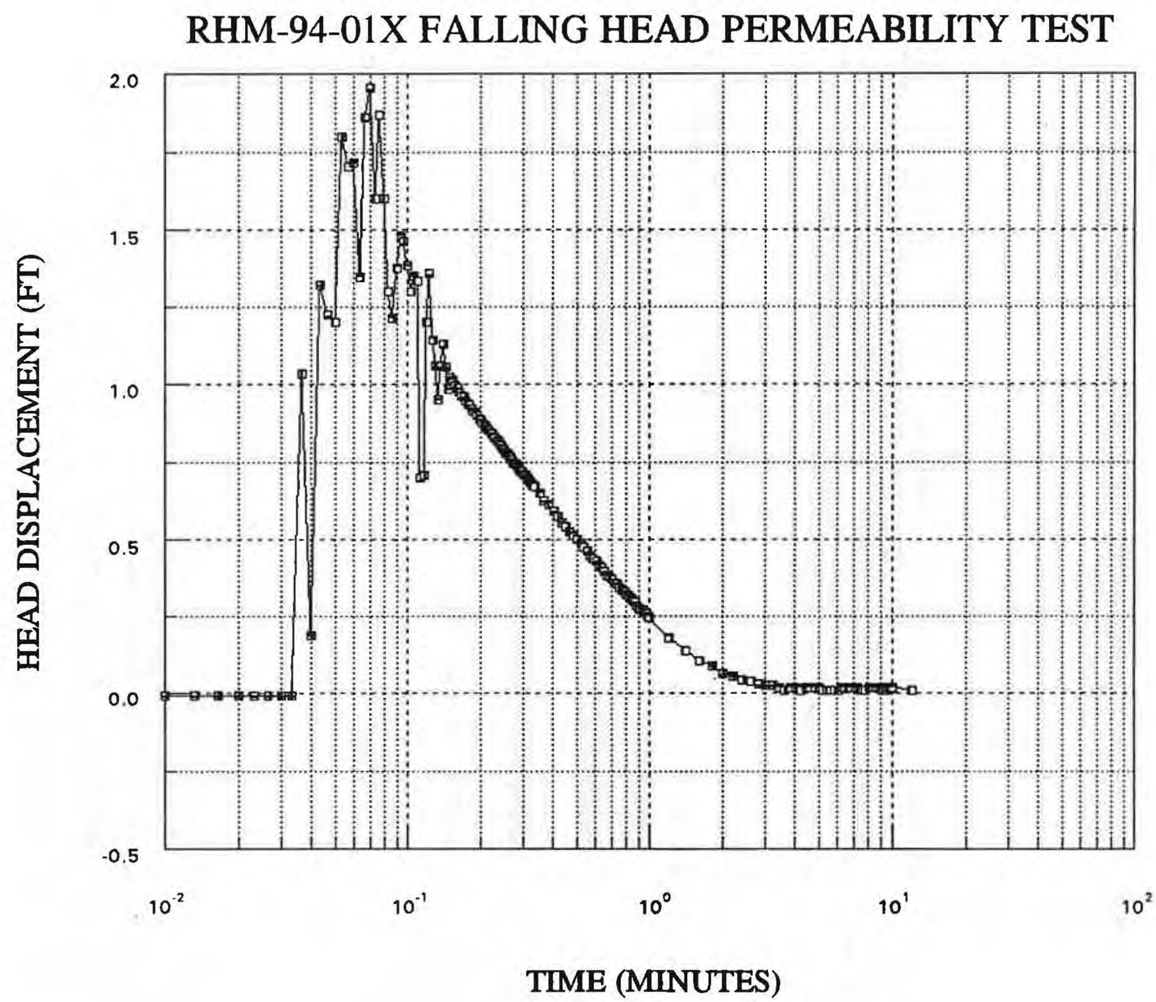
SHL-7 → RHM.94.02X : 0.9 FT / 415 FT = 0.002 FT/FT

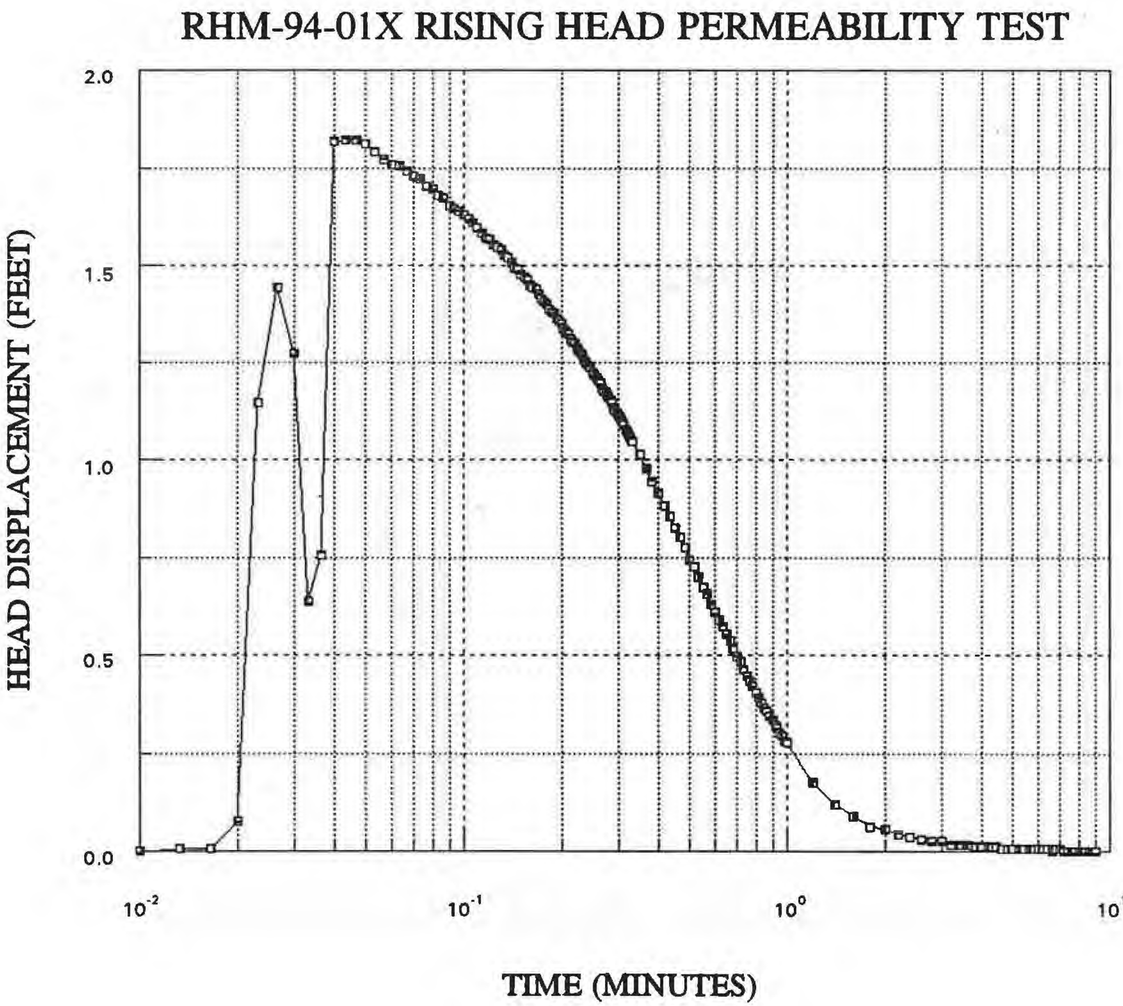
— SHL-18 → RHM.94.02X

405 FT AREAL SEPERATION

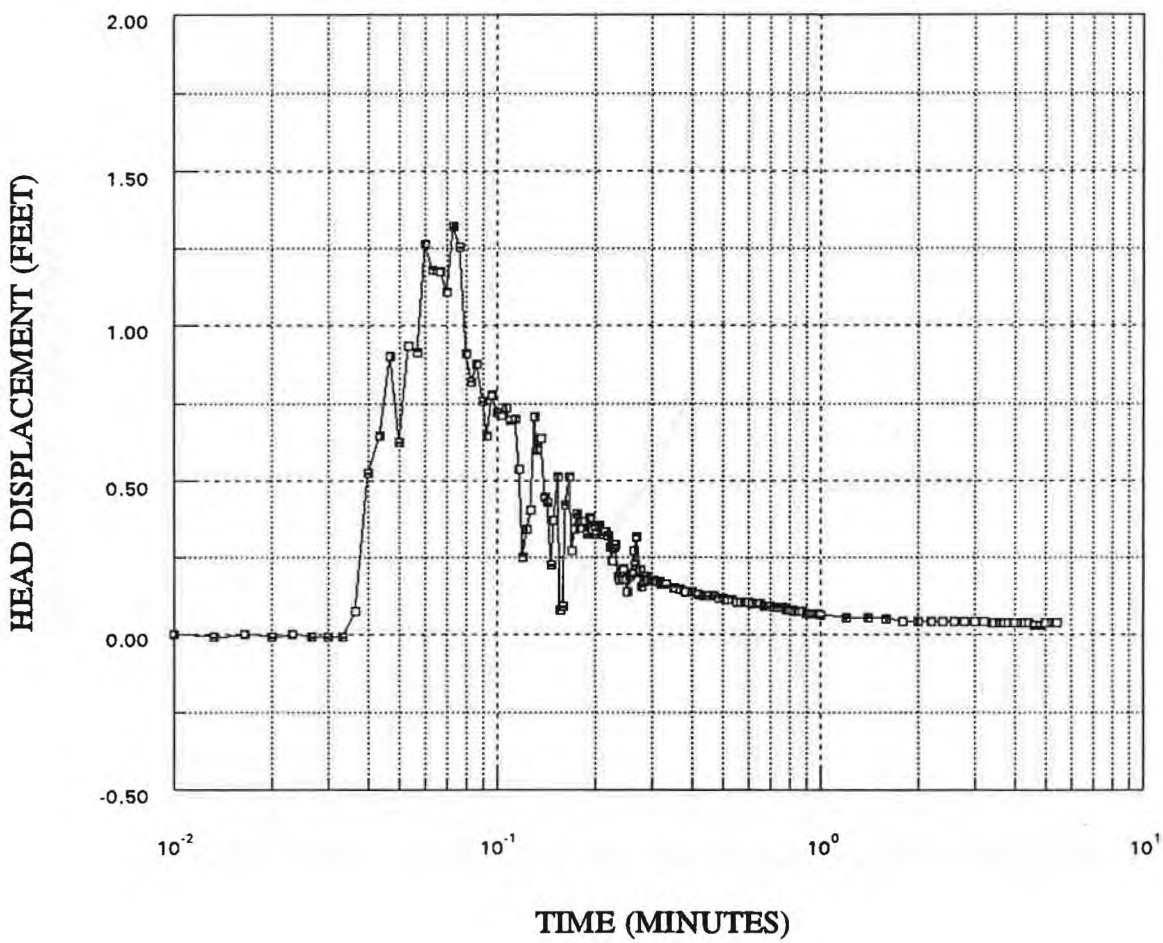
1.16 FT CHANGE IN ∇ ELEV

1.16 FT / 405 FT = 0.003 FT/FT

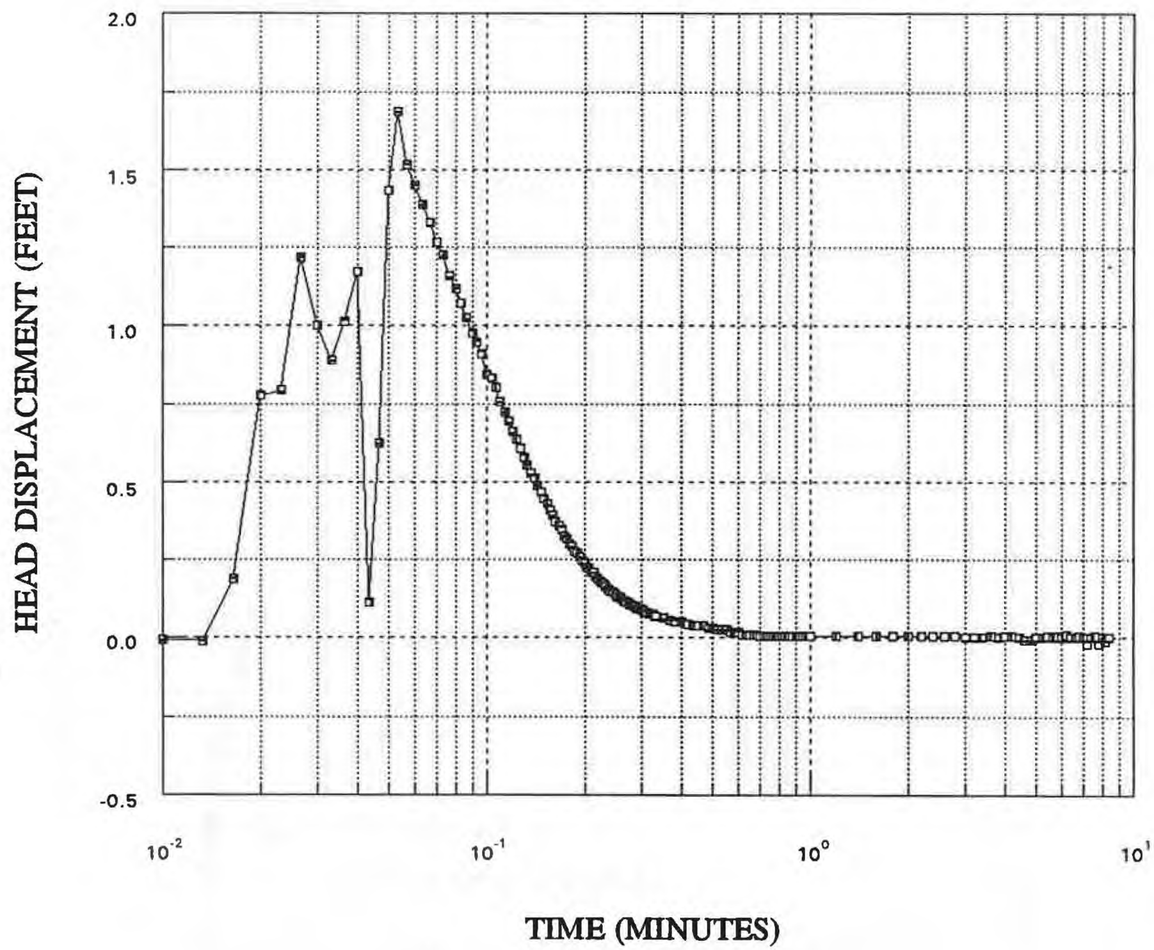

RHM-94-01X FALLING HEAD PERMEABILITY TEST
HEAD DISPLACEMENT (FT)
2.0
1.5
1.0
0.5
0.0
-0.5
10^-2
10^-1
10^0
10^1
10^2
TIME (MINUTES)

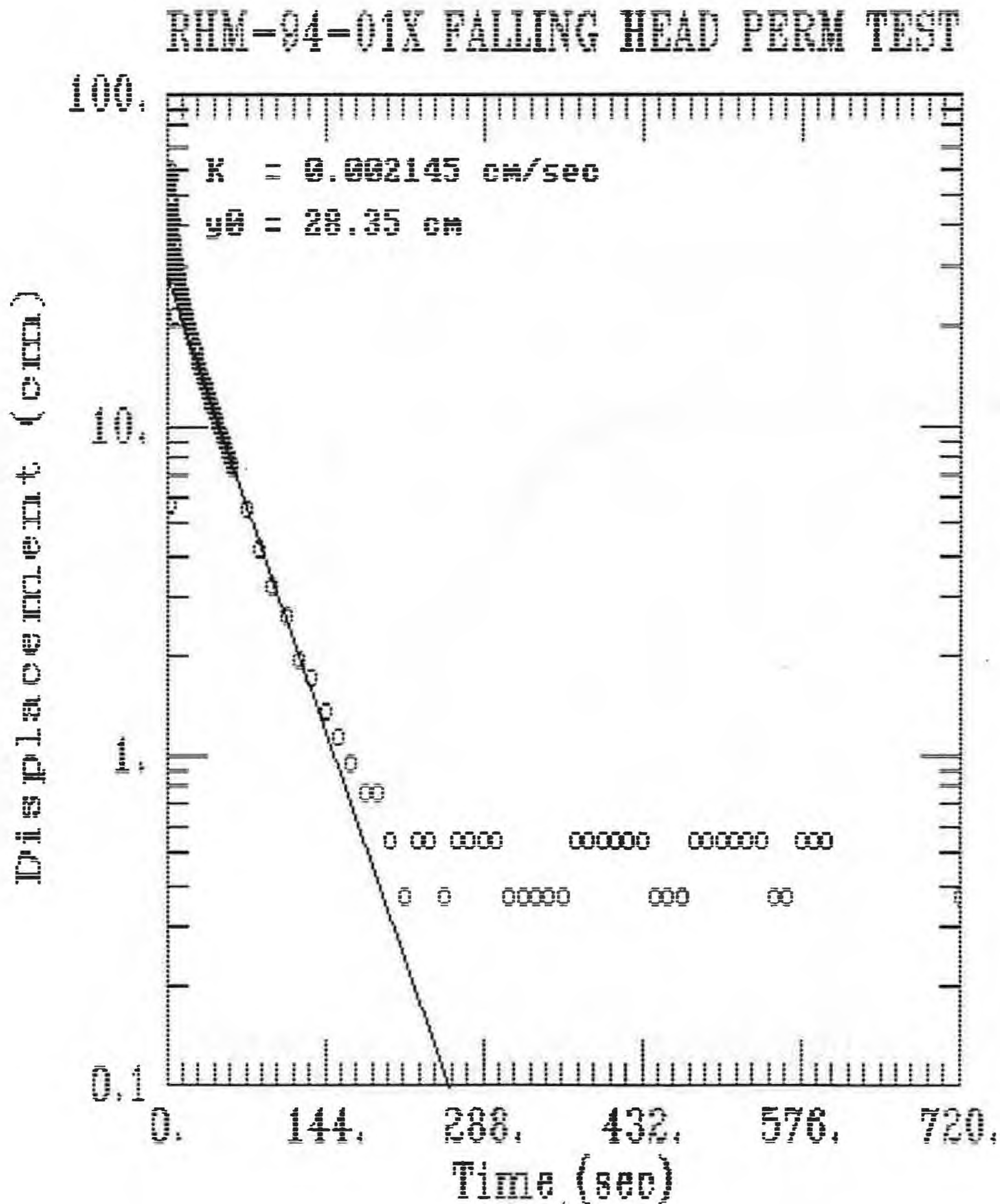

RHM-94-01X RISING HEAD PERMEABILITY TEST
HEAD DISPLACEMENT (FEET)
2.0
1.5
1.0
0.5
0.0
10^{-2}
10^{-1}
10^{0}
10^{1}
TIME (MINUTES)

RHM-94-02X FALLING HEAD PERMEABILITY TEST

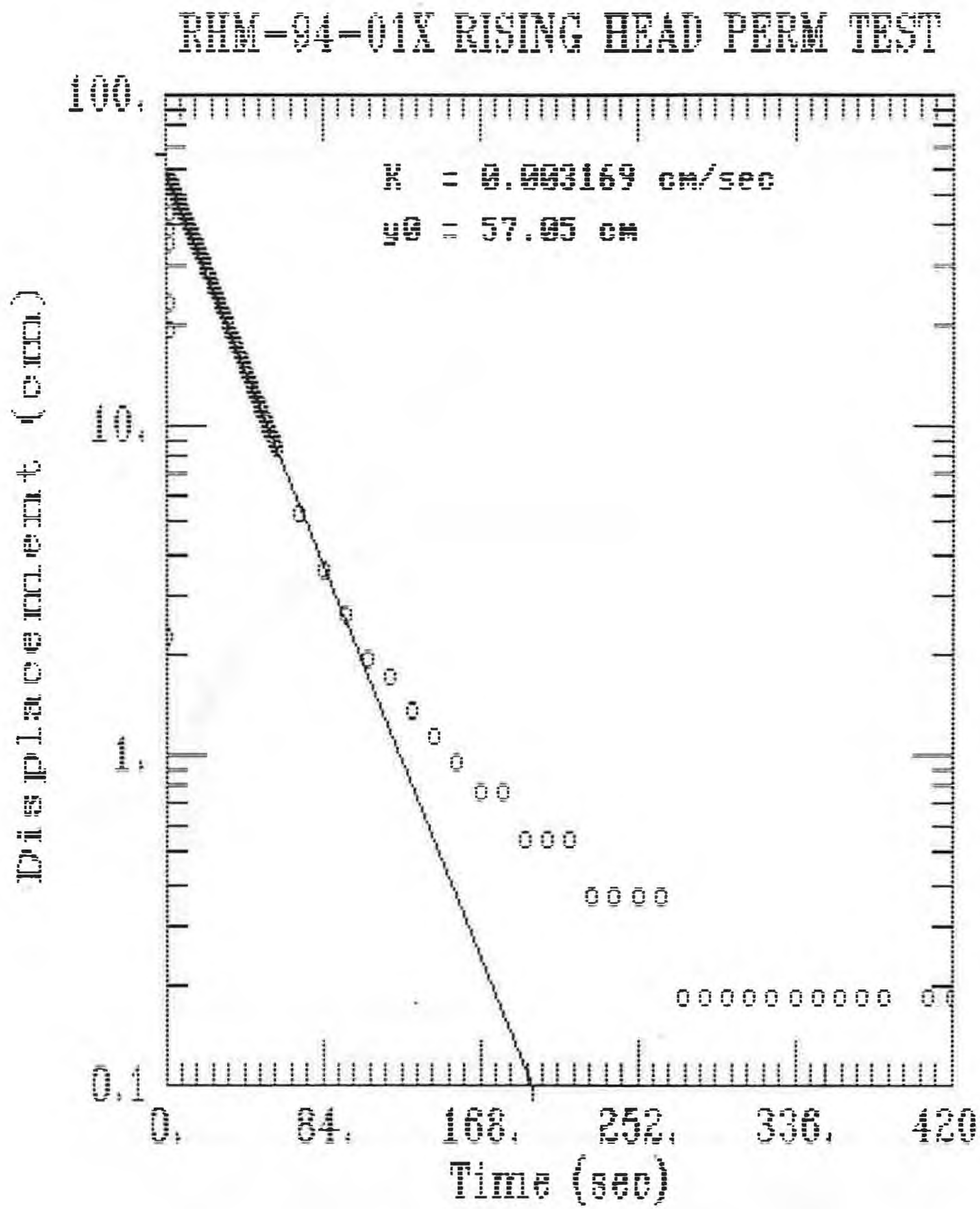


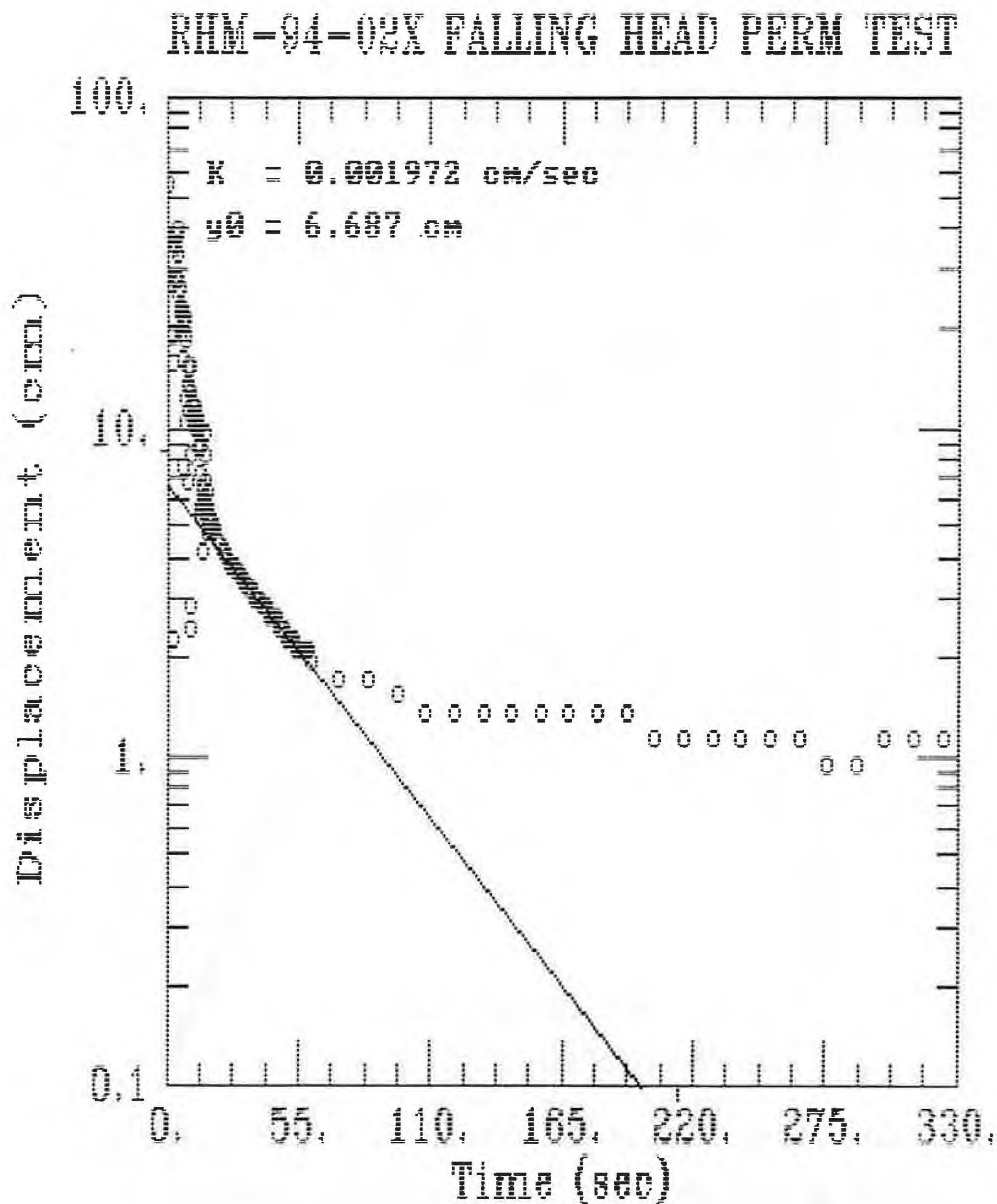
RHM-94-02X RISING HEAD PERMEABILITY TEST



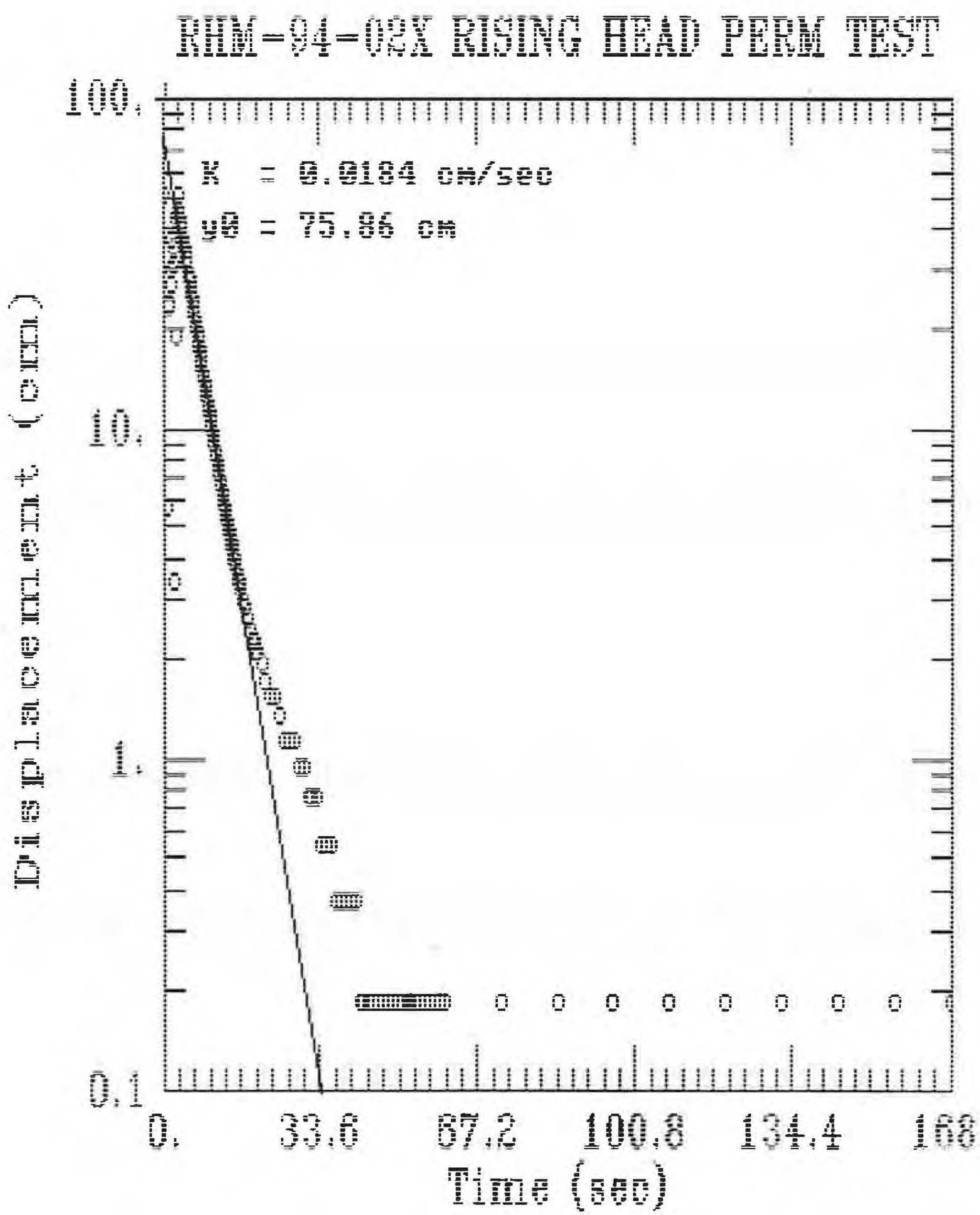


RHM-94-01X FALLING HEAD PERM TEST
K = 0.002145 cm/sec
y0 = 28.35 cm
Displacement (cm)
100.
10.
1.
0.1
0.
144.
288.
432.
576.
720.
Time (sec)


RHM-94-01X RISING HEAD PERM TEST
K = 0.003169 cm/sec
y0 = 57.05 cm
100.
10.
1.
0.1
Displacement (cm)
0.
84.
168.
252.
336.
420.
Time (sec)



RHM-94-02X FALLING HEAD PERM TEST
K = 0.001972 cm/sec
y0 = 6.687 cm
Displacement (cm)
100.
10.
1.
0.1
0.
55.
110.
165.
220.
275.
330.
Time (sec)


RHM-94-02X RISING HEAD PERM TEST
K = 0.0184 cm/sec
y0 = 75.86 cm
100.
10.
1.
0.1
Displacement (cm)
0.
33.6
67.2
100.8
134.4
168.
Time (sec)

RHM-94-01X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 9.15 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.0366	1.034	0.02	0.075
0.04	0.189	0.0233	1.147
0.0433	1.318	0.0266	1.444
0.0466	1.223	0.03	1.274
0.05	1.198	0.0333	0.637
0.0533	1.798	0.0366	0.756
0.0566	1.703	0.04	1.816
0.06	1.716	0.0433	1.822
0.0633	1.343	0.0466	1.822
0.0666	1.861	0.05	1.81
0.07	1.955	0.0533	1.791
0.0733	1.596	0.0566	1.772
0.0766	1.867	0.06	1.759
0.08	1.596	0.0633	1.753
0.0833	1.299	0.0666	1.74
0.0866	1.211	0.07	1.728
0.09	1.375	0.0733	1.721
0.0933	1.476	0.0766	1.702
0.0966	1.463	0.08	1.696
0.1	1.381	0.0833	1.677
0.1033	1.299	0.0866	1.671
0.1066	1.35	0.09	1.652
0.11	1.331	0.0933	1.646
0.1133	0.7	0.0966	1.639
0.1166	0.706	0.1	1.627
0.12	1.188	0.1033	1.62
0.1233	1.356	0.1066	1.608
0.1266	1.141	0.11	1.595
0.13	1.059	0.1133	1.583
0.1333	0.952	0.1166	1.57
0.1366	1.059	0.12	1.564
0.14	1.129	0.1233	1.551
0.1433	1.053	0.1266	1.545
0.1466	0.984	0.13	1.539
0.15	1.022	0.1333	1.526
0.1533	1.015	0.1366	1.52
0.1566	0.996	0.14	1.507
0.16	0.99	0.1433	1.494
0.1633	0.977	0.1466	1.488
0.1666	0.965	0.15	1.475
0.17	0.958	0.1533	1.469
0.1733	0.946	0.1566	1.463
0.1766	0.939	0.16	1.45
0.18	0.933	0.1633	1.444
0.1833	0.921	0.1666	1.438
0.1866	0.914	0.17	1.425
0.19	0.908	0.1733	1.412
0.1933	0.902	0.1766	1.406
0.1966	0.889	0.18	1.4
0.2	0.883	0.1833	1.387
0.2033	0.876	0.1866	1.381
0.2066	0.87	0.19	1.375
0.21	0.864	0.1933	1.362
0.2133	0.857	0.1966	1.356
0.2166	0.851	0.2	1.349
0.22	0.845	0.2033	1.337
0.2233	0.839	0.2066	1.33
0.2266	0.832	0.21	1.324
0.23	0.826	0.2133	1.311
0.2333	0.82	0.2166	1.305
0.2366	0.813	0.22	1.299

RHM-94-01X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 9.15 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.24	0.807	0.2233	1.286
0.2433	0.801	0.2266	1.28
0.2466	0.794	0.23	1.274
0.25	0.788	0.2333	1.267
0.2533	0.782	0.2366	1.255
0.2566	0.775	0.24	1.248
0.26	0.775	0.2433	1.242
0.2633	0.769	0.2466	1.236
0.2666	0.763	0.25	1.223
0.27	0.757	0.2533	1.217
0.2733	0.75	0.2566	1.211
0.2766	0.744	0.26	1.204
0.28	0.744	0.2633	1.198
0.2833	0.738	0.2666	1.185
0.2866	0.731	0.27	1.179
0.29	0.725	0.2733	1.173
0.2933	0.719	0.2766	1.166
0.2966	0.719	0.28	1.16
0.3	0.712	0.2833	1.154
0.3033	0.706	0.2866	1.147
0.3066	0.706	0.29	1.135
0.31	0.7	0.2933	1.129
0.3133	0.693	0.2966	1.122
0.3166	0.693	0.3	1.116
0.32	0.687	0.3033	1.11
0.3233	0.681	0.3066	1.103
0.3266	0.675	0.31	1.097
0.33	0.675	0.3133	1.091
0.3333	0.668	0.3166	1.078
0.35	0.649	0.32	1.072
0.3666	0.624	0.3233	1.065
0.3833	0.611	0.3266	1.059
0.4	0.592	0.33	1.053
0.4166	0.574	0.3333	1.047
0.4333	0.555	0.35	1.015
0.45	0.542	0.3666	0.977
0.4666	0.523	0.3833	0.946
0.4833	0.511	0.4	0.914
0.5	0.498	0.4166	0.883
0.5166	0.485	0.4333	0.857
0.5333	0.473	0.45	0.826
0.55	0.46	0.4666	0.801
0.5666	0.447	0.4833	0.775
0.5833	0.435	0.5	0.744
0.6	0.428	0.5166	0.725
0.6166	0.416	0.5333	0.7
0.6333	0.41	0.55	0.674
0.65	0.397	0.5666	0.656
0.6666	0.384	0.5833	0.63
0.6833	0.378	0.6	0.611
0.7	0.372	0.6166	0.592
0.7166	0.359	0.6333	0.574
0.7333	0.353	0.65	0.555
0.75	0.34	0.6666	0.536
0.7666	0.334	0.6833	0.517
0.7833	0.328	0.7	0.498
0.8	0.321	0.7166	0.485
0.8166	0.315	0.7333	0.466
0.8333	0.309	0.75	0.447
0.85	0.302	0.7666	0.435
0.8666	0.296	0.7833	0.422

RHM-94-01X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 9.15 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.8833	0.283	0.8	0.403
0.9	0.277	0.8166	0.391
0.9166	0.271	0.8333	0.378
0.9333	0.271	0.85	0.365
0.95	0.264	0.8666	0.359
0.9666	0.258	0.8833	0.346
0.9833	0.252	0.9	0.334
1	0.246	0.9166	0.321
1.2	0.182	0.9333	0.315
1.4	0.138	0.95	0.302
1.6	0.107	0.9666	0.296
1.8	0.088	0.9833	0.283
2	0.063	1	0.277
2.2	0.056	1.2	0.176
2.4	0.044	1.4	0.119
2.6	0.037	1.6	0.088
2.8	0.031	1.8	0.063
3	0.025	2	0.056
3.2	0.025	2.2	0.044
3.4	0.018	2.4	0.037
3.6	0.012	2.6	0.031
3.8	0.018	2.8	0.025
4	0.018	3	0.025
4.2	0.012	3.2	0.018
4.4	0.018	3.4	0.018
4.6	0.018	3.6	0.018
4.8	0.018	3.8	0.012
5	0.018	4	0.012
5.2	0.012	4.2	0.012
5.4	0.012	4.4	0.012
5.6	0.012	4.6	0.006
5.8	0.012	4.8	0.006
6	0.012	5	0.006
6.2	0.018	5.2	0.006
6.4	0.018	5.4	0.006
6.6	0.018	5.6	0.006
6.8	0.018	5.8	0.006
7	0.018	6	0.006
7.2	0.018	6.2	0.006
7.4	0.012	6.4	0.006
7.6	0.012	6.6	0
7.8	0.012	6.8	0.006
8	0.018	7	0.006
8.2	0.018	7.2	0
8.4	0.018	7.4	0
8.6	0.018	7.6	0
8.8	0.018	7.8	0
9	0.018	8	0
9.2	0.012	8.2	0
9.4	0.012	8.4	0
9.6	0.018	8.6	0
9.8	0.018	8.8	0
10	0.018	9	0
12	0.012		

RHM-94-02X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 7.58 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.0366	0.075	0.0166	0.189
0.04	0.523	0.02	0.775
0.0433	0.643	0.0233	0.794
0.0466	0.901	0.0266	1.217
0.05	0.624	0.03	1.002
0.0533	0.933	0.0333	0.889
0.0566	0.914	0.0366	1.015
0.06	1.261	0.04	1.172
0.0633	1.179	0.0433	0.113
0.0666	1.173	0.0466	0.624
0.07	1.11	0.05	1.431
0.0733	1.318	0.0533	1.683
0.0766	1.255	0.0566	1.513
0.08	0.908	0.06	1.45
0.0833	0.819	0.0633	1.387
0.0866	0.876	0.0666	1.33
0.09	0.756	0.07	1.267
0.0933	0.643	0.0733	1.223
0.0966	0.775	0.0766	1.16
0.1	0.718	0.08	1.116
0.1033	0.712	0.0833	1.072
0.1066	0.737	0.0866	1.027
0.11	0.693	0.09	0.977
0.1133	0.7	0.0933	0.945
0.1166	0.536	0.0966	0.908
0.12	0.252	0.1	0.845
0.1233	0.34	0.1033	0.832
0.1266	0.403	0.1066	0.8
0.13	0.706	0.11	0.756
0.1333	0.599	0.1133	0.725
0.1366	0.637	0.1166	0.693
0.14	0.447	0.12	0.662
0.1433	0.428	0.1233	0.636
0.1466	0.227	0.1266	0.605
0.15	0.372	0.13	0.58
0.1533	0.51	0.1333	0.554
0.1566	0.081	0.1366	0.529
0.16	0.094	0.14	0.51
0.1633	0.422	0.1433	0.485
0.1666	0.51	0.1466	0.466
0.17	0.271	0.15	0.447
0.1733	0.34	0.1533	0.428
0.1766	0.391	0.1566	0.409
0.18	0.346	0.16	0.39
0.1833	0.365	0.1633	0.372
0.1866	0.365	0.1666	0.359
0.19	0.327	0.17	0.346
0.1933	0.378	0.1733	0.327
0.1966	0.34	0.1766	0.315
0.2	0.353	0.18	0.302
0.2033	0.327	0.1833	0.29
0.2066	0.353	0.1866	0.277
0.21	0.327	0.19	0.271
0.2133	0.334	0.1933	0.258
0.2166	0.334	0.1966	0.245
0.22	0.321	0.2	0.239
0.2233	0.283	0.2033	0.227
0.2266	0.239	0.2066	0.22
0.23	0.283	0.21	0.208
0.2333	0.29	0.2133	0.208
0.2366	0.189	0.2166	0.195
0.24	0.176	0.22	0.189

RHM-94-02X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 7.58 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.2433	0.201	0.2233	0.182
0.2466	0.214	0.2266	0.176
0.25	0.182	0.23	0.17
0.2533	0.138	0.2333	0.163
0.2566	0.189	0.2366	0.157
0.26	0.195	0.24	0.151
0.2633	0.271	0.2433	0.145
0.2666	0.227	0.2466	0.145
0.27	0.315	0.25	0.138
0.2733	0.201	0.2533	0.132
0.2766	0.208	0.2566	0.132
0.28	0.157	0.26	0.126
0.2833	0.17	0.2633	0.119
0.2866	0.189	0.2666	0.119
0.29	0.176	0.27	0.113
0.2933	0.176	0.2733	0.113
0.2966	0.176	0.2766	0.107
0.3	0.176	0.28	0.107
0.3033	0.176	0.2833	0.1
0.3066	0.17	0.2866	0.1
0.31	0.17	0.29	0.094
0.3133	0.17	0.2933	0.094
0.3166	0.17	0.2966	0.094
0.32	0.163	0.3	0.088
0.3233	0.163	0.3033	0.088
0.3266	0.163	0.3066	0.081
0.33	0.163	0.31	0.081
0.3333	0.163	0.3133	0.081
0.35	0.151	0.3166	0.075
0.3666	0.145	0.32	0.075
0.3833	0.138	0.3233	0.075
0.4	0.138	0.3266	0.075
0.4166	0.132	0.33	0.069
0.4333	0.126	0.3333	0.069
0.45	0.126	0.35	0.063
0.4666	0.126	0.3666	0.056
0.4833	0.119	0.3833	0.05
0.5	0.119	0.4	0.05
0.5166	0.113	0.4166	0.044
0.5333	0.113	0.4333	0.037
0.55	0.107	0.45	0.037
0.5666	0.107	0.4666	0.037
0.5833	0.107	0.4833	0.031
0.6	0.107	0.5	0.031
0.6166	0.1	0.5166	0.025
0.6333	0.1	0.5333	0.025
0.65	0.1	0.55	0.025
0.6666	0.094	0.5666	0.018
0.6833	0.094	0.5833	0.018
0.7	0.094	0.6	0.018
0.7166	0.088	0.6166	0.012
0.7333	0.088	0.6333	0.012
0.75	0.088	0.65	0.012
0.7666	0.088	0.6666	0.012
0.7833	0.081	0.6833	0.012
0.8	0.081	0.7	0.006
0.8166	0.081	0.7166	0.006
0.8333	0.075	0.7333	0.006
0.85	0.075	0.75	0.006
0.8666	0.075	0.7666	0.006
0.8833	0.075	0.7833	0.006
0.9	0.069	0.8	0.006

RHM-94-02X PERMEABILITY TESTING
RAILROAD ROUNDHOUSE, FORT DEVENS, MA

WELL DIAM.: 0.33 FT; BORING DIAM.: 0.83 FT; SAT. SCREEN LENGTH: 7.58 FT.

FALLING HEAD TEST		RISING HEAD TEST	
0.9166	0.069	0.8166	0.006
0.9333	0.069	0.8333	0.006
0.95	0.069	0.85	0.006
0.9666	0.069	0.8666	0.006
0.9833	0.069	0.8833	0.006
1	0.063	0.9	0.006
1.2	0.056	0.9166	0.006
1.4	0.056	0.9333	0.006
1.6	0.05	0.95	0.006
1.8	0.044	0.9666	0.006
2	0.044	0.9833	0.006
2.2	0.044	1	0.006
2.4	0.044	1.2	0.006
2.6	0.044	1.4	0.006
2.8	0.044	1.6	0.006
3	0.044	1.8	0.006
3.2	0.044	2	0.006
3.4	0.037	2.2	0.006
3.6	0.037	2.4	0.006
3.8	0.037	2.6	0.006
4	0.037	2.8	0.006
4.2	0.037	3	0
4.4	0.037	3.2	0
4.6	0.031	3.4	0
4.8	0.031		
5	0.037		
5.2	0.037		
5.4	0.037		

CALCULATION OF HYDRAULIC CONDUCTIVITIES USING THE HVORSLEV EQUATION
RAILROAD ROUNDHOUSE MONITORING WELLS
SUPPLEMENTAL SI

K = -[(LOG Ht1 - LOG Ht2)/(t1 - t2)]{[(r)^2 LOG (L/R)]/2L}

WHERE:

t1 = TIME 1 (MINUTES)
t2 = TIME 2 (MINUTES)
Ht1 = HEAD STRESS AT TIME 1 (FEET)
Ht2 = HEAD STRESS AT TIME 2 (FEET)
r = RADIUS OF WELL CASING (FEET)
R = RADUS OF BOREHOLE (FEET)
L = EFFECTIVE SATURATED LENGTH OF SCREEN (FEET)

WELL	t1	t2	Ht1	Ht2	r	R	L	TYPE	K (FT/MIN)	K (CM/SEC)
RHM-94-01X	0.2	1	0.883	0.246	0.167	0.417	9.15	FALLING	1.4E-03	7.2E-04
RHM-94-01X	0.3	0.7	1.116	0.498	0.167	0.417	9.15	RISING	1.8E-03	9.1E-04
RHM-94-02X	0.3	0.5	0.176	0.119	0.167	0.417	7.58	FALLING	2.0E-03	1.0E-03
RHM-94-02X	0.07	0.15	1.267	0.447	0.167	0.417	7.58	RISING	1.3E-02	6.7E-03

PROJECT ANALYTE LIST

FORT DEVENS PROJECT ANALYTE LIST

Project Analyte List Inorganics

AL	ALUMINUM
SB	ANTIMONY
AS	ARSENIC
BA	BARIUM
BE	BERYLLIUM
CD	CADMIUM
CA	CALCIUM
CR	CHROMIUM
CO	COBALT
CU	COPPER
FE	IRON
PB	LEAD
MG	MAGNESIUM
MN	MANGANESE
HG	MERCURY
NI	NICKEL
K	POTASSIUM
SE	SELENIUM
AG	SILVER
NA	SODIUM
TL	THALLIUM
V	VANADIUM
ZN	ZINC

Project Analyte List Explosives

135TNB	1,3,5-TRINITROBENZENE
13DNB	1,3-DINITROBENZENE
246TNT	2,4,6-TRINITROTOLUENE
24DNT	2,4-DINITROTOLUENE
26DNT	2,6-DINITROTOLUENE
HMX	CYCLOTETRAMETHYLENETETRANITRAMINE
NB	NITROBENZENE
RDX	CYCLONITE
TETRYL	NITRAMINE
NG	NITROGLYCERINE
PETN	PENTAERYTHRITOL TETRANITRATE

Project Analyte List Anions/Cations

HCO3	BICARBONATE
CL	CHLORIDE
SO4	SULFATE
NO_3	NITRATE
CA	CALCIUM
K	POTASSIUM
MG	MAGNESIUM

Project Analyte List Water Quality Parameters

CL	CHLORIDES
N2KJEL	TOTAL NITROGEN
NIT	NO_3-N
SO4	SULFATES
TPO4	TOTAL PHOSPHORUS
--	HARDNESS
ALK	ALKALINITY
TSS	TOTAL SUSPENDED SOLIDS
DO	DISSOLVED OXYGEN
	COLIFORM

Project Analyte List Organics

Volatile Organic Compounds:

111TCE	1,1,1-TRICHLOROETHANE
112TCE	1,1,2-TRICHLOROETHANE
11DCE	1,1-DICHLOROETHYLENE / 1,1-DICHLOROETHENE
11DCLE	1,1-DICHLOROETHANE
12DCE	1,2-DICHLOROETHYLENES, TOTAL (CIS AND TRANS ISOMERS)
12DCLE	1,2-DICHLOROETHANE
12DCLP	1,2-DICHLOROPROPANE
ACET	ACETONE
BRDCLM	BROMODICHLOROMETHANE
C2AVE	ACETIC ACID, VINYL ETHER/VINYL ACETATE
C2H3CL	CHLOROETHENE / VINYL CHLORIDE
C2H5CL	CHLOROETHANE
C6H6	BENZENE
CCL4	CARBON TETRACHLORIDE
CH3BR	BROMOMETHANE
CH3CL	CHLOROMETHANE
CHBR3	BROMOFORM

C13DCP	CIS-1,3-DICHLOROPROPYLENE C+S-1,3-DICHLOROPROPENE
CHCL3	CHLOROFORM
CL2CH2	DICHLOROMETHANE/METHYLENE CHLORIDE
CLC6H5	CHLOROBENZENE
CS2	CARBON DISULFIDE
DBRCLM	DIBROMOCHLOROMETHANE
ETC6H5	ETHYLBENZENE
MEC6H5	TOLUENE
MEK	METHYLETHYL KETONE / 2-BUTANONE
MIBK	METHYLISOBUTYL KETONE
MNBK	METHYL-N-BUTYL KETONE / 2-HEXANONE
STYR	STYRENE
T13DCP	TRANS-1,3-DICHLOROPROPENE
TCLEA	1,1,2,2-TETRACHLOROETHANE
TCLEE	TETRACHLOROETHYLENE / TETRACHLOROETHENE
TRCLE	TRICHLOROETHYLENE / TRICHLOROETHENE
TXYLEN	XYLENES, TOTAL COMBINED

Project Analyte List Organics

Semivolatile Compounds:

124TCB	1,2,4-TRICHLOROBENZENE
12DCLB	1,2-DICHLOROBENZENE
13DCLB	1,3-DICHLOROBENZENE
14DCLB	1,4-DICHLOROBENZENE
245TCP	2,4,5-TRICHLOROPHENOL
246TCP	2,4,6-TRICHLOROPHENOL
24DCLP	2,4-DICHLOROPHENOL
24DMPN	2,4-DIMETHYLPHENOL
24DNP	2,4-DINITROPHENOL
24DNT	2,4-DINITROTOLUENE
26DNT	2,6-DINITROTOLUENE
2CLP	2-CHLOROPHENOL
2CNAP	2-CHLORONAPHTHALENE
2MNAP	2-METHYLNAPHTHALENE
2MP	2-METHYLPHENOL / 2-CRESOL
2NANIL	2-NITROANILINE
2NP	2-NITROPHENOL
33DCBD	3,3'-DICHLOROBENZIDINE
3NANIL	3-NITROANILINE
46DN2C	4,6-DINITRO-2-CRESOL / METHYL-4,6-DINITROPHENOL
4BRPPE	4-BROMOPHENYLPHENYL ETHER
4CANIL	4-CHLOROANILINE

4CL3C	4-CHLORO-3-CRESOL / 3-METHYL-4-CHLOROPHENOL
4CLPPE	4-CHLOROPHENYLPHENYL ETHER
4MP	4-METHYLPHENOL / 4-CRESOL
4NANIL	4-NITROANILINE
4NP	4-NITROPHENOL
ANAPNE	ACENAPHTHENE
ANAPYL	ACENAPHTHYLENE
ANTRC	ANTHRACENE
B2CEXM	BIS (2-CHLOROETHOXY) METHANE
B2CIPE	BIS (2-CHLOROISOPROPYL) ETHER
B2CLEE	BIS (2-CHLOROETHYL) ETHER/2,2´-OXYBIS(1-CHLOROPROPANE)
B2EHP	BIS (2-ETHYLHEXYL) PHTHALATE
BAANTR	BENZO [A] ANTHRACENE
BAPYR	BENZO [A] PYRENE
BBFANT	BENZO [B] FLUORANTHENE
BBZP	BUTYLBENZYL PHTHALATE
BGHIPY	BENZO [G,H,I] PERYLENE
BKFANT	BENZO [K] FLUORANTHENE
BZALC	BENZYL ALCOHOL
CARBAZ	CARBAZOLE
CHRY	CHRYSENE
CL6BZ	HEXACHLOROBENZENE
CL6CP	HEXACHLOROCYCLOPENTADIENE
CL6ET	HEXACHLOROETHANE
DBAHA	DIBENZ [A,H] ANTHRACENE
DBZFUR	DIBENZOFURAN
DEP	DIETHYL PHTHALATE
DMP	DIMETHYL PHTHALATE
DNBP	DI-N-BUTYL PHTHALATE
DNOP	DI-N-OCTYL PHTHALATE
FANT	FLUORANTHENE
FLRENE	FLUORENE
HCBD	HEXACHLOROBUTADIENE
ICDPYR	INDENO [1,2,3-C,D] PYRENE
ISOPHR	ISOPHORONE
NAP	NAPHTHALENE
NB	NITROBENZENE
NNDNPA	N-NITROSO DI-N-PROPYLAMINE
NNDPA	N-NITROSO DIPHENYLAMINE
PCP	PENTACHLOROPHENOL
PHANTR	PHENANTHRENE
PHENOL	PHENOL
PYR	PYRENE

Project Analyte List Organics

Pesticides and PCBs:

ABHC	ALPHA-BENZENEHEXACHLORIDE / ALPHA-HEXACHLOROCYCLOHEXANE
ACLDAN	ALPHA CHLORDANE
AENSLF	ALPHA-ENDOSULFAN / ENDOSULFAN I
ALDRN	ALDRIN
BBHC	BETA-BENZENEHEXACHLORIDE / BETA-HEXACHLOROCYCLOHEXANE
BENSLF	BETA-ENDOSULFAN / ENDOSULFAN II
DBHC	DELTA-BENZENEHEXACHLORIDE / DELTA-HEXACHLOROCYCLOHEXANE
DLDRN	DIELDRIN
ENDRN	ENDRIN
ENDRNA	ENDRIN ALDEHYDE
ENDRNK	ENDRIN KETONE
ESFSO4	ENDOSULFAN SULFATE
GCLDAN	GAMMA-CHLORDANE
HPCL	HEPTACHLOR
HPCLE	HEPTACHLOR EPOXIDE
LIN	LINDANE / GAMA-BENZENEHEXACHLORIDE / GAMMA-HEXACHLOROCYCLOHEXANE
MEXCLR	METHOXYCHLOR
PCB016	PCB 1016
PCB221	PCB 1221
PCB232	PCB 1232
PCB242	PCB 1242
PCB248	PCB 1248
PCB254	PCB 1254
PCB260	PCB 1260
PPDDD	2,2-BIS (PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE
PPDDE	2,2-BIS (PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE
PPDDT	2,2-BIS (PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE
TXPHEN	TOXAPHENE

ANALYTICAL DATA QUALITY EVALUATION

RAILROAD ROUNDHOUSE ANALYTICAL DATA QUALITY EVALUATION

1.0 INTRODUCTION

This data quality evaluation assesses data from analysis of laboratory and field quality control samples, matrix spike (MS) samples, and field duplicate samples for Supplemental Site Investigation (SSI) activities conducted at the railroad roundhouse. The analytical data were generated by the U.S. Army Environmental Center (USAEC) performance-demonstrated laboratory, Environmental Science and Engineering. Inc. (ESE) from soil and water samples collected during the summer of 1994. All data used in this report came from the USAEC Installation Restoration Data Management Information System (IRDMIS). This appendix discusses only samples collected during the railroad roundhouse SSI.

Laboratory analytical methods for Project Analyte List (PAL) organics and inorganics are similar to U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) Routine Analytical Services and support Level III data quality. In accordance with the USAEC Quality Assurance Program, laboratories must achieve a satisfactory performance demonstration in performing chemical analysis for specific analytes. Table E-1 lists and briefly describes analytical methods for which ESE has demonstrated performance proficiency and provides equivalent USEPA method numbers where they exist. Appendix C of the Project Operations Plan (POP) provides more detailed descriptions of the analytical methods used by ESE (ABB-ES, 1993).

Laboratories demonstrate performance by first submitting data from analysis of calibration standards and then performance samples sent to the laboratory by USAEC. The concentrations of the analytes in these performance samples are unknown by the laboratory. The data are sent to USAEC where the precision and accuracy of the analyses are determined. Approval is either awarded to or denied the laboratory based on the laboratory's performance. An analytical method code is assigned to each method and reported with results. Certified Reporting Limits (CRLs) are also determined from this process. CRLs of the target analytes for the railroad roundhouse samples are listed in Tables E-2, E-3 and E-4

Some methods such as alkalinity, total organic carbon (TOC), and total suspended solids (TSS) do not require performance demonstration. USAEC recognizes standard USEPA protocols or internal laboratory methods for these parameters. Laboratories are required to submit information on procedures for analyzing samples using these methods to the USAEC Chemistry Branch before they are implemented.

2.0 LABORATORY QUALITY CONTROL SAMPLES

Laboratory quality control samples included in the railroad roundhouse sampling program consisted of method blanks. Method blanks were analyzed to determine if analytes were introduced at the laboratory during processing of the field samples. The laboratory used chemically pure deionized water to prepare water method blanks at the laboratory. The method blanks were analyzed following the same procedures used to analyze field samples. Any compounds or elements detected in the water method blanks were attributed to laboratory contamination. A Rocky Mountain soil was used for soil method blanks.

Railroad roundhouse method blanks were analyzed for PAL inorganics, PAL semivolatile organic compounds (SVOCs), TOC, TSS, total dissolved solids (TDS), hardness, and alkalinity. Method blank results are presented in Table E-5.

<u>Inorganics</u>

Soil method blanks were analyzed using USAEC methods JB01, JD15, JD17, JD19, JD24, JD25, and JS16. Water method blanks were analyzed using USAEC methods SB01, SD09, SD20, SD21, SD22, SD28 and SS10.

Railroad roundhouse method blanks were analyzed for the following elements: aluminum, antimony, arsenic, barium, beryllium, calcium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, tin, vanadium, and zinc. None of the above elements were detected in the water method blank. This indicated that there was no laboratory contamination introduced in the analysis of the water method blanks.

Elements detected in concentrations above CRL in the soil method blanks are listed in the following table.

ELEMENT	FREQUENCY OF DETECTION	CONCENTRATION ($\mu g/g$)
Aluminum	2/2	457/272
Barium	2/2	7.7/6.3
Calcium	2/2	256/240
Iron	2/2	788/513
Lead	2/2	0.759/0.725
Magnesium	1/2	131
Manganese	2/2	23.8/18.8
Potassium	2/2	170/104

The above detections of inorganics are believed to be representative of background concentrations present in the soil used for the soil method blanks at the laboratory. The detections reported for the various elements are not thought to represent laboratory contamination.

SVOCs

USAEC methods LM18 and UM18 were used to analyze soil and water method blanks, respectively, for SVOC contamination. The only SVOC detected at concentrations above CRL was mesityl oxide (4-methyl-3-penten-2-one) at 0.3 micrograms per gram ($\mu g/g$). This compound is often produced in the laboratory as an artifact of the aldol condensation product of acetone.

Other Methods

Method blank data were also available for the following parameters: TOC, TSS, TDS, hardness, and alkalinity. All method blanks had reported values below CRL for all of the above parameters.

3.0 FIELD QUALITY CONTROL SAMPLES

Seven rinsate blank samples were collected during the railroad roundhouse sampling program as field quality control samples to assess the potential for sample contamination during collection activities from incomplete or inadequate equipment decontamination. Rinsate samples were collected at the rate of one per 20 samples per decontamination event. Trip blanks were not collected, because no volatile organic compound (VOC) analyses were completed at the laboratory. The rinsate blanks were analyzed for PAL inorganics, PAL SVOCs, TSS, TDS, TOC, alkalinity, and hardness. Rinsate blank results are found in Table E-6.

Inorganics

Rinsate blanks were analyzed for the following elements: aluminum, antimony, arsenic, barium, beryllium, calcium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, tin, vanadium, and zinc.

The following table summarizes elements that were reported for the seven rinsate blanks. All of the elements included in the table were detected and reported for the rinsate SBK-07. Concentrations of all elements were below the CRLs for all of the other rinsate blanks with the exception of iron at 50 micrograms per liter (μg/L) for SBK-04.

ELEMENT DETECTED	FREQUENCY OF DETECTION	CONCENTRATION RANGE (μg/L)
Calcium	1/7	562
Copper	1/7	26.9
Iron	2/7	50 to 93.1
Lead	1/7	4.66
Manganese	1/7	3.44
Sodium	1/7	777
Zinc	1/7	41.8

The reported concentrations of target elements below the CRLs for six of the seven rinsate blanks indicate that, in general, decontamination procedures were effective in the removal of residual inorganic contamination from the sampling equipment. The presence of elements above CRLs in SBK-07 may reflect incomplete decontamination of sampling equipment.

SVOCs

USAEC method UM18 was used to measure SVOCs in the seven rinsate blanks. Two contaminants were reported in these blanks: di-n-butyl phthalate and methyl isobutyl ketone (MIBK). Di-n-butyl phthalate was reported in all seven rinsate blanks at concentrations ranging from 3.5 $\mu g/L$ to 11 $\mu g/L$. Di-n-butyl phthalate is a member of the family of phthalate esters which have been classified by USEPA as common laboratory contaminants.

MIBK was reported in the rinsates SBK-02, SBK-03, SBK-04, SBK-05 and SBK-06. The concentrations at which this compound was reported were fairly consistent at 6 to 7 $\mu g/L$. MIBK was not reported in any of the laboratory method blanks or sample results. MIBK has been classified as a aldol condensation reaction product of acetone. Since acetone is used as a solvent in the extraction of SVOCs, the presence of MIBK in the rinsate blanks may be a result of aldol condensation.

Other Methods

The rinsate blanks SBK-01, SBK-02, SBK-03, SBK-04, SBK-05 and SBK-06 were analyzed for TOC. The concentrations for this parameter in all rinsates were below the CRL. The rinsate blank SBK-07 was also analyzed for TSS, TDS, TOC, alkalinity, and hardness. The concentrations for all of these parameters were below respective CRLs except for TOC. A result of 2,000 $\mu g/L$ was measured for this parameter. As with the inorganics, this may represent incomplete decontamination of sampling equipment.

4.0 MATRIX SPIKE SAMPLES

MS and matrix spike duplicate (MSD) samples were collected at a rate of one per 20 environmental samples to assess the effect of the sample matrix on spike recoveries of inorganics, SVOCs, hardness, and TOC. The criteria used for interpreting MS/MSD data are from the USEPA Contract Laboratory Program (CLP) analytical protocols and the POP, Volume III.

All MS/MSD results are tabulated and presented in Table E-7. Data have been segregated by method to show recovery trends for particular analytes. MS results have been paired with corresponding MSD results to make recovery comparisons. The relative percent differences (RPDs) between recoveries of the MS and MSD results have been calculated and are included in the table. The RPD was used to measure the analytical precision of the results. The average recoveries, and maximum and minimum recoveries for each method are also included as a way of assessing accuracy and trends.

The percent recovery calculation from Table E-7 was also used to assess the accuracy of the respective methods. USEPA CLP criteria, where applicable, and MS protocols specified in the Fort Devens POP, Vol. III, were used to assess the recoveries of these analytes. The RPD was also calculated to provide a measure of the precision of the analyses.

Inorganics

Analysis of MS samples for the railroad roundhouse included three soil samples and one water sample. The soil samples were identified as SXRH0400, SXRH0500 and DXRH0200. The water sample was identified as MXRH01X1. The following elements were included in the water and soil spikes:

- aluminum
- antimony
- arsenic
- barium
- beryllium
- cadmium
- calcium
- chromium
- cobalt
- copper
- iron
- lead
- magnesium
- manganese
- mercury
- nickel
- potassium
- selenium
- silver
- sodium
- thallium
- tin
- vanadium
- zinc

For the water sample MXRH10X1 there are two sets of data which represent spike recoveries for filtered and unfiltered samples. The filtered results are differentiated from the unfiltered by the lab ID. The filtered sample will have an "F" as the fourth character whereas the unfiltered sample has a "W" in this position. Water MS results were assessed based on a USEPA CLP guideline of

+/- 25 percent of 100 percent. The following table summarizes MS recoveries of elements for the water sample MXRH01X1 which did not meet CLP criteria.

ELEMENT	MS/MSD PERCENT RECOVERY	RPD
Arsenic	173/157	9.9
Iron	95/52	58.1
Lead	120/15.8	154
Thallium	70/70	0
Tin	20/20	0

The RPDs of the water spike results were below 10 percent for arsenic, thallium, and tin. This showed consistency for the results of these elements even though the recoveries did not meet USEPA standards. Water sample results for thallium and tin may be biased low based on the spike recoveries for the MS/MSD. Conversely, water sample results for arsenic may be biased high since MS recoveries for this element were consistently over the USEPA CLP limit. Lead and iron spike recoveries had high RPDs, indicating inconsistency that may be due to matrix effects.

Inorganic soil MS results were also assessed using USEPA CLP criteria of +/- 25 percent of 100 percent. Soil recoveries which did not meet this criteria are summarized below.

ELEMENT	SAMPLE ID	MS/MSD PERCENT RECOVERY	RPD
Aluminum	DXRH0200 SXRH0400 SXRH1302	0.7/0.8 1.0/1.0 64/36	0.3 3.3 54.8
Antimony	SXRH0500	414.7/96.2	124.3
Arsenic	SXRH0400 SXRH0500	199.6/167.3 97.6/56.6	53.2 17.6
Barium	DXRH0200 SXRH0400	6.6/6.6 79.7/51.4	0.0 43.1
Calcium	DXRH0200	1.3/1.3	0.0
Chromium	DXRH0200	135.0/114.6	16.3
Copper	DXRH0200 SXRH0400	1.2/1.2 53.5/119.7	0.0 98.8
Iron	DXRH0200 SXRH0400	904.5/235.0 515.4/348.7	117.5 38.6
Lead	DXRH0200	176.6/113.2	43.8
Manganese	DXRH0200	157.1/101.7	42.8
Nickel	DXRH0200	125.9/121.9	3.2
Selenium	DXRH0200	112.3/52.9	73.0
Thallium	DXRH0200	129.3/116.7	10.2

The recoveries of aluminum, barium, calcium, and copper for all samples are well below USEPA recovery criteria for inorganics. Recoveries for these elements were below 10 percent for at least one sample for each element. The RPD for MS/MSD results for DXRH0200 was below 1 percent, indicating there was little variability. Concentrations of these elements in DXRH0200 and other sediment samples may be biased low due to matrix effects. MS/MSD spike recoveries of chromium, iron, manganese, nickel, selenium, and thallium for DXRH0200 also did not meet CLP specifications.

The MS/MSD recoveries of iron for the soil samples DXRH0200 and SXRH0400 were both very high. The method blank data for the lot (ZFXB) in which these samples were run did not indicate that there was any contamination introduced at the laboratory. Percent recoveries may have been influenced by native concentrations of iron in the soil, although corrections for this are built into the formula used to calculate percent recoveries. Sample concentrations of iron may also be biased high based on the MS data.

5.0 FIELD DUPLICATE SAMPLES

Field duplicate samples were collected at a rate of one per 20 environmental samples. The purpose of analyzing duplicate samples was to measure the variability and reproducibility of the sampling and analytical procedures. This assessment was made using USEPA Region I guidelines and the RPD, calculated as the difference between the maximum and minimum result, divided by the average of all results. Duplicates were identified in the database by using a "D" as the second character of the sample ID. Duplicate data are presented for the railroad roundhouse in Table E-8.

There were a total of three railroad roundhouse duplicates collected during the 1994 summer field effort. There were two soil (one of these was a sediment sample) and one water sample. The two soil samples are DXRH0300 and SXRH1200. The water sample was identified as MXRH02X1. Duplicate analysis was performed for inorganics and SVOCs.

Inorganics

Duplicate sets of water and soil samples were analyzed for the following elements:

- aluminum
- antimony
- arsenic
- barium
- beryllium
- cadmium
- calcium
- chromium
- cobalt
- copper
- iron
- lead
- magnesium
- manganese
- mercury
- nickel
- potassium
- selenium
- silver
- sodium
- thallium
- tin
- vanadium
- zinc

The USEPA Region 1 criteria for the RPD of inorganics in duplicate pairs of soil samples is 50 percent. The RPDs of sample/duplicate concentrations exceeded this limit for antimony at 61.4 percent and selenium at 63.1 percent.

The RPD exceedance for selenium was reported for the soil sample DXRH0300. The RPD exceedance for antimony was reported for the soil sample SXRH1200. The RPDs of the results for all other elements met USEPA specifications, indicating good sampling and analytical precision.

Only two elements did not meet USEPA Region I criteria for the water sample MXRH02X1. These elements were copper and zinc. The RPD of the unfiltered water sample/duplicate for copper was 94.6 percent. The RPDs of the unfiltered and filtered water sample/duplicate pairs for zinc were 134.8 percent and 59.1 percent, respectively. While the differences of reported results for these elements are high, the results for all of the other elements were considered consistent by USEPA standards.

SVOCs

The water sample MXRH02X1 and its associated duplicate were used to measure the precision of SVOC analysis using method UM18. The USEPA Region I criteria used to measure this precision is 30 percent RPD between duplicate sample SVOC results. The RPDs for all SVOC results were under this USEPA limit. This indicated that there was little variability for reported SVOC concentrations.

Two soil samples, SXRH1200 and DXRH0300, and their associated duplicates were used to assess the precision of the soil data using USAEC method LM18. The USEPA Region I criteria used to measure this precision is 50 percent RPD between duplicate soil SVOC concentrations. Compounds which did not meet this criteria are listed below. As presented in the following table, the data reflect general disagreement of low-level results. The reason many of the results did not meet USEPA criteria may be due to non-homogeneity in the samples.

COMPOUND	SAMPLE ID	RESULTS ($\mu g/g$)	RPD
2-Methylnaphthalene	SXRH1200/SDRH1200	0.2/< 0.1	66.7
Acenaphthene	SXRH1200/SDRH1200 DXRH0300/DDRH0300	0.4/< 0.2 0.8/0.1	155.6 66.7
Acenaphthylene	DXRH0300/DDRH0300	0.8/0.4	66.7
Benzo(a)anthracene	SXRH1200/SDRH1200 DXRH0300/DXRH0300	< 0.8/2.0 2.0/1.0	85.7 66.7
Benzo(a)pyrene	SXRH1200/SDRH1200	2.0/1.0	66.7
Benzo(b)fluoranthene	DXRH0300/DDRH0300	2.0/< 1.0	66.7
Benzo(k)fluoranthene	DXRH0300/DDRH0300	< 0.3/2.0	147.5
Carbazole	SXRH1200/SDRH1200	0.4/< 0.2	66.7
Chrysene	DXRH0300/DDRH0300	< 0.6/3.0	133.3
Dibenzofuran	SXRH1200/SDRH1200	0.9/0.2	75.9
Fluoranthene	DXRH0300/DDRH0300	5.0/2.0	85.7
Fluorene	SXRH1200/SDRH1200 DXRH0300/DDRH0300	0.4/< 0.2 0.2/0.1	66.7 66.7
Naphthalene	SXRH1200/SDRH1200	0.2/0.1	66.7
Phenanthrene	SXRH1200/SDRH1200 DXRH0300/DDRH0300	4.0/2.0 4.0/2.0	66.7 66.7
Pyrene	SXRH1200/SDRH1200 DXRH0300/DDRH0300	0.9/3.0 5.0/2.0	107.7 85.7

TABLE E−1
LIST OF AEC METHODS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTGATION
FORT DEVENS, MA

USATHAMA METHOD NUMBER	COMPARABLE EPA METHOD NUMBER	METHOD DESCRIPTION
JB01	7471	MERCURY IN SOIL BY CVAA.
JD15	7740	SELENIUM IN SOIL BY GFAA.
JD16	7911	VANADIUM IN SOIL BY GFAA.
JD17	7421	LEAD IN SOIL BY GFAA.
JD18	7761	SILVER IN SOIL BY GFAA.
JD19	7060	ARSENIC IN SOIL BY GFAA.
JD24	7841	THALLIUM IN SOIL BY GFAA
JS16	6010	METALS IN SOIL BY ICP.
LM18	8270	EXTRACTABLE ORGANICS IN SOIL BY GC/MS.
SB01	245.1	MERCURY IN WATER BY CVAA.
SD09	279.2	THALLIUM IN WATER BY GFAA
SD20	239.2	LEAD IN WATER BY GFAA.
SD21	270.2	SELENIUM IN WATER BY GFAA.
SD22	206.2	ARSENIC IN WATER BY GFAA.
SD23	272.2	SILVER IN WATER BY GFAA.
SD28	204.2	ANTIMONY IN WATER BY GFAA
SS10	200.7	METALS IN WATER BY ICAP.
UM18	625	EXTRACTABLE ORGANICS IN WATER BY GC/MS.
N/A	415.1	TOTAL ORGANIC CARBON
N/A	160.1	TOTAL DISSOLVED SOLIDS
N/A	160.2	TOTAL SUSPENDED SOLIDS
N/A	130.2	HARDNESS
N/A	310.1	ALKALINITY

TABLE E-2
SUMMARY OF CERTIFIED REPORTING LIMITS
SEMIVOLATILE ORGANIC COMPOUNDS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

COMPOUND	CERTIFIED REPORTING LIMIT USATHAMA METHOD UM20 WATER ANALYSIS (ug/L)	 USATHAMA METHOD LM19 SOIL ANALYSIS (ug/g)
1,2,4-Trichlorobenzene	1.8	0.04
1,2-Dichlorobenzene	1.7	0.11
1,3-Dichlorobenzene	1.7	0.13
1,4-Dichlorobenzene	1.7	0.098
2,4,5-Trichlorophenol	5.2	0.1
2,4-Dichlorophenol	2.9	0.18
2,4-Dimethylphenol	5.8	0.69
2,4-Dinitrophenol	21	1.2
2,4-Dinitrotoluene	4.5	0.14
2-Chlorophenol	0.99	0.06
2-Chloronaphthalene	0.5	0.036
2-Methylnaphthalene	1.7	0.049
2-Nitroaniline	4.3	0.062
2-Methylphenol	3.9	0.029
2-Nitrophenol	3.7	0.14
3,3-Dichlorobenzidine	12	6.3
3-Nitroaniline	4.9	0.45
2-Methyl-4,6-Dinitrophenol	17	0.55
4-Bromophenylphenyl ether	4.2	0.033
3-Methyl-4-Chlorophenol	4.0	0.095
4-Chlorophenylphenyl ether	5.1	0.033
4-Methylphenol	0.52	0.24
4-Nitroaniline	5.2	0.41
4-Nitrophenol	12	1.4
Acenaphthene	1.7	0.036
Acenaphthylene	0.5	0.033
Anthracene	0.5	0.033
bis (2-Chlorethoxy) methane	1.5	0.059
bis (2-Chloroisopropyl) ether	5.3	0.2
bis (2-Chloroethyl) ether	1.9	0.033
bis (2-Ethylhexyl) phthalate	4.8	0.62
Benzo(a)anthracene	1.6	0.17
Benzo(a)pyrene	4.7	0.25
Benzo(b)fluoranthene	5.4	0.21
Butylbenzylphthalate	3.4	0.17

TABLE E-2
SUMMARY OF CERTIFIED REPORTING LIMITS
SEMIVOLATILE ORGANIC COMPOUNDS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

COMPOUND	CERTIFIED REPORTING LIMIT USATHAMA METHOD UM18 WATER ANALYSIS (ug/L)	USATHAMA METHOD LM18 SOIL ANALYSIS (ug/g)
Benzo(g,h,i)perylene	6.1	0.25
Benzo(k)fluoranthene	0.87	0.066
Benzyl Alcohol	0.72	0.19
Butylbenzylphthalate	3.4	0.17
Chrysene	2.4	0.12
Hexachlorobenzene	1.6	0.033
Hexachlorocyclopentadiene	8.6	6.2
Hexachloroethane	1.5	0.15
Dibenz(a,h)anthracene	6.5	0.21
Dibenzofuran	1.7	0.035
Diethylphthalate	2.0	0.24
Dimethylphthalate	1.5	0.17
Di-n-butylphthalate	3.7	0.061
Fluoranthene	3.3	0.068
Fluorene	3.7	0.033
Hexachlorobutadiene	3.4	0.23
Indeno(1,2,3-cd)pyrene	8.6	0.29
Isophorone	4.8	0.033
Naphthalene	0.5	0.037
Nitrobenzene	0.5	0.045
N-Nitroso di-n-propylamine	4.4	0.2
N-Nitrosodiphenylamine	3.0	0.19
Pentachlorophenol	18	1.3
Phenanthrene	0.5	0.033
Phenol	9.2	0.11
Pyrene	2.8	0.033
2,4,6-Trichlorophenol	4.2	0.17
2,6-Dinitrotoluene	0.79	0.085
4-Chloroaniline	7.3	0.81
Di-n-octylphthalate	15	0.19
Carbazole	N/A	N/A

TABLE E-3
SUMMARY OF CERTIFIED REPORTING LIMITS
OF INORGANICS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROIUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
ALUMINUM (Al)	WATER	SS10	ICP	141 ug/L
	SOIL	JS16	ICP	2.35 ug/g
	WATER	SS10	ICP	38 ug/L
ANTIMONY (Sb)	SOIL	JS16	ICP	7.14 ug/g
	WATER	SD28	GFAA	3.03 ug/L
	SOIL	JD25	GFAA	1.09 ug/g
ARSENIC (As)	WATER	SD22	GFAA	2.54 ug/L
	SOIL	JD19	GFAA	0.25 ug/g
BARIUM (Ba)	WATER	SS10	ICP	5.0 ug/L
	SOIL	JS16	ICP	5.18 ug/g
BERYLLIUM (Be)	WATER	SS10	ICP	5.0 ug/L
	SOIL	JS16	ICP	0.50 ug/g
CADMIUM (Cd)	WATER	SS10	ICP	4.01 ug/L
	SOIL	JS16	ICP	0.70 ug/g
CALCIUM (Ca)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
CHROMIUM (Cr)	WATER	SS10	ICP	6.02 ug/L
	SOIL	JS16	ICP	4.05 ug/g
COBALT (Co)	WATER	SS10	ICP	25 ug/L
	SOIL	JS16	ICP	1.42 ug/g
COPPER (Cu)	WATER	SS10	ICP	8.09 ug/L
	SOIL	JS16	ICP	0.965 ug/g
IRON (Fe)	WATER	SS10	ICP	42.7 ug/L
	SOIL	JS16	ICP	3.68 ug/g
	WATER	SS10	ICP	18.6 ug/L
LEAD (Pb)	SOIL	JS16	ICP	10.5 ug/g
	WATER	SD20	GFAA	1.26 ug/L
	SOIL	JD17	GFAA	0.177 ug/g
MAGNESIUM (Mg)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
MANGANESE (Mn)	WATER	SS10	ICP	2.75 ug/L
	SOIL	JS16	ICP	2.05 ug/g
MERCURY (Hg)	WATER	SB01	CVAA	0.243 ug/L
	SOIL	JB01	CVAA	0.05 ug/g
NICKEL (Ni)	WATER	SS10	ICP	34.3 ug/L
	SOIL	JS16	ICP	1.71 ug/g

TABLE E-3
SUMMARY OF CERTIFIED REPORTING LIMITS
OF INORGANICS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
POTASSIUM (K)	WATER	SS10	ICP	375 ug/L
	SOIL	JS16	ICP	100 ug/g
SELENIUM (Se)	WATER	SD21	GFAA	3.02 ug/L
	SOIL	JS16	GFAA	2.42 ug/g
SILVER (Ag)	WATER	SD23	GFAA	0.25 ug/L
	SOIL	JD18	GFAA	.025 ug/g
	WATER	SS10	ICP	4.60 ug/L
	SOIL	JS16	ICP	0.589 ug/g
SODIUM (Na)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
THALLIUM (Tl)	WATER	SD09	GFAA	6.99 ug/L
	SOIL	JD24	GFAA	6.62 ug/g
TIN (Sn)	WATER	SS10	ICP	47.1 ug/L
	SOIL	JS16	ICP	5 ug/g
VANADIUM (V)	WATER	SS10	ICP	11.0 ug/L
	SOIL	JS16	ICP	3.39 ug/g
ZINC (Zn)	WATER	SS10	ICP	21.1 ug/L
	SOIL	JS16	ICP	8.03 ug/g

TABLE E-4
SUMMARY OF CERTIFIED REPORTING LIMITS
OF MISCELLANEOUS METHODS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
TOTAL ORGANIC CARBON	WATER	NO CERTIFIED METHOD	EPA METHOD 415.1	1000 ug/L
	SOIL		GRAVIMETRIC	100 ug/g
ALKALINITY	WATER	NO CERTIFIED METHOD	EPA METHOD 310.1	5000 ug/L
HARDNESS	WATER		EPA METHOD 130.2	1000 ug/L
TOTAL SUSPENDED SOLIDS	WATER	NO CERTIFIED METHOD	EPA METHOD 160.2	4000 ug/L
TOTAL DISSOLVED SOLIDS	WATER	NO CERTIFIED METHOD	EPA METHOD 160.1	10000 ug/L
COLIFORMS	WATER	NO CERTIFIED METHOD		

TABLE E-1
LIST OF AEC METHODS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

USATHAMA METHOD NUMBER	COMPARABLE EPA METHOD NUMBER	METHOD DESCRIPTION
JB01	7471	MERCURY IN SOIL BY CVAA.
JD15	7740	SELENIUM IN SOIL BY GFAA.
JD16	7911	VANADIUM IN SOIL BY GFAA.
JD17	7421	LEAD IN SOIL BY GFAA.
JD18	7761	SILVER IN SOIL BY GFAA.
JD19	7060	ARSENIC IN SOIL BY GFAA.
JD24	7841	THALLIUM IN SOIL BY GFAA
JS16	6010	METALS IN SOIL BY ICP.
LM18	8270	EXTRACTABLE ORGANICS IN SOIL BY GC/MS.
SB01	245.1	MERCURY IN WATER BY CVAA.
SD09	279.2	THALLIUM IN WATER BY GFAA
SD20	239.2	LEAD IN WATER BY GFAA.
SD21	270.2	SELENIUM IN WATER BY GFAA.
SD22	206.2	ARSENIC IN WATER BY GFAA.
SD23	272.2	SILVER IN WATER BY GFAA.
SD28	204.2	ANTIMONY IN WATER BY GFAA
SS10	200.7	METALS IN WATER BY ICAP.
UM18	625	EXTRACTABLE ORGANICS IN WATER BY GC/MS.
N/A	415.1	TOTAL ORGANIC CARBON
N/A	160.1	TOTAL DISSOLVED SOLIDS
N/A	160.2	TOTAL SUSPENDED SOLIDS
N/A	130.2	HARDNESS
N/A	310.1	ALKALINITY

TABLE E-2
SUMMARY OF CERTIFIED REPORTING LIMITS
SEMIVOLATILE ORGANIC COMPOUNDS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

COMPOUND	CERTIFIED REPORTING LIMIT USATHAMA METHOD UM20 WATER ANALYSIS (ug/L)	USATHAMA METHOD LM19 SOIL ANALYSIS (ug/g)
1,2,4-Trichlorobenzene	1.8	0.04
1,2-Dichlorobenzene	1.7	0.11
1,3-Dichlorobenzene	1.7	0.13
1,4-Dichlorobenzene	1.7	0.098
2,4,5-Trichlorophenol	5.2	0.1
2,4-Dichlorophenol	2.9	0.18
2,4-Dimethylphenol	5.8	0.69
2,4-Dinitrophenol	21	1.2
2,4-Dinitrotoluene	4.5	0.14
2-Chlorophenol	0.99	0.06
2-Chloronaphthalene	0.5	0.036
2-Methylnaphthalene	1.7	0.049
2-Nitroaniline	4.3	0.062
2-Methylphenol	3.9	0.029
2-Nitrophenol	3.7	0.14
3,3-Dichlorobenzidine	12	6.3
3-Nitroaniline	4.9	0.45
2-Methyl-4,6-Dinitrophenol	17	0.55
4-Bromophenylphenyl ether	4.2	0.033
3-Methyl-4-Chlorophenol	4.0	0.095
4-Chlorophenylphenyl ether	5.1	0.033
4-Methylphenol	0.52	0.24
4-Nitroaniline	5.2	0.41
4-Nitrophenol	12	1.4
Acenaphthene	1.7	0.036
Acenaphthylene	0.5	0.033
Anthracene	0.5	0.033
bis (2-Chlorethoxy) methane	1.5	0.059
bis (2-Chloroisopropyl) ether	5.3	0.2
bis (2-Chloroethyl) ether	1.9	0.033
bis (2-Ethylhexyl) phthalate	4.8	0.62
Benzo(a)anthracene	1.6	0.17
Benzo(a)pyrene	4.7	0.25
Benzo(b)fluoranthene	5.4	0.21
Butylbenzylphthalate	3.4	0.17

TABLE E-2
SUMMARY OF CERTIFIED REPORTING LIMITS
SEMIVOLATILE ORGANIC COMPOUNDS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

COMPOUND	CERTIFIED REPORTING LIMIT USATHAMA METHOD UM18 WATER ANALYSIS (ug/L)	CERTIFIED REPORTING LIMIT USATHAMA METHOD LM18 SOIL ANALYSIS (ug/g)
Benzo(g,h,i)perylene	6.1	0.25
Benzo(k)fluoranthene	0.87	0.066
Benzyl Alcohol	0.72	0.19
Butylbenzylphthalate	3.4	0.17
Chrysene	2.4	0.12
Hexachlorobenzene	1.6	0.033
Hexachlorocyclopentadiene	8.6	6.2
Hexachloroethane	1.5	0.15
Dibenz(a,h)anthracene	6.5	0.21
Dibenzofuran	1.7	0.035
Diethylphthalate	2.0	0.24
Dimethylphthalate	1.5	0.17
Di-n-butylphthalate	3.7	0.061
Fluoranthene	3.3	0.068
Fluorene	3.7	0.033
Hexachlorobutadiene	3.4	0.23
Indeno(1,2,3-cd)pyrene	8.6	0.29
Isophorone	4.8	0.033
Naphthalene	0.5	0.037
Nitrobenzene	0.5	0.045
N-Nitroso di-n-propylamine	4.4	0.2
N-Nitrosodiphenylamine	3.0	0.19
Pentachlorophenol	18	1.3
Phenanthrene	0.5	0.033
Phenol	9.2	0.11
Pyrene	2.8	0.033
2,4,6-Trichlorophenol	4.2	0.17
2,6-Dinitrotoluene	0.79	0.085
4-Chloroaniline	7.3	0.81
Di-n-octylphthalate	15	0.19
Carbazole	N/A	N/A

TABLE E-3
SUMMARY OF CERTIFIED REPORTING LIMITS
OF INORGANICS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
ALUMINUM (Al)	WATER	SS10	ICP	141 ug/L
	SOIL	JS16	ICP	2.35 ug/g
	WATER	SS10	ICP	38 ug/L
ANTIMONY (Sb)	SOIL	JS16	ICP	7.14 ug/g
	WATER	SD28	GFAA	3.03 ug/L
	SOIL	JD25	GFAA	1.09 ug/g
ARSENIC (As)	WATER	SD22	GFAA	2.54 ug/L
	SOIL	JD19	GFAA	0.25 ug/g
BARIUM (Ba)	WATER	SS10	ICP	5.0 ug/L
	SOIL	JS16	ICP	5.18 ug/g
BERYLLIUM (Be)	WATER	SS10	ICP	5.0 ug/L
	SOIL	JS16	ICP	0.50 ug/g
CADMIUM (Cd)	WATER	SS10	ICP	4.01 ug/L
	SOIL	JS16	ICP	0.70 ug/g
CALCIUM (Ca)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
CHROMIUM (Cr)	WATER	SS10	ICP	6.02 ug/L
	SOIL	JS16	ICP	4.05 ug/g
COBALT (Co)	WATER	SS10	ICP	25 ug/L
	SOIL	JS16	ICP	1.42 ug/g
COPPER (Cu)	WATER	SS10	ICP	8.09 ug/L
	SOIL	JS16	ICP	0.965 ug/g
IRON (Fe)	WATER	SS10	ICP	42.7 ug/L
	SOIL	JS16	ICP	3.68 ug/g
	WATER	SS10	ICP	18.6 ug/L
LEAD (Pb)	SOIL	JS16	ICP	10.5 ug/g
	WATER	SD20	GFAA	1.26 ug/L
	SOIL	JD17	GFAA	0.177 ug/g
MAGNESIUM (Mg)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
MANGANESE (Mn)	WATER	SS10	ICP	2.75 ug/L
	SOIL	JS16	ICP	2.05 ug/g
MERCURY (Hg)	WATER	SB01	CVAA	0.243 ug/L
	SOIL	JB01	CVAA	0.05 ug/g
NICKEL (Ni)	WATER	SS10	ICP	34.3 ug/L
	SOIL	JS16	ICP	1.71 ug/g

TABLE E-3
SUMMARY OF CERTIFIED REPORTING LIMITS
OF INORGANICS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
POTASSIUM (K)	WATER	SS10	ICP	375 ug/L
	SOIL	JS16	ICP	100 ug/g
SELENIUM (Se)	WATER	SD21	GFAA	3.02 ug/L
	SOIL	JS16	GFAA	2.42 ug/g
SILVER (Ag)	WATER	SD23	GFAA	0.25 ug/L
	SOIL	JD18	GFAA	.025 ug/g
	WATER	SS10	ICP	4.60 ug/L
	SOIL	JS16	ICP	0.589 ug/g
SODIUM (Na)	WATER	SS10	ICP	500 ug/L
	SOIL	JS16	ICP	100 ug/g
THALLIUM (Tl)	WATER	SD09	GFAA	6.99 ug/L
	SOIL	JD24	GFAA	6.62 ug/g
TIN (Sn)	WATER	SS10	ICP	47.1 ug/L
	SOIL	JS16	ICP	5 ug/g
VANADIUM (V)	WATER	SS10	ICP	11.0 ug/L
	SOIL	JS16	ICP	3.39 ug/g
ZINC (Zn)	WATER	SS10	ICP	21.1 ug/L
	SOIL	JS16	ICP	8.03 ug/g

TABLE E-4
SUMMARY OF CERTIFIED REPORTING LIMITS
OF MISCELLANEOUS METHODS
RAILROAD ROUNDHOUSE SAMPLES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

PARAMETER	MATRIX	USATHAMA METHOD NUMBER	METHOD DESCRIPTION	CERTIFIED REPORTING LIMIT
TOTAL ORGANIC	WATER	NO CERTIFIED	EPA METHOD 415.1	1000 ug/L
CARBON	SOIL	METHOD	GRAVIMETRIC	100 ug/g
ALKALINITY	WATER	NO CERTIFIED	EPA METHOD 310.1	5000 ug/L
HARDNESS	WATER	METHOD	EPA METHOD 130.2	1000 ug/L
TOTAL SUSPENDED SOLIDS	WATER	NO CERTIFIED METHOD	EPA METHOD 160.2	4000 ug/L
TOTAL PETROLEUM HYDROCARBONS	WATER	NO CERTIFIED METHOD	EPA METHOD 418.1	180 ug/L

TABLE E-5

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
1302	TEDV	HARD				04-AUG-94	04-AUG-94	<	1000	UGL	
	TEFX	HARD				16-AUG-94	16-AUG-94	<	1000	UGL	
1601	TEZV	TDS				08-AUG-94	08-AUG-94	<	10000	UGL	
	TEZV	TDS				08-AUG-94	08-AUG-94	<	10000	UGL	
1602	TEXV	TSS				04-AUG-94	04-AUG-94	<	4000	UGL	
	TEYV	TSS				09-AUG-94	09-AUG-94	<	4000	UGL	
3101	TEFV	ALK				08-AUG-94	08-AUG-94	<	5000	UGL	
	TEFV	ALK				08-AUG-94	08-AUG-94	<	5000	UGL	
4151	TERV	TOC				12-AUG-94	12-AUG-94	<	1000	UGL	
9060	ZEBE	TOC				01-AUG-94	01-AUG-94	<	360	UGG	
	ZECE	TOC				02-AUG-94	02-AUG-94	<	360	UGG	
	ZEHE	TOC				09-AUG-94	09-AUG-94	<	360	UGG	
JB01	QHPB	HG				24-JUL-94	24-JUL-94	<	.05	UGG	
	QHQB	HG				05-AUG-94	06-AUG-94	<	.05	UGG	
JD15	MBNB	SE				26-JUL-94	27-JUL-94	<	.25	UGG	
	MBOB	SE				03-AUG-94	09-AUG-94	<	.25	UGG	
JD17	OBIB	PB				26-JUL-94	01-AUG-94		.759	UGG	
	OBJB	PB				03-AUG-94	09-AUG-94		.725	UGG	
JD19	QBNB	AS				26-JUL-94	27-JUL-94	<	.25	UGG	
	QBOB	AS				03-AUG-94	08-AUG-94	<	.25	UGG	
JD24	RBFA	TL				26-JUL-94	26-JUL-94	<	.5	UGG	
	RBGA	TL				03-AUG-94	08-AUG-94	<	.5	UGG	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
JD25	SBRA	SB				26-JUL-94	02-AUG-94	<	1.09	UGG	
	SBSA	SB				03-AUG-94	11-AUG-94	<	1.09	UGG	
JS16	UBCC	AG				03-AUG-94	08-AUG-94	<	.589	UGG	
	UBCC	AL				03-AUG-94	08-AUG-94		457	UGG	
	UBCC	BA				03-AUG-94	08-AUG-94		7.7	UGG	
	UBCC	BE				03-AUG-94	08-AUG-94	<	.5	UGG	
	UBCC	CA				03-AUG-94	08-AUG-94		256	UGG	
	UBCC	CD				03-AUG-94	08-AUG-94	<	.7	UGG	
	UBCC	CO				03-AUG-94	08-AUG-94	<	1.42	UGG	
	UBCC	CR				03-AUG-94	08-AUG-94	<	4.05	UGG	
	UBCC	CU				03-AUG-94	08-AUG-94	<	.965	UGG	
	UBCC	FE				03-AUG-94	08-AUG-94		788	UGG	
	UBCC	K				03-AUG-94	08-AUG-94		170	UGG	
	UBCC	MG				03-AUG-94	08-AUG-94		131	UGG	
	UBCC	MN				03-AUG-94	08-AUG-94		23.8	UGG	
	UBCC	NA				03-AUG-94	08-AUG-94	<	100	UGG	
	UBCC	NI				03-AUG-94	08-AUG-94	<	1.71	UGG	
	UBCC	PB				03-AUG-94	08-AUG-94	<	10.5	UGG	
	UBCC	SN				03-AUG-94	08-AUG-94	<	5	UGG	
	UBCC	V				03-AUG-94	08-AUG-94	<	3.39	UGG	
	UBCC	ZN				03-AUG-94	08-AUG-94	<	8.03	UGG	
	UBZB	AG				27-JUL-94	28-JUL-94	<	.589	UGG	
	UBZB	AL				27-JUL-94	28-JUL-94		272	UGG	
	UBZB	BA				27-JUL-94	28-JUL-94		6.3	UGG	
	UBZB	BE				27-JUL-94	28-JUL-94	<	.5	UGG	
	UBZB	CA				27-JUL-94	28-JUL-94		240	UGG	
	UBZB	CD				27-JUL-94	28-JUL-94	<	.7	UGG	
	UBZB	CO				27-JUL-94	28-JUL-94	<	1.42	UGG	
	UBZB	CR				27-JUL-94	28-JUL-94	<	4.05	UGG	
	UBZB	CU				27-JUL-94	28-JUL-94	<	.965	UGG	
	UBZB	FE				27-JUL-94	28-JUL-94		513	UGG	
	UBZB	K				27-JUL-94	28-JUL-94		104	UGG	

Chemical Quality Control Report
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Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
JS16	UBZB	MG				27-JUL-94	28-JUL-94	<	100	UGG	
	UBZB	MN				27-JUL-94	28-JUL-94		18.8	UGG	
	UBZB	NA				27-JUL-94	28-JUL-94	<	100	UGG	
	UBZB	NI				27-JUL-94	28-JUL-94	<	1.71	UGG	
	UBZB	PB				27-JUL-94	28-JUL-94	<	10.5	UGG	
	UBZB	SN				27-JUL-94	28-JUL-94	<	4.8	UGG	
	UBZB	V				27-JUL-94	28-JUL-94	<	3.39	UGG	
	UBZB	ZN				27-JUL-94	28-JUL-94	<	8.03	UGG	
LM18	OERB	124TCB				11-JUL-94	30-JUL-94	<	.04	UGG	
	OERB	12DCLB				11-JUL-94	30-JUL-94	<	.11	UGG	
	OERB	12DPH				11-JUL-94	30-JUL-94	<	.14	UGG	
	OERB	13DCLB				11-JUL-94	30-JUL-94	<	.13	UGG	
	OERB	14DCLB				11-JUL-94	30-JUL-94	<	.098	UGG	
	OERB	245TCP				11-JUL-94	30-JUL-94	<	.1	UGG	
	OERB	246TCP				11-JUL-94	30-JUL-94	<	.17	UGG	
	OERB	24DCLP				11-JUL-94	30-JUL-94	<	.18	UGG	
	OERB	24DMPN				11-JUL-94	30-JUL-94	<	.69	UGG	
	OERB	24DNP				11-JUL-94	30-JUL-94	<	1.2	UGG	
	OERB	24DNT				11-JUL-94	30-JUL-94	<	.14	UGG	
	OERB	26DNT				11-JUL-94	30-JUL-94	<	.085	UGG	
	OERB	2CLP				11-JUL-94	30-JUL-94	<	.06	UGG	
	OERB	2CNAP				11-JUL-94	30-JUL-94	<	.036	UGG	
	OERB	2MNAP				11-JUL-94	30-JUL-94	<	.049	UGG	
	OERB	2MP				11-JUL-94	30-JUL-94	<	.029	UGG	
	OERB	2NANIL				11-JUL-94	30-JUL-94	<	.062	UGG	
	OERB	2NP				11-JUL-94	30-JUL-94	<	.14	UGG	
	OERB	33DCBD				11-JUL-94	30-JUL-94	<	6.3	UGG	
	OERB	3NANIL				11-JUL-94	30-JUL-94	<	.45	UGG	
	OERB	46DN2C				11-JUL-94	30-JUL-94	<	.55	UGG	
	OERB	4BRPPE				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	4CANIL				11-JUL-94	30-JUL-94	<	.81	UGG	
	OERB	4CL3C				11-JUL-94	30-JUL-94	<	.095	UGG	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OERB	4CLPPE				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	4MP				11-JUL-94	30-JUL-94	<	.24	UGG	
	OERB	4NANIL				11-JUL-94	30-JUL-94	<	.41	UGG	
	OERB	4NP				11-JUL-94	30-JUL-94	<	1.4	UGG	
	OERB	ABHC				11-JUL-94	30-JUL-94	<	.27	UGG	
	OERB	ACLDAN				11-JUL-94	30-JUL-94	<	.33	UGG	
	OERB	AENSLF				11-JUL-94	30-JUL-94	<	.62	UGG	
	OERB	ALDRN				11-JUL-94	30-JUL-94	<	.33	UGG	
	OERB	ANAPNE				11-JUL-94	30-JUL-94	<	.036	UGG	
	OERB	ANAPYL				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	ANTRC				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	B2CEXM				11-JUL-94	30-JUL-94	<	.059	UGG	
	OERB	B2CIPE				11-JUL-94	30-JUL-94	<	.2	UGG	
	OERB	B2CLEE				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	B2EHP				11-JUL-94	30-JUL-94	<	.62	UGG	
	OERB	BAANTR				11-JUL-94	30-JUL-94	<	.17	UGG	
	OERB	BAPYR				11-JUL-94	30-JUL-94	<	.25	UGG	
	OERB	BBFANT				11-JUL-94	30-JUL-94	<	.21	UGG	
	OERB	BBHC				11-JUL-94	30-JUL-94	<	.27	UGG	
	OERB	BBZP				11-JUL-94	30-JUL-94	<	.17	UGG	
	OERB	BENSLF				11-JUL-94	30-JUL-94	<	.62	UGG	
	OERB	BENZID				11-JUL-94	30-JUL-94	<	.85	UGG	
	OERB	BENZOA				11-JUL-94	30-JUL-94	<	6.1	UGG	
	OERB	BGHIPY				11-JUL-94	30-JUL-94	<	.25	UGG	
	OERB	BKFANT				11-JUL-94	30-JUL-94	<	.066	UGG	
	OERB	BZALC				11-JUL-94	30-JUL-94	<	.19	UGG	
	OERB	CARBAZ				11-JUL-94	30-JUL-94	<	.1	UGG	
	OERB	CHRY				11-JUL-94	30-JUL-94	<	.12	UGG	
	OERB	CL6BZ				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	CL6CP				11-JUL-94	30-JUL-94	<	6.2	UGG	
	OERB	CL6ET				11-JUL-94	30-JUL-94	<	.15	UGG	
	OERB	DBAHA				11-JUL-94	30-JUL-94	<	.21	UGG	
	OERB	DBHC				11-JUL-94	30-JUL-94	<	.27	UGG	

Chemical Quality Control Report
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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OERB	DBZFUR				11-JUL-94	30-JUL-94	<	.035	UGG	
	OERB	DEP				11-JUL-94	30-JUL-94	<	.24	UGG	
	OERB	DLDRN				11-JUL-94	30-JUL-94	<	.31	UGG	
	OERB	DMP				11-JUL-94	30-JUL-94	<	.17	UGG	
	OERB	DNBP				11-JUL-94	30-JUL-94	<	.061	UGG	
	OERB	DNOP				11-JUL-94	30-JUL-94	<	.19	UGG	
	OERB	ENDRN				11-JUL-94	30-JUL-94	<	.45	UGG	
	OERB	ENDRNA				11-JUL-94	30-JUL-94	<	.53	UGG	
	OERB	ENDRNK				11-JUL-94	30-JUL-94	<	.53	UGG	
	OERB	ESFSO4				11-JUL-94	30-JUL-94	<	.62	UGG	
	OERB	FANT				11-JUL-94	30-JUL-94	<	.068	UGG	
	OERB	FLRENE				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	GCLDAN				11-JUL-94	30-JUL-94	<	.33	UGG	
	OERB	HCBD				11-JUL-94	30-JUL-94	<	.23	UGG	
	OERB	HPCL				11-JUL-94	30-JUL-94	<	.13	UGG	
	OERB	HPCLE				11-JUL-94	30-JUL-94	<	.33	UGG	
	OERB	ICDPYR				11-JUL-94	30-JUL-94	<	.29	UGG	
	OERB	ISOPHR				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	LIN				11-JUL-94	30-JUL-94	<	.27	UGG	
	OERB	MEXCLR				11-JUL-94	30-JUL-94	<	.33	UGG	
	OERB	NAP				11-JUL-94	30-JUL-94	<	.037	UGG	
	OERB	NB				11-JUL-94	30-JUL-94	<	.045	UGG	
	OERB	NNDMEA				11-JUL-94	30-JUL-94	<	.14	UGG	
	OERB	NNDNPA				11-JUL-94	30-JUL-94	<	.2	UGG	
	OERB	NNDPA				11-JUL-94	30-JUL-94	<	.19	UGG	
	OERB	PCB016				11-JUL-94	30-JUL-94	<	1.4	UGG	
	OERB	PCB221				11-JUL-94	30-JUL-94	<	1.4	UGG	
	OERB	PCB232				11-JUL-94	30-JUL-94	<	1.4	UGG	
	OERB	PCB242				11-JUL-94	30-JUL-94	<	1.4	UGG	
	OERB	PCB248				11-JUL-94	30-JUL-94	<	2	UGG	
	OERB	PCB254				11-JUL-94	30-JUL-94	<	2.3	UGG	
	OERB	PCB260				11-JUL-94	30-JUL-94	<	2.6	UGG	
	OERB	PCP				11-JUL-94	30-JUL-94	<	1.3	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OERB	PHANTR				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	PHENOL				11-JUL-94	30-JUL-94	<	.11	UGG	
	OERB	PPDDD				11-JUL-94	30-JUL-94	<	.27	UGG	
	OERB	PPDDE				11-JUL-94	30-JUL-94	<	.31	UGG	
	OERB	PPDDT				11-JUL-94	30-JUL-94	<	.31	UGG	
	OERB	PYR				11-JUL-94	30-JUL-94	<	.033	UGG	
	OERB	TXPHEN				11-JUL-94	30-JUL-94	<	2.6	UGG	
	OESB	124TCB				20-JUL-94	09-AUG-94	<	.04	UGG	
	OESB	124TCB				20-JUL-94	31-JUL-94	<	.04	UGG	
	OESB	12DCLB				20-JUL-94	09-AUG-94	<	.11	UGG	
	OESB	12DCLB				20-JUL-94	31-JUL-94	<	.11	UGG	
	OESB	12DPH				20-JUL-94	09-AUG-94	<	.14	UGG	
	OESB	12DPH				20-JUL-94	31-JUL-94	<	.14	UGG	
	OESB	13DCLB				20-JUL-94	09-AUG-94	<	.13	UGG	
	OESB	13DCLB				20-JUL-94	31-JUL-94	<	.13	UGG	
	OESB	14DCLB				20-JUL-94	09-AUG-94	<	.098	UGG	
	OESB	14DCLB				20-JUL-94	31-JUL-94	<	.098	UGG	
	OESB	245TCP				20-JUL-94	09-AUG-94	<	.1	UGG	
	OESB	245TCP				20-JUL-94	31-JUL-94	<	.1	UGG	
	OESB	246TCP				20-JUL-94	09-AUG-94	<	.17	UGG	
	OESB	246TCP				20-JUL-94	31-JUL-94	<	.17	UGG	
	OESB	24DCLP				20-JUL-94	09-AUG-94	<	.18	UGG	
	OESB	24DCLP				20-JUL-94	31-JUL-94	<	.18	UGG	
	OESB	24DMPN				20-JUL-94	09-AUG-94	<	.69	UGG	
	OESB	24DMPN				20-JUL-94	31-JUL-94	<	.69	UGG	
	OESB	24DNP				20-JUL-94	09-AUG-94	<	1.2	UGG	
	OESB	24DNP				20-JUL-94	31-JUL-94	<	1.2	UGG	
	OESB	24DNT				20-JUL-94	09-AUG-94	<	.14	UGG	
	OESB	24DNT				20-JUL-94	31-JUL-94	<	.14	UGG	
	OESB	26DNT				20-JUL-94	09-AUG-94	<	.085	UGG	
	OESB	26DNT				20-JUL-94	31-JUL-94	<	.085	UGG	
	OESB	2CLP				20-JUL-94	09-AUG-94	<	.06	UGG	
	OESB	2CLP				20-JUL-94	31-JUL-94	<	.06	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	2CNAP				20-JUL-94	09-AUG-94	<	.036	UGG	
	OESB	2CNAP				20-JUL-94	31-JUL-94	<	.036	UGG	
	OESB	2MNAP				20-JUL-94	09-AUG-94	<	.049	UGG	
	OESB	2MNAP				20-JUL-94	31-JUL-94	<	.049	UGG	
	OESB	2MP				20-JUL-94	09-AUG-94	<	.029	UGG	
	OESB	2MP				20-JUL-94	31-JUL-94	<	.029	UGG	
	OESB	2NANIL				20-JUL-94	09-AUG-94	<	.062	UGG	
	OESB	2NANIL				20-JUL-94	31-JUL-94	<	.062	UGG	
	OESB	2NP				20-JUL-94	09-AUG-94	<	.14	UGG	
	OESB	2NP				20-JUL-94	31-JUL-94	<	.14	UGG	
	OESB	33DCBD				20-JUL-94	09-AUG-94	<	6.3	UGG	
	OESB	33DCBD				20-JUL-94	31-JUL-94	<	6.3	UGG	
	OESB	3NANIL				20-JUL-94	09-AUG-94	<	.45	UGG	
	OESB	3NANIL				20-JUL-94	31-JUL-94	<	.45	UGG	
	OESB	46DN2C				20-JUL-94	09-AUG-94	<	.55	UGG	
	OESB	46DN2C				20-JUL-94	31-JUL-94	<	.55	UGG	
	OESB	4BRPPE				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	4BRPPE				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	4CANIL				20-JUL-94	09-AUG-94	<	.81	UGG	
	OESB	4CANIL				20-JUL-94	31-JUL-94	<	.81	UGG	
	OESB	4CL3C				20-JUL-94	09-AUG-94	<	.095	UGG	
	OESB	4CL3C				20-JUL-94	31-JUL-94	<	.095	UGG	
	OESB	4CLPPE				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	4CLPPE				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	4MP				20-JUL-94	09-AUG-94	<	.24	UGG	
	OESB	4MP				20-JUL-94	31-JUL-94	<	.24	UGG	
	OESB	4NANIL				20-JUL-94	09-AUG-94	<	.41	UGG	
	OESB	4NANIL				20-JUL-94	31-JUL-94	<	.41	UGG	
	OESB	4NP				20-JUL-94	09-AUG-94	<	1.4	UGG	
	OESB	4NP				20-JUL-94	31-JUL-94	<	1.4	UGG	
	OESB	ABHC				20-JUL-94	09-AUG-94	<	.27	UGG	
	OESB	ABHC				20-JUL-94	31-JUL-94	<	.27	UGG	
	OESB	ACLDAN				20-JUL-94	09-AUG-94	<	.33	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	ACLDAN				20-JUL-94	31-JUL-94	<	.33	UGG	
	OESB	AENSLF				20-JUL-94	09-AUG-94	<	.62	UGG	
	OESB	AENSLF				20-JUL-94	31-JUL-94	<	.62	UGG	
	OESB	ALDRN				20-JUL-94	09-AUG-94	<	.33	UGG	
	OESB	ALDRN				20-JUL-94	31-JUL-94	<	.33	UGG	
	OESB	ANAPNE				20-JUL-94	09-AUG-94	<	.036	UGG	
	OESB	ANAPNE				20-JUL-94	31-JUL-94	<	.036	UGG	
	OESB	ANAPYL				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	ANAPYL				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	ANTRC				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	ANTRC				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	B2CEXM				20-JUL-94	09-AUG-94	<	.059	UGG	
	OESB	B2CEXM				20-JUL-94	31-JUL-94	<	.059	UGG	
	OESB	B2CIPE				20-JUL-94	09-AUG-94	<	.2	UGG	
	OESB	B2CIPE				20-JUL-94	31-JUL-94	<	.2	UGG	
	OESB	B2CLEE				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	B2CLEE				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	B2EHP				20-JUL-94	09-AUG-94	<	.62	UGG	
	OESB	B2EHP				20-JUL-94	31-JUL-94	<	.62	UGG	
	OESB	BAANTR				20-JUL-94	09-AUG-94	<	.17	UGG	
	OESB	BAANTR				20-JUL-94	31-JUL-94	<	.17	UGG	
	OESB	BAPYR				20-JUL-94	09-AUG-94	<	.25	UGG	
	OESB	BAPYR				20-JUL-94	31-JUL-94	<	.25	UGG	
	OESB	BBFANT				20-JUL-94	09-AUG-94	<	.21	UGG	
	OESB	BBFANT				20-JUL-94	31-JUL-94	<	.21	UGG	
	OESB	BBHC				20-JUL-94	09-AUG-94	<	.27	UGG	
	OESB	BBHC				20-JUL-94	31-JUL-94	<	.27	UGG	
	OESB	BBZP				20-JUL-94	09-AUG-94	<	.17	UGG	
	OESB	BBZP				20-JUL-94	31-JUL-94	<	.17	UGG	
	OESB	BENSLF				20-JUL-94	09-AUG-94	<	.62	UGG	
	OESB	BENSLF				20-JUL-94	31-JUL-94	<	.62	UGG	
	OESB	BENZID				20-JUL-94	09-AUG-94	<	.85	UGG	
	OESB	BENZID				20-JUL-94	31-JUL-94	<	.85	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	BENZOA				20-JUL-94	09-AUG-94	<	6.1	UGG	
	OESB	BENZOA				20-JUL-94	31-JUL-94	<	6.1	UGG	
	OESB	BGHIPY				20-JUL-94	09-AUG-94	<	.25	UGG	
	OESB	BGHIPY				20-JUL-94	31-JUL-94	<	.25	UGG	
	OESB	BKFANT				20-JUL-94	09-AUG-94	<	.066	UGG	
	OESB	BKFANT				20-JUL-94	31-JUL-94	<	.066	UGG	
	OESB	BZALC				20-JUL-94	09-AUG-94	<	.19	UGG	
	OESB	BZALC				20-JUL-94	31-JUL-94	<	.19	UGG	
	OESB	CARBAZ				20-JUL-94	09-AUG-94	<	.1	UGG	
	OESB	CARBAZ				20-JUL-94	31-JUL-94	<	.1	UGG	
	OESB	CHRY				20-JUL-94	09-AUG-94	<	.12	UGG	
	OESB	CHRY				20-JUL-94	31-JUL-94	<	.12	UGG	
	OESB	CL6BZ				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	CL6BZ				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	CL6CP				20-JUL-94	09-AUG-94	<	6.2	UGG	
	OESB	CL6CP				20-JUL-94	31-JUL-94	<	6.2	UGG	
	OESB	CL6ET				20-JUL-94	09-AUG-94	<	.15	UGG	
	OESB	CL6ET				20-JUL-94	31-JUL-94	<	.15	UGG	
	OESB	DBAHA				20-JUL-94	09-AUG-94	<	.21	UGG	
	OESB	DBAHA				20-JUL-94	31-JUL-94	<	.21	UGG	
	OESB	DBHC				20-JUL-94	09-AUG-94	<	.27	UGG	
	OESB	DBHC				20-JUL-94	31-JUL-94	<	.27	UGG	
	OESB	DBZFUR				20-JUL-94	09-AUG-94	<	.035	UGG	
	OESB	DBZFUR				20-JUL-94	31-JUL-94	<	.035	UGG	
	OESB	DEP				20-JUL-94	09-AUG-94	<	.24	UGG	
	OESB	DEP				20-JUL-94	31-JUL-94	<	.24	UGG	
	OESB	DLDRN				20-JUL-94	09-AUG-94	<	.31	UGG	
	OESB	DLDRN				20-JUL-94	31-JUL-94	<	.31	UGG	
	OESB	DMP				20-JUL-94	09-AUG-94	<	.17	UGG	
	OESB	DMP				20-JUL-94	31-JUL-94	<	.17	UGG	
	OESB	DNBP				20-JUL-94	09-AUG-94	<	.061	UGG	
	OESB	DNBP				20-JUL-94	31-JUL-94	<	.061	UGG	
	OESB	DNOP				20-JUL-94	09-AUG-94	<	.19	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	DNOP				20-JUL-94	31-JUL-94	<	.19	UGG	
	OESB	ENDRN				20-JUL-94	09-AUG-94	<	.45	UGG	
	OESB	ENDRN				20-JUL-94	31-JUL-94	<	.45	UGG	
	OESB	ENDRNA				20-JUL-94	09-AUG-94	<	.53	UGG	
	OESB	ENDRNA				20-JUL-94	31-JUL-94	<	.53	UGG	
	OESB	ENDRNK				20-JUL-94	09-AUG-94	<	.53	UGG	
	OESB	ENDRNK				20-JUL-94	31-JUL-94	<	.53	UGG	
	OESB	ESFSO4				20-JUL-94	09-AUG-94	<	.62	UGG	
	OESB	ESFSO4				20-JUL-94	31-JUL-94	<	.62	UGG	
	OESB	FANT				20-JUL-94	09-AUG-94	<	.068	UGG	
	OESB	FANT				20-JUL-94	31-JUL-94	<	.068	UGG	
	OESB	FLRENE				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	FLRENE				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	GCLDAN				20-JUL-94	09-AUG-94	<	.33	UGG	
	OESB	GCLDAN				20-JUL-94	31-JUL-94	<	.33	UGG	
	OESB	HCBD				20-JUL-94	09-AUG-94	<	.23	UGG	
	OESB	HCBD				20-JUL-94	31-JUL-94	<	.23	UGG	
	OESB	HPCL				20-JUL-94	09-AUG-94	<	.13	UGG	
	OESB	HPCL				20-JUL-94	31-JUL-94	<	.13	UGG	
	OESB	HPCLE				20-JUL-94	09-AUG-94	<	.33	UGG	
	OESB	HPCLE				20-JUL-94	31-JUL-94	<	.33	UGG	
	OESB	ICDPYR				20-JUL-94	09-AUG-94	<	.29	UGG	
	OESB	ICDPYR				20-JUL-94	31-JUL-94	<	.29	UGG	
	OESB	ISOPHR				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	ISOPHR				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	LIN				20-JUL-94	09-AUG-94	<	.27	UGG	
	OESB	LIN				20-JUL-94	31-JUL-94	<	.27	UGG	
	OESB	MESTOX				20-JUL-94	31-JUL-94		.3	UGG	
	OESB	MEXCLR				20-JUL-94	09-AUG-94	<	.33	UGG	
	OESB	MEXCLR				20-JUL-94	31-JUL-94	<	.33	UGG	
	OESB	NAP				20-JUL-94	09-AUG-94	<	.037	UGG	
	OESB	NAP				20-JUL-94	31-JUL-94	<	.037	UGG	
	OESB	NB				20-JUL-94	09-AUG-94	<	.045	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	NB				20-JUL-94	31-JUL-94	<	.045	UGG	
	OESB	NNDMEA				20-JUL-94	09-AUG-94	<	.14	UGG	
	OESB	NNDMEA				20-JUL-94	31-JUL-94	<	.14	UGG	
	OESB	NNDNPA				20-JUL-94	09-AUG-94	<	.2	UGG	
	OESB	NNDNPA				20-JUL-94	31-JUL-94	<	.2	UGG	
	OESB	NNDPA				20-JUL-94	09-AUG-94	<	.19	UGG	
	OESB	NNDPA				20-JUL-94	31-JUL-94	<	.19	UGG	
	OESB	PCB016				20-JUL-94	09-AUG-94	<	1.4	UGG	
	OESB	PCB016				20-JUL-94	31-JUL-94	<	1.4	UGG	
	OESB	PCB221				20-JUL-94	09-AUG-94	<	1.4	UGG	
	OESB	PCB221				20-JUL-94	31-JUL-94	<	1.4	UGG	
	OESB	PCB232				20-JUL-94	09-AUG-94	<	1.4	UGG	
	OESB	PCB232				20-JUL-94	31-JUL-94	<	1.4	UGG	
	OESB	PCB242				20-JUL-94	09-AUG-94	<	1.4	UGG	
	OESB	PCB242				20-JUL-94	31-JUL-94	<	1.4	UGG	
	OESB	PCB248				20-JUL-94	09-AUG-94	<	2	UGG	
	OESB	PCB248				20-JUL-94	31-JUL-94	<	2	UGG	
	OESB	PCB254				20-JUL-94	09-AUG-94	<	2.3	UGG	
	OESB	PCB254				20-JUL-94	31-JUL-94	<	2.3	UGG	
	OESB	PCB260				20-JUL-94	09-AUG-94	<	2.6	UGG	
	OESB	PCB260				20-JUL-94	31-JUL-94	<	2.6	UGG	
	OESB	PCP				20-JUL-94	09-AUG-94	<	1.3	UGG	
	OESB	PCP				20-JUL-94	31-JUL-94	<	1.3	UGG	
	OESB	PHANTR				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	PHANTR				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	PHENOL				20-JUL-94	09-AUG-94	<	.11	UGG	
	OESB	PHENOL				20-JUL-94	31-JUL-94	<	.11	UGG	
	OESB	PPDDD				20-JUL-94	09-AUG-94	<	.27	UGG	
	OESB	PPDDD				20-JUL-94	31-JUL-94	<	.27	UGG	
	OESB	PPDDE				20-JUL-94	09-AUG-94	<	.31	UGG	
	OESB	PPDDE				20-JUL-94	31-JUL-94	<	.31	UGG	
	OESB	PPDDT				20-JUL-94	09-AUG-94	<	.31	UGG	
	OESB	PPDDT				20-JUL-94	31-JUL-94	<	.31	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OESB	PYR				20-JUL-94	09-AUG-94	<	.033	UGG	
	OESB	PYR				20-JUL-94	31-JUL-94	<	.033	UGG	
	OESB	TXPHEN				20-JUL-94	09-AUG-94	<	2.6	UGG	
	OESB	TXPHEN				20-JUL-94	31-JUL-94	<	2.6	UGG	
	OESB	UNK518				20-JUL-94	31-JUL-94		6	UGG	
	OESB	UNK518				20-JUL-94	09-AUG-94		5	UGG	
	OESB	UNK525				20-JUL-94	09-AUG-94		2	UGG	
	OESB	UNK525				20-JUL-94	31-JUL-94		2	UGG	
	OESB	UNK563				20-JUL-94	31-JUL-94		.2	UGG	
	OETB	124TCB				22-JUL-94	04-AUG-94	<	.04	UGG	
	OETB	12DCLB				22-JUL-94	04-AUG-94	<	.11	UGG	
	OETB	12DPH				22-JUL-94	04-AUG-94	<	.14	UGG	
	OETB	13DCLB				22-JUL-94	04-AUG-94	<	.13	UGG	
	OETB	14DCLB				22-JUL-94	04-AUG-94	<	.098	UGG	
	OETB	245TCP				22-JUL-94	04-AUG-94	<	.1	UGG	
	OETB	246TCP				22-JUL-94	04-AUG-94	<	.17	UGG	
	OETB	24DCLP				22-JUL-94	04-AUG-94	<	.18	UGG	
	OETB	24DMPN				22-JUL-94	04-AUG-94	<	.69	UGG	
	OETB	24DNP				22-JUL-94	04-AUG-94	<	1.2	UGG	
	OETB	24DNT				22-JUL-94	04-AUG-94	<	.14	UGG	
	OETB	26DNT				22-JUL-94	04-AUG-94	<	.085	UGG	
	OETB	2CLP				22-JUL-94	04-AUG-94	<	.06	UGG	
	OETB	2CNAP				22-JUL-94	04-AUG-94	<	.036	UGG	
	OETB	2MNAP				22-JUL-94	04-AUG-94	<	.049	UGG	
	OETB	2MP				22-JUL-94	04-AUG-94	<	.029	UGG	
	OETB	2NANIL				22-JUL-94	04-AUG-94	<	.062	UGG	
	OETB	2NP				22-JUL-94	04-AUG-94	<	.14	UGG	
	OETB	33DCBD				22-JUL-94	04-AUG-94	<	6.3	UGG	
	OETB	3NANIL				22-JUL-94	04-AUG-94	<	.45	UGG	
	OETB	46DN2C				22-JUL-94	04-AUG-94	<	.55	UGG	
	OETB	4BRPPE				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	4CANIL				22-JUL-94	04-AUG-94	<	.81	UGG	
	OETB	4CL3C				22-JUL-94	04-AUG-94	<	.095	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OETB	4CLPPE				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	4MP				22-JUL-94	04-AUG-94	<	.24	UGG	
	OETB	4NANIL				22-JUL-94	04-AUG-94	<	.41	UGG	
	OETB	4NP				22-JUL-94	04-AUG-94	<	1.4	UGG	
	OETB	ABHC				22-JUL-94	04-AUG-94	<	.27	UGG	
	OETB	ACLDAN				22-JUL-94	04-AUG-94	<	.33	UGG	
	OETB	AENSLF				22-JUL-94	04-AUG-94	<	.62	UGG	
	OETB	ALDRN				22-JUL-94	04-AUG-94	<	.33	UGG	
	OETB	ANAPNE				22-JUL-94	04-AUG-94	<	.036	UGG	
	OETB	ANAPYL				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	ANTRC				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	B2CEXM				22-JUL-94	04-AUG-94	<	.059	UGG	
	OETB	B2CIPE				22-JUL-94	04-AUG-94	<	.2	UGG	
	OETB	B2CLEE				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	B2EHP				22-JUL-94	04-AUG-94	<	.62	UGG	
	OETB	BAANTR				22-JUL-94	04-AUG-94	<	.17	UGG	
	OETB	BAPYR				22-JUL-94	04-AUG-94	<	.25	UGG	
	OETB	BBFANT				22-JUL-94	04-AUG-94	<	.21	UGG	
	OETB	BBHC				22-JUL-94	04-AUG-94	<	.27	UGG	
	OETB	BBZP				22-JUL-94	04-AUG-94	<	.17	UGG	
	OETB	BENSLF				22-JUL-94	04-AUG-94	<	.62	UGG	
	OETB	BENZID				22-JUL-94	04-AUG-94	<	.85	UGG	
	OETB	BENZOA				22-JUL-94	04-AUG-94	<	6.1	UGG	
	OETB	BGHIPY				22-JUL-94	04-AUG-94	<	.25	UGG	
	OETB	BKFANT				22-JUL-94	04-AUG-94	<	.066	UGG	
	OETB	BZALC				22-JUL-94	04-AUG-94	<	.19	UGG	
	OETB	CARBAZ				22-JUL-94	04-AUG-94	<	.1	UGG	
	OETB	CHRY				22-JUL-94	04-AUG-94	<	.12	UGG	
	OETB	CL6BZ				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	CL6CP				22-JUL-94	04-AUG-94	<	6.2	UGG	
	OETB	CL6ET				22-JUL-94	04-AUG-94	<	.15	UGG	
	OETB	DBAHA				22-JUL-94	04-AUG-94	<	.21	UGG	
	OETB	DBHC				22-JUL-94	04-AUG-94	<	.27	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OETB	DBZFUR				22-JUL-94	04-AUG-94	<	.035	UGG	
	OETB	DEP				22-JUL-94	04-AUG-94	<	.24	UGG	
	OETB	DLDRN				22-JUL-94	04-AUG-94	<	.31	UGG	
	OETB	DMP				22-JUL-94	04-AUG-94	<	.17	UGG	
	OETB	DNBP				22-JUL-94	04-AUG-94	<	.061	UGG	
	OETB	DNOP				22-JUL-94	04-AUG-94	<	.19	UGG	
	OETB	ENDRN				22-JUL-94	04-AUG-94	<	.45	UGG	
	OETB	ENDRNA				22-JUL-94	04-AUG-94	<	.53	UGG	
	OETB	ENDRNK				22-JUL-94	04-AUG-94	<	.53	UGG	
	OETB	ESFSO4				22-JUL-94	04-AUG-94	<	.62	UGG	
	OETB	FANT				22-JUL-94	04-AUG-94	<	.068	UGG	
	OETB	FLRENE				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	GCLDAN				22-JUL-94	04-AUG-94	<	.33	UGG	
	OETB	HCBD				22-JUL-94	04-AUG-94	<	.23	UGG	
	OETB	HPCL				22-JUL-94	04-AUG-94	<	.13	UGG	
	OETB	HPCLE				22-JUL-94	04-AUG-94	<	.33	UGG	
	OETB	ICDPYR				22-JUL-94	04-AUG-94	<	.29	UGG	
	OETB	ISOPHR				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	LIN				22-JUL-94	04-AUG-94	<	.27	UGG	
	OETB	MEXCLR				22-JUL-94	04-AUG-94	<	.33	UGG	
	OETB	NAP				22-JUL-94	04-AUG-94	<	.037	UGG	
	OETB	NB				22-JUL-94	04-AUG-94	<	.045	UGG	
	OETB	NNDMEA				22-JUL-94	04-AUG-94	<	.14	UGG	
	OETB	NNDNPA				22-JUL-94	04-AUG-94	<	.2	UGG	
	OETB	NNDPA				22-JUL-94	04-AUG-94	<	.19	UGG	
	OETB	PCB016				22-JUL-94	04-AUG-94	<	1.4	UGG	
	OETB	PCB221				22-JUL-94	04-AUG-94	<	1.4	UGG	
	OETB	PCB232				22-JUL-94	04-AUG-94	<	1.4	UGG	
	OETB	PCB242				22-JUL-94	04-AUG-94	<	1.4	UGG	
	OETB	PCB248				22-JUL-94	04-AUG-94	<	2	UGG	
	OETB	PCB254				22-JUL-94	04-AUG-94	<	2.3	UGG	
	OETB	PCB260				22-JUL-94	04-AUG-94	<	2.6	UGG	
	OETB	PCP				22-JUL-94	04-AUG-94	<	1.3	UGG	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OETB	PHANTR				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	PHENOL				22-JUL-94	04-AUG-94	<	.11	UGG	
	OETB	PPDDD				22-JUL-94	04-AUG-94	<	.27	UGG	
	OETB	PPDDE				22-JUL-94	04-AUG-94	<	.31	UGG	
	OETB	PPDDT				22-JUL-94	04-AUG-94	<	.31	UGG	
	OETB	PYR				22-JUL-94	04-AUG-94	<	.033	UGG	
	OETB	TXPHEN				22-JUL-94	04-AUG-94	<	2.6	UGG	
	OETB	UNK519				22-JUL-94	04-AUG-94		3	UGG	
	OETB	UNK556				22-JUL-94	04-AUG-94		.4	UGG	
	OEVB	124TCB				25-JUL-94	05-AUG-94	<	.04	UGG	
	OEVB	12DCLB				25-JUL-94	05-AUG-94	<	.11	UGG	
	OEVB	12DPH				25-JUL-94	05-AUG-94	<	.14	UGG	
	OEVB	13DCLB				25-JUL-94	05-AUG-94	<	.13	UGG	
	OEVB	14DCLB				25-JUL-94	05-AUG-94	<	.098	UGG	
	OEVB	245TCP				25-JUL-94	05-AUG-94	<	.1	UGG	
	OEVB	246TCP				25-JUL-94	05-AUG-94	<	.17	UGG	
	OEVB	24DCLP				25-JUL-94	05-AUG-94	<	.18	UGG	
	OEVB	24DMPN				25-JUL-94	05-AUG-94	<	.69	UGG	
	OEVB	24DNP				25-JUL-94	05-AUG-94	<	1.2	UGG	
	OEVB	24DNT				25-JUL-94	05-AUG-94	<	.14	UGG	
	OEVB	26DNT				25-JUL-94	05-AUG-94	<	.085	UGG	
	OEVB	2CLP				25-JUL-94	05-AUG-94	<	.06	UGG	
	OEVB	2CNAP				25-JUL-94	05-AUG-94	<	.036	UGG	
	OEVB	2MNAP				25-JUL-94	05-AUG-94	<	.049	UGG	
	OEVB	2MP				25-JUL-94	05-AUG-94	<	.029	UGG	
	OEVB	2NANIL				25-JUL-94	05-AUG-94	<	.062	UGG	
	OEVB	2NP				25-JUL-94	05-AUG-94	<	.14	UGG	
	OEVB	33DCBD				25-JUL-94	05-AUG-94	<	6.3	UGG	
	OEVB	3NANIL				25-JUL-94	05-AUG-94	<	.45	UGG	
	OEVB	46DN2C				25-JUL-94	05-AUG-94	<	.55	UGG	
	OEVB	4BRPPE				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	4CANIL				25-JUL-94	05-AUG-94	<	.81	UGG	
	OEVB	4CL3C				25-JUL-94	05-AUG-94	<	.095	UGG	

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Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OEVB	4CLPPE				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	4MP				25-JUL-94	05-AUG-94	<	.24	UGG	
	OEVB	4NANIL				25-JUL-94	05-AUG-94	<	.41	UGG	
	OEVB	4NP				25-JUL-94	05-AUG-94	<	1.4	UGG	
	OEVB	ABHC				25-JUL-94	05-AUG-94	<	.27	UGG	
	OEVB	ACLDAN				25-JUL-94	05-AUG-94	<	.33	UGG	
	OEVB	AENSLF				25-JUL-94	05-AUG-94	<	.62	UGG	
	OEVB	ALDRN				25-JUL-94	05-AUG-94	<	.33	UGG	
	OEVB	ANAPNE				25-JUL-94	05-AUG-94	<	.036	UGG	
	OEVB	ANAPYL				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	ANTRC				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	B2CEXM				25-JUL-94	05-AUG-94	<	.059	UGG	
	OEVB	B2CIPE				25-JUL-94	05-AUG-94	<	.2	UGG	
	OEVB	B2CLEE				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	B2EHP				25-JUL-94	05-AUG-94	<	.62	UGG	
	OEVB	BAANTR				25-JUL-94	05-AUG-94	<	.17	UGG	
	OEVB	BAPYR				25-JUL-94	05-AUG-94	<	.25	UGG	
	OEVB	BBFANT				25-JUL-94	05-AUG-94	<	.21	UGG	
	OEVB	BBHC				25-JUL-94	05-AUG-94	<	.27	UGG	
	OEVB	BBZP				25-JUL-94	05-AUG-94	<	.17	UGG	
	OEVB	BENSLF				25-JUL-94	05-AUG-94	<	.62	UGG	
	OEVB	BENZID				25-JUL-94	05-AUG-94	<	.85	UGG	
	OEVB	BENZOA				25-JUL-94	05-AUG-94	<	6.1	UGG	
	OEVB	BGHIPY				25-JUL-94	05-AUG-94	<	.25	UGG	
	OEVB	BKFANT				25-JUL-94	05-AUG-94	<	.066	UGG	
	OEVB	BZALC				25-JUL-94	05-AUG-94	<	.19	UGG	
	OEVB	CARBAZ				25-JUL-94	05-AUG-94	<	.1	UGG	
	OEVB	CHRY				25-JUL-94	05-AUG-94	<	.12	UGG	
	OEVB	CL6BZ				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	CL6CP				25-JUL-94	05-AUG-94	<	6.2	UGG	
	OEVB	CL6ET				25-JUL-94	05-AUG-94	<	.15	UGG	
	OEVB	DBAHA				25-JUL-94	05-AUG-94	<	.21	UGG	
	OEVB	DBHC				25-JUL-94	05-AUG-94	<	.27	UGG	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OEVB	DBZFUR				25-JUL-94	05-AUG-94	<	.035	UGG	
	OEVB	DEP				25-JUL-94	05-AUG-94	<	.24	UGG	
	OEVB	DLDRN				25-JUL-94	05-AUG-94	<	.31	UGG	
	OEVB	DMP				25-JUL-94	05-AUG-94	<	.17	UGG	
	OEVB	DNBP				25-JUL-94	05-AUG-94	<	.061	UGG	
	OEVB	DNOP				25-JUL-94	05-AUG-94	<	.19	UGG	
	OEVB	ENDRN				25-JUL-94	05-AUG-94	<	.45	UGG	
	OEVB	ENDRNA				25-JUL-94	05-AUG-94	<	.53	UGG	
	OEVB	ENDRNK				25-JUL-94	05-AUG-94	<	.53	UGG	
	OEVB	ESFSO4				25-JUL-94	05-AUG-94	<	.62	UGG	
	OEVB	FANT				25-JUL-94	05-AUG-94	<	.068	UGG	
	OEVB	FLRENE				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	GCLDAN				25-JUL-94	05-AUG-94	<	.33	UGG	
	OEVB	HCBD				25-JUL-94	05-AUG-94	<	.23	UGG	
	OEVB	HPCL				25-JUL-94	05-AUG-94	<	.13	UGG	
	OEVB	HPCLE				25-JUL-94	05-AUG-94	<	.33	UGG	
	OEVB	ICDPYR				25-JUL-94	05-AUG-94	<	.29	UGG	
	OEVB	ISOPHR				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	LIN				25-JUL-94	05-AUG-94	<	.27	UGG	
	OEVB	MEXCLR				25-JUL-94	05-AUG-94	<	.33	UGG	
	OEVB	NAP				25-JUL-94	05-AUG-94	<	.037	UGG	
	OEVB	NB				25-JUL-94	05-AUG-94	<	.045	UGG	
	OEVB	NNDMEA				25-JUL-94	05-AUG-94	<	.14	UGG	
	OEVB	NNDNPA				25-JUL-94	05-AUG-94	<	.2	UGG	
	OEVB	NNDPA				25-JUL-94	05-AUG-94	<	.19	UGG	
	OEVB	PCB016				25-JUL-94	05-AUG-94	<	1.4	UGG	
	OEVB	PCB221				25-JUL-94	05-AUG-94	<	1.4	UGG	
	OEVB	PCB232				25-JUL-94	05-AUG-94	<	1.4	UGG	
	OEVB	PCB242				25-JUL-94	05-AUG-94	<	1.4	UGG	
	OEVB	PCB248				25-JUL-94	05-AUG-94	<	2	UGG	
	OEVB	PCB254				25-JUL-94	05-AUG-94	<	2.3	UGG	
	OEVB	PCB260				25-JUL-94	05-AUG-94	<	2.6	UGG	
	OEVB	PCP				25-JUL-94	05-AUG-94	<	1.3	UGG	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
LM18	OEVB	PHANTR				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	PHENOL				25-JUL-94	05-AUG-94	<	.11	UGG	
	OEVB	PPDDD				25-JUL-94	05-AUG-94	<	.27	UGG	
	OEVB	PPDDE				25-JUL-94	05-AUG-94	<	.31	UGG	
	OEVB	PPDDT				25-JUL-94	05-AUG-94	<	.31	UGG	
	OEVB	PYR				25-JUL-94	05-AUG-94	<	.033	UGG	
	OEVB	TXPHEN				25-JUL-94	05-AUG-94	<	2.6	UGG	
SB01	TCEC	HG				28-AUG-94	28-AUG-94	<	.243	UGL	
	TCIC	HG				29-AUG-94	29-AUG-94	<	.243	UGL	
SD09	UCTB	TL				23-AUG-94	27-AUG-94	<	6.99	UGL	
SD20	WCDC	PB				23-AUG-94	29-AUG-94	<	1.26	UGL	
SD21	XCYB	SE				23-AUG-94	27-AUG-94	<	3.02	UGL	
SD22	YCZB	AS				23-AUG-94	27-AUG-94	<	2.54	UGL	
SD28	NFHB	SB				23-AUG-94	27-AUG-94	<	3.03	UGL	
SS10	ZFXB	AG				23-AUG-94	24-AUG-94	<	4.6	UGL	
	ZFXB	AL				23-AUG-94	24-AUG-94	<	141	UGL	
	ZFXB	BA				23-AUG-94	24-AUG-94	<	5	UGL	
	ZFXB	BE				23-AUG-94	24-AUG-94	<	5	UGL	
	ZFXB	CA				23-AUG-94	24-AUG-94	<	500	UGL	
	ZFXB	CD				23-AUG-94	24-AUG-94	<	4.01	UGL	
	ZFXB	CO				23-AUG-94	24-AUG-94	<	25	UGL	
	ZFXB	CR				23-AUG-94	24-AUG-94	<	6.02	UGL	
	ZFXB	CU				23-AUG-94	24-AUG-94	<	8.09	UGL	
	ZFXB	FE				23-AUG-94	24-AUG-94	<	38.8	UGL	
	ZFXB	K				23-AUG-94	24-AUG-94	<	375	UGL	
	ZFXB	MG				23-AUG-94	24-AUG-94	<	500	UGL	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
SS10	ZFXB	MN				23-AUG-94	24-AUG-94	<	2.75	UGL	
	ZFXB	NA				23-AUG-94	24-AUG-94	<	500	UGL	
	ZFXB	NI				23-AUG-94	24-AUG-94	<	34.3	UGL	
	ZFXB	SN				23-AUG-94	24-AUG-94	<	47.1	UGL	
	ZFXB	V				23-AUG-94	24-AUG-94	<	11	UGL	
	ZFXB	ZN				23-AUG-94	24-AUG-94	<	21.1	UGL	
UM18	WDIC	124TCB				04-AUG-94	16-AUG-94	<	1.8	UGL	
	WDIC	12DCLB				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	12DPH				04-AUG-94	16-AUG-94	<	2	UGL	
	WDIC	13DCLB				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	14DCLB				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	245TCP				04-AUG-94	16-AUG-94	<	5.2	UGL	
	WDIC	246TCP				04-AUG-94	16-AUG-94	<	4.2	UGL	
	WDIC	24DCLP				04-AUG-94	16-AUG-94	<	2.9	UGL	
	WDIC	24DMPN				04-AUG-94	16-AUG-94	<	5.8	UGL	
	WDIC	24DNP				04-AUG-94	16-AUG-94	<	21	UGL	
	WDIC	24DNT				04-AUG-94	16-AUG-94	<	4.5	UGL	
	WDIC	26DNT				04-AUG-94	16-AUG-94	<	.79	UGL	
	WDIC	2CLP				04-AUG-94	16-AUG-94	<	.99	UGL	
	WDIC	2CNAP				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	2MNAP				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	2MP				04-AUG-94	16-AUG-94	<	3.9	UGL	
	WDIC	2NANIL				04-AUG-94	16-AUG-94	<	4.3	UGL	
	WDIC	2NP				04-AUG-94	16-AUG-94	<	3.7	UGL	
	WDIC	33DCBD				04-AUG-94	16-AUG-94	<	12	UGL	
	WDIC	3NANIL				04-AUG-94	16-AUG-94	<	4.9	UGL	
	WDIC	46DN2C				04-AUG-94	16-AUG-94	<	17	UGL	
	WDIC	4BRPPE				04-AUG-94	16-AUG-94	<	4.2	UGL	
	WDIC	4CANIL				04-AUG-94	16-AUG-94	<	7.3	UGL	
	WDIC	4CL3C				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	4CLPPE				04-AUG-94	16-AUG-94	<	5.1	UGL	
	WDIC	4MP				04-AUG-94	16-AUG-94	<	.52	UGL	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDIC	4NANIL				04-AUG-94	16-AUG-94	<	5.2	UGL	
	WDIC	4NP				04-AUG-94	16-AUG-94	<	12	UGL	
	WDIC	ABHC				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	ACLDAN				04-AUG-94	16-AUG-94	<	5.1	UGL	
	WDIC	AENSLF				04-AUG-94	16-AUG-94	<	9.2	UGL	
	WDIC	ALDRN				04-AUG-94	16-AUG-94	<	4.7	UGL	
	WDIC	ANAPNE				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	ANAPYL				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	ANTRC				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	B2CEXM				04-AUG-94	16-AUG-94	<	1.5	UGL	
	WDIC	B2CIPE				04-AUG-94	16-AUG-94	<	5.3	UGL	
	WDIC	B2CLEE				04-AUG-94	16-AUG-94	<	1.9	UGL	
	WDIC	B2EHP				04-AUG-94	16-AUG-94	<	4.8	UGL	
	WDIC	BAANTR				04-AUG-94	16-AUG-94	<	1.6	UGL	
	WDIC	BAPYR				04-AUG-94	16-AUG-94	<	4.7	UGL	
	WDIC	BBFANT				04-AUG-94	16-AUG-94	<	5.4	UGL	
	WDIC	BBHC				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	BBZP				04-AUG-94	16-AUG-94	<	3.4	UGL	
	WDIC	BENSLF				04-AUG-94	16-AUG-94	<	9.2	UGL	
	WDIC	BENZID				04-AUG-94	16-AUG-94	<	10	UGL	
	WDIC	BENZOA				04-AUG-94	16-AUG-94	<	13	UGL	
	WDIC	BGHIPY				04-AUG-94	16-AUG-94	<	6.1	UGL	
	WDIC	BKFANT				04-AUG-94	16-AUG-94	<	.87	UGL	
	WDIC	BZALC				04-AUG-94	16-AUG-94	<	.72	UGL	
	WDIC	CARBAZ				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	CHRY				04-AUG-94	16-AUG-94	<	2.4	UGL	
	WDIC	CL6BZ				04-AUG-94	16-AUG-94	<	1.6	UGL	
	WDIC	CL6CP				04-AUG-94	16-AUG-94	<	8.6	UGL	
	WDIC	CL6ET				04-AUG-94	16-AUG-94	<	1.5	UGL	
	WDIC	DBAHA				04-AUG-94	16-AUG-94	<	6.5	UGL	
	WDIC	DBHC				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	DBZFUR				04-AUG-94	16-AUG-94	<	1.7	UGL	
	WDIC	DEP				04-AUG-94	16-AUG-94	<	2	UGL	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDIC	DLDRN				04-AUG-94	16-AUG-94	<	4.7	UGL	
	WDIC	DMP				04-AUG-94	16-AUG-94	<	1.5	UGL	
	WDIC	DNBP				04-AUG-94	16-AUG-94	<	3.7	UGL	
	WDIC	DNOP				04-AUG-94	16-AUG-94	<	15	UGL	
	WDIC	ENDRN				04-AUG-94	16-AUG-94	<	7.6	UGL	
	WDIC	ENDRNA				04-AUG-94	16-AUG-94	<	8	UGL	
	WDIC	ENDRNK				04-AUG-94	16-AUG-94	<	8	UGL	
	WDIC	ESFSO4				04-AUG-94	16-AUG-94	<	9.2	UGL	
	WDIC	FANT				04-AUG-94	16-AUG-94	<	3.3	UGL	
	WDIC	FLRENE				04-AUG-94	16-AUG-94	<	3.7	UGL	
	WDIC	GCLDAN				04-AUG-94	16-AUG-94	<	5.1	UGL	
	WDIC	HCBD				04-AUG-94	16-AUG-94	<	3.4	UGL	
	WDIC	HPCL				04-AUG-94	16-AUG-94	<	2	UGL	
	WDIC	HPCLE				04-AUG-94	16-AUG-94	<	5	UGL	
	WDIC	ICDPYR				04-AUG-94	16-AUG-94	<	8.6	UGL	
	WDIC	ISOPHR				04-AUG-94	16-AUG-94	<	4.8	UGL	
	WDIC	LIN				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	MEXCLR				04-AUG-94	16-AUG-94	<	5.1	UGL	
	WDIC	NAP				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	NB				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	NNDMEA				04-AUG-94	16-AUG-94	<	2	UGL	
	WDIC	NNDNPA				04-AUG-94	16-AUG-94	<	4.4	UGL	
	WDIC	NNDPA				04-AUG-94	16-AUG-94	<	3	UGL	
	WDIC	PCB016				04-AUG-94	16-AUG-94	<	21	UGL	
	WDIC	PCB221				04-AUG-94	16-AUG-94	<	21	UGL	
	WDIC	PCB232				04-AUG-94	16-AUG-94	<	21	UGL	
	WDIC	PCB242				04-AUG-94	16-AUG-94	<	30	UGL	
	WDIC	PCB248				04-AUG-94	16-AUG-94	<	30	UGL	
	WDIC	PCB254				04-AUG-94	16-AUG-94	<	36	UGL	
	WDIC	PCB260				04-AUG-94	16-AUG-94	<	36	UGL	
	WDIC	PCP				04-AUG-94	16-AUG-94	<	18	UGL	
	WDIC	PHANTR				04-AUG-94	16-AUG-94	<	.5	UGL	
	WDIC	PHENOL				04-AUG-94	16-AUG-94	<	9.2	UGL	

Chemical Quality Control Report
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Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDIC	PPDDD				04-AUG-94	16-AUG-94	<	4	UGL	
	WDIC	PPDDE				04-AUG-94	16-AUG-94	<	4.7	UGL	
	WDIC	PPDDT				04-AUG-94	16-AUG-94	<	9.2	UGL	
	WDIC	PYR				04-AUG-94	16-AUG-94	<	2.8	UGL	
	WDIC	TXPHEN				04-AUG-94	16-AUG-94	<	36	UGL	
	WDJC	124TCB				08-AUG-94	16-AUG-94	<	1.8	UGL	
	WDJC	12DCLB				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	12DPH				08-AUG-94	16-AUG-94	<	2	UGL	
	WDJC	13DCLB				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	14DCLB				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	245TCP				08-AUG-94	16-AUG-94	<	5.2	UGL	
	WDJC	246TCP				08-AUG-94	16-AUG-94	<	4.2	UGL	
	WDJC	24DCLP				08-AUG-94	16-AUG-94	<	2.9	UGL	
	WDJC	24DMPN				08-AUG-94	16-AUG-94	<	5.8	UGL	
	WDJC	24DNP				08-AUG-94	16-AUG-94	<	21	UGL	
	WDJC	24DNT				08-AUG-94	16-AUG-94	<	4.5	UGL	
	WDJC	26DNT				08-AUG-94	16-AUG-94	<	.79	UGL	
	WDJC	2CLP				08-AUG-94	16-AUG-94	<	.99	UGL	
	WDJC	2CNAP				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	2MNAP				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	2MP				08-AUG-94	16-AUG-94	<	3.9	UGL	
	WDJC	2NANIL				08-AUG-94	16-AUG-94	<	4.3	UGL	
	WDJC	2NP				08-AUG-94	16-AUG-94	<	3.7	UGL	
	WDJC	33DCBD				08-AUG-94	16-AUG-94	<	12	UGL	
	WDJC	3NANIL				08-AUG-94	16-AUG-94	<	4.9	UGL	
	WDJC	46DN2C				08-AUG-94	16-AUG-94	<	17	UGL	
	WDJC	4BRPPE				08-AUG-94	16-AUG-94	<	4.2	UGL	
	WDJC	4CANIL				08-AUG-94	16-AUG-94	<	7.3	UGL	
	WDJC	4CL3C				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	4CLPPE				08-AUG-94	16-AUG-94	<	5.1	UGL	
	WDJC	4MP				08-AUG-94	16-AUG-94	<	.52	UGL	
	WDJC	4NANIL				08-AUG-94	16-AUG-94	<	5.2	UGL	
	WDJC	4NP				08-AUG-94	16-AUG-94	<	12	UGL	

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USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDJC	ABHC				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	ACLDAN				08-AUG-94	16-AUG-94	<	5.1	UGL	
	WDJC	AENSLF				08-AUG-94	16-AUG-94	<	9.2	UGL	
	WDJC	ALDRN				08-AUG-94	16-AUG-94	<	4.7	UGL	
	WDJC	ANAPNE				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	ANAPYL				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	ANTRC				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	B2CEXM				08-AUG-94	16-AUG-94	<	1.5	UGL	
	WDJC	B2CIPE				08-AUG-94	16-AUG-94	<	5.3	UGL	
	WDJC	B2CLEE				08-AUG-94	16-AUG-94	<	1.9	UGL	
	WDJC	B2EHP				08-AUG-94	16-AUG-94	<	4.8	UGL	
	WDJC	BAANTR				08-AUG-94	16-AUG-94	<	1.6	UGL	
	WDJC	BAPYR				08-AUG-94	16-AUG-94	<	4.7	UGL	
	WDJC	BBFANT				08-AUG-94	16-AUG-94	<	5.4	UGL	
	WDJC	BBHC				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	BBZP				08-AUG-94	16-AUG-94	<	3.4	UGL	
	WDJC	BENSLF				08-AUG-94	16-AUG-94	<	9.2	UGL	
	WDJC	BENZID				08-AUG-94	16-AUG-94	<	10	UGL	
	WDJC	BENZOA				08-AUG-94	16-AUG-94	<	13	UGL	
	WDJC	BGHIPY				08-AUG-94	16-AUG-94	<	6.1	UGL	
	WDJC	BKFANT				08-AUG-94	16-AUG-94	<	.87	UGL	
	WDJC	BZALC				08-AUG-94	16-AUG-94	<	.72	UGL	
	WDJC	CARBAZ				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	CHRY				08-AUG-94	16-AUG-94	<	2.4	UGL	
	WDJC	CL6BZ				08-AUG-94	16-AUG-94	<	1.6	UGL	
	WDJC	CL6CP				08-AUG-94	16-AUG-94	<	8.6	UGL	
	WDJC	CL6ET				08-AUG-94	16-AUG-94	<	1.5	UGL	
	WDJC	DBAHA				08-AUG-94	16-AUG-94	<	6.5	UGL	
	WDJC	DBHC				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	DBZFUR				08-AUG-94	16-AUG-94	<	1.7	UGL	
	WDJC	DEP				08-AUG-94	16-AUG-94	<	2	UGL	
	WDJC	DLDRN				08-AUG-94	16-AUG-94	<	4.7	UGL	
	WDJC	DMP				08-AUG-94	16-AUG-94	<	1.5	UGL	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDJC	DNBP				08-AUG-94	16-AUG-94	<	3.7	UGL	
	WDJC	DNOP				08-AUG-94	16-AUG-94	<	15	UGL	
	WDJC	ENDRN				08-AUG-94	16-AUG-94	<	7.6	UGL	
	WDJC	ENDRNA				08-AUG-94	16-AUG-94	<	8	UGL	
	WDJC	ENDRNK				08-AUG-94	16-AUG-94	<	8	UGL	
	WDJC	ESFSO4				08-AUG-94	16-AUG-94	<	9.2	UGL	
	WDJC	FANT				08-AUG-94	16-AUG-94	<	3.3	UGL	
	WDJC	FLRENE				08-AUG-94	16-AUG-94	<	3.7	UGL	
	WDJC	GCLDAN				08-AUG-94	16-AUG-94	<	5.1	UGL	
	WDJC	HCBD				08-AUG-94	16-AUG-94	<	3.4	UGL	
	WDJC	HPCL				08-AUG-94	16-AUG-94	<	2	UGL	
	WDJC	HPCLE				08-AUG-94	16-AUG-94	<	5	UGL	
	WDJC	ICDPYR				08-AUG-94	16-AUG-94	<	8.6	UGL	
	WDJC	ISOPHR				08-AUG-94	16-AUG-94	<	4.8	UGL	
	WDJC	LIN				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	MEXCLR				08-AUG-94	16-AUG-94	<	5.1	UGL	
	WDJC	NAP				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	NB				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	NNDMEA				08-AUG-94	16-AUG-94	<	2	UGL	
	WDJC	NNDNPA				08-AUG-94	16-AUG-94	<	4.4	UGL	
	WDJC	NNDPA				08-AUG-94	16-AUG-94	<	3	UGL	
	WDJC	PCB016				08-AUG-94	16-AUG-94	<	21	UGL	
	WDJC	PCB221				08-AUG-94	16-AUG-94	<	21	UGL	
	WDJC	PCB232				08-AUG-94	16-AUG-94	<	21	UGL	
	WDJC	PCB242				08-AUG-94	16-AUG-94	<	30	UGL	
	WDJC	PCB248				08-AUG-94	16-AUG-94	<	30	UGL	
	WDJC	PCB254				08-AUG-94	16-AUG-94	<	36	UGL	
	WDJC	PCB260				08-AUG-94	16-AUG-94	<	36	UGL	
	WDJC	PCP				08-AUG-94	16-AUG-94	<	18	UGL	
	WDJC	PHANTR				08-AUG-94	16-AUG-94	<	.5	UGL	
	WDJC	PHENOL				08-AUG-94	16-AUG-94	<	9.2	UGL	
	WDJC	PPDDD				08-AUG-94	16-AUG-94	<	4	UGL	
	WDJC	PPDDE				08-AUG-94	16-AUG-94	<	4.7	UGL	

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse Method Blank Results- by Method

USATHAMA Method Code	Lot	Test Name	IRDMIS Field Sample Number	Lab Number	Sample Date	Prep Date	Analysis Date	<	Value	Units	IRDMIS Site ID
UM18	WDJC	PPDDT				08-AUG-94	16-AUG-94	<	9.2	UGL	
	WDJC	PYR				08-AUG-94	16-AUG-94	<	2.8	UGL	
	WDJC	TXPHEN				08-AUG-94	16-AUG-94	<	36	UGL	
	WDJC	UNK540				08-AUG-94	16-AUG-94		7	UGL	

TABLE E-6

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
	1302	SBK-07	HARD	TEDV	01-AUG-94	0	<	1000	UGL	SBK-07	VRRW*107
	1601	SBK-07	TDS	TEZV	01-AUG-94	0	<	10000	UGL	SBK-07	VRRW*107
	1602	SBK-07	TSS	TEXV	01-AUG-94	0	<	4000	UGL	SBK-07	VRRW*107
	3101	SBK-07	ALK	TEFV	01-AUG-94	0	<	5000	UGL	SBK-07	VRRW*107
	4151	SBK-07	TOC	TERV	01-AUG-94	0		2000	UGL	SBK-07	VRRW*107
		SBK-01	TOC	TERV	19-JUL-94	0	<	1000	UGL	SBK-01	VRRW*101
		SBK-03	TOC	TERV	19-JUL-94	0	<	1000	UGL	SBK-03	VRRW*103
		SBK-05	TOC	TERV	21-JUL-94	0	<	1000	UGL	SBK-05	VRRW*105
		SBK-06	TOC	TERV	21-JUL-94	0	<	1000	UGL	SBK-06	VRRW*106
		SBK-04	TOC	TERV	20-JUL-94	0	<	1000	UGL	SBK-04	VRRW*104
		SBK-02	TOC	TERV	19-JUL-94	0	<	1000	UGL	SBK-02	VRRW*102
HG IN WATER BY CVAA	SB01	SBK-07	HG	TCEC	01-AUG-94	0	<	.243	UGL	SBK-07	VRRW*107
HG IN WATER BY CVAA		SBK-02	HG	TCBC	19-JUL-94	0	<	.243	UGL	SBK-02	VRRW*102
HG IN WATER BY CVAA		SBK-04	HG	TCBC	20-JUL-94	0	<	.243	UGL	SBK-04	VRRW*104
HG IN WATER BY CVAA		SBK-06	HG	TCBC	21-JUL-94	0	<	.243	UGL	SBK-06	VRRW*106
HG IN WATER BY CVAA		SBK-05	HG	TCBC	21-JUL-94	0	<	.243	UGL	SBK-05	VRRW*105
HG IN WATER BY CVAA		SBK-03	HG	TCBC	19-JUL-94	0	<	.243	UGL	SBK-03	VRRW*103
HG IN WATER BY CVAA		SBK-01	HG	TCBC	19-JUL-94	0	<	.243	UGL	SBK-01	VRRW*101
TL IN WATER BY GFAA	SD09	SBK-07	TL	UCTB	01-AUG-94	0	<	6.99	UGL	SBK-07	VRRW*107
TL IN WATER BY GFAA		SBK-01	TL	UCRB	19-JUL-94	0	<	6.99	UGL	SBK-01	VRRW*101
TL IN WATER BY GFAA		SBK-03	TL	UCRB	19-JUL-94	0	<	6.99	UGL	SBK-03	VRRW*103
TL IN WATER BY GFAA		SBK-05	TL	UCRB	21-JUL-94	0	<	6.99	UGL	SBK-05	VRRW*105
TL IN WATER BY GFAA		SBK-06	TL	UCRB	21-JUL-94	0	<	6.99	UGL	SBK-06	VRRW*106
TL IN WATER BY GFAA		SBK-04	TL	UCRB	20-JUL-94	0	<	6.99	UGL	SBK-04	VRRW*104
TL IN WATER BY GFAA		SBK-02	TL	UCRB	19-JUL-94	0	<	6.99	UGL	SBK-02	VRRW*102
PB IN WATER BY GFAA	SD20	SBK-07	PB	WCDC	01-AUG-94	0		4.66	UGL	SBK-07	VRRW*107
PB IN WATER BY GFAA		SBK-01	PB	WCBC	19-JUL-94	0	<	1.26	UGL	SBK-01	VRRW*101
PB IN WATER BY GFAA		SBK-03	PB	WCBC	19-JUL-94	0	<	1.26	UGL	SBK-03	VRRW*103
PB IN WATER BY GFAA		SBK-05	PB	WCBC	21-JUL-94	0	<	1.26	UGL	SBK-05	VRRW*105

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
PB IN WATER BY GFAA	SD20	SBK-06	PB	WCBC	21-JUL-94	0	<	1.26	UGL	SBK-06	VRRW*106
PB IN WATER BY GFAA		SBK-04	PB	WCBC	20-JUL-94	0	<	1.26	UGL	SBK-04	VRRW*104
PB IN WATER BY GFAA		SBK-02	PB	WCBC	19-JUL-94	0	<	1.26	UGL	SBK-02	VRRW*102
SE IN WATER BY GFAA	SD21	SBK-07	SE	XCYB	01-AUG-94	0	<	3.02	UGL	SBK-07	VRRW*107
SE IN WATER BY GFAA		SBK-02	SE	XCWB	19-JUL-94	0	<	3.02	UGL	SBK-02	VRRW*102
SE IN WATER BY GFAA		SBK-03	SE	XCWB	19-JUL-94	0	<	3.02	UGL	SBK-03	VRRW*103
SE IN WATER BY GFAA		SBK-05	SE	XCWB	21-JUL-94	0	<	3.02	UGL	SBK-05	VRRW*105
SE IN WATER BY GFAA		SBK-06	SE	XCWB	21-JUL-94	0	<	3.02	UGL	SBK-06	VRRW*106
SE IN WATER BY GFAA		SBK-04	SE	XCWB	20-JUL-94	0	<	3.02	UGL	SBK-04	VRRW*104
SE IN WATER BY GFAA		SBK-01	SE	XCWB	19-JUL-94	0	<	3.02	UGL	SBK-01	VRRW*101
AS IN WATER BY GFAA	SD22	SBK-07	AS	YCZB	01-AUG-94	0	<	2.54	UGL	SBK-07	VRRW*107
AS IN WATER BY GFAA		SBK-03	AS	YCXB	19-JUL-94	0	<	2.54	UGL	SBK-03	VRRW*103
AS IN WATER BY GFAA		SBK-04	AS	YCXB	20-JUL-94	0	<	2.54	UGL	SBK-04	VRRW*104
AS IN WATER BY GFAA		SBK-05	AS	YCXB	21-JUL-94	0	<	2.54	UGL	SBK-05	VRRW*105
AS IN WATER BY GFAA		SBK-06	AS	YCXB	21-JUL-94	0	<	2.54	UGL	SBK-06	VRRW*106
AS IN WATER BY GFAA		SBK-02	AS	YCXB	19-JUL-94	0	<	2.54	UGL	SBK-02	VRRW*102
AS IN WATER BY GFAA		SBK-01	AS	YCXB	19-JUL-94	0	<	2.54	UGL	SBK-01	VRRW*101
SB IN WATER BY GFAA	SD28	SBK-07	SB	NFHB	01-AUG-94	0	<	3.03	UGL	SBK-07	VRRW*107
SB IN WATER BY GFAA		SBK-06	SB	NFFB	21-JUL-94	0	<	3.03	UGL	SBK-06	VRRW*106
SB IN WATER BY GFAA		SBK-05	SB	NFFB	21-JUL-94	0	<	3.03	UGL	SBK-05	VRRW*105
SB IN WATER BY GFAA		SBK-04	SB	NFFB	20-JUL-94	0	<	3.03	UGL	SBK-04	VRRW*104
SB IN WATER BY GFAA		SBK-03	SB	NFFB	19-JUL-94	0	<	3.03	UGL	SBK-03	VRRW*103
SB IN WATER BY GFAA		SBK-02	SB	NFFB	19-JUL-94	0	<	3.03	UGL	SBK-02	VRRW*102
SB IN WATER BY GFAA		SBK-01	SB	NFFB	19-JUL-94	0	<	3.03	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP	SS10	SBK-07	AG	ZFXB	01-AUG-94	0	<	4.6	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	AG	ZFUB	21-JUL-94	0	<	4.6	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	AG	ZFUB	19-JUL-94	0	<	4.6	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	AG	ZFUB	19-JUL-94	0	<	4.6	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	AG	ZFUB	20-JUL-94	0	<	4.6	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	AG	ZFUB	21-JUL-94	0	<	4.6	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	AG	ZFUB	19-JUL-94	0	<	4.6	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	AL	ZFXB	01-AUG-94	0	<	141	UGL	SBK-07	VRRW*107

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
METALS IN WATER BY ICAP	SS10	SBK-06	AL	ZFUB	21-JUL-94	0	<	141	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	AL	ZFUB	19-JUL-94	0	<	141	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	AL	ZFUB	19-JUL-94	0	<	141	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	AL	ZFUB	20-JUL-94	0	<	141	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	AL	ZFUB	21-JUL-94	0	<	141	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	AL	ZFUB	19-JUL-94	0	<	141	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	BA	ZFXB	01-AUG-94	0	<	5	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	BA	ZFUB	21-JUL-94	0	<	5	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	BA	ZFUB	19-JUL-94	0	<	5	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	BA	ZFUB	19-JUL-94	0	<	5	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	BA	ZFUB	20-JUL-94	0	<	5	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	BA	ZFUB	21-JUL-94	0	<	5	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	BA	ZFUB	19-JUL-94	0	<	5	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	BE	ZFXB	01-AUG-94	0	<	5	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	BE	ZFUB	21-JUL-94	0	<	5	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	BE	ZFUB	19-JUL-94	0	<	5	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	BE	ZFUB	19-JUL-94	0	<	5	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	BE	ZFUB	20-JUL-94	0	<	5	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	BE	ZFUB	21-JUL-94	0	<	5	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	BE	ZFUB	19-JUL-94	0	<	5	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	CA	ZFXB	01-AUG-94	0		562	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-01	CA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-04	CA	ZFUB	20-JUL-94	0	<	500	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-02	CA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-06	CA	ZFUB	21-JUL-94	0	<	500	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-03	CA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-05	CA	ZFUB	21-JUL-94	0	<	500	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-07	CD	ZFXB	01-AUG-94	0	<	4.01	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	CD	ZFUB	21-JUL-94	0	<	4.01	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	CD	ZFUB	19-JUL-94	0	<	4.01	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	CD	ZFUB	19-JUL-94	0	<	4.01	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	CD	ZFUB	20-JUL-94	0	<	4.01	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	CD	ZFUB	21-JUL-94	0	<	4.01	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	CD	ZFUB	19-JUL-94	0	<	4.01	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	CO	ZFXB	01-AUG-94	0	<	25	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	CO	ZFUB	21-JUL-94	0	<	25	UGL	SBK-06	VRRW*106

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
METALS IN WATER BY ICAP	SS10	SBK-02	CO	ZFUB	19-JUL-94	0	<	25	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	CO	ZFUB	19-JUL-94	0	<	25	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	CO	ZFUB	20-JUL-94	0	<	25	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	CO	ZFUB	21-JUL-94	0	<	25	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	CO	ZFUB	19-JUL-94	0	<	25	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	CR	ZFXB	01-AUG-94	0	<	6.02	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-06	CR	ZFUB	21-JUL-94	0	<	6.02	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	CR	ZFUB	19-JUL-94	0	<	6.02	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	CR	ZFUB	19-JUL-94	0	<	6.02	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	CR	ZFUB	20-JUL-94	0	<	6.02	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	CR	ZFUB	21-JUL-94	0	<	6.02	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-01	CR	ZFUB	19-JUL-94	0	<	6.02	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	CU	ZFXB	01-AUG-94	0		26.9	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-01	CU	ZFUB	19-JUL-94	0	<	8.09	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-04	CU	ZFUB	20-JUL-94	0	<	8.09	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-03	CU	ZFUB	19-JUL-94	0	<	8.09	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-02	CU	ZFUB	19-JUL-94	0	<	8.09	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-06	CU	ZFUB	21-JUL-94	0	<	8.09	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-05	CU	ZFUB	21-JUL-94	0	<	8.09	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-07	FE	ZFXB	01-AUG-94	0		93.1	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-04	FE	ZFUB	20-JUL-94	0		50	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-01	FE	ZFUB	19-JUL-94	0	<	38.8	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-03	FE	ZFUB	19-JUL-94	0	<	38.8	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-06	FE	ZFUB	21-JUL-94	0	<	38.8	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	FE	ZFUB	19-JUL-94	0	<	38.8	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-05	FE	ZFUB	21-JUL-94	0	<	38.8	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-04	K	ZFUB	20-JUL-94	0		507	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-07	K	ZFXB	01-AUG-94	0	<	375	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-02	K	ZFUB	19-JUL-94	0	<	375	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-05	K	ZFUB	21-JUL-94	0	<	375	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	K	ZFUB	21-JUL-94	0	<	375	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-03	K	ZFUB	19-JUL-94	0	<	375	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-01	K	ZFUB	19-JUL-94	0	<	375	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	MG	ZFXB	01-AUG-94	0	<	500	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-05	MG	ZFUB	21-JUL-94	0	<	500	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	MG	ZFUB	21-JUL-94	0	<	500	UGL	SBK-06	VRRW*106

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
METALS IN WATER BY ICAP	SS10	SBK-02	MG	ZFUB	19-JUL-94	0	<	500	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-04	MG	ZFUB	20-JUL-94	0	<	500	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-03	MG	ZFUB	19-JUL-94	0	<	500	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-01	MG	ZFUB	19-JUL-94	0	<	500	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	MN	ZFXB	01-AUG-94	0		3.44	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-01	MN	ZFUB	19-JUL-94	0	<	2.75	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-04	MN	ZFUB	20-JUL-94	0	<	2.75	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-02	MN	ZFUB	19-JUL-94	0	<	2.75	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-05	MN	ZFUB	21-JUL-94	0	<	2.75	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	MN	ZFUB	21-JUL-94	0	<	2.75	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-03	MN	ZFUB	19-JUL-94	0	<	2.75	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-07	NA	ZFXB	01-AUG-94	0		777	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-01	NA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-04	NA	ZFUB	20-JUL-94	0	<	500	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-03	NA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-06	NA	ZFUB	21-JUL-94	0	<	500	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-05	NA	ZFUB	21-JUL-94	0	<	500	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-02	NA	ZFUB	19-JUL-94	0	<	500	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-07	NI	ZFXB	01-AUG-94	0	<	34.3	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-04	NI	ZFUB	20-JUL-94	0	<	34.3	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	NI	ZFUB	21-JUL-94	0	<	34.3	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	NI	ZFUB	21-JUL-94	0	<	34.3	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	NI	ZFUB	19-JUL-94	0	<	34.3	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-03	NI	ZFUB	19-JUL-94	0	<	34.3	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-01	NI	ZFUB	19-JUL-94	0	<	34.3	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-07	SN	ZFXB	01-AUG-94	0	<	47.1	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-01	SN	ZFUB	19-JUL-94	0	<	47.1	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-03	SN	ZFUB	19-JUL-94	0	<	47.1	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-04	SN	ZFUB	20-JUL-94	0	<	47.1	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-05	SN	ZFUB	21-JUL-94	0	<	47.1	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	SN	ZFUB	21-JUL-94	0	<	47.1	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-02	SN	ZFUB	19-JUL-94	0	<	47.1	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-07	V	ZFXB	01-AUG-94	0	<	11	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-03	V	ZFUB	19-JUL-94	0	<	11	UGL	SBK-03	VRRW*103
METALS IN WATER BY ICAP		SBK-02	V	ZFUB	19-JUL-94	0	<	11	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-04	V	ZFUB	20-JUL-94	0	<	11	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
METALS IN WATER BY ICAP	SS10	SBK-01	V	ZFUB	19-JUL-94	0	<	11	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-06	V	ZFUB	21-JUL-94	0	<	11	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-05	V	ZFUB	21-JUL-94	0	<	11	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-07	ZN	ZFXB	01-AUG-94	0		41.8	UGL	SBK-07	VRRW*107
METALS IN WATER BY ICAP		SBK-04	ZN	ZFUB	20-JUL-94	0	<	21.1	UGL	SBK-04	VRRW*104
METALS IN WATER BY ICAP		SBK-02	ZN	ZFUB	19-JUL-94	0	<	21.1	UGL	SBK-02	VRRW*102
METALS IN WATER BY ICAP		SBK-05	ZN	ZFUB	21-JUL-94	0	<	21.1	UGL	SBK-05	VRRW*105
METALS IN WATER BY ICAP		SBK-06	ZN	ZFUB	21-JUL-94	0	<	21.1	UGL	SBK-06	VRRW*106
METALS IN WATER BY ICAP		SBK-01	ZN	ZFUB	19-JUL-94	0	<	21.1	UGL	SBK-01	VRRW*101
METALS IN WATER BY ICAP		SBK-03	ZN	ZFUB	19-JUL-94	0	<	21.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS	UM18	SBK-07	124TCB	WDIC	01-AUG-94	0	<	1.8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	124TCB	WDFC	19-JUL-94	0	<	1.8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	124TCB	WDGC	21-JUL-94	0	<	1.8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	124TCB	WDFC	19-JUL-94	0	<	1.8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	124TCB	WDFC	19-JUL-94	0	<	1.8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	124TCB	WDGC	21-JUL-94	0	<	1.8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	124TCB	WDGC	20-JUL-94	0	<	1.8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	12DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	12DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	12DCLB	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	12DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-04	12DCLB	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-01	12DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	12DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	12DPH	WDIC	01-AUG-94	0	<	2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	12DPH	WDGC	20-JUL-94	0	<	2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	12DPH	WDGC	21-JUL-94	0	<	2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	12DPH	WDFC	19-JUL-94	0	<	2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	12DPH	WDFC	19-JUL-94	0	<	2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	12DPH	WDFC	19-JUL-94	0	<	2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	12DPH	WDGC	21-JUL-94	0	<	2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-03	13DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	13DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	13DCLB	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	13DCLB	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-02	13DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	13DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	13DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	14DCLB	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	14DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-04	14DCLB	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-01	14DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	14DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	14DCLB	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	14DCLB	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-03	245TCP	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	245TCP	WDGC	21-JUL-94	0	<	5.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	245TCP	WDIC	01-AUG-94	0	<	5.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	245TCP	WDGC	20-JUL-94	0	<	5.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-02	245TCP	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	245TCP	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	245TCP	WDGC	21-JUL-94	0	<	5.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	246TCP	WDIC	01-AUG-94	0	<	4.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	246TCP	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	246TCP	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	246TCP	WDGC	21-JUL-94	0	<	4.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	246TCP	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-04	246TCP	WDGC	20-JUL-94	0	<	4.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	246TCP	WDGC	21-JUL-94	0	<	4.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-05	24DCLP	WDGC	21-JUL-94	0	<	2.9	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	24DCLP	WDIC	01-AUG-94	0	<	2.9	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	24DCLP	WDGC	20-JUL-94	0	<	2.9	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	24DCLP	WDGC	21-JUL-94	0	<	2.9	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	24DCLP	WDFC	19-JUL-94	0	<	2.9	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	24DCLP	WDFC	19-JUL-94	0	<	2.9	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	24DCLP	WDFC	19-JUL-94	0	<	2.9	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	24DMPN	WDIC	01-AUG-94	0	<	5.8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	24DMPN	WDGC	20-JUL-94	0	<	5.8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-02	24DMPN	WDFC	19-JUL-94	0	<	5.8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	24DMPN	WDFC	19-JUL-94	0	<	5.8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	24DMPN	WDFC	19-JUL-94	0	<	5.8	UGL	SBK-01	VRRW*101

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-06	24DMPN	WDGC	21-JUL-94	0	<	5.8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	24DMPN	WDGC	21-JUL-94	0	<	5.8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-05	24DNP	WDGC	21-JUL-94	0	<	21	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	24DNP	WDGC	20-JUL-94	0	<	21	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	24DNP	WDIC	01-AUG-94	0	<	21	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	24DNP	WDFC	19-JUL-94	0	<	21	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	24DNP	WDFC	19-JUL-94	0	<	21	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	24DNP	WDFC	19-JUL-94	0	<	21	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	24DNP	WDGC	21-JUL-94	0	<	21	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	24DNT	WDIC	01-AUG-94	0	<	4.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	24DNT	WDFC	19-JUL-94	0	<	4.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	24DNT	WDFC	19-JUL-94	0	<	4.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	24DNT	WDFC	19-JUL-94	0	<	4.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	24DNT	WDGC	21-JUL-94	0	<	4.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	24DNT	WDGC	21-JUL-94	0	<	4.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	24DNT	WDGC	20-JUL-94	0	<	4.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	26DNT	WDGC	21-JUL-94	0	<	.79	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	26DNT	WDGC	20-JUL-94	0	<	.79	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	26DNT	WDIC	01-AUG-94	0	<	.79	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	26DNT	WDFC	19-JUL-94	0	<	.79	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	26DNT	WDFC	19-JUL-94	0	<	.79	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	26DNT	WDFC	19-JUL-94	0	<	.79	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	26DNT	WDGC	21-JUL-94	0	<	.79	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	2CLP	WDIC	01-AUG-94	0	<	.99	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	2CLP	WDFC	19-JUL-94	0	<	.99	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2CLP	WDFC	19-JUL-94	0	<	.99	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	2CLP	WDFC	19-JUL-94	0	<	.99	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	2CLP	WDGC	21-JUL-94	0	<	.99	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	2CLP	WDGC	21-JUL-94	0	<	.99	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	2CLP	WDGC	20-JUL-94	0	<	.99	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	2CNAP	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	2CNAP	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	2CNAP	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	2CNAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2CNAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	2CNAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-06	2CNAP	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	2MNAP	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	2MNAP	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-01	2MNAP	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	2MNAP	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2MNAP	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	2MNAP	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	2MNAP	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	2MP	WDGC	21-JUL-94	0	<	3.9	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	2MP	WDGC	20-JUL-94	0	<	3.9	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	2MP	WDIC	01-AUG-94	0	<	3.9	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	2MP	WDGC	21-JUL-94	0	<	3.9	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	2MP	WDFC	19-JUL-94	0	<	3.9	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2MP	WDFC	19-JUL-94	0	<	3.9	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	2MP	WDFC	19-JUL-94	0	<	3.9	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	2NANIL	WDIC	01-AUG-94	0	<	4.3	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	2NANIL	WDFC	19-JUL-94	0	<	4.3	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2NANIL	WDFC	19-JUL-94	0	<	4.3	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	2NANIL	WDFC	19-JUL-94	0	<	4.3	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	2NANIL	WDGC	21-JUL-94	0	<	4.3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	2NANIL	WDGC	21-JUL-94	0	<	4.3	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	2NANIL	WDGC	20-JUL-94	0	<	4.3	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	2NP	WDGC	21-JUL-94	0	<	3.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	2NP	WDIC	01-AUG-94	0	<	3.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	2NP	WDGC	20-JUL-94	0	<	3.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	2NP	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	2NP	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	2NP	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	2NP	WDGC	21-JUL-94	0	<	3.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-07	33DCBD	WDIC	01-AUG-94	0	<	12	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	33DCBD	WDGC	20-JUL-94	0	<	12	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	33DCBD	WDFC	19-JUL-94	0	<	12	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	33DCBD	WDFC	19-JUL-94	0	<	12	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	33DCBD	WDFC	19-JUL-94	0	<	12	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	33DCBD	WDGC	21-JUL-94	0	<	12	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	33DCBD	WDGC	21-JUL-94	0	<	12	UGL	SBK-05	VRRW*105

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-05	3NANIL	WDGC	21-JUL-94	0	<	4.9	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	3NANIL	WDIC	01-AUG-94	0	<	4.9	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	3NANIL	WDGC	21-JUL-94	0	<	4.9	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-04	3NANIL	WDGC	20-JUL-94	0	<	4.9	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-01	3NANIL	WDFC	19-JUL-94	0	<	4.9	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	3NANIL	WDFC	19-JUL-94	0	<	4.9	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	3NANIL	WDFC	19-JUL-94	0	<	4.9	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	46DN2C	WDIC	01-AUG-94	0	<	17	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	46DN2C	WDGC	20-JUL-94	0	<	17	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-02	46DN2C	WDFC	19-JUL-94	0	<	17	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	46DN2C	WDFC	19-JUL-94	0	<	17	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	46DN2C	WDFC	19-JUL-94	0	<	17	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	46DN2C	WDGC	21-JUL-94	0	<	17	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	46DN2C	WDGC	21-JUL-94	0	<	17	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-05	4BRPPE	WDGC	21-JUL-94	0	<	4.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	4BRPPE	WDIC	01-AUG-94	0	<	4.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	4BRPPE	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	4BRPPE	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	4BRPPE	WDFC	19-JUL-94	0	<	4.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	4BRPPE	WDGC	21-JUL-94	0	<	4.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-04	4BRPPE	WDGC	20-JUL-94	0	<	4.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	4CANIL	WDIC	01-AUG-94	0	<	7.3	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	4CANIL	WDGC	20-JUL-94	0	<	7.3	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	4CANIL	WDFC	19-JUL-94	0	<	7.3	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	4CANIL	WDFC	19-JUL-94	0	<	7.3	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	4CANIL	WDFC	19-JUL-94	0	<	7.3	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	4CANIL	WDGC	21-JUL-94	0	<	7.3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	4CANIL	WDGC	21-JUL-94	0	<	7.3	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-05	4CL3C	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	4CL3C	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	4CL3C	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	4CL3C	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	4CL3C	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	4CL3C	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	4CL3C	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	4CLPPE	WDIC	01-AUG-94	0	<	5.1	UGL	SBK-07	VRRW*107

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-06	4CLPPE	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-01	4CLPPE	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	4CLPPE	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	4CLPPE	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	4CLPPE	WDGC	20-JUL-94	0	<	5.1	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	4CLPPE	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-05	4MP	WDGC	21-JUL-94	0	<	.52	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	4MP	WDGC	20-JUL-94	0	<	.52	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	4MP	WDIC	01-AUG-94	0	<	.52	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	4MP	WDGC	21-JUL-94	0	<	.52	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	4MP	WDFC	19-JUL-94	0	<	.52	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	4MP	WDFC	19-JUL-94	0	<	.52	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	4MP	WDFC	19-JUL-94	0	<	.52	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	4NANIL	WDIC	01-AUG-94	0	<	5.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	4NANIL	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	4NANIL	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	4NANIL	WDFC	19-JUL-94	0	<	5.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	4NANIL	WDGC	21-JUL-94	0	<	5.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	4NANIL	WDGC	21-JUL-94	0	<	5.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	4NANIL	WDGC	20-JUL-94	0	<	5.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	4NP	WDGC	21-JUL-94	0	<	12	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	4NP	WDGC	21-JUL-94	0	<	12	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	4NP	WDGC	20-JUL-94	0	<	12	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	4NP	WDIC	01-AUG-94	0	<	12	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	4NP	WDFC	19-JUL-94	0	<	12	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	4NP	WDFC	19-JUL-94	0	<	12	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	4NP	WDFC	19-JUL-94	0	<	12	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	ABHC	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	ABHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ABHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-06	ABHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-01	ABHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ABHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ABHC	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	ACLDAN	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ACLDAN	WDGC	20-JUL-94	0	<	5.1	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-07	ACLDAN	WDIC	01-AUG-94	0	<	5.1	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-03	ACLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-06	ACLDAN	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	ACLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ACLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	AENSLF	WDIC	01-AUG-94	0	<	9.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	AENSLF	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	AENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	AENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	AENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	AENSLF	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	AENSLF	WDGC	20-JUL-94	0	<	9.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	ALDRN	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ALDRN	WDGC	20-JUL-94	0	<	4.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	ALDRN	WDIC	01-AUG-94	0	<	4.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	ALDRN	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ALDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ALDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ALDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	ANAPNE	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	ANAPNE	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ANAPNE	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ANAPNE	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ANAPNE	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ANAPNE	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ANAPNE	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	ANAPYL	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ANAPYL	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	ANAPYL	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	ANAPYL	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ANAPYL	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ANAPYL	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ANAPYL	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	ANTRC	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	ANTRC	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ANTRC	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-02	ANTRC	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ANTRC	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ANTRC	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ANTRC	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	B2CEXM	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	B2CEXM	WDGC	20-JUL-94	0	<	1.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	B2CEXM	WDIC	01-AUG-94	0	<	1.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	B2CEXM	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	B2CEXM	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	B2CEXM	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	B2CEXM	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	B2CIPE	WDIC	01-AUG-94	0	<	5.3	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	B2CIPE	WDGC	21-JUL-94	0	<	5.3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	B2CIPE	WDFC	19-JUL-94	0	<	5.3	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	B2CIPE	WDGC	21-JUL-94	0	<	5.3	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-02	B2CIPE	WDFC	19-JUL-94	0	<	5.3	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	B2CIPE	WDFC	19-JUL-94	0	<	5.3	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	B2CIPE	WDGC	20-JUL-94	0	<	5.3	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-04	B2CLEE	WDGC	20-JUL-94	0	<	1.9	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	B2CLEE	WDIC	01-AUG-94	0	<	1.9	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	B2CLEE	WDFC	19-JUL-94	0	<	1.9	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	B2CLEE	WDGC	21-JUL-94	0	<	1.9	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	B2CLEE	WDGC	21-JUL-94	0	<	1.9	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-03	B2CLEE	WDFC	19-JUL-94	0	<	1.9	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	B2CLEE	WDFC	19-JUL-94	0	<	1.9	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	B2EHP	WDIC	01-AUG-94	0		27	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	B2EHP	WDGC	20-JUL-94	0	<	4.8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-01	B2EHP	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	B2EHP	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	B2EHP	WDGC	21-JUL-94	0	<	4.8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	B2EHP	WDGC	21-JUL-94	0	<	4.8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	B2EHP	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	BAANTR	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	BAANTR	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	BAANTR	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-06	BAANTR	WDGC	21-JUL-94	0	<	1.6	UGL	SBK-06	VRRW*106

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-05	BAANTR	WDGC	21-JUL-94	0	<	1.6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	BAANTR	WDGC	20-JUL-94	0	<	1.6	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BAANTR	WDIC	01-AUG-94	0	<	1.6	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	BAPYR	WDGC	20-JUL-94	0	<	4.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BAPYR	WDIC	01-AUG-94	0	<	4.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	BAPYR	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	BAPYR	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	BAPYR	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BAPYR	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BAPYR	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	BBFANT	WDFC	19-JUL-94	0	<	5.4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BBFANT	WDGC	21-JUL-94	0	<	5.4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BBFANT	WDGC	21-JUL-94	0	<	5.4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BBFANT	WDFC	19-JUL-94	0	<	5.4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BBFANT	WDFC	19-JUL-94	0	<	5.4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	BBFANT	WDGC	20-JUL-94	0	<	5.4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BBFANT	WDIC	01-AUG-94	0	<	5.4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	BBHC	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BBHC	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	BBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BBHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BBHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	BBZP	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BBZP	WDGC	21-JUL-94	0	<	3.4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BBZP	WDGC	21-JUL-94	0	<	3.4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BBZP	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BBZP	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	BBZP	WDGC	20-JUL-94	0	<	3.4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BBZP	WDIC	01-AUG-94	0	<	3.4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	BENSLF	WDGC	20-JUL-94	0	<	9.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BENSLF	WDIC	01-AUG-94	0	<	9.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	BENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BENSLF	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BENSLF	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-06	VRRW*106

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-03	BENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BENSLF	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	BENZID	WDFC	19-JUL-94	0	<	10	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BENZID	WDGC	21-JUL-94	0	<	10	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BENZID	WDGC	21-JUL-94	0	<	10	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BENZID	WDFC	19-JUL-94	0	<	10	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BENZID	WDFC	19-JUL-94	0	<	10	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	BENZID	WDGC	20-JUL-94	0	<	10	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BENZID	WDIC	01-AUG-94	0	<	10	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	BENZOA	WDGC	20-JUL-94	0	<	13	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BENZOA	WDIC	01-AUG-94	0	<	13	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	BENZOA	WDFC	19-JUL-94	0	<	13	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BENZOA	WDGC	21-JUL-94	0	<	13	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BENZOA	WDGC	21-JUL-94	0	<	13	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BENZOA	WDFC	19-JUL-94	0	<	13	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BENZOA	WDFC	19-JUL-94	0	<	13	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	BGHIPY	WDFC	19-JUL-94	0	<	6.1	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BGHIPY	WDGC	21-JUL-94	0	<	6.1	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BGHIPY	WDGC	21-JUL-94	0	<	6.1	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BGHIPY	WDFC	19-JUL-94	0	<	6.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BGHIPY	WDFC	19-JUL-94	0	<	6.1	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	BGHIPY	WDGC	20-JUL-94	0	<	6.1	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BGHIPY	WDIC	01-AUG-94	0	<	6.1	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	BKFANT	WDGC	20-JUL-94	0	<	.87	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	BKFANT	WDIC	01-AUG-94	0	<	.87	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	BKFANT	WDFC	19-JUL-94	0	<	.87	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BKFANT	WDGC	21-JUL-94	0	<	.87	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BKFANT	WDGC	21-JUL-94	0	<	.87	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BKFANT	WDFC	19-JUL-94	0	<	.87	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BKFANT	WDFC	19-JUL-94	0	<	.87	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	BZALC	WDFC	19-JUL-94	0	<	.72	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	BZALC	WDGC	21-JUL-94	0	<	.72	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	BZALC	WDGC	21-JUL-94	0	<	.72	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	BZALC	WDFC	19-JUL-94	0	<	.72	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	BZALC	WDFC	19-JUL-94	0	<	.72	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	BZALC	WDGC	20-JUL-94	0	<	.72	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-07	BZALC	WDIC	01-AUG-94	0	<	.72	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-07	CAPLCT	WDIC	01-AUG-94	0		60	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	CARBAZ	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	CARBAZ	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	CARBAZ	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	CARBAZ	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	CARBAZ	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	CARBAZ	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	CARBAZ	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	CHRY	WDFC	19-JUL-94	0	<	2.4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	CHRY	WDGC	21-JUL-94	0	<	2.4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	CHRY	WDGC	21-JUL-94	0	<	2.4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	CHRY	WDFC	19-JUL-94	0	<	2.4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	CHRY	WDFC	19-JUL-94	0	<	2.4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-04	CHRY	WDGC	20-JUL-94	0	<	2.4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	CHRY	WDIC	01-AUG-94	0	<	2.4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-07	CL6BZ	WDIC	01-AUG-94	0	<	1.6	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	CL6BZ	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	CL6BZ	WDGC	20-JUL-94	0	<	1.6	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	CL6BZ	WDGC	21-JUL-94	0	<	1.6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	CL6BZ	WDGC	21-JUL-94	0	<	1.6	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	CL6BZ	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	CL6BZ	WDFC	19-JUL-94	0	<	1.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	CL6CP	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	CL6CP	WDGC	20-JUL-94	0	<	8.6	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	CL6CP	WDGC	21-JUL-94	0	<	8.6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	CL6CP	WDGC	21-JUL-94	0	<	8.6	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	CL6CP	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	CL6CP	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	CL6CP	WDIC	01-AUG-94	0	<	8.6	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-07	CL6ET	WDIC	01-AUG-94	0	<	1.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	CL6ET	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	CL6ET	WDGC	20-JUL-94	0	<	1.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	CL6ET	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	CL6ET	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	CL6ET	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-03	VRRW*103

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-02	CL6ET	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	DBAHA	WDFC	19-JUL-94	0	<	6.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	DBAHA	WDGC	20-JUL-94	0	<	6.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	DBAHA	WDGC	21-JUL-94	0	<	6.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	DBAHA	WDGC	21-JUL-94	0	<	6.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DBAHA	WDFC	19-JUL-94	0	<	6.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	DBAHA	WDFC	19-JUL-94	0	<	6.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	DBAHA	WDIC	01-AUG-94	0	<	6.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-07	DBHC	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	DBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	DBHC	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	DBHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	DBHC	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	DBHC	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	DBZFUR	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	DBZFUR	WDGC	20-JUL-94	0	<	1.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	DBZFUR	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	DBZFUR	WDGC	21-JUL-94	0	<	1.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DBZFUR	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	DBZFUR	WDFC	19-JUL-94	0	<	1.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	DBZFUR	WDIC	01-AUG-94	0	<	1.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	DEP	WDFC	19-JUL-94	0	<	2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	DEP	WDFC	19-JUL-94	0	<	2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	DEP	WDFC	19-JUL-94	0	<	2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-05	DEP	WDGC	21-JUL-94	0	<	2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	DEP	WDGC	20-JUL-94	0	<	2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	DEP	WDIC	01-AUG-94	0	<	2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	DEP	WDGC	21-JUL-94	0	<	2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-01	DLDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	DLDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	DLDRN	WDIC	01-AUG-94	0	<	4.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	DLDRN	WDGC	20-JUL-94	0	<	4.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	DLDRN	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	DLDRN	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DLDRN	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-03	VRRW*103

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-01	DMP	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	DMP	WDIC	01-AUG-94	0	<	1.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	DMP	WDGC	20-JUL-94	0	<	1.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	DMP	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	DMP	WDGC	21-JUL-94	0	<	1.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DMP	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	DMP	WDFC	19-JUL-94	0	<	1.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	DNBP	WDGC	21-JUL-94	0		11	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	DNBP	WDGC	20-JUL-94	0		10	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	DNBP	WDIC	01-AUG-94	0		7.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	DNBP	WDGC	21-JUL-94	0		7.3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-02	DNBP	WDFC	19-JUL-94	0		5.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-03	DNBP	WDFC	19-JUL-94	0		5.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	DNBP	WDFC	19-JUL-94	0		3.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	DNOP	WDGC	21-JUL-94	0	<	15	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	DNOP	WDFC	19-JUL-94	0	<	15	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	DNOP	WDGC	20-JUL-94	0	<	15	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-07	DNOP	WDIC	01-AUG-94	0	<	15	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-06	DNOP	WDGC	21-JUL-94	0	<	15	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	DNOP	WDFC	19-JUL-94	0	<	15	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	DNOP	WDFC	19-JUL-94	0	<	15	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	ENDRN	WDGC	21-JUL-94	0	<	7.6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	ENDRN	WDIC	01-AUG-94	0	<	7.6	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	ENDRN	WDGC	20-JUL-94	0	<	7.6	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ENDRN	WDGC	21-JUL-94	0	<	7.6	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ENDRN	WDFC	19-JUL-94	0	<	7.6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ENDRN	WDFC	19-JUL-94	0	<	7.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ENDRN	WDFC	19-JUL-94	0	<	7.6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ENDRNA	WDGC	21-JUL-94	0	<	8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ENDRNA	WDGC	20-JUL-94	0	<	8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ENDRNA	WDGC	21-JUL-94	0	<	8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ENDRNA	WDFC	19-JUL-94	0	<	8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	ENDRNA	WDIC	01-AUG-94	0	<	8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	ENDRNA	WDFC	19-JUL-94	0	<	8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ENDRNA	WDFC	19-JUL-94	0	<	8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ENDRNK	WDGC	21-JUL-94	0	<	8	UGL	SBK-05	VRRW*105

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-07	ENDRNK	WDIC	01-AUG-94	0	<	8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	ENDRNK	WDGC	20-JUL-94	0	<	8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ENDRNK	WDGC	21-JUL-94	0	<	8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ENDRNK	WDFC	19-JUL-94	0	<	8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ENDRNK	WDFC	19-JUL-94	0	<	8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ENDRNK	WDFC	19-JUL-94	0	<	8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ESFSO4	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ESFSO4	WDGC	20-JUL-94	0	<	9.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ESFSO4	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ESFSO4	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	ESFSO4	WDIC	01-AUG-94	0	<	9.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	ESFSO4	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ESFSO4	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	FANT	WDGC	21-JUL-94	0	<	3.3	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	FANT	WDIC	01-AUG-94	0	<	3.3	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	FANT	WDGC	20-JUL-94	0	<	3.3	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	FANT	WDGC	21-JUL-94	0	<	3.3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	FANT	WDFC	19-JUL-94	0	<	3.3	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	FANT	WDFC	19-JUL-94	0	<	3.3	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	FANT	WDFC	19-JUL-94	0	<	3.3	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	FLRENE	WDGC	21-JUL-94	0	<	3.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	FLRENE	WDGC	20-JUL-94	0	<	3.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	FLRENE	WDGC	21-JUL-94	0	<	3.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	FLRENE	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	FLRENE	WDIC	01-AUG-94	0	<	3.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	FLRENE	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	FLRENE	WDFC	19-JUL-94	0	<	3.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	GCLDAN	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	GCLDAN	WDIC	01-AUG-94	0	<	5.1	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	GCLDAN	WDGC	20-JUL-94	0	<	5.1	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	GCLDAN	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	GCLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	GCLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	GCLDAN	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	HCBD	WDGC	21-JUL-94	0	<	3.4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	HCBD	WDGC	20-JUL-94	0	<	3.4	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-06	HCBD	WDGC	21-JUL-94	0	<	3.4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	HCBD	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	HCBD	WDIC	01-AUG-94	0	<	3.4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	HCBD	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	HCBD	WDFC	19-JUL-94	0	<	3.4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	HPCL	WDGC	21-JUL-94	0	<	2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	HPCL	WDIC	01-AUG-94	0	<	2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	HPCL	WDGC	20-JUL-94	0	<	2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	HPCL	WDGC	21-JUL-94	0	<	2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	HPCL	WDFC	19-JUL-94	0	<	2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	HPCL	WDFC	19-JUL-94	0	<	2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	HPCL	WDFC	19-JUL-94	0	<	2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	HPCLE	WDGC	21-JUL-94	0	<	5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	HPCLE	WDGC	20-JUL-94	0	<	5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	HPCLE	WDGC	21-JUL-94	0	<	5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	HPCLE	WDFC	19-JUL-94	0	<	5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	HPCLE	WDIC	01-AUG-94	0	<	5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	HPCLE	WDFC	19-JUL-94	0	<	5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	HPCLE	WDFC	19-JUL-94	0	<	5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ICDPYR	WDGC	21-JUL-94	0	<	8.6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	ICDPYR	WDIC	01-AUG-94	0	<	8.6	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	ICDPYR	WDGC	20-JUL-94	0	<	8.6	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ICDPYR	WDGC	21-JUL-94	0	<	8.6	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ICDPYR	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	ICDPYR	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ICDPYR	WDFC	19-JUL-94	0	<	8.6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	ISOPHR	WDGC	21-JUL-94	0	<	4.8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	ISOPHR	WDGC	20-JUL-94	0	<	4.8	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	ISOPHR	WDGC	21-JUL-94	0	<	4.8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	ISOPHR	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	ISOPHR	WDIC	01-AUG-94	0	<	4.8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	ISOPHR	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	ISOPHR	WDFC	19-JUL-94	0	<	4.8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	LIN	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	LIN	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	LIN	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-06	LIN	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	LIN	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	LIN	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	LIN	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	MEXCLR	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	MEXCLR	WDGC	20-JUL-94	0	<	5.1	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	MEXCLR	WDGC	21-JUL-94	0	<	5.1	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	MEXCLR	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-07	MEXCLR	WDIC	01-AUG-94	0	<	5.1	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	MEXCLR	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	MEXCLR	WDFC	19-JUL-94	0	<	5.1	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-02	MIBK	WDFC	19-JUL-94	0		7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	MIBK	WDGC	20-JUL-94	0		7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	MIBK	WDGC	21-JUL-94	0		6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-03	MIBK	WDFC	19-JUL-94	0		6	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-06	MIBK	WDGC	21-JUL-94	0		6	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	NAP	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	NAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	NAP	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	NAP	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	NAP	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	NAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	NAP	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	NB	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	NB	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	NB	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	NB	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	NB	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	NB	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	NB	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	NNDMEA	WDGC	21-JUL-94	0	<	2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	NNDMEA	WDIC	01-AUG-94	0	<	2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	NNDMEA	WDFC	19-JUL-94	0	<	2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	NNDMEA	WDGC	20-JUL-94	0	<	2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	NNDMEA	WDGC	21-JUL-94	0	<	2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	NNDMEA	WDFC	19-JUL-94	0	<	2	UGL	SBK-03	VRRW*103

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-02	NNDMEA	WDFC	19-JUL-94	0	<	2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	NNDNPA	WDGC	21-JUL-94	0	<	4.4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	NNDNPA	WDFC	19-JUL-94	0	<	4.4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	NNDNPA	WDIC	01-AUG-94	0	<	4.4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	NNDNPA	WDGC	20-JUL-94	0	<	4.4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	NNDNPA	WDGC	21-JUL-94	0	<	4.4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	NNDNPA	WDFC	19-JUL-94	0	<	4.4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	NNDNPA	WDFC	19-JUL-94	0	<	4.4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	NNDPA	WDGC	21-JUL-94	0	<	3	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	NNDPA	WDIC	01-AUG-94	0	<	3	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	NNDPA	WDGC	20-JUL-94	0	<	3	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	NNDPA	WDGC	21-JUL-94	0	<	3	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	NNDPA	WDFC	19-JUL-94	0	<	3	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	NNDPA	WDFC	19-JUL-94	0	<	3	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	NNDPA	WDFC	19-JUL-94	0	<	3	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	PCB016	WDGC	21-JUL-94	0	<	21	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PCB016	WDIC	01-AUG-94	0	<	21	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCB016	WDGC	20-JUL-94	0	<	21	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB016	WDGC	21-JUL-94	0	<	21	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB016	WDFC	19-JUL-94	0	<	21	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCB016	WDFC	19-JUL-94	0	<	21	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	PCB016	WDFC	19-JUL-94	0	<	21	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	PCB221	WDGC	21-JUL-94	0	<	21	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PCB221	WDIC	01-AUG-94	0	<	21	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCB221	WDGC	20-JUL-94	0	<	21	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB221	WDGC	21-JUL-94	0	<	21	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB221	WDFC	19-JUL-94	0	<	21	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCB221	WDFC	19-JUL-94	0	<	21	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	PCB221	WDFC	19-JUL-94	0	<	21	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	PCB232	WDGC	21-JUL-94	0	<	21	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-02	PCB232	WDFC	19-JUL-94	0	<	21	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	PCB232	WDIC	01-AUG-94	0	<	21	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCB232	WDGC	20-JUL-94	0	<	21	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB232	WDGC	21-JUL-94	0	<	21	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB232	WDFC	19-JUL-94	0	<	21	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	PCB232	WDFC	19-JUL-94	0	<	21	UGL	SBK-01	VRRW*101

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-05	PCB242	WDGC	21-JUL-94	0	<	30	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PCB242	WDIC	01-AUG-94	0	<	30	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-02	PCB242	WDFC	19-JUL-94	0	<	30	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-04	PCB242	WDGC	20-JUL-94	0	<	30	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB242	WDGC	21-JUL-94	0	<	30	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB242	WDFC	19-JUL-94	0	<	30	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	PCB242	WDFC	19-JUL-94	0	<	30	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-05	PCB248	WDGC	21-JUL-94	0	<	30	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	PCB248	WDFC	19-JUL-94	0	<	30	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	PCB248	WDIC	01-AUG-94	0	<	30	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCB248	WDGC	20-JUL-94	0	<	30	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB248	WDGC	21-JUL-94	0	<	30	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB248	WDFC	19-JUL-94	0	<	30	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCB248	WDFC	19-JUL-94	0	<	30	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	PCB254	WDGC	21-JUL-94	0	<	36	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PCB254	WDIC	01-AUG-94	0	<	36	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	PCB254	WDFC	19-JUL-94	0	<	36	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	PCB254	WDGC	20-JUL-94	0	<	36	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB254	WDGC	21-JUL-94	0	<	36	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB254	WDFC	19-JUL-94	0	<	36	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCB254	WDFC	19-JUL-94	0	<	36	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	PCB260	WDGC	21-JUL-94	0	<	36	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-01	PCB260	WDFC	19-JUL-94	0	<	36	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-07	PCB260	WDIC	01-AUG-94	0	<	36	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCB260	WDGC	20-JUL-94	0	<	36	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-06	PCB260	WDGC	21-JUL-94	0	<	36	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	PCB260	WDFC	19-JUL-94	0	<	36	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCB260	WDFC	19-JUL-94	0	<	36	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-05	PCP	WDGC	21-JUL-94	0	<	18	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PCP	WDIC	01-AUG-94	0	<	18	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PCP	WDGC	20-JUL-94	0	<	18	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-01	PCP	WDFC	19-JUL-94	0	<	18	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-03	PCP	WDFC	19-JUL-94	0	<	18	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PCP	WDFC	19-JUL-94	0	<	18	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-06	PCP	WDGC	21-JUL-94	0	<	18	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PHANTR	WDGC	21-JUL-94	0	<	.5	UGL	SBK-05	VRRW*105

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-07	PHANTR	WDIC	01-AUG-94	0	<	.5	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PHANTR	WDGC	20-JUL-94	0	<	.5	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	PHANTR	WDFC	19-JUL-94	0	<	.5	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PHANTR	WDFC	19-JUL-94	0	<	.5	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	PHANTR	WDFC	19-JUL-94	0	<	.5	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PHANTR	WDGC	21-JUL-94	0	<	.5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PHENOL	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	PHENOL	WDGC	20-JUL-94	0	<	9.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	PHENOL	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PHENOL	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	PHENOL	WDIC	01-AUG-94	0	<	9.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	PHENOL	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PHENOL	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PPDDD	WDGC	21-JUL-94	0	<	4	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PPDDD	WDIC	01-AUG-94	0	<	4	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PPDDD	WDGC	20-JUL-94	0	<	4	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	PPDDD	WDFC	19-JUL-94	0	<	4	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PPDDD	WDFC	19-JUL-94	0	<	4	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	PPDDD	WDFC	19-JUL-94	0	<	4	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PPDDD	WDGC	21-JUL-94	0	<	4	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PPDDE	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	PPDDE	WDGC	20-JUL-94	0	<	4.7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	PPDDE	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PPDDE	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	PPDDE	WDIC	01-AUG-94	0	<	4.7	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	PPDDE	WDFC	19-JUL-94	0	<	4.7	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PPDDE	WDGC	21-JUL-94	0	<	4.7	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PPDDT	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	PPDDT	WDIC	01-AUG-94	0	<	9.2	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	PPDDT	WDGC	20-JUL-94	0	<	9.2	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-03	PPDDT	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PPDDT	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	PPDDT	WDFC	19-JUL-94	0	<	9.2	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PPDDT	WDGC	21-JUL-94	0	<	9.2	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	PYR	WDGC	21-JUL-94	0	<	2.8	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-04	PYR	WDGC	20-JUL-94	0	<	2.8	UGL	SBK-04	VRRW*104

Chemical Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

RINSATE BLANKS

Method Description	USATHAMA Method Code	IRDMIS Field Sample Number	Test Name	Lot	Sample Date	Spike Value	<	Value	Units	IRDMIS Site ID	Lab Number
BNA'S IN WATER BY GC/MS	UM18	SBK-03	PYR	WDFC	19-JUL-94	0	<	2.8	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-02	PYR	WDFC	19-JUL-94	0	<	2.8	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-07	PYR	WDIC	01-AUG-94	0	<	2.8	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-01	PYR	WDFC	19-JUL-94	0	<	2.8	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	PYR	WDGC	21-JUL-94	0	<	2.8	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-05	TXPHEN	WDGC	21-JUL-94	0	<	36	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-07	TXPHEN	WDIC	01-AUG-94	0	<	36	UGL	SBK-07	VRRW*107
BNA'S IN WATER BY GC/MS		SBK-04	TXPHEN	WDGC	20-JUL-94	0	<	36	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-02	TXPHEN	WDFC	19-JUL-94	0	<	36	UGL	SBK-02	VRRW*102
BNA'S IN WATER BY GC/MS		SBK-01	TXPHEN	WDFC	19-JUL-94	0	<	36	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-06	TXPHEN	WDGC	21-JUL-94	0	<	36	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-03	TXPHEN	WDFC	19-JUL-94	0	<	36	UGL	SBK-03	VRRW*103
BNA'S IN WATER BY GC/MS		SBK-01	UNK562	WDFC	19-JUL-94	0		6	UGL	SBK-01	VRRW*101
BNA'S IN WATER BY GC/MS		SBK-04	UNK597	WDGC	20-JUL-94	0		7	UGL	SBK-04	VRRW*104
BNA'S IN WATER BY GC/MS		SBK-05	UNK597	WDGC	21-JUL-94	0		6	UGL	SBK-05	VRRW*105
BNA'S IN WATER BY GC/MS		SBK-06	UNK597	WDGC	21-JUL-94	0		5	UGL	SBK-06	VRRW*106
BNA'S IN WATER BY GC/MS		SBK-04	UNK618	WDGC	20-JUL-94	0		8	UGL	SBK-04	VRRW*104

TABLE E-7

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
	1302	HARD	MXRH01X1	VRRW*111	TEDV	02-AUG-94	04-AUG-94	40000	42000	UGL	105.0	4.9
	1302	HARD	MXRH01X1	VRRW*111	TEDV	02-AUG-94	04-AUG-94	40000	40000	UGL	100.0	4.9
	1302	HARD	MXSH18X2	VRRW*115	TEFX	03-AUG-94	16-AUG-94	40000	47000	UGL	117.5	11.2
	1302	HARD	MXSH18X2	VRRW*115	TEFX	03-AUG-94	16-AUG-94	40000	42000	UGL	105.0	11.2
		**********									----------	
		avg									106.9	
		minimum									100.0	
		maximum									117.5	
	4151	TOC	MXRH01X1	VRRW*111	TERV	02-AUG-94	12-AUG-94	73800	70000	UGL	94.9	2.9
	4151	TOC	MXRH01X1	VRRW*111	TERV	02-AUG-94	12-AUG-94	73800	68000	UGL	92.1	2.9
		**********									----------	
		avg									93.5	
		minimum									92.1	
		maximum									94.9	
	9060	TOC	DXRH0200	DVRRS*1	ZEHE	20-JUL-94	09-AUG-94	12400	79000	UGG	637.1	73.7
	9060	TOC	DXRH0200	DVRRS*1	ZEHE	20-JUL-94	09-AUG-94	5780	17000	UGG	294.1	73.7
	9060	TOC	SXRH0400	DVRRS*11	ZEBE	08-JUL-94	01-AUG-94	4180	23000	UGG	550.2	118.3
	9060	TOC	SXRH0400	DVRRS*11	ZEBE	08-JUL-94	01-AUG-94	4180	5900	UGG	141.1	118.3
	9060	TOC	SXRH1200	DVRRS*35	ZECE	15-JUL-94	02-AUG-94	4250	17000	UGG	400.0	125.4
	9060	TOC	SXRH1200	DVRRS*35	ZECE	15-JUL-94	02-AUG-94	3270	3000	UGG	91.7	125.4
	9060	TOC	BXRH0222	DVRRS*67	ZECE	15-JUL-94	02-AUG-94	1770	2100	UGG	118.6	13.0
	9060	TOC	BXRH0222	DVRRS*67	ZECE	15-JUL-94	02-AUG-94	1440	1500	UGG	104.2	13.0
		**********									----------	
		avg									292.1	
		minimum									91.7	
		maximum									637.1	
HG IN WATER BY CVAA	JB01	HG	DXRH0200	DVRRS*1	QHQB	20-JUL-94	06-AUG-94	.641	.652	UGG	101.7	7.3
HG IN WATER BY CVAA	JB01	HG	DXRH0200	DVRRS*1	QHQB	20-JUL-94	06-AUG-94	.584	.552	UGG	94.5	7.3
HG IN WATER BY CVAA	JB01	HG	SXRH0400	DVRRS*11	QHPB	08-JUL-94	24-JUL-94	.492	.458	UGG	93.1	.0
HG IN WATER BY CVAA	JB01	HG	SXRH0400	DVRRS*11	QHPB	08-JUL-94	24-JUL-94	.492	.458	UGG	93.1	.0
HG IN WATER BY CVAA	JB01	HG	SXRH0401	DVRRS*12	QHPB	08-JUL-94	24-JUL-94	.47	.494	UGG	105.1	1.6
HG IN WATER BY CVAA	JB01	HG	SXRH0401	DVRRS*12	QHPB	08-JUL-94	24-JUL-94	.468	.484	UGG	103.4	1.6
		**********									----------	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		avg									98.5	
		minimum									93.1	
		maximum									105.1	
SE IN SOIL BY GFAA	JD15	SE	DXRH0200	DVRRS*1	MBOB	20-JUL-94	09-AUG-94	6.34	7.12	UGG	112.3	73.2
SE IN SOIL BY GFAA	JD15	SE	DXRH0200	DVRRS*1	MBOB	20-JUL-94	09-AUG-94	6.45	3.36	UGG	52.1	73.2
SE IN SOIL BY GFAA	JD15	SE	SXRH0400	DVRRS*11	MBNB	08-JUL-94	27-JUL-94	4.9	4.22	UGG	86.1	1.3
SE IN SOIL BY GFAA	JD15	SE	SXRH0400	DVRRS*11	MBNB	08-JUL-94	27-JUL-94	4.86	4.13	UGG	85.0	1.3
SE IN SOIL BY GFAA	JD15	SE	SXRH0500	DVRRS*14	MBNB	07-JUL-94	28-JUL-94	4.24	3.7	UGG	87.3	13.9
SE IN SOIL BY GFAA	JD15	SE	SXRH0500	DVRRS*14	MBNB	07-JUL-94	28-JUL-94	4.2	3.19	UGG	76.0	13.9
		**********									----------	
		avg									83.1	
		minimum									52.1	
		maximum									112.3	
AS IN SOIL BY GFAA	JD19	AS	DXRH0200	DVRRS*1	QBOB	20-JUL-94	08-AUG-94	6.45	5.96	UGG	92.4	11.7
AS IN SOIL BY GFAA	JD19	AS	DXRH0200	DVRRS*1	QBOB	20-JUL-94	08-AUG-94	6.34	5.21	UGG	82.2	11.7
AS IN SOIL BY GFAA	JD19	AS	SXRH0400	DVRRS*11	QBNB	08-JUL-94	27-JUL-94	4.86	9.7	UGG	199.6	17.6
AS IN SOIL BY GFAA	JD19	AS	SXRH0400	DVRRS*11	QBNB	08-JUL-94	27-JUL-94	4.9	8.2	UGG	167.3	17.6
AS IN SOIL BY GFAA	JD19	AS	SXRH0500	DVRRS*14	QBNB	07-JUL-94	27-JUL-94	4.2	4.1	UGG	97.6	53.2
AS IN SOIL BY GFAA	JD19	AS	SXRH0500	DVRRS*14	QBNB	07-JUL-94	27-JUL-94	4.24	2.4	UGG	56.6	53.2
		**********									----------	
		avg									116.0	
		minimum									56.6	
		maximum									199.6	
TL IN SOIL BY GFAA	JD24	TL	DXRH0200	DVRRS*1	RBGA	20-JUL-94	08-AUG-94	6.34	8.2	UGG	129.3	10.2
TL IN SOIL BY GFAA	JD24	TL	DXRH0200	DVRRS*1	RBGA	20-JUL-94	08-AUG-94	6.45	7.53	UGG	116.7	10.2
TL IN SOIL BY GFAA	JD24	TL	SXRH0400	DVRRS*11	RBFA	08-JUL-94	26-JUL-94	4.9	5.96	UGG	121.6	.9
TL IN SOIL BY GFAA	JD24	TL	SXRH0400	DVRRS*11	RBFA	08-JUL-94	26-JUL-94	4.86	5.86	UGG	120.6	.9
TL IN SOIL BY GFAA	JD24	TL	SXRH0500	DVRRS*14	RBFA	07-JUL-94	26-JUL-94	4.24	4.87	UGG	114.9	2.4
TL IN SOIL BY GFAA	JD24	TL	SXRH0500	DVRRS*14	RBFA	07-JUL-94	26-JUL-94	4.2	4.71	UGG	112.1	2.4
		**********									----------	
		avg									119.2	
		minimum									112.1	
		maximum									129.3	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
SB IN SOIL BY GFAA	JD25	SB	DXRH0200	DVRRS*1	SBSA	20-JUL-94	11-AUG-94	12.5	15.2	UGG	121.6	9.2
SB IN SOIL BY GFAA	JD25	SB	DXRH0200	DVRRS*1	SBSA	20-JUL-94	11-AUG-94	12.8	14.2	UGG	110.9	9.2
SB IN SOIL BY GFAA	JD25	SB	SXRH0400	DVRRS*11	SBRA	08-JUL-94	02-AUG-94	9.74	9.64	UGG	99.0	21.4
SB IN SOIL BY GFAA	JD25	SB	SXRH0400	DVRRS*11	SBRA	08-JUL-94	02-AUG-94	9.79	7.82	UGG	79.9	21.4
SB IN SOIL BY GFAA	JD25	SB	SXRH0500	DVRRS*14	SBRA	07-JUL-94	02-AUG-94	8.44	35	UGG	414.7	124.7
SB IN SOIL BY GFAA	JD25	SB	SXRH0500	DVRRS*14	SBRA	07-JUL-94	02-AUG-94	8.44	8.12	UGG	96.2	124.7
		**********									----------	
		avg									153.7	
		minimum									79.9	
		maximum									414.7	
METALS IN SOIL BY ICAP	JS16	AG	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	12.5	12	UGG	96.0	8.7
METALS IN SOIL BY ICAP	JS16	AG	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	12.5	11	UGG	88.0	8.7
METALS IN SOIL BY ICAP	JS16	AG	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	9.83	9.47	UGG	96.3	.0
METALS IN SOIL BY ICAP	JS16	AG	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	9.5	9.15	UGG	96.3	.0
METALS IN SOIL BY ICAP	JS16	AG	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	8.23	7.73	UGG	93.9	3.6
METALS IN SOIL BY ICAP	JS16	AG	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	8.07	7.31	UGG	90.6	3.6
		**********									----------	
		avg									93.5	
		minimum									88.0	
		maximum									96.3	
METALS IN SOIL BY ICAP	JS16	AL	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	314	2.35	UGG	.7	.3
METALS IN SOIL BY ICAP	JS16	AL	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	313	2.35	UGG	.8	.3
METALS IN SOIL BY ICAP	JS16	AL	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	238	2.35	UGG	1.0	3.3
METALS IN SOIL BY ICAP	JS16	AL	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	246	2.35	UGG	1.0	3.3
METALS IN SOIL BY ICAP	JS16	AL	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	202	129	UGG	63.9	54.8
METALS IN SOIL BY ICAP	JS16	AL	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	206	75	UGG	36.4	54.8
		**********									----------	
		avg									17.3	
		minimum									.7	
		maximum									63.9	
METALS IN SOIL BY ICAP	JS16	BA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	5.18	UGG	6.6	.1
METALS IN SOIL BY ICAP	JS16	BA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	5.18	UGG	6.6	.1
METALS IN SOIL BY ICAP	JS16	BA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	71.3	56.8	UGG	79.7	43.1

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN SOIL BY ICAP	JS16	BA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	73.7	37.9	UGG	51.4	43.1
METALS IN SOIL BY ICAP	JS16	BA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	61.7	65.5	UGG	106.2	.2
METALS IN SOIL BY ICAP	JS16	BA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	60.5	64.1	UGG	106.0	.2
		**********									----------	
		avg									59.4	
		minimum									6.6	
		maximum									106.2	
METALS IN SOIL BY ICAP	JS16	BE	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	86.7	UGG	110.6	.9
METALS IN SOIL BY ICAP	JS16	BE	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	85.8	UGG	109.6	.9
METALS IN SOIL BY ICAP	JS16	BE	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	64.7	UGG	105.4	1.9
METALS IN SOIL BY ICAP	JS16	BE	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	63.8	UGG	107.4	1.9
METALS IN SOIL BY ICAP	JS16	BE	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	54.5	UGG	106.0	.6
METALS IN SOIL BY ICAP	JS16	BE	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	53.1	UGG	105.4	.6
		**********									----------	
		avg									107.4	
		minimum									105.4	
		maximum									110.6	
METALS IN SOIL BY ICAP	JS16	CA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7830	100	UGG	1.3	.1
METALS IN SOIL BY ICAP	JS16	CA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7840	100	UGG	1.3	.1
METALS IN SOIL BY ICAP	JS16	CA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	5940	4760	UGG	80.1	5.9
METALS IN SOIL BY ICAP	JS16	CA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	6140	4640	UGG	75.6	5.9
METALS IN SOIL BY ICAP	JS16	CA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5140	5240	UGG	101.9	.4
METALS IN SOIL BY ICAP	JS16	CA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5040	5120	UGG	101.6	.4
		**********									----------	
		avg									60.3	
		minimum									1.3	
		maximum									101.9	
METALS IN SOIL BY ICAP	JS16	CD	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	88.1	UGG	112.4	.1
METALS IN SOIL BY ICAP	JS16	CD	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	87.9	UGG	112.3	.1
METALS IN SOIL BY ICAP	JS16	CD	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	65.5	UGG	106.7	1.0
METALS IN SOIL BY ICAP	JS16	CD	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	64	UGG	107.7	1.0
METALS IN SOIL BY ICAP	JS16	CD	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	55.2	UGG	107.4	.2
METALS IN SOIL BY ICAP	JS16	CD	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	54	UGG	107.1	.2
		**********									----------	
		avg									108.9	
		minimum									106.7	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		maximum									112.4	
METALS IN SOIL BY ICAP	JS16	CO	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	169	UGG	107.6	.6
METALS IN SOIL BY ICAP	JS16	CO	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	168	UGG	107.0	.6
METALS IN SOIL BY ICAP	JS16	CO	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	123	133	UGG	108.1	.3
METALS IN SOIL BY ICAP	JS16	CO	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	119	129	UGG	108.4	.3
METALS IN SOIL BY ICAP	JS16	CO	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	103	111	UGG	107.8	.8
METALS IN SOIL BY ICAP	JS16	CO	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	101	108	UGG	106.9	.8
		**********									----------	
		avg									107.6	
		minimum									106.9	
		maximum									108.4	
METALS IN SOIL BY ICAP	JS16	CR	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	212	UGG	135.0	16.3
METALS IN SOIL BY ICAP	JS16	CR	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	180	UGG	114.6	16.3
METALS IN SOIL BY ICAP	JS16	CR	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	123	137	UGG	111.4	1.8
METALS IN SOIL BY ICAP	JS16	CR	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	119	135	UGG	113.4	1.8
METALS IN SOIL BY ICAP	JS16	CR	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	103	115	UGG	111.7	.7
METALS IN SOIL BY ICAP	JS16	CR	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	101	112	UGG	110.9	.7
		**********									----------	
		avg									116.2	
		minimum									110.9	
		maximum									135.0	
METALS IN SOIL BY ICAP	JS16	CU	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	.965	UGG	1.2	.1
METALS IN SOIL BY ICAP	JS16	CU	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	.965	UGG	1.2	.1
METALS IN SOIL BY ICAP	JS16	CU	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	210	UGG	353.5	98.8
METALS IN SOIL BY ICAP	JS16	CU	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	73.5	UGG	119.7	98.8
METALS IN SOIL BY ICAP	JS16	CU	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	54.3	UGG	105.6	.6
METALS IN SOIL BY ICAP	JS16	CU	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	52.9	UGG	105.0	.6
		**********									----------	
		avg									114.4	
		minimum									1.2	
		maximum									353.5	
METALS IN SOIL BY ICAP	JS16	FE	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	1570	14200	UGG	904.5	117.5
METALS IN SOIL BY ICAP	JS16	FE	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	1570	3690	UGG	235.0	117.5
METALS IN SOIL BY ICAP	JS16	FE	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	1230	6340	UGG	515.4	38.6
METALS IN SOIL BY ICAP	JS16	FE	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	1190	4150	UGG	348.7	38.6

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN SOIL BY ICAP	JS16	FE	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	1010	997	UGG	98.7	3.4
METALS IN SOIL BY ICAP	JS16	FE	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	1030	983	UGG	95.4	3.4
		***********									----------	
		avg									366.3	
		minimum									95.4	
		maximum									904.5	
METALS IN SOIL BY ICAP	JS16	K	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7840	6750	UGG	86.1	.0
METALS IN SOIL BY ICAP	JS16	K	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7830	6740	UGG	86.1	.0
METALS IN SOIL BY ICAP	JS16	K	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	6140	6520	UGG	106.2	.8
METALS IN SOIL BY ICAP	JS16	K	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	5940	6260	UGG	105.4	.8
METALS IN SOIL BY ICAP	JS16	K	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5140	5000	UGG	97.3	.4
METALS IN SOIL BY ICAP	JS16	K	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5040	4920	UGG	97.6	.4
		***********									----------	
		avg									96.4	
		minimum									86.1	
		maximum									106.2	
METALS IN SOIL BY ICAP	JS16	MG	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7830	8180	UGG	104.5	3.4
METALS IN SOIL BY ICAP	JS16	MG	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7840	7920	UGG	101.0	3.4
METALS IN SOIL BY ICAP	JS16	MG	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	6140	6580	UGG	107.2	.8
METALS IN SOIL BY ICAP	JS16	MG	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	5940	6420	UGG	108.1	.8
METALS IN SOIL BY ICAP	JS16	MG	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5140	5520	UGG	107.4	.2
METALS IN SOIL BY ICAP	JS16	MG	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5040	5400	UGG	107.1	.2
		***********									----------	
		avg									105.9	
		minimum									101.0	
		maximum									108.1	
METALS IN SOIL BY ICAP	JS16	MN	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	123	UGG	157.1	42.8
METALS IN SOIL BY ICAP	JS16	MN	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	79.7	UGG	101.7	42.8
METALS IN SOIL BY ICAP	JS16	MN	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	68.5	UGG	111.6	2.0
METALS IN SOIL BY ICAP	JS16	MN	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	67.6	UGG	113.8	2.0
METALS IN SOIL BY ICAP	JS16	MN	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	50.5	UGG	98.2	8.7
METALS IN SOIL BY ICAP	JS16	MN	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	45.4	UGG	90.1	8.7
		***********									----------	
		avg									112.1	
		minimum									90.1	
		maximum									157.1	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN SOIL BY ICAP	JS16	NA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7840	7560	UGG	96.4	.8
METALS IN SOIL BY ICAP	JS16	NA	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	7830	7490	UGG	95.7	.8
METALS IN SOIL BY ICAP	JS16	NA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	6140	6240	UGG	101.6	1.0
METALS IN SOIL BY ICAP	JS16	NA	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	5940	6100	UGG	102.7	1.0
METALS IN SOIL BY ICAP	JS16	NA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5140	5360	UGG	104.3	.3
METALS IN SOIL BY ICAP	JS16	NA	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	5040	5240	UGG	104.0	.3
		**********									----------	
		avg									100.8	
		minimum									95.7	
		maximum									104.3	
METALS IN SOIL BY ICAP	JS16	NI	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	98.6	UGG	125.9	3.2
METALS IN SOIL BY ICAP	JS16	NI	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	95.6	UGG	121.9	3.2
METALS IN SOIL BY ICAP	JS16	NI	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	74.8	UGG	121.8	5.2
METALS IN SOIL BY ICAP	JS16	NI	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	68.7	UGG	115.7	5.2
METALS IN SOIL BY ICAP	JS16	NI	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	57.3	UGG	111.5	1.0
METALS IN SOIL BY ICAP	JS16	NI	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	55.6	UGG	110.3	1.0
		**********									----------	
		avg									117.9	
		minimum									110.3	
		maximum									125.9	
METALS IN SOIL BY ICAP	JS16	PB	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	235	415	UGG	176.6	43.8
METALS IN SOIL BY ICAP	JS16	PB	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	235	266	UGG	113.2	43.8
METALS IN SOIL BY ICAP	JS16	PB	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	178	207	UGG	116.3	7.3
METALS IN SOIL BY ICAP	JS16	PB	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	184	199	UGG	108.2	7.3
METALS IN SOIL BY ICAP	JS16	PB	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	154	170	UGG	110.4	.4
METALS IN SOIL BY ICAP	JS16	PB	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	151	166	UGG	109.9	.4
		**********									----------	
		avg									122.4	
		minimum									108.2	
		maximum									176.6	
METALS IN SOIL BY ICAP	JS16	V	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.4	77.1	UGG	98.3	1.6
METALS IN SOIL BY ICAP	JS16	V	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	78.3	75.8	UGG	96.8	1.6
METALS IN SOIL BY ICAP	JS16	V	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	59.4	62.1	UGG	104.5	3.5
METALS IN SOIL BY ICAP	JS16	V	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	61.4	62	UGG	101.0	3.5
METALS IN SOIL BY ICAP	JS16	V	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	51.4	55	UGG	107.0	.8

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN SOIL BY ICAP	JS16	V	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	50.4	53.5	UGG	106.2	.8
		**********									----------	
		avg									102.3	
		minimum									96.8	
		maximum									107.0	
METALS IN SOIL BY ICAP	JS16	ZN	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	197	UGG	125.5	3.1
METALS IN SOIL BY ICAP	JS16	ZN	DXRH0200	DVRRS*1	UBCC	20-JUL-94	08-AUG-94	157	191	UGG	121.7	3.1
METALS IN SOIL BY ICAP	JS16	ZN	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	119	143	UGG	120.2	8.3
METALS IN SOIL BY ICAP	JS16	ZN	SXRH0400	DVRRS*11	UBZB	08-JUL-94	28-JUL-94	123	136	UGG	110.6	8.3
METALS IN SOIL BY ICAP	JS16	ZN	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	103	116	UGG	112.6	.7
METALS IN SOIL BY ICAP	JS16	ZN	SXRH1302	DVRRS*41	UBZB	15-JUL-94	28-JUL-94	101	113	UGG	111.9	.7
		**********									----------	
		avg									117.1	
		minimum									110.6	
		maximum									125.5	
BNA'S IN SOIL BY GC/MS	LM18	124TCB	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	6	UGG	111.1	.0
BNA'S IN SOIL BY GC/MS	LM18	124TCB	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	6	UGG	111.1	.0
BNA'S IN SOIL BY GC/MS	LM18	124TCB	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	5.1	UGG	124.4	10.3
BNA'S IN SOIL BY GC/MS	LM18	124TCB	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	4.6	UGG	112.2	10.3
		**********									----------	
		avg									114.7	
		minimum									111.1	
		maximum									124.4	
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	7	UGG	129.6	15.4
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	6	UGG	111.1	15.4
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	5.9	UGG	143.9	7.0
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	5.5	UGG	134.1	7.0
		**********									----------	
		avg									129.7	
		minimum									111.1	
		maximum									143.9	
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	7.7	UGG	114.9	12.6
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	6.7	7	UGG	104.5	12.6
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	6.8	UGG	101.5	12.6

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	4.8	UGG	71.6	15.6
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	4.6	UGG	68.7	15.6
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	4.1	UGG	61.2	15.6
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	6.7	5.3	UGG	79.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	6.7	4	UGG	59.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	6.7	5.7	UGG	85.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	6.7	4.1	UGG	61.2	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	6.7	3.7	UGG	55.2	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	6.7	5.7	UGG	85.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	6.7	5.3	UGG	79.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	6.7	5.1	UGG	76.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	6.7	5.6	UGG	83.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	6.7	5.6	UGG	83.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	6.7	4.2	UGG	62.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	6.7	5.2	UGG	77.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	6.7	.69	UGG	10.3	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	6.7	4.4	UGG	65.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	6.7	4	UGG	59.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	6.7	4.8	UGG	71.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	6.7	4.6	UGG	68.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	6.7	4.6	UGG	68.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	6.7	6.7	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	6.7	7.1	UGG	106.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	6.7	7	UGG	104.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	6.7	5.6	UGG	83.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	6.7	6.7	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	6.7	5.5	UGG	82.1	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	6.7	6.3	UGG	94.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	6.7	6.5	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	6.7	4.5	UGG	67.2	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	6.7	7	UGG	104.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	6.7	5.8	UGG	86.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	6.7	6.7	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	6.7	6.4	UGG	95.5	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	6.7	4.5	UGG	67.2	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	6.7	7.8	UGG	116.4	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	6.7	7.1	UGG	106.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	6.7	6.3	UGG	94.0	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	6.7	4.6	UGG	68.7	.0
BNA'S IN SOIL BY GC/MS	LM18	246TBP	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	6.7	6.5	UGG	97.0	.0
		***********									----------	
		avg									84.7	
		minimum									10.3	
		maximum									116.4	
BNA'S IN SOIL BY GC/MS	LM18	24DNT	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	4	UGG	74.1	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	4	UGG	74.1	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	2.6	UGG	63.4	8.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	2.4	UGG	58.5	8.0
		**********									----------	
		avg									67.5	
		minimum									58.5	
		maximum									74.1	
BNA'S IN SOIL BY GC/MS	LM18	2CLP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	11	10	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	11	10	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	8	UGG	97.6	5.1
BNA'S IN SOIL BY GC/MS	LM18	2CLP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	7.6	UGG	92.7	5.1
		***********									----------	
		avg									93.0	
		minimum									90.9	
		maximum									97.6	
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	3.4	UGG	103.0	12.6
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	3.3	3.1	UGG	93.9	12.6
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	3	UGG	90.9	12.6
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.8	UGG	84.8	15.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.8	UGG	84.8	15.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.4	UGG	72.7	15.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	3.3	.52	UGG	15.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	3.3	3.2	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	3.3	3.2	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	3.3	1.6	UGG	48.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	3.3	4	UGG	121.2	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	3.3	3.2	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	3.3	3.7	UGG	112.1	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	3.3	3.9	UGG	118.2	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FBP	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
		**********									----------	
		avg									88.9	
		minimum									15.8	
		maximum									121.2	
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	7.7	UGG	114.9	17.1
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	6.7	6.9	UGG	103.0	17.1
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	6.5	UGG	97.0	17.1
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	6.6	UGG	98.5	11.2
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	6.2	UGG	92.5	11.2
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	5.9	UGG	88.1	11.2
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	6.7	6.5	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	6.7	5.6	UGG	83.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	6.7	6.7	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	6.7	6.5	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	6.7	8.3	UGG	123.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	6.7	1.3	UGG	19.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	6.7	5.9	UGG	88.1	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	6.7	6	UGG	89.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	6.7	7.5	UGG	111.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	6.7	9	UGG	134.3	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	6.7	8.7	UGG	129.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	6.7	9.1	UGG	135.8	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	6.7	9	UGG	134.3	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	6.7	7.9	UGG	117.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	6.7	8.7	UGG	129.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	6.7	8.5	UGG	126.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	6.7	8.5	UGG	126.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	6.7	8.3	UGG	123.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	6.7	8.2	UGG	122.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	6.7	8.7	UGG	129.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	6.7	5.9	UGG	88.1	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	6.7	8.1	UGG	120.9	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	6.7	6.3	UGG	94.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	6.7	5.4	UGG	80.6	.0
BNA'S IN SOIL BY GC/MS	LM18	2FP	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	6.7	6.9	UGG	103.0	.0
		**********									----------	
		avg									105.1	
		minimum									19.4	
		maximum									135.8	
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	11	9	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	11	9	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	6.5	UGG	79.3	11.4
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	5.8	UGG	70.7	11.4
		**********									----------	
		avg									78.4	
		minimum									70.7	
		maximum									81.8	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	4NP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	11	7	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	11	7	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	3.9	UGG	47.6	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	3.9	UGG	47.6	.0
		***********									----------	
		avg									55.6	
		minimum									47.6	
		maximum									63.6	
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	7	UGG	129.6	15.4
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	6	UGG	111.1	15.4
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	3	UGG	73.2	.0
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	3	UGG	73.2	.0
		**********									----------	
		avg									96.8	
		minimum									73.2	
		maximum									129.6	
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	3.1	UGG	93.9	14.1
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	3.3	2.7	UGG	81.8	14.1
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	2.7	UGG	81.8	14.1
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	20.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.6	UGG	78.8	20.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.2	UGG	66.7	20.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	3.3	2.6	UGG	78.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	3.3	.45	UGG	13.6	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	3.3	2.6	UGG	78.8	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	3.3	2.6	UGG	78.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	3.3	2.6	UGG	78.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	3.3	3.4	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	3.3	3.4	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	3.3	3.4	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	3.3	3.1	UGG	93.9	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	NBD5	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	3.3	2.9	UGG	87.9	.0
		**********									---------	
		avg									85.5	
		minimum									13.6	
		maximum									103.0	
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	5	UGG	92.6	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	5	UGG	92.6	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	4.8	UGG	117.1	2.1

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	4.7	UGG	114.6	2.1
		**********									----------	
		avg									104.2	
		minimum									92.6	
		maximum									117.1	
BNA'S IN SOIL BY GC/MS	LM18	PCP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	11	6	UGG	54.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	11	6	UGG	54.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	4.1	UGG	50.0	48.5
BNA'S IN SOIL BY GC/MS	LM18	PCP	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	2.5	UGG	30.5	48.5
		**********									----------	
		avg									47.4	
		minimum									30.5	
		maximum									54.5	
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	8.1	UGG	120.9	17.8
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	6.7	7	UGG	104.5	17.8
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	6.7	6.8	UGG	101.5	17.8
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	6.7	UGG	100.0	14.4
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	6.2	UGG	92.5	14.4
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	6.7	5.8	UGG	86.6	14.4
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	6.7	5.8	UGG	86.6	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	6.7	5.8	UGG	86.6	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	6.7	5.5	UGG	82.1	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	6.7	6.1	UGG	91.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	6.7	6.4	UGG	95.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	6.7	6.9	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	6.7	6.6	UGG	98.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	6.7	8	UGG	119.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	6.7	1.2	UGG	17.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	6.7	5.6	UGG	83.6	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	6.7	5.8	UGG	86.6	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	6.7	7.2	UGG	107.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	6.7	6.2	UGG	92.5	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	6.7	6.8	UGG	101.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	6.7	8.4	UGG	125.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	6.7	7.8	UGG	116.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	6.7	8.5	UGG	126.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	6.7	7	UGG	104.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	6.7	7.8	UGG	116.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	6.7	7.8	UGG	116.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	6.7	6.8	UGG	101.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	6.7	7.4	UGG	110.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	6.7	7.5	UGG	111.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	6.7	7.3	UGG	109.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	6.7	7.5	UGG	111.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	6.7	7.9	UGG	117.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	6.7	7	UGG	104.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	6.7	7.2	UGG	107.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	6.7	7.2	UGG	107.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	6.7	7.2	UGG	107.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	6.7	7	UGG	104.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	6.7	6.2	UGG	92.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	6.7	8.3	UGG	123.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	6.7	6.7	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	6.7	7.8	UGG	116.4	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	6.7	7.2	UGG	107.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	6.7	6.8	UGG	101.5	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	6.7	6.1	UGG	91.0	.0
BNA'S IN SOIL BY GC/MS	LM18	PHEND6	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	6.7	7	UGG	104.5	.0
		**********									----------	
		avg									102.0	
		minimum									17.9	
		maximum									126.9	
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	11	10	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	11	10	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	8.5	UGG	103.7	3.6
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	8.2	8.2	UGG	100.0	3.6
		**********									----------	
		avg									96.4	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		minimum									90.9	
		maximum									103.7	
BNA'S IN SOIL BY GC/MS	LM18	PYR	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	5.4	6	UGG	111.1	18.2
BNA'S IN SOIL BY GC/MS	LM18	PYR	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	5.4	5	UGG	92.6	18.2
BNA'S IN SOIL BY GC/MS	LM18	PYR	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	3.5	UGG	85.4	12.1
BNA'S IN SOIL BY GC/MS	LM18	PYR	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	4.1	3.1	UGG	75.6	12.1
		***********									----------	
		avg									91.2	
		minimum									75.6	
		maximum									111.1	
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	2.6	UGG	78.8	12.5
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0200	DVRRS*1	OEVB	20-JUL-94	06-AUG-94	3.3	2.3	UGG	69.7	12.5
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0200	DVRRS*1	OEVB	20-JUL-94	05-AUG-94	3.3	2.3	UGG	69.7	12.5
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0400	DVRRS*11	OERB	08-JUL-94	31-JUL-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0401	DVRRS*12	OERB	08-JUL-94	31-JUL-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0402	DVRRS*13	OERB	08-JUL-94	30-JUL-94	3.3	2.3	UGG	69.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0500	DVRRS*14	OERB	07-JUL-94	30-JUL-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0501	DVRRS*15	OERB	07-JUL-94	30-JUL-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0502	DVRRS*16	OERB	07-JUL-94	30-JUL-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0600	DVRRS*17	OERB	07-JUL-94	30-JUL-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0601	DVRRS*18	OERB	07-JUL-94	30-JUL-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0602	DVRRS*19	OERB	07-JUL-94	30-JUL-94	3.3	2	UGG	60.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0700	DVRRS*20	OERB	08-JUL-94	30-JUL-94	3.3	2.3	UGG	69.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0701	DVRRS*21	OERB	08-JUL-94	31-JUL-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0702	DVRRS*22	OERB	08-JUL-94	31-JUL-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0800	DVRRS*23	OERB	08-JUL-94	31-JUL-94	3.3	2.8	UGG	84.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0801	DVRRS*24	OERB	08-JUL-94	31-JUL-94	3.3	.47	UGG	14.2	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0802	DVRRS*25	OERB	08-JUL-94	31-JUL-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0901	DVRRS*26	OERB	08-JUL-94	31-JUL-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0901	DVRRS*27	OERB	08-JUL-94	31-JUL-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH0902	DVRRS*28	OERB	08-JUL-94	31-JUL-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1000	DVRRS*29	OESB	18-JUL-94	09-AUG-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1001	DVRRS*30	OESB	18-JUL-94	01-AUG-94	3.3	3.2	UGG	97.0	.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1002	DVRRS*31	OESB	18-JUL-94	01-AUG-94	3.3	3.4	UGG	103.0	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1100	DVRRS*32	OESB	18-JUL-94	10-AUG-94	3.3	1.7	UGG	51.5	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1101	DVRRS*33	OESB	18-JUL-94	01-AUG-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1102	DVRRS*34	OESB	18-JUL-94	10-AUG-94	3.3	2	UGG	60.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1201	DVRRS*36	OESB	15-JUL-94	01-AUG-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1202	DVRRS*37	OESB	15-JUL-94	01-AUG-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1300	DVRRS*39	OESB	15-JUL-94	10-AUG-94	3.3	1.8	UGG	54.5	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0400	DVRRS*4	OEVB	20-JUL-94	05-AUG-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1301	DVRRS*40	OESB	15-JUL-94	01-AUG-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1302	DVRRS*41	OESB	15-JUL-94	01-AUG-94	3.3	3.2	UGG	97.0	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1400	DVRRS*42	OETB	19-JUL-94	04-AUG-94	3.3	3.3	UGG	100.0	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1401	DVRRS*43	OETB	19-JUL-94	04-AUG-94	3.3	2.6	UGG	78.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1402	DVRRS*44	OETB	19-JUL-94	04-AUG-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1500	DVRRS*45	OETB	19-JUL-94	04-AUG-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1501	DVRRS*46	OETB	19-JUL-94	04-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1502	DVRRS*47	OETB	19-JUL-94	04-AUG-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1600	DVRRS*48	OEVB	21-JUL-94	05-AUG-94	3.3	3	UGG	90.9	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1601	DVRRS*49	OEVB	21-JUL-94	05-AUG-94	3.3	2.7	UGG	81.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	DXRH0500	DVRRS*5	OEVB	20-JUL-94	05-AUG-94	3.3	2.5	UGG	75.8	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1700	DVRRS*51	OEVB	21-JUL-94	05-AUG-94	3.3	2.4	UGG	72.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1701	DVRRS*52	OEVB	21-JUL-94	05-AUG-94	3.3	2.1	UGG	63.6	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1800	DVRRS*54	OEVB	21-JUL-94	05-AUG-94	3.3	2.2	UGG	66.7	.0
BNA'S IN SOIL BY GC/MS	LM18	TRPD14	SXRH1801	DVRRS*55	OEVB	21-JUL-94	05-AUG-94	3.3	2.1	UGG	63.6	.0
		**********									----------	
		avg									72.2	
		minimum									14.2	
		maximum									103.0	
HG IN WATER BY CVAA	SB01	HG	MXRH02X1	VRRF*112	TCIC	01-AUG-94	29-AUG-94	4	3.49	UGL	87.3	8.0
HG IN WATER BY CVAA	SB01	HG	MXRH02X1	VRRF*112	TCIC	01-AUG-94	29-AUG-94	4	3.22	UGL	80.5	8.0
HG IN WATER BY CVAA	SB01	HG	MXRH01X1	VRRW*111	TCEC	02-AUG-94	28-AUG-94	4	3.17	UGL	79.3	.0
HG IN WATER BY CVAA	SB01	HG	MXRH01X1	VRRW*111	TCEC	02-AUG-94	28-AUG-94	4	3.17	UGL	79.3	.0
		**********									----------	
		avg									81.6	
		minimum									79.3	
		maximum									87.3	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
TL IN WATER BY GFAA	SD09	TL	MXRH01X1	VRRF*111	UCTB	02-AUG-94	27-AUG-94	10	6.99	UGL	69.9	.0
TL IN WATER BY GFAA	SD09	TL	MXRH01X1	VRRF*111	UCTB	02-AUG-94	27-AUG-94	10	6.99	UGL	69.9	.0
TL IN WATER BY GFAA	SD09	TL	MXRH01X1	VRRW*111	UCTB	02-AUG-94	27-AUG-94	10	8.84	UGL	88.4	3.8
TL IN WATER BY GFAA	SD09	TL	MXRH01X1	VRRW*111	UCTB	02-AUG-94	27-AUG-94	10	8.51	UGL	85.1	3.8
		**********									----------	
		avg									78.3	
		minimum									69.9	
		maximum									88.4	
PB IN WATER BY GFAA	SD20	PB	MXRH01X1	VRRF*111	WCDC	02-AUG-94	29-AUG-94	40	42.3	UGL	105.8	.2
PB IN WATER BY GFAA	SD20	PB	MXRH01X1	VRRF*111	WCDC	02-AUG-94	29-AUG-94	40	42.2	UGL	105.5	.2
PB IN WATER BY GFAA	SD20	PB	MXRH01X1	VRRW*111	WCDC	02-AUG-94	29-AUG-94	40	48	UGL	120.0	153.6
PB IN WATER BY GFAA	SD20	PB	MXRH01X1	VRRW*111	WCDC	02-AUG-94	29-AUG-94	40	6.3	UGL	15.8	153.6
		**********									----------	
		avg									86.8	
		minimum									15.8	
		maximum									120.0	
SE IN WATER BY GFAA	SD21	SE	MXRH01X1	VRRF*111	XCYB	02-AUG-94	27-AUG-94	37.5	37.3	UGL	99.5	3.3
SE IN WATER BY GFAA	SD21	SE	MXRH01X1	VRRF*111	XCYB	02-AUG-94	27-AUG-94	37.5	36.1	UGL	96.3	3.3
SE IN WATER BY GFAA	SD21	SE	MXRH01X1	VRRW*111	XCYB	02-AUG-94	27-AUG-94	37.5	32.1	UGL	85.6	8.8
SE IN WATER BY GFAA	SD21	SE	MXRH01X1	VRRW*111	XCYB	02-AUG-94	27-AUG-94	37.5	29.4	UGL	78.4	8.8
		**********									----------	
		avg									89.9	
		minimum									78.4	
		maximum									99.5	
AS IN WATER BY GFAA	SD22	AS	MXRH01X1	VRRF*111	YCZB	02-AUG-94	29-AUG-94	37.5	64.9	UGL	173.1	9.9
AS IN WATER BY GFAA	SD22	AS	MXRH01X1	VRRF*111	YCZB	02-AUG-94	29-AUG-94	37.5	58.8	UGL	156.8	9.9
AS IN WATER BY GFAA	SD22	AS	MXRH01X1	VRRW*111	YCZB	02-AUG-94	27-AUG-94	37.5	40.2	UGL	107.2	1.0
AS IN WATER BY GFAA	SD22	AS	MXRH01X1	VRRW*111	YCZB	02-AUG-94	27-AUG-94	37.5	39.8	UGL	106.1	1.0
		**********									----------	
		avg									135.8	
		minimum									106.1	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		maximum									173.1	
SB IN WATER BY GFAA	SD28	SB	MXRH01X1	VRRF*111	NFHB	02-AUG-94	27-AUG-94	80	73	UGL	91.3	.4
SB IN WATER BY GFAA	SD28	SB	MXRH01X1	VRRF*111	NFHB	02-AUG-94	27-AUG-94	80	72.7	UGL	90.9	.4
SB IN WATER BY GFAA	SD28	SB	MXRH01X1	VRRW*111	NFHB	02-AUG-94	27-AUG-94	80	68.6	UGL	85.8	1.3
SB IN WATER BY GFAA	SD28	SB	MXRH01X1	VRRW*111	NFHB	02-AUG-94	27-AUG-94	80	67.7	UGL	84.6	1.3
		**********									----------	
		avg									88.1	
		minimum									84.6	
		maximum									91.3	
METALS IN WATER BY ICAP	SS10	AG	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	53.1	UGL	106.2	2.3
METALS IN WATER BY ICAP	SS10	AG	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	51.9	UGL	103.8	2.3
METALS IN WATER BY ICAP	SS10	AG	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	52.1	UGL	104.2	2.9
METALS IN WATER BY ICAP	SS10	AG	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	50.6	UGL	101.2	2.9
		**********									----------	
		avg									103.9	
		minimum									101.2	
		maximum									106.2	
METALS IN WATER BY ICAP	SS10	AL	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	2000	2060	UGL	103.0	1.0
METALS IN WATER BY ICAP	SS10	AL	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	2000	2040	UGL	102.0	1.0
METALS IN WATER BY ICAP	SS10	AL	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	2000	1970	UGL	98.5	8.5
METALS IN WATER BY ICAP	SS10	AL	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	2000	1810	UGL	90.5	8.5
		**********									----------	
		avg									98.5	
		minimum									90.5	
		maximum									103.0	
METALS IN WATER BY ICAP	SS10	BA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	2000	1810	UGL	90.5	.6
METALS IN WATER BY ICAP	SS10	BA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	2000	1800	UGL	90.0	.6
METALS IN WATER BY ICAP	SS10	BA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	2000	1790	UGL	89.5	.6
METALS IN WATER BY ICAP	SS10	BA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	2000	1780	UGL	89.0	.6
		**********									----------	
		avg									89.8	
		minimum									89.0	
		maximum									90.5	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN WATER BY ICAP	SS10	BE	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	57.3	UGL	114.6	2.5
METALS IN WATER BY ICAP	SS10	BE	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	55.9	UGL	111.8	2.5
METALS IN WATER BY ICAP	SS10	BE	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	54.4	UGL	108.8	.0
METALS IN WATER BY ICAP	SS10	BE	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	54.4	UGL	108.8	.0
		**********									----------	
		avg									111.0	
		minimum									108.8	
		maximum									114.6	
METALS IN WATER BY ICAP	SS10	CA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	12400	UGL	124.0	3.3
METALS IN WATER BY ICAP	SS10	CA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	12000	UGL	120.0	3.3
METALS IN WATER BY ICAP	SS10	CA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10700	UGL	107.0	2.8
METALS IN WATER BY ICAP	SS10	CA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10400	UGL	104.0	2.8
		**********									----------	
		avg									113.8	
		minimum									104.0	
		maximum									124.0	
METALS IN WATER BY ICAP	SS10	CD	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	49.2	UGL	98.4	.4
METALS IN WATER BY ICAP	SS10	CD	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	50	49	UGL	98.0	.4
METALS IN WATER BY ICAP	SS10	CD	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	54.1	UGL	108.2	9.3
METALS IN WATER BY ICAP	SS10	CD	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	50	49.3	UGL	98.6	9.3
		**********									----------	
		avg									100.8	
		minimum									98.0	
		maximum									108.2	
METALS IN WATER BY ICAP	SS10	CO	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	570	UGL	114.0	1.9
METALS IN WATER BY ICAP	SS10	CO	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	559	UGL	111.8	1.9
METALS IN WATER BY ICAP	SS10	CO	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	609	UGL	121.8	9.5
METALS IN WATER BY ICAP	SS10	CO	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	554	UGL	110.8	9.5
		**********									----------	
		avg									114.6	
		minimum									110.8	
		maximum									121.8	
METALS IN WATER BY ICAP	SS10	CR	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	200	196	UGL	98.0	1.0
METALS IN WATER BY ICAP	SS10	CR	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	200	194	UGL	97.0	1.0

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN WATER BY ICAP	SS10	CR	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	200	197	UGL	98.5	2.6
METALS IN WATER BY ICAP	SS10	CR	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	200	192	UGL	96.0	2.6
		**********									----------	
		avg									97.4	
		minimum									96.0	
		maximum									98.5	
METALS IN WATER BY ICAP	SS10	CU	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	250	249	UGL	99.6	1.2
METALS IN WATER BY ICAP	SS10	CU	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	250	246	UGL	98.4	1.2
METALS IN WATER BY ICAP	SS10	CU	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	250	254	UGL	101.6	2.8
METALS IN WATER BY ICAP	SS10	CU	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	250	247	UGL	98.8	2.8
		**********									----------	
		avg									99.6	
		minimum									98.4	
		maximum									101.6	
METALS IN WATER BY ICAP	SS10	FE	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	1000	1110	UGL	111.0	.9
METALS IN WATER BY ICAP	SS10	FE	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	1000	1100	UGL	110.0	.9
METALS IN WATER BY ICAP	SS10	FE	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	1000	951	UGL	95.1	58.1
METALS IN WATER BY ICAP	SS10	FE	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	1000	523	UGL	52.3	58.1
		**********									----------	
		avg									92.1	
		minimum									52.3	
		maximum									111.0	
METALS IN WATER BY ICAP	SS10	K	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	11500	UGL	115.0	2.6
METALS IN WATER BY ICAP	SS10	K	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	11200	UGL	112.0	2.6
METALS IN WATER BY ICAP	SS10	K	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	11400	UGL	114.0	1.8
METALS IN WATER BY ICAP	SS10	K	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	11200	UGL	112.0	1.8
		**********									----------	
		avg									113.3	
		minimum									112.0	
		maximum									115.0	
METALS IN WATER BY ICAP	SS10	MG	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	10600	UGL	106.0	.9
METALS IN WATER BY ICAP	SS10	MG	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	10500	UGL	105.0	.9
METALS IN WATER BY ICAP	SS10	MG	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10200	UGL	102.0	1.0
METALS IN WATER BY ICAP	SS10	MG	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10100	UGL	101.0	1.0
		**********									----------	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		avg									103.5	
		minimum									101.0	
		maximum									106.0	
METALS IN WATER BY ICAP	SS10	MN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	513	UGL	102.6	1.0
METALS IN WATER BY ICAP	SS10	MN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	508	UGL	101.6	1.0
METALS IN WATER BY ICAP	SS10	MN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	503	UGL	100.6	.2
METALS IN WATER BY ICAP	SS10	MN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	502	UGL	100.4	.2
		**********									----------	
		avg									101.3	
		minimum									100.4	
		maximum									102.6	
METALS IN WATER BY ICAP	SS10	NA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	11200	UGL	112.0	.9
METALS IN WATER BY ICAP	SS10	NA	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	10000	11100	UGL	111.0	.9
METALS IN WATER BY ICAP	SS10	NA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10600	UGL	106.0	.9
METALS IN WATER BY ICAP	SS10	NA	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	10000	10500	UGL	105.0	.9
		**********									----------	
		avg									108.5	
		minimum									105.0	
		maximum									112.0	
METALS IN WATER BY ICAP	SS10	NI	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	570	UGL	114.0	.2
METALS IN WATER BY ICAP	SS10	NI	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	569	UGL	113.8	.2
METALS IN WATER BY ICAP	SS10	NI	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	579	UGL	115.8	4.1
METALS IN WATER BY ICAP	SS10	NI	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	556	UGL	111.2	4.1
		**********									----------	
		avg									113.7	
		minimum									111.2	
		maximum									115.8	
METALS IN WATER BY ICAP	SS10	SN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	1000	200	UGL	20.0	.0
METALS IN WATER BY ICAP	SS10	SN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	1000	200	UGL	20.0	.0
METALS IN WATER BY ICAP	SS10	SN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	1000	200	UGL	20.0	.0
METALS IN WATER BY ICAP	SS10	SN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	1000	200	UGL	20.0	.0
		**********									----------	
		avg									20.0	
		minimum									20.0	
		maximum									20.0	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
METALS IN WATER BY ICAP	SS10	V	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	522	UGL	104.4	1.2
METALS IN WATER BY ICAP	SS10	V	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	516	UGL	103.2	1.2
METALS IN WATER BY ICAP	SS10	V	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	516	UGL	103.2	.6
METALS IN WATER BY ICAP	SS10	V	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	513	UGL	102.6	.6
		**********									----------	
		avg									103.4	
		minimum									102.6	
		maximum									104.4	
METALS IN WATER BY ICAP	SS10	ZN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	523	UGL	104.6	2.7
METALS IN WATER BY ICAP	SS10	ZN	MXRH01X1	VRRF*111	ZFXB	02-AUG-94	24-AUG-94	500	509	UGL	101.8	2.7
METALS IN WATER BY ICAP	SS10	ZN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	509	UGL	101.8	4.0
METALS IN WATER BY ICAP	SS10	ZN	MXRH01X1	VRRW*111	ZFXB	02-AUG-94	24-AUG-94	500	489	UGL	97.8	4.0
		**********									----------	
		avg									101.5	
		minimum									97.8	
		maximum									104.6	
BNA'S IN WATER BY GC/MS	UM18	124TCB	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	56	UGL	112.0	1.8
BNA'S IN WATER BY GC/MS	UM18	124TCB	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	55	UGL	110.0	1.8
		**********									----------	
		avg									111.0	
		minimum									110.0	
		maximum									112.0	
BNA'S IN WATER BY GC/MS	UM18	14DCLB	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	60	UGL	120.0	1.7
BNA'S IN WATER BY GC/MS	UM18	14DCLB	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	59	UGL	118.0	1.7
		**********									----------	
		avg									119.0	
		minimum									118.0	
		maximum									120.0	
BNA'S IN WATER BY GC/MS	UM18	246TBP	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	100	73	UGL	73.0	.0
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	72	UGL	72.0	25.9
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	70	UGL	70.0	25.9
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	55	UGL	55.0	25.9
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	100	56	UGL	56.0	.0

MS/MSD Quality Control Report
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Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN WATER BY GC/MS	UM18	246TBP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	100	56	UGL	56.0	.0
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	100	52	UGL	52.0	.0
BNA'S IN WATER BY GC/MS	UM18	246TBP	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	100	70	UGL	70.0	.0
		**********									----------	
		avg									63.0	
		minimum									52.0	
		maximum									73.0	
BNA'S IN WATER BY GC/MS	UM18	24DNT	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	52	UGL	104.0	3.9
BNA'S IN WATER BY GC/MS	UM18	24DNT	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	50	UGL	100.0	3.9
		**********									----------	
		avg									102.0	
		minimum									100.0	
		maximum									104.0	
BNA'S IN WATER BY GC/MS	UM18	2CLP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	85	UGL	85.0	1.2
BNA'S IN WATER BY GC/MS	UM18	2CLP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	84	UGL	84.0	1.2
		**********									----------	
		avg									84.5	
		minimum									84.0	
		maximum									85.0	
BNA'S IN WATER BY GC/MS	UM18	2FBP	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	50	40	UGL	80.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	39	UGL	78.0	25.2
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	38	UGL	76.0	25.2
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	30	UGL	60.0	25.2
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	50	38	UGL	76.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FBP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	50	39	UGL	78.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	50	43	UGL	86.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FBP	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	50	42	UGL	84.0	.0
		**********									----------	
		avg									77.3	
		minimum									60.0	
		maximum									86.0	
BNA'S IN WATER BY GC/MS	UM18	2FP	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	100	97	UGL	97.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	110	UGL	110.0	31.1
BNA'S IN WATER BY GC/MS	UM18	2FP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	110	UGL	110.0	31.1
BNA'S IN WATER BY GC/MS	UM18	2FP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	79	UGL	79.0	31.1

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN WATER BY GC/MS	UM18	2FP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	100	88	UGL	88.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	100	87	UGL	87.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FP	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	100	43	UGL	43.0	.0
BNA'S IN WATER BY GC/MS	UM18	2FP	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	100	100	UGL	100.0	.0
		**********									----------	
		avg									89.3	
		minimum									43.0	
		maximum									110.0	
BNA'S IN WATER BY GC/MS	UM18	4CL3C	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	91	UGL	91.0	1.1
BNA'S IN WATER BY GC/MS	UM18	4CL3C	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	90	UGL	90.0	1.1
		**********									----------	
		avg									90.5	
		minimum									90.0	
		maximum									91.0	
BNA'S IN WATER BY GC/MS	UM18	4NP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	69	UGL	69.0	4.4
BNA'S IN WATER BY GC/MS	UM18	4NP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	66	UGL	66.0	4.4
		**********									----------	
		avg									67.5	
		minimum									66.0	
		maximum									69.0	
BNA'S IN WATER BY GC/MS	UM18	ANAPNE	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	37	UGL	74.0	.0
BNA'S IN WATER BY GC/MS	UM18	ANAPNE	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	37	UGL	74.0	.0
		**********									----------	
		avg									74.0	
		minimum									74.0	
		maximum									74.0	
BNA'S IN WATER BY GC/MS	UM18	NBD5	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	50	40	UGL	80.0	.0
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	41	UGL	82.0	35.5
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	41	UGL	82.0	35.5
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	28	UGL	56.0	35.5
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	50	40	UGL	80.0	.0
BNA'S IN WATER BY GC/MS	UM18	NBD5	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	50	40	UGL	80.0	.0
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	50	44	UGL	88.0	.0
BNA'S IN WATER BY GC/MS	UM18	NBD5	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	50	43	UGL	86.0	.0
		**********									----------	

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
		avg									79.3	
		minimum									56.0	
		maximum									88.0	
BNA'S IN WATER BY GC/MS	UM18	NNDNPA	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	47	UGL	94.0	2.2
BNA'S IN WATER BY GC/MS	UM18	NNDNPA	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	46	UGL	92.0	2.2
		**********									----------	
		avg									93.0	
		minimum									92.0	
		maximum									94.0	
BNA'S IN WATER BY GC/MS	UM18	PCP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	79	UGL	79.0	2.6
BNA'S IN WATER BY GC/MS	UM18	PCP	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	77	UGL	77.0	2.6
		**********									----------	
		avg									78.0	
		minimum									77.0	
		maximum									79.0	
BNA'S IN WATER BY GC/MS	UM18	PHEND6	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	100	36	UGL	36.0	.0
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	98	UGL	98.0	80.9
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	96	UGL	96.0	80.9
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	36	UGL	36.0	80.9
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	100	80	UGL	80.0	.0
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	100	76	UGL	76.0	.0
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	100	36	UGL	36.0	.0
BNA'S IN WATER BY GC/MS	UM18	PHEND6	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	100	84	UGL	84.0	.0
		**********									----------	
		avg									67.8	
		minimum									36.0	
		maximum									98.0	
BNA'S IN WATER BY GC/MS	UM18	PHENOL	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	110	UGL	110.0	9.5
BNA'S IN WATER BY GC/MS	UM18	PHENOL	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	100	100	UGL	100.0	9.5
		**********									----------	
		avg									105.0	
		minimum									100.0	
		maximum									110.0	
BNA'S IN WATER BY GC/MS	UM18	PYR	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	47	UGL	94.0	8.9

MS/MSD Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	Spike Value	Value	Units	Percent Recovery	RPD
BNA'S IN WATER BY GC/MS	UM18	PYR	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	43	UGL	86.0	8.9
		**********									----------	
		avg									90.0	
		minimum									86.0	
		maximum									94.0	
BNA'S IN WATER BY GC/MS	UM18	TRPD14	SBK-07	VRRW*107	WDIC	01-AUG-94	16-AUG-94	50	47	UGL	94.0	.0
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	44	UGL	88.0	25.2
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	41	UGL	82.0	25.2
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXRH01X1	VRRW*111	WDIC	02-AUG-94	16-AUG-94	50	34	UGL	68.0	25.2
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	50	46	UGL	92.0	.0
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	50	46	UGL	92.0	.0
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXSH07X2	VRRW*114	WDJC	02-AUG-94	16-AUG-94	50	50	UGL	100.0	.0
BNA'S IN WATER BY GC/MS	UM18	TRPD14	MXSH18X2	VRRW*115	WDJC	03-AUG-94	16-AUG-94	50	43	UGL	86.0	.0
		**********									----------	
		avg									87.8	
		minimum									68.0	
		maximum									100.0	

SQL> exit

TABLE E-8

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
HG IN SOIL BY CVAA	JB01	HG	DXRH0300	DVRRS*2	QHQB	20-JUL-94	06-AUG-94		.312	UGG	37.7
HG IN SOIL BY CVAA	JB01	HG	DDRH0300	DVRRS*3	QHQB	20-JUL-94	06-AUG-94		.213	UGG	37.7
HG IN SOIL BY CVAA	JB01	HG	SXRH1200	DVRRS*35	QHPB	15-JUL-94	24-JUL-94	<	.05	UGG	.0
HG IN SOIL BY CVAA	JB01	HG	SDRH1200	DVRRS*38	QHPB	15-JUL-94	24-JUL-94	<	.05	UGG	.0
SE IN SOIL BY GFAA	JD15	SE	DXRH0300	DVRRS*2	MBOB	20-JUL-94	09-AUG-94		2.32	UGG	61.4
SE IN SOIL BY GFAA	JD15	SE	DDRH0300	DVRRS*3	MBOB	20-JUL-94	09-AUG-94		1.23	UGG	61.4
SE IN SOIL BY GFAA	JD15	SE	SXRH1200	DVRRS*35	MBNB	15-JUL-94	28-JUL-94	<	.25	UGG	.0
SE IN SOIL BY GFAA	JD15	SE	SDRH1200	DVRRS*38	MBNB	15-JUL-94	28-JUL-94	<	.25	UGG	.0
AS IN SOIL BY GFAA	JD19	AS	DXRH0300	DVRRS*2	QBOB	20-JUL-94	08-AUG-94		16	UGG	37.0
AS IN SOIL BY GFAA	JD19	AS	DDRH0300	DVRRS*3	QBOB	20-JUL-94	08-AUG-94		11	UGG	37.0
AS IN SOIL BY GFAA	JD19	AS	SXRH1200	DVRRS*35	QBNB	15-JUL-94	28-JUL-94		12	UGG	.0
AS IN SOIL BY GFAA	JD19	AS	SDRH1200	DVRRS*38	QBNB	15-JUL-94	28-JUL-94		12	UGG	.0
TL IN SOIL BY GFAA	JD24	TL	DXRH0300	DVRRS*2	RBGA	20-JUL-94	08-AUG-94	<	.5	UGG	.0
TL IN SOIL BY GFAA	JD24	TL	DDRH0300	DVRRS*3	RBGA	20-JUL-94	08-AUG-94	<	.5	UGG	.0
TL IN SOIL BY GFAA	JD24	TL	SXRH1200	DVRRS*35	RBFA	15-JUL-94	27-JUL-94	<	.5	UGG	.0
TL IN SOIL BY GFAA	JD24	TL	SDRH1200	DVRRS*38	RBFA	15-JUL-94	27-JUL-94	<	.5	UGG	.0
SB IN SOIL BY GFAA	JD25	SB	DDRH0300	DVRRS*3	SBSA	20-JUL-94	11-AUG-94		9.13	UGG	29.6
SB IN SOIL BY GFAA	JD25	SB	DXRH0300	DVRRS*2	SBSA	20-JUL-94	11-AUG-94		12.3	UGG	29.6
SB IN SOIL BY GFAA	JD25	SB	SDRH1200	DVRRS*38	SBRA	15-JUL-94	02-AUG-94		5.46	UGG	63.1
SB IN SOIL BY GFAA	JD25	SB	SXRH1200	DVRRS*35	SBRA	15-JUL-94	02-AUG-94		2.84	UGG	63.1
METALS IN SOIL BY ICAP	JS16	AG	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94	<	.589	UGG	.0
METALS IN SOIL BY ICAP	JS16	AG	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94	<	.589	UGG	.0
METALS IN SOIL BY ICAP	JS16	AG	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94	<	.589	UGG	.0
METALS IN SOIL BY ICAP	JS16	AG	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94	<	.589	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
METALS IN SOIL BY ICAP	JS16	AL	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		5710	UGG	11.5
METALS IN SOIL BY ICAP	JS16	AL	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		5090	UGG	11.5
METALS IN SOIL BY ICAP	JS16	AL	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		4710	UGG	1.9
METALS IN SOIL BY ICAP	JS16	AL	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		4620	UGG	1.9
METALS IN SOIL BY ICAP	JS16	BA	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		72.4	UGG	43.8
METALS IN SOIL BY ICAP	JS16	BA	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		113	UGG	43.8
METALS IN SOIL BY ICAP	JS16	BA	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		107	UGG	1.9
METALS IN SOIL BY ICAP	JS16	BA	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		105	UGG	1.9
METALS IN SOIL BY ICAP	JS16	BE	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		1.07	UGG	7.8
METALS IN SOIL BY ICAP	JS16	BE	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		.99	UGG	7.8
METALS IN SOIL BY ICAP	JS16	BE	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94	<	.5	UGG	.0
METALS IN SOIL BY ICAP	JS16	BE	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94	<	.5	UGG	.0
METALS IN SOIL BY ICAP	JS16	CA	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		2670	UGG	41.1
METALS IN SOIL BY ICAP	JS16	CA	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		1760	UGG	41.1
METALS IN SOIL BY ICAP	JS16	CA	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		1370	UGG	6.8
METALS IN SOIL BY ICAP	JS16	CA	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		1280	UGG	6.8
METALS IN SOIL BY ICAP	JS16	CD	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94	<	.7	UGG	.0
METALS IN SOIL BY ICAP	JS16	CD	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94	<	.7	UGG	.0
METALS IN SOIL BY ICAP	JS16	CD	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		6.57	UGG	22.5
METALS IN SOIL BY ICAP	JS16	CD	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		5.24	UGG	22.5
METALS IN SOIL BY ICAP	JS16	CO	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		4.07	UGG	20.9
METALS IN SOIL BY ICAP	JS16	CO	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		3.3	UGG	20.9
METALS IN SOIL BY ICAP	JS16	CO	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		4.77	UGG	22.1
METALS IN SOIL BY ICAP	JS16	CO	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		3.82	UGG	22.1
METALS IN SOIL BY ICAP	JS16	CR	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		15.4	UGG	18.4
METALS IN SOIL BY ICAP	JS16	CR	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		12.8	UGG	18.4
METALS IN SOIL BY ICAP	JS16	CR	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		15.8	UGG	20.2

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
METALS IN SOIL BY ICAP	JS16	CR	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		12.9	UGG	20.2
METALS IN SOIL BY ICAP	JS16	CU	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		276	UGG	22.6
METALS IN SOIL BY ICAP	JS16	CU	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		220	UGG	22.6
METALS IN SOIL BY ICAP	JS16	CU	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		153	UGG	6.1
METALS IN SOIL BY ICAP	JS16	CU	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		144	UGG	6.1
METALS IN SOIL BY ICAP	JS16	FE	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		14400	UGG	20.7
METALS IN SOIL BY ICAP	JS16	FE	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		11700	UGG	20.7
METALS IN SOIL BY ICAP	JS16	FE	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		20300	UGG	5.6
METALS IN SOIL BY ICAP	JS16	FE	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		19200	UGG	5.6
METALS IN SOIL BY ICAP	JS16	K	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		387	UGG	16.8
METALS IN SOIL BY ICAP	JS16	K	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		327	UGG	16.8
METALS IN SOIL BY ICAP	JS16	K	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		626	UGG	23.0
METALS IN SOIL BY ICAP	JS16	K	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		497	UGG	23.0
METALS IN SOIL BY ICAP	JS16	MG	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		1560	UGG	2.6
METALS IN SOIL BY ICAP	JS16	MG	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		1520	UGG	2.6
METALS IN SOIL BY ICAP	JS16	MG	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		1730	UGG	11.6
METALS IN SOIL BY ICAP	JS16	MG	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		1540	UGG	11.6
METALS IN SOIL BY ICAP	JS16	MN	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		74.8	UGG	3.8
METALS IN SOIL BY ICAP	JS16	MN	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		72	UGG	3.8
METALS IN SOIL BY ICAP	JS16	MN	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		291	UGG	1.0
METALS IN SOIL BY ICAP	JS16	MN	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		288	UGG	1.0
METALS IN SOIL BY ICAP	JS16	NA	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		632	UGG	9.8
METALS IN SOIL BY ICAP	JS16	NA	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		573	UGG	9.8
METALS IN SOIL BY ICAP	JS16	NA	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		613	UGG	5.2
METALS IN SOIL BY ICAP	JS16	NA	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		582	UGG	5.2
METALS IN SOIL BY ICAP	JS16	NI	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		13.2	UGG	22.8
METALS IN SOIL BY ICAP	JS16	NI	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		10.5	UGG	22.8

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
METALS IN SOIL BY ICAP	JS16	NI	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		19.5	UGG	4.7
METALS IN SOIL BY ICAP	JS16	NI	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		18.6	UGG	4.7
METALS IN SOIL BY ICAP	JS16	PB	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		344	UGG	19.8
METALS IN SOIL BY ICAP	JS16	PB	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		282	UGG	19.8
METALS IN SOIL BY ICAP	JS16	PB	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		549	UGG	21.8
METALS IN SOIL BY ICAP	JS16	PB	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		441	UGG	21.8
METALS IN SOIL BY ICAP	JS16	SN	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		8.13	UGG	46.8
METALS IN SOIL BY ICAP	JS16	SN	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		13.1	UGG	46.8
METALS IN SOIL BY ICAP	JS16	SN	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		9.15	UGG	40.5
METALS IN SOIL BY ICAP	JS16	SN	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		13.8	UGG	40.5
METALS IN SOIL BY ICAP	JS16	V	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		12.6	UGG	10.5
METALS IN SOIL BY ICAP	JS16	V	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		14	UGG	10.5
METALS IN SOIL BY ICAP	JS16	V	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		15.8	UGG	13.5
METALS IN SOIL BY ICAP	JS16	V	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		13.8	UGG	13.5
METALS IN SOIL BY ICAP	JS16	ZN	DDRH0300	DVRRS*3	UBCC	20-JUL-94	08-AUG-94		96.2	UGG	2.6
METALS IN SOIL BY ICAP	JS16	ZN	DXRH0300	DVRRS*2	UBCC	20-JUL-94	08-AUG-94		93.7	UGG	2.6
METALS IN SOIL BY ICAP	JS16	ZN	SDRH1200	DVRRS*38	UBZB	15-JUL-94	28-JUL-94		3380	UGG	6.4
METALS IN SOIL BY ICAP	JS16	ZN	SXRH1200	DVRRS*35	UBZB	15-JUL-94	28-JUL-94		3170	UGG	6.4
BNA'S IN SOIL BY GC/MS	LM18	124TCB	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	124TCB	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	124TCB	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.08	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	124TCB	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.08	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DCLB	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DCLB	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DCLB	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DCLB	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	12DPH	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DPH	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DPH	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	12DPH	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	13DCLB	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	13DCLB	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	13DCLB	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	13DCLB	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	14DCLB	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	245TCP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	245TCP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	245TCP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	245TCP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	246TCP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	246TCP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	246TCP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	246TCP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DCLP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.9	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DCLP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.9	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DCLP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DCLP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DMPN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DMPN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DMPN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DMPN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	24DNP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	24DNT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	26DNT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	26DNT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	26DNT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	26DNT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CLP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CNAP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CNAP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CNAP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2CNAP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2MNAP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2MNAP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2MNAP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	2MNAP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	2MP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2MP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2MP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.06	UGG	.0

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	2MP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.06	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NANIL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NANIL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NANIL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NANIL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	2NP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	33DCBD	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	33DCBD	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	33DCBD	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	33DCBD	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	3NANIL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	3NANIL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	3NANIL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.9	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	3NANIL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.9	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	46DN2C	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	46DN2C	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	46DN2C	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	46DN2C	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4BRPPE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4BRPPE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4BRPPE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4BRPPE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CANIL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CANIL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	4	UGG	.0

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	4CANIL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CANIL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CL3C	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CLPPE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CLPPE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CLPPE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4CLPPE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4MP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4MP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4MP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4MP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NANIL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NANIL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NANIL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NANIL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	4NP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ABHC	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ABHC	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ABHC	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ABHC	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ACLDAN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	ACLDAN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ACLDAN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ACLDAN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	AENSLF	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	AENSLF	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	AENSLF	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	AENSLF	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ALDRN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ALDRN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ALDRN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ALDRN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		.4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.8	UGG	155.6
BNA'S IN SOIL BY GC/MS	LM18	ANAPNE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.1	UGG	155.6
BNA'S IN SOIL BY GC/MS	LM18	ANAPYL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ANAPYL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ANAPYL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ANAPYL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ANTRC	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		.8	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	ANTRC	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		.4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	ANTRC	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.7	UGG	33.3
BNA'S IN SOIL BY GC/MS	LM18	ANTRC	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.5	UGG	33.3
BNA'S IN SOIL BY GC/MS	LM18	B2CEXM	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CEXM	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CEXM	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CEXM	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	B2CIPE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CIPE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CIPE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CIPE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CLEE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CLEE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CLEE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2CLEE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2EHP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2EHP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2EHP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	B2EHP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BAANTR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	BAANTR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		2	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	BAANTR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BAANTR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BAPYR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BAPYR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BAPYR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BAPYR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BBFANT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BBFANT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	BBFANT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		3	UGG	40.0
BNA'S IN SOIL BY GC/MS	LM18	BBFANT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		2	UGG	40.0
BNA'S IN SOIL BY GC/MS	LM18	BBHC	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBHC	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBHC	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBHC	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	BBZP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBZP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBZP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BBZP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENSLF	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENSLF	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENSLF	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENSLF	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZID	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZID	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZID	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZID	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZOA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZOA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZOA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BENZOA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BGHIPY	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BGHIPY	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BGHIPY	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BGHIPY	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BKFANT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	147.8
BNA'S IN SOIL BY GC/MS	LM18	BKFANT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		2	UGG	147.8
BNA'S IN SOIL BY GC/MS	LM18	BKFANT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.9	UGG	25.0
BNA'S IN SOIL BY GC/MS	LM18	BKFANT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.7	UGG	25.0
BNA'S IN SOIL BY GC/MS	LM18	BZALC	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BZALC	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	BZALC	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	BZALC	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CARBAZ	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CARBAZ	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CARBAZ	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	CARBAZ	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	CHRY	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	133.3
BNA'S IN SOIL BY GC/MS	LM18	CHRY	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		3	UGG	133.3
BNA'S IN SOIL BY GC/MS	LM18	CHRY	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CHRY	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6BZ	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6BZ	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6BZ	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6BZ	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6CP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6CP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	30	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6CP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6CP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6ET	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6ET	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6ET	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	CL6ET	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBAHA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBAHA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBAHA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBAHA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBHC	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBHC	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	DBHC	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBHC	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBZFUR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBZFUR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DBZFUR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.09	UGG	75.9
BNA'S IN SOIL BY GC/MS	LM18	DBZFUR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.2	UGG	75.9
BNA'S IN SOIL BY GC/MS	LM18	DEP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DEP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DEP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DEP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DLDRN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DLDRN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DLDRN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DLDRN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DMP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DMP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.8	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DMP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DMP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNBP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNBP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNBP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNBP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNOP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNOP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNOP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	DNOP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	ENDRN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNK	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNK	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNK	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ENDRNK	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ESFSO4	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ESFSO4	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ESFSO4	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ESFSO4	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	FANT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		5	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	FANT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		2	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	FANT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	FANT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	FLRENE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		.4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	FLRENE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	FLRENE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	FLRENE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	GCLDAN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	GCLDAN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	GCLDAN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	GCLDAN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	HCBD	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HCBD	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HCBD	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HCBD	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCLE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCLE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCLE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	HPCLE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ICDPYR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ICDPYR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ICDPYR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.9	UGG	10.5
BNA'S IN SOIL BY GC/MS	LM18	ICDPYR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		1	UGG	10.5
BNA'S IN SOIL BY GC/MS	LM18	ISOPHR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ISOPHR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ISOPHR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	ISOPHR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.07	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	LIN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	LIN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	LIN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	LIN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	MEXCLR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	MEXCLR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	MEXCLR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	MEXCLR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	NAP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NAP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NAP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		.2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	NAP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		.1	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	NB	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NB	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NB	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.09	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NB	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.09	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDMEA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDMEA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDMEA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDMEA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDNPA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDPA	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDPA	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	1	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDPA	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	NNDPA	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB016	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB016	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB016	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB016	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB221	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB221	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB221	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	PCB221	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB232	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB232	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB232	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB232	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB242	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB242	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	5	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB242	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB242	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB248	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB248	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB248	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB248	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB254	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB254	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	10	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB254	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB254	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	4	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB260	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	20	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB260	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	20	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB260	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCB260	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PCP	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	3	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PHANTR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	PHANTR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		2	UGG	66.7

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	PHANTR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		4	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	PHANTR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		2	UGG	66.7
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PHENOL	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDD	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDD	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDD	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDD	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDE	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDE	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDT	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDT	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	2	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDT	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PPDDT	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	.6	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	PYR	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		.9	UGG	107.7
BNA'S IN SOIL BY GC/MS	LM18	PYR	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		3	UGG	107.7
BNA'S IN SOIL BY GC/MS	LM18	PYR	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94		5	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	PYR	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94		2	UGG	85.7
BNA'S IN SOIL BY GC/MS	LM18	SMOLE	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94		7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	SMOLE	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94		7	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	TXPHEN	DDRH0300	DVRRS*3	OEVB	20-JUL-94	05-AUG-94	<	20	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	TXPHEN	DXRH0300	DVRRS*2	OEVB	20-JUL-94	05-AUG-94	<	20	UGG	.0
BNA'S IN SOIL BY GC/MS	LM18	TXPHEN	SDRH1200	DVRRS*38	OESB	15-JUL-94	10-AUG-94	<	6	UGG	.0

Sample Duplicate Quality Control Report
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Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN SOIL BY GC/MS	LM18	TXPHEN	SXRH1200	DVRRS*35	OESB	15-JUL-94	10-AUG-94	<	6	UGG	.0
HG IN WATER BY CVAA	SB01	HG	MXRH02X1	VRRF*112	TCIC	01-AUG-94	29-AUG-94	<	.243	UGL	.0
HG IN WATER BY CVAA	SB01	HG	MDRH02X1	VRRF*113	TCIC	01-AUG-94	29-AUG-94	<	.243	UGL	.0
HG IN WATER BY CVAA	SB01	HG	MXRH02X1	VRRW*112	TCEC	01-AUG-94	28-AUG-94	<	.243	UGL	.0
HG IN WATER BY CVAA	SB01	HG	MDRH02X1	VRRW*113	TCEC	01-AUG-94	28-AUG-94	<	.243	UGL	.0
TL IN WATER BY GFAA	SD09	TL	MXRH02X1	VRRF*112	UCTB	01-AUG-94	27-AUG-94	<	6.99	UGL	.0
TL IN WATER BY GFAA	SD09	TL	MDRH02X1	VRRF*113	UCTB	01-AUG-94	27-AUG-94	<	6.99	UGL	.0
TL IN WATER BY GFAA	SD09	TL	MXRH02X1	VRRW*112	UCTB	01-AUG-94	27-AUG-94	<	6.99	UGL	.0
TL IN WATER BY GFAA	SD09	TL	MDRH02X1	VRRW*113	UCTB	01-AUG-94	27-AUG-94	<	6.99	UGL	.0
PB IN WATER BY GFAA	SD20	PB	MXRH02X1	VRRF*112	WCDC	01-AUG-94	29-AUG-94	<	1.26	UGL	.0
PB IN WATER BY GFAA	SD20	PB	MDRH02X1	VRRF*113	WCDC	01-AUG-94	29-AUG-94	<	1.26	UGL	.0
PB IN WATER BY GFAA	SD20	PB	MXRH02X1	VRRW*112	WCDC	01-AUG-94	29-AUG-94		2.93	UGL	28.4
PB IN WATER BY GFAA	SD20	PB	MDRH02X1	VRRW*113	WCDC	01-AUG-94	29-AUG-94		3.9	UGL	28.4
SE IN WATER BY GFAA	SD21	SE	MXRH02X1	VRRF*112	XCYB	01-AUG-94	27-AUG-94	<	3.02	UGL	.0
SE IN WATER BY GFAA	SD21	SE	MDRH02X1	VRRF*113	XCYB	01-AUG-94	27-AUG-94	<	3.02	UGL	.0
SE IN WATER BY GFAA	SD21	SE	MDRH02X1	VRRW*113	XCYB	01-AUG-94	27-AUG-94	<	3.02	UGL	.0
SE IN WATER BY GFAA	SD21	SE	MXRH02X1	VRRW*112	XCYB	01-AUG-94	27-AUG-94	<	3.02	UGL	.0
AS IN WATER BY GFAA	SD22	AS	MXRH02X1	VRRF*112	YCZB	01-AUG-94	29-AUG-94	<	2.54	UGL	.0
AS IN WATER BY GFAA	SD22	AS	MDRH02X1	VRRF*113	YCZB	01-AUG-94	29-AUG-94	<	2.54	UGL	.0
AS IN WATER BY GFAA	SD22	AS	MDRH02X1	VRRW*113	YCZB	01-AUG-94	27-AUG-94		10.1	UGL	.0
AS IN WATER BY GFAA	SD22	AS	MXRH02X1	VRRW*112	YCZB	01-AUG-94	27-AUG-94		10.1	UGL	.0
SB IN WATER BY GFAA	SD28	SB	MDRH02X1	VRRF*113	NFHB	01-AUG-94	27-AUG-94		3.12	UGL	2.9

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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
SB IN WATER BY GFAA	SD28	SB	MXRH02X1	VRRF*112	NFHB	01-AUG-94	27-AUG-94	<	3.03	UGL	2.9
SB IN WATER BY GFAA	SD28	SB	MXRH02X1	VRRW*112	NFHB	01-AUG-94	27-AUG-94	<	3.03	UGL	.0
SB IN WATER BY GFAA	SD28	SB	MDRH02X1	VRRW*113	NFHB	01-AUG-94	27-AUG-94	<	3.03	UGL	.0
METALS IN WATER BY ICAP	SS10	AG	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	4.6	UGL	.0
METALS IN WATER BY ICAP	SS10	AG	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	4.6	UGL	.0
METALS IN WATER BY ICAP	SS10	AG	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	4.6	UGL	.0
METALS IN WATER BY ICAP	SS10	AG	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	4.6	UGL	.0
METALS IN WATER BY ICAP	SS10	AL	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		190	UGL	17.1
METALS IN WATER BY ICAP	SS10	AL	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		160	UGL	17.1
METALS IN WATER BY ICAP	SS10	AL	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		2610	UGL	2.3
METALS IN WATER BY ICAP	SS10	AL	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		2550	UGL	2.3
METALS IN WATER BY ICAP	SS10	BA	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		30.8	UGL	1.3
METALS IN WATER BY ICAP	SS10	BA	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		30.4	UGL	1.3
METALS IN WATER BY ICAP	SS10	BA	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		40.7	UGL	.5
METALS IN WATER BY ICAP	SS10	BA	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		40.5	UGL	.5
METALS IN WATER BY ICAP	SS10	BE	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	5	UGL	.0
METALS IN WATER BY ICAP	SS10	BE	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	5	UGL	.0
METALS IN WATER BY ICAP	SS10	BE	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	5	UGL	.0
METALS IN WATER BY ICAP	SS10	BE	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	5	UGL	.0
METALS IN WATER BY ICAP	SS10	CA	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		13600	UGL	.7
METALS IN WATER BY ICAP	SS10	CA	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		13500	UGL	.7
METALS IN WATER BY ICAP	SS10	CA	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		13900	UGL	.0
METALS IN WATER BY ICAP	SS10	CA	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		13900	UGL	.0
METALS IN WATER BY ICAP	SS10	CD	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	4.01	UGL	.0
METALS IN WATER BY ICAP	SS10	CD	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	4.01	UGL	.0
METALS IN WATER BY ICAP	SS10	CD	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	4.01	UGL	.0
METALS IN WATER BY ICAP	SS10	CD	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	4.01	UGL	.0

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
METALS IN WATER BY ICAP	SS10	CO	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	25	UGL	.0
METALS IN WATER BY ICAP	SS10	CO	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	25	UGL	.0
METALS IN WATER BY ICAP	SS10	CO	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	25	UGL	.0
METALS IN WATER BY ICAP	SS10	CO	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	25	UGL	.0
METALS IN WATER BY ICAP	SS10	CR	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	6.02	UGL	.0
METALS IN WATER BY ICAP	SS10	CR	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	6.02	UGL	.0
METALS IN WATER BY ICAP	SS10	CR	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	6.02	UGL	.0
METALS IN WATER BY ICAP	SS10	CR	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	6.02	UGL	.0
METALS IN WATER BY ICAP	SS10	CU	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	8.09	UGL	.0
METALS IN WATER BY ICAP	SS10	CU	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	8.09	UGL	.0
METALS IN WATER BY ICAP	SS10	CU	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	8.09	UGL	94.6
METALS IN WATER BY ICAP	SS10	CU	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		22.6	UGL	94.6
METALS IN WATER BY ICAP	SS10	FE	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	38.8	UGL	.0
METALS IN WATER BY ICAP	SS10	FE	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	38.8	UGL	.0
METALS IN WATER BY ICAP	SS10	FE	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		2880	UGL	4.3
METALS IN WATER BY ICAP	SS10	FE	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		2760	UGL	4.3
METALS IN WATER BY ICAP	SS10	K	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		1290	UGL	21.5
METALS IN WATER BY ICAP	SS10	K	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		1040	UGL	21.5
METALS IN WATER BY ICAP	SS10	K	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		1700	UGL	17.9
METALS IN WATER BY ICAP	SS10	K	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		1420	UGL	17.9
METALS IN WATER BY ICAP	SS10	MG	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		909	UGL	1.0
METALS IN WATER BY ICAP	SS10	MG	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		900	UGL	1.0
METALS IN WATER BY ICAP	SS10	MG	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		1210	UGL	5.1
METALS IN WATER BY ICAP	SS10	MG	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		1150	UGL	5.1
METALS IN WATER BY ICAP	SS10	MN	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		171	UGL	.6
METALS IN WATER BY ICAP	SS10	MN	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		170	UGL	.6
METALS IN WATER BY ICAP	SS10	MN	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		238	UGL	5.6

Sample Duplicate Quality Control Report
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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
METALS IN WATER BY ICAP	SS10	MN	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		225	UGL	5.6
METALS IN WATER BY ICAP	SS10	NA	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94		2970	UGL	.7
METALS IN WATER BY ICAP	SS10	NA	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		2950	UGL	.7
METALS IN WATER BY ICAP	SS10	NA	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		3340	UGL	8.8
METALS IN WATER BY ICAP	SS10	NA	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		3060	UGL	8.8
METALS IN WATER BY ICAP	SS10	NI	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	34.3	UGL	.0
METALS IN WATER BY ICAP	SS10	NI	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	34.3	UGL	.0
METALS IN WATER BY ICAP	SS10	NI	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	34.3	UGL	.0
METALS IN WATER BY ICAP	SS10	NI	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	34.3	UGL	.0
METALS IN WATER BY ICAP	SS10	SN	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	47.1	UGL	.0
METALS IN WATER BY ICAP	SS10	SN	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	47.1	UGL	.0
METALS IN WATER BY ICAP	SS10	SN	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	47.1	UGL	.0
METALS IN WATER BY ICAP	SS10	SN	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	47.1	UGL	.0
METALS IN WATER BY ICAP	SS10	V	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	11	UGL	.0
METALS IN WATER BY ICAP	SS10	V	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94	<	11	UGL	.0
METALS IN WATER BY ICAP	SS10	V	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94	<	11	UGL	.0
METALS IN WATER BY ICAP	SS10	V	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94	<	11	UGL	.0
METALS IN WATER BY ICAP	SS10	ZN	MXRH02X1	VRRF*112	ZFXB	01-AUG-94	24-AUG-94		38.8	UGL	59.1
METALS IN WATER BY ICAP	SS10	ZN	MDRH02X1	VRRF*113	ZFXB	01-AUG-94	24-AUG-94	<	21.1	UGL	59.1
METALS IN WATER BY ICAP	SS10	ZN	MDRH02X1	VRRW*113	ZFXB	01-AUG-94	24-AUG-94		25.9	UGL	134.8
METALS IN WATER BY ICAP	SS10	ZN	MXRH02X1	VRRW*112	ZFXB	01-AUG-94	24-AUG-94		133	UGL	134.8
BNA'S IN WATER BY GC/MS	UM18	124TCB	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	124TCB	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	12DCLB	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	12DCLB	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0

Sample Duplicate Quality Control Report
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Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	12DPH	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	12DPH	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	13DCLB	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	13DCLB	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	14DCLB	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	14DCLB	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	245TCP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	245TCP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	246TCP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	246TCP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DCLP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DCLP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DMPN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DMPN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DNP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DNP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DNT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	24DNT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	26DNT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.79	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	26DNT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.79	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2CLP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.99	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2CLP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.99	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2CNAP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0

Sample Duplicate Quality Control Report
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Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	2CNAP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2MNAP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2MNAP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2MP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2MP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2NANIL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2NANIL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2NP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	2NP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	33DCBD	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	12	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	33DCBD	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	12	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	3NANIL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	3NANIL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	46DN2C	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	17	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	46DN2C	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	17	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4BRPPE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4BRPPE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CANIL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	7.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CANIL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	7.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CL3C	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CL3C	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CLPPE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4CLPPE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0

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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	4MP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.52	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4MP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.52	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4NANIL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4NANIL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4NP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	12	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	4NP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	12	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ABHC	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ABHC	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ACLDAN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ACLDAN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	AENSLF	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	AENSLF	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ALDRN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ALDRN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANAPNE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANAPNE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANAPYL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANAPYL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANTRC	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ANTRC	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2CEXM	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2CEXM	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0

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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	B2CIPE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2CIPE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2CLEE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2CLEE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.9	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	B2EHP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.8	UGL	6.5
BNA'S IN WATER BY GC/MS	UM18	B2EHP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94		4.5	UGL	6.5
BNA'S IN WATER BY GC/MS	UM18	BAANTR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BAANTR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BAPYR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BAPYR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBFANT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBFANT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBHC	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBHC	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBZP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BBZP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENSLF	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENSLF	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENZID	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	10	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENZID	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	10	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENZOA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	13	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BENZOA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	13	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BGHIPY	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	6.1	UGL	.0

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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	BGHIPY	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	6.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BKFANT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.87	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BKFANT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.87	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BZALC	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.72	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	BZALC	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.72	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CARBAZ	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CARBAZ	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CHRY	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CHRY	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6BZ	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6BZ	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6CP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	8.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6CP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	8.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6ET	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	CL6ET	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBAHA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	6.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBAHA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	6.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBHC	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBHC	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBZFUR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DBZFUR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DEP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DEP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0

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Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	DLDRN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DLDRN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DMP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DMP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	1.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DNBP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DNBP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DNOP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	15	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	DNOP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	15	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	7.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	7.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRNA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRNA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRNK	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ENDRNK	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ESFSO4	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ESFSO4	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	FANT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	FANT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	FLRENE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	FLRENE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	GCLDAN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	GCLDAN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	HCBD	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	HCBD	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	HPCL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	HPCL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	HPCLE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	HPCLE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ICDPYR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	8.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ICDPYR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	8.6	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ISOPHR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	ISOPHR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	LIN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	LIN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	MEXCLR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	MEXCLR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	5.1	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NAP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NAP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NB	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NB	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NNDMEA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NNDMEA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NNDNPA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NNDNPA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	NNDPA	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	3	UGL	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	NNDPA	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	3	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB016	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB016	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB221	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB221	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB232	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB232	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	21	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB242	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	30	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB242	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	30	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB248	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	30	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB248	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	30	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB254	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB254	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB260	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCB260	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCP	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	18	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PCP	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	18	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PHANTR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PHANTR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	.5	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PHENOL	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PHENOL	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PPDDD	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PPDDD	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4	UGL	.0

Sample Duplicate Quality Control Report
Installation: Fort Devens, MA (DV)
Group: 1A Railroad Roundhouse

Method Description	USATHAMA Method Code	Test Name	IRDMIS Field Sample Number	Lab Number	Lot	Sample Date	Analysis Date	<	Value	Units	RPD
BNA'S IN WATER BY GC/MS	UM18	PPDDE	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PPDDE	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	4.7	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PPDDT	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PPDDT	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	9.2	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PYR	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	2.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	PYR	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	2.8	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	TXPHEN	MDRH02X1	VRRW*113	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0
BNA'S IN WATER BY GC/MS	UM18	TXPHEN	MXRH02X1	VRRW*112	WDIC	01-AUG-94	16-AUG-94	<	36	UGL	.0

SURVEY DATA

MEA
Civil-Environmental Engineers & Land Surveyors

MARTINAGE ENGINEERING ASSOCIATES, INC.

131 Main Street
Reading, Massachusetts 01867

Tel: 617 944-4808
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October 5, 1994

Mr. Stanley W. Reed, P.E.
ABB Environmental Services, Inc.
110 Free Street
P. O. Box 7050
Portland, ME 04112-7050

Subject: Multi-Task Work Order
Option #3, Railroad Roundhouse
Fort Devens, Massachusetts

Dear Mr. Reed:

Enclosed please an AutoCAD .DWG file for the Railroad Roundhouse investigation site at Fort Devens. The following table contains the well and exploration elevations for the Railroad Roundhouse site:

NORTH COORD.	EAST COORD.	GROUND ELEV.	TOP OF CASING ELEV.	TOP OF PVC ELEV.	DESCRIPTION
566102.94	570741.89	214.0	216.36	216.36	MNW1
566242.18	571091.70	223.6	226.03	225.80	MNW2
565682.48	570032.71	231.8	234.07	233.76	MNW3
566110.54	575101.90	216.5			RHD-94-02X
566121.40	575054.84	216.7			RHD-94-03X
566096.73	575147.10	216.6			RHD-94-05X
566075.04	575101.47	220.9	221.06	220.74	RHM-94-01X
565956.81	575257.62	234.1	236.72	236.13	RHM-94-02X
566076.04	575154.55	224.3			RHS-94-07X
566090.64	575233.66	218.4			RHS-94-08X
566075.85	575099.33	220.8			RHS-94-04X
566095.61	575037.58	224.4			RHS-94-05X
566099.73	575083.78	220.0			RHS-94-06X
565998.99	575066.00	235.0			RHS-94-09X

NORTH COORD.	EAST COORD.	GROUND ELEV.	TOP OF CASING ELEV.	TOP OF PVC ELEV.	DESCRIPTION
565805.88	575046.21	235.2			RHS-94-10X
565901.41	575097.11	236.2			RHS-94-11X
565948.33	575182.97	235.0			RHS-94-12X
565839.67	575253.43	234.5			RHS-94-13X
565616.84	574988.04	234.9			RHS-94-14X
565581.14	575177.25	235.1			RHS-94-15X
565349.02	575017.64	239.0			RHS-94-16X
565376.95	575137.25	235.9			RHS-94-17X
565015.48	575101.48	236.6			RHS-94-18X
564972.50	575003.59	237.0	239.73	239.57	SHL-24
564981.41	575008.88	236.8	239.50	239.25	SHM-93-24A
566120.12	575102.39	N/A			RELOCATED SHD-94-03X
565829.62	575159.93	235.1			TTA
565782.45	575123.85	234.9			TTB
565829.22	575092.80	235.1			TTC
N/A	N/A	217.0			WATER ELEV. 10/01/94
566076.70	575245.00	219.6			8" DRAIN INVERT

In addition to this, you will find a Lotus .WK1 file containing the well and exploration data as requested. If you have any problems loading the .DWG files or should you have any questions, please feel free to call us.

Very truly yours,

MARTINAGE ENGINEERING ASSOCIATES, INC.

Glenn D. Sprague

Glenn D. Sprague

Enclosure

\GLENN\ABBDEV.OP3

DEVELOPMENT OF ECOLOGICAL SURFACE SOIL PROTECTIVE CONTAMINANT LEVELS

APPENDIX G
DEVELOPMENT OF ECOLOGICAL SURFACE SOIL PROTECTIVE CONTAMINANT LEVELS

No state or federal standards or guidelines exist for surface soil exposure; this medium has therefore been evaluated through comparison of maximum analyte concentrations in surface soils to protective contaminant levels (PCLs) obtained through a computer-generated chronic exposure food chain model. An acceptable level of risk (Hazard Quotient [HQ] equals 1) associated with chronic exposure to each surface soil analyte at the Roundhouse was established in order to develop conservative PCLs for the screening level PREs. The PCLs used at the Roundhouse are based on a methodology submitted by ABB-ES to the U.S. Army and reviewed by federal agencies in Region I.

The terrestrial food chain model was developed to estimate the potential dietary exposure levels of contaminants for several potential receptor species representing trophic levels within the ecological community that may exist at the Roundhouse. Indicator receptor species were chosen to represent various taxonomic groups and trophic levels. It was assumed that each species evaluated is representative of other species within a given trophic level at the Roundhouse (i.e., a trophic guilding approach was employed).

The following indicator species were selected to represent exposure to terrestrial organisms via ingestion of food and surface soil at the Roundhouse: short-tailed shrew (*Blarina brevicauda*), the American woodcock (*Scolopax minor*), the red fox (*Vulpes vulpes*), and the red-tailed hawk (*Buteo jamaicensis*). A site acreage (area of contaminated soil present at the Roundhouse) of 2 acres was used in the PCL calculation. This area is approximately equal to the home range of the short-tailed shrew, and is smaller than the home ranges of the other indicator species evaluated.

Detailed information for each of the above-listed species regarding diet, home-range, and other biological exposure parameters used in the food web model, were obtained from the *Wildlife Exposure Factors Handbook* (USEPA, 1994) and other literature sources, and are provided in Table G-1.

The food-chain model was used to estimate contaminant levels in various primary prey items (e.g., invertebrates and plants) consumed by each receptor species. Estimated contaminant tissue residues in each prey species were estimated using specific bioaccumulation factors (BAFs), as shown in the following equation:

$$\textit{Prey Tissue Concentration } (mg/kg) = \textit{Soil Concentration } (mg/kg) \times \textit{Bioaccumulation Factor } (BAF)$$

Other BAFs were used to estimate tissue concentrations in secondary prey items such as small birds and rodents. The BAF data base is presented in Table G-2. For BAF derivation, when possible, chemical- and taxon-specific bioaccumulation data for plants, invertebrates, mammals, and birds were obtained from the literature. When these data were unavailable, BAFs were calculated using structure-activity relationships (SAR) or were obtained from empirical data or extrapolations, as described below.

- For plants, when literature values were unavailable, plant BAFs for semi-volatile organic chemicals and pesticides were calculated using a regression equation from Travis and Arms (1988) that is based on the uptake of organic contaminants into plant tissue. Log K_{ow}s ≥ 5 of the following classes of compounds were averaged to provide one BAF for that compound class: PAHs, phthalates, phenols, and furans. Based on evidence provided by Suter (1993) which suggests that compounds with log K_{ow}s less than 5 do not bioaccumulate in plants, BAFs for compounds or classes of compounds with log K_{ow}s less than 5 were conservatively assumed to be 0.02. Plant BAFs for inorganic chemicals were obtained from Baes et al. (1984).

- For terrestrial invertebrates, when literature values were unavailable, a single BAF for PAHs was calculated using data presented in Beyer (1990); dry weight was converted to wet weight assuming earthworms are 80% water. This value was used as a surrogate for all semivolatile compounds.

- For small mammals, when literature values were unavailable for semivolatile organic compounds, BAFs for small mammals were estimated using a regression equation based on the uptake of organic contaminants into beef tissue from Travis and Arms (1988). Log K_{ow}s ≥ 5 of the following classes of compounds were averaged to provide one BAF for that compound class: PAHs, phthalates, phenols, and furans. BAFs for inorganics were derived from ingestion-to-beef biotransfer factors (BTFs) presented in Baes et al. (1984)

- For small birds, when literature values were unavailable, the small mammal BAF value was used as a surrogate.

The potential dietary exposure (PDE) level, for each modeled receptor species, was calculated by multiplying each predicted prey species tissue concentration by the proportion of that prey type in the diet, summing these values, adding soil exposure, and multiplying by the Site Foraging Frequency (SFF) of the given receptor species. Incidental soil ingestion associated with foraging, preening, and cleaning activities, was conservatively assumed to represent five percent of total dietary intake. The PDE is represented by the following equation:

$$PDE = [P_1 \times T_1 + P_2 \times T_2 + \ldots + P_n \times T_n + soil\ exposure] \times SFF$$

where:

PDE	**=**	**Potential dietary exposure (mg/kg)**
P_n	**=**	**Percent of diet composed of prey item n**
T_n	**=**	**Tissue concentration in prey item n (mg/kg)**
Soil Exposure	**=**	**(0.05)(Soil concentration in mg/kg)**
SFF	**=**	**Site Foraging Frequency; Area of Contaminated Soil (acres)/Home range (acres)**

Finally, the potential dietary exposure for each receptor species was multiplied by the receptor-specific ingestion rate and divided by the estimated body weight to calculate a Total Body Dose (TBD):

$$TBD = PDE \times IR \times \frac{1}{BW}$$

where:

TBD	**=**	**Total Body Dose (mg/kgBW-day)**
PDE	**=**	**Potential dietary exposure (mg/kg)**
IR	**=**	**Ingestion rate (kg/day)**
BW	**=**	**Body weight (kg)**

Because the TBD estimates are normalized to the ingestion and body weight of the particular receptor being evaluated, they are directly comparable to estimated Reference Toxicity Values (RTVs) derived from the literature. The comparison of the TBD estimate with the appropriate RTV results in an index (the Hazard Index) of potential impact associated with exposure to that particular chemical.

Toxicity data evaluated for terrestrial receptors consists of acute and chronic oral ingestion studies which were preferentially chosen in the following order: 1) feeding studies, 2) gavage studies, 3) drinking water studies. Based on these data, RTVs were developed to represent a threshold dosage for effects to terrestrial organisms. RTVs are expressed in mg/kg BW (body weight)/day (dose normalized to body weight). From the toxicological data base (Table G-3), chemical-specific toxicity values for analytes detected in Roundhouse surface soil were selected as the RTVs (Table G-4) for each type of receptor (indicator species) evaluated.

The RTV selection procedure included the following general guidelines:

- When taxon-specific data were unavailable, available toxicological data were used as surrogate toxicological benchmarks for various indicator species (e.g., a value from a sublethal avian study was used for an avian receptor RTV, regardless of avian species tested in the study). Acceptable canine toxicity values were preferentially chosen to represent red fox and raccoon RTVs.

- RTVs were generally based on the reported Lowest Observed Adverse Effect Level (LOAEL) for endpoints from chronic or subchronic studies (i.e., those lasting >14 days). When LOAEL data were unavailable, No Adverse Effect Level (NOAEL) data from subchronic or chronic studies were used. Sensitive endpoints such as reproductive toxicity, were preferentially selected as RTVs because they relate most directly to the selected assessment endpoints (e.g., population declines). Mortality data were generally not selected for RTVs because they do not represent the most sensitive endpoints (e.g., reproductive effects should occur at lower dose levels than those required to cause mortality), and were used only when chronic or sub-chronic studies which evaluated non-lethal endpoints were unavailable.

- When no chronic or sub-chronic duration studies were available for RTV derivation for any terrestrial receptor type, acute study values were used to estimate benchmark values. In these cases, a factor of 0.2 was applied to the acute mortality endpoint (e.g., the LD_{50}) and a factor of 0.1 was then applied to that value for conservatively extrapolating from acute to chronic values (the acute-chronic ratio for many chemicals is approximately 10 [Newell et al., 1987]).

- When acceptable study results were unavailable, the CPC was assigned an appropriate surrogate chemical for which adequate toxicological data exists (e.g., 4,4'-DDT was used as a surrogate for 4,4'-DDD and 4,4'-DDE).

- Efforts were made to avoid deriving RTVs based on carcinogenicity as an endpoint. For some PAHs, however, no other data were available. Therefore, all PAHs were assigned the RTV for benzo(a)pyrene, which is based on a reproductive endpoint, as a surrogate.

Development of Protective Contaminant Levels (PCLs)

In order to develop PCLs, an acceptable level of risk associated with exposure to each contaminant (Hazard Quotient [HQ] = 1) was multiplied by the particular contaminant-specific RTV to estimate a Target Intake Dosage (TID), expressed as mg/kgBW-day, as shown by the following equation:

$$TR \times RTV = TID$$

TR	=	**Target Risk (HQ = 1.0)**
RTV	=	**Reference Toxicity Value (mg/kgBW-day)**
TID	=	**Target Intake Dosage (mg/kgBW-day)**

The TID was multiplied by the Dietary Contribution Factor (DCF) (the inverse of the equation used to derive TBD) to estimate the PCL of the particular contaminant, as shown by the following equation:

$$TID \times DCF = PCL$$

TID	=	**Target Intake Dosage (mg/kgBW-day)**
DCF	=	**Dietary Contribution Factor (kgBW-day/kg)**
PCL	=	**Protective Contaminant Level (mg/kg)**

PCLs were developed for all analytes for each of the terrestrial receptor organisms evaluated through the food chain model; these PCLs are presented in Table G-5. The lowest resultant PCLs were selected as the PCL values for use in these PREs. For the majority of the contaminants evaluated, the short-tailed shrew (due to its small home range, voracious appetite, and insectivorous diet) was found to be the ecological receptor species with the lowest PCL. The PCL values used in the risk evaluation represent the concentration of each analyte in surface soil that, if not exceeded, is expected to be protective of all terrestrial organisms. The calculated PCL values for some higher trophic level receptors exceeded a soil level of 50% contaminant for some analytes, suggesting that the analyte poses no risk to the receptor. The PCL values for these analytes have been denoted as "No Effects Likely" (NEL) in Table G-5.

TABLE G-1
EXPOSURE PARAMETERS FOR INDICATOR SPECIES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

American woodcock -- *Scolopax minor*			
Exposure parameter	Reported values	Reference [a]	Value selected for ecological risk assessment
Home range (acres)	Territory size 7.9 to 187 acres.		63 acres [b]
Exposure duration (unitless)	Summer resident, migrant. Mar.- Nov.; Arrives in northern range in early March and leaves in late September		0.75
Diet	68% earthworms; 16% beetles, flies, and insects, 5% other animals, and 10% plants.		Invertebrates: 85% Plants: 10% Soil: 5%
Ingestion rate (kg/day)			0.13 kg fresh weight/day
Body weight (kg)			0.17 kg
Daily inhalation rate (m^3/day)	Allometric relationship between body weight (BW) and inhalation rate: $IR_{air} = 0.4089 * BW(kg)^{0.77}$		0.1 m^3/day
Drinking water intake rate (l/day)	Allometric relationship between body weight (BW) and drinking water rate (L) for all birds: $L = 0.059 * BW(kg)^{0.67}$		0.018 l/day

[a] All values derived from USEPA (1993) unless otherwise indicated.
[b] Average of reported values.

American robin -- *Turdus migratorius*			
Exposure parameter	Reported values	Reference [a]	Value selected for ecological risk assessment
Home range (acres)	Foraging home range for summer adults feeding nestlings = 0.15 ha, for fledglings = 0.81 ha		1.2 acres [b]
Exposure duration (unitless)	Summer resident, migrant. Mar.-Nov.		0.75
Diet	Adult birds in the eastern U.S.; diet is 32% invertebrates and 68% plants.		Invertebrates: 30% Plants: 65% Soil: 5%

TABLE G-1
EXPOSURE PARAMETERS FOR INDICATOR SPECIES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

Ingestion rate (kg/day)			0.097 kg fresh weight/day [b]
Body weight (kg)	0.0648 - 0.0842 kg		0.081 kg [b]
Daily inhalation rate (m^3/day)	Allometric relationship between body weight (BW) and inhalation rate: $IR_{air} = 0.4089 * BW(kg)^{0.77}$		0.059 m^3/day
Drinking water intake rate (l/day)	Allometric relationship between body weight (BW) and drinking water rate (L) for all birds: $L = 0.059 * BW(kg)^{0.67}$		0.011 l/day

[a] All values derived from USEPA (1993) unless otherwise indicated.
[b] Average of reported values.

Short-tailed shrew -- *Blarina brevicauda*			
Exposure parameter	Reported values	Reference [a]	Value selected for ecological risk assessment
Home range (acres)			0.9 acres [b]
Exposure duration (unitless)	Active year-round; longevity is less than 5 months to as much as 20 months.		1.0
Diet	Diet consists of 61% to 70.5% invertebrates, 11% to 13% vegetation, and approximately 15% "miscellaneous other".		Plants: 15% [c] Invertebrates: 80% [c] Soil: 5%
Ingestion rate (kg/day)	Reported values of 7.95 g/day and 0.49 to 0.62 g/BW-day		0.0087 kg fresh weight/day [b]
Body weight (kg)			0.017 kg [b]
Daily inhalation rate (m^3/day)	Allometric relationship between body weight (BW) and inhalation rate: $IR_{air} = 0.5458 * BW(kg)^{0.8}$		0.021 m^3/day
Drinking water intake rate (l/day)	Allometric relationship between body weight (BW) and drinking water rate (L) for all mammals: $L = 0.099 * BW(kg)^{0.9}$		0.0025 l/day

[a] All values derived from USEPA (1993) unless otherwise indicated.
[b] Average of reported values.
[c] The 15% of the dietary intake that is "miscellaneous" was accounted for by including 5% soil ingestion, and adding an additional 5% intake to plant ingestion and an additional 4% intake to invertebrate ingestion.

TABLE G-1
EXPOSURE PARAMETERS FOR INDICATOR SPECIES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

Red fox -- *Vulpes*

Exposure parameter	Reported values	Reference [a]	Value selected for ecological risk assessment
Home range (acres)			2600 acres
Exposure duration (unitless)	Active year-round		1.0
Diet	Diet consists of 37% (summer) to 92% (spring) small mammals, 2% (spring) to 43% (summer) birds and eggs, up to 11% invertebrates, and up to 16% vegetation.		Plants: 16% Invertebrates: 4% Small mammals: 61% Birds: 14% Soil: 5%
Ingestion rate (kg/day)	Average of ingestion rates for free-ranging fox		0.41 kg fresh weight/day [b]
Body weight (kg)			4.3 kg [b]
Daily inhalation rate (m^3/day)			1.8 m^3/day [b]
Drinking water intake rate (l/day)	Allometric relationship between body weight (BW) and drinking water rate (L) for all mammals: $L = 0.099 * BW(kg)^{0.9}$		0.37 l/day

[a] All values derived from USEPA (1993) unless otherwise indicated.
[b] Average of reported values.

Red-tailed hawk -- *Buteo jamaicensis*

Exposure parameter	Reported values	Reference [a]	Value selected for ecological risk assessment
Home range (acres)	Range of reported values is 150 to 2512 ha		500 acres [b]
Exposure duration (unitless)	Active year-round		1.0

TABLE G-1
EXPOSURE PARAMETERS FOR INDICATOR SPECIES

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

Diet	Small mammals, nesting birds, insects, carrion, domestic animals.		Plants: 2% Invertebrates: 1% Small mammals: 74% Birds: 18% Soil: 5%
Ingestion rate (kg/day)			0.11 kg fresh weight/day [c]
Body weight (kg)			1.1 kg [c]
Daily inhalation rate (m^3/day)	Allometric relationship between body weight (BW) and inhalation rate: $IR_{air} = 0.4089 * BW(kg)^{0.77}$		0.44 m^3/day
Drinking water intake rate (l/day)	Allometric relationship between body weight (BW) and drinking water rate (L) for all mammals: $L = 0.099 * BW(kg)^{0.9}$		0.063 l/day

[a] All values derived from USEPA (1993) unless otherwise indicated.
[b] Selected as conservative value. Actual range may be greater.
[c] Average of reported values.

TABLE G-2
BIOACCUMULATION DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

CHEMICAL	log K_{ow} [Source] [b]		BIOACCUMULATION FACTOR (BAF) [a]			
			Invert [c]	Plant [d]	Small Mammal [e]	Small Bird [f]
SEMIVOLATILES						
1,4-Dichlorobenzene	3.5	3.5	5.0E-02	2.0E-02	4.8E-03	4.8E-03
2,4,6-Trichlorophenol	3.7	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
2,4-Dinitrotoluene	2.1	2.1	5.0E-02	2.0E-02	1.9E-04	1.9E-04
2,6-Dinitrotoluene	2.1	2.1	5.0E-02	2.0E-02	1.9E-04	1.9E-04
2-Methylnaphthalene	-1.9	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
2-Methyphenol	2	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
2-Nitrophenol	1.9	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
3-Nitroaniline	1.4	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
4-Chloroaniline	1.8	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
4-Chloro-3-methylphenol	3.1	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
4-Methyphenol	1.9	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
4-Nitroaniline	1.4	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
4-Nitrophenol	1.9	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
Acenaphthene	3.9	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Acenaphthylene	4.1	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Anthracene	4.5	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Benzo(a)anthracene	5.7	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Benzo(a)pyrene	6	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Benzo(b)fluoranthene	6.1	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Benzo(g,h,i)perylene	6.6	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Benzo(k)fluoranthene	6.1	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Bis(2-ethylhexyl)phthalate	5.1	5.5	5.0E-02	5.1E-03	4.8E-01	4.8E-01
Butylbenzylphthalate	4.9	5.5	5.0E-02	5.1E-03	4.8E-01	4.8E-01
Carbazole	3.76 [1]	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Chrysene	5.7	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Dibenzofuran	4.1	4.1	5.0E-02	2.0E-02	1.9E-02	1.9E-02
Dibenz(a,h)anthracene	6.5	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Diethylphthalate	3.2	5.5	5.0E-02	5.1E-03	4.8E-01	4.8E-01
Di-n-butylphthalate	5.2	5.5	5.0E-02	5.1E-03	4.8E-01	4.8E-01
Di-n-octylphthalate	9.2	5.5	5.0E-02	5.1E-03	4.8E-01	4.8E-01
Fluoranthene	4.95 [2]	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Fluorene	4.2	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Indeno(1,2,3-c,d)pyrene	6.6	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Naphthalene	3.6	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Nitrobenzene	1.9	1.9	5.0E-02	2.0E-02	1.2E-04	1.2E-04
N-Nitrosodiphenylamine	3.1	3.1	5.0E-02	2.0E-02	1.9E-03	1.9E-03
Phenanthrene	4.5	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
Phenol	1.5	1.7	5.0E-02	2.0E-02	7.6E-05	7.6E-05
Pyrene	5.3	5.1	5.0E-02	8.7E-03	1.9E-01	1.9E-01
2,4,6-Trinitrotoluene	1.6	1.6	5.0E-02	2.0E-02	6.0E-05	6.0E-05
PESTICIDES/PCBs						
4,4'-DDD	6		3.3E+00 [g]	1.3E-03 [h]	1.2E+00 [j]	2.9E+00 [i]
4,4'-DDE	5.7		1.7E+00 [g]	2.0E-03 [h]	1.2E+00 [j]	2.9E+00 [i]
4,4'-DDT	6.4		5.7E-01 [g]	7.7E-04 [h]	1.2E+00 [j]	2.9E+00 [i]
Aldrin	3		5.6E-01 [k]	2.0E-02	2.9E+00 [i]	2.9E+00
Aroclor-1254	6 [3]		5.8E+00 [l]	3.8E-01 [m]	3.8E+00 [n]	3.2E-01 [o]
Aroclor-1260	7.1 [3]		5.8E+00 [l]	3.8E-01 [m]	3.8E+00 [n]	3.2E-01 [o]

TABLE G-2
BIOACCUMULATION DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA

CHEMICAL	log K_{ow} [Source] [b]	BIOACCUMULATION FACTOR (BAF) [a]			
		Invert [c]	Plant [d]	Small Mammal [e]	Small Bird [f]
BHC-alpha	3.8	2.6E+00 [p]	2.0E-02	2.9E+00 [i]	2.9E+00
BHC-beta	3.8	2.6E+00 [p]	2.0E-02	2.9E+00 [i]	2.9E+00
BHC-delta	4.1	2.6E+00 [p]	2.0E-02	2.9E+00 [i]	2.9E+00
BHC-gamma (Lindane)	4.1	2.6E+00 [k]	2.0E-02	2.9E+00 [i]	2.9E+00
Chlordane-alpha	5.5	1.6E+00 [q]	5.1E-03	5.5E-01 [r]	1.8E+00 [s]
Chlordane-gamma	5.5	1.6E+00 [t]	5.1E-03	5.5E-01 [r]	1.8E+00 [s]
Dieldrin	4.6	5.5E+00 [k]	2.0E-02	1.5E+00 [u]	4.4E-01 [v]
Endosulfan I	3.6	5.5E+00 [w]	2.0E-02	2.9E+00 [i]	2.9E+00
Endosulfan II	3.6	5.5E+00 [w]	2.0E-02	2.9E+00 [i]	2.9E+00
Endosulfan sulfate	3.1	5.5E+00 [w]	2.0E-02	2.9E+00 [i]	2.9E+00
Endrin	5.6	1.9E+00 [t]	4.5E-03	2.9E+00 [i]	2.9E+00
Endrin aldehyde	3.14 [4]	1.9E+00 [x]	2.0E-02	2.9E+00 [i]	2.9E+00
Endrin ketone	3.14 [4]	1.9E+00 [x]	2.0E-02	2.9E+00 [i]	2.9E+00
Heptachlor	4.3	1.0E+00 [y]	2.0E-02	2.9E+00 [i]	2.9E+00
Heptachlor epoxide	5.4	1.0E+00 [t]	5.9E-03	2.9E+00 [i]	2.9E+00
Methoxychlor	4.8	5.7E-01 [z]	2.0E-02	2.9E+00 [i]	2.9E+00
INORGANICS					
Aluminum	-----	7.5E-02 [aa]	8.0E-04 [ab]	7.5E-02 [ac]	7.5E-02
Antimony	-----	5.0E-02 [aa]	4.0E-02 [ab]	5.0E-02 [ac]	5.0E-02
Arsenic	-----	6.6E-03 [ad]	8.0E-03 [ab]	1.0E-01 [ac]	1.0E-01
Barium	-----	7.5E-03 [aa]	3.0E-02 [ab]	7.5E-03 [ac]	7.5E-03
Beryllium	-----	5.0E-02 [aa]	2.0E-03 [ab]	5.0E-02 [af]	5.0E-02
Cadmium	-----	1.1E+01 [l]	3.3E+01 [ae]	2.1E+00 [ac]	3.8E-01 [ag]
Chromium	-----	1.6E-01 [l]	1.5E-03 [ab]	2.8E-01 [ac]	2.8E-01
Cobalt	-----	1.0E+00 [aa]	4.0E-03 [ab]	1.0E+00 [ac]	1.0E+00
Copper	-----	1.6E-01 [l]	7.8E-01 [ah]	6.0E-01 [ae]	6.0E-01
Cyanide	-----	0.0E+00 [ai]	1.0E+00 [aj]	0.0E+00 [ai]	0.0E+00
Lead	-----	[ak]	NC [ae]	1.5E-02 [ac]	1.5E-02
Manganese	-----	2.0E-02 [aa]	5.0E-02 [ab]	2.0E-02 [ac]	2.0E-02
Mercury	-----	6.8E-02 [al]	1.8E-01 [ab]	1.0E-02 [am]	2.3E+00 [am]
Nickel	-----	2.3E-01 [an]	1.2E-02 [ab]	3.0E-01 [ac]	3.0E-01
Selenium	-----	7.6E-01 [ad]	9.0E-03 [ao]	7.5E-01 [ac]	5.1E-01 [ap]
Silver	-----	1.5E-01 [aa]	8.0E-02 [ab]	1.5E-01 [ac]	1.5E-01
Thallium	-----	2.0E+00 [aa]	8.0E-03 [ab]	2.0E+00 [ac]	2.0E+00
Tin	-----	1.5E+00 [aa]	6.0E-03 [ab]	1.5E+00 [ac]	1.5E+00
Vanadium	-----	1.2E-01 [aa]	1.1E-03 [ab]	1.2E-01 [ac]	1.2E-01
Zinc	-----	1.8E+00 [l]	6.1E-01 [ah]	2.1E+00 [aq]	2.1E+00

NOTES:

[a] Units for bioaccumulation factors (BAFs) are (mg/kg fresh wt tissue over mg/kg dry wt soil) for invertebrates and plants, and (mg/kg fresh wt tissue over mg/kg fresh wt. food) for small mammals and small birds. No BAFs were calculated for VOAs since available evidenc suggests that these analytes do not bioaccumulate.

[b] From Superfund Chemical Data Matrix (USEPA, 1993) unless otherwise noted. Log K_{ow}s for classes of semivolatile compounds were averaged to provide an average BAF value. Compounds were grouped accordingly: PAHs (5.1), phthalates (5.5), phenols (1.7), 2,4/2,6-DNT (2.1), dibenzofuran (4.1), nitrobenzene (1.9), N-nitrosodiphenylamine (3.1), and 2,4,6-TNT (1.6).

[1] Hansch and Leo (1979)

[2] USEPA (1992), Dermal Exposure Guidance.

[3] USEPA (1990) - Basics of Pump-and-Treat Ground-Water Remediation Technology

[4] Arthur D. Little, Inc. (1981).

[c] Average of earthworm BAFs (Beyer, 1990) converted from dry weight to wet weight assuming earthworm is 80% water, unless otherwise noted.

[d] Plant BAF calclulated using the following equation presented by Travis and Arms (1988) unless otherwise noted: log (Plant Uptake Factor)=1.588-0.578 log Kow; if log Kow < 5, BAF assumed to be 0.02 assuming plants are 80% water.

[e] Calculated using the following equation by Travis and Arms (1988) unless otherwise noted: log (biotransfer factor) = log Kow-7.6. BTF converted to BAF by multiplying by average food ingestion rate of 12 kg/d. BAF converted from wet/dry wt to wet/wet wt assuming food is 80% water.

[f] Small mammal BAF value used unless otherwise noted.

[g] Geometric means of 4,4'-DDT [Davis (1968), Davis & Harrison (1966), Wheatley & Hardman (1968), Bailey et al. (1970), Cramp & Olney (1967), and Beyer & Gish (1980)], 4,4'-DDE [Davis (1968), Davis & Harrison (1966), Cramp & Olney (1967), Collett & Harrison (1968), Hunt & Sacho (1969), and Gish (1970)], and 4,4-DDD [Barker (1958), Davis (1968), Davis & Harrison (1966), Cramp & Olney (1967), Collett & Harrison (1968), Wheatley & Hardman (1968), Hunt & Sacho (1969), Bailey et al. (1970), Dimond et al. (1970), Gish (1970), and Beyer & Gish (1980)] reported for earthworms. Dry soil concentrations calculated assuming 10% moisture content in sandy-loam soils (Donahue et al., 1977).

[h] Geometric mean of 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE BAFs (fresh wt/dry wt) reported for roots (carrot, potato, sugar beet), grains (corn, oats), and legumes (alfalfa) derived from USEPA (1985) converted from dry weight to wet-weight per values provided by Suter (1993).

[i] Whole-body pheasant BAF for 4,4'-DDT presented in USEPA (1985); derived from Kenaga (1973). Used as surrogate for other pesticides for both birds and mammals.

[j] BAF for shrews and voles calculated using measured concentrations of DDT_R in stomach content and in whole body (Forsyth & Petrle, 1984).

[k] Geometric mean of reported BAFs for earthworms (Edwards & Thompson, 1973). Values provided by Gish (1970) were converted from dry weight to wet weight by multiplying by a conversion factor of 0.2 assuming 80% water composition of earthworms.

[l] BCF for earthworms from Diercxsens et al. (1985).

[m] Plant uptake value for leafy produce from MADEP (1992).

[n] BAF calculated from discussion in Eisler (1986) stating that Aroclor 1254 residues in subcutaneous fat of adult minks were up to 38 times dietary levels. Converted to whole body concentrations assuming 10% lipid content.

[o] BAF calculated from data presented in Eisler, 1986. Kestrels fed 33 mg PCB/kg diet for 62-69 days accumulated 107 mg PCB/kg lipid weight in muscle. Assuming muscle is 10% lipid content, the muscle concentration is about 10.7 mg/kg.

[p] Value for gamma-BHC used as a surrogate

[q] Value for gamma-chlordane used as a surrogate

[r] BAF calculated from data presented in Eisler, 1990. Rats fed 20 mg/kg diet technical chlordane (equivalent to 3.6 mg/kg diet cis- and trans-chlordane) for 350 days accumulated 20 mg/kg in lipids. Assuming 10% lipid content, the whole body concentration is about 2 mg/kg.

[s] BAF calculated from data presented in Eisler, 1990. Red-winged blackbirds fed 10 mg/kg diet technical chlordane (equivalent to 1.8 mg/kg diet cis- and trans- chlordane) for 84 days accumulated 1.8 mg/kg wet weight whole body residue.

[t] Geometric mean of reported BAFs for earthworms (Gish, 1970) converted from dry weight to wet weight assuming 80% water composition of earthworms.

[u] BAF calculated from data presented by Potter et al (1974). Based on an average dieldrin concentration in cow muscle and fat of 0.17 mg/kg (dry weight) and a dieldrin concentration of 0.11 mg/kg in the diet (dry weight).

[v] Jeffries and Davis (1968).

[w] Value for dieldrin used as a surrogate.

[x] Value for endrin used as a surrogate.

[y] Value for heptachlor epoxide used as a surrogate.

[z] Value for 4,4'-DDT used as a surrogate.

[aa] Prey-specific value not available; value shown is small mammal BAF for this chemical.

[ab] Value from Baes et al. (1984) multiplied by 0.2 to represent 80% water composition of plants.

[ac] Value derived from biotransfer factors (BTFs), presented in Baes et al. (1984) for uptake into cattle. BTF converted to BAF by multiplying by food ingestion rate of 50 kg/day wet weight.

[ad] Average of values for industrial soils from Beyer and Cromartie (1987) multiplied by 0.2 to represent 80% water composition in earthworms.

[ae] Mammal value for copper and plant value for cadmium from Levine et al., 1989. Lead does not accumulate in plant tissue, therefore, a BAF of zero was assigned.

[af] Mean of values reported for *Sorex araneus* in MacFadyen (1980).

[ag] Based on accumulation of cadmium in kidneys of European quail in Pimentel et al. (1984).

[ah] Median of values reported from Levine et al. (1989).
[ai] Cyanide has not been shown to bioaccumulate in any organisms.
[aj] Cyanide is naturally occurring in some plants; the extent to which it is taken up from soil is unknown and therefore a BAF of 1 is conservatively assumed.
[ak] BAF from regression equation for worms derived from Corp and Morgan (1991):

$$\log Y = 1.16 + 0.916 \log(X) - 0.326 \log(Ca)$$

Where: Y = worm tissue concentration.
X = average or maximum site soil lead concentration (mg/kg).
Ca = average site soil calcium concentration (mg/kg).

Y is converted from dry weight to wet weight by multiplying Y by 0.2 (assuming worm is 80% water). This value is then divided by the lead concentration.
[al] Uptake value (fresh wt./dry wt.) for earthworms from USEPA (1985c) sludge document. Fresh weight tissue concentrations calculated assuming body water content.
[am] USEPA, 1985c.
[an] Value from nickel sludge document (USEPA, 1985) multiplied by 0.2 to represent 80% water composition of earthworms.
[ao] Average of values for industrial soils from Beyer and Cromartie (1987) multiplied by 0.2 to represent 80% water composition in earthworms.
[ap] Based on average of reported ratio of selenium in diet to liver, kidney, and breast tissue of chickens (Eisler, 1985a).
[aq] Mean of values for *Microtus agrestis* and *Apodemus sylvaticus* in MacFadyen (1980).
NC = Not Calculated
NA = Not Available
[g1] From Barnthouse et al. (1988) unless otherwise noted.
[g2] Fish BCFs calculated from Veith et al. (1985) using the following regression equation: log (BCF) = 0.79 log Kow − 0.40

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) ORAL LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
VOLATILE ORGANIC COMPOUNDS									
1,1,1-Trichloroethane (surrogate			90		Guinea Pig	Oral (subchronic)	90 days	Hepatotoxicity	IRIS, 1991
for 1,1,2-TCA)	10300	2060 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
1,1,2,2-Tetrachloroethane		250			Rat	Single oral dose		Mortality	ATSDR, 1988
			3.2		Rat	Oral (subchronic)	27 weeks	Irreversible testicular damage	ATSDR, 1988
1,1-Dichloroethene (surrogate	200	40 [a]			Rat	Single oral dose		Mortality	IRIS, 1988
for 1,2-DCE)			9		Rat	Oral (chronic)	2 years	Liver lesions	IRIS, 1988
1,2-Dichloroethane (surrogate	670	130 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
for 1,1-dichloroethane)	489	100 [a]			Mouse	Single oral dose		Mortality	NIOSH, 1985
			120		Rat	Oral (subchronic)	13 weeks	NOAEL for reproductive effects	ATSDR, 1992
2-Butanone (surrogate for				173	Rat	Oral (subchronic)	13 weeks	NOAEL for neurological effects	ATSDR, 1990
2-hexanone and 4-methyl-	2737	550 [a]			Rat	Single oral dose		Mortality	ATSDR, 1990
2-pentanone)									
Acetone	9750	1950 [a]			Rat	Single oral dose		Mortality	Sax, 1984
			500		Rat	Oral (subchronic)	90 days	Increased liver/kidney weight; nephrotoxicity	IRIS, 1993
Benzene	3800	760 [a]			Rat	Single oral dose		Mortality	TDB, 1984
			10		Rat	Oral (chronic)	187 days	Hematopoietic effects	USEPA, 1984
Carbon disulfide				11	Rabbit	Converted inhalation	34 weeks	NOAEL for Fetotoxicity/malformations	IRIS, 1991
Carbon tetrachloride			7.1		Rat	Oral (chronic)	12 weeks	Liver lesions	IRIS,1991
	2800	560 [a]			Rat	Single oral dose		Mortality	Sax, 1984
Chlorobenzene			100		Rat	Oral (subchronic)	93-99 days	Increased liver and kedney weight	USEPA, 1984
			136.3		Dog	Oral (subchronic)	13 weeks	Histopathological changes in liver	IRIS, 1991
			89.3		Mouse	Oral (subchronic)	13 weeks	Increased liver weight, hepatic necrosis	USEPA, 1984
Chloroform			12.9		Dog (beagle)	Oral (chronic)	7.5 years	Liver cyst formation	IRIS,1991
Ethylbenzene			291		Rat	Oral (subchronic)	182 days	Liver and kidney toxicity	IRIS, 1991
	3500	700 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
Methylene chloride			52.6	5.9	Rat	Oral (chronic)	2 years	Liver toxicity	IRIS,1991
				12.5	Rat	Oral (subchronic)	3 months	Mortality, blood chemistry, histopathology	USEPA, 1984
	1900	380 [a]			Rabbit	Single oral dose		Mortality	Sax, 1984
Styrene			285	95	Rat	Oral (chronic)	120 weeks	Reduced growth; increased liver/kidney weights	IRIS, 1991
			400	200	Dog	Oral (subchronic)	19 months	Histopathologic liver effects; RBC effects	IRIS, 1991
	>5000	1000 [a]			Rat	Single oral dose		Mortality	USEPA, 1982
Tetrachloroethene	8850				Rat	Single oral dose		Mortality	NIOSH, 1985
	8100	1620 [a]			Mouse	Single oral dose		Mortality	TDB, 1984

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) ORAL LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
			100		Mouse	Oral (subchronic)	6 weeks	Hepatotoxicity	Buben and O'Flaherty, 1985
Toluene			446		Rat	Oral (subchronic)	13 weeks	Increased liver and kidney weight	IRIS, 1991
	5000	1000 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
			76		Rat	Oral (subchronic)	13 weeks	Decreasd open field activity	ATSDR, 1992
Trichloroethene	2402	480 [a	48 [b]		Mouse	Single oral dose		Mortality	NIOSH, 1985
	7193	1440 [a	144 [b]		Rat	Single oral dose		Mortality	NIOSH, 1985
Vinyl chloride			130		Rat	Oral (subchronic)	13 weeks	Hematological/biochemical/organ weight effects	USEPA, 1980
	500	100 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
Xylenes (total)	4300	860 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
			500	250	Rat	Oral (chronic)	103 weeks	Hyperactivity, decreased BW, mortality	IRIS, 1991
	20000	2014 [c]			Japanese quail	Oral (acute)	5 days	Mortality	Hill and Camardese, 1986
SEMI-VOLATILE ORGANIC COMPOUNDS									
1,4-Dichlorobenzene (surrogate			300		Mouse	Oral (chronic)	2 years	Nephropathy; renal tubular degeneration	NTP, 1987
for 1,2-dichlorobenzene)			150		Rat	Oral (chronic)	2 years	Increased incidence of nephropathy	NTP, 1987
	21.6	4 [a]			Rat	Single oral dose		Mortality	NTP, 1987
2,4-Dimethylphenol	400	80 [a	8 [b]		Mouse	Single oral dose		Mortality	Sax, 1984
2,4-DNT (also surrogate			40		Rat	Oral (chronic)	24 months	Anemia	ATSDR, 1988
for 2,6-DNT)	268	54 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
			10		Dog	Oral (chronic)	24 months	Biliary hyperplasia	ATSDR, 1988
			95		Mouse	Oral (chronic)	24 months	Liver dysplasia	ATSDR, 1988
	25	5 [a]			Dog	Oral (subchronic)	13 weeks	Mortality	ATSDR, 1988
	790	158 [a]			Mouse	Single oral dose		Mortality	NIOSH, 1985
	1300				Guinea pig	Single oral dose		Mortality	NIOSH, 1985
4-Chloroaniline			12.5		Rat	Oral (chronic)	102 weeks	Fibrosis of the splenic capsule	IRIS, 1993
4-Methylphenol (surrogate	1800				Rat	Single oral dose		Mortality	Verschueren, 1983
for 2-methylphenol)			175		Rat	Oral		Decreased RBC counts	ATSDR, 1990
	1100	220 [a]			Rabbit	Single oral dose		Mortality	Verschueren, 1983
			50		Rat	Oral (subchronic)	13 weeks	CNS stimulation	ATSDR, 1990
				50	Rat	Single oral dose	90 days	Loss in body weight/neurotoxicity	USEPA, 1991
4-Nitrophenol		400			Mouse	Oral (acute)	8 days	19% mortality during gestation period	ATSDR, 1990
		220			Rabbit	Single oral dose		3/8 of individuals died	ATSDR, 1990
Acenaphthene			350	175	Mouse	Oral (chronic)	90 days	Liver weight increase	IRIS, 1990
			2000		Rat	Oral (chronic)	32 days	Physiological changes	USEPA, 1984
Acenaphthylene			600		Rat	Oral (chronic)	40 days	Physiological changes	USEPA, 1984
Anthracene			3300		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION

FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL		CHRONIC (mg/kgBW-day)		TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	LD_{50}	LOAEL	LOAEL	NOAEL					
				1000	Mouse	Oral (chronic)	90 days	Clinical and pathological effects	IRIS, 1990
Benzoic acid			40		Rat	Oral (chronic)	17 months	Decreased resistance to stress	IRIS, 1990
Benzo(a)anthracene			2		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987
Benzo(a)pyrene (also used as surrogate		40			Rat	Oral (acute)	Pregnancy	Sterility in offspring	USEPA, 1984
for dibenz(a,h)anthracene)			10		Rat	Oral (chronic)	Pregnancy	Decreased gonad weight	USEPA, 1984
			50		Rat	Oral (chronic)	3.5 months	Reproductive effects	USEPA, 1984
			4.7		Mouse	Oral (chronic)	110 days	Tumor growth	Neal and Rigdon, 1967
		10 [c]			Mouse	Gavage	9 days	Decreased fertility and litter size	MacKenzie and Angevine, 1981
			2.5		Rat	Oral (chronic)	NS	Papillomas in stomach	USEPA, 1985
Benzo(b)fluoranthene			40		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987
Benzo(g,h,i)perylene			99		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987
Bis(2-ethylhexyl)phthalate			19	3.8	Guinea pig	Oral (chronic)	1 year	Increased liver weight	IRIS, 1992
	30600				Rat	Oral LD_{50}	NR	Mortality	RTECS, 1993
		7140			Rat	Oral	NR	Reproductive effects	RTECS, 1993
		35			Rat	Oral	NR	Reproductive effects	RTECS, 1993
		6000			Rat	Oral	NR	Reproductive effects	RTECS, 1993
		17200			Rat	Oral	NR	Reproductive effects	RTECS, 1993
		10000			Rat	Oral	NR	Reproductive effects	RTECS, 1993
		9766			Rat	Oral	NR	Reproductive effects	RTECS, 1993
	30000				Mouse	Oral LD_{50}	NR	Mortality	RTECS, 1993
		78880			Mouse	Oral	NR	Reproductive effects	RTECS, 1993
		4200			Mouse	Oral	NR	Reproductive effects	RTECS, 1993
		50			Mouse	Oral	NR	Reproductive effects	RTECS, 1993
		1000			Mouse	Oral	NR	Reproductive effects	RTECS, 1993
		2040			Mouse	Oral	NR	Reproductive effects	RTECS, 1993
	34000				Rabbit	Oral LD_{50}	NR	Mortality	RTECS, 1993
	26000				Guinea pig	Oral LD_{50}	NR	Mortality	RTECS, 1993
		20000			Guinea pig	Oral	NR	Reproductive effects	RTECS, 1993
		20000			Mammal	Oral	NR	Reproductive effects	RTECS, 1993
		509000			Mammal	Oral	NR	Reproductive effects	RTECS, 1993
	800				Mouse	Oral LD_{50}		Mortality	RTECS, 1993 and NIOSH, 1985
		125			Mouse	Oral (subchronic)	13 weeks	Renal effects	RTECS, 1993
	8600	1720 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
Butylbenzylphthalate				1858	Dog	Oral (subchronic)	90 days	Hematological effects; liver/kidney function	IRIS, 1991
				159	Rat	Oral (subchronic)	6 month	Increased liver weight	IRIS, 1991

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION

FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
Carbazole	500	100 [a	10 [b]		Rat	Single oral dose		Mortality	USEPA, 1986
Chrysene			99		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987
Dibenzofuran		500			Rodents	Single oral dose		LC20	ATSDR, 1991
			125		Rodents	Oral (chronic)	13 weeks	LC10	ATSDR, 1991
				60	Mouse	Oral (chronic)	103 weeks	Multinuclear hepatocytes	ATSDR, 1991
Diethylphthalate			3160	750	Rat	Oral (subchronic)	16 weeks	Decreased body weight gain, decreased food utilization	IRIS, 1993
	8600	1720 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
Diphenylamine			25		Dog	Oral (chronic)	2 year	Low body weight gain, high liver/kidney weights	IRIS, 1992
			31		Rat	Oral (chronic)	2 year	Kidney lesions	IRIS, 1992
			125		Rat	Oral (chronic)	2 generation	Reduced litter size and weight of young	IRIS, 1992
Di-n-butylphthalate (surrogate			125		Rat	Oral (subchronic)	48 days	LOAEL for reproductive effects	ATSDR, 1989
for di-n-octylphthalate)			600	125	Rat	Oral (chronic)	1 year	Mortality	IRIS, 1991
	6513	1302 [a]			Mouse	Single oral dose		Mortality	Sax, 1984
Fluoranthene			250	125	Mouse	Oral (subchronic)	90 days	Nephropathy; clinical and pathological effects	IRIS, 1990
	2000	400 [a]			Rodents	Single oral dose		Mortality	Eisler, 1987
Fluorene			250	125	Mouse	Oral (chronic)	13 weeks	Hematological changes	IRIS, 1990
Hexachlorobenzene	57	10 [a	1 [b]		Japanese quail	Oral (acute)	5 days	Mortality	Hill et al., 1975
	32	6.5 [a	0.65 [b]		Rat	Single oral dose		Mortality	Allen et al., 1979
Indeno(1,2,3-cd)pyrene			72		Rodents	Oral (chronic)	NS	Carcinogenicity	Eisler, 1987
Isophorone	3450	690 [b]			Rat	Oral (acute)		Mortality	ATSDR, 1988
			179		Rat	Oral (chronic)	2 years	Kidney disorders	IRIS, 1991
Naphthalene (surrogate			41		Rat	Oral (chronic)	100 weeks	Ocular lesions	USEPA, 1990
for 2-methylnaphthalene)			35.7		Rat	Oral (subchronic)	13 weeks	Decreased body weight gain	USEPA, 1990
	533	110 [a]			Mouse	Single oral dose		Mortality	ATSDR, 1990
Nitrobenzene	640	128 [a	13 [b]		Rat	Single oral dose		Mortality	Sax, 1984
Nitrocellulose				1800	Rat	Oral (chronic)		NOAEL	Ellis et al., 1978
				1800	dog	Oral (chronic)		NOAEL	Ellis et al., 1978
N-Nitrosodiphenylamine	1650	330 [a	33 [b]		Rat	Single oral dose		Mortality	Sax, 1984
Pentachlorophenol	380	76 [a]			Mallard	Single oral dose		Mortality	Eisler, 1989
	138				Chipmunk (Eastern)	Single oral dose		Mortality	Eisler, 1989
				10	Mouse	Oral (chronic)	2 years	NOAEL for histopathological/hematological changes	Eisler, 1989
			30	6	Rat	Oral (chronic)	8 months	Decrease in body weigtht	Eisler, 1989

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	27	5.4 [a]			Rat	Single oral dose		Mortality	Eisler, 1989
	504	100 [a	10 [b]		Pheasant	Single oral dose		Mortality	Eisler, 1989
	65				Mouse	Single oral dose		Mortality	Eisler, 1989
				3	Rat	Oral (chronic)	2 year	NOAEL for effects on growth, survival, and reproduction	Eisler, 1989
			3	1.5	Rat	Oral (subchronic)	12 weeks	Effects to kidney, liver, and blood chemistry	Eisler, 1989
	150	30 [a]			Dog	Single oral dose		Mortality	Eisler, 1989
Phenanthrene			120		Rat	Oral (subchronic)	6 months	Increased liver weight	ATSDR, 1989
	700	140 [a]			Rodents	Single oral dose		Mortality	Eisler, 1987
Phenol	530				Rat	Single oral dose		Mortality	USEPA, 1980
	414	80 [a]			Rat	Single oral dose		Mortality	TDB, 1984
			120		Rat	Oral (subchronic)	Gestational	Reduced fetal body weights	IRIS, 1993
	600				Rabbit	Single oral dose		Mortality	USEPA, 1980
	400				Rabbit	Single oral dose		Mortality	USEPA, 1980
	500	100 [a]			Dog	Single oral dose		Mortality	USEPA, 1980
	100				Cat	Single oral dose		Mortality	USEPA, 1980
	340				Rat	Single oral dose		Mortality	USEPA, 1980
Pyrene			125	75	Mouse	Oral (chronic)	13 weeks	Renal effects	IRIS, 1990
	800	160 [a]			Mouse	Single oral dose		Mortality	NIOSH, 1985
	2700				Rat	Single oral dose		Mortality	NIOSH, 1985
Trinitroglycerin (surrogate for nitroglycerine)			31.5		Rat	Oral (chronic)	24 months	Hepatotoxicity	Ellis et al., 1978
				115	Mouse	Oral (chronic)	24 months	NOAEL	Ellis et al., 1978
		25			Dog	Oral (acute)	5 days	Methemoglobinemia	Ellis et al., 1978
				1	Dog	Oral (subchronic)	4 months	NOAEL	Ellis et al., 1978
PESTICIDES/PCBs									
DDT (also used as surrogate for DDE and DDD)	200				Mouse	Single oral dose		Mortality	USEPA, 1985
			0.75	0.15	Mouse	Oral (chronic)	24 month	Hepatocellular swelling and necrosis (males)	IRIS, 1991
	100	20 [a]			Rat	Single oral dose		Mortality	USEPA, 1985
			10		Rat	Oral (chronic)	27 weeks	Kidney necrosis	ATSDR, 1992
			0.5		Rat	Oral (chronic)	2 year	Liver lesions	IRIS, 1991
			0.2		Rat	Oral (chronic)	3 generations	Reproductive effects	IRIS, 1991
			91.4 [d]		Chicken	Oral (subchronic)	10 weeks	Decreased reproductive success; toxic symptoms	USEPA, 1985
	4000				Rock dove	Single oral dose		Mortality	USFWS, 1984
			0.14 [d]		Black duck	Oral (chronic)	2 years	Reduced eggshell thickness	Longcore and Stendell, 1977
	2240				Mallard	Single oral dose		Mortality	USFWS, 1984

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
			7.2 [d]		Mallard	Oral (chronic)	43-417 days	Mortality	USFWS, 1984
			2.8 [d]		Mallard	Oral (chronic)	96 days	Reduced eggshell thickness	Longcore and Stendell, 1977
	595	120 [a]			California quail	Single oral dose		Mortality	USFWS, 1984
	841				Japanese quail	Single oral dose		Mortality	USFWS, 1984
	1334				Pheasant	Single oral dose		Mortality	USFWS, 1984
	1200				Sandhill crane	Single oral dose		Mortality	USFWS, 1984
			0.56 [d]		Kestrel	Oral (chronic)	7 wk - 1 year	Reduced eggshell thickness	USEPA, 1985
			0.16 [d]		Kestrel	Oral (chronic)	1 year	Reduced eggshell thickness	Wiemeyer, et al., 1986
			0.14 [d]		Barn Owl	Oral (chronic)	2 years	Reduced eggshell thickness	Longcore and Stendell, 1977
	2000				Bullfrog	Single oral dose		Mortality	USEPA, 1985
			7.6		Frog (Rana tempora	Oral (subchronic)	20 days	Mortality	Harri et al., 1979
	60	12 [a]			Dog	Single oral dose		Mortality	USEPA, 1985
			5.0		Dog	Oral (chronic)	3 generations	Premature puberty	ATSDR, 1992
			80		Dog	Oral (chronic)	40 months	Liver damage	ATSDR, 1992
PCBs		6	1		Mouse	Oral (acute)	2 weeks	Increased liver weight	Sanders and Kirkpatrick, 1975
			13-65		Mouse	Oral (chronic)	6-11 months	Hepatomegaly	USEPA 1985
(Aroclor 1254)	500	100 [a]			Rat	Single oral dose		Mortality	Eisler, 1986
(Aroclor 1260)	1300				Rat	Single oral dose		Mortality	Eisler, 1986
(Aroclor 1254)			7.6		Rat	Oral (chronic)	2 generations	Reduced litter size	USEPA 1985
			6.4		Rat	Oral (chronic)	9 weeks	Fetal mortality/maternal toxicity	ATSDR, 1987
			0.08		Rat	Oral (chronic)	NS	Increase in F1 male liver weights	USEPA, 1976
			0.9		Chicken	Oral (chronic)	NS	Embryonic mortality	USEPA, 1976
			0.9		Rock dove	Oral (chronic)	NS	Parental incubation behavior	Peakall and Peakall, 1973
(Aroclor 1254)			5.0		Japanese quail	Oral (chronic)	NS	Reproduction unimpaired	Eisler, 1986
			9		American kestrel	Oral (chronic)	69 days	Reduced sperm concentration	Eisler, 1986
(Aroclor 1254)	4000				Mink	Single oral dose		Mortality	Eisler, 1986
(Aroclor 1242)	3000				Mink	Single oral dose		Mortality	Eisler, 1986
(Aroclor 1221)	750				Mink	Single oral dose		Mortality	Eisler, 1986
			0.0075		Mink	Oral (chronic)	4 months	Impaired reproduction	Newell, et al., 1987
			0.37		Dog (beagle)	Oral (chronic)	2 years	LOAEL	USEPA, 1976
Atrazine			400		Rat	Oral (subchronic)	14 days	Liver and growth effects	Eisler, 1989
				100	Chicken	Oral (acute)	7 days	NOAEL	Eisler, 1989
			37.5		Dog	Oral (chronic)	2 years	Reduced hemoglobin	Eisler, 1989
BHC-alpha			2.5		Rat	Oral (chronic)	56 weeks	Liver necrosis	ATSDR, 1992
			32.5		Mouse	Oral (chronic)	24 wks	Hepatocellular carcinoma	ATSDR, 1992
			65		Mouse	Oral (chronic)	50 wks	Hepatomegaly	ATSDR, 1992

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	177	35 [a]			Rat	Single oral dose		Mortality	Sax, 1984
BHC-beta			40		Rat	Oral (acute)	2-14 days	Renal hypertrophy	ATSDR, 1992
				2.5	Rat	Oral (chronic)	13 wks.	Mortality, comatose, ovary atrophy	ATSDR, 1992
	6000	1200 [a]			Rat	Single oral dose		Mortality	Sax, 1984
BHC-delta				50	Rat	Oral (chronic)	24, 48 weeks	Hepatic necrosis	ATSDR, 1992
	1000	200 [a]			Rat	Single oral dose		Mortality	Sax, 1984
BHC-gamma (lindane)				5.0 [	Rat	Oral (chronic)	15 weeks	NOAEL for reproductive effects	ATSDR, 1992
				0.33	Rat	Oral (chronic)	18 weeks	Liver and kidney toxicity	IRIS, 1991
			1.55		Rat	Oral (chronic)	2 years	Liver and kidney toxicity	IRIS, 1991
		25			Mouse	Single oral dose	Gestation	Increased resorptions	ATSDR, 1992
	78	16 [a]			Bobwhite	Oral (acute)	5 days	Mortality	Hill et al., 1975
	360				Mallard	Oral (acute)	5 days	Mortality	Hill et al., 1975
				12.5	Dog	Oral (chronic)	32 weeks	Hepatic effects	ATSDR, 1992
Chlordanes			0.47		Mouse	Oral (chronic)	2 years	Hepatocelluar hypertrophy and necrosis	ATSDR, 1992
(alpha + gamma)	335				Rat (male)	Single oral dose		Mortality	Allen et al., 1979
	430				Rat (female)	Single oral dose		Mortality	Allen et al., 1979
			0.273	0.055	Mouse	Oral (chronic)	30 months	Regional liver hypertrophy (females)	ATSDR, 1992
	300				Rabbit	Single oral dose		Mortality	Allen et al., 1979
			16		Rat	Oral (chronic)	Mult-generational	Decreased fertility	ATSDR, 1992
				0.031 [d]	Young chicken	Oral (subchronic)	4 weeks	NOAEL for egg hatchability	Eisler, 1990
	100	20 [a]			Rabbit	Single oral dose		Mortality	Allen et al., 1979
	180				Goat	Single oral dose		Mortality	Allen et al., 1979
		130			Cattle	Single oral dose		Minimum Lethal Dose (MLD)	Allen et al., 1979
	35				Japanese quail	Oral (acute)	5 days	Mortality	Hill et al., 1975
	29				Bobwhite	Oral (acute)	5 days	Mortality	Hill et al., 1975
	62				Mallard	Oral (acute)	5 days	Mortality	Hill et al., 1975
	24	5 [a]			Pheasant	Single oral dose		Mortality	USFWS, 1984
	200				Dog	Single oral dose		Mortality	Allen et al., 1979
		200			Dog	Single oral dose		Minimum Lethal Dose (MLD)	Allen et al., 1979
			0.375		Dog	Oral (chronic)	2 years	Histologic changes	USEPA, 1988
Diazinon	76	15.2 [	1.52 [b]		Rat	Single oral dose		Mortality	Sax, 1984
	250				Guinea pig	Single oral dose		Mortality	Sax, 1984
	8400				Chicken	Single oral dose		Mortality	Sax, 1984
	3.54				Mallard	Single oral dose		Mortality	USFWS, 1984
	4.33	0.86 [	0.086 [b]		Pheasant	Single oral dose		Mortality	USFWS, 1984
	2000	400 [	40 [b]		Bullfrog	Single oral dose		Mortality	USFWS, 1984

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RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL		CHRONIC (mg/kgBW-day)		TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	LD_{50}	LOAEL	LOAEL	NOAEL					
Dieldrin (surrogate for Aldrin)	38				Mouse	Single oral dose		Mortality	Allen et al., 1979
			0.1		Mouse	Oral (chronic)	2 year	Liver enlargement w/ histopathology	IRIS, 1991
			1.3		Mouse	Oral (chronic)	2 year	Hepatic cancer	ATSDR, 1993
			0.33		Mouse	Oral (chronic)	80 weeks	Body tremors	ATSDR, 1993
	46				Rat	Single oral dose		Mortality	Allen et al., 1979
			2		Rat	Oral (chronic)	2 year	Histologic changes	ATSDR, 1993
			0.05	0.005	Rat	Oral (chronic)	2 year	Liver lesions	IRIS, 1991
	25				Guinea pig	Single oral dose		Mortality	Allen et al., 1979
	45				Rabbit	Single oral dose		Mortality	Allen et al., 1979
	48				House sparrow	Single oral dose		Mortality	USFWS, 1984
	20				Chicken	Single oral dose		Mortality	Allen et al., 1979
	27	5 [a]			Rock dove	Single oral dose		Mortality	USFWS, 1984
	9				Gray partridge	Single oral dose		Mortality	USFWS, 1984
	25				Chukar	Single oral dose		Mortality	USFWS, 1984
	6				Japanese quail	Oral (acute)	5 days	Mortality	Hill et al., 1975
	70				Japanese quail	Single oral dose		Mortality	USFWS, 1984
	9				California quail	Single oral dose		Mortality	USFWS, 1984
	3				Bobwhite	Oral (acute)	5 days	Mortality	Hill et al., 1975
	79				Pheasant	Single oral dose		Mortality	USFWS, 1984
	12				Mallard	Oral (acute)	5 days	Mortality	Hill et al., 1975
	11				Mallard	Oral (acute)	5 days	Mortality	Hill et al., 1975
	381				Mallard	Single oral dose		Mortality	USFWS, 1984
		5			Mallard	Oral (subchronic)	30 days	Minimum Lethal Dose (MLD)	USFWS, 1984
	100				Whistling duck	Single oral dose		Mortality	USFWS, 1984
	141				Canada goose	Single oral dose		Mortality	USFWS, 1984
		35			Monkey	Single oral dose		Minimum Lethal Dose (MLD)	Allen et al., 1979
	100				Goat	Single oral dose		Mortality	Allen et al., 1979
	50				Sheep	Single oral dose		Mortality	Allen et al., 1979
	60				Cattle	Single oral dose		Mortality	Allen et al., 1979
	75				Mule deer	Single oral dose		Mortality	Allen et al., 1979
	300				Cat	Single oral dose		Mortality	Allen et al., 1979
	65				Dog	Single oral dose		Mortality	Allen et al., 1979
		35			Dog	Single oral dose		Minimum Lethal Dose (MLD)	Allen et al., 1979
			0.05	0.005	Dog	Oral (chronic)	2 year	Increased liver weight; liver/body weight	IRIS, 1991
			0.5		Dog	Oral (chronic)	25 months	Hepatocyte degeneration	ATSDR, 1993
			0.1		Monkey	Oral (chronic)	120 days	Tremors and Convusions	Smith et al., 1976

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
			0.65		Mouse	Oral (subchronic)	4 wks	Decreased pup survival	Virgo Bellward., 1975
		0.25			Rat	Oral (subchronic)	120 days	Operant behavior	Burt, 1976
			0.025		Rat	Oral (subchronic)	120 days	Operant behavior	Smith, 1976
	15				Mouse	Single oral dose	1 day	Malformations	Ottolenghi, 1974
Endosulfan (surrogate for			0.9		Mouse	Oral (chronic)	78 weeks	Mortality	ATSDR, 1990
Endosulfan I, Endosulfan II,			0.26		Mouse	Oral (chronic)	78 weeks	Ovarian cyst development	ATSDR, 1990
and Endosulfan sulfate)	24	4.8 [a]			Rat	Single oral dose		Mortality	ATSDR, 1990
			100		Rat	Oral (chronic)	2 years	Renal tubular damage	USEPA, 1980
			10		Rat	Oral (chronic)	2 years	Reduced testes weight	USEPA, 1980
			0.15		Rat	Oral (chronic)	2 generations	Kidney toxicity	IRIS, 1991
	33				Mallard	Single oral dose		Mortality	USFWS, 1984
	31.2	6.24 [a]			Mallard	Single oral dose		Mortality	USFWS, 1984
	80				Pheasant	Single oral dose		Mortality	USFWS, 1984
Endrin (surrogate for			0.53		Mouse	Oral (chronic)	80 wks	Mortality	ATSDR 1989
aldehyde and ketone forms)			0.1		Dog	Oral (chronic)	19 months	Decreased weight gain	USEPA, 1985
	3	0.6 [a]			Rat	Single oral dose		Mortality	Sax, 1984
	1.8	0.36 [a]			Bird	Single oral dose		Mortality	Sax, 1984
Heptachlor (surrogate for			0.013		Dog	Oral (chronic)	60 weeks	Increased liver to body weight ratio	IRIS, 1993
heptachlor epoxide)			0.25		Rat	Oral (chronic)	2 year	Increased liver/BW ratio	IRIS, 1991
			0.35		Rat	Oral (chronic)	1 generation	Increased pup death	IRIS, 1991
			0.15		Cat	Oral (chronic)	2 year	Increased liver weight	USEPA, 1987
	40	8 [a]			Rat	Single oral dose		Mortality	Sax, 1984
	62	12 [a]			Chicken	Single oral dose		Mortality	Sax, 1984
Malathion			1000		Rat	Oral (chronic)	2 years	Decreased food intake and growth	Arthur D. Little, Inc., 1987
	403	80.6 [	8.06 [b]		Horned lark	Single oral dose		Mortality	USFWS, 1984
Methoxychlor			10		Rat	Oral (chronic)	2 years	Growth retardation	USEPA, 1985
			60		Rat	Oral (chronic)	6 wks	Early onset of puberty and decreased litter size	Harris et al., 1975
		200			Rat	Oral (acute)	6-20 days	Increased in percent dead and early onset of puberty	Khera et al., 1978 & Gray, 1989
Parathion			2.3		Rat	Oral (subchronic)	16 days	Reproductive effects	NIOSH, 1985
				6	Rat	Oral (chronic)	2 years	NOAEL (feeding, growth)	Wier and Hazelton, 1982
		9			Quail	Oral (acute)	6 days	Decreased cholinesterase activity; food avoidance	Bussiere, et al., 1989
Pyrethrins	1500				Rat	Single oral dose		Mortality	Farm Chemicals Handbook, 1991
	200				Rat	Single oral dose		Mortality	Sax, 1984

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FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD$_{50}$	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	1200				Rat	Single oral dose		Mortality	Sax, 1984
	370	74 [a	7 [b]		Muskrat	Single oral dose		Mortality	Sax, 1984
Rotenone	132				Rat	Single oral dose		Mortality	Sax, 1984
	350	70 [a	7 [b]		Muskrat	Single oral dose		Mortality	Sax, 1984
	50				Hamster	Single oral dose		Mortality	Sax, 1984
	1680				Pheasant	Single oral dose		Mortality	USFWS, 1984
INORGANICS									
Aluminum			425		Mouse	Oral (chronic)	2-3 genrtns	Reduced body weight gain of newborns	NIOSH, 1985
			100		Rat	Oral (subchronic)	15 days	Reduced growth	Bernuzzi, et al., 1989
Ammonia		48.4			Rat	Dermal (acute)	60 min.	Mortality	ATSDR, 1989
	1000	200 [a	20 [b]		Rat, Rabbit, Cat	Oral (acute)		Mortality	ATSDR, 1989
		2245	224.5 [b]		Rabbit	Oral (subchronic)	36 days	Renal damage	ATSDR, 1989
			318		Dog	Oral (subchronic)	11 weeks	Bone deformity and softening	ATSDR, 1989
			936		Rat	Oral (chronic)	330 days	Bone loss, reduced body weight	ATSDR, 1989
Antimony		4 [b	0.35 (water)		Rat	Oral (chronic)	NS	Longevity; blood glucose; cholesterol	IRIS, 1993
			41.8 (food)		Rat	Oral (subchronic)	24 weeks	Decreased RBC, swelling of hepatic cords	ATSDR, 1990
Arsenic			7.5		Rat	Oral (chronic)	NS	Weight loss	USEPA, 1984
		14			Hamster	Single oral dose	Gestation	7-36% Fetal mortality	ATSDR, 1991
	323	64.6 [a]			Mallard	Single oral dose		Mortality	Eisler, 1988
	386				Pheasant	Single oral dose		Mortality	Eisler, 1988
			3.1		Dog	Oral (chronic)	2 years	Mortality	ATSDR, 1991
Barium				0.825	Mouse	Oral (chronic)	lifetime	NOEL	IRIS, 1990
				5.1	Rat	Oral (chronic)	16 months	NOEL	IRIS, 1990
				0.25	Rat	Oral (chronic)	lifetime	NOEL	IRIS, 1990
				31.5	Rat	Oral (chronic)	13 weeks	NOEL	IRIS, 1990
			142		Rat	Oral (chronic)	68 weeks	Renal ultrastructure changes	IRIS, 1993
			91		Rat	Oral (subchronic)	13 weeks	LOAEL for renal effects	Dietz et al., 1992
		198			Rat	Oral (acute)	10 days	Decreased ovarian weight	ATSDR, 1990
		430			Rat	Oral (subchronic)	13 weeks	20% population mortality	Dietz et al., 1992
Beryllium	10	2 [a]			Rat	Single oral dose		Mortality	USEPA, 1985
			0.22		Rat	Oral (chronic)	NS	Increase in lung sarcomas	USEPA, 1985
			10		Rat	Oral (subchronic)	24 - 28 days	Rickets	ATSDR, 1991
			0.85		Rat	Oral (chronic)	3.2 years	NOAEL	ATSDR, 1987
Cadmium			1.75		Mouse	Oral (chronic)	18 months	Histopathological effects	ATSDR, 1993
			0.32		Mouse	Oral (subchronic)	28 days	Alteration in blood chemistry	Eisler, 1985
				1.8	Mouse (young)	Oral (chronic)	28 days	Blood chemistry altered	Eisler, 1985

TABLE G-3
INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	250				Rat	Single oral dose		Mortality	Eisler, 1985
				100	Rat	Single oral dose		Testicular damage	Eisler, 1985
			14		Rat	Oral (subchronic)	12 weeks	Hepatic and renal effects	ATSDR, 1993
				12.5	Rat	Oral (subchronic)	Gest., days 6-15	NOAEL for reproductive effects	Machener & Lorke, 1981
	150	30 [a]			Guinea pig	Single oral dose		Mortality	Eisler, 1985
			7.6		Japanese quail	Oral (subchronic)	6 weeks	Bone marrow hypoplasia	Eisler, 1985
				200	Mallard	Oral (chronic)	90 days	Egg production suppressed	Eisler, 1985
				200	Mallard	Oral (chronic)	90 days	NOEL	Eisler, 1985
				20	Mallard (young)	Oral (chronic)	12 weeks	Kidney lesions	Eisler, 1985
				0.75	Dog	Oral (subchronic)	3 months	NOAEL	ATSDR, 1993
Chromium (III)		14000 [t	1400		Rat	Oral (subchronic)	90 days	NOAEL for histopathologic and reproductive effects	Ivankovic and Preussman, 1975
		2000 [t	200		Black Duck	Oral (subchronic)	5 months	NOAEL for reproductive effects	Outridgz & Scheuhammer,1993
Cobalt	91	18 [a]			Rat	Single oral dose		Mortality	ATSDR, 1990
		157			Rat	Single oral dose		Hepatic/renal hyperemia	ATSDR, 1990
			4.2		Rat	Oral (subchronic)	8 weeks	Decreased body weight gain	ATSDR, 1990
			20		Rat	Oral (chronic)	69 days	Testicular atrophy	ATSDR, 1990
		20			Guinea pig	Oral (subchronic)	5 week	Mortality	ATSDR, 1990
			5		Dog	Oral (subchronic)	4 weeks	Increased red blood cell count	ATSDR, 1990
Copper		152			Rat	Single oral dose		TDlo for reproductive effects	NIOSH, 1985
			100		Mice	Oral (chronic)	30 days	Decreased litter sizes with teratogenic effects	Lecyk, 1980
			152		Rat	Oral (chronic)	22 weeks	Fetotoxicity; CNS abnormalities	NIOSH, 1985
			1.4		Swine	Oral (chronic)	9 months	Mortality	USEPA, 1980
		2.09			Mallard	Oral (acute)	29 days	No effect on survivorship	Demayo et al., 1982
			29		Mallard	Oral (subchronic)	NS	LOAEL	NRC, 1977
Cyanide			30		Rat	Oral (subchronic)	11.5 months	Increased thyroid weight, myelin degeneration	IRIS, 1993
	8.5				Mouse	Single oral dose		Mortality	Arthur D. Little, Inc., 1987
			11		Young chickens	Oral	20 days	Decreased growth and food intake	Elzubier and Davis, 1988
			11		Pig	Oral	110 days	Thyroid hypofunction during pregnancy	Tewe and Maner, 1981b
		12	11.9		Hamsters	Oral	12 days	Decreased fetal weight and delayed ossification	Frakes et al., 1986
		1.1			Mallard duck	Single oral dose		Mortality in 6% of population	Eisler, 1991
Lead			1.5		Mouse	Oral (chronic)	NS	Reduced sucess of implanted ova	Eisler, 1988
	12				Rat	Single oral dose		Mortality	Eisler, 1988
	17				Rat	Single oral dose		LDLO	Eisler, 1988

TABLE G-3
INGESTION TOXICITY DATABASE

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FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
		2.5			Rat	Oral (acute)	Days 12-14 (preg)	Increased fetal resorption rate; decreased fetal BW	McClain and Becker, 1972
		1			Rat	Oral (acute)	Days 5-15 (preg)	Increased resorptions/dam	Kennedy et al., 1975
		1.5			Rat	Oral (subchronic)	3 weeks	Increased locomotor activity	Eisler, 1988
				7	Rat	Oral (chronic)	2 generations	NOAEL for developmental effects	Kimmel et al., 1980 and Grant et al., 1980
			2.16		Rat	Oral (chronic)	2 years	Decreased ALAD synthesis	ATSDR, 1988
			25		Rat	Oral (chronic)	NS	Increased locomotor activity	Eisler, 1988
	300	60 [a]			Guinea pig	Single oral dose		Mortality	Sax, 1984
			0.51		Rabbit	Oral (chronic)	NS	Mortality	USEPA, 1988
			169		Chicken	Oral (subchronic)	4 weeks	Growth rate suppressed	Eisler, 1988
			6.25		Rock dove	Oral (chronic)	NS	Kidney pathology; learning deficiences	Anders et al., 1982 and Dietz et al., 1979
		75			Rock dove	Single oral dose		Mortality	Kendall and Scanlon, 1985
	151				Mallard	Oral (subchronic)	NS	Some mortality and ALAD decrease	Eisler, 1988
			1.75		Mallard	Oral (chronic)	12 weeks	Decrease in ALAD activity	Eisler, 1988
	24.6				Japanese quail	Single oral dose		Mortality	Eisler, 1988
			2.8		Starling	Oral (acute)	11 days	Reduced food consumption	Eisler, 1988
		125			Kestrel (nestlings)	Oral (acute)	10 days	Abnormal development	Eisler, 1988
		25			Kestrel (nestlings)	Oral (acute)	10 days	ALAD depression	Eisler, 1988
		625			Kestrel (nestlings)	Oral (acute)	10 days	Mortality and developmental effects	Eisler, 1988
				0.89	Kestrel	Oral (chronic)	5 months	NOEL	Eisler, 1988
			4.4		Kestrel	Oral (chronic)	5 months	Blood ALAD reduced 80%	Eisler, 1988
			6		Cattle (calves)	Oral (subchronic)	105 days	Mortality	Eisler, 1988
			2.4		Horse	Oral (chronic)	NS	Mortality	Eisler, 1988
		300			Dog	Oral (acute)	NS	LDLO	ATSDR, 1988
			3		Dog	Oral (subchronic)	180 days	Anorexia and convulsions	Eisler, 1988
Manganese				2300	Mouse	Oral (subchronic)	6 months	Mortality	ATSDR, 1990
			140		Mouse	Oral (subchronic)	90 days	Delayed growth of testes	ATSDR, 1990
				810	Mouse	Oral (chronic)	103 weeks	Mortality	ATSDR, 1990
	410				Rat	Single oral dose		Mortality	ATSDR, 1990
	225				Rat	Oral (acute)	20 day	Mortality	ATSDR, 1990
				12	Rat	Oral (subchronic)	10 weeks	Hepatic effects	ATSDR, 1990
		1240		620	Rat	Oral (subchronic)	20 days	Decreased litter weight during gestation	ATSDR, 1990
			930		Rat	Oral (chronic)	103 weeks	Mortality	ATSDR, 1990
	400				Guinea pig	Single oral dose		Mortality	USEPA, 1984

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INGESTION TOXICITY DATABASE

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	LOAEL	CHRONIC (mg/kgBW-day) LOAEL	NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
			25		Monkey	Oral (chronic)	18 months	Weakness, rigidity	ATSDR, 1990
			250		Rodents/livestock	Oral (subchronic)	10 days – 2 months	Decreased growth rate	Cunningham et al., 1966
		2300			Mouse	Oral (subchronic)	180 days	NOAEL for mortality	Gianutsos and Murray, 1982
Mercury	22				Mouse	Single oral dose		Mortality	NIOSH, 1985
			6.3		Mouse	Oral (subchronic)	18 days	Mortality; neurological symptoms	Suzuki, 1979
			5		Mouse	Oral (subchronic)	38 days	Mortality; neurological symptoms	Suzuki, 1979
			0.9		Mouse	Oral (subchronic)	50 days	Embryotoxicity and teratogenicity	Suzuki, 1979
			1		Mouse	Oral (subchronic)	45 days	Hypophagia, weight loss, weakness of hind leg	Suzuki, 1979
			4		Mouse	Oral (subchronic)	Day 6-17 (gest)	Stillbirths and neonatal death	Suzuki, 1979
			0.7		Mouse	Oral (subchronic)	Day 0-18 (gest)	Embryolethality and teratogenicity	Suzuki, 1979
			4		Rat	Oral (subchronic)	Day 6-14 (gest)	Retarded fetus growth and teratogenicity	Suzuki, 1979
			0.12 [d]		Rat	Oral (subchronic)	Gest.+ 16 days	Behavioral changes in offspring	Suzuki, 1979
			0.5		Rat	Oral (chronic)	NS	Reduced fertility	Eisler, 1987
			0.16 [d]		Rat	Oral (chronic)	38 days	Adverse behavioral change	Eisler, 1987
	18	3.6 [a]			Rat	Single oral dose		Mortality	NIOSH, 1985
			0.5		Pig	Oral (chronic)	Pregnancy	High incidence of stillbirths	Eisler, 1987
	12.6				House sparrow	Single oral dose		Mortality	Eisler, 1987
	22.8				Rock dove	Single oral dose		Mortality	Eisler, 1987
			3		Pigeon	Oral (subchronic)	17 days	Behavioral alterations	Eisler, 1987
			1		Pigeon	Oral (subchronic)	5 weeks	Behavioral alterations	Eisler, 1987
			0.25 [d]		Starling	Oral (chronic)	8 weeks	Kidney lesions	Eisler, 1987
	20				Chicken	Single oral dose		Mortality	Fimreite, 1979
	190				Bantam chicken	Single oral dose		Mortality	Fimreite, 1979
	11.5				Prairie chicken	Single oral dose		Mortality	Eisler, 1987
	26.9				Chukar	Single oral dose		Mortality	Eisler, 1987
	11	2 [a]			Coturnix	Single oral dose		Mortality	Eisler, 1987
			0.22 [d]		Black duck	Oral (chronic)	28 weeks	Reproduction inhibited, brain lesions	Eisler, 1987
	37.8				Fulvous whistling du	Single oral dose		Mortality	Eisler, 1987
	23.8				Northern bobwhite	Single oral dose		Mortality	Eisler, 1987
	523				Bobwhite quail	Oral (acute	5 days	Mortality	Hill et al., 1975
	14.4				Japanese quail	Single oral dose		Mortality	Eisler, 1987
			0.81		Japanese quail	Oral (subchronic)	3 weeks	Depressed gonad weights	Eisler, 1987
			0.10		Japanese quail	Oral (subchronic)	9 weeks	Alterations in brain and plasma enzyme activities	Eisler, 1987
			5.0		Japanese quail	Oral (chronic)	NS	Reproductive effects	Fimreite, 1979

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FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) ORAL LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	17.6				Gray partridge	Single oral dose		Mortality	Eisler, 1987
			0.64		Gray pheasant	Oral (chronic)	30 days	Reduced reproductive ability	Eisler, 1987
	11.5				Ring-necked pheas	Single oral dose		Mortality	Eisler, 1987
	17.9				Mule deer	Single oral dose		Mortality	Eisler, 1987
			0.5		Rhesus monkey	Oral (chronic)	Pregnancy	Maternally toxic and abortient	Eisler, 1987
	2				River otter	Single oral dose		Mortality	Eisler, 1987
	1				Mink	Single oral dose		Mortality	Eisler, 1987
			0.029		Mink	Oral (subchronic)	2 months	Mortality	Eisler, 1987
			0.25		Cat	Oral (chronic)	Day 10-58 (gest)	Increased incidence of anomalous fetuses	Eisler, 1987
			0.1		Dog	Oral (chronic)	Pregnancy	High incidence of stillbirths	Eisler, 1987
Nickel	67	13.4 [a]			Rat	Single oral dose		Mortality	ATSDR, 1991
			50		Rat	Oral (chronic)	2 years	Decreased body weight gain	ATSDR, 1991
	504 [c	100 [a	10 [b]		Japanese quail	Oral (acute)	5 days	NOAEL	Hill and Camardese, 1986
			62.5		Dog	Oral (chronic)	2 years	Histological lesions in bone marrow	ATSDR, 1991
Nitrate		1330 [t	133		Mouse	Oral (subchronic)	3 weeks	Elevated methemoglobin levels	USEPA, 1985
				88	Mouse	Oral (subchronic)	3 weeks	NOAEL	USEPA, 1985
		2500 [t	250		Rat	Oral (chronic)	6 months	Spleen hemorrhages	USEPA, 1985
Selenium			0.4		Rat	Oral (chronic)	2 years	Decrease in breeding	ATSDR, 1988
			0.045		Rat	Oral (chronic)	NS	Histological changes in heart and kidney	Eisler, 1985
			0.6		Japanese quail	Oral (chronic)	NS	Reduced egg hatching	Eisler, 1985
			0.72		Mallard	Oral (subchronic)	3 months	NOAEL for teratogenic effects	Eisler, 1985
	3.3				Horse	Single oral dose		MLD	Eisler, 1985
		0.5			Rat	Single oral dose		Mortality	ATSDR, 1988

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ANALYTE	ACUTE (mg/kgBW-day) ORAL LD_{50}	ACUTE (mg/kgBW-day) ORAL LOAEL	CHRONIC (mg/kgBW-day) LOAEL	CHRONIC (mg/kgBW-day) NOAEL	TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
Silver	34	6.8 [a]			Mouse	Intraperitoneal (acute)		Mortality	NIOSH, 1985
		181			Rat	Oral (acute)	2 week	Mortality	ATSDR, 1990
			222.2		Rat	Oral (chronic)	37 week	Weight gain	ATSDR, 1990
			18.1		Mouse	Oral (chronic)	125 days	Hypoactivity	ATSDR, 1990
Sulfate (magnesium)		3000	300 [b]		Mouse	Single oral dose		Mortality	NIOSH, 1985
(sodium)		1198	120 [b]		Rabbit	Single oral dose		Mortality	NIOSH, 1985
Thallium				0.61	Heron	Oral	NR	NOEAL for egg-hatchability	Smith et al., 1968
			0.7		Rat	Oral (subchronic)	30-60 days	Adverse testicular effects	IRIS, 1993
	35				Rat	Single oral dose		Mortality	Sax, 1984
	23.7				Pheasant	Single oral dose		Mortality	USFWS, 1984
Tin (inorganic)	188	37.6 [a	3.76 [b]		Rat	Single oral dose		Mortality	Eisler, 1989
	flb			20	Rat	Oral (chronic)	13 weeks	NOEL	Eisler, 1989
(dibutyltin)			0.1		Rat	Oral (chronic)	12 weeks	Kidney damage	Eisler, 1989
(dibutyltin)				2	Rat	Oral (subchronic)	90 days	NOEL	Eisler, 1989
(triethyltin)		35 [t	3.5		Mallard	Oral (subchronic)	NS	Vacuolization of spinal chord	Eisler, 1989
(triethyltin)			12.9		Chicken	Oral (chronic)	15 weeks	Muscular weakness	Eisler, 1989
(dialkytin)				15.1	Japanese quail	Oral (subchronic)	2 weeks	NOEL	Eisler, 1989
Vanadium				0.89	Rat	Oral (chronic)	2.5 years	Decreased hair cystine	IRIS, 1989
			2.87		Rat	Oral (subchronic)	3 months	Adverse renal effects	ATSDR, 1990
			2.5		Rat	Oral (chronic)	103 days	Decreased hair cystine, hemoglobin	IRIS, 1989
	96	20 [a]			Japanese quail	Oral (acute)	5 days	Mortality	Hill and Camardese, 1986
			15		Rat	Oral (subchronic)	2 months	Hypertension	Susic and Kentera, 1986
		16			Rat	Single oral dose		NOAEL for mortality	Llobet and Domingo, 1984
			11		Chicken	Oral (subchronic)	6 weeks	Decrease in egg-laying	USEPA, 1988

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FORT DEVENS, MA.

ANALYTE	ACUTE (mg/kgBW-day) ORAL		CHRONIC (mg/kgBW-day)		TEST SPECIES	TEST TYPE	DURATION	EFFECT	REFERENCE
	LD_{50}	LOAEL	LOAEL	NOAEL					
Zinc	2510				Rat	Single oral dose		Mortality	Sax, 1984
			160		Rat	Oral (subchronic)	NS	Kidney toxicity	Llobet, et al., 1988
			200		Rat	Oral	Gestation	Fetal resorptions in 4 to 20% of population	Shlicker and Cox, 1968
				300	Mink	Oral	144 days	No adverse effects	Aulerich et al., 1991
		390			Ferret	Oral	3-13 days	Mortality and gastrointestinal effects	Straube et al., 1980

NOTES:

[a] For chemicals lacking LOAEL or NOAEL data, an Acute Oral Criterion (AOC) is calculated by applying a factor of 0.2 to the acute LD50; this value is expected to protect 99.9% of the exposed population from acute effects (USEPA, 1986).

[b] Estimated by applying an acute-chronic ratio of 10.

[c] Value for benzo(a)pyrene chosen as a surrogate for all PAHs. Chemical-specific toxicity studies for ecologically significant endpoints are lacking for other PAHs.

[d] Converted to dose per kilogram body weight by multiplying by ingestion rate and dividing by body weight.
The following ingestion rate and body weight data were used:

Species	Ingestion Rate (kg/day)	Body Weight (kg)	Reference
Rat (Male)	0.025	0.35	USEPA, 1988
Rat (Female)	0.02	0.25	USEPA, 1988
Mouse	0.0035	0.03	USEPA, 1988
Rabbit	0.059	2.2	USEPA, 1988
Hamster	--	0.12	USEPA, 1988
Guinea pig	--	0.875	USEPA, 1988
Chicken	0.106	1.16	USEPA, 1988
Pig	--	150	USEPA, 1988
Dog	0.5	12.7	USEPA, 1988
Beagle dog		14	USEPA, 1988
Mink	0.0465	1.613	USEPA, 1988
Ferret	--	1.35	USEPA, 1988
Bird		1	Sax, 1984
Bobwhite	0.015	0.17	Kenaga, 1973
California quail	0.014 [f]	0.139	USEPA, 1988
Japanese quail		see California quail	
Corturnix		see California quail	
Grey partridge		0.39	Dunning, 1984
Pheasant (ring-necked)		1.135	Dunning, 1984
Rock dove		0.542	Dunning, 1984
Starling	0.01	0.0437	USEPA, 1988
Mallard Duck	0.09	1.25	Terres, 1987
Duck	0.112 [f]	1.6	USEPA, 1988
Black duck	--	1.25	USEPA, 1988
Young chickens	--	0.07	USEPA, 1988
Kestrel	0.01	0.179	USEPA, 1988
Screech Owl	0.0086	0.169	USEPA, 1988
Barn owl	--	0.466	USEPA, 1988

[e] Value for gamma-BHC used as a surrogate for all other BHC isomers.
NS = Not Stated
BW = Body Weight
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level

TABLE G-4
REFERENCE TOXICITY VALUES FOR ANALYTES DETECTED IN SURFACE SOIL

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

Chemical	Short-tailed Shrew	American Woodcock	Red Fox	Red-tailed Hawk
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kgBW-day)				
2-Methylnaphthalene	10	10	10	10
2-Methylphenol	50	50	50	50
4-Methylphenol	50	50	50	50
Acenaphthene	10	10	10	10
Acenaphthylene	10	10	10	10
Anthracene	10	10	10	10
Benzo(a)anthracene	10	10	10	10
Benzo(a)pyrene	10	10	10	10
Benzo(b)fluoranthene	10	10	10	10
Benzo(g,h,i)perylene	10	10	10	10
Benzo(k)fluoranthene	10	10	10	10
Carbazole	10	10	10	10
Chrysene	10	10	10	10
Dibenzofuran	125	125	125	125
Dibenz(a,h)anthracene	10	10	10	10
Di-n-butylphthalate	125	125	125	125
Fluoranthene	10	10	10	10
Fluorene	10	10	10	10
Indeno(1,2,3-cd)pyrene	10	10	10	10
Naphthalene	41	41	41	41
Phenanthrene	10	10	10	10
Phenol	120	120	120	120
Pyrene	10	10	10	10
PESTICIDES/PCBs (mg/kgBW-day)				
4,4'-DDE	0.2	0.14	5	0.14
Chlordane-gamma	16	0.031	16	0.031
INORGANICS (mg/kgBW-day)				
Aluminum	425	425	425	425
Antimony	41.8	41.8	41.8	41.8
Arsenic	3.1	3.1	3.1	3.1
Barium	198	198	198	198
Beryllium	10	10	10	10
Cadmium	12.5	12.5	12.5	12.5
Chromium (III)	1400	200	1400	200
Cobalt	20	20	20	20
Copper	100	100	100	100
Lead	7	6.25	7	6.25
Manganese	250	250	250	250
Mercury	0.7	0.22	0.1	0.22
Nickel	50	10	62.5	10
Selenium	0.4	0.6	0.4	0.6
Silver	18.1	18.1	18.1	18.1
Thallium	0.7	0.61	0.7	0.61
Tin	20	12.9	20	12.9
Vanadium	15	11	15	11
Zinc	200	200	200	200

Reference Toxicity Values are derived from the Toxicity Database (Table G-3)

TABLE G-5
ECOLOGICAL PROTECTIVE CONTAMINANT LEVELS FOR ANALYTES DETECTED IN SURFACE SOIL

RAILROAD ROUNDHOUSE SUPPLEMENTAL SITE INVESTIGATION
FORT DEVENS, MA.

Analyte	Shrew	Woodcock	Fox	Hawk
Semivolatile Organic Compounds (mg/kg)				
2-Methylnaphthalene	2.1E+02	4.4E+03	NEL	3.9E+05
2-Methylphenol	1.1E+03	2.2E+04	NEL	NEL
4-Methylphenol	1.1E+03	2.2E+04	NEL	NEL
Acenaphthene	2.1E+02	4.4E+03	NEL	3.9E+05
Acenaphthylene	2.1E+02	4.4E+03	NEL	3.9E+05
Anthracene	2.1E+02	4.4E+03	NEL	3.9E+05
Bbenzo(a)anthracene	2.1E+02	4.4E+03	NEL	3.9E+05
Benzo(a)pyrene	2.1E+02	4.4E+03	NEL	3.9E+05
Benzo(b)fluoranthene	2.1E+02	4.4E+03	NEL	3.9E+05
Benzo(g,h,i)perylene	2.1E+02	4.4E+03	NEL	3.9E+05
Benzo(k)fluoranthene	2.1E+02	4.4E+03	NEL	3.9E+05
Carbazole	2.1E+02	4.4E+03	NEL	3.9E+05
Chrysene	2.1E+02	4.4E+03	NEL	3.9E+05
Dibenzofuran	2.6E+03	5.4E+04	NEL	NEL
Dibenzo(ah)anthracene	2.1E+02	4.4E+03	NEL	3.9E+05
Di-n-butylphthalate	2.7E+03	5.5E+04	NEL	NEL
Fluoranthene	2.1E+02	4.4E+03	NEL	3.9E+05
Fluorene	2.1E+02	4.4E+03	NEL	3.9E+05
Indeno(1,2,3-cd)pyrene	2.1E+02	4.4E+03	NEL	3.9E+05
Naphthalene	8.8E+02	1.8E+04	NEL	NEL
Phenanthrene	2.1E+02	4.4E+03	NEL	3.9E+05
Phenol	2.5E+03	5.2E+04	NEL	NEL
Pyrene	2.1E+02	4.4E+03	NEL	3.9E+05
Pesticides/PCBs (mg/kg)				
4,4'-DDE	2.8E-01	3.9E+00	1.9E+03	2.7E+02
Chlordane-gamma	2.3E+01	9.0E-01	4.0E+03	1.2E+02
Inorganics (mg/kg				
Aluminum	7.5E+03	1.5E+05	NEL	NEL
Antimony	8.5E+02	1.8E+04	NEL	NEL
Arsenic	1.1E+02	2.3E+03	NEL	1.4E+05
Barium	6.4E+03	1.4E+05	NEL	NEL
Berylium	2.2E+02	4.4E+03	NEL	4.6E+05
Cadmium	1.8E+00	4.2E+01	7.4E+03	1.4E+03
Calcium	NA	NA	NA	NA
Chromium	1.5E+04	4.4E+04	NEL	NEL
Cobalt	4.6E+01	9.1E+02	4.4E+05	7.2E+04
Copper	6.6E+02	1.6E+04	NEL	NEL
Iron	NA	NA	NA	NA
Lead	2.2E+02	5.1E+03	NEL	3.1E+05
Magnesium	NA	NA	NA	NA
Manganese	6.6E+03	1.4E+05	NEL	NEL
Mercury	1.0E+01	7.2E+01	1.6E+04	9.7E+03
Nickel	4.1E+02	1.7E+03	NEL	2.4E+05
Potassium	NA	NA	NA	NA
Selenium	1.2E+00	3.5E+01	1.4E+04	3.5E+03
Silver	1.9E+02	4.0E+03	NEL	NEL
Sodium	NA	NA	NA	NA
Thallium	8.3E-01	1.4E+01	4.4E+03	6.0E+02
Tin	3.1E+01	4.0E+02	2.2E+05	2.2E+04
Vanadium	2.0E+02	2.9E+03	NEL	4.2E+05
Zinc	2.5E+02	5.1E+03	NEL	2.0E+05

NOTES:
NA = Not Available. No bioaccumulation or benchmark data are available for calculating PCLs.
NEL = No Effects Likely. Due to the exposure assumptions incorporated in the food chain models, these analytes are not likely to have adverse effects on higher trophic level receptors.

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