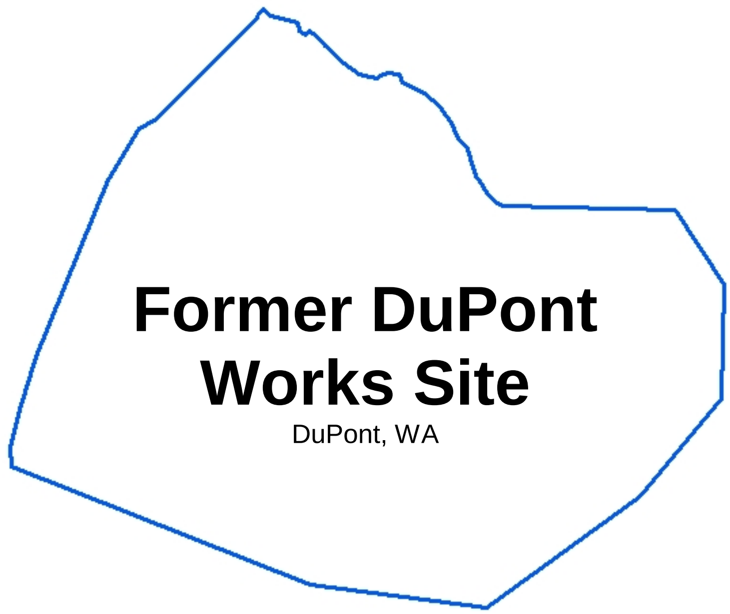
FINAL
Remedial Investigation for the Former DuPont Works Site



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July 2003

PREFACE

This volume, the Remedial Investigation for the Former DuPont Works Site (the Site), is the first of a series presenting information developed as part of the Final Remedial Investigation, Risk Assessment, and Feasibility Study (RI/RA/FS) for the Site, located in DuPont, Washington. Preparation of these reports was stipulated in the July 1991 Consent Decree, between the Washington State Department of Ecology (Ecology) and the potentially liable parties, (PLP) Weyerhaeuser Company (Weyerhaeuser) and E.I. DuPont de Nemours and Company (DuPont). Per the Consent Decree, the reports were developed in accordance with the Model Toxics Control Act (MTCA) cleanup regulations. Draft RI/RA/FS reports were completed in 1994 (Hart Crowser 1994d, 1994e, 1994f) and submitted to Ecology. The Final RI/RA/FS reports have been developed to satisfy comments on the draft reports and to accurately reflect existing conditions and planned future land use at the Site. These reports incorporate agreements reached with Ecology between 1991 and 2001.

A brief description of each report follows:

- **Remedial Investigation.** The purpose of this RI was to collect, develop, and evaluate sufficient information regarding the Site to enable the completion of the RA and FS. The RI characterizes the nature and extent of contamination in the context of past activities at the Site. The RI report presents the analytical data that have been collected at the Site. The data are presented for each RI area; these areas were defined on the basis of historical manufacturing and production operations at the Site.
- **Risk Assessment.** The RA evaluates Site conditions in relation to planned future land uses at the Site. The RA identifies soil cleanup concentrations and presents the methods used to derive Site-specific soil concentrations that are protective of human health and ecological receptors. These cleanup goals are compared to Site constituent concentrations in order to identify the areas that require additional evaluation in the FS.
- **Feasibility Study.** The FS evaluates alternative potential cleanup methods designed to meet the remedial action objectives. The FS report provides information for Weyerhaeuser and DuPont to recommend alternatives for remediation of selected areas, including both no action and action alternatives. Ecology will evaluate the FS and select the remedial measures it believes are appropriate in the Cleanup Action Plan. Weyerhaeuser and DuPont will complete the needed detailed design and implementation of the remedy selected by Ecology.

EXECUTIVE SUMMARY

The purpose of this Remedial Investigation (RI) is to collect, develop, and evaluate sufficient information regarding the Former DuPont Works Site (the Site) to characterize the nature and extent of contamination in the context of past activities at the Site (Figure 1-1). This RI report presents the analytical data that have been collected at the Site. The data are presented for each RI area (Figure 1-2 and Table 1-1), as defined on the basis of historical manufacturing and production operations at the Site.

PROPERTY HISTORY

The Site property was originally used by Native Americans. In the 1830s, Europeans settled in the area and built Fort Nisqually in the northern portion of the Site. Ten years later, the Fort was rebuilt at a location adjacent to but outside the eastern edge of the Site.

E.I. DuPont de Nemours and Company (DuPont) acquired the property in 1906 and constructed an explosives plant and the historical village of DuPont as a company town for plant workers. DuPont continued to manufacture explosives until the mid-1970s, when it closed the manufacturing operations and sold the property to the Weyerhaeuser Company (Weyerhaeuser). Weyerhaeuser and its subsidiary Weyerhaeuser Real Estate Company (WRECO) still own approximately 2,500 acres in the area that they named Northwest Landing. Northwest Landing is a planned community within the City of DuPont and it includes the Site. WRECO has begun to develop Northwest Landing on some of its lands within the City, but no development of the Site has occurred.

REGULATORY HISTORY

The Site was used for the manufacture of commercial explosives from 1909 to 1976. Production of explosive materials ceased and cleanup of the buildings began in 1976. As part of the cleanup process, asbestos was removed, salvageable materials were taken out, and structures were either burned or demolished. Actions taken at the Site subsequent to Weyerhaeuser's purchase include the following:

- In 1985, studies were conducted were concluded to determine whether hazardous substances were present.
- In 1986, a Phase I Site Survey and Review was performed was performed to identify areas of environmental concern on Site.
- In 1986, soil contamination was documented and reported to the Washington State Department of Ecology (Ecology).
- In 1987, a Phase II Site Characterization study was performed.
- In 1989, a Baseline Human Health RA was conducted.
- In 1991, Weyerhaeuser and DuPont signed a Consent Decree (No. 91 2 01703 1) with Ecology, in which they agreed to study the Site and complete an RI, RA, and FS.
- In 1994 and 1995, Draft RI, RA, and FS reports were submitted to Ecology (Hart Crowser 1994d, 1994e, 1994f).
- In 1996, Ecology approved a Cleanup Action Plan for a portion of the area (Parcel 2).

- In 1997, Parcel 2 was deleted from the Consent Decree, and a deed requiring institutional controls to maintain the industrial use of the parcel was recorded in the Pierce County Auditor's office.
- Between 1990 and 2001, Weyerhaeuser and DuPont undertook Interim Source Removal (ISR) actions to clean up soil and/or debris at the Site, in accordance with the Model Toxics Control Act (MTCA) and the Consent Decree.

SCOPE OF RI CHARACTERIZATION

The scope of the Site RI includes sample collection, laboratory analyses, data evaluation, and presentation of sampling results from four environmental media, as follows:

- 21,933 soil sample analyses (5,182 samples)
- 1,181 freshwater sediment sample analyses (20 samples)
- 12,038 groundwater sample analyses (283 samples)
- 1,528 surface water sample analyses (344 samples)

All RI data were collected in accordance with the Site Management Plan (Hart Crowser 1992a). Only those data representing current Site conditions within the Consent Decree Boundary (CDB) have been used in this RI. Data from sampling points that were removed during ISRs have been deleted from the RI database because they no longer represent current Site conditions.

SOIL QUALITY

Sampling Approach

Soil sampling locations were chosen on the basis of historical maps, former DuPont employee information, other Site information, statistical needs, and public comments. Additional samples were collected on the basis of an evaluation of initial sampling results, to evaluate whether the lateral and vertical extent of constituents of concern had been determined. Each RI sample was analyzed for one or more constituents.

Sampling Results

The RI areas from which soil samples were collected are shown in Figure 1-2. Data from the pre-RI and RI sampling and analysis indicate that the highest constituent concentrations occur in surface soil samples collected in the vicinity of production building foundations and waste disposal locations. Constituents of concern found in the production/disposal locations are associated with activities that occurred during facility operations.

Interim Source Removals

Many ISRs were conducted at the Site between 1990 and 2001. These activities have been summarized in a series of ISR memoranda (see Section 5 for references) and include the following:

- Areas 5 and 6 drum, soil, and debris removal

- Area 8 pipeline, tank, and soil removal
- Sympathetic detonations (Area 18)
- Dinitrotoluene (DNT)-impacted soil removal (Areas 10, 18, 25, and 31)
- Lead and miscellaneous debris removal (Areas 18/1/2/3/4, 19C, 24, 30, 31, 35, and 36, and Maintenance Buildings)
- Mercury-impacted soil removal (Area 39)
- Underground storage tank (UST) removals (Areas 20A, 20B, 38, and 39)
- Sitewide lead and arsenic hot spot removal including Area LR-68
- Lead- and arsenic-impacted soil removal around foundations and along the narrow-gauge railroad (NGRR)
- Lead- and arsenic-impacted soil removal (Sand Laydown Area)
- Lead- and arsenic-impacted soil removal (Topsoil Laydown Area)

Many of the pre-RI and RI sampling points were removed during the interim actions, and these data are no longer representative of current Site conditions. Therefore, all removed data points have been omitted from this RI.

Existing Conditions

Under current Site conditions, constituents of concern detected in Site soils at elevated concentrations are the following:

- Lead
- Arsenic
- Total petroleum hydrocarbons (TPH) (Bunker C and non-Bunker C)
- Mercury
- Trinitrotoluene (TNT)
- Benzo(a)pyrene

Other constituents have been detected in soil but, just because a constituent is detected does not mean it is above levels of concern.

Lateral and Vertical Extent

The lateral extent of the constituents detected in Site soil and debris was generally limited to production foundations and waste disposal areas, with the exception of lead and arsenic, which were also detected Sitewide, at concentrations above or near background soil concentrations. The vertical extent of constituents was generally confined to a depth of less than 1 foot in all areas except acid discharge areas, drywell locations, some production-related foundations, and disposal areas, where the vertical extent was generally limited to a depth of less than 10 feet.

SITE GEOLOGY

The major stratigraphic units located beneath the Site are described in Section 3 and summarized in this section.

Steilacoom Gravels constitute the surficial soils of the Site and extend to a depth of about 300 feet. The Steilacoom Gravels consist of brown and gray stratified sands and gravels, with cobbles and occasional zones of siltier sand. The Steilacoom Gravels were deposited during the retreat of the final (Vashon) glaciation in high-energy meltwater channels. Below the Steilacoom Gravels is the Vashon Till.

The Vashon Till consists of a high-density, high-silt-content till that makes it a weak aquitard. The Vashon Till is underlain by the Vashon Advance Outwash, deposited by glacial rivers or streams during the advance of the Vashon glaciation. The Advance Outwash becomes finer grained with depth, typical of advance outwash deposition. Below the Advance Outwash is the Olympia Beds/Possession Drift/Whidbey Formation/Double Bluff Drift sequence (hereafter referred to as the DBD-OB sequence) (formerly known as the Kitsap Formation).

The DBD-OB sequence is a fine-grained, interglacial deposit, approximately 70 to 100 feet thick, and very heterogeneous regionally. The DBD-OB sequence is present below the Site but does not extend west of a line about 2,500 feet inland from Puget Sound. Below the DBD-OB sequence is the Salmon Springs Glaciation (formerly know as the Salmon Springs Formation), which was deposited in the glacial period preceding the DBD-OB sequence interglacial. Regional information indicates that the formation is 70 to 120 feet thick and contains zones of organic silt and till. The Sea Level Aquifer, a regionally extensive aquifer, occurs within the Salmon Springs Glaciation.

SITE HYDROGEOLOGY

Two aquifers occur beneath the Site—the shallow Water Table Aquifer extends from 20 to 105 feet below ground surface and the deeper Sea Level Aquifer is located between 160 and 215 feet below ground surface. Across most of the Site, the relatively impermeable Aquitard (formerly known as the Kitsap Aquitard) restricts vertical flow of groundwater and separates the Water Table Aquifer from the deeper Sea Level Aquifer. This aquitard is absent west of the “Cutoff” (formerly known as the Kitsap Cutoff), which is located 500 to 2,500 feet east of Puget Sound and roughly parallel to the shoreline. The “Cutoff” is the western extent of the Water Table Aquifer and the point at which the Sea Level Aquifer becomes unconfined. Groundwater in the Water Table Aquifer flows west-northwest, with local discharge via springs to upper Sequalitchew Creek. Groundwater in the Sea Level Aquifer flows west-northwest and discharges west of the “Cutoff” as seeps to Puget Sound.

GROUNDWATER QUALITY

Based on the groundwater data presented in the 1994 Draft RI report, Ecology issued a “No Active Remedial Action” letter for Site groundwater (Ecology 1996a). Long-term monitoring for DNT continues.

DNT Data for Site Groundwater

Data from 35 rounds of combined pre-RI and RI groundwater sampling at up to 30 locations (October 1988 through March 2001) indicate the consistent detection of DNT concentrations at marginally elevated concentrations in 6 of 30 Site groundwater monitoring locations. DNT has been detected inconsistently in one additional groundwater monitoring well at marginally elevated concentrations. If detected, the range of total DNT concentrations in groundwater is from 0.019 *u*g/L to 0.78 *u*g/L. DNT has been detected only in monitoring wells located downgradient of areas where DNT has been detected at elevated concentrations in soils (Areas 5, 18, and 31). The DNT groundwater concentrations are expected to decline over time as a result of the removal of DNT-containing soils. Based on ISR work and well data, Ecology determined that "no active remedial action" was needed and long-term monitoring at selected wells would be sufficient (Ecology 1996a).

DNT Data for Groundwater Discharging via Seeps to Puget Sound

The two seep sampling locations (Figure 3.1-1) represent discharge of Site groundwater to the intertidal area of Puget Sound. This groundwater discharge is naturally saline due to salt water intrusion, which disqualifies it as a drinking water source in accordance with MTCA. Total DNT concentrations have ranged from nondetect to 0.27 µg/L in the 25 samples collected from SEEP 1 over the period of monitoring. DNT has not been detected in SEEP 2. All detected DNT concentrations at SEEP 1 have been at least 33 times lower than the protective surface water concentration of 9.1 µg/L. Based on this comparison, DNT in groundwater discharging from the Site via seeps to Puget Sound poses no concern to human health or the environment.

Other Constituents

In 1988, nitrate was detected in three of the Site monitoring wells. Because one of these three monitoring wells is located along the eastern (upgradient) edge of the Site, off-Site sources of nitrate (such as animal pasturing) are possible. All three wells have had relatively low nitrate concentrations since 1988. Total carcinogenic polycyclic aromatic hydrocarbon (cPAH) concentrations in groundwater have all been low. With the exception of concentrations of naturally occurring aluminum (detected in background groundwater samples), all other dissolved metals were detected at low concentrations. No other constituents of concern that were analyzed for have been detected in Site groundwater.

SURFACE WATER FEATURES

Three surface water bodies—Puget Sound, Sequalitchew Creek, and Old Fort Lake—are located within or adjacent to the Site. Puget Sound is a large saltwater body located along the western boundary of the Burlington Northern property west of the Site. Puget Sound directly or indirectly receives all groundwater and surface water discharge from the Site. Sequalitchew Creek is a perennial stream that originates in Sequalitchew Lake east of the Site and discharges into Puget Sound. In the dry season, the upper and lower reaches of the creek within the Site are dry. Old Fort Lake is a small glacial kettle lake that has no inlet or outlet. The lake is fed by groundwater from the Water Table Aquifer, and the lake level is an expression of the Water Table Aquifer.

SURFACE WATER AND FRESHWATER SEDIMENT QUALITY

Surface Water

Constituents detected at elevated concentrations in Sequalitchew Creek and Old Fort Lake are consistent with those detected at the area background (upstream) sampling location in Sequalitchew Creek (SW-4, Figure 3.1-1) and in other rivers and streams in Pierce County.

Freshwater Sediment

None of the wide range of constituents analyzed for in sediment samples was detected at elevated concentrations. Lead was detected in Old Fort Lake sediments at low concentrations. Detected concentrations of other metals were comparable to available background freshwater sediment data for the Puget Sound region.

Based on the data presented in the 1994 Draft RI report, Ecology verbally agreed to No Further Action for all surface water and freshwater sediments within the CDB at the Site (Ecology 1996d).

Additional soil samples, groundwater samples, surface water and freshwater sediment samples, and marine sediment samples were collected outside the CDB. These data will be presented in a separate report.

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

Tables

Figures

TABLE OF CONTENTS

Appendices

ABBREVIATIONS AND ACRONYMS

AA	atomic absorption
ACM	asbestos-containing material
ACTIVE	Active Construction
AP	area of potential concern
AST	aboveground storage tank
ATI	Analytical Technologies Inc.
CAP	Cleanup Action Plan
CDB	Consent Decree Boundary
cm/sec	centimeter per second
cPAHs	Carcinogenic polycyclic aromatic hydrocarbons
DERS	DuPont Environmental Remediation Services
DNB	1,3-dinitrobenzene
DNT	dinitrotoluene (includes 2,4-DNT and 2,6-DNT)
DuPont	E.I. DuPont de Nemours and Company
Ecology	Washington Department of Ecology
EIS	environmental impact statement
EM	electromagnetic
EPA	U.S. Environmental Protection Agency
ESM	ESM Consulting Engineers, LLC
FS	feasibility study
gpm	gallon per minute
ISD	inorganic solid debris
ISR	interim source removal
LDR	land disposal restrictions
LR	lead reference
µg/L	microgram per liter
µm	micrometer
mg/kg	milligram per kilogram
mg/L	milligram per liter
MMAN	monomethylamine nitrate
msl	mean sea level
MTCA	Model Toxics Control Act

ABBREVIATIONS AND ACRONYMS

NAX	nitroaromatic explosives (includes TNT, 2,4-DNT, 2,6-DNT, NB, DNB, and TNB)
NB	nitrobenzene
ncPAHs	noncarcinogenic polycyclic aromatic hydrocarbons
NFA	no further action
NG	nitroglycerin
NGRR	narrow-gauge railroad
OC	organochlorine
OP	organophosphorus
PAHs	polycyclic aromatic hydrocarbons, also called polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PID	photoionization detector
PVC	polyvinyl chloride
RA	risk assessment
RI	remedial investigation
RU	remedial unit
SLA	sand laydown area
SVOC	semivolatile organic compound
TCLP	toxicity characteristics leaching procedure
TDS	total dissolved solids
TNB	1,3,5-trinitrobenzene
TNT	2,4,6-trinitrotoluene
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSS	total suspended solids
UST	underground storage tank
VOC	volatile organic compound
Weyerhaeuser	Weyerhaeuser Company
WRECO	Weyerhaeuser Real Estate Company
XRF	x-ray diffraction

This section summarizes the site history, site location and physical setting, the objectives of the Remedial Investigation (RI) report, the objectives of the field investigations, and the report organization. Much of the previous investigation work conducted at the Site is summarized in the pre-RI Phase I and Phase II reports (Hart Crowser 1986 and 1987, respectively). Pre-RI work is defined as any site investigation work done prior to the start of the formal RI agreed to in the 1991 Consent Decree. It includes any sampling activities that occurred prior to 1992. The management plans for this work are provided in the RI/Feasibility Study (FS) Management Plan (Hart Crowser 1992a). Previous reports and studies are referenced or briefly summarized where appropriate.

1.1 SITE LOCATION AND PHYSICAL SETTING

The Site is located in southwestern Pierce County, within the City of DuPont. The 636-acre Parcel 1 area within the Consent Decree Boundary (CDB) is the location of the Former DuPont Works (DuPont). Parcel 1 is bordered by the Weyerhaeuser Company (Weyerhaeuser) property to the north and west, and Weyerhaeuser Real Estate Company (WRECO) property to the east and south (Figure 1-1). Burlington Northern Railroad property is adjacent to Weyerhaeuser open space to the west. Puget Sound is located to the west of the Burlington Northern Railroad property. The Parcel 1 area within the CDB is referred to as the “Site” throughout the remainder of this document.

The Site is situated on a glacial outwash plain that slopes gently to the west, toward Puget Sound. The significant features of relief across the Site are numerous glacial kettles (depressions), the east-west-trending valley of Sequalitchew Creek, a small kettle lake in the southern portion of the Site (Old Fort Lake), and the steep bluff on the west. The elevation across the Site generally ranges from 200 to 225 feet above mean sea level (msl), except within the kettles, which are at an elevation of approximately 150 feet msl. The Site is generally partially cleared or forested, with intermittent clearings.

1.2 PROPERTY HISTORY

The Site property was originally used by Native Americans. European settlement began in 1832, when the Hudson Bay Company established a cabin/storehouse on nearby Puget Sound at the mouth of Sequalitchew Creek, northwest of the Site (City of DuPont 1995). In 1833, the Hudson Bay Company built Fort Nisqually in an area in the northern portion of the Site. Ten years later, Fort Nisqually was rebuilt at a location adjacent to but outside the eastern edge of the Site.

DuPont acquired the Site in 1906 and constructed an explosives plant. The historical village of DuPont, Washington, is approximately 1 mile southeast of the Site. DuPont continued to manufacture explosives until the mid-1970s, when it ceased operations and sold the Site and adjacent areas to Weyerhaeuser. Weyerhaeuser and its subsidiary WRECO still own the majority of the approximately 2,500 acres in the area known as Northwest Landing. Northwest Landing is a planned community within the City of DuPont and it includes the Site. WRECO has begun to develop Northwest Landing on some of its lands within the City, but no development of the Site has occurred.

1.3 REGULATORY HISTORY

The Site was used for the manufacture of commercial explosives from 1909 to 1976. Production of explosive materials ceased and decommissioning of the buildings began in 1976. As part of the decommissioning process, asbestos was removed, salvageable materials were taken out, and many structures were either burned or demolished. Actions taken at the Site subsequent to the shutdown in 1976 include the following:

- In 1985, Weyerhaeuser initiated studies to determine whether hazardous substances were present.
- In 1986, a Phase I Site Survey and Review was conducted to identify areas of the Site that may be of environmental concern.
- In 1986, soil contamination was first documented and reported to the Washington State Department of Ecology (Ecology).
- In 1987, a Phase II Site Characterization study was performed, which characterized the type, concentration, and distribution of constituents at 38 areas on the Site.
- In 1989, a Baseline Human Health Risk Assessment (RA) was performed using results of the Phase II survey.
- In 1991, Weyerhaeuser and DuPont signed a Consent Decree (No. 91 2 01703 1) with Ecology, in which they agreed to study the Site and complete an RI, RA, and FS. The Site was divided into two main areas: Parcel 1 (approximately 636 acres) and Parcel 2 (approximately 205 acres).
- In 1994 and 1995, Draft RI, RA, and FS reports were submitted to Ecology and underwent public review.
- In 1996, based on the result of interim source removal (ISR) actions, Ecology approved a Cleanup Action Plan (CAP) for Parcel 2 that provided for no further remediation activities except for the institutional controls to maintain the industrial use of Parcel 2.
- In 1997, Parcel 2 was deleted from the Consent Decree, and the deed requiring institutional controls to maintain the industrial use of the parcel was recorded in the Pierce County Assessor's office.
- Between 1990 and 2001, while studies and negotiations were ongoing, Weyerhaeuser and DuPont undertook ISR actions to clean up soil and/or debris at the Site, in accordance with the Model Toxics Control Act (MTCA) and the Consent Decree.

1.4 REMEDIAL INVESTIGATION REPORT OBJECTIVES

The purpose of the RI was to collect, develop, and report sufficient information regarding the Site to enable the completion of the RA and FS. The RI characterizes the nature and extent of contamination in the context of past activities at the Site. The RI report presents the analytical data for the media that have been collected at the Site. The data are presented for each RI area (Figure 1-2), as defined on the basis of historical manufacturing and production operations at the Site.

This RI summarizes the results of soil, groundwater, surface water, and sediment investigations conducted within the CDB. These investigations were conducted in accordance with the RI Management Plan (Hart Crowser 1992a). The Management Plan included an evaluation of locations outside of the CDB. The results of these investigations are or will be the topic of additional reports. In addition to the sampling specified in the RI Management Plan, soil verification data following ISRs and additional characterization data were collected in selected areas within the CDB.

The scope of the Site RI includes sample collection, laboratory analyses, data evaluation, and presentation of sampling results from four environmental media, as follows:

- 21,933 soil sample analyses (5,182 samples)
- 1,181 freshwater sediment sample analyses (20 samples)
- 12,038 groundwater sample analyses (283 samples)
- 1,528 surface water sample analyses (344 samples)

Because of the number and extent of interim actions conducted, many of the pre-RI and RI sampling points were removed during these activities and are no longer representative of current site conditions. Only those data representing current Site conditions within the CDB are included in this RI report. Samples excavated during ISR were removed from the RI database and were not used to characterize the Site.

The historical areas identified in the Consent Decree for further investigation and addressed in this document include the following:

- Area 1—Nitroglycerin Wash Water Gutter
- Area 2—Nitroglycerin Spill at No. 2 Nitrating and Separating House
- Area 3—Nitroglycerin Spill Along Gutter Line
- Area 4—Lead Residual at No. 2 Nitrating and Separating House
- Area 5—DNT Waste Drum Area
- Area 6—Crystallizer Drum Area
- Area 7—Waste Drainage Pit (Old Salt Lake)
- Area 10—Aluminum Water Gel Area
- Area 11—Water Gel Wash-Up Waste Pit Area
- Area 12—Works Magazine Landfill
- Area 16—Kettle Beneath Area 5
- Area 18—Nitroglycerin Production and Powderline Area
- Area 24—Upper Powerhouse
- Area 25—Acid Production Area
- Area 26—Waste Acid Recovery Area and Kettle
- Area 31—Burning Ground

- Area 38—Box Production Area and Drywell

The Consent Decree also identified Area 40, the Black Powder Area; however, as discussed previously, this area (also known as Parcel 2) has already been cleaned up and is no longer part of the Consent Decree process. For the purposes of the RI, Areas 1 through 4 and Area 18 have been combined into Area 18/1/2/3/4 to facilitate soil quality characterization.

The following seven areas were also identified as areas within the CDB for further investigation, based on additional historical information review.

- AP-A—Powder Test Ground
- AP-B—Smokeless Powder Dump (Phase II—Site 22)
- AP-C—Smokeless Powder Nitrating/Grinding House
- AP-D—Asphalt Paint Building
- AP-E—Main Transformer House
- AP-F—Nitrocotton Area (Drying House and Bunkers)
- AP-G—Decontamination Areas (Phase II—Site 23)

Three additional areas (Site Reference Area, LR-68, and narrow-gauge railroad [NGRR]) were identified for further study during the RI field activities. In addition to the areas identified above for RI evaluation, historical Site areas and miscellaneous Sitewide hot spot areas (Areas 1, 2, 3, 4, 5, 6, 8, 10, 18, 19, 20, 25, 26, 30, 31, 35, 36, 38, 39, and others), were approved by Ecology for ISR. Areas 15 and 32 have had early independent cleanup actions completed. ISR activities are discussed in Section 2.20. Table 1-1 summarizes the above information.

Specific objectives associated with the RI characterization phase of the project included the following:

- Determination of the lateral and vertical distribution of soil contamination within the RI areas
- Evaluation of the distribution and concentrations of constituents in Site groundwater, surface water, and freshwater sediments
- Refinement of the Site hydrogeologic conceptual model of the multi-aquifer groundwater system
- Determination of aquifer properties and groundwater flow rates
- Determination of representative area background concentrations for the Site soil and groundwater

1.5 FIELD INVESTIGATIONS

Pre-RI field investigations are summarized in the Phase I and Phase II Site Characterization Reports (Hart Crowser 1986 and 1987, respectively). The studies summarized in this report were conducted for Weyerhaeuser and DuPont between 1987 and September 2001. Studies performed after 1992 were conducted in accordance with the RI/FS Management Plan (Hart Crowser 1992a). Studies completed prior to 1992 where done using standard professional practices. The

Management Plan was prepared in consultation with Ecology, the public, and other participating agencies, in accordance with the following process:

- The Draft Management Plan (Hart Crowser 1992a) was reviewed by Ecology and revised in accordance with Ecology's comments between August 1991 and January 1992.
- The Draft Management Plan was available for public review between December 1991 and January 1992.

Field investigations conducted to meet the specific objectives stated above include:

- Surficial and deep soil sampling and analysis in 24 production-related areas
- Systematic sampling of soils outside of the production-related areas
- Water level measurements and surface water and freshwater sediment sampling and analysis in two surface water bodies—Sequalitchew Creek and Old Fort Lake
- Water level measurements, aquifer testing, and groundwater sampling and analysis for the Water Table and Sea Level Aquifers, including sampling and analysis of discharge at springs
- Area background soil and groundwater sampling and analysis

1.6 REPORT ORGANIZATION

Subsequent sections of this RI report are organized by medium—soil quality characterization by area (Section 2), groundwater characterization (Section 3), and surface water and freshwater sediment characterization (Section 4). Section 5 consists of a list of references cited in the report. Following the text are supporting tables and figures. All figures and tables were developed on the basis of information provided to URS in an analytical database submitted in final form for this RI on April 1, 2002 (Pioneer 2002). Appendices contain a discussion of field procedures and field exploration logs (Appendix A); soil quality data tables (Appendix B); and groundwater, surface water, and freshwater sediment quality data tables (Appendix C). Appendix D includes grain size distribution data for soil samples collected during the RI. Appendix E includes the data quality assessments for all data.

This section presents the findings of the RI soil characterization efforts at the Site. Information provided for each area in Sections 2.4 through 2.20 varies depending on the complexity of the area and the number and extent of detected constituents. Appendices A and B present field procedures and soil quality summary tables, respectively.

2.1 SITEWIDE SOIL CONDITIONS

Steilacoom Gravels constitute the surficial soils of the Site. The Steilacoom Gravels consist of brown and gray stratified sands and gravels, with cobbles and occasional zones of siltier sand. The Steilacoom Gravels were deposited during the retreat of the final (Vashon) glaciation in high-energy meltwater channels, which originated in a proglacial lake located in the present-day Puyallup River valley to the east (Walters and Kimmel 1968).

Over much of the eastern and central portions of the Site, the thickness of the Steilacoom Gravels typically ranges from 20 to 40 feet in these glacial meltwater channels. Along the western margin of the Site, the outwash channels feed into a large glacial delta (Sequalitchew Delta) within which the Steilacoom Gravels are more than 300 feet thick (extending below sea level). Cross-bedded gravel layers are commonly observed to dip toward Puget Sound within these deltaic deposits in the western portion of the Site.

Soil horizons developed on top of the Steilacoom Gravels consist of dark brown to dark gray, gravelly, sandy loam with variable percentages of organic matter and volcanic ash (Spanaway and Everett Series; Anderson et al. 1955). These soil horizons range in thickness from a few inches to approximately 3 feet depending on topography and vegetation. Soils developed on the geologic kettle floors include layers with higher silt and organic contents, indicating that the depressions may have been periodically flooded since the retreat of the Vashon glaciation, creating alternately dry and marshy conditions.

2.2 AREA BACKGROUND SOIL QUALITY

Twenty RI soil samples (BG-501 through BG-520) and three pre-RI soil samples (BG-SS-2, BG-SS-3, and BG-SS-5) were collected from outside of the CDB to define “Site area background” soil quality in accordance with MTCA. The majority of samples were obtained from locations to the south and east. Three samples were obtained from the coastal bluff to the north of the Site, as shown in Figure 2.2-1. The samples were positioned in locations that (1) have the same basic characteristic as Site soils, (2) have not been influenced by releases from the Site, and (3) have not been influenced by releases from other localized human activities, in accordance with WAC 173-340-709(2). Sampling locations were chosen to minimize the potential influence of airborne particulates settling on Site soils.

The Site area background soil samples were collected from undisturbed vegetated areas, with no apparent anthropogenic influences. The upper 6 inches of soil were composited after scraping away 1 to 4 inches of forest duff from the surface. Soils were generally described as moist, brown to black, silty, gravelly sand and are typical of the soils developed on top of the Steilacoom Gravels. Site area background soil samples were analyzed for the full list of parameters analyzed in on-Site soil samples, including 14 metals, polycyclic aromatic hydrocarbons (PAHs), nitrates, nitroaromatic explosives (NAX), nitroglycerine (NG), monomethylamine nitrate (MMAN), total petroleum hydrocarbons (TPH), semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and organochlorine (OC) and organophosphorus (OP) pesticides. Ten additional samples (BG-511 through BG-520) were collected from similar locations outside the CDB and analyzed only for arsenic (Figure 2.2-1).

2.2.1 Summary of Results

A summary of Site area background soil quality is presented in Table 2.2-1. Metals, which are common and natural components of soil minerals, were the primary constituents detected. Nitrates, which are also naturally occurring, ranged from 0.8 to 4.2 mg/kg and averaging 2 mg/kg.

Organic Constituents

Low concentrations of three PAHs (acenaphthene, benzo(a)pyrene, and chrysene) were detected in at least one sample. PAH compounds are found in natural environments as a result of wood decay, forest fire, or other natural causes (Howard 1990). The presence of PAHs in area background samples does not diminish the samples' suitability or representativeness. In studies of background soil quality in rural areas (Harper-Owes 1985; Boyce and Michelsen 1993), PAH compounds were reported in a majority of soil samples at concentrations comparable to those reported in the Site area background samples (i.e., hundredths to tenths of one part per million).

Bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was detected in three samples at concentrations close to or below the detection limit. No other VOCs or SVOCs were detected above their respective detection limits. No TPH, NAX, NG, MMAN, PCBs, or pesticides were detected in the Site area background samples. Based on the absence of organic anthropogenic constituents in the soil analyses, this set of samples is appropriate for defining area background quality in the vicinity of the Site.

Metals

Of the 14 metals tested (priority pollutant metals plus aluminum), thallium was not detected in any of the background samples; selenium was detected in only 1 sample; and mercury was detected in 3 of the 10 samples. The other metals were detected in all or a majority of the samples. Three background samples collected during the pre-RI produced comparable values for five of these metals (aluminum, antimony, chromium, lead, and zinc), and these three samples are included in the evaluation of background soils.

2.2.2 Comparison With Regional Background Soils

Metals concentrations for the Site area background soils were compared with regional background concentrations from Puget Sound (Ecology 1994). This Ecology background study did not address four metals (antimony, selenium, silver, and thallium). For these metals, other available references were used (Harper-Owes 1985; METRO 1985; Shacklette and Boerngen 1984). The 90th percentile concentrations of metals in the Site area background soils were calculated for comparison purposes. It should be noted that for several metals, only 11 of 14 samples were available; however, the data distributions were lognormal except for selenium and thallium, which had mostly censored data. The 90th percentile Site area and Puget Sound regional background concentrations are compared in Table 2.2-2.

The majority of metals exhibit comparable 90th percentile concentrations between the Site area background samples and Puget Sound regional background samples. The Site area background 90th percentile concentrations for five metals (antimony, arsenic, cadmium, lead, and mercury) are above the regional 90th percentiles. The 90th percentile arsenic concentration in Site area background samples (33 mg/kg) is above the 90th percentile arsenic concentration of 7.3 mg/kg reported for the Puget Sound (Ecology 1994). Ecology has accepted this value for arsenic as being representative of area background even though it is above MTCA Method A and B levels. The 90th percentile lead concentrations in Site area background samples (52 mg/kg) is above the 90th percentile lead concentration of 24 mg/kg reported for the Puget Sound (Ecology 1994).

The 90th percentile concentrations for antimony and mercury for the Site area background samples are also above the 90th percentile regional values. The Site area background 90th percentile concentration for cadmium is marginally above the Puget Sound regional value.

The 90th percentile concentrations for aluminum, beryllium, chromium, copper, nickel, selenium, silver, zinc, and thallium for the Site area background samples are equal to or less than the 90th percentile Puget Sound regional background concentrations.

2.3 INTRODUCTION TO AREA-SPECIFIC SOIL QUALITY

Sections 2.4 through 2.19 present the soil quality information collected for each of the RI areas and areas of potential concern (APs). Each area-specific section includes the history of activities, subsurface conditions encountered, and constituents detected in soils. It should be noted that just because a constituent is detected in soil does not mean that it is above levels of potential concern. Section 2.20 presents a summary of the results from ISR actions. The purpose of this section is to present current Site data. Sample analytical results were not compared to regulatory criteria in this RI. The current analytical data set for soil quality analyses for each area (pre-RI, RI, additional characterization samples, and ISR verification samples), including detection limits, is presented in Appendix B.

Validated analytical results from the RI project laboratories were used. Duplicate analyses were excluded. During Site work, nearly 1,000 field screening analyses were collected for dinitrotoluene (DNT) (Modified EPA Method 8090), TPH, arsenic and lead (x-ray diffraction [XRF]). Good correlations were established between the screening results and laboratory confirmation results for each constituent except arsenic (XRF interference). In all cases, the screening data were used only for field characterization and ISR work and were not retained in the database developed for this RI (Pioneer 2002).

Pre-RI characterization data were included if these data were of sufficient quality. Pre-RI data that were excluded from the Site database are the following:

- Oil and grease data (EPA Method 413.2) due to the nonspecificity of the analytical methods (i.e., this method measures natural oils and greases in addition to petroleum constituents)
- Selected PCB and PAH data due to insufficient detection limits
- Samples composited from greater than 5-foot vertical intervals
- Samples that could not be accurately relocated in the field based on field evidence (e.g., staking, flagging, or pre-RI exploration plans [pre-RI locations were not surveyed])

Although selected area soil samples were analyzed for potential metals leachability using the toxicity characteristics leaching procedure (TCLP), all of these sampling locations were excavated during the 2000 ISR, with the exception of one sample in Area 26 (addressed in the RA and FS). Therefore the TCLP analyses are not representative of current site conditions and are not discussed further in this RI.

One or more figures, showing sampling locations, are included for each area. Figure 2.3-1 is the legend for all the area-specific figures. In areas where ISR excavation or grading has occurred, depths for all samples (both pre- and postexcavation) within excavations less than 2 feet deep are referenced to the existing excavation grade. Depths for all samples (both pre- and postexcavation) within excavations greater than 2 feet deep are referenced to original (preexcavation) grade. Exceptions to this reporting convention are for Area 5, the Area 31 ravine, and all interim corrective actions that occurred after 1999. Depths for samples within these two areas are referenced to existing excavation grade. The depth assumptions used for data presentation in this report may not represent actual future elevations. References to samples collected at specific depths in boreholes are cited by the area in which they were collected, the type of collection method, and the sampling depth. For example, sample 7-B-503 represents "Area 7, borehole 5, sampled at 3 feet."

Borehole sampling locations are shown in a figure as 7-B-5 without an indication of the sampling depth. The individual samples and depths from each borehole are included in the soil quality tables provided in Appendix B.

Because of the number and extent of interim actions conducted, many of the pre-RI and RI sampling points were removed during these activities and are no longer representative of current Site conditions. Therefore, these data are not presented in the RI. All figures and tables were developed on the basis of information provided to URS in an analytical database submitted in final form for this RI on April 1, 2002 (Pioneer 2002).

2.4 AREA 6—CRYSTALLIZER DRUM AREA SOIL QUALITY

2.4.1 History of Activities

According to former DuPont employees, Area 6 was used for disposal of defective 55-gallon ammonium nitrate drums used at the ammonium nitrate plant.

2.4.2 Soil Conditions

During the excavation of a test pit in the center of the former ammonium nitrate plant foundation, a concrete slab was encountered approximately 3 feet below grade. Subsequently, test pit 6-TP-501 was relocated along the western edge of the foundation, where excavation to a depth of 10 feet was possible. At this location, fill containing demolition debris (e.g., bricks and mortar) was encountered to a depth of 5 feet. A 4-foot vertical length of 3-foot-diameter steel casing filled with soil was observed between depths of 1 and 5 feet. Along the northern wall of the excavation, the concrete foundation was observed to extend to a depth of 6 feet below grade. Below the concrete foundation, Steilacoom Gravels were encountered to a depth of 10 feet. Soils in 6-TP-501 were later excavated to a depth of 10 feet during ISR. Steilacoom Gravels were also observed to a depth of 10 feet in 6-TP-502, located north of the foundation (Figure 2.4-1).

2.4.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 6 included eight total metals, TPH, and nitrate. Each of these analytes was detected in at least one sample from Area 6.

The RI soil quality data and associated sampling depths for Area 6 are summarized in Table B-1.1. Sampling locations are shown in Figure 2.4-1.

TPH concentrations in Area 6 range from 23 to 1,900 mg/kg. Results from the paraffin investigation (Hart Crowser 1996) indicated that the TPH in Area 6 was heavy oil-range petroleum, not paraffin.

ISR for this area is described in Sections 2.20.1 and 2.20.16.

2.5 AREA 7—WASTE DRAINAGE PIT (OLD SALT LAKE) SOIL QUALITY

2.5.1 History of Activities

This natural geologic kettle formation, defined as Area 7 and historically referred to as Old Salt Lake, received liquid and slurry wastes from the main powerhouse tank moats; oil residues from boilers, boiler blow down, and sewer drainage; and waste salts from the former nitric acid plant since the early 1900s. Waste materials were discharged via a subsurface pipeline to a swale leading into the south side of the kettle. Aerial photographs (1942 and 1961) indicate that liquid levels appear to have been near the upper limit of the kettle perimeter at various times in the past.

2.5.2 Soil Conditions

The general subsurface materials encountered within the Area 7 kettle consist of a fine-grained, non-native fill material overlying Steilacoom Gravels. The fill material consists of very light to dark gray silt- and clay-sized material mixed with variable percentages of sand, gravel, and wood fragments. The fine-grained material was observed to be finely laminated in some locations and interbedded with buried soil horizons (roots) in other locations, indicative of episodic fill deposition.

The fill material was observed to cover most of the kettle floor and much of the swale leading into the kettle from the south. The fill was not observed on the kettle walls or outside of the kettle. The fill thickness increased toward the kettle center, as was clearly observed in an observational test pit, 7-TP-501, excavated from the southern kettle wall toward the kettle center (Figure 2.5-1). Within the kettle bottom, the fill thickness was variable, typically extending to depths of 5 to 13 feet below grade, with a maximum observed thickness of 18 feet in 7-B-503.

Beneath the fill, Steilacoom Gravels were encountered to the depth of exploration below the kettle floor (75 feet in 7-B-503). Monitoring well MW-1, located immediately north of the Area 7 kettle (Figure 2.5-1), penetrated 220 feet of Steilacoom Gravels. The water table in the unconfined portion of the Sea Level Aquifer (Steilacoom Gravels) is at a depth of approximately 180 feet below grade at MW-1 (approximately 165 feet below the kettle bottom).

A thin discontinuous layer of weathered Bunker C residue (hardened tar-like material) occurred over more than half of the surface at the bottom of the kettle and over the lower portions of the kettle walls. The residue was not encountered more than approximately 4 to 6 inches below grade in any pre-RI or RI explorations. In addition, a viscous Bunker C oil staining occurred at the surface in the swale and in the southwestern portion of the kettle.

Green and yellow staining of the gravels was observed in all subsurface explorations within the kettle, except test pits 7-TP-502 and 7-TP-504, which were located along the lower kettle walls. A faint sulfur-like odor was also detected in subsurface samples (to 15 feet) of the fill material from the three RI borings within the kettle. This odor was generally not discernible in the open test pit excavations. Gravels at the surface in the kettle were typically bleached, pitted, and crumbly, indicating deterioration related to historical discharge of wastes from the acid production area. Gravels in the subsurface also showed signs of deterioration, although not to the same degree as the surficial fill materials.

2.5.3 Perched Water Occurrence

During drilling of RI boring 7-B-503 in July 1992, vertically discontinuous zones of perched water were encountered between depths of approximately 20 and 33 feet in Steilacoom Gravels underlying the fill material. However, in this boring and in others, no low-permeability soil units (e.g., silts), which would constitute a significant perching unit for groundwater, were observed within the Steilacoom Gravels.

In accordance with the Sampling and Analysis Plan (Hart Crowser 1992a), a monitoring well was installed within the zone of apparent perched saturation encountered in boring 7-B-503. During attempted well development the day after installation, the well bailed dry after one casing volume was removed, suggesting that the zones of saturation are discontinuous. Due to the lack of water level recovery, no significant well development could be achieved in the perched-zone well. Groundwater from the perched-zone monitoring well 7-B-503 was sampled after the well was bailed dry. The water bailed from the well was observed to be exceptionally turbid. Sufficient water was collected for analyses of total and dissolved metals, NAX, and PAHs. These data are discussed in Section 3.2. Monitoring well 7-B-503 was dry during the August 1992 round of water level measurements and in all subsequent rounds of water level measurements and groundwater sampling.

Saturated conditions were not encountered to a depth of approximately 29 feet during drilling of the RI borings 7-B-501 and 7-B-502 in February 1992. Zones of saturation were encountered in some of the pre-RI borings drilled to similar depths in December 1986 and April 1987. A piezometer installed in pre-RI boring 7-B-4 was dry within 1 week after its installation, indicating that the saturation is transient.

The observations from drilling in this kettle, and in the kettles in Areas 16 and 26 (discussed in Sections 2.9 and 2.12, respectively), indicate that zones of saturation beneath the kettles are transient and discontinuous (both laterally and vertically). The water observed during drilling may represent infiltrating wetting fronts rather than zones of true saturation. This would also be consistent with the lack of observed lower permeability layers (e.g., silts), which would act to perch infiltrating water.

2.5.4 Constituents in Soil

Laboratory analyses performed on soil samples from Area 7 included up to nine total metals, TPH (Bunker C), explosives, SVOCs, PAHs, pesticides, and PCBs. All of these analytes were detected in at least one sample from Area 7, except for explosives, which were not detected in any samples from this area.

The RI soil quality data and associated sampling depths for Area 7 are summarized in Tables B.2-1 through B.2-6 in Appendix B. Sampling locations are shown in Figure 2.5-1.

2.6 ISR FOR THIS AREA IS DESCRIBED IN SECTION 2.20.15. AREA 10—ALUMINUM WATER GEL AREA SOIL QUALITY

2.6.1 History of Activities

Interviews with former DuPont employees indicate that residual aluminum water gel (consisting of salts, nitrates, aluminum, and gelling agents) was reportedly buried in an area approximately 10 feet by 12 feet in Area 10. During pre-RI field work, two test pits were excavated and two soil samples were collected for analyses.

2.6.2 Soil Conditions

During the RI, three test pits (10-TP-501, 10-TP-502, and 10-TP-503) were excavated to a depth of 10 feet to confirm pre-RI results and assess the vertical extent of constituents. During the excavation of one test pit, approximately 1 dozen deteriorated water gel bags were observed in the top 2 feet. Some of the bags contained residual water gel. Scattered yellow spheroidal pellets (flake trinitrotoluene [TNT], according to a former DuPont employee) were observed in the sand. Two soil samples were analyzed for nitrate and aluminum; one sample was analyzed for TNT only; and one sample was analyzed for NG, DNT, and TNT.

2.6.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 10 included up to 14 total metals, explosives, SVOCs, and PAHs. Total metals, SVOCs, and explosives were detected in at least one sample from Area 10. The compound bis(2-ethylhexyl)phthalate, the only SVOC detected, was found in a single sample at a concentration near the detection limit and was therefore qualified. PAHs were not detected in any samples from Area 10. Elevated TNT (270 and 840 mg/kg) and DNT (3 mg/kg) concentrations were found. These locations were remediated during the 1999, 2000, and 2001 ISR efforts (see Section 2.20). SVOCs, NG, and lead were not detected in these pre-RI samples. Nitrate concentrations (3.0 and 3.4 mg/kg) were within the range of background concentrations.

The soil quality data, associated depths, and analytes for Area 10 are summarized in Tables B.3-1 through B.3-3 in Appendix B. Sampling locations are shown in Figure 2.6-1.

ISR work conducted in Area 10 is described in Sections 2.20.14 and 2.20.16.

2.7 AREA 11—WATER GEL WASH-UP WASTE PIT AREA SOIL QUALITY

2.7.1 History of Activities

Area 11 was used for disposal of water gel wash-up material and associated packaging materials. The disposal area, a shallow depression approximately 50 by 50 feet, was reportedly detonated as part of plant decommissioning prior to Weyerhaeuser's acquisition of the property. During pre-RI sampling, six plastic mesh bags about 2 feet long by 10 inches wide and containing a grayish powder were found on the surface. Fill materials encountered during excavation of six pre-RI test pits included a fine-grained material (possibly sawdust) with interbedded leaves and sticks.

Pre-RI sampling data from test pit 11-TP-6 indicated slightly elevated TNT concentrations. Concentrations of lead, nitrate, NG, and MMAN were not elevated.

2.7.2 Soil Conditions

One 28-foot boring (11-B-501) and four 10-foot test pits (11-TP-501 through 11-TP-504) were completed for the RI within and around the former disposal area to define the lateral and vertical extent of TNT and DNT and to assess the potential presence of other constituents. The boring was advanced at the approximate center of the shallow depression. Fill material observed during pre-RI sampling was not encountered during advancement of this boring or during excavation of the RI test pits. Steilacoom Gravels were encountered to the depth of exploration in all RI explorations. At 17 feet below ground surface, an approximately 1-foot zone of water was observed perched on a 2-foot layer of till-like material observed at a depth of 18 to 20 feet. This zone appears to be similar to the zone of groundwater observed perched on till during the drilling of monitoring wells MW-22/MW-27 to the north (refer to Section 3.1).

2.7.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 11 included up to 14 total metals, TPH, explosives, SVOCs, and PAHs. Total metals, TPH, and explosives were detected in at least one sample from Area 11. SVOCs and PAHs were not detected in any samples from this area.

The RI soil quality data, associated depths, and analytes for Area 11 are summarized in Tables B.4-1 through B.4-4 in Appendix B. Area 11 sampling locations are shown in Figure 2.7-1.

2.8 AREA 12—WORKS MAGAZINE LANDFILL SOIL QUALITY

2.8.1 History of Activities

Materials related to explosives packaging activities in the Works Magazine were reportedly buried in shallow excavations in several areas of the Works Magazine Landfill. Materials identified or reportedly buried (by former DuPont employees) include explosives packaging, auto shop wastes, empty ammonium nitrate drums, and residual water gel. Seven units of the landfill, designated 12-1 through 12-7, were identified in the pre-RI work. As discussed below, Unit 12-4 was deleted from further evaluation because only native materials were observed in subsurface explorations.

A total of 29 pre-RI test pits were excavated to determine the presence or absence of buried materials and to provide soil samples from the units.

During pre-RI sampling in Area 12, elevated MMAN concentrations were found at one location each in Unit 12-1 (2,900 mg/kg), Unit 12-2 (1,000 mg/kg), and Unit 12-6 (30,000 mg/kg). Concentrations of other constituents in the pre-RI samples were not elevated.

2.8.2 Soil Conditions

During the RI, 5 soil borings and 24 test pits were completed within and around the former disposal units to define the lateral and vertical extent of MMAN and to assess the potential presence of other constituents in this area. Boring and test pit locations and approximate debris boundaries are shown in Figure 2.8-1. Debris fill was encountered at several explorations within the landfill units. Steilacoom Gravels were encountered in all explorations outside of the fill areas. Native soils from a gravel borrow pit located north of Unit 12-2 were used to cover debris in Units 12-1, 12-2, 12-3, 12-5, and 12-6.

Unit 12-1

Debris, including empty water gel bags and plastic and metal strapping, was observed in 6 of 10 test pits and in the one boring in this unit. Generally, debris extended from depths of approximately 2 to 6 feet and was covered on the surface by 1 to 2 feet of dark brown, gravelly sand. The fill materials area measured approximately 150 by 20 feet.

Unit 12-2

Debris was observed in all 18 test pits and in both borings in this unit. Generally, debris extended from depths of approximately 2 to 8 feet and was covered on the surface by 1 to 2 feet of dark brown, gravelly sand. Debris consisted of water gel bags, some with residual water gel, wooden posts, paraffin-coated cardboard boxes, railroad ties, asbestos-containing material, and other mixed solid waste (e.g., old truck tires, tin cans, plastic, foam rubber, and metal banding). All asbestos-containing material (ACM) was removed and disposed of at an approved landfill during the RI excavation by TLH Abatement Inc. Unit 12-2 is the largest of the units, and the fill materials area measured approximately 550 by 150 feet. Unit 12-2 is bounded on the north by a gravel borrow pit from which native soils were historically obtained for covering the landfill units.

Unit 12-3

Debris was observed in all six test pits excavated in this unit. Generally, debris extended from depths of approximately 2 to 6 feet and was covered on the surface by 1 to 2 feet of dark brown, gravelly sand. Debris included water gel bags with residual water gel, and plastic tubing. The fill materials area measured approximately 210 by 50 feet.

Unit 12-4

Unit 12-4 is a 10- by 200-foot depression that apparently was never filled. The depression may be a gravel borrow pit similar to the one north of Unit 12-2. Three test pits were excavated in this unit (Figure 2.8-1). No debris was observed during excavation of the pre-RI or RI explorations, or during an RI field reconnaissance. Therefore, Unit 12-4 was not evaluated further.

Unit 12-5

Debris was observed in all six test pits excavated in this unit. Generally, debris extended from depths of approximately 2 to 6 feet and was covered on the surface by 1 to 2 feet of dark brown, gravelly sand. Debris included packaging materials (pressed cardboard and plastic strapping). The fill materials area measured approximately 125 by 75 feet.

Unit 12-6

Debris was observed in three of five test pits, but not in the one soil boring in this unit. Generally, debris extended from depths of approximately 2 to 7 feet and was covered on the surface by 1 to 2 feet of dark brown, gravelly sand. Observed debris included white plastic tubing containing residual water gel, and other mixed solid waste (e.g., tin cans, ceramics, and glass jars). Based on test pit excavations, this unit appears connected to Unit 12-7.

Unit 12-7

Debris was observed in two of three test pits, but not in the one soil boring in this unit. Debris included white plastic tubing containing residual water gel, and cardboard. Based on test pit excavations of Units 12-6 and 12-7, the two units appear to be connected (as shown in Figure 2.8-1). Dimensions of the fill materials for this combined unit area are approximately 200 by 20 feet.

Inter-Unit Test Pits

Debris was observed in two of five test pits excavated between delineated landfill areas. Debris included empty water gel bags and mixed solid waste (e.g., logs, styrofoam, cardboard, and plastic banding). Both test pits containing debris (12-TP-501 and 12-TP-505) are located within redefined unit boundaries (Units 12-2 and 12-5, respectively) (Figure 2.8-1). All other inter-unit test pits contained only native material and thus do not appear to be associated with any landfill unit.

2.8.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 12 included up to 14 total metals, TPH, explosives, SVOCs, PAHs, pesticides, and PCBs. The TPH (Method 418.1) results were associated with paraffin-coated cardboard except in one location where automobile parts were observed (test pit 12-2-TP-9). Paraffin wax is generally regarded as biologically inert. Additionally, no carcinogenic PAHs (cPAHs) were detected in 22 samples analyzed from this area. All of these analytes were detected in at least one sample from Area 12, except for pesticides and PCBs, which were not detected in any samples from this area.

Tables B.5-1 through B.5-6 in Appendix B detail the RI soil quality data, associated depths, and analytes in Area 12. Figure 2.8-1 shows the sampling locations.

2.9 AREA 16—KETTLE BENEATH AREA 5 SOIL QUALITY

2.9.1 History of Activities

Area 16 encompasses the large natural geologic kettle beneath Area 5, referred to as the DNT Waste Drum Area. Former DuPont employees reported that the kettle received cooling waters and liquid wastes from the acid production area (Area 25) to the west and southwest. Historical aerial photographs indicate the kettle periodically contained water during plant operation. The liquids were discharged to the Area 16 kettle through a pair of pipes that daylighted near the top of the kettle walls. Erosional gullies formed beneath the pipe outfalls and extended down the kettle walls to the kettle floor. These gullies and surrounding soils were removed during the Area 5 ISR documented by Hart Crowser (1994c).

During pre-RI sampling in Area 16, elevated lead concentrations were found. To facilitate staging of the Area 5 ISR, the upper foot of soil was graded in the Area 16 kettle bottom following the first phase of RI soil sampling. The approximate limit of the graded area, which transitions into the Area 5 ISR excavation area on the west, is shown in Figure 2.9-1. RI soil borings 16-B-501 and 16-B-505 and surface samples 16-SS-504 through 16-SS-523 were completed after the grading. All depths in Tables B.6-1 through B.6-7 in Appendix B and in Figure 2.9-1 are referenced to the current grade.

2.9.2 Soil Conditions

The generalized sequence of soils encountered in the Area 16 kettle consisted of scattered fill materials overlying varying thicknesses of soil developed on Steilacoom Gravels. Most fill materials from the base of the Area 5 hillside were removed during the Area 5 ISR. Bunker C residue was observed as a thin discontinuous surficial layer over portions of the ungraded kettle bottom.

A veneer of finer-grained soils typically less than 4 feet thick occurred over much of the kettle bottom. Because finer-grained materials are continually being eroded and transported from the kettle walls down slope, the thickest accumulation of fine-grained soils was found in the kettle bottom rather than on the kettle walls.

Beneath the surficial soil veneer, the Steilacoom Gravels were encountered to the exploration depth of 75 feet in boring 16-B-501. On-site monitoring wells indicated that the sequence continues uninterrupted to below msl (to depths of over 200 feet outside of the kettle). Regional information indicates that the Steilacoom Gravels extend to more than 100 feet below msl, nearly 250 feet below the kettle bottom.

Data from the four monitoring wells surrounding the kettle (MW-2, MW-3, MW-4, and MW-5; see Figure 3.1-1) and the deep soil boring within the kettle bottom (16-B-501) indicate that the Area 16 kettle is located west of the "Cutoff" (formerly known as the Kitsap Cutoff), which is the western extent of the Aquitard (formerly known as the Kitsap Aquitard) and Water Table Aquifer, as discussed in Section 3.1. Although Area 16 is located west of the "Cutoff", the water table surface continues to slope relatively steeply beneath the kettle. A 30- to 40-foot drop in water table elevation was observed from the east side (MW-4 and MW-5) to the west (MW-2 and MW-3) side of the kettle. Based on the elevation of the kettle bottom (140 to 145 feet), the water table lies 100 to 120 below the floor of the kettle basin.

Thin zones of saturation appear to exist in the shallow soils beneath the Area 16 kettle, but the saturation is transient and discontinuous (both laterally and vertically). Zones of silty sand were encountered within the stratified sands and gravels, but they are also laterally and vertically discontinuous. No continuous perching units (e.g., competent silts) were observed within the 75-foot-deep exploration beneath Area 16.

Wet soil samples were described in several intervals of the pre-RI and RI borings within Area 16. A piezometer screened between depths of 28 and 32 feet in pre-RI boring 16-B-4 contained water for a few weeks following its installation in spring 1987, suggesting a perched zone of saturation. However, the piezometer was dry during drilling of the RI soil borings in February 1992, following a period of relatively heavy rainfall. The tip of the water level sounder was wet following the measurements, suggesting the piezometer end cap had water in it at times. The piezometer was also dry during RI drilling in July 1992.

During drilling of the RI borings in February 1992, a few inches of water were observed in one of the three borings (16-B-504) between depths of approximately 9 and 14 feet. In borings 16-B-502 and 16-B-503, and at other depths in 16-B-504, samples were described in the field as wet, yet no standing water was measured in the borehole. This condition was also observed during drilling in the other two kettles (Area 7 and Area 26). In these cases, the wet samples may represent infiltrating wetting fronts rather than perched zones of saturation.

Boring 16-B-501, drilled in July 1992, was completed as a monitoring well to sample perched water if present, in accordance with the Sampling and Analysis Plan (Hart Crowser 1992a). No standing water was observed in the boring during drilling. The bottom of the well screen was set on a thin interval of silty sand; however, no water was observed in this well at the time of installation or in any of the subsequent rounds of groundwater sampling or water level measurements.

These combined observations, along with those from the other on-site kettles (Sections 2.5 and 2.12), indicate that perched water is not present beneath the kettles.

2.9.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 16 included up to eight metals, TPH (Bunker C), explosives, SVOCs, PAHs, pesticides, and PCBs. All of these analytes, except for SVOCs, were detected in at least one sample from Area 16. Endrin, detected in one sample, was the only pesticide detected. In addition, PCB-1254, detected in one sample, was the only PCB compound detected. SVOCs were not detected in any samples from this area. Based on site characterization results, detectable lead, barium, and chromium remain in this area.

Tables B.6-1 through B.6-7 in Appendix B provide a summary of the RI results and associated depths for Area 16. Figure 2.9-1 shows the sampling locations.

2.10 AREA 18/1/2/3/4—NITROGLYCERIN PRODUCTION AND POWDERLINE AREA SOIL QUALITY

2.10.1 History of Activities

This large area was used for the production of NG and dynamite. Area 18/1/2/3/4 encompasses the NG production area (Area 18 North and Area 1/2/3/4) and five dynamite production and packaging lines (Area 18 South), two cartridge dynamite lines, two gelatin dynamite lines (one of which was converted to water gel production in the 1960s), and one smokeless powder production line.

Area 18 North and Area 1/2/3/4 NG production facilities included nitrators, separators, and neutralizers. Two separate process lines (Nitrator No. 1, Separator No. 1, and a combined Nitrator/Separator House No. 2) were constructed between 1907 and 1909, along with associated Neutralizer House No. 1 and No. 2. A third separate process line consisting of Nitrator/Separator House No. 3 and Neutralizer No. 3 was added in 1915. Nitrator No. 1 and Separator No. 1 were burned as part of decommissioning in 1925; an explosion eliminated Combined Nitrator/Separator House No. 2 in 1938. A new facility was built over the remains of the original. The remaining facilities were burned during Site decommissioning between 1976 and 1977.

Area 1/2/3/4 includes the following specific sites:

- Area 1—NG Wash Water Gutter
- Area 2—NG Spill at No. 2 Nitrating and Separating House
- Area 3—NG Spill Along Gutter Line
- Area 4—Lead Residual at No. 2 Nitrating and Separating House

This area was investigated because of the potential for residual NG, lead debris, and wastewaters associated with NG production. As part of the production process, residual NG was settled out of the wash water during both the separating and neutralizing phases and reintroduced to the manufacturing process. Wash water (following NG settling) was then sent to a wash water gutter system (Area 1) that ran north of the combined nitrating/separating houses. In later years, wash waters, particularly from the neutralizers, were sent to seepage ponds adjacent to the individual facilities.

In the mid-1950s, a spill of approximately 300 pounds of NG occurred near the south steps of the No. 2 Nitrating and Separating House (Area 2). According to former DuPont employees, this spill was treated with sodium sulfide and later detonated during plant decommissioning. In 1961, approximately 100 to 200 pounds of NG were spilled from the NG gutter system (Area 3), and this area was treated with sodium sulfide and later detonated. Area 4 encompasses the debris resulting from decommissioning of the No. 2 Nitrating and Separating House, which contained lead sheeting.

The Powderline Area (18 South) included facilities to mix dynamite ingredients, pack cartridges, and box finished products. Facilities including mixing houses (in the central portion of Area 18), cartridge houses, and packing houses, followed a process line organization. Three lines were initially developed south of the NG area: two for cartridge dynamite (talley mix) and one for gelatin dynamite. The gelatin line ran along the eastern edge of the area. A fourth line, also for gelatin, was added to the west in 1915. By the 1950s, the fourth line and one of the talley mix lines had been eliminated. The eastern line served for DNT gelatin production and subsequently was converted to water gel production in the 1960s.

The nitrostarch/smokeless powderline was constructed west of the other powderline facilities in 1916. It included four storehouses, four drying houses, a screening house, and a nitrating house. The facilities were converted in 1923 to reprocess surplus cordite and smokeless powder that had been returned by the U.S. military. The powder was reground to manufacture blasting compounds for farm use (sodatol and pyrotol). The reprocessing was completed in 1927. The buildings were burned during decommissioning in 1931.

Materials reportedly handled or present at these facilities include waste acid (with trace amounts of NG), lead, NG, MMAN, DNT, TNT, and nitrostarches. Lead linings, washtubs, and pipes were commonly used in the foundations of production facilities to contain process liquids or spills and reduce accidental sparking.

During the pre-RI site characterization, 101 samples were collected for constituent testing from 69 test pits and 9 hand augers in Areas 1, 2, 3, 4, and 18. Additional test pits were excavated for characterization of subsurface conditions. Constituent analytical results indicated elevated lead concentrations. TNT, DNT, and NG concentrations were not elevated. Aside from common laboratory solvents, VOCs were generally not detected. Subsequent to the pre-RI site characterization, many of these sampling points were removed during ISR and are no longer representative of current site conditions.

2.10.2 Soil Conditions

A variety of fill layers and non-native materials were observed in test pits from this area. Fill soils are generally composed of slightly silty, sandy gravel and gravelly sand—essentially regraded, local Steilacoom Gravels. Many of the production facilities had been bunkered by sloping berms of fill soil built up against the foundation walls. In addition, a variety of non-native materials (e.g., timbers) are mixed into fill soils.

Lead

Lead debris was observed at the surface or uncovered in the subsurface at several localities (at test pits 4-TP-2, 4-TP-7, 18-TP-16, 18-TP-32, and 18-TP-37; surficial soil from 4-TP-2, 4-TP-7, and 18-TP-37 was removed during ISR). Intact, 1/8-inch-thick lead sheeting over concrete floor pads was also observed (test pits 4-TP-8, 18-TP-17, and 18-TP-18; surficial soil in all three of these locations was removed during ISR). Most of this elemental lead was observed in the nitrators and neutralizers and has since been removed during ISR of lead debris.

Washwater Gutters

A buried concrete gutter was observed in a series of test pits that were originally designated as Area 1 (1-TP-6 through 1-TP-11). The gutter and an associated lateral gutter system carried residual process wash waters from the separators and neutralizers. The gutters were wood-covered troughs, concrete structures approximately 1 foot-wide and lined with tar. They led to a filtering house before wash waters were discharged to the ground in the vicinity of a 5-foot-deep depression at the western end of the main gutter. Most of the wash water system was no longer used after the 1950s, and subsequent site activities buried the gutters beneath 1 to 5 feet of fill.

Potential Asbestos-Containing Materials (ACM)

Where lead-lined floors were observed in the old foundations, the lead sheeting was sometimes separated from the concrete pad by a thin layer of potential ACM (4-TP-8 and 18-TP-18). Elsewhere, potential ACM was associated with metal ductwork (18-TP-550 and 18-TP-553) and shingles (18-TP-2). Potential ACM fragments were also noted with demolition debris in a number of explorations (18-TP-1, 18-TP-9, 18-TP-23, 1234-TP-503, and 18-TP-534). The top foot of soil was later excavated from locations 18-TP-534 and 18-TP-23 during ISR. Materials suspected by the field personnel to be potential ACM were evaluated by the on-site asbestos abatement contractor, TLH Abatement Inc. Any materials confirmed to be ACM by TLH Abatement Inc. were handled and disposed of by TLH Abatement Inc. at an appropriate landfill.

DNT/TNT Residual

During the RI characterization work, residual DNT/TNT was identified near the DNT Heater and Melt Houses (south of Neutralizer Nos. 1 and 2), the Gelatin Mixing House No. 1, and the Dynamite Mixing House Nos. 1 and 2. As a result of these observations, a program to systematically locate and remove residual DNT/TNT was initiated in the central part of Area 18. Initially, a peripheral zone of surface soils surrounding the DNT Heater Houses and Mixing Houses was inspected for residual DNT/TNT by systematically scraping and exposing the upper few inches of soil cover with a bulldozer. Suspected residual DNT/TNT was field tested using a colorimetric indicator test. The scraping operations uncovered additional residual DNT/TNT locations, most within a 150-foot radius of these foundations.

2.10.3 Constituents in Soil

Laboratory analyses that were performed on soil samples from Area 1/2/3/4 included up to eight metals, explosives, VOCs, SVOCs, and PAHs. All of these analytes, except for SVOCs, were detected in at least one sample from Area 1/2/3/4. NG, detected in one sample, was the only explosives compound detected. SVOCs were not detected in any samples from this area.

Laboratory analyses that were performed on soil samples from Area 18 included up to eight metals, TPH, explosives, PAHs, and nitrate. All of these analytes were detected in at least one sample from Area 18. Many of these sampling points were removed during ISR and are no longer representative of current site conditions.

The RI and ISR verification data for Area 18 and Area 1/2/3/4 are summarized in Tables B.7-1 through B.7-6 in Appendix B. Figure 2.10-1 shows the sampling locations for Area 1/2/3/4, and Figures 2.10-2 through 2.10-6 show the sampling locations for Area 18.

ISR work conducted in Area 18 is described in Section 2.20.3, 2.20.13, 2.20.14, 2.20.15, and 2.20.16.

2.11 AREA 25—ACID PRODUCTION AREA SOIL QUALITY

2.11.1 History of Activities

Area 25 encompasses the facilities used for production of sulfuric and nitric acids and for storage of the production process materials (e.g., sulfur). Changes occurred in the layout of the acid production area over the period of operations (1900s to 1970s). Maps showing two sets of composite historical features for the area developed from historical DuPont plant maps and aerial photographs were included in the Sampling and Analysis Plan (Hart Crowser 1992a).

Elevated lead concentrations were observed in pre-RI samples collected from Area 25.

Surficial grading of much of the northern portion of Area 25 was conducted to prepare staging and stockpile laydown areas in support of Area 5 ISR activities. In addition, surficial grading of a stockpile laydown area was conducted in the southern portion of Area 25 during ISR at the Trivelene melt house. Limits of graded areas and the limit of the Trivelene melt house excavation are shown in Figure 2.11-1. All sampling depths listed in Tables B.8-1 and B.8-2 in Appendix B and in Figure 2.11-1 are referenced to existing grade.

2.11.2 Soil Conditions

Steilacoom Gravels were observed to a depth of 10 feet in all Area 25 test pits. A 1- to 2-foot-thick veneer of demolition debris containing bricks, crushed rock, and deteriorated gravels was observed in 7 of the 24 RI test pits excavated in Area 25.

Sampling was also conducted to delineate the extent of surficial demolition debris within and adjacent to Areas 25 and 26. The debris appears to be associated with the demolition of the former buildings in the acid production (Area 25) and acid recovery (Area 26C) areas during plant decommissioning. For the purposes of this sampling, the samples were labeled AP-H to differentiate them from samples collected within the Area 25 and Area 26 production areas. However, the field reconnaissance of the debris indicated that, although the debris was observed outside the current boundaries of Areas 25 and 26, it was not widespread enough to warrant consideration as a separate area. As a result, the lead data from the AP-H sampling locations have been integrated with the data from Areas 25 and 26, and the surficial debris were evaluated as part of Areas 25 and 26. Thus, AP-H is not discussed further in this RI.

A brick wall was observed between depths of 1.5 and 4 feet in the sidewall of 25-TP-505, excavated within the former converter house foundation used in manufacturing sulfuric acid. Lead debris and ceramic pipe were observed in the upper foot of fill at 25-TP-503, excavated within the former scrubber house. A 3.5- by 6-foot, 1.5-foot-thick concrete slab was removed from the wall of this test pit during excavation. The bottom of the slab was weathered and stained a dark yellow color, likely related to the sulfuric acid production process. A similar yellow staining was observed with deteriorated gravels to a depth of 10 feet in this test pit. At 25-TP-514, the end of a clay drain pipe was observed in the north wall of the excavation, and deteriorated gravels were encountered to a depth of 12 feet, with bleached gravels from 12 to 14 feet. Surficial soils in 25-TP-514 were later excavated during ISR. Deteriorated gravels were also observed between depths of 1 and 4 feet in 25-TP-516, below 1 foot of nonweathered soil that appears to be fill.

2.11.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 25 included up to eight total metals, explosives, VOCs, SVOCs, and PAHs. Total metals and explosives were detected in at least one sample from Area 25. Many of these samples were removed during ISR and are no longer representative of current site conditions. VOCs, SVOCs, and PAHs were not detected in any samples from this area.

Tables B.8-1 and B.8-2 in Appendix B provide an overview of the RI soil quality data for Area 25. Figure 2.11-1 shows the sampling locations.

ISR work conducted in Area 25 is described in Section 2.20.14 and 2.20.16.

2.12 AREA 26—WASTE ACID RECOVERY AREA AND KETTLE SOIL QUALITY

2.12.1 History of Activities

This area includes the facilities used for recovery of spent acids returning from the NG production area. Initially, both sulfuric and nitric acids were recovered in separate facilities. Subsequent (post-1940) processing methods substantially reduced the number of facilities. The area also includes two geologic kettles (Units 26A and 26B) located south of the recovery facilities (Figure 2.12-1). According to former DuPont employees, the large kettle (Unit 26A) received liquid discharge from the acid recovery area, the plant laundry, and the truck wash and vehicle maintenance facility. Aerial photographs from 1976 show liquid within this kettle. Historical information including aerial photographs indicate that the Unit 26B kettle did not receive liquid wastes.

The former waste acid recovery buildings (Unit 26C) and the small kettle (Unit 26B) were included within Area 25 (Acid Production Area) for the pre-RI site characterization (Hart Crowser 1987). Since Units 26B and 26C include facilities for storage and reprocessing of waste acids, rather than production of acids, these waste acid recovery buildings and both kettles have been included in Area 26 for evaluation in the RI.

During pre-RI sampling in Area 26, elevated lead, cPAH, and DNT concentrations were found.

2.12.2 Soil Conditions

Unit 26A and Unit 26B Kettles

Native soils within the kettles consist of 1 to 10 feet of dark gray, silty, gravelly sand with occasional silt lenses and abundant organic matter (surficial sandy loam), overlying brown, stratified sands and gravels (Steilacoom Gravels), which extend beyond the depth of exploration (100 feet at boring 26-B-503 within Unit 26A). The upper silty sand is thicker at the northern end of the Unit 26A kettle—up to 9 to 10 feet thick at 26-B-5, 26-B-501, and 26-TP-502, compared with 2 to 3 feet thick along the southern edge of the kettle. Some silty to slightly silty zones were encountered in the Steilacoom Gravels, but they appear to be discontinuous between explorations.

The Water Table Aquifer and Aquitard were not encountered to an elevation of approximately 70 feet msl in 26-B-503. This boring was drilled to a total depth of 100 feet specifically to confirm the presence or absence of the aquifer and aquitard at this location. This observation confirms the findings from MW-6 and the current hydrogeologic interpretation that the “Cutoff” (discussed in Section 3.1) is located east of Area 26.

Similar to conditions encountered in the other kettles (Area 7 and Area 16) during drilling of the pre-RI and RI borings, wet soil samples were commonly recovered without the ability to detect water in the auger. These conditions likely indicate wetting fronts infiltrating downward and are consistent with conditions encountered in the other kettles (Sections 2.5 and 2.9).

A zone of saturation was encountered, and a piezometer was installed (screened between depths of 19.5 and 24.5 feet) in the pre-RI boring 26-B-2, which was drilled in April 1987. Water was measured in the piezometer 2 weeks after its installation (Hart Crowser 1987). The piezometer had no measurable water in it during drilling of the RI borings in February and July 1992.

No NG was detected in the three samples collected from 26-TP-508 (within the former NG waste acid storage location) or in the sample collected from pre-RI test pit 25-TP-6, located downslope of the former building. In the Unit 26B kettle, lead debris removal was conducted in the location of the former NG waste acid storage and freezing house (the limit of excavation is shown in Figure 2.12-1).

Unit 26C—Waste Acid Recovery Area

Demolition debris was also encountered in six test pits (26-TP-510 through 26-TP-515) excavated in and around the former waste acid recovery buildings located north of the Unit 26A kettle (Figure 2.12-1). The debris consisted predominantly of bricks and crushed rock, with smaller quantities of wood and ceramic and lead piping. A graded veneer of demolition debris less than 2 feet thick was observed at the surface over much of Unit 26C and east of the road bounding the unit on the east. Beneath the debris, the soils were essentially the same as those observed elsewhere in Area 26—2 to 3 feet of dark gray, silty, gravelly sand overlying Steilacoom Gravels to the depth of exploration. Several additional samples (AP-H samples) were collected within and outside the limit of this debris. The locations of AP-H samples in the vicinity of Area 26 are included in Figure 2.12-1.

Lengths of 4-inch-diameter ceramic pipe were observed at depths of 1 to 2 feet in test pits 26-TP-510 and 26-TP-513. The pipe appeared to be in place (undisturbed) in 26-TP-513, but not in 26-TP-510. In 26-TP-513, the pipe sloped to the south, toward the Unit 26A kettle. A 12-inch-diameter ceramic pipeline, which also appeared to be in place and sloped toward the south, was observed across the full length of 26-TP-511. The ceramic pipe in each of the three test pits was oriented approximately north-south. In addition to the ceramic pipes, an 8-foot length of 3-inch-diameter lead pipe that did not appear to be part of a pipeline was pulled out of the north wall of 26-TP-512, at a depth of 1 foot. There was no indication that this lead pipe was connected to any other piping.

Discharge locations for several pipes were observed along the northern rim of the Unit 26A kettle. At one location a few feet upslope of hand auger 26-HA-502 (Figure 2.12-1), outlets for four pipes were found—a rusted 2-inch-diameter steel pipe and three ceramic pipes (with 4-, 8-, and 12-inch diameters). This location was later excavated to a depth of 10 feet during ISR. From what was visible at the location of the outlets and in the test pits, all pipes appear to originate from the acid recovery area located to the north. In addition, a length of 6-inch pipe was observed lying on the slope below the former Ammonia Neutralizing House, but the pipe did not appear to be in place. The pipe was near the top of an erosion gully that extends into the Unit 26A kettle (test pit 26-TP-502 was excavated within this gully; see Figure 2.12-1).

Stained soils were commonly observed at the surface and at depth in the Unit 26C test pits. Crumbly, deteriorated gravels and rock fragments (fill), commonly bleached or stained, were observed on the surface of much of the area including immediately downslope of the pipe outfalls (26-HA-502). Beneath the surface, rusty yellow soil staining was observed in the three test pits where ceramic piping was observed (26-TP-510, 26-TP-511, and 26-TP-513). In 26-TP-510, the staining was minor and did not appear to be associated with the piping. In 26-TP-511, the soil staining started at a coupling between sections of the 12-inch ceramic pipe and spread laterally with depth, extending to the depth of exploration (11 feet). A small area of stained soil was observed beneath a coupling in the 4-inch ceramic pipe at a depth of 3 feet along the south wall of test pit 26-TP-513. Similar staining was observed between depths of 4 to 10 feet along the west wall of the test pit, but it was not continuous with the staining next to the pipe and did not appear to be related to the 4-inch ceramic pipe. No other piping was observed in this test pit. Soil at test pit locations 26-TP-11 through 26-TP-13 and 26-TP-15 was later excavated to a depth of 3 to 4 feet during ISR.

Deteriorated, stained gravels were also observed in the upper 3 feet of 26-TP-514 (no pipes were observed). The upper 2 feet of silty sand in this test pit was interbedded with a colored, ash-like material. At a depth of 7 feet, cemented gravels were found; they appeared to be native—not concrete or other man-made material. Several unsuccessful attempts to penetrate the material were made, including enlarging the test pit. The material was too dense to be sampled, even using the backhoe. This condition was not observed in any other exploration on site.

2.12.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 26 included up to nine metals, TPH (non-Bunker C), explosives, SVOCs, and PAHs. All of these analytes were detected in at least one sample from Area 26. Many of these samples were removed during 1999, 2000, and 2001 ISRs and are no longer representative of current site conditions. Two phthalate compounds, detected in a single sample, were the only SVOCs detected in any of the samples. Analyses were also performed for Bunker C fuel, diesel, gasoline, kensol, kerosene, and Stoddard solvent in two selected soil samples. These compounds were not detected in either sample.

Tables B.9-1 through B.9-5 in Appendix B present an overview of the RI soil sampling results from Area 26. Figure 2.12-1 shows the sampling locations.

ISR work conducted in Area 26 is described in Sections 2.20.15 and 2.20.16.

2.13 AREA 31—BURNING GROUND SOIL QUALITY

2.13.1 History of Activities

Materials from the Site were burned for many years at this location. Within a fenced area of the burning ground, 6 to 24 inches of highly variable material overlying sandy gravel soils were uncovered during the pre-RI field work. This material consisted of black, ash-rich, tar-like residue with rusting iron, glass, ceramic fragments, and varying amounts of lead debris. A mound of burned residual materials was present in the center of the burning ground. Visible lead debris and lead-coated steel grating and bricks were also observed within a 10- by 100-foot area. Solid debris, including rusting metals and ceramics, was observed adjacent to and north of the burning ground during pre-RI investigations. Several partially buried drums were located in a depression (ravine) south of the burning ground. Other buried materials included charcoal, ash, bricks, glass, auto body parts, and pipes.

Fifty-four soil samples were collected from 21 test pits, 1 boring, and 2 surface locations during the pre-RI work. The pre-RI soil samples had elevated concentrations of DNT, TNT, lead, and cPAHs.

2.13.2 Soil Conditions

Debris and/or fill material was encountered in RI test pits 31-TP-501, 31-TP-502 (1 to 3 feet of soil was later excavated from this location during ISR) and soil boring 31-B-501 (3 feet of soil was later excavated from this location during ISR), all within the burning ground, and in 31-TPH-508, which was excavated during ISR of the Area 31 ravine. Debris consisted of brick fragments, lead debris, nails, scrap metal, and glass. Depth to water in the five RI borings ranged from 17 to 22 feet below ground surface.

2.13.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 31 included up to 10 total metals: TPH, explosives, SVOCs, PAHs, and PCBs. All of these analytes, except for PCBs, were detected in at least one sample from Area 31. TPH was detected once at a concentration near the detection limit and the result was therefore qualified. In addition, the only SVOC detected was bis(2-ethylhexyl)phthalate, in three samples at concentrations near the detection limit; these results were also qualified. PCBs were not detected in any samples from this area.

Tables B.10-1 through B.10-6 in Appendix B detail the soil sampling explorations and depths of sample collection and summarize the soil quality data in Area 31. Figure 2.13-1 shows the sampling locations.

ISR efforts in 1999, 2000, and 2001 removed the majority of the elevated concentrations in Area 31. ISR work for this area is described in Sections 2.20.8, 2.20.13, 2.20.14, and 2.20.15.

2.14 AREA 38—CARTON PRODUCTION AREA AND DRYWELL SOIL QUALITY

2.14.1 History of Activities

Area 38 encompasses the buildings used for production and labeling of the cartons used to package and ship the products from the Site. Packaging materials were originally wooden boxes, which over time were replaced by paraffin (wax)-coated cardboard cartons. Both cardboard printing and paraffin coating activities occurred in this area. Water and/or solvents used to clean printing equipment in the box factory reportedly drained through a wooden trough from the building into a drywell, which is an approximately 3-foot-square, 7-foot-deep, wood-lined location approximately 15 feet south of the box factory.

Five surface samples were collected in Area 38 as part of the pre-RI sampling program. Elevated lead concentrations were observed in the pre-RI samples from beneath the trough and the drywell bottom.

2.14.2 Soil Conditions

Subsurface explorations were conducted within the drywell (38-B-501) and beneath the trough that leads from the box factory to the drywell (38-TP-501).

Soil boring 38-B-501 was advanced to a depth of 16 feet below the drywell bottom (23 feet below grade). A gray, fine-grained non-native fill material with a noticeable sulfur smell was encountered in the first 2 to 3 feet below the drywell bottom. Steilacoom Gravels with minor silt were encountered below this material to the depth of exploration.

Fill containing wood debris, copper wire, and ACM was encountered to a depth of 6 feet below grade in 38-TP-501. The ACM observed in the test pit was removed by TLH Abatement Inc. and disposed of at Thun Field Landfill in Puyallup, Washington. The debris fill was localized to a 3- to 4-foot-wide area immediately beneath the surficial wooden trough. Undisturbed Steilacoom Gravels were observed on either side of the fill and beneath it (below 6 feet).

2.14.3 Constituents in Soil

Laboratory analyses performed on soil samples from Area 38 included up to 14 total metals, TPH, diesel, gasoline, explosives, VOCs, SVOCs, PAHs, and pesticides. Total metals, TPH, SVOCs, and PAHs were detected in at least one sample from Area 38. Results from the paraffin investigation (Hart Crowser 1996) indicated that the TPH in Area 38 was diesel-range and oil-range TPH, not paraffin. Many of these samples were removed during 1999, 2000, and 2001 ISRs and are no longer representative of current site conditions. The only SVOCs detected were two phthalate compounds, each detected in single samples. The detected concentrations were near the detection limits; therefore, these results were qualified. Explosives, VOCs, diesel, gasoline, and pesticides were not detected in any samples from Area 38.

The RI soil quality data and associated sampling depths in Area 38 are summarized in Tables B.11-1 through B.11-7 in Appendix B. Sampling locations are shown in Figure 2.14-1.

ISR work conducted in Area 38 is described in Sections 2.20.11 and 2.20.16.

2.15 AREAS OF POTENTIAL CONCERN SOIL QUALITY

In response to Ecology comments, the Sampling and Analysis Plan for the APs provided in the Management Plan (Hart Crowser 1992a) was expanded to include test pits at one or more locations within each AP, as discussed in Hart Crowser (1992b).

Laboratory analyses were performed on soil samples from the seven APs (AP-A through AP-G). Results from these analyses are discussed separately in the following subsections.

2.15.1 AP-A Powder Test Ground

History of Activities

Area AP-A was defined to address a former “powder test ground” (explosives detonation area) that operated during the 1950s and 1960s. Specific features associated with the area no longer exist. The test ground, as shown on a 1955 historical map, measures approximately 125 by 75 feet. The test ground was located near the western plant boundary, west of the main powerhouse within the CDB. A review of aerial photographs suggested two possible areas that corresponded to the 1955 historical map location: one immediately west of the former nitrostarch nitrating building (Area AP-C) and the other farther west within the CDB. The latter correlates with distances from nearby structures, as shown on the historical map, but is not observed as a distinct clearing in aerial photographs (as is the former location).

Before locations were staked for the RI sampling, an extensive field reconnaissance of the area was conducted. No indication of features potentially associated with historical testing was evident other than a location south of the area, which appeared to be unnaturally flat. Explorations were located to provide coverage of both potential areas and the flat area to the south. The exploration locations are shown in Figure 2.15-1.

Soil Conditions

During the RI, one test pit was completed and two surface samples were collected in AP-A. Undisturbed Steilacoom Gravels were encountered to a depth of 5 feet in APA-TP-501 (Figure 2.16-3).

Constituents in Soil

Laboratory analyses performed on soil samples from Area AP-A included total metals and explosives. Both analytes were detected in at least one sample from Area AP-A. Analytical data for soil samples collected from AP-A during the RI are presented in Tables B.14-2, and B.12-1 through B.12-7 in Appendix B. Sampling locations are shown in Figure 2.15-1.

2.15.2 AP-B Smokeless Powder Dump

History of Activities

Smokeless powder, which consisted of nitrate, cellulose, NG, and plasticizers, was stockpiled in three structures in this area between World War I and 1928. Two test pits were sampled in this area during the pre-RI sampling (Site 22 in Hart Crowser 1987). NG was not detected in the sample from either pre-RI test pit.

Soil Conditions

During the RI, two test pits and two surface samples were completed in AP-B. Undisturbed Steilacoom Gravels were encountered in both APB-TP-501 (later excavated to a depth of 5 feet during ISR) and APB-TP-502. Bricks were observed at the surface approximately 20 feet west of the APB-TP-502 location, and they were the reason the exploration was located there. Short stakes and string were also observed around the bricks, indicating possible archaeological excavations in conjunction with a reported historic oxen trail running through this area to Puget Sound. Prior to excavation at this location, field personnel conferred with archaeologist Dr. Richard Daugherty of Western Heritage, who gave permission for excavation to proceed. No cultural resources were observed in the immediate vicinity either in the excavation or on the surrounding surface. The exploration locations are shown in Figure 2.15-2.

Constituents in Soil

Laboratory analyses performed on soil samples from Area AP-B included explosives and nitrate. Nitrate was detected in at least one sample from Area AP-B. Explosives were not detected in any samples from this area. The soil quality data are summarized in Tables B.12-1 through B.12-7 in Appendix B.

2.15.3 AP-C Smokeless Powder Nitrating/Grinding House

History of Activities

Between 1916 and 1928, nitration of nitrocellulose and nitrostarch was conducted in this building. During the same time period, smokeless powder pellets were ground into fine powder for use as an admixture in the dynamite process.

Soil Conditions

During the RI, two test pits and one observational test pit were completed, and 14 surface samples were collected in AP-C. Undisturbed Steilacoom Gravels were observed in APC-TP-501, and later excavated during ISR to a depth of 5 feet. At the time of sampling, small pieces of lead debris were observed on the Nitrating/Grinding House foundation and on the ground adjacent to the foundation. Review of the architectural plans and sections for this building indicated possible lead lining in a portion of the former building. As a result, additional surfaces samples (APC-SS-505 through APC-SS-514; surficial soil at locations APC-SS-505 through APC-SS-509 was later excavated during ISR) were collected and analyzed for lead. Test pit APC-TP-502 was excavated at the mixed acid storage area to evaluate metals concentrations at depth, and later it was excavated to a depth of 1 to 3 feet during ISR. Some bleached gravels were observed between depths of 1 and 7 feet in this test pit. The exploration locations are shown in Figure 2.15-1.

Historical architectural plans indicated that a “sump well” might be present adjacent to the southwest corner of the nitrator foundation. Observational test pit APC-TP-503, covering a surface area of approximately 30 by 18 feet, was excavated to a depth of about 4 feet in this area to look for subsurface evidence of this feature (Figure 2.15-1). No evidence of a sump well was observed in the large excavation.

Demolition debris (mostly wood) was observed at the surface in the location of the northern room of the Nitrating/Grinding House, which was pile-supported.

Constituents in Soil

Laboratory analyses performed on soil samples from Area AP-C included total metals, explosives, and nitrate. All three parameters were detected in at least one sample from Area AP-C. Many of these samples were removed during 1999, 2000, and 2001 ISRs and are no longer representative of current site conditions. The soil quality data for the AP-C area are summarized in Tables B.12-1 through B.12-7 in Appendix B. Sampling locations are shown in Figure 2.15-1.

2.15.4 AP-D Asphalt Paint Building

History of Activities

This building was used prior to the 1940s for heating asphalt for coating structures such as the NG gutters in the NG production area. Although called an asphalt paint "kettle" on historical maps, the term kettle at this building refers to the melting pot and facility function, rather than to a glacial kettle (geologic depression), as the term is used elsewhere in this report.

Soil Conditions

During the RI, one test pit was completed in AP-D. AP-D occurs within an area covered with a veneer (0 to 2 feet thick) of disturbed soils, crushed rock, and demolition debris (e.g., bricks and mortar). There was no surficial evidence of the former Asphalt Paint Building in the vicinity. The extent of this demolition debris was discussed in Sections 2.11 and 2.12.

To look for subsurface evidence of the building foundation, APD-TP-501 was excavated along an approximately 20-foot length in the location of the former building, as determined from historical maps (Figure 2.12-1 and Tables B.9-1 through B.9-5 in Appendix B). Fill with demolition debris similar to the surface materials was observed to a depth of 3 feet in this excavation. Occasional small pieces of hard tar-like material and lead debris were observed in the upper 6 inches of fill. Native Steilacoom Gravels were observed below a depth of 3 feet. Due to the significant surface disturbance, the proposed surface samples APD-SS-501 and APD-SS-502 were not collected.

Constituents in Soil

Laboratory analyses performed on soil samples from Area AP-D included total metals, TPH, explosives, SVOCs, and PAHs. Total metals, TPH, and PAHs were detected in at least one sample from Area AP-D. Explosives and SVOCs were not detected in any samples from this area. Analytical data for soil samples collected from AP-D during the RI are presented in Appendix B, Tables B.12-1 through B.12-7.

2.15.5 AP-E Main Transformer House

History of Activities

Although two powerhouses were located at the plant, the Puget Sound Power and Light Company was its main source of electrical power. The transformer house served as the main power and switching yard throughout the period of manufacturing operations.

Soil Conditions

During the RI, 2 test pits and 13 surface samples were completed in AP-E. Bricks and demolition debris are scattered around the surface of the former Main Transformer House. In APE-TP-501, located immediately adjacent to the building foundation, 6 inches of the brick debris was underlain by a 2- to 3-inch layer of black silty soil, which was underlain by

Steilacoom Gravels to a depth of 5 feet. In APE-TP-502, excavated along the eastern edge of the foundation, native soils were observed beneath approximately 1.5 feet of sandy gravel fill. Some debris from the foundation was also observed down the slope in the vicinity of surface soil sample location APE-SS-501.

Constituents in Soil

Laboratory analyses performed on soil samples from Area AP-E included total metals, TPH, and PCBs. Total metals and TPH were detected in at least one sample from Area AP-E. Many of these samples were removed during 1999, 2000, and 2001 ISR and are no longer representative of current site conditions. PCBs were not detected in any samples from this area. Analytical data for soil samples collected from AP-E during the RI are presented in Tables B.12-1 through B.12-7 in Appendix B. Sampling locations are shown in Figure 2.15-3.

2.15.6 AP-F Nitrocotton Area

History of Activities

Drying and screening of nitrocotton fibers as additives to the dynamite process were conducted in this area from the early years of production until their use was discontinued in 1960. The facilities were burned as part of the plant decommissioning.

Soil Conditions

During the RI, 1 test pit, 1 hand-augered boring, and 23 surface samples were completed in AP-F. Metal and wood debris was observed at the surface within the berms surrounding the Nitrocotton Dry House (APF-TP-501) and the Dry Cotton Store House (APF-SS-502). Debris was not observed below grade in APF-TP-501, where Steilacoom Gravels were observed to a depth of 5 feet.

Constituents in Soil

Laboratory analyses that were performed on soil samples from Area AP-F included metals, explosives, and nitrate. Metals and nitrate were detected in at least one sample from Area AP-F. Many of these samples were removed during 1999, 2000, and 2001 ISR and are no longer representative of current site conditions. Explosives were not detected in any samples from this area. Analytical data for soil samples collected from the AP-F during the RI are presented in Tables B.12-1 through B.12-7 in Appendix B. Sampling locations are shown in Figure 2.15-4. Based on site characterization results, detectable lead, barium, and chromium remain in this area.

2.15.7 AP-G Decontamination Areas

History of Activities

Plant equipment was cleaned of incidental residual NG and residual explosives at a decontamination facility from at least the late 1950s through the early 1970s. Decontamination consisted of hot water washes, application of NG remover (alcohol, acetone, and sodium sulfide), and neutralization with either glycerin or diethylene glycol.

Two areas near the maintenance shop facilities were identified as locations of possible equipment cleaning activities. Field efforts to identify the first (referred to as the southern unit) located demolition debris (bricks and concrete foundation) at the location.

The second (referred to as the northern unit) appeared on historical maps from the 1950s labeled as the "decontamination bath." Scaled distances from the map suggested a location in this area slightly northwest of an existing large rectangular concrete slab. Review of the 1961 aerial photograph identified a small, square structure located where a small, square concrete slab now exists. The aerial photograph indicates equipment was originally stored on a graded area to the north and was subsequently stored on the large rectangular concrete slab. This decontamination facility remained on the Site up to the time of plant decommissioning. Remaining features include the laydown slab and the smaller, square concrete slab that served as the foundation for the decontamination structure.

The southern unit was identified as Site 23 in the pre-RI, although both areas subsequently were tested. NG, TNT, and DNT were not detected in samples from either pre-RI test pit. Based on a review of prior sampling efforts and information from additional aerial photograph review, additional tests during the RI appeared to be warranted and the two localities were redesignated as AP-G.

Sampling locations focused on proximity to structural features and areas susceptible to runoff collection from cleaning operations. In addition, a test pit (APG-TP-502, discussed below, and later removed during ISR work) was excavated at the more northwestern location identified through historical mapping to ascertain whether activities could have occurred at this location rather than at the more obvious confirmed features.

Soil Conditions

During the RI, three test pits and one observational test pit were completed, and three surface samples were collected in AP-G. In the northern unit, a variety of equipment and scrap metal was being stored on the large rectangular concrete slab next to APG-SS-501 and APG-SS-502. Some scrap metal and piping were also stored on the smaller, square concrete slab adjacent to the southeastern corner of the large slab.

Steel rebar and electrical wiring were observed in the upper 2 feet of APG-TP-504, excavated between the large and small slabs (Figure 2.15-3). A 1-inch-diameter steel water supply pipe was encountered 1.5 feet below grade in APG-TP-501, excavated within a shallow swale leading away from the area. Other than the piping and wiring, only Steilacoom Gravels were observed in these two test pits.

APG-TP-502 (an observational test pit, where no samples were collected) was excavated in a very small depression (apparently natural) at the location northwest of the rectangular concrete slab. This excavation was conducted to look for any evidence of the former decontamination bath structure, and thereby confirm the more recent interpretation of the historical aerial photographs, which indicated that the bath was located at the small northern slab. There were no surficial indications of a structure or other man-made disturbance anywhere in the vicinity of

APG-TP-502. Similarly, there were no indications of subsurface disturbance noted in the excavation.

APG-TP-503 was excavated next to the former building (concrete foundation and bricks remaining) in the southern unit (Figure 2.16-3). Native Steilacoom Gravels were encountered to the 5-foot depth of exploration in this excavation. APG-SS-503 was completed in a shallow natural depression downslope of the former building.

Constituents in Soil

Soil samples from Area AP-G were analyzed for explosives and metals. Explosive compounds were not detected in any samples from this area. Analytical data for soil samples collected from AP-G during the RI are assigned to the Site Reference Area and presented in Tables B.14-1 and B.14-2 in Appendix B. All AP-G sampling locations are shown in Figure 2.16-3.

ISR in the AP areas was conducted in areas AP-B and AP-C as described in Section 2.20.16.

2.16 SITE REFERENCE AREA SOIL QUALITY

The Site Reference Area includes the portion of the Site that lies within the CDB but outside the production/disposal areas that received more detailed environmental characterization. Two exceptions are a reference grid of surface samples in Areas 18 and 31 (Area 18-Reference and Area 31-Reference), which were analyzed for arsenic and are included in this section to allow a better understanding of the distribution and sources of arsenic on a Sitewide basis (Figures 2.16-1 and 2.16-2 and Tables B.13-1 and B.13-2). Historical research has not identified any activities or manufacturing processes that would impact the soil quality in these outlying areas. Historical activities in the Site Reference Area were primarily restricted to transportation corridors.

Due to the elevated lead concentrations in many areas of the Site, soils beyond the designated production facilities and disposal areas were evaluated for lead. Similarly, elevated arsenic concentrations were found in peripheral areas, apparently unrelated to specific production or disposal areas. Therefore, arsenic was evaluated using a systematic Sitewide investigation.

Surface (0- to 6-inch depth) samples were collected from 70 locations in the Site Reference Area and analyzed for lead. Later, these same locations, as well as an additional 23 reference locations in Area 18, were resampled for arsenic. Because elevated arsenic concentrations were frequently encountered in the soil samples and the arsenic distribution was not well defined after the initial round of sampling, more comprehensive arsenic sampling was subsequently conducted in the Site Reference Area. An additional 485 surface samples and 48 subsurface samples (to a 2-foot depth) were collected to better define the Sitewide distribution of arsenic.

2.16.1 Lead

The Site Reference Area was systematically sampled on a staggered grid of 500-foot centers (Figure 2.16-3). Surface samples were analyzed for lead (Lead Reference [LR] Area) using both XRF and atomic absorption (AA) techniques. Subsequently, the five highest concentrations (in samples LR-19, LR-38, LR-62, LR-68, and LR-102) were crossed with additional samples offset by 125 feet to assess the spatial extent of lead in these locations.

Following initial review of the data, more detailed assessments were completed in the area of samples LR-68 and LR-62.

XRF Versus AA Lead

Surface soil samples were screened in the field with a portable XRF probe calibrated to Site soils. Twenty-five samples were selected at random and submitted to a laboratory for confirmation analyses by AA. The five highest XRF readings were also submitted for confirmation analysis. Lead determinations by XRF and AA are well correlated ($r^2 = 0.90$) and support the use of XRF as a screening tool.

Two samples (LR-91 and LR-104) were classified as outliers and omitted from the correlation because XRF and AA results differed for these samples by an order of magnitude. The discrepancy likely resulted from inherent differences in the analytical techniques: XRF measures a surface area of the soil, whereas AA is a volumetric extraction. In addition, XRF is probably more susceptible to high bias imparted by random sampling of small pieces of particulate lead. In both of the outlier samples, the laboratory results were substantially lower than the field screening results, so omission of these samples is conservative in terms of using the regression to predict lead concentrations based on XRF screening.

XRF and AA data were combined to evaluate data during Site characterization. AA lead determinations were preferentially used where laboratory confirmation data exist; otherwise, XRF values were used. The use of XRF data is likely conservative because the regression model suggests that screening values tended to overestimate the analytical lead concentrations. For example, an XRF value of approximately 400 mg/kg equates to an analytical lead concentration of 250 mg/kg (as predicted, on average, by the regression model). Although screening data proved useful during Site characterization, they were not retained in the database developed for this RI (Pioneer 2002).

Spatial Distribution of Lead

Most of the elevated lead concentrations occur along the perimeters of designated production areas in the north-central part of the Site and are likely derived from these adjacent facilities (Figure 2.16-3).

2.16.2 Arsenic

Soil arsenic concentrations above site-specific background levels (i.e., 33 mg/kg) were observed in unrelated areas across the Site. Many of the results showed no apparent relationship to production facilities, disposal sites, or specific point sources. In order to evaluate the potential Sitewide distribution of arsenic, the Site Reference Area and Area 18-Reference were sampled on 500-foot centers for arsenic. Table B.14-1 and B.13-1 in Appendix B present analytical results for arsenic in the Site Reference Area and Area 18-Reference, respectively. Initial results from the 500-foot grid indicated that moderately elevated arsenic concentrations range across the Site.

Subsequently, a comprehensive Sitewide sampling program targeting the source and distribution of arsenic was implemented. This program included the following elements:

- **Grid Sampling of the Site Reference Area on 250-Foot Centers.** The Site Reference Area was sampled using a higher resolution grid (303 samples, including the original 500-foot grid samples). The grid was also extended into the Area 18-Reference (124 samples) (Figure 2.16-1).
- **Fine-Scale Grid Sampling in Two Areas.** A second phase of fine-scale grid sampling (10- to 125-foot centers) was conducted in two areas where relatively high arsenic concentrations were observed based on the 250-foot grid. One area of detail is located just south of Area 26, and the other area is located in the central part of the Area 18-Reference (120 samples).
- **Depth Sampling at Selected Locations.** At grid locations with elevated arsenic, hand-augered samples were collected from subsurface depths to define the vertical extent of arsenic in Site Reference Area soils (52 samples).
- **Arsenic Speciation Analyses.** Soil samples with known elevated arsenic concentrations from various areas were submitted for speciation analyses in an attempt to identify potential arsenic source(s) (6 samples).
- **Sampling of Utility Corridors and Motor Houses.** To evaluate the hypothesized use of arsenical herbicides for weed control, two cleared utility corridors on the bluff were sampled (16 samples). In addition, surface soils near several motor houses in Area 18 were sampled (8 samples).
- **Sampling of Railroad Grades.** Both narrow-gauge and standard-gauge railroad grades were extensively sampled for arsenic, and selected locations were sampled for lead. These results are presented in a separate discussion (see Sections 2.17 and 2.18). The data indicate that standard-gauge railroad samples and samples collected 50 or more feet from the narrow-gauge tracks were not statistically different from the Site Reference Area samples; therefore, these samples were included in the Site Reference Area (84 samples).

Spatial Distribution of Arsenic

Grid sampling for arsenic on 250-foot centers did not reveal clear or consistent distribution patterns. The following general observations can be made, although exceptions occur:

- Elevated arsenic concentrations are found in some stretches along the property boundary, particularly near the main gate on the southeast boundary, and along the bluffs northwest of Area 18.
- Elevated arsenic concentrations are found near the periphery of certain areas with known elevated arsenic concentrations.
- Elevated arsenic concentrations appear to be locally related to edge effects from railroad corridors, e.g., along the mainline track, which follows the southern bank of Sequalitchew Creek, just inside the eastern boundary of the site (note, however, that samples within 25 feet of the narrow-gauge tracks were not included in the Site Reference Area [see Sections 2.17 and 2.18]).
- Arsenic concentrations are apparently reduced in areas where ISR has disturbed surface soils (e.g., the northern part of Area 18/1/2/3/4).

Fine-scale sampling at 10-foot and 25-foot intervals did not identify any clearer spatial relationships. Alternately high and low concentrations occurred even among closely spaced samples.

Vertical Distribution of Arsenic

Hand-augered borings were completed in 26 locations on the reference grid to delineate the vertical extent of arsenic in soils. Hand-auger locations were selected on the basis of elevated surface concentrations (ranging from 82 to 390 mg/kg) as well as to provide representative coverage across the Site. Subsurface samples were collected at 0.5- to 1-foot and 1- to 2-foot-depth intervals to complement existing surface samples at a 0- to 0.5-foot depth.

Results of the subsurface sampling indicate that elevated arsenic concentrations are largely restricted to the upper 6 inches of soil. Elevated arsenic concentrations were infrequently encountered at depth.

Arsenic Speciation Analyses

Three samples with high total arsenic concentrations from the Site Reference Area and three samples from other Site areas with elevated arsenic concentrations were submitted to the Battelle Laboratory in Sequim, Washington, for arsenic speciation analyses, in an attempt to identify potential arsenic source(s). Arsenic speciation analyses quantified the oxidized (As-V) and reduced (As-III) forms of inorganic arsenic, as well as organic (methylated) arsenic species.

Speciation analyses indicated that arsenic is largely present in its oxidized state (As-V). The common reduced form of arsenic (As-III) accounted for less than 1 percent of the total soil arsenic. In addition, organic (methylated) arsenic accounted for about 4 percent of the total soil arsenic in one sample (LR-104). Both inorganic arsenic acid (As-V) and methylated forms of arsenic acid are used in the formulation of arsenic-based herbicides. Inorganic arsenic-based herbicides are more persistent, whereas organic forms are more readily decomposed. Potential arsenic sources are discussed further in the subsection “Sources of Sitewide Arsenic.”

Utility Corridors and Motor Houses

To further evaluate and substantiate the potential historical use of arsenic-based herbicides to control weeds and reduce fire hazard, two utility corridors along the coastal bluffs (“UC-” sample designation, assigned to Site Reference Area, Table B.14-1, Figure 2.16-3) and several motor houses in the Area 18 dynamite production area (“MH-” sample designation, assigned to Area 18, Table B.7-1, Figures 2.10-2 and 2.10-3) were sampled for arsenic.

Results from the utility corridor sampling indicated that moderate concentrations of arsenic (19 to 88 mg/kg) are present in the soil (see Figure 2.16-3). However, soil arsenic concentrations within the corridors, where weed control may have been conducted, are not significantly different from soil concentrations in samples collected outside of the corridors in adjacent vegetated areas. Arsenic concentrations in the utility corridor samples are slightly elevated relative to concentrations in samples from the Site Reference Area. These data do not suggest that utility corridors received above-average herbicide applications. Vegetation in the corridors was possibly controlled by hand.

Results from the motor house sampling indicate that locally high arsenic concentrations (up to 460 mg/kg) are present in the immediately surrounding soil. Seven of eight sample concentrations were elevated. Particularly high arsenic concentrations were detected in samples from motor houses adjacent to the Gelatin Box Packing House No. 2 (140 mg/kg, 18-MH-4, Table B.7-1, Figure 2.10-2), and the Gelatin Cartridge House No. 1 (460 mg/kg, 18-MH-1, Table B.7-1, Figure 2.10-3). Because of their sparking potential, motor houses constituted fire hazards and were, therefore, isolated from the actual dynamite production facilities. These data suggest that motor houses may have received arsenic-based herbicide applications to keep the areas weed free and thereby minimize the potential for fires.

Sources of Sitewide Arsenic

The use of arsenic-based herbicides throughout the Site as an arsenic source is consistent with the available data. According to a former DuPont employee, fire prevention was a primary concern at the Site, particularly in areas where the explosive hazard was high. Weed control through herbicide application was a main component of the facility maintenance program, although the specific compositions of the herbicides used on the Site are not known. Arsenic-based herbicides were commonly used from the early 1900s.

The use of arsenic-based herbicides to reduce fire and explosive hazards is consistent with the following observations and analyses:

- Moderate concentrations of arsenic are widespread throughout the Site and not specifically associated with production activities.
- Arsenic concentrations are spatially heterogeneous and vary over short distances, consistent with the patchy distribution that might result from localized spray applications.
- Elevated arsenic concentrations are surficial in nature and largely confined to the upper 6 inches of soil.
- Speciation analyses indicate that most arsenic is present in an oxidized, inorganic form, such as arsenic acid, which was a common formulation for arsenic-based herbicides.
- Elevated arsenic concentrations are found in Area AP-E (the transformer house), in Area AP-F (the nitrocotton storage), in certain parts of Area 18 (i.e., near the packing houses and motor houses), and in the detail grid south of Area 26 (near the pulp drying houses)—all areas of potential fire and explosive hazard.
- According to a former DuPont employee, herbicides were stored in a warehouse in Area 38; elevated arsenic concentrations were found in Area 38, including in soil adjacent to both of the storage buildings on the east side of the box factory.
- Elevated arsenic concentrations are consistently found along the narrow gauge railroad tracks, which were maintained by DuPont crews, because it was very important to keep explosives transportation corridors free of fire hazards (see Section 2.17).

Arsenic was also a likely by-product of the burning of pyrite during the acid production process. Pyrite originates in sulfide deposits, which can contain arsenic. Arsenic could occur in association with the pyrite burning process or disposal associated with the acid production area. This source may account for elevated arsenic concentrations in Areas 25, 5, and 16. In particular, arsenic associated with liquid waste conveyed in discharge pipes to the adjacent kettle (Area 5/16) is associated with the subsurface occurrence of arsenic in these areas, which is unique relative to the surficial distribution of arsenic elsewhere on the Site.

Unsubstantiated Sources of Arsenic

Other sources of arsenic have been considered but are not substantiated by constituent testing results and do not appear to be supported by Sitewide arsenic distribution.

Facility decommissioning could have contributed arsenic to soils around buildings if arsenic-based paints were used. Twenty-six samples of building paint were analyzed, and only two samples contained elevated arsenic (810 and 2,800 mg/kg); the remaining samples contained concentrations near or below the detection limit of 50 mg/kg. In addition, elevated arsenic concentrations do not appear to be localized around building foundations. Because only a small percentage of historic building paints contained appreciable arsenic, the paint appears to be an unlikely source.

Three sulfur samples were tested for arsenic impurities, since arsenic may be associated with sulfur ore deposits; however, the results ranged from nondetections to 7 mg/kg. Ten railroad ties were analyzed to determine whether they may have been treated with arsenic-based wood preservative. Low to moderate concentrations of arsenic (maximum of 120 mg/kg) were detected in the tie samples (see Section 2.17), indicating that the ties likely received arsenic during surficial herbicide applications along the rail lines, but were not dipped in arsenic-based preservative. During Site sampling, hand trenching of the railroad grades at 10 locations was conducted to determine whether fill material might have been added to the railroad grade and could potentially be a source of arsenic. The trenching activities indicated slag-like material was not used as grade foundation, but rather the railroad grades were constructed with local Steilacoom Gravels. A former DuPont employee indicated that approximately 1 percent arsenic was commonly added to strengthen lead sheathing and fixtures used in the production facilities. However, arsenic concentrations are not elevated at the Lead Melt House (Area 36), and the presence of arsenic and lead, in general, is not correlated at the Site.

Analytical data for soil samples collected in the Site Reference Area during the RI are presented in Tables B.13-1 through B.13-2 and B.14-1 through B.14-4 in Appendix B (except as noted in the section “Utility Corridors and Motor Houses”). Figures 2.16-1 through 2.16-3 show the sampling locations (except as noted in the section “Utility Corridors and Motor Houses”).

ISR work conducted for lead and arsenic hot spots in 1999, 2000, and 2001 removed the majority of the elevated concentrations. The ISR work is described in Sections 2.20.15 and 2.20.16. Following ISR, mercury remains in the Area 31-Reference Area.

2.17 HISTORICAL RAILROAD GRADES SOIL QUALITY

2.17.1 History of Activities

Two types of railways served the areas within the Site during its operation. An NGRR connected the various production and material storage areas within the facility. A standard gauge railway, operated by the Northern Pacific Railroad, brought raw materials to storage facilities in the plant (e.g., in the acid production and black powder production areas) and transported finished products from the plant. Many of the rails (both narrow- and standard-gauge) were removed during facility decommissioning, but the railroad grades remain in most locations. The locations of the historical narrow-gauge and standard-gauge grades are shown in Figure 2.17-1.

Surface soils along narrow-gauge and standard-gauge railroad grades within the Site were sampled for arsenic at approximately 500-foot intervals. Based on these results, selected stretches of the grades were sampled at 100-foot intervals to evaluate more detailed spatial variability in arsenic concentration; samples were also collected at 25- and 50-foot distances from the edges of the grades to evaluate arsenic concentrations laterally away from the grades. Based on surficial (0 to 0.5 foot) arsenic concentrations, samples were collected at depth (0.5 to 1 foot and 1 to 2 feet) at 20 locations and analyzed for arsenic. In addition, lead analyses were conducted on the grades on 20 surface soil samples and 6 samples from depth.

Figure 2.17-1 shows all railroad grade sampling locations and arsenic concentrations from surface samples (0 to 0.5 foot). Tables B.15-1 and B.15-2 in Appendix B provide all data for the railroad grade samples.

2.17.2 Soil Conditions

Steilacoom Gravels were encountered at all sampling locations along both the narrow-gauge and standard-gauge grades. The Steilacoom Gravels were used as fill in those portions of the grades that were built up. No non-native fill materials were observed during the RI.

2.17.3 Constituents in Soil

Elevated arsenic concentrations are located on portions of the narrow-gauge and standard-gauge grades. Elevated lead concentrations were also found in four sampling locations. Many of these samples were removed during 1999, 2000, and 2001 ISRs and are no longer representative of current site conditions.

Laboratory analyses that were performed on Site Reference soil samples from the Historical Railroad Grades included lead and arsenic, as discussed above. Up to 12 other total metals, gasoline, diesel, and TPH were also analyzed in five soil samples. Total metals and gasoline were detected in at least one sample from this area. Diesel and TPH were not detected in any samples from this area.

2.17.4 Distribution of Constituents in Soil

Arsenic in Surface Soils

The sampling results indicate that surficial (0 to 0.5 foot) arsenic concentrations are substantially higher on the narrow gauge grades than on the standard-gauge grades.

Interviews with former DuPont employees indicated that the NGRRs historically have been sprayed with herbicides to control weeds as a fire-protection measure. The general consistency in elevated arsenic concentrations along the NGRR grades supports focused application of arsenic-based herbicide as a likely source for the detected arsenic.

The distribution of arsenic along individual stretches of the narrow-gauge lines appears to relate closely to (1) when a line was used, (2) how long a line was used, and (3) whether explosive compounds were handled on or near the line. These generalized patterns are apparent when segmenting the railway corridors and associated arsenic data into functional/temporal areas. Higher surficial arsenic concentrations correspond to the primary production lines and transportation routes (e.g., Area 18 powder lines used for the longest period of time [Gel Mix 1 Line and Dynamite Mix Lines 1 and 2] and the transportation loop connecting the finished product storehouses and the burning ground). These facilities were operated the longest. Other production lines operated for shorter periods of time, such as the Smokeless Powder Line and the Gel Mix 3 Line, show considerably lower arsenic concentrations. Based on these data, the following observations can be made:

- Detected arsenic concentrations likely relate to application of arsenical herbicides to control weeds as a fire protection measure.
- Applications likely occurred between the late 1920s and the early 1960s.
- Concentrations along a specific segment tend to be relatively higher in proximity to manufacturing facilities (with the exception of the primary narrow-gauge shipment line).
- Frequency, concentration, and/or extent of application is greater in explosives manufacturing areas and considerably less for raw materials production areas (e.g., Acid Production Area and the Crystallizer Plant).
- Elevated arsenic concentrations were found at NGRR intersections.
- The standard-gauge railroad apparently did not receive arsenical herbicide treatment due to its infrequency of use, delivery locations, and maintenance by Northern Pacific Railway personnel. Information from a former DuPont employees indicates that the Northern Pacific maintained its rail lines by burning the weeds along the tracks.

Lead in Surface Soils

The NGRR used gas/diesel or electric locomotives at various times during plant operation. The locomotives are possible sources for localized lead concentrations along the railroad grades. Over the duration of railroad use, spot discharges from batteries used in the electric locomotives could have been a potential source for detected lead concentrations. Wear of Babbitt bearings or other metals used for railroad stock could also have been a source for lead on the railroad grades.

ISR work conducted in the NGRR corridor is described in Section 2.20.16.

2.18 SEQUALITCHEW CREEK CANYON SOIL QUALITY

2.18.1 2001 Sequalitchew Creek Characterization

This work, completed between January 10, and 16, 2001, was isolated to within, and immediately adjacent to, the NGRR track bed between the site access road and the Burlington Northern Railroad. This RI reports only the data collected between the site access road and the Parcel 1 boundary. Data collected outside the CDB will be the subject of a future report. The purpose of this work was to determine if arsenic and lead contamination is present. Sampling was conducted as follows:

- Approximately 2,250 linear feet of NGRR track was divided into 75- by 20-foot sections, and a sampling grid was established in each section.
- A field check was made to determine if site conditions justified adjustments to the sampling grid. The sampling sections and locations were referenced to the existing LR-68 sampling location (e.g., the sample that is 75 feet west of LR-68 was labeled LR-68-75W).
- Ecology was contacted. Two Ecology employees visited the work area to determine if any changes to the grid were necessary. No changes were made.
- A five-point composite soil sample was collected within each 75- by 20-foot section.
- 30 samples were collected and taken to Sound Analytical Services for analysis for lead and arsenic (Method 6010).

The analytical results for arsenic and lead are presented in Tables B.16-1 through B.16-5. Figure 2.18-1 shows the sampling locations.

The following conclusions can be made on the basis of these results:

- **Arsenic.** Arsenic was detected in each sample and the concentration consistently exceeded background concentrations. Two locations had elevated concentrations. These locations were excavated and disposed of during the 2001 ISR (see Section 2.20.16).
- **Lead.** Lead was detected in each sample. One location had a very high concentration (9,200 mg/kg). This location was excavated and disposed of during the 2001 ISR (see Section 2.20.16).

2.18.2 Area LR-68 Characterization

During RI grid sampling in the Site Reference Area, elevated lead concentrations were observed about 20 feet downslope of the rail line running along the east bank of Upper Sequalitchew Creek. Additional lead samples were collected around the original sample (LR-68) and at 100-foot intervals along the downslope bank of the rail line within the CDB. Two additional locations with elevated lead were discovered along the rail line, southeast of LR-68. There is no documented source at this location in historical records. The source of the metals may be associated with railcar maintenance practices or railcar Babbitt bearings/machinery wear.

Twenty-seven surficial soil samples were collected along the rail line. Miscellaneous debris, including metal, ceramic debris, and bricks, was observed in surficial soils in the vicinity of sample LR-68. No debris was observed in samples collected from depths of 1 to 3 feet or from the two other locations with elevated lead concentrations along the rail line southeast of LR-68.

Laboratory analyses performed on Site Reference Area soil samples from LR-68 included total lead and arsenic, as discussed above.

Soil quality data, associated depths, and analytes for Area LR-68 are summarized in Table B.16-1 through B-16-5 in Appendix B. Figure 2.18-1 shows the sampling locations. (Note that one sample each from LR-68 was assigned to Area 31 and Miscellaneous Areas; these samples are therefore shown in Table B.10-1, Figure 2.13-1 and Table B.19-1, Figure 2.19-4, respectively.)

Although, the majority of the elevated concentrations in the area of LR-68 were removed during the 2001 ISR (see Section 2.20.16), elevated concentrations of lead and arsenic remained. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

ISR work conducted in the Sequalitchew Creek Canyon is described in Section 2.20.16.

2.19 MISCELLANEOUS AREAS SOIL QUALITY

Additional site characterization was conducted at miscellaneous areas across the Site. These data were collected between 1999 and 2001. The purpose of this work was to further characterize the nature and extent of arsenic and lead impacts in these areas. The additional characterization was conducted in three sets of areas:

- Candidate Areas
- North of Creek Areas
- Miscellaneous Historical Areas

Work in the Candidate Areas was a result of public comment on the Site Environmental Impact Statement (EIS) regarding whether parts of the property could be left in their natural condition without requiring remediation. Sampling in historical areas was focused on the Fort Nisqually Cemetery (45PI404) and the south Shell Midden (45PI72). The remaining characterization was conducted in miscellaneous areas north of the creek associated with the Hot Spot ISR (Section 2.20).

Sampling was conducted as follows for the Candidate Areas and Miscellaneous Historical Areas:

- The soil sampling locations for the three areas were determined relative to the Sitewide 150-foot sampling grid, which extended from the northwest corner of the Site. Ecology and the Project Team agreed that subdividing this larger grid into 75-foot sections was adequate for characterizing these areas.
- The samples were labeled according to their position in the grid (e.g., the sample in row 60 and column 32 was labeled R60C32) and remedial unit (RU) location. The location of each sample was surveyed by ESM Consulting Engineers, LLC (ESM).
- North of the Creek Area characterization sampling locations were determined on the basis of the location of hot spots. Characterization samples were collected from each side of a hot spot excavation in order to confirm that the extent of the excavation was adequate.
- A discrete soil sample was collected at each grid point.
- More than 750 samples (including field duplicates) were collected and taken to Sound Analytical Services for analysis for lead and arsenic (Method 6010).

The analytical results for arsenic and lead are presented in Tables B.17-1, B.18-1, and B.19-1. Figures 2.19-1 through 2.19-4 show the sampling locations for the Candidate Areas, North of Creek Areas, and Miscellaneous Historical Areas, respectively.

2.20 INTERIM SOURCE REMOVAL AREAS

The following interim actions were conducted as allowed under the July 1991 Consent Decree signed by Weyerhaeuser, DuPont, and Ecology. This section briefly describes each ISR. More details for each ISR action are provided in documents listed in Section 5. ISR areas include Areas 5, 6, 8, 10, 18, 19, 20, 24, 25, 30, 31, 35, 36, 39; the hot spot removal areas; sand laydown areas (SLAs); and the Foundation, NGRR, and topsoil laydown areas.

For the interim actions conducted between 1990 and 1993, DuPont Environmental Remediation Services (DERS) conducted source removals (unless otherwise noted). In many cases Olympus Environmental Services provided excavation services for the work. Hart Crowser provided on-site technical assistance and field oversight to DERS and collected appropriate samples during the interim actions. All soil samples were analyzed at Analytical Technologies Inc. (ATI) and/or the Hart Crowser *FAST* Lab (on-site mobile laboratory), unless otherwise noted.

For the interim actions conducted between 1999 and 2001, Active Construction (ACTIVE) conducted source removals. West Shore Corporation, NW, provided oversight, and sample collection was conducted by URS. All soil samples were analyzed at Multichem or Sound Analytical.

All interim actions were detailed in work plans that were reviewed and approved by Ecology prior to the start of work.

2.20.1 Areas 5 and 6 DNT Waste Drum Areas

Area 5 is the hillside above the Area 16 glacial kettle where discarded containers such as 55-gallon drums, demolition debris, and refuse were placed. During pre-RI work, over 1,000 observable drums were noted. Pre-RI soil characterization sampling and drum contents profiling identified the presence of NAX, TPH, PAHs, acids, metals, isopropanol, and glycol. Area 6 is a ravine located to the east of the Area 5/16 glacial kettle.

The purpose of the interim action in Area 5/6 was to remove, clean, and dispose of drums, debris, fill and impacted soil. DERS performed the work between September 1990 and October 1993, in six phases: drum removal, drum decontamination and recycling, waste debris/soil removal, fill removal and screening, impacted soil removal, and verification soil sampling. Asbestos was encountered at various stages of the interim action and was removed by TLH Abatement, Inc. under the direction of Prezant Associates and DERS.

A total of 4,602 drums were removed from Areas 5 and 6. Of the total, 3,601 were apparently empty, 1,279 contained DNT residual, 3 contained TNT residual, and 259 contained non-NAX contents including petroleum products (oils, tars, grease, glycerin, paraffins, salts, ammonium nitrate, glycol, acids, isopropanol, and rain water). A total of 33 apparently empty drums (one contained paraffin and one contained blasting wire) were found in other areas of the Site.

Area 6 contained approximately 1,600 drums; all but seven of the drums were empty. According to the field screening results, four of the unempty drums contained residual ammonia salts and three contained paraffins (nonhazardous waxes).

RI characterization soil samples were collected after the drum removal around the perimeter of the large volume of debris and fill in Area 5. A small volume of debris in Area 6 was removed during ISR. The sampling results for soil/fill material indicated elevated concentrations of metals, DNT, TPH, and cPAHs. Native soils beneath the fill contained no elevated concentrations.

Approximately 25,050 cubic yards of debris and soil were removed from Area 5 and appropriately segregated, stockpiled, and/or disposed of. Final soil verification samples indicated that all NAX met the target interim action levels.

Numerous characterization, verification, and designation samples were collected and analyzed during each phase of work for this interim action. The ISR in Area 5/6 is reported in Hart Crowser (1994c).

Impacted soils remaining on the Area 5 hillside contain elevated concentrations of one or more of four metals (arsenic, lead, cadmium, and mercury), TPH, and PAHs. The majority of these locations were excavated and removed during the 1999, 2000, and 2001 ISR work. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

Soil quality data, associated depths, and analytes for Area 5 are summarized in Table B.20-1 through B.20-9 in Appendix B. Figure 2.20-1 shows the sampling locations.

2.20.2 Area 8 Bunker C Pipeline and Former ASTs

The purpose of the interim action was to remove the former Bunker C pipeline and associated TPH-impacted soils along the pipeline and in the former aboveground storage tank (AST) area. The pipeline carried Bunker C fuel from the lower powerhouse and wharf area to the upper powerhouse. DERS removed TPH-impacted soils and the pipeline between January 1992 and August 1993. Approximately 29,100 cubic yards of soil and forty 55-gallon drums of residual product/cleaning waters were removed. The entire level portion of the pipeline and associated lead packing in the pipe joints were removed. The sloped section of the pipeline was cleaned and grout filled for abandonment in place.

Prior to source removal, 58 characterization soil samples were collected and analyzed for TPH. Selected samples were analyzed for PAHs, total lead, VOCs, and SVOCs. Following source removal, 48 verification soil samples were collected and analyzed for TPH. Selected samples were analyzed for PAHs. Forty-seven designation samples were collected from Area 8 stockpiles and analyzed for TPH prior to appropriate disposal.

With one exception, the ISR effectively removed all TPH soils where the concentration was above the Bunker C product-specific level of concern to a depth of 15 feet. The one exception is addressed in the FS and the remainder of Area 8 will not be addressed further.

ISR and verification sampling in Area 8 are discussed in Hart Crowser (1994b). An Ecology letter dated October 9, 1996, gave approval to backfill the excavations associated with the pipelines and aboveground Bunker C storage tanks in this area (Ecology 1996c).

Soil quality data, associated depths, and analytes for Area 8 are summarized in Table B.21-1 through B.21-6 in Appendix B. Figure 2.20-2 shows the sampling locations.

2.20.3 Area 18 Sympathetic Detonation

To minimize potential health and safety risks associated with potential explosive residuals within the former manufacturing foundations, an interim action involving sympathetic detonations was conducted where there had been historical use of NG.

Although the facilities in Area 18/1/2/3/4 were burned during site decommissioning, safety concerns were raised by the possibility that residual NG, TNT, or DNT might have permeated the remaining concrete foundations and adjacent soils. To reduce this potential hazard, an ISR was conducted involving a series of sympathetic detonations at selected foundations and along transport lines, primarily in the north and central part of the area—in the nitrators, neutralizers, and mixing houses.

Yenter Environmental Services and DERS conducted sympathetic detonations in 1992. The first phase of detonations was conducted at 15 foundations. The second phase was conducted in two additional foundations, various drainage ditches, and miscellaneous wash-down areas. Sympathetic detonations were repeated three times at each foundation's location following foundation removal.

At locations where residual explosives were suspected, detonations were set off. If residual explosive material was present in sufficient quantity, a secondary (sympathetic) explosion would result. As part of the ISR, foundation debris containing lead was sorted, removed, and appropriately disposed of; associated cover and berm soils were stockpiled. Where possible, lead debris was segregated and recycled. Following the sympathetic detonations, test pits were excavated at the foundations to characterize postdetonation soil quality, because many of the soils and fill materials evaluated during the pre-RI sampling were subsequently removed and/or stockpiled during these activities.

As part of the sympathetic detonation program, the concrete splash box next to the NG waste acid storage location in Unit 26B was detonated. The charge produced a second detonation, indicating that residual NG may have been present in the box. Secondary sympathetic detonations were not noted at other locations.

Following this work the soil berms, concrete walls, and timbers were demolished and removed. Soil excavated in association with the removal was stockpiled for designation and appropriate disposal. Following excavation of foundations, characterization soil samples were collected and incorporated into the RI database. Soil samples were analyzed for NAX, NG, and total metals.

Most of the elevated arsenic and lead concentrations remained after the initial ISR in Area 18 were remediated during the 1999, 2000, and 2001 ISRs. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

Sympathetic detonation activities and verification sampling in Areas 18 are discussed in Hart Crowser (1993b).

2.20.4 Area 19 Maintenance Areas

The purpose of the interim action was to remove paint and petroleum-stained soils at the former Paint Shop (19A) and Oil House (19B). DERS removed TPH- and lead-impacted soils and inorganic solid debris (ISD) between March and September 1992. Approximately 20 cubic yards of soil and 15 cubic yards of concrete and metal debris were removed from these areas.

For Area 19A, seven characterization, verification, and designation soil samples were collected and analyzed for PAH, TPH, VOCs, or total metals. For Area 19B 27 characterization, verification, and designation soil samples were collected and analyzed for PAH, TPH, VOCs, lead, or total metals.

ISR efforts effectively removed the majority of all constituents of concern to a depth of 15 feet. Any remaining impacted soils will be evaluated in detail in the RA and FS.

ISR and verification sampling in Areas 19A and 19B are discussed in Hart Crowser (1993c), in Area 19C in Hart Crowser (1993h).

Soil quality data, associated depths, and analytes for Area 19 are summarized in Table B.22-1 and B.22-2 in Appendix B. Figure 2.20-3 shows the sampling locations.

2.20.5 Area 20 Underground Storage Tanks

The ISR effectively removed all constituents on concern to a depth of 15 feet. Therefore, Area 20 will not be addressed further.

Removal, verification sampling, and closure of the Area 20 underground storage tanks (USTs) are documented in Hart Crowser (1991d). Additional removal of soil associated with an AST in Area 20B is documented in Hart Crowser (1993a). Ecology issued a letter specifying No Further Action (NFA) for Areas 20A and 20B (Ecology 1993a).

2.20.6 Area 24A Upper Power House

The Upper Power House was served by the Area 8 Bunker C Pipeline and used Bunker C fuel to power the entire former facility. The ISR in this area was conducted in several phases between 1989 and 1992. The purpose of the interim action was to demolish the Upper Power House including the powerhouse stack. Prior to demolition activities, characterization and lead abatement were conducted. Procedures were established for removal or containment of any remaining lead-paint-impacted material as part of demolition activities.

The 150-foot-high powerhouse stack was initially demolished by a U.S. Army special forces demolition team from Fort Lewis, Washington, on April 29, 1991. Between June 12 and June 18, 1991, CEcon Corporation completed the demolition and disposal of the generated material and associated ACM from the stack. The powerhouse was demolished during subsequent activities. All materials from these demolition activities were appropriately disposed of off Site following waste designation.

Removal of Bunker C TPH material from the Area 8 pipeline, which terminated in the powerhouse, was conducted in association with the Area 8 ISR. Pre-RI characterization in Area 24 identified TPH-impacted material in 4 of 5 hand-auger samples collected from the powerhouse floor sumps. Material from the sumps was removed along with other demolition material.

Soil quality data, associated depths, and analytes for Area 24A are summarized in Table B.21-1 through B.21-3 in Appendix B. Figure 2.20-4 shows sampling locations.

Analysis of the data indicated further action may be required after the ISR and, therefore, this area will be evaluated in greater detail in the RA and FS.

ISR and verification soil sampling in Area 24A are discussed in Hart Crowser (1991e and 1992h).

2.20.7 Area 30 Railroad Debris

The purpose of the interim action was to remove inorganic solid debris (ISD) containing lead in accordance with the Land Disposal Restrictions (LDRs) to decrease potential sources of lead to area soils. DERS removed ISD (approximately 80 cubic yards of soil and 60 cubic yards of timber debris) from Area 30 between March 26 and April 7, 1992. Less than 1 cubic yard of ISD lead was segregated from the excavated materials. Seven soil verification samples were collected and analyzed for lead, TPH, and 13 total metals. Three stockpile designation samples were also collected and analyzed following removal.

Analysis of the data indicated further action may be required after the ISR; therefore, this area will be evaluated in greater detail in the RA and FS.

ISR and verification soil sampling in Area 30 are discussed in Hart Crowser (1993d).

Soil quality data, associated depths, and analytes for Area 30 are summarized in Table B.24-1 in Appendix B. Figure 2.20-5 shows the sampling locations.

2.20.8 Area 31 Ravine Near Burning Ground

DERS removed debris from the ravine area between October 12 and 14, 1992. Approximately 400 cubic yards of soil and 60 cubic yards of debris were removed from the site, including five empty 55-gallon drums and one 55-gallon drum containing tar. Six verification/designation soil samples were collected and analyzed for NAX, arsenic, lead, mercury; one of these was analyzed for PAHs and TPH following removal. Five designation soil samples were collected from area stockpiles and analyzed for NAX, arsenic, lead, mercury, and TPH; three of these were analyzed for pesticides and PCBs, and PAHs.

Analysis of the data from the source removal action indicate that no further action is required in this area.

ISR and verification soil sampling in Area 31 Ravine are discussed in Hart Crowser (1993e).

2.20.9 Area 35 Tar Barrel Area

The ISR effectively removed all constituents of concern to a depth of 15 feet. Therefore, Area 35 will not be addressed further.

2.20.10 Area 36 Lead Melt House

The purpose of the interim action was to remove ISD containing lead in accordance with the LDRs to decrease potential sources of lead to area soils. DERS removed soil and debris at the Lead Melt House from March 25 to March 30, 1993. Approximately 6 cubic yards of soil and 5 cubic yards of debris were removed. Forty-nine soil characterization samples were collected and analyzed for total lead. Concentrations of total lead ranged from not detected to 120,000 mg/kg. Five samples were also analyzed for 13 metals. Four verification/designation soil samples were collected following removal.

Elevated arsenic and lead remained after the initial ISR. These locations were remediated further during the 1999, 2000, and 2001 ISRs. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

Antimony was detected in one of five samples at a marginally elevated concentration. However, because the antimony detection occurred in a sample with elevated lead and arsenic concentrations, antimony will not be addressed further.

ISR and verification soil sampling in Area 36 are discussed in Hart Crowser (1993f).

Soil quality data, associated depths, and analytes for Area 36 are summarized in Table B.23-1 in Appendix B. Figure 2.20-6 shows the sampling locations.

2.20.11 Area 38 Underground Storage Tank

During the RI soil sampling in Area 38, the fill spout for a UST was observed approximately 20 feet west of the drywell. The contents of the tank were sampled, and the tank was subsequently removed in accordance with Washington State UST regulations. No petroleum product or staining was observed within the tank excavation. Air monitoring (by an HNU photoionization detector [PID] and Draeger tube samples for benzene) indicated no evidence of VOCs. No petroleum compounds were detected in verification soil samples collected within the tank excavation, indicating that the tank did not leak. The UST sampling and removal activities for Area 38 are summarized in a UST Closure Report submitted to Ecology (Hart Crowser 1992f). Ecology issued a letter specifying NFA for the Area 38 UST (Ecology 1993b).

2.20.12 Area 39 Laboratory

The purpose of the interim action was to remove mercury-contaminated soils. DERS removed soils with mercury at the Former Laboratory from March 2 to August 14, 1992. A sump, drainline, UST, and 85 feet of piping were removed. Approximately 1,600 cubic yards of soil were excavated and disposed of off Site. Seventy-six soil characterization samples were collected and analyzed for VOCs, SVOCs, and metals. Five samples were analyzed for mercury speciation by the Battelle Marine Sciences Laboratory. Thirty-four verification soil samples were collected following excavation.

Elevated arsenic, lead, and mercury were detected in one or more samples following ISR in Area 39; therefore, the area will be evaluated in greater detail in the RA and FS.

ISR and verification soil sampling in Area 39 are discussed in Hart Crowser (1993g). Removal, verification sampling, and closure of the UST in Area 39 are documented in Hart Crowser (1992g). On May 6, 1993, Ecology issued a letter specifying NFA for the Area 39 UST (Ecology 1993c).

Soil quality data, associated depths, and analytes for Area 39 are summarized in Table B.26-1 through B.26-6 in Appendix B. Figure 2.20-7 shows the sampling locations.

2.20.13 Lead-Contaminated Debris Removal—Areas 18S, 19C, and 31

The purpose of the interim action was to remove ISD containing lead in accordance with the LDRs to decrease potential sources of lead to area soils. These areas were identified for removal based on visual observations of ISD lead. DERS removed visible ISD lead and soil from Areas 18S (Powderline Area Gelatin Cartridge House No. 3), 19C (Lead Shop), and 31 (Burning Ground) during the first phase of removal in May 1992. The extent of lead debris (not lead concentrations) formed the basis for source removal excavation limits. In July 1993, a second phase of work removed DNT-impacted soils in Area 31. This was a removal action separate from the one described in Section 2.20.14. Approximately 115 cubic yards of soil and 45 cubic yards of debris were removed from Area 18S. Approximately 55 cubic yards of soil and 25 cubic yards of debris were removed from Area 19C. Approximately 70 cubic yards of ISD lead and associated soil, 40 cubic yards of DNT-impacted soil and 35 cubic yards of debris were removed from Area 31.

Following ISR, 3, 5, and 11 verification soil samples were collected from Areas 18S, 19C, and 31, respectively. Samples from Area 18S were analyzed for total metals, TPH, NAX, and NG. Samples from Area 19C were analyzed for metals. Samples from Area 31 were analyzed for total metals, NAX, and TPH (one sample).

Elevated concentrations of lead remained in soil in Areas 18S, 19C, and 31 after the initial ISR. These areas were remediated further during 1999, 2000, and 2001 ISRs. Any remaining impacted soils will be evaluated in greater detail in the RA and FS. ISR and verification soil sampling for ISD lead in these areas are discussed in Hart Crowser (1993h).

2.20.14 DNT Soil Removal—Areas 10, 18, 25, and 31

The purpose of the interim action was to remove DNT-impacted soil to decrease potential sources of DNT to site groundwater. DERS removed approximately 37,500 cubic yards of DNT-impacted soil from Areas 10, 18, 25, and 31 in February and October 1993.

Following ISR in Area 10, eight verification soil samples (10-VS-1 through 10-VS-8) were collected from the bottom and along the excavation sidewalls. Surficial soil at locations 10-VS-3 and 10-VS-5 was later excavated during subsequent ISR.

In Area 18, residual DNT/TNT-containing soils were excavated in the vicinity of the five foundations. During the excavation at Gelatin Mixing House No. 1, a 4-inch-diameter ceramic/iron pipe filled with DNT/TNT residual was observed. The pipe discharged to the southeast of the mixing house foundation, where crystalline residual was observed. The residual DNT/TNT at the pipe discharge location—approximately 75 by 50 feet and up to 6 inches thick—was carefully excavated as part of the ISR. To address the potential for similar discharge pipes associated with other foundations, a series of continuous trenches was excavated on all four sides of all dynamite and gelatin mixing houses, at distances of 25 to 100 feet from the foundations. No additional discharge lines were observed during the trenching at any of the mix houses.

Following ISR, 6, 173, 16, and 7 verification soil samples were collected from Areas 10, 18, 25, and 31, respectively. All samples were analyzed for NAX. In Area 18, 17 samples were analyzed for total lead, and 2 samples were analyzed for four metals (arsenic cadmium, lead, and mercury). Four samples in Area 25 and all seven samples in Area 31 were analyzed for total lead.

ISR successfully removed soil containing DNT above the ISR excavation target level of 1 mg/kg, and any associated TNT. Analytical results for the verification soil samples indicate that DNT concentrations in the remaining soils were not elevated, with the exception of 5 locations in Areas 18 and 25 locations at a depth greater than 15 feet. One soil sampling location in Area 10 contained an elevated TNT concentration. This location was remediated during 1999, 2000, and 2001 ISRs.

ISR for DNT-impacted soil and verification soil sampling in these areas are discussed in Hart Crowser (1994a).

Elevated concentrations of lead remained in these areas after ISR. These locations were remediated during 1999, 2000, and 2001 ISRs. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

2.20.15 Lead and Arsenic Hot Spots

Areas with high arsenic and lead concentrations (referred to as "hot spots") were identified during site characterization. Most of the high arsenic locations were along the NGRR track (refer to Sections 2.16 and 2.18), while most of the high lead concentrations were near specific building foundations (refer to Section 2.16).

The two tasks of the hot spot removal program were as follows:

- Remove hot spots in site areas south of Sequalitchew Creek that exceed placement area remediation levels.
- Remove hot spots and other affected soils in the industrial area north of Sequalitchew Creek in order to achieve industrial cleanup levels.

Active Construction (ACTIVE) removed approximately 18,500 cubic yards of soil between September 10, 1999, and July 24, 2000, as part of this interim action. The lead and arsenic hot spot soils were excavated and stockpiled for future treatment and disposal, which was completed in 2001. Soils containing TNT were stockpiled separately and disposed of off Site.

Following hot spot removal, elevated concentrations of lead and arsenic remained. The majority of these locations were remediated during 2001 ISR. Any remaining impacted soils will be evaluated in greater detail in the RA and FS.

Hot spot removals included Areas 10, 31, NGRR, and RR-546. The hot spot excavation in Area 10 was expanded to remove one elevated TNT sample. Since the hot spot removal in these areas, no further action is required.

No hot spot excavations were conducted in open space areas or in areas within or immediately adjacent to known historical sites. These and any other elevated concentration sampling locations within open space or historical areas will be addressed in the RA and FS.

ISR and verification soil sampling in the hot spot areas are discussed in the Hot Spot Interim Action Report (West Shore et al. 2000a).

2.20.16 Foundation, NGRR, Hot Spot, and Top Soil Laydown Area

This interim action resulted in the following soil excavations:

- 2 to 8 feet deep in a 50- by 50-foot area around selected building foundations
- 1.5 to 2.5 feet deep 25 feet on either side of the narrow-gauge track centerline along the selected lengths of NGRR
- 1.5 to 3 feet deep in areas up to 50 by 50 feet around hot spot areas that may require on-Site screening and/or off-Site disposal

- Arsenic and lead areas (Sequalitchew Creek NGRR, Area 38, and location R71C85)
- NAX locations in Areas 10 and 18

• 1.5 to 2.5 feet deep in two topsoil laydown areas

ACTIVE removed a total of 158,160 cubic yards of soil between June 4 and September 21, 2001, as part of this interim action. A total of 699 verification samples were collected and analyzed for arsenic, lead, DNT, and TNT. An additional seven characterization samples were collected from remaining hot spot locations and analyzed for arsenic, lead, DNT, and TNT. Based on the evaluation of sampling data, no elevated concentrations of lead, arsenic, DNT, or TNT remain except for the following:

- Seven locations for arsenic (all in Sequalitchew Creek NGRR)
- Fourteen locations for lead

Further remediation of these locations will be addressed in the FS.

ISR and verification soil sampling in the miscellaneous areas are discussed in the Interim Corrective Action Report (West Shore et al. 2001).

2.20.17 Sand Laydown Areas

The objective of this interim action was to remove surface soil from six areas on the Site so that sand could be stockpiled in these areas and not moved again until final Site remediation. Between 1.5 and 3 feet were removed from each of the six areas in 2000. Verification soil samples were collected within each SLA excavation and analyzed for arsenic and lead.

The results indicated the following:

- In general, postexcavation sample concentrations were near or below background levels for both lead and arsenic. Exceptions were samples with elevated lead concentrations associated with visible debris or foundations.
- No sand was stockpiled in SLA areas where there were visible debris (SLA 1) or foundations (SLA 1, SLA 6).
- With the exception of the debris- and foundation-associated samples, all six SLA areas require no further action.

ISR and verification soil sampling in the miscellaneous areas are discussed in the Sand Laydown Area Interim Action (West Shore et al. 2000b). Figure 2.20-8 shows the sampling locations.

This section presents the findings of the RI groundwater characterization efforts at the Site. Sections 3.1 and 3.2 present specific information on the physical groundwater system and groundwater quality. Appendices A and C present field procedures and tables on groundwater quality, respectively.

3.1 HYDROGEOLOGIC CHARACTERIZATION

3.1.1 Site Geology

The interpretation of the Site geologic and hydrogeologic conditions has been developed from Hart Crowser's work on the Site and from explorations conducted north of the Site by others. The locations of monitoring wells, staff gauges, and geophysical surveys completed by Hart Crowser and used for interpretation of Site hydrogeologic conditions are shown in Figure 3.1-1.

Three major stratigraphic units were encountered during explorations at the Site, the Vashon Drift (which includes the Steilacoom Gravel), the Olympia Beds/Possession Drift/Whidbey Formation/Double Bluff Drift sequence (hereafter referred to as the DBD-OB sequence), and the Salmon Springs Glaciation. Locations of monitoring wells and cross sections are shown in Figure 3.1-1. Generalized subsurface cross sections are shown in Figures 3.1-2 and 3.1-3.

Vashon Drift

The Vashon Drift is composed of the following units, from the surface down (youngest to oldest):

- Steilacoom Gravel
- Vashon Till (observed at only a few locations on the Site)
- Vashon Advance Outwash (comprising Advance Gravel overlying Advance Sand)

Steilacoom Gravel

The Steilacoom Gravel unit of the Vashon Drift was encountered in all of the borings completed at the Site. The Steilacoom Gravel was deposited by high-energy meltwater rivers that flowed generally toward the west from a dammed proglacial lake located in the Puyallup River valley during retreat of the final (Vashon) glaciation (Walters and Kimmel 1968). The Steilacoom Gravel was deposited within the extensive outwash channels carved by the meltwater rivers that covered much of the Tacoma uplands west of the Puyallup River. The rivers discharged their vast quantities of bedload into a pro-glacial lake in the approximate location of Puget Sound, forming the ancestral Sequalitchew and Steilacoom Deltas. The Site is situated on the southern margin of the ancestral Sequalitchew Delta. The ancestral Steilacoom Delta occurs in the Steilacoom/Chambers Creek area several miles to the north.

The thickness of the Steilacoom Gravel unit typically ranges between 20 and 40 feet over much of the eastern portion of the Site. In this portion of the Site, additional gravelly soils (Vashon Advance Outwash Gravels) exist beneath the Steilacoom Gravel, as discussed below. In the western portion of the Site, the Sequalitchew Delta deposits are present. In these deposits, the Steilacoom Gravel has been encountered during explorations to a depth of approximately 220 feet in on-site monitoring well borings (e.g., MW-1). Regional information from a deep test/production well completed north of the Site indicates that the deltaic Steilacoom Gravel deposits are approximately 330 feet thick, extending to an approximate elevation –120 feet msl.

The Steilacoom Gravel is described as medium dense to very dense, well-graded, light brown and gray, stratified sands and gravels. Generally, the deposits are exceptionally coarse-grained, with localized zones of silty to slightly silty sand. What has been described as Steilacoom Gravel across the Site may also include the Vashon Recessional Gravel unit; similar gravelly materials were deposited during retreat of the Vashon glaciation but prior to the deposition of the Steilacoom Gravel, which is associated specifically with the break of the glacial ice dam to the east. However, it is likely that most of the Recessional Gravel was eroded during deposition of the Steilacoom Gravel, as discussed below.

Vashon Till

Material interpreted to be Vashon Till was encountered in the borings for MW-27 and MW-22 located in the west-central portion of the Site (Figure 3.1-1). The till was described as very dense, gray-brown, silty-gravelly sand, which occurred between depths of approximately 37 and 48 feet in the two monitoring well borings. The till has been tentatively identified in at least one other soil boring on the Site (11-B-501), located approximately 1,200 feet southwest of wells MW-22 and MW-27. The high density and higher silt content of the till makes it a weak aquitard upon which perched water has been observed. The discontinuity of the Vashon Till across the Site suggests that it was eroded during the high-energy scouring and deposition of the Steilacoom Gravel, leaving only isolated deposits. If the Vashon Till was eroded during the deposition of the Steilacoom Gravel, the overlying Vashon Recessional Gravel would have been eroded also.

Vashon Advance Outwash

The Advance Outwash was deposited by glacial rivers or streams during advance of the Vashon glaciation. The Advance Outwash can be divided into Advance Gravel and the underlying Esperance Sand (formerly known as Advance Sand). This sequence of soil types (becoming finer-grained with depth) is typical of advance outwash deposition.

The Advance Gravel unit of the Vashon Drift occurs beneath the Steilacoom Gravel and is difficult to differentiate from the overlying Steilacoom Gravel. The deposits are described as light brown to gray, slightly silty to non-silty, stratified sands and gravels; however, the Advance Gravels are generally not as coarse-grained as the overlying Steilacoom Gravel.

The Esperance Sand unit was observed beneath the Advance Gravel in some borings and consists of dense, slightly gravelly to gravelly, non-silty to silty, coarse to fine sand. Silty, fine sand encountered in MW-20 and MW-21 appears to represent the lower portion of the Esperance Sand, and the bottom of the Advance Outwash sequence; however, this material may also represent a sandier facies within the DBD-OB sequence (Borden and Troost, 2001).

Olympia Beds/Possession Drift/Whidbey Formation/Double Bluff Drift Sequence

Generally, the DBD-OB sequence is a fine-grained, regionally extensive, interglacial deposit, which separates the glacial deposits of the Vashon Drift and Salmon Springs Glaciation. Five on-site borings were drilled to the top of the DBD-OB sequence, and one of these (MW-18) was drilled through the formation to the underlying Sea Level Aquifer within the Salmon Springs Glaciation. The DBD-OB sequence has a variable composition of interbedded sand and silts, typical of interglacial deposits. Materials observed in the DBD-OB sequence include stiff to hard, brown, gray, and black silt, sandy silt, and peat, interbedded with silty sand.

Drilling information from Fort Lewis (located north of the Site) confirms that the DBD-OB sequence is a thick (ranging from approximately 70 to 100 feet), very heterogeneous formation generally consisting of a thick organic silt and peat unit with abundant interbedded sand and gravel layers (Woodward-Clyde 1990). Other regional data, including drilling of the Bell Hill water supply wells east of the Site (Hart Crowser 1988b; Hart Crowser 1990), confirm the general character and thickness of the DBD-OB sequence and indicate that the unit is regionally continuous.

Data from the RI drilling program support the general electromagnetic (EM) geophysical interpretation that the top of the DBD-OB sequence has significant structural relief (Hart Crowser 1992c). The topographic relief of the upper surface of the DBD-OB sequence (defined as the first occurrence—upper contact—of stiff silt) may be the result of differences in the deposition of the interglacial sediments comprising the DBD-OB sequence, and/or subsequent scouring of the surface during glacial deposition of the overlying Vashon Outwash.

The geophysical data suggest that the DBD-OB sequence occurs at higher elevations, forming a structural bench in the west-central part of the Site beneath part of Area 18. The drilling data generally confirm this interpretation. The top of the DBD-OB sequence was encountered at an elevation of approximately 130 feet in MW-18, located within Area 18 (Figure 3.1-1), which is higher than in any other boring on the Site. The DBD-OB sequence was observed at elevations ranging from approximately 70 to 110 feet in the four other borings in which it was encountered on the Site (MW-11, MW-17, MW-20, and MW-22). MW-18, which was advanced through the DBD-OB sequence, defined the bottom of the formation at an elevation of 55 feet (formation thickness of approximately 75 feet).

Olympia Beds/Possession Drift/Whidbey Formation/Double Bluff Drift Sequence "Cutoff"

The DBD-OB sequence is not present west of a line located up to 2,500 feet inland from Puget Sound and oriented roughly parallel to the shoreline in this region. The line representing the western extent of the formation has been informally termed the "Cutoff" (formerly known as the Kitsap Cutoff) for this study. Data from numerous soil borings and several EM geophysical survey lines were compiled to infer the location of the "Cutoff" across the Site, as shown in Figure 3.1-1. The thickness of the DBD-OB sequence appears to decrease at its western margin due to erosion during the deposition of the Vashon Outwash and/or Steilacoom Gravel (Figure 3.1-2).

A potential paleochannel within the DBD-OB sequence may have been encountered during the drilling of MW-21 in the central portion of the Site (Figure 3.1-1). The boring was advanced through silty sand to an elevation of 50 feet msl without encountering a competent silt unit, which is generally indicative of the DBD-OB sequence . A thin silt layer was indicated based on drill action at a depth of 125 feet, but no sample was retrieved due to the heaving conditions (borehole collapsing). Although this apparent silt lens occurred at an elevation of approximately 90 feet msl and is in the range of DBD-OB sequence elevations observed elsewhere on the Site, it does not appear to be a remnant of the DBD-OB sequence because the silty sands above and below it were essentially identical. The sand became finer-grained and more silty with depth, which is typical of Advance Outwash deposition.

These drilling observations also support the general interpretation of the geophysical survey data, which suggest that such a paleochannel may have been eroded into the DBD-OB sequence in this general vicinity (see Figure 4 in Hart Crowser 1992c). As a result of these observations, the inferred trace of the "Cutoff" has been extended to the east of MW-21 (as shown in Figure 3.1-1). The potential paleochannel is discussed below in relation to the Water Table Aquifer.

Salmon Springs Glaciation

The Salmon Springs Glaciation (formerly known as the Salmon Springs Formation) was deposited in the glacial period preceding the DBD-OB sequence interglacial. The formation is relatively heterogeneous and consists of dense, brown, fine sand, and dense, brown, gravelly sand with gravel interbeds. The top of the formation was encountered at a depth of 163 feet (elevation 55 feet msl) in MW-18. Regional information indicates that the formation is on the order of 70 to 120 feet thick and contains zones of organic silt and till in some locations, possibly suggesting deposition in two glacial periods separated by a minor interglacial event (Noble 1990). The Sea Level Aquifer, a regionally extensive aquifer, occurs within the Salmon Springs Glaciation. Some authors refer to this aquifer as the Flett Creek Unit (Noble 1990).

3.1.2 Site Hydrogeology

The hydrogeologic system beneath the Site includes two aquifers: the shallow unconfined aquifer (Water Table Aquifer) in the Vashon Drift sediments, and the deeper Sea Level Aquifer in the Salmon Springs and (west of the "Cutoff") Steilacoom Gravel sediments. In addition, seasonally perched groundwater was encountered at the Site, as discussed below.

The Sea Level Aquifer occurs locally in the immediate Site area under both semiconfined and unconfined conditions (as discussed below). Regionally, however, this aquifer occurs under confined conditions to the east of the Site. The DBD-OB sequence acts as an aquitard (Aquitard) separating the aquifers. Along the western portion of the Site, to the west of the "Cutoff", a single aquifer (unconfined portion of the Sea Level Aquifer) is present.

Perched Groundwater

A zone of perched groundwater was encountered at a depth of approximately 40 feet during February 1992 drilling of monitoring wells MW-22 and MW-27. These wells are located within 50 feet of each other in the western portion of the Site (Figure 3.1-1). Well MW-27 was installed for monitoring and sampling of the perched groundwater.

The groundwater appears to be perched on an 8- to 10-foot-thick lens of till-like material, which may be Vashon Till. The till-like material was also observed during drilling soil boring 11-B-501, located approximately 1,200 feet southwest of the two wells. Monitoring suggests that this perched water is transient, disappearing during the dry summer and autumn months. Approximately 6 inches of water remained in MW-27 during the June 1992 water sampling round. The well then remained dry until the December 1992 sampling round, when it again contained less than 1 foot of water. Continued monitoring through 1993 confirmed the disappearance of the perched water in late summer and autumn. During sampling, the well always bailed dry and recovered exceedingly slowly, indicating that the silty till material is of relatively low permeability and that the zone of saturation is limited.

Possible perched groundwater was encountered between depths of approximately 20 and 35 feet in the deep RI soil boring (7-B-503) completed within the bottom of the Area 7 kettle. No competent silt unit was encountered in this boring to act as a significant perching unit. A well (7-B-503) was completed within the zone of saturation. Similar to well MW-27, this well bailed dry during sampling and subsequent water level recovery was extremely slow, suggesting that the perched water may be discontinuous. However, unlike at MW-27, the 7-B-503 monitoring well has been dry since its initial sampling in July 1992. Other borings completed within the bottoms of the kettles encountered some zones of saturation (discussed in Sections 2.5, 2,9, and 2.12), but they were discontinuous within borings (vertically) and laterally between borings within each kettle. These observed zones may have been infiltrating wetting fronts rather than perched zones of groundwater. Monitoring well 7-B-503 and the (dry) monitoring wells installed in the Area 16 and 26 kettles (16-B-501 and 26-B-503, respectively) are shown in Figure 3.1-1.

Water Table Aquifer

The Water Table Aquifer occurs within the saturated portion of the Vashon Glacial Drift (both Steilacoom Gravel and Advance Outwash) and receives recharge from infiltration of precipitation through permeable overlying soils. The water table in this aquifer is encountered at depths ranging from approximately 20 to 30 feet below ground (elevations of 190 to 200 feet msl) in the eastern portion of the Site up to approximately 110 to 120 feet below ground (elevations of 90 to 110 feet) near its western extent at the “Cutoff”.

Groundwater in the Water Table Aquifer generally flows to the west-northwest, toward Puget Sound. At the “Cutoff”, the Water Table Aquifer discharges into the Steilacoom Gravel. As shown schematically in Figure 3.1-2, groundwater from the Water Table Aquifer flows over the edge of the Aquitard and mixes with groundwater flowing in the unconfined portion of the Sea Level Aquifer. Figures 3.1-4, 3.1-5, and 3.1-6 are elevation contour maps (April, August, and December 1992, respectively) for the water table surface in both the Water Table Aquifer and the Sea Level Aquifer west of the “Cutoff” (i.e., a map of the continuous water table surface across the two aquifers). These monitoring rounds include the most comprehensive set of water level measurements. The figures demonstrate the very steep water table gradient present along the “Cutoff”. This hydrogeologic situation has also been documented to the north of the Site (Woodward-Clyde 1990).

In the vicinity of Sequalitchew Creek on the Site, the Water Table Aquifer discharges into the creek (Figures 3.1-4, 3.1-5, and 3.1-6) and reaches Puget Sound as surface water. The water table elevation contour maps suggest a subtle groundwater divide, or area in which groundwater flows horizontally in more than one direction, from Old Fort Lake west to the “Cutoff”. The higher groundwater elevation near Old Fort Lake (the lake level is an expression of the water table) may indicate recharge to the aquifer from the lake. The divide appears to extend west of the lake, with resulting groundwater flow to the northwest and to the west-southwest (Figures 3.1-4, 3.1-5, and 3.1-6). The presence of the groundwater divide may also suggest a possible structural high on the Aquitard surface in this area, as discussed in Section 3.1.1 (higher groundwater elevation because of a higher underlying aquitard surface).

Water table elevation data from monitoring wells near Area 31 north of Sequalitchew Creek (MW-7, MW-8, MW-9, and MW-24) and creek elevation data from adjacent staff gauge SG-4 indicate a groundwater divide in this area. From the center of the divide, the water table slopes steeply toward the creek (south), resulting in groundwater flow toward Sequalitchew Creek.

Further to the north, groundwater flows almost parallel to the creek (Figures 3.1-4, 3.1-5, and 3.1-6). Regional information indicates groundwater flows toward the west-northwest in the Water Table Aquifer north of the Site (Woodward-Clyde 1990).

Seasonally, there is little change in the groundwater flow directions in the Water Table Aquifer, as indicated by the groundwater flow direction maps presented in Figure 3.1-4 (April 1992), Figure 3.1-5 (August 1992), and Figure 3.1-6 (December 1992). The water table generally responds uniformly to seasonal precipitation changes, resulting in little change in the directional flow of groundwater. The data do indicate a slightly higher gradient in the Water Table Aquifer beneath Area 31 (immediately north of Sequalitchew Creek) toward the creek during the wetter spring months. The creek elevation at staff gauge SG-4 remained essentially constant while the water table elevations around it fell from the wet (April) to dry (August through December) seasons, resulting in a lower gradient toward the creek in the dry season (Figures 3.1-4, 3.1-5, and 3.1-6). Seasonal changes in surface water elevations are discussed in Section 3.1.3.

Figure 3.1-7 presents hydrographs for selected Water Table Aquifer monitoring wells over a 4-year period of monitoring (1988 through 1992). The hydrographs indicate that the aquifer responds fairly uniformly to seasonal changes, with fluctuations on the order of 3 to 8 feet. No long-term trends are apparent from the data (e.g., long-term decline due to drought).

The thick silt unit typically associated with the Aquitard was not encountered to an elevation of approximately 50 feet msl during drilling of MW-21. Very silty to silty, fine sand was encountered in the elevation range (approximately 50 to 100 feet msl) where hard silt and some peat was encountered in other on-site borings (e.g., MW-18, MW-20, and MW-22). This finding suggests a possible paleochannel incised within the DBD-OB sequence in this general location, as discussed above. Figure 3.1-3 presents the interpretation of subsurface conditions from south to north across this potential paleochannel. The profile location is shown in Figure 3.1-1.

The silty, fine sand is interpreted to represent the lower portion of the Vashon Advance Outwash rather than a sandy facies within the DBD-OB sequence. Although the depositional origin of these materials may vary, the water table elevation in MW-21 is consistent with measured elevations in other wells in the vicinity, indicating that the silty sand supports the Water Table Aquifer above it. Because a thick competent silt unit does not appear to be present within this potential paleochannel, downward flow of groundwater from the Water Table Aquifer may be greater in this area than elsewhere across the Site where the silt is present. However, the water level data do not indicate preferential flow toward the paleochannel; that is, the data do not indicate that the area is a significant groundwater sink (Figures 3.1-4, 3.1-5, and 3.1-6).

Aquitard

Across most of the Site, a low-permeability unit within the DBD-OB sequence(Aquitard) hydraulically separates the Water Table Aquifer from the underlying Sea Level Aquifer. The

"Cutoff", as discussed above, represents the western extent of the Aquitard. This line is also the western extent of the Water Table Aquifer and is where the Sea Level Aquifer changes from semiconfined conditions (beneath the Aquitard to the east) to unconfined conditions (to the west).

As discussed in Section 3.1.1, site-specific and regional information indicate that the Aquitard acts as a regionally extensive low permeability unit within the DBD-OB sequence between the Water Table and Sea Level Aquifers. A difference in hydraulic head (water table elevation) of greater than 100 feet is observed in on-Site wells completed above and below the aquitard unit (e.g., MW-22 and MW-18, respectively).

Sea Level Aquifer

The Sea Level Aquifer is divided into two distinct portions: the portion occurring east of the "Cutoff" and the portion west of it.

East (upgradient) of the "Cutoff", the Sea Level Aquifer occurs within permeable deposits of the Salmon Springs Glaciation, which are encountered immediately below the Aquitard at depths of 150 to 170 feet below ground. Regionally confined conditions exist within this portion of the aquifer (Hart Crowser 1988b; Hart Crowser 1990; Woodward-Clyde 1990). Near the "Cutoff", the artesian pressure dissipates and the Sea Level Aquifer becomes unconfined (water table conditions exist [e.g. MW-18]). Therefore, the Sea Level Aquifer east of the "Cutoff" is referred to as a semiconfined aquifer.

West (downgradient) of the "Cutoff", the unconfined Sea Level Aquifer occurs within the saturated portion of the thick deltaic sequence of the Steilacoom Gravel. Although the Steilacoom Gravel is the youngest unit within the Vashon Drift, it is differentiated hydrostratigraphically because of its unique (coarse-grained and highly permeable) lithology and its hydrogeologic significance within the Site. The water table within the unconfined Sea Level Aquifer is encountered at depths of 160 to 200 or more feet below ground (elevations from approximately 40 feet to less than 5 feet msl).

The Steilacoom Gravel is in direct contact with Vashon Drift, the Aquitard, and the Salmon Springs Glaciation (as shown in Figure 3.1-2). Therefore, the unconfined Sea Level Aquifer receives discharge from both the Water Table Aquifer and the semiconfined Sea Level Aquifer east of the "Cutoff". Water from the two aquifers mixes within the unconfined Sea Level Aquifer (Steilacoom Gravel) and discharges toward the west. The unconfined Sea Level Aquifer discharges to Puget Sound as seeps observed along the shore (such as SEEP 1 and SEEP 2 in Figure 3.1-1) and presumably beneath sea level, where the deltaic deposits terminate in Puget Sound.

Groundwater and surface water elevation data collected during the RI suggest that the lower reach of Sequalitchew Creek loses water to the unconfined Sea Level Aquifer. This is consistent with the high infiltration capacity of the gravels observed at the base of the drainage. As shown in Figure 3.1-4, the April 1992 creek elevation at SG-1 is at least 4 feet higher than water table elevations in either of the nearest wells completed in the unconfined Sea Level Aquifer (MW-1 and MW-15), indicating flow from the creek to the aquifer. No springs have been observed along the creek anywhere within this relatively flat stretch of creek valley. The creek was dry at SG-1 from August 1992 through January 1993, indicating that, at low summer/autumn creek flows, all creek flow discharges to the unconfined Sea Level Aquifer. In the vicinity of SG-2 farther up the creek, the groundwater and surface water elevation data are less conclusive, but it appears that the creek is also losing to the aquifer in this area. The water level data indicate that, in general, the creek is gaining (receiving recharge) from the Water Table Aquifer east of the 'Cutoff" (upper portion of the drainage).

The Sea Level Aquifer east of the "Cutoff" receives recharge principally from infiltration of precipitation in areas east of the Site. The Sea Level Aquifer west of the "Cutoff" receives additional recharge from groundwater flowing from the Water Table Aquifer and semiconfined portion of the Sea Level Aquifer, as well as from infiltration of precipitation through the overlying unsaturated Steilacoom Gravel.

Figure 3.1-8 presents hydrographs for selected Sea Level Aquifer monitoring wells for the period 1988 through 1992. As with the Water Table Aquifer, the hydrographs indicate that the water table in the Sea Level Aquifer responds fairly uniformly to seasonal changes, particularly near Puget Sound. Nearer the "Cutoff", there is greater difference in the responses between wells (e.g., MW-4 and MW-6), which is not unexpected considering the nature of the water table surface as it crosses the "Cutoff". Water table elevation fluctuations in the Sea Level Aquifer are only 2 to 3 feet less than the 3- to 8-foot fluctuations observed in the Water Table Aquifer. No long-term water level trends are apparent for the Sea Level Aquifer.

Because the Sea Level Aquifer is in hydraulic connection with Puget Sound, a natural saltwater/freshwater mixing zone is present along the western margin of the aquifer. Over the period of monitoring, total dissolved solids (TDS) ranged from approximately 10,000 to 16,000 mg/L in SEEP 1 and SEEP 2, which discharge from the Sea Level Aquifer (Figure 3.1-1). These elevated TDS values are indicative of discharge from the saline mixing zone. The TDS values for Sea Level Aquifer monitoring wells MW-16 and MW-19, located within approximately 400 feet of Puget Sound, are generally less than 200 mg/L, which is similar to values from the other on-Site monitoring wells located farther inland. These data indicate that the mixing zone is not extensive, extending inland less than 400 feet.

Hydraulic Conductivity Testing of Aquifers

Data from two in situ testing methods (variable-head tests [i.e., slug tests] and short-term pumping tests) and laboratory grain size analyses of aquifer materials were evaluated to provide estimates of saturated hydraulic conductivity for the Water Table and Sea Level Aquifers. The short-term pumping tests were conducted in on-Site monitoring wells using a 2-inch submersible pump. In addition, hydraulic conductivity estimates from regional hydrologic reports were used to further refine a reasonable range of hydraulic conductivity values for the aquifers. Hydraulic conductivity estimates from Site-specific and regional data for the three aquifers (Water Table, unconfined Sea Level, and semiconfined Sea Level Aquifers) are summarized in Table 3.1-1.

Table 3.1-2 provides the hydraulic conductivity values estimated by application of the Kozeny-Carmen equation (Freeze and Cherry 1979) to grain size data for samples of aquifer materials. The analyses assumed a range of porosity values of 0.20 to 0.35, which is reasonable for the range of aquifer materials at the Site.

Water Table Aquifer

Site-specific hydraulic conductivity (K) estimates for the Water Table Aquifer ranged from 2 x 10^{-3} to 7 x 10^{-2} cm/sec and were derived from five slug tests and two short-term pumping tests conducted in on Site monitoring wells as part of the RI (Table 3.1-1). The geometric means of six estimates from the Kozeny-Carmen equation (Freeze and Cherry 1979) were 5 x 10^{-1} and 4 cm/sec, corresponding to assumed porosities of 0.20 and 0.35, respectively (Table 3.1-2).

Regional estimates of Water Table Aquifer hydraulic conductivities range from 4 x 10^{-3} to 2 x 10^{-2} cm/sec, based on pumping test results from City of DuPont Well No. 1 (Associated Earth Sciences 1984) and test well PW-1A at Fort Lewis (Woodward-Clyde 1990).

The range of hydraulic conductivity values is reasonable considering the different lithologies comprising the Water Table Aquifer—highly permeable Steilacoom Gravels to fine sand in the lower horizons of the Advance Outwash. Because of the slope of the water table and the general fining-downward (decrease in grain size with depth) sequence of the aquifer materials, the average hydraulic conductivity of the Water Table Aquifer may decrease somewhat from the east (saturated Steilacoom Gravel) to the west (saturated Advance Outwash deposits) across the Site. Although the data are variable, the hydraulic conductivity estimate from MW-22 near the "Cutoff" are somewhat lower than estimates from wells to the east (e.g., MW-7 and MW-12), lending some support to this hypothesis. However, different testing methods (e.g., short-term pumping tests versus slug tests) may also contribute to the differences in the estimates.

The available data presented in Table 3.1-1 suggest that a reasonable range of hydraulic conductivities for the Water Table Aquifer is 5 x 10^{-3} to 5 x 10^{-2} cm/sec. This range is referred to in Table 3.1-1 as the Best Estimate Range.

Semiconfined Sea Level Aquifer (East of Kitsap Cutoff)

Reported values of hydraulic conductivity (K) for the Sea Level Aquifer east of the "Cutoff" are in the range of 6 x 10^{-3} to 5 x 10^{-2} cm/sec, based on results from two pumping tests performed in Bell Hill Well No. 1 (Hart Crowser 1988b; Hart Crowser 1990), and pumping tests conducted in Weyerhaeuser Well No. 3 and Fort Lewis Well No. 18 (Associated Earth Sciences 1984). A slug test performed in monitoring well MW-18 produced an estimated K of 4 x 10^{-3} cm/sec, which is lower than the values from the pumping tests.

These results suggest that a reasonable range of hydraulic conductivities for the semiconfined Sea Level Aquifer is from 1 x 10^{-2} to 5 x 10^{-2} cm/sec (Table 3.1-1).

Unconfined Sea Level Aquifer (West of "Cutoff")

Slug tests conducted in monitoring wells completed in the unconfined Sea Level Aquifer produce K estimates ranging between 2 x 10^{-3} to 2 x 10^{-2} cm/sec. The slug test results may be biased low due to the influence of the wellbore sandpack materials, which may actually have lower in situ permeability than the native (undisturbed) aquifer materials. Hydraulic conductivity estimates from grain size data of the Steilacoom Gravel aquifer materials range from 2 x 10^{-2} to 1 cm/sec (Table 3.1-2). Woodward-Clyde (1990) reported a range of hydraulic conductivities for the unconfined Sea Level Aquifer of 4 x 10^{-1} to 4 cm/sec, based on literature values.

It should be noted that based on available information, pumping tests have not been conducted within the unconfined Sea Level Aquifer (west of "Cutoff") in the region. As a result, hydraulic conductivity estimates for this aquifer are developed from the slug tests and grain size data, and from regional studies also evaluating grain size characteristics. On the basis of these data and the uncertainty associated with them, a reasonable hydraulic conductivity range for the unconfined Sea Level Aquifer is 1 x 10^{-2} to 1 cm/sec (Table 3.1-1).

Groundwater Flow Rates in the Aquifers

A range of horizontal groundwater flow rates within the Water Table and Sea Level Aquifers is estimated using the Best Estimate Range of hydraulic conductivity values (Table 3.1-1), horizontal hydraulic gradient estimates developed from the April 1992 water table elevation contour map (Figure 3.1-4), and an assumed effective porosity of 0.25. The groundwater flow rates for each aquifer are estimated by applying Darcy's Law of the form:

$$v = K\ I\ /\ n$$

where:

v = average linear groundwater velocity in feet/day
K = horizontal hydraulic conductivity in feet/day
I = horizontal hydraulic gradient in feet/foot
n = effective porosity (dimensionless)

Because of differences in hydraulic gradient across the Site, Darcy's Law is applied between two points. The flow rates reported below apply between these points.

Water Table Aquifer

Using the April 1992 data (Figure 3.1-4), the hydraulic gradient between the 190-foot water table elevation contour and MW-23 north of Sequalitchew Creek (measured perpendicular to the contours) is approximately 0.05 foot/foot. For a range of hydraulic conductivity of 14 to 140 feet/day (5 x 10^{-3} to 5 x 10^{-2} cm/sec), the estimated groundwater flow rate between these two points is approximately 3 to 28 feet/day (approximately 1,000 to 10,000 feet/year).

South of the creek, the April 1992 hydraulic gradient is calculated to be approximately 0.02 foot/foot between three pairs of points: (1) between the 200-foot water table elevation contour and MW-21, (2) between Old Fort Lake and MW-17, and (3) between Old Fort Lake and MW-22 (Figure 3.1-4). Therefore, the estimated groundwater flow rate determined between these sets of points ranges from approximately 1 to 22 feet/day (approximately 400 to 8,200 feet/year) using the range of Water Table Aquifer K estimates.

As discussed above, water table elevations gradually dropped during the summer and autumn months, generally resulting in a flatter water table and slightly lower hydraulic gradients toward discharge points. The lower gradients (5 to 20 percent lower in December than April 1992) result in correspondingly lower groundwater velocities.

Unconfined Sea Level Aquifer

Because the gradient flattens abruptly west of the "Cutoff", gradients and resulting groundwater flow rates were calculated between MW-3 and Puget Sound (assumed aquifer discharge at elevation 0 msl), and between MW-6 and Puget Sound. The hydraulic conductivity range of 1 x 10^{-2} to 1 cm/sec (28 to 2,800 feet/day) was used for the groundwater flow rate estimates (Table 3.1-1).

Using April 1992 data, a gradient of 0.005 foot/foot is calculated between MW-3 and Puget Sound, resulting in estimated groundwater flow rates ranging from approximately 0.6 to 60 feet/day (approximately 200 to 20,000 feet/year). For a gradient of 0.02 foot/foot calculated between MW-6 and Puget Sound, flow rates range from approximately 2 to 200 feet/day (approximately 800 to 80,000 feet/year). Consistent with the Water Table Aquifer, estimated groundwater velocities in the Unconfined Sea Level Aquifer were typically 5 to 20 percent lower in December 1992 than in April 1992, due to lower gradients.

Semiconfined Sea Level Aquifer

The groundwater flow rate in the semiconfined Sea Level Aquifer is estimated between MW-18 and Puget Sound. The water table elevation in MW-18 was 5.07 feet msl in the April 1992 round of measurements, resulting in a gradient toward Puget Sound of 0.003 foot/foot. Therefore, a range of groundwater flow rates of approximately 0.3 to 2 feet/day (approximately 120 to 600 feet/year) are estimated using the range of K estimates for the Sea Level Aquifer presented in Table 3.1-1. Estimated groundwater velocities in the semiconfined Sea Level Aquifer were approximately 10 percent lower in December 1992 than in April 1992 because of lower gradients.

However, because groundwater discharges from the semiconfined Sea Level Aquifer into the unconfined Sea Level Aquifer across most of the Site (except along the southwest corner in the vicinity of MW-17), groundwater flow rates calculated between MW-18 and Puget Sound may not be representative of gradients encountered east (upgradient) of the "Cutoff".

A second range of flow rates for the Sea Level Aquifer is estimated on a more regional scale by applying Darcy's Law between Bell Hill No. 1 and MW-18, a distance of approximately 10,000 feet. This estimate accounts for the change from confined to unconfined conditions within the aquifer. The water level elevation in Bell Hill No. 1 is approximately 75 feet msl, resulting in an average regional gradient of approximately 0.007 foot/foot between it and MW-18. Applying the K range above results in groundwater flow rates ranging from approximately 0.8 to 4 feet/day (approximately 300 to 1,400 feet/year).

Estimate of Vertical Flow Through the Aquitard

Hydraulic Conductivity Testing of the Aquitard. Two undisturbed samples of the Kitsap Aquitard were collected and tested in Hart Crowser's geotechnical laboratory using flexible-wall permeameter methods. A vertical hydraulic conductivity value of 8 x 10^{-7} cm/sec was obtained from laboratory testing of a sample of the aquitard material (MW-20, S-24). The first attempt to collect an undisturbed sample of the aquitard material (from MW-22) using a Shelby tube was unsuccessful. After the Shelby tube was driven into the very stiff silt (too stiff for the tube to be pushed), the pins attaching it to the drill rods snapped during the retrieval attempt. The Shelby tube remained in the bottom of the borehole, preventing further sampling efforts. No cohesive soils suitable for laboratory K testing were encountered during drilling of MW-21.

Vertical Gradients

Stratigraphic and water level data from MW-18 in the Sea Level Aquifer beneath the Aquitard indicate that the aquifer is unconfined, with the water table more than 50 feet below the aquitard bottom. The vertical gradient across the aquitard is estimated by dividing the combined thickness of the Water Table Aquifer and Aquitard (assumed saturated) by the thickness of the aquitard. To be conservative, the thickness of the Water Table Aquifer observed at MW-20 (45 feet) is used rather than the thickness measured at MW-22 (less than 15 feet), closer to the "Cutoff". Using this 45-foot aquifer thickness and the aquitard thickness observed in MW-18 (75 feet), a downward gradient of approximately 1.6 feet/foot across the aquitard is calculated.

Where the Sea Level Aquifer becomes confined farther to the east, the vertical gradient would be smaller. Therefore, the vertical gradient calculated from the existing data produces a "worst-case" (i.e., maximum) estimate of downward flow through the aquitard.

Rate of Downward Flow

The rate of downward flow across the Aquitard is estimated by applying Darcy's Law, as defined above, vertically across the aquitard. Using the estimated downward gradient of 1.6 feet/foot, the geometric mean of the laboratory vertical K values (3×10^{-7} cm/sec = 0.3 feet/year), and an assumed porosity of 0.4 (rounded from 0.37 for stiff glacial clay from Terzaghi and Peck 1948), results in an estimated advective flow rate through the aquitard of approximately 1 foot/year.

3.1.3 Surface Water Features

Three surface water bodies (Puget Sound, Sequalitchew Creek, and Old Fort Lake) occur within or near the Site (Figure 3.1-1).

Puget Sound

Puget Sound borders the west boundary of the Burlington Northern Railroad property, which is below the bluff at the Site. Puget Sound directly or indirectly receives groundwater and surface water discharge from the Site vicinity.

Sequalitchew Creek

Sequalitchew Creek, which flows through the northern portion of Parcel 1 at the Site, originates in Sequalitchew Lake, approximately 1.4 miles to the east of the property. The creek flows westward through Hamer Marsh and Edmonds Marsh east of the Site before flowing within a steep-sided ravine that descends to Puget Sound. The Water Table Aquifer locally discharges into the creek via springs. The creek appears to provide some recharge to the unconfined Sea Level Aquifer in its lower reaches, as discussed above.

The upper and lower reaches of the stream are intermittent, becoming dry in the summer months. Visual observations indicate that during the dry season, when there is little freshwater flow in the lower reaches of Sequalitchew Creek, Puget Sound backs up into the creek valley at high tide.

The creek was also dry along the eastern margin of the Site (at staff gauge SG-5) between August 1992 and January 1993, indicating that the water table elevation was below the creek bottom. Water was typically observed in the creek 150 to 200 feet downstream of SG-5 during these dry months. Between staff gauges SG-4 and SG-2, the creek bed is below the water table elevation throughout the year; therefore, the creek maintains water in this stretch year round.

Old Fort Lake

Old Fort Lake is a small glacial kettle lake, which has no inlet or outlet. The shallow lake is fed by groundwater from the Water Table Aquifer, and the lake level is an expression of the water table. Data collected between April 1992 and July 1993 indicate that the lake level fluctuates seasonally approximately 8 feet.

3.2 GROUNDWATER QUALITY CHARACTERIZATION

3.2.1 Groundwater Sampling Conducted to Date

Site groundwater quality assessment began at the Site during the pre-RI site characterization with sampling of the three spring locations and seven surface water locations in December 1986. As part of the initial hydrologic and water quality assessment in late 1987 and early 1988, 17 monitoring wells were installed in the Water Table Aquifer (MW-7 through MW-14, and MW-17) and the Sea Level Aquifer (MW-1 through MW-6, MW-15, and MW-16). Groundwater quality was evaluated in March 1988 by sampling and analysis of 15 monitoring wells, 3 springs, and 3 on-Site fire protection wells. During this first round of sampling, constituents identified in groundwater samples were detected at low concentrations, and a quarterly monitoring program was recommended to provide a basis to assess possible temporal or seasonal changes in groundwater quality. Three quarterly sampling rounds were conducted in June 1988, October 1988, and January 1989; results from these sampling rounds are summarized in Hart Crowser 1988c, 1988d, and 1989a, respectively.

Following installation of two additional monitoring wells (MW-18 and MW-19) in November 1989, interim sampling rounds were conducted in November 1989 (Hart Crowser 1990) and August 1990 (Hart Crowser 1991c).

Four additional monitoring wells (MW-20, MW-21, MW-24, and MW-27) were installed, followed by four quarterly groundwater and surface water sampling rounds in March, June, September, and December 1992. Twenty-seven monitoring wells, one spring discharging to Sequalitchew Creek, two sea-level seeps discharging to Puget Sound, and five surface water locations were sampled during the RI (35 combined groundwater and surface water locations). In addition, six off-Site wells were sampled to provide background groundwater quality data.

A supplementary sampling round was conducted in January 1993 to collect four sets of water quality data (“four usable data points” criterion discussed below). During this round, attempts were made to sample all groundwater and surface water sampling locations where four complete sets of water quality data had not been collected due to seasonally dry conditions.

In addition to groundwater sampling outlined in the Management Plan, quarterly groundwater sampling for DNT was continued from April 1993 through October 1997 at seven selected monitoring wells (MW-3, MW-6, MW-8, MW-15, MW-19, MW-22, and MW-27) and SEEP-1. In January 1996, two fireline wells (W-1 and W-2) were added to the quarterly sampling program. One additional fireline well (W-3) was sampled during two rounds.

After October 1997 and authorization from Ecology, the groundwater monitoring locations and frequency of sampling were reduced. Since then, three additional rounds of annual DNT groundwater sampling have occurred at four selected monitoring wells (MW-3, MW-6, MW-19, and MW-22) and fireline well W-2. The annual DNT groundwater sampling will be continued as required in the final CAP.

Table 3.2-1 summarizes groundwater sampling (by location) conducted to date.

Four Usable Data Points Criterion

As discussed in the Management Plan, the goal of the RI groundwater and surface water sampling program was to obtain four usable data points (adequate detection limits and sufficient data quality) for each target constituent identified in the RI/FS Management Plan at each of the 38 groundwater and surface water sampling locations. Both the pre-RI data and data collected during the RI were considered in determining the number of usable data points. During the first two rounds of RI water sampling, all locations were sampled for all target constituents. At the end of the two rounds, the existing pre-RI and RI data were evaluated to determine which locations required additional sampling for specific constituents.

As stated in the Management Plan, if seasonally dry conditions prevent the collection of an adequate number of samples (over five rounds of RI sampling) to achieve four usable points at each location, the available data would be evaluated to determine the necessity of additional sampling.

In general, four usable water quality data points for each target constituent were achieved at each sampling location, with the exception of some of the springs in the Sequalitchew Creek valley, and monitoring wells completed in zones of seasonally (transient) perched water.

Although four usable data points were achieved after only two RI sampling rounds for some constituents (e.g., DNT and nitrate) at several locations, NAX and nitrate analyses were continued through the January 1993 sampling rounds to provide additional data for evaluating potential concentration trends over time. The subsequent quarterly sampling rounds beginning in April 1993 were also conducted for this purpose (NAX only). Table 3.2-2 presents the number of usable data points (analyses) for each constituent at each location collected over 32 rounds of combined pre-RI and RI water sampling covering 12 years (1988 through 2000).

RI Groundwater Quality Sampling Locations

Thirty locations were sampled during the pre-RI and RI for Parcel 1 inside the CDB (Figure 3.1-1):

- Twelve Water Table Aquifer monitoring wells (MW-7, MW-8, MW-9, MW-11, MW-12, MW-13, MW-14, MW-17, MW-20, MW-21, MW-22, and MW-24)

- Ten Sea Level Aquifer monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-15, MW-16, MW-18, and MW-19)
- Two monitoring wells completed in zones of seasonal perched groundwater (MW-27 and 7-B-503)
- One spring discharging from the Water Table Aquifer to Sequalitchew Creek (SPR-4)
- Two seeps discharging from the Sea Level Aquifer to Puget Sound (SEEP 1 and SEEP 2)
- Three fire protection wells (W-1, W-2, and W-3)

Background Water Quality Sampling Locations

Two rounds of groundwater samples were collected from six locations outside the CDB to provide data for evaluation of natural background (upgradient) water quality for the Water Table Aquifer and Sea Level Aquifer. The background wells included City of DuPont Well No. 1, Bell Hill No. 1, Fort Lewis production wells FL-9 and FL-18, and two monitoring wells upgradient of Fort Lewis Landfill No. 5 (88-2-VD and 88-1-SS). City of DuPont Well No. 1, FL-9, and 88-2-VD are completed in the Water Table Aquifer; Bell Hill Well No. 1, FL-18, and 88-1-SS are completed in the Sea Level Aquifer. Available regional data indicate that the Water Table Aquifer and (semiconfined) Sea Level Aquifer at the background (upgradient) well locations are contiguous with these aquifers on the Site. As stated in Management Plan, the unconfined portion of the Sea Level Aquifer does not exist upgradient of the Site; background water quality in this aquifer is represented by both upgradient aquifers (Water Table and semiconfined Sea Level Aquifers). Background samples were collected in June and December 1992.

Constituent Analyses of Groundwater Samples

During the first two rounds of RI sampling, all on-Site groundwater samples were analyzed for the following constituents:

- Nitrate plus nitrite as nitrogen
- TPH (WTPH-418.1)
- Total priority pollutant metals plus aluminum (14 total metals)
- Dissolved priority pollutant metals plus aluminum (14 dissolved metals)
- PAHs
- NAX (TNT, 2,4-DNT, and 2,6-DNT and selected breakdown products including nitrobenzene [NB], 1,3-dinitrobenzene [DNB], and 1,3,5-trinitrobenzene [TNB])
- NG
- MMAN
- Total organic carbon (TOC)
- TDS
- Total suspended solids (TSS)

Selected monitoring wells were sampled and analyzed for OP and OC pesticides, PCBs, VOCs, and SVOCs.

Background water quality samples were analyzed for the following analytes: NAX, nitrate plus nitrite, total and dissolved metals, PAHs, TPH, TSS, TDS, and TOC.

3.2.2 Background Groundwater Quality Results

The following constituents were detected in one or more of the background water quality samples:

- Total and dissolved aluminum
- Dissolved antimony
- Total and dissolved cadmium
- Total and dissolved copper
- Total lead
- Total and dissolved zinc
- Nitrate
- Phenanthrene, a noncarcinogenic PAH (ncPAH)

As stated in the discussion of metals data for groundwater in Section 3.2.3, total metals concentrations are generally higher than dissolved metals concentrations in the same sample due to turbidity present in the unfiltered groundwater samples. The total metals concentrations in samples with elevated TSS do not appear to be representative of groundwater quality.

Background total aluminum detections occurred in samples with nondetectable or low concentrations of TSS. Dissolved aluminum was detected in 5 of the 12 background samples (filtered samples without turbidity). These data indicate that dissolved aluminum is a naturally occurring constituent of groundwater in the area. Aluminum-bearing minerals (such as feldspars and clay minerals) are common rock-forming minerals in the crust of the earth, and aluminum is naturally present at percent levels (greater than 10,000 mg/kg) in the glacial soils of Puget Sound (refer to Section 2.2 for area background soil quality results). As a result, aluminum is also naturally present in regional groundwaters.

During sample filtration, the filter contributed antimony to the dissolved metals samples; therefore, the antimony concentrations in the samples are not representative of groundwater quality, as discussed below.

3.2.3 Constituents in Groundwater

A discussion of the DNT and nitrate data for groundwater, and additional discussions of the metals and PAH data, are provided below. Groundwater quality data tables are provided in Appendix C.

DNT Data for Groundwater

The range of total DNT (2,4-DNT plus 2,6-DNT) concentrations detected since monitoring started in 1986 are as follows:

- MW-3 downgradient of Area 5 (0.07 to 0.56 µg/L)

- MW-6 downgradient of Area 26 (0.02 U to 0.44 µg/L)
- MW-8 downgradient of Area 31 (0.02 U to 0.21 µg/L)
- MW-15 downgradient of Area 5 (0.02 U to 0.16 µg/L)
- MW-19 downgradient of Area 18 (0.07 to 0.63 µg/L)
- MW-22 downgradient of Area 18 (0.05 to 0.87 µg/L)
- MW-27 completed in a zone of seasonally perched water beneath Area 18 (0.11 to 3.8 µg/L)

DNT has been detected only in monitoring wells located downgradient of areas where DNT has been detected in soils (Areas 5, 18, 26, and 31). DNT has not been detected in any other wells.

DNT has been detected in MW-15, but this concentration has not been confirmed in any of the six subsequent sampling rounds.

DNT site data collected since 1986 are summarized in Appendix C.

Evaluation of DNT Concentrations Related to Sample Turbidity

To evaluate potential differences in DNT concentrations between unfiltered samples and filtered samples, additional groundwater samples from two monitoring wells (MW-19 and MW-22) were collected in October 1992. Unfiltered and filtered (through a glass fiber filter) samples were submitted for NAX analyses. In addition, suspended particulate matter collected on the filter was submitted for NAX analysis.

The results of this evaluation indicate no significant difference between DNT concentrations in unfiltered and filtered samples (Appendix C). The measured differences in concentration can be attributed to sampling and analytical variability. Furthermore, no NAX compounds were detected in the filtrate (particulate matter trapped on the filter). These data indicate that DNT is present in the dissolved phase and that sample turbidity does not significantly affect detected DNT concentrations.

Area 18 Seasonally Perched Water

DNT has been detected in MW-27, a monitoring well located next to MW-22 (in Area 18) and completed in a localized zone of perched water that is present only during the wet season. When water was present in this monitoring well (to a maximum saturated thickness of less than 2 feet), the well bailed dry after removal of approximately one casing volume. The water level also recovered extremely slowly after purging (the perched zone occurs upon and within a relatively low-permeability till unit, as discussed in Section 3.1). Because the perched zone is incapable of yielding 0.5 gallon per minute (gpm) on a sustainable basis, it is not a potential drinking water source, in accordance with MTCA [WAC 173-340-720(2)(b)(i)].

SEEP 1

The SEEP 1 sampling location represents discharge to an intertidal beach area from a freshwater/saltwater mixing zone at the edge of the Sea Level Aquifer. Accordingly, the seep discharge is naturally saline (discussed in Section 3.1.2). During the period of monitoring, TDS measurements ranged from 9,600 to 16,000 mg/L, with an average value of 12,700 mg/L. Because TDS concentrations are greater than 10,000 mg/L, SEEP 1 is not a potential drinking water source, in accordance with MTCA [WAC 173-340-720 (2)(b)(ii)]. Similarly, other seeps along the beach, which are also submerged daily by Puget Sound high tides, would not be considered potential drinking water sources (SEEP 2 north of Sequalitchew Creek has a similar range of TDS).

Total DNT concentrations from SEEP 1 have ranged from nondetection to 0.27 µg/L in the 25 samples collected over the period of monitoring (Appendix C). All detected DNT concentrations at SEEP 1 (pre-RI and RI) are at least 33 times lower than the protective surface water concentration of 9.1 µg/L. Based on this comparison, DNT discharging from Site groundwater via seeps to Puget Sound poses no concern to human health or the environment.

No Seasonal Trends in DNT Groundwater Concentrations

No seasonal trends are apparent in visual examination of the DNT groundwater quality data (Figures 3.2-1 through 3.2-4). Plots of DNT groundwater concentration as a function of groundwater elevation indicated no apparent correlation for any of the seven wells in which DNT has been detected at elevated concentrations (Figure 3.2-5). Groundwater elevation provides a more direct measure of seasonality than time of sampling (for example, April versus October) because groundwater elevations inherently account for recharge lag times, which will vary across the Site.

Summary of DNT Data for Groundwater

Data from 35 rounds of combined pre-RI and RI groundwater sampling at up to 30 locations (1986 through 2001) indicate consistently low DNT concentrations in 6 of 30 Site groundwater monitoring locations. DNT has been detected in groundwater samples from seven Site monitoring wells at marginally elevated concentrations. DNT has been detected only in monitoring wells located downgradient of areas where DNT has been detected at elevated concentrations in soils (Areas 5, 18, and 31). DNT groundwater concentrations do not show statistically significant increases or decreases at this time. The DNT groundwater concentrations may decline over time as a result of the ISR of DNT-containing soils. Because detected DNT concentrations were consistently low, are not affecting the regional aquifer, are not affecting surface water, and the aquifer is not used as a drinking water source, Ecology determined that “no active remedial action” was needed, and long-term monitoring at selected wells would be sufficient. This issue will also be addressed in the Cleanup Action Plan for the Site.

Nitrate Data for Groundwater

Nitrate (expressed as nitrogen) has been detected in monitoring wells MW-6, MW-13, and MW-22. MW-13 is located along the upgradient (eastern) edge of the Site. Elevated nitrate concentrations (e.g., 9.2 mg/L in October 1988) have also been detected at MW-14, also at the upgradient edge of the Site. These data suggest potential nitrate sources upgradient (east) of the Site, such as animal pasturing, which is known to have occurred east of the Site in the past. The nitrate data collected to date for groundwater are provided in Appendix C.

Elevated nitrate concentrations were detected in samples from wells MW-6 in March and April 1988, and MW-13 in March 1988. No nitrate concentrations from these wells have been elevated in any of eight subsequent rounds of monitoring, as shown in Figure 3.2-6. Regression analyses on the nitrate data indicate that the downward trends at these two wells are statistically significant (95 percent confidence level; $p = 0.05$).

The nitrate concentrations detected in samples from MW-22 were at approximately 10 mg/L in the June, September, and December 1992 sampling rounds. These data suggest that the nondetection in the March 1992 sample from this well was erroneous, possibly due to sample mislabeling or analytical reporting error (Appendix C). No analytical problems with this result were indicated by full (Level IV) data validation.

Although elevated nitrate concentrations were detected in groundwater samples collected from two monitoring wells in 1988, concentrations in these wells show statistically significant declines. Because elevated nitrate concentrations have been detected in samples from monitoring wells located along the eastern (upgradient) edge of the Site, off-Site sources of nitrate are possible.

Metals Data for Groundwater

With the exception of aluminum, no concentrations of dissolved metals in any groundwater sample were elevated. Of 126 site groundwater samples from 10 wells analyzed for dissolved metals, 14 samples contained elevated concentrations of aluminum. As discussed above, 2 of the 12 background samples had dissolved aluminum concentrations above 0.05 mg/L, indicating that aluminum may be present at this concentration in regional background groundwater. Only 1 of the 126 groundwater samples had concentrations above 0.2 mg/L (0.98 mg/L at MW-8 in September 1992). This single detection appears to be anomalous since it is more than four times higher than any other detection in this well or any other well sampled during the RI.

Concentrations of some total metals (unfiltered samples) were elevated in groundwater samples from selected wells. For the pre-RI and RI data, dissolved concentrations are defined as being filtered through a 0.45-µm filter in the field. All dissolved and total metals data for groundwater are provided in Appendix C.

The consistent difference between total and dissolved metals concentrations indicates that the metals concentrations are associated with particulate matter within the groundwater samples rather than dissolved in the groundwater; i.e., the total concentrations are an artifact of the well installation, development, and sampling methods (bailer use). The monitoring wells were installed in accordance with Chapter 173-160 WAC; however, they cannot be developed sufficiently to provide low-turbidity samples consistently across the Site. Therefore, in accordance with MTCA [WAC 173-340-720 (9)(b)], dissolved metals concentrations are a more representative measure of groundwater quality at the Site.

The following discussion provides a summary of analyses performed to assess the relationship of sample turbidity to detected total metals concentrations. These analyses support the conclusion that the detected total metals concentrations are biased high due to sample turbidity.

Correlation of Total Metals Concentrations and Suspended Sediment (Sample Turbidity)

There is a strong correlation between sample TSS and total metals concentrations in unfiltered groundwater samples collected during the RI. Figures 3.2-7 through 3.2-9 show plots of total metal concentration versus TSS for each metal with elevated detected total concentrations. Although outlier data points exist, the data plots indicate a strong correlation between metals concentrations and sample turbidity (TSS). The figures also demonstrate that total metals concentrations generally are detected only in samples with elevated TSS (above 100 mg/L).

Calculations were performed using these data plots to estimate what concentrations (order-of-magnitude) in the particulate phase (TSS) would be necessary to produce the observed total metals concentration in the groundwater samples. These particulate concentrations are then compared to background soil quality data for the Site.

The equation used is as follows:

$$\text{particulate concentration (mg/kg)} = \frac{\text{concentration in water (mg/L)} \times 10^6 \text{ mg/kg}}{\text{TSS (mg/L)}}$$

This analysis assumes that the metals desorb completely from the particulate matter during sample digestion for metals analysis.

Regression analyses were conducted on the total aluminum and total lead data (versus TSS). The regression equations were used to calculate a representative TSS value for a given water concentration of interest. Using these water concentrations and calculated TSS values, corresponding particulate concentrations were estimated using the above equation. Note that the same general range of particulate concentrations can be calculated using an “eye-balled” best-fit line through the data, rather than a regression equation.

These calculations suggest that, at these TSS values in the groundwater samples, aluminum concentrations as high as 100 mg/L in water can be the result of particulate (soil) concentrations on the order of 30,000 mg/kg. This soil concentration is only slightly above the range of aluminum concentrations detected in the area background soil samples for the Site. Similarly for the other metals, this evaluation indicates groundwater concentrations could be the result of respective soil concentrations typical of background soils.

Although the numbers calculated using this simple evaluation are approximate, they demonstrate that high total metals concentrations in the groundwater samples can be caused by a high concentration of particulate matter (high TSS) with low concentrations of metals on the particulate matter.

Decreased Total Metals Concentrations Following Monitoring Well Redevelopment

Between the first and second rounds of RI water sampling, the newly installed Water Table Aquifer monitoring wells (MW-20, MW-21, MW-22, and MW-24) were redeveloped using a more vigorous method (air-lift pump) than that previously used (submersible pump) to remove as much turbidity as possible. As a result, concentrations of total metals in these wells generally decreased between the March and June sampling rounds, further supporting the contention that the observed total metals concentrations are the result of sample turbidity. TSS values were again higher in several wells in the September and December sampling rounds, resulting in corresponding increases in total metals concentrations. Although TSS and total metals concentrations varied over time, dissolved metals were consistently not detected in filtered groundwater samples.

Comparison of Monitoring Well and Production Well Construction/Development

Because they are constructed for different purposes, monitoring wells (as sampled in this RI) and production (water supply) wells are designed, constructed, and developed according to substantially different standards. As a result, the turbidity of groundwater collected from Site monitoring wells is not representative of groundwater that would be pumped from a properly installed production well in these same aquifer materials.

The principal purpose of a production well is to provide maximum yield with minimum turbidity, both to prevent the need for filtration and to protect the pump and piping from corrosion. For aesthetic reasons, drinking water supplies are not cloudy (turbid); in fact, a secondary drinking water standard exists for turbidity. To achieve this minimum turbidity, design of a production well is typically detailed, requiring evaluation of the sizing of the well screen and the filter pack (outside the screen) based on the characteristics of the aquifer materials. Construction of the wells includes large-diameter casings to accommodate pumps and increase yield, and often thick filter packs to prevent finer-grained aquifer materials from reaching the well screen. Development of these wells typically takes several days, often involving surging or other techniques. Development is typically completed during a pumping test in which the well is pumped at the expected rate of yield for an extended period (often 24 hours or more). The combination of the intensive development and high-volume pumping is generally successful at removing suspended sediment from the well and filter pack, resulting in water free of turbidity.

On the other hand, the principal purpose of a monitoring well is to provide a groundwater sample, which requires relatively small yield. As a result, the on-Site monitoring wells were constructed of 2-inch-diameter polyvinyl chloride (PVC) with up to 2 inches of filter pack outside the well screen, which is standard for the environmental industry and in accordance with state well construction regulations (Chapter 173-160 WAC). Because the wells have an inside diameter of less than 2 inches, the methods of development are limited. Submersible and air-lift pumps were used to develop the on-Site monitoring wells. However, these pumps were incapable of creating high enough water velocities at the well screen and filter pack to remove all the sediment. As a result, groundwater samples collected from the monitoring wells had varying levels of turbidity (measured as TSS).

As a result of the differences in design, construction, and development of the two types of wells, a production well would be capable of producing turbid-free water from the aquifers on the Site, whereas the monitoring wells are not.

Dissolved Antimony Related to Sample Filtration

Filters used in the collection of filtered groundwater and surface water samples for dissolved metals analyses contributed antimony to the filtered samples. Antimony was detected consistently in filtered groundwater and surface water samples from the Site, but not in unfiltered samples. This is the opposite of the typical situation discussed above, where total metals concentrations are substantially higher than dissolved concentrations due to sample turbidity. There is strong evidence (presented below) that the filters contributed antimony to the filtered water samples, and that antimony is not present at detectable concentrations in Site groundwater or surface water.

First, dissolved antimony was detected in 85 of 168 (51 percent) of the filtered water samples collected during the RI (including groundwater, surface water, field duplicates, and rinsate blanks consisting of deionized water), whereas total antimony was detected in only 2 of 168 (1 percent) of the unfiltered samples. The range of dissolved antimony concentrations was 0.005 to 0.019 mg/L, with an average of 0.008 mg/L (excluding one very turbid sample [7-B-503] from a zone of perched water, for which the dissolved concentration was 0.08 mg/L higher than the total concentration).

Second, a controlled experiment was conducted to evaluate potential antimony contributions from the materials used during water sample filtration. Because a water sample touched three different sampling materials during filtration in the field, each of the materials was tested individually. Samples of deionized water were passed through a length of polyethylene tubing alone and through a length of silicone tubing alone (both tubing materials are used with a peristaltic pump during sample filtration). A sample was then passed through the combined lengths of tubing and the same brand of 0.45-µm filter used for all RI water sampling. In addition, a sample was filtered by the analytical laboratory (ATI) using a different brand of 0.45-µm filter. One sample that did not touch any of the filtration materials was also analyzed as a control. Consistent with the field sampling, the samples touched no other materials (e.g., stainless steel funnel). The five samples were duplicated to verify the results (10 samples total). Of the 10 samples, antimony was detected only in the 2 duplicate samples (0.0078 and 0.018 mg/L) that passed through the type of filter used during the RI work.

Third, independent data from the filter manufacturer indicate that, in a test of one filter, antimony was detected at a low concentration in the initial water passed through the filter, but not after 1 hour of passing water through it. This information suggests that antimony is present at trace concentrations in the filter membrane or housing material and that the antimony is flushed out of the filter with time. Typically in the field, approximately 0.5 liter of water was passed through the filter prior to sample collection. Differences in the volume of water purged through the filter prior to sampling may account for differences in the detected antimony concentrations in the filtered samples. For the controlled experiment, approximately 0.5 liter was also purged prior to sampling; the sample bottles (original and duplicate) were then filled one-half full and then full, alternating between bottles. The differences in duplicate results from the controlled experiment may also indicate decreases in concentrations as more water was passed through the filter.

These combined findings confirm that the detected concentrations of dissolved antimony in the RI water samples are the result of sample filtration and are not representative of Site groundwater and surface water quality. Consequently, the total antimony concentrations are more representative of the Site groundwater and surface water data.

Seep Data

Dissolved copper was the only metal detected, and it was detected in fewer than half of the samples. Ambient surface water data for Puget Sound indicate that these detections are within the range of background concentrations for copper in saline waters like those encountered at the seeps. In addition, elevated copper concentrations were detected in Site soils at only one small location in Area 18; therefore, the Site does not represent a potential source of copper to the seeps.

Summary of Metals Data in Groundwater

With the exception of aluminum, no dissolved metals concentrations in groundwater samples were elevated. Dissolved aluminum was also detected in background groundwater samples and in background soil samples (greater than 10,000 mg/kg [1 percent]), indicating that aluminum is a natural constituent in regional soil and groundwater. Total metals concentrations detected in unfiltered groundwater samples are a result of sample turbidity and therefore are not representative of groundwater quality.

PAH Data for Groundwater

During the RI, 129 groundwater samples were collected and analyzed for PAHs. During the September 1992 sampling round, one of two samples collected from MW-8 contained a total cPAH concentration of 1.56 µg/L. However, this result was not confirmed by the field duplicate sample collected concurrently from MW-8, which had a detected total cPAH concentration of 0.01 µg/L. Concentrations of cPAHs were not detected in groundwater samples or field duplicates from MW-8 in any of the other RI sampling rounds, either before or after the September 1992 round. Furthermore, detected total cPAH concentrations have not exceeded 0.1 µg/L in other groundwater samples collected during the RI. Therefore, based on the available data, the single unconfirmed elevated detection of total cPAH in MW-8 is not considered representative of groundwater quality at this location or elsewhere at the Site.

The only cPAH compound detected in more than 2 percent of groundwater samples collected during the RI was chrysene. Excluding the anomalous September 1992 groundwater sample from MW-8, frequencies of detection for cPAHs in RI groundwater samples are as follows:

- Benzo(a)anthracene: 0/128 (0 percent)
- Benzo(a)pyrene: 0/128 (0 percent)
- Benzo(b)fluoranthene: 2/128 (<2 percent)
- Benzo(k)fluoranthene: 0/128 (0 percent)
- Chrysene: 15/128 (<12 percent)
- Dibenzo(a,h)anthracene: 1/128 (<1 percent)
- Ideno(1,2,3-c,d)pyrene: 0/128 (0 percent)

Because chrysene is the only cPAH compound confirmed in Site groundwater, one-half the detection limit for chrysene was used in calculating total cPAH concentrations for groundwater samples where chrysene was not detected. One-half detection limits were not added for the other cPAH compounds because the data indicate that they were not present in Site groundwater.

Chrysene has been detected inconsistently in groundwater samples from 11 monitoring wells (excluding the September 1992 sample from MW-8) at marginally elevated levels. The chrysene detections occur infrequently in different monitoring wells, including well MW-14 located along the eastern (hydraulically upgradient) edge of the Site. The detected concentrations are very low, ranging from 0.02 to 0.1 µg/L, with an average of 0.03 µg/L relative to the detection limit of 0.01 µg/L. Furthermore, chrysene is not detected consistently at a given well over time (detected in only 1 of the 11 wells in more than 1 of the 4 sampling rounds). Statistical testing (a Fisher's Exact Test) indicates that the proportion of chrysene detections in on-Site monitoring wells (16/129) is not significantly different (at $p = 0.05$; 95 percent confidence level) than the proportion of detections in background wells (0/12).

Benzo(b)fluoranthene and dibenzo(a,h)anthracene were also each detected in one groundwater sample (other than the September 1992 sample from MW-8) at marginally elevated concentrations.

Pre-RI Data

PAHs were detected in some pre-RI groundwater samples collected from newly installed monitoring wells, and the concentrations generally decreased or were not detected in samples from subsequent rounds. These data may indicate potential hydrocarbon contributions from the air rotary drilling method (e.g., compressed air), which was used for installation of pre-RI and RI monitoring wells.

To evaluate potential hydrocarbon contributions during the drilling of the RI monitoring wells, a sample of particulate matter entrained in the compressed air discharging from the air rotary drill bit was collected on a quartz-fiber filter. Air was discharged onto the filter at normal operational pressures for approximately 10 minutes. Following the air discharge, a second filter was set on the drill rig, which was shut off, for 10 minutes to serve as a blank for evaluating ambient conditions. The samples were analyzed for TPH and PAHs to determine constituent mass added to the filter. Because a volume of air was not measured during this test, the sampling results were reported as mass, not a concentration.

TPH was not detected in either sample. One ncPAH (fluoranthene) was measured at 4.41 µg in the sample of discharged air and at 2.64 µg in the blank sample. These data suggest that the air rotary method did not introduce a significant quantity of hydrocarbons to the borehole. However, the pre-RI wells were drilled (4 years earlier) using an older model drill rig, which may not have had as sophisticated an oil-trap system for the compressed air as the rig used and tested during the RI drilling.

Summary of cPAH Data for Groundwater

Although chrysene has been detected inconsistently in RI groundwater samples, no cPAH concentrations were detected at elevated concentrations (excluding one anomalous, unconfirmed sample concentration).

3.2.4 No Active Remedial Action Required for Groundwater

Based on these data, Ecology provided a “No Active Remedial Action” letter (Ecology 1996a) for cleanup in groundwater at the Site indicating that no constituents detected in Site groundwater required active cleanup or any further action except for the long-term monitoring of DNT in selected groundwater wells (Ecology 1996a). The duration of long-term groundwater monitoring for DNT will be specified in the Parcel 1 CAP.

This section presents the findings of the RI surface water and freshwater sediment characterization efforts within the CDB at the Site. The purpose of the surface water and freshwater sediment characterization was to evaluate constituent concentrations in these media. Surface water and sediment sampling and analysis were conducted in the two freshwater bodies on the Site—Old Fort Lake and Sequalitchew Creek. The physical nature of the lake and creek are discussed in Section 3.1.3. Sections 4.1 through 4.4 present specific information on surface water and freshwater sediment sampling and analysis. Appendix C presents supporting tables on surface water and freshwater sediment quality.

4.1 SURFACE WATER AND FRESHWATER SEDIMENT SAMPLING

In December 1986, five surface water/sediment sampling locations were selected for Parcel 1 within the CDB on the Site (Figure 4.1-1). These sampling locations were generally situated to intercept drainage from Site areas identified during the pre-RI work and to provide data regarding potential constituent migration along these pathways. The sampling locations included two locations along Sequalitchew Creek (SW-3 and SW-4) and three locations in Old Fort Lake (SW-5, SW-6, and SW-7). Note that SW-4 represents an upstream creek sampling location because it lies slightly outside the easternmost edge of the CDB. Therefore, SW-4 represents water quality entering the Site but is not influenced by Site activities.

4.1.1 Surface Water

Eleven rounds of surface water sampling were conducted at the Site between December 1986 and December 1992, concurrent with the groundwater sampling rounds. Sequalitchew Creek is intermittent in both its upper and lower reaches, remaining dry during the summer and autumn. As a result, samples from creek sampling location SW-4 could not be collected during all RI sampling rounds. Attempts to sample SW-4 in mid-January 1993 (RI Round 5) were unsuccessful because the creek remained dry at this location. A discussion of surface water sampling procedures is provided in Appendix A.

Consequently, the number of surface water sampling locations and the constituents analyzed for varied over time. The surface water results from the seven pre-RI sampling rounds are summarized in Hart Crowser (1987, 1988a, 1988c, 1988d, 1989a, 1990, and 1991c). Table 4.1-1 summarizes the number of usable data points for surface water (as defined in Section 3.2.1). The combined pre-RI and RI surface water data are discussed in the following subsections.

4.1.2 Freshwater Sediment

Three rounds of freshwater sediment samples have been collected from the Site. The first round of samples was collected in December 1986 as part of the pre-RI site characterization (Hart Crowser 1987). In this pre-RI round, samples were collected from locations SD-3 and SD-4 and SPR-4 in Sequalitchew Creek, and SD-5 and SD-6 in Old Fort Lake as shown in Figure 4.1-1. The freshwater sediment locations were sampled as part of the RI in March 1992, concurrent with RI Round 1 groundwater and surface water sampling. The RI sampling locations were the same as the pre-RI locations, except that SD-7 was added in Old Fort Lake and SPR-4 was not sampled in Sequalitchew Creek. A discussion of freshwater sediment sampling procedures is provided in Appendix A.

As recommended by Ecology, six additional Old Fort Lake sediment sampling locations (SD-501 through SD-506) were established and sampled in August 1993 (Figure 4.1-1). Sampling locations were defined using randomly selected locations within a 100-foot grid system. All locations are at least 50 feet from the July 1993 low water line. Two surface and subsurface composite samples were collected from each of the six locations at 0 to 2 cm and 2 to 15 cm. The 0- to 2-cm sample is representative of recent sedimentation/deposition material, whereas the 2- to 15-cm sample is representative of historical deposition within the assumed predominant biologically active zone (Ecology 1991c). Samples were analyzed for lead and submitted for grain size analysis. Samples were generally of fine-grained soils and organic material. Gravel was not observed at any sampling location.

4.2 SURFACE WATER QUALITY

Detected concentrations of analytes in surface water are discussed in this section. All RI surface water samples were analyzed for nitrate as nitrogen, TPH, 14 metals (total and dissolved), PAHs, NAX, NG, MMAN, TOC, TDS, and TSS. SVOCs were also analyzed in RI Round 1 (March 1992). Surface water quality data tables are provided in Appendix C.

4.2.1 Old Fort Lake Surface Water Quality

During four rounds of RI surface water sampling in Old Fort Lake, NAX, NG, MMAN, TPH, SVOCs, and VOCs were not detected. No concentrations of nitrate detected in Old Fort Lake samples were elevated. Over the full period of sampling in Old Fort Lake (pre-RI and RI), dissolved lead in 2 of 18 samples and dissolved copper in 6 of 12 samples were the only constituents detected at elevated concentrations. As discussed in Section 3.2.3, antimony was contributed to filtered groundwater and surface water samples during sample filtration; as a result, total antimony data are more representative of surface water quality.

Dissolved Lead Data for Old Fort Lake

Two of the 18 samples from Old Fort Lake that were analyzed for dissolved lead had elevated concentrations (0.006 mg/L at SW-6 in June 1988, and 0.004 mg/L at SW-7 in March 1992). Dissolved lead detections have not been confirmed at either sampling location in subsequent sampling rounds (five subsequent rounds at SW-6 and three rounds at SW-7).

Dissolved Copper Data for Old Fort Lake

Five of the 12 samples from Old Fort Lake that were analyzed for dissolved copper had elevated concentrations. The range of detected dissolved copper concentrations from the lake samples was 0.0052 to 0.010 mg/L. Elevated dissolved copper was detected at each of the three lake sampling locations in one or more of the RI sampling rounds.

4.2.2 Sequalitchew Creek Surface Water Quality

During the RI surface water sampling in Sequalitchew Creek, no NAX, NG, MMAN, TPH, SVOCs (other than common laboratory contaminants), or VOCs were detected. No concentrations of nitrate detected in Sequalitchew Creek samples were elevated. Over the full period of monitoring (pre-RI and RI), concentrations of dissolved lead, dissolved copper, total arsenic, and PAHs were elevated in one or more samples from the creek, as discussed below.

In the December 1986 sampling of Sequalitchew Creek, one or more of the OC pesticide compounds aldrin, endrin, and endrin ketone were detected at estimated concentrations below detection limits in samples from locations SW-3 and SW-4 (Hart Crowser 1987). Because these compounds were also detected in the laboratory preparation blank associated with these samples, the results are not confirmed as being representative of surface water quality. The only sample for which all three of these compounds were reported was from location SW-4, located upstream of the Site. The results of all soil and groundwater sampling conducted during the RI indicate that pesticides are not an indicator constituent at the Site.

Dissolved Lead Data for Sequalitchew Creek

Dissolved lead was detected at a concentration of 0.004 mg/L in one of three samples from background location SW-4. These data suggest that the detected dissolved lead may be related to off-Site sources to the creek, which extends almost 1.5 miles east of the Site. Dissolved lead has been detected at concentrations of 0.001 to 0.004 mg/L in regional rivers and streams (USGS 1987).

Dissolved Copper Data for Sequalitchew Creek

Five of the 11 samples from Sequalitchew Creek that were analyzed for dissolved copper had elevated concentrations. The range of detected dissolved copper concentrations from creek samples was 0.0077 to 0.14 mg/L. The 0.14 mg/L detection (SW-3 in March 1992) is anomalous because it is more than an order of magnitude higher than any other dissolved copper concentration detected in samples from either the creek or the lake, and because total copper was not detected in that sample.

Dissolved copper was also detected in one of the two samples from SW-4 located upstream of the Site, suggesting possible off-Site sources of dissolved copper to the creek. Dissolved copper is commonly detected in regional streams at concentrations of 0.001 to 0.005 mg/L, with reported detections as high as 0.048 mg/L (USGS 1987).

Dissolved lead and copper were occasionally detected in filtered samples at concentrations above corresponding total concentrations in unfiltered samples; these detections were not frequent. These results were not observed in deionized water rinsate blanks. Dissolved concentrations greater than corresponding total concentrations are attributed to sampling or analytical variability rather than contributions from the filter capsules used for sample filtration, as was the case for antimony (refer to Section 3.2.3).

The dissolved copper concentrations detected in Sequalitchew Creek are within the range of the background concentrations detected at the upstream location (SW-4), and within the range of regional background concentrations.

4.2.3 Summary of Surface Water Quality Data

Of the wide range of compounds for which on-Site surface water samples were analyzed, only dissolved lead and dissolved copper were detected at elevated concentrations in one or more samples from Old Fort Lake and Sequalitchew Creek. Dissolved copper was the only constituent with confirmed elevated detections. Dissolved lead was detected infrequently at marginally elevated concentrations in both Old Fort Lake and Sequalitchew Creek. None of the lead detections were confirmed in preceding or subsequent sampling rounds. In addition, the concentrations of dissolved copper and lead detected in on-Site surface water are within the range of background concentrations detected in an area background (upstream) sampling location in Sequalitchew Creek (SW-4). Concentrations of dissolved copper and lead detected in on-Site surface water are also within the range of background concentrations detected in other regional rivers and streams in Pierce County.

4.3 FRESHWATER SEDIMENT QUALITY

Analytes for the pre-RI sediment samples included antimony, lead, chromium, nitrates, PCBs, and OC pesticides. Analytes for the RI sampling included NAX, MMAN, NG, nitrate plus nitrite as nitrogen, priority pollutant metals (antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, manganese, nickel, selenium, silver, thallium, and zinc) plus aluminum, PCBs, OC pesticides, OP pesticides, PAHs, SVOCs, TPH, and TOC.

NAX, MMAN, NG, PCB, SVOCs, and TPH were not detected. OP pesticide data were rejected due to poor analytical method performance (see Appendix E). No OP pesticides were detected in soil or groundwater samples collected from the Site, and there is no record of historical use of OP pesticides. Freshwater sediment quality data tables are provided in Appendix C.

4.3.1 Old Fort Lake Freshwater Sediment Quality

PAHs, two OC pesticide, and metals were detected in sediment samples collected from Old Fort Lake. Total ncPAHs were detected in samples SD-5 (1.03 mg/kg) and SD-6 (0.60 mg/kg). Total cPAHs were detected in sample SD-5 (0.46 mg/kg).

Two OC pesticides (endosulfan sulfate and 4,4-DDE) were detected at low concentrations in all three sediment samples from Old Fort Lake. Similar to surface water results, these compounds were detected in laboratory blanks, thereby indicating that these detections are not representative of sediment quality.

Old Fort Lake sediment sampling results indicated no elevated concentrations of metals except cadmium and lead. No data were available for aluminum, antimony, beryllium, silver, mercury, and thallium.

Detected concentrations of lead in RI samples ranged from nondetection to 180 mg/kg (SD-5). August 1993 RI sample concentrations in the 0- to 2-cm samples ranged from 69 to 170 mg/kg. Concentrations in the 2- to 15-cm samples ranged from nondetection at 19 to 43 mg/kg. No freshwater sediment lead concentrations were elevated.

4.3.2 Sequalitchew Creek Freshwater Sediment Quality

Two OC pesticides and metals were detected in sediment samples collected from Sequalitchew Creek. Similar to Sequalitchew Creek surface water results, the pre-RI sediment samples from locations SD-3 and SD-4 contained estimated concentrations (below detection limits) of OC pesticides, including gamma-BHC, dieldrin, endrin, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT (Hart

Crowser 1987). However, like the surface water detections, each of these compounds was also detected in laboratory blanks, thereby indicating that the detections are not representative of sediment quality.

No results from Sequalitchew Creek were elevated for aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. Beryllium, selenium, and thallium were not detected.

4.3.3 Summary of Freshwater Sediment Quality

Of the wide range of constituents for which freshwater sediment samples were analyzed, no constituents were detected at elevated concentrations. There are no published freshwater sediment criteria/standards for Washington State. The freshwater sediment data were compared to standards developed by the State of Wisconsin and the Ontario Province of Canada. These standards were deemed to be the most relevant for the Site. Lead was detected in Old Fort Lake sediments but at relatively low concentrations. Detected concentrations of metals were comparable to available background sediment data for the Puget Sound region.

4.4 NO FURTHER ACTION FOR SURFACE WATER OR FRESHWATER SEDIMENTS

Based on these data, Ecology provided verbal agreement that No Further Action was required for surface water or freshwater sediment at the Site (pending the submittal of a summary of the data), thereby indicating that no constituents detected in Site surface water or freshwater sediment required cleanup or any further action (Ecology 1996d).

Note that although additional groundwater samples (collected at spring locations), surface water and freshwater sediment samples (Sequalitchew Creek), and marine sediment samples (Puget Sound) were collected for characterization purposes, these data are reported in a separate document because the locations from which they were collected are outside the CDB for the Site.

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Appendix A

Field Procedures and Logs

The material in Appendix A was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

Appendix B

Soil Quality Data

CONTENTS

Appendix B presents soil quality data representing current Site conditions as of September 2001. The tables are organized and labeled according to area as discussed in Section 2. The tables are in the same order as that in which they are discussed in Section 2—Site Areas (by number), AP Areas, Site Reference Area (REF), and Narrow-Gauge Railroad (NGRR). Refer to Section 2 for a complete description of each Site Area. Specific notes for the tables are as follows:

1. Blanks indicate no analysis for a specific constituent.
2. Soil quality data representing Site conditions as of September 2001 are provided in the tables, including pre-RI, RI, and interim source removal verification sampling results.
3. Data qualifiers include the following:

    U Not detected at associated detection limit
    J Estimated concentration
    UJ Not detected; associated detection limit is an estimate
    R Rejected data, as determined during data validation
    S Sum of individual constituent concentrations (e.g., total cPAHs and total PCBs)
    X Elution pattern does not match typical product

4. Field duplicate samples are designated with sample ID suffixes of D, DUP, or SSE (the different suffixes have identical meanings).
5. As discussed in Section 2 of the report, soil quality data from the following areas have been redesignated as follows:
    - Areas AP-A and AP-G have been included in the Areas of Potential Concern tables.
    - Areas AP-B and AP-D have been included in Area 26.
    - Samples designated AP-H at the time of sampling have been divided into Areas 25 and 26.
    - Sampling locations within 25 feet of a narrow-gauge railroad grade have been included in the Narrow-Gauge Railroad designation.

The redesignated soil quality data have been included in soil quality data tables in this appendix for the appropriate areas as listed above.

The tables were developed on the basis of information provided to URS in an analytical database submitted in final form for this RI on April 1, 2002 (Pioneer 2002).

Appendix C

Groundwater, Surface Water, and Freshwater Sediment Quality Data

Appendix C provides groundwater, surface water, and freshwater sediment quality data for the Site. Specific notes for the tables are as follows:

1. Blanks indicate no analysis for a specific constituent.
2. Data qualifiers include the following:

U	Not detected at associated detection limit
J	Estimated concentration
UJ	Not detected; associated detection limit is an estimate
R	Rejected data, as determined during data validation
S	Sum of individual constituent concentrations (e.g., total cPAH and total PCBs)

3. Surface water sample ID suffixes include the month and year of sample collection (e.g., -3-88 sample ID suffix indicates sample collection in March 1988).
4. Field duplicate samples are designated with sample ID suffixes of D or DUP (these suffixes have identical meanings).

Groundwater Quality Data

Surface Water and Freshwater Sediment Quality Data

The following appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

Appendix D

Laboratory Physical Soils Testing

This appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

The Hart Crowser soils laboratory conducted mechanical (sieve) and hydrometer analyses to provide grain size distributions for aquifer and aquitard materials, respectively. In addition, flexible-wall permeability tests were conducted to estimate vertical hydraulic conductivity of the aquitard material.

Mechanical Analyses. The Hart Crowser soils laboratory conducted mechanical grain size analyses using standard sieve sizes in accordance with ASTM D 422. The wet sieve analyses were performed to determine the size distribution greater than the No. 200 mesh sieve. Figure 1 presents the classification system used for the grain size analyses. The results of the tests are presented as curves in Figures 2 through 12, plotting percent finer against grain size.

Hydrometer Analyses. Samples of the Kitsap Aquitard material were analyzed using the hydrometer method, or a combined analysis (mechanical plus hydrometer), to determine the size distribution smaller than the No. 200 mesh sieve (i.e., determine percent silt and percent clay). The hydrometer testing was conducted in accordance with ASTM D 422. The results of the tests are presented as curves in Figures 2 and 4.

Laboratory Vertical Hydraulic Conductivity Testing. Testing of vertical hydraulic conductivity was conducted on two undisturbed samples of the Kitsap Aquitard material.

The tests were performed in a triaxial cell using "flexible wall" permeameter techniques, which allowed application of confining stresses approximately equal to the in situ effective overburden stresses. The sample was oriented in its stratigraphically correct position (up versus down) and flow was directed vertically downward through the sample using falling head techniques. The tests were run until steady state conditions were established. The results of the vertical hydraulic conductivity testing are presented in Table 1.

Table 1
Summary of Laboratory Vertical Hydraulic Conductivity (K) Results for Kitsap Aquitard Samples

Sample No.	Sample Description	Estimated Vertical K in cm/sec
MW-20, S-24E	Slightly clayey, sandy SILT	8×10^{-7}
MW-23, S-25A	Very sandy SILT with trace peat and sand partings	1×10^{-7}
	Geometric Mean:	3×10^{-7} cm/sec

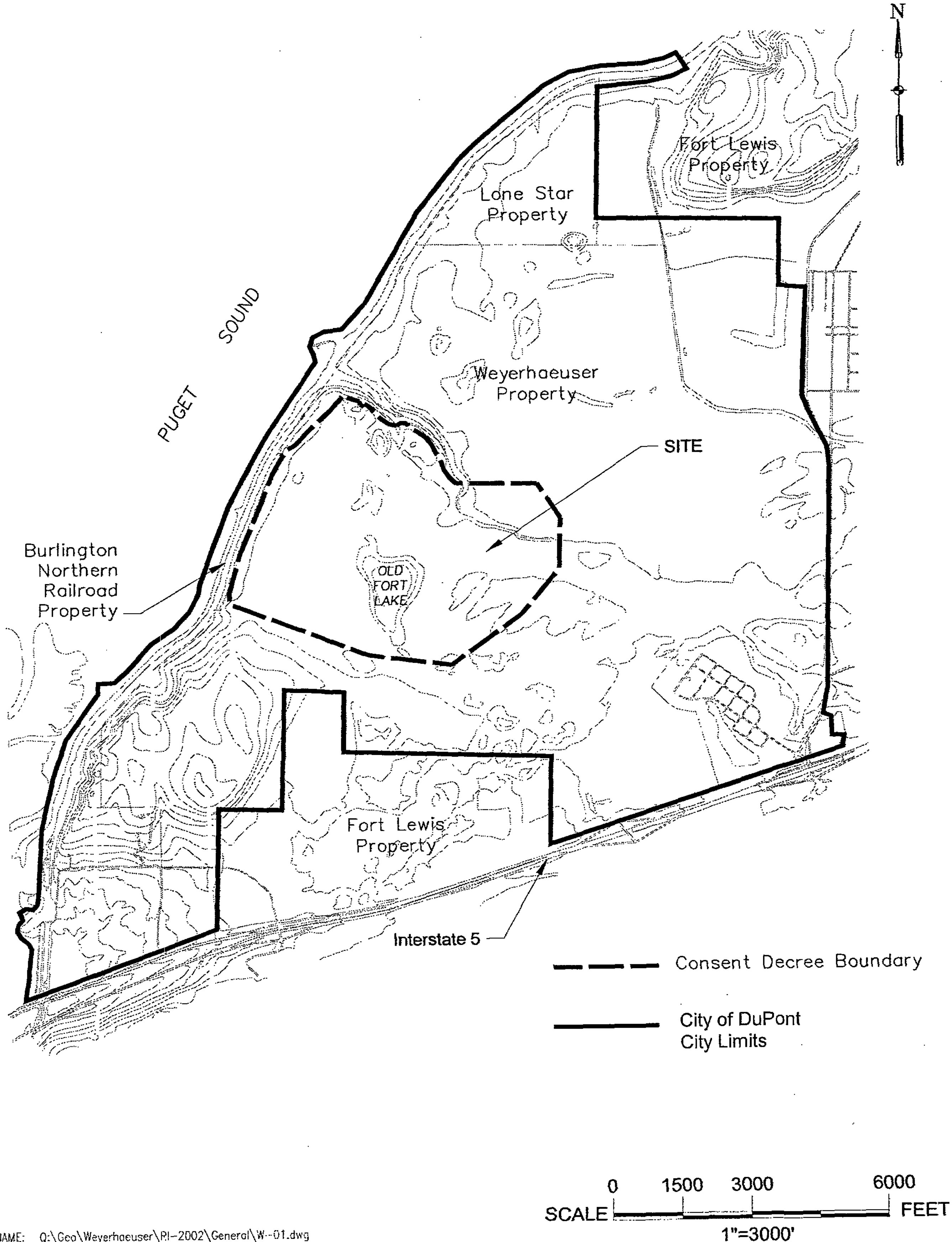
Appendix E

Data Quality Assessments

Recent Data Quality Assessment

Pre-1994 Data Quality Assessment

This appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.



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Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Vicinity Map	Figure 1-1
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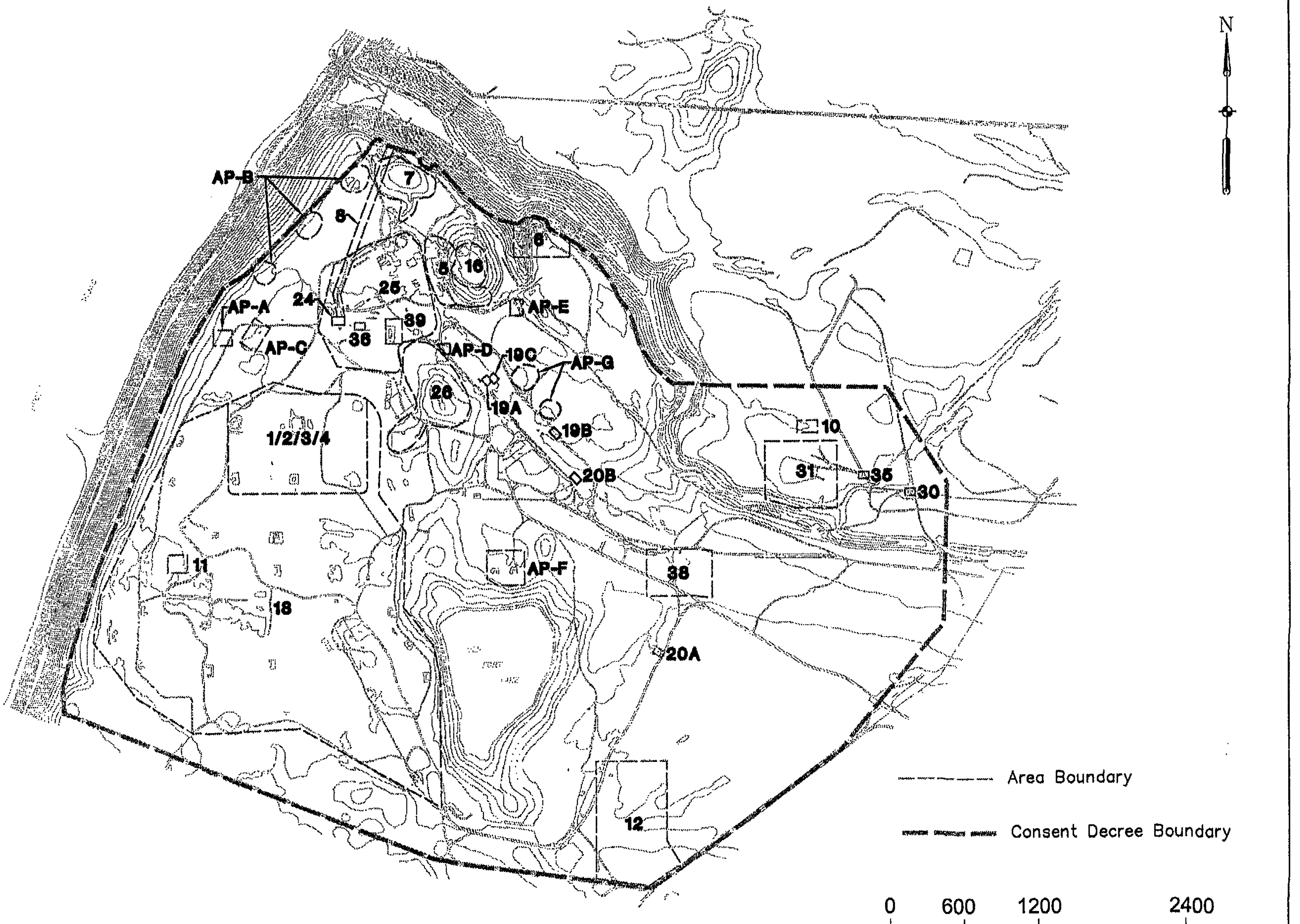

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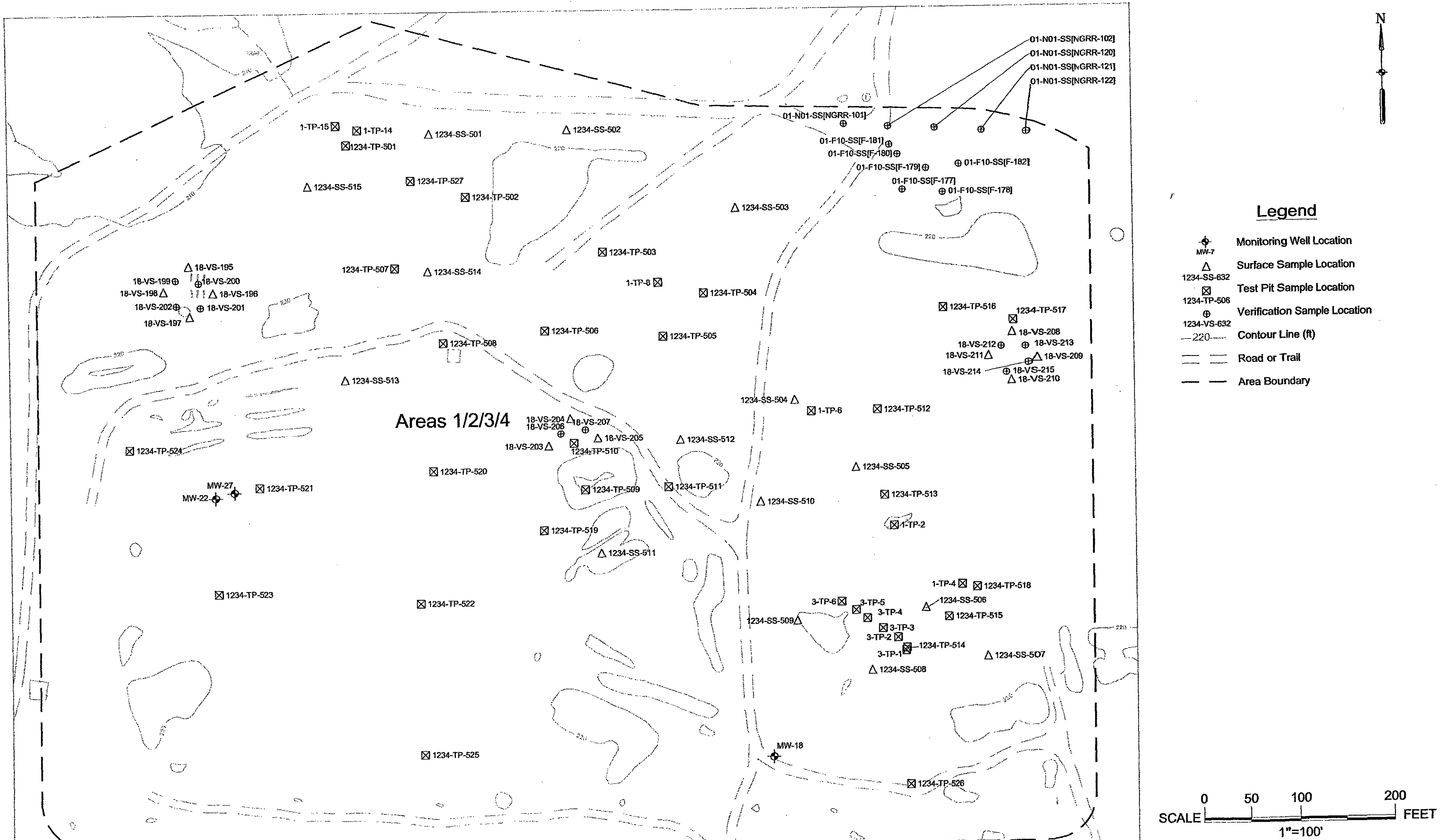
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Former DuPont Works Site Map RI and Interim Source Removal Areas	Figure 1-2
URS			



Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Areas 1/2/3/4 Soil Sample Locations	Figure 2.10-1
URS			

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 1234\Area-1234-Rev2.dwg
EDIT DATE: 04/09/02 AT: 08:55

Legend

MW-7	Monitoring Well Location
18-MH-1	Boring Sample Location
220	Contour Line (ft)
	Road or Trail
	Area Boundary
	Fence
	Railroad
	Consent Decree Boundary

SCALE 0 100 200 400 FEET
1"=200'

Weyerhaeuser - DuPont, WA

Area 18 Boring Soil Sample Locations Sheet 1/4

URS

Project No. 54-974033NC

Figure 2.10-2

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-Borings-Rev2.dwg
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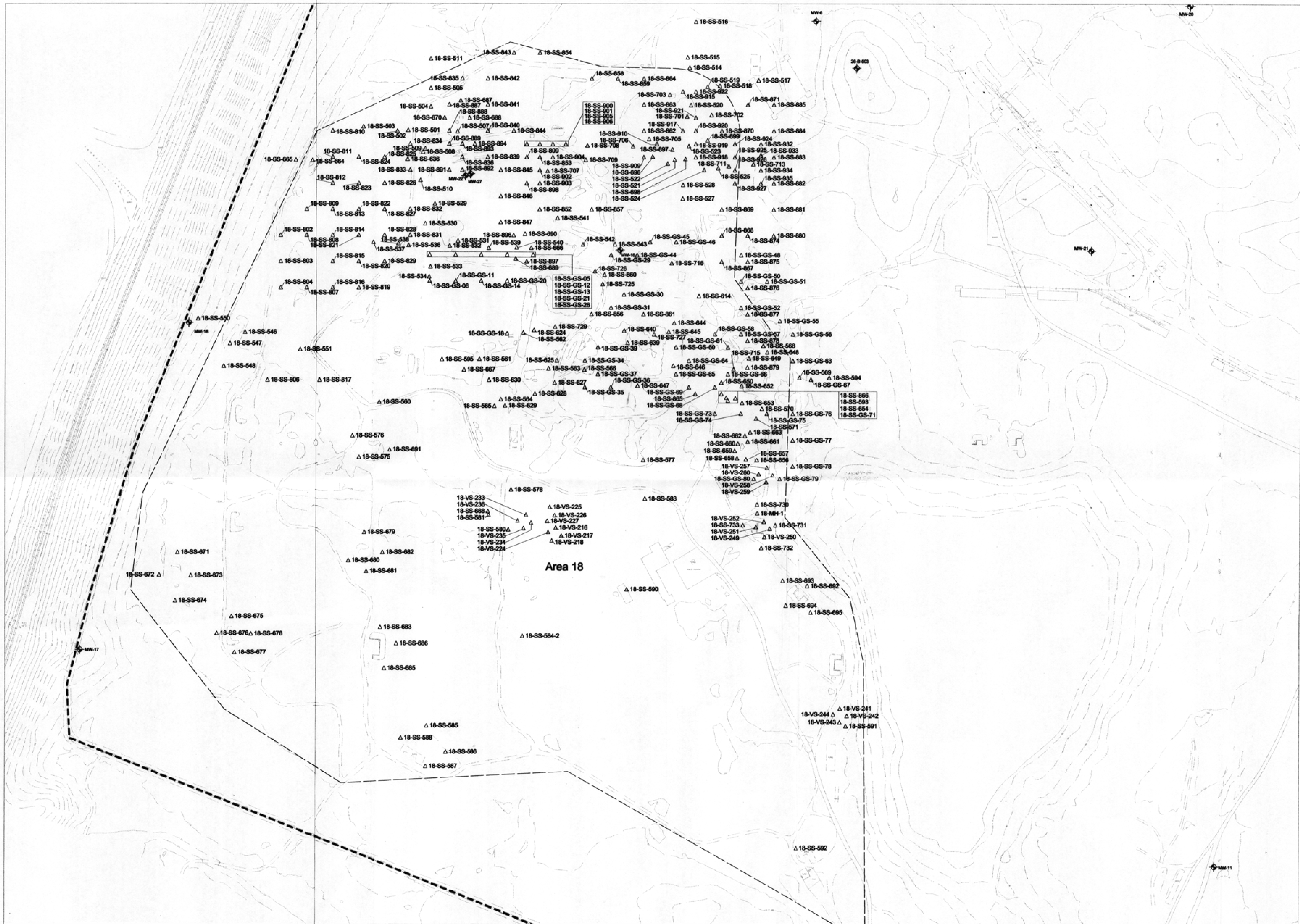


N

Legend

- Monitoring Well Location (MW-7)
- Surface Sample Location (18-SS-632)
- Contour Line (ft) (220)
- Road or Trail
- Area Boundary
- Fence
- Railroad
- Consent Decree Boundary

SCALE 0 100 200 400 FEET
1"=200'

Weyerhaeuser - DuPont, WA

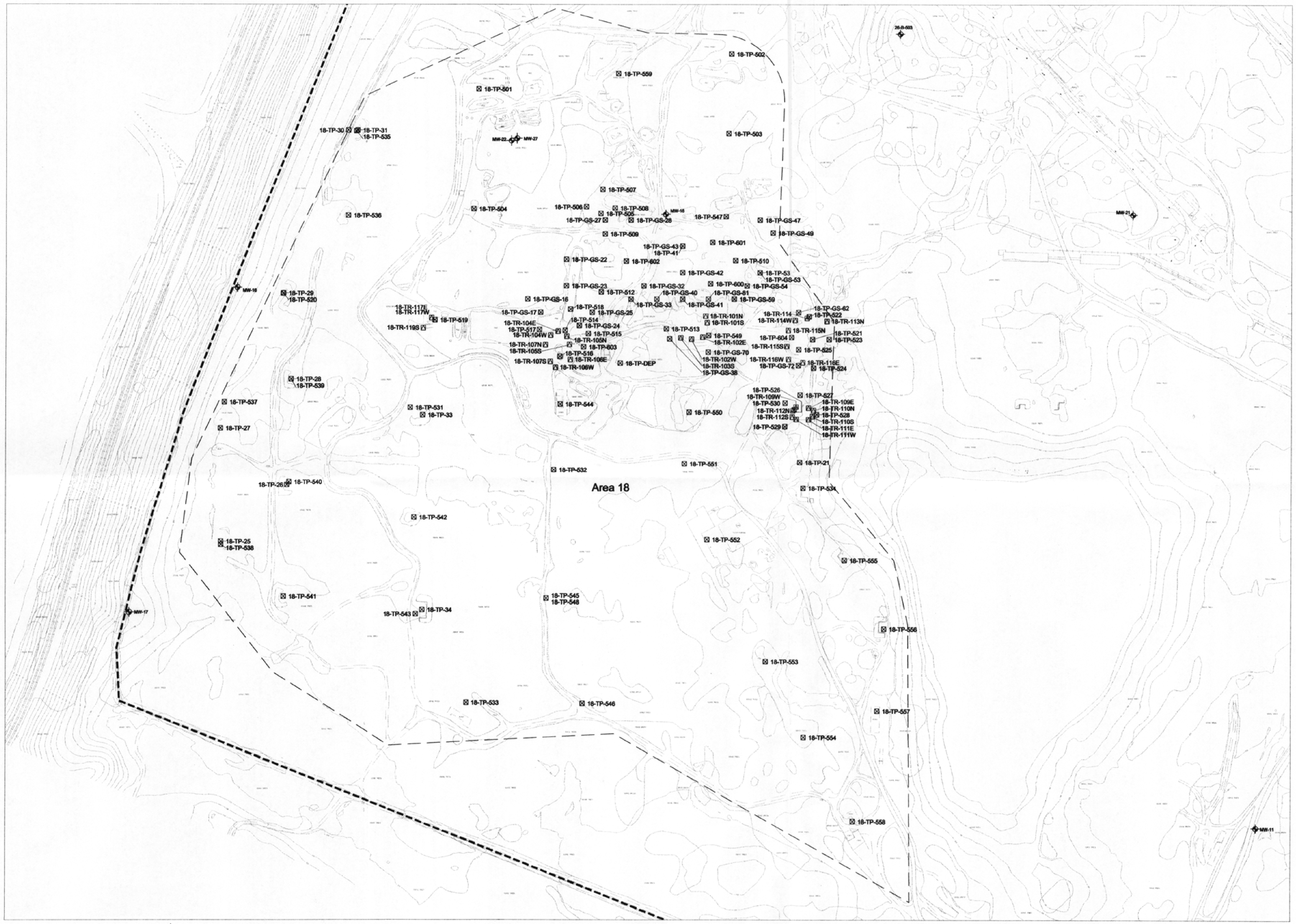
Area 18 Surface Soil Sample Locations Sheet 2/4

URS

Project No. 54-974033NC

Figure 2.10-3

FILENAME: G:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-ss-Rev1.dwg
EDIT DATE: 04/09/02 AT: 09:21



Legend

MW-7	Monitoring Well Location
31-TP-506-S-2	Test Pit Sample Location
31-TR-111W	Trench Sample Location
220	Contour Line (ft)
	Road or Trail
	Area Boundary
	Fence
	Railroad
	Consent Decree Boundary

SCALE 0 100 200 400 FEET
1"=200'

Weyerhaeuser - DuPont, WA

Area 18 Test Pit Soil Sample Locations Sheet 3/4

URS

Project No. 54-974033NC

Figure 2.10-4

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-tp-Rev 2.dwg
EDIT DATE: 05/01/02 AT: 10:39

Weyerhaeuser - DuPont, WA

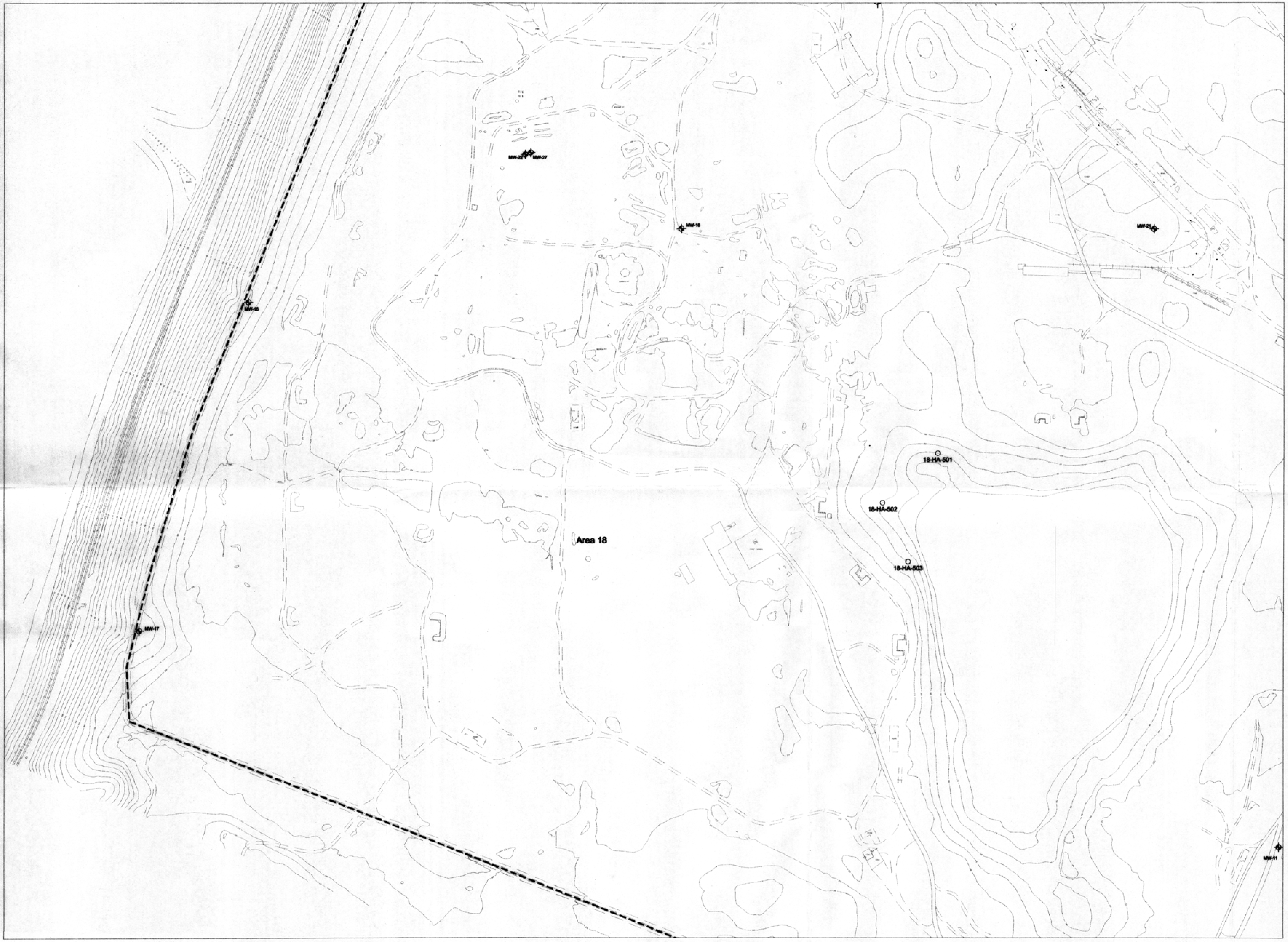
Area 18 Verification Soil Sample Locations Sheet 4/4

URS

Project No. 54-974033NC

Figure 2.10-5

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-vs-Rev 2.dwg
EDIT DATE: 05/01/02 AT: 10:45



N

Legend

- Monitoring Well Location (MW-7)
- Hand Auger Sample Location (31-HA-602-S-3)
- Consent Decree Boundary

Notes

1) Draft Final RI Figure for Review

SCALE 0 100 200 400 FEET
1"=200'

Weyerhaeuser - DuPont, WA

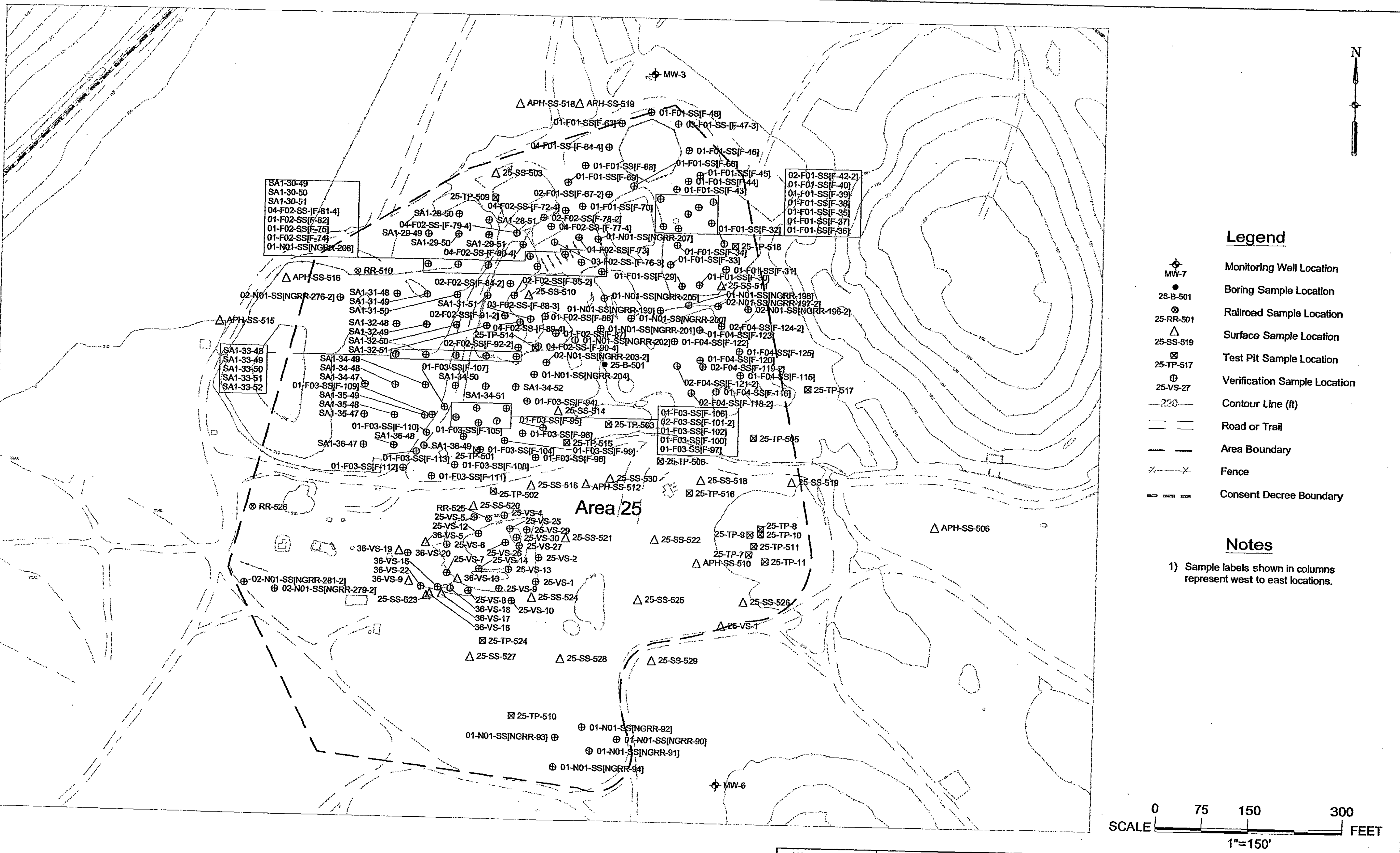
Area 18 Hand Auger Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.10-6

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-hat-Rev1.dwg
EDIT DATE: 03/18/02 AT: 14:54



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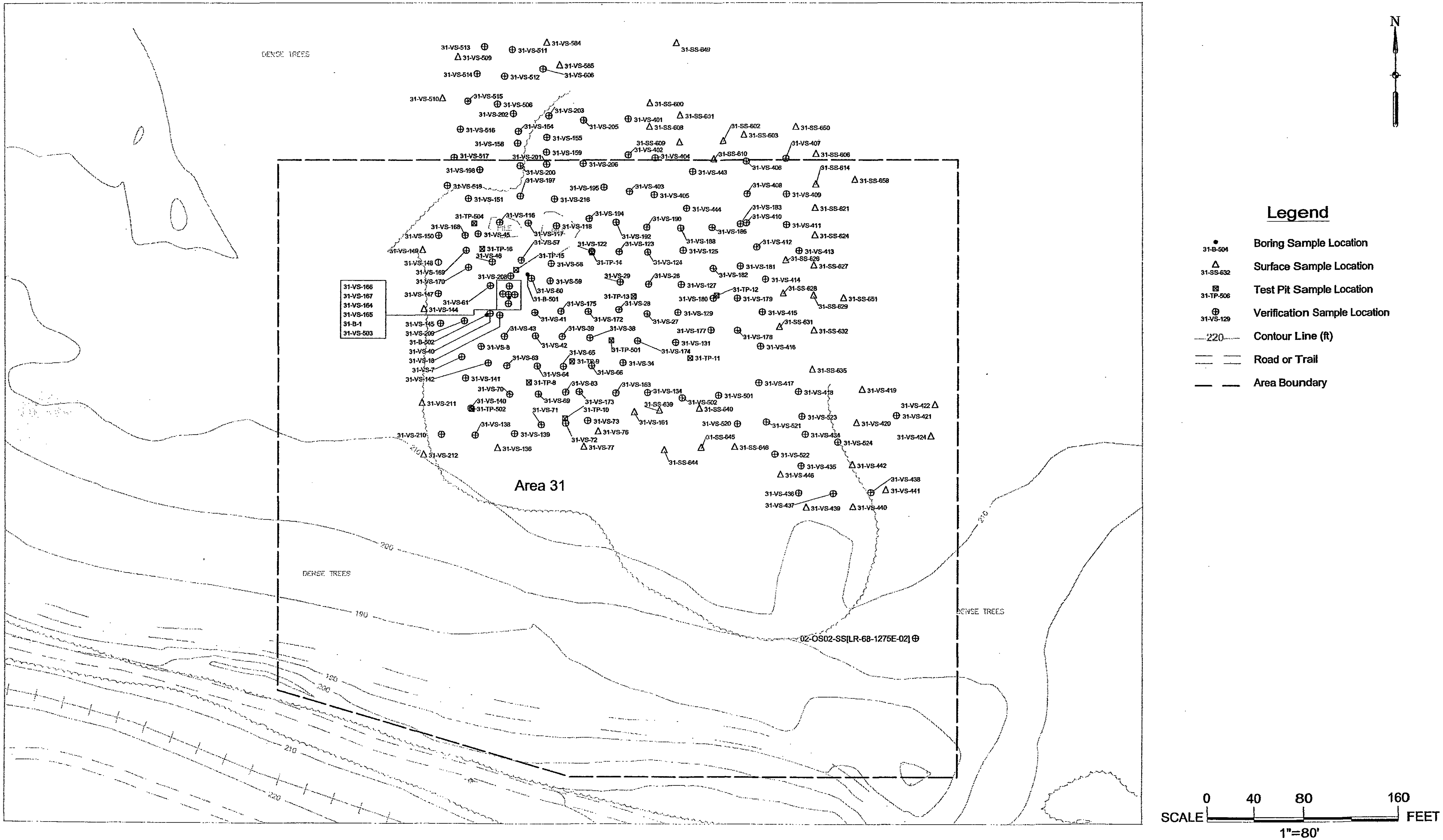
EDIT DATE: 04/15/02 AT: 09:45

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 25 Soil Sample Locations	Figure 2.11-1
URS			

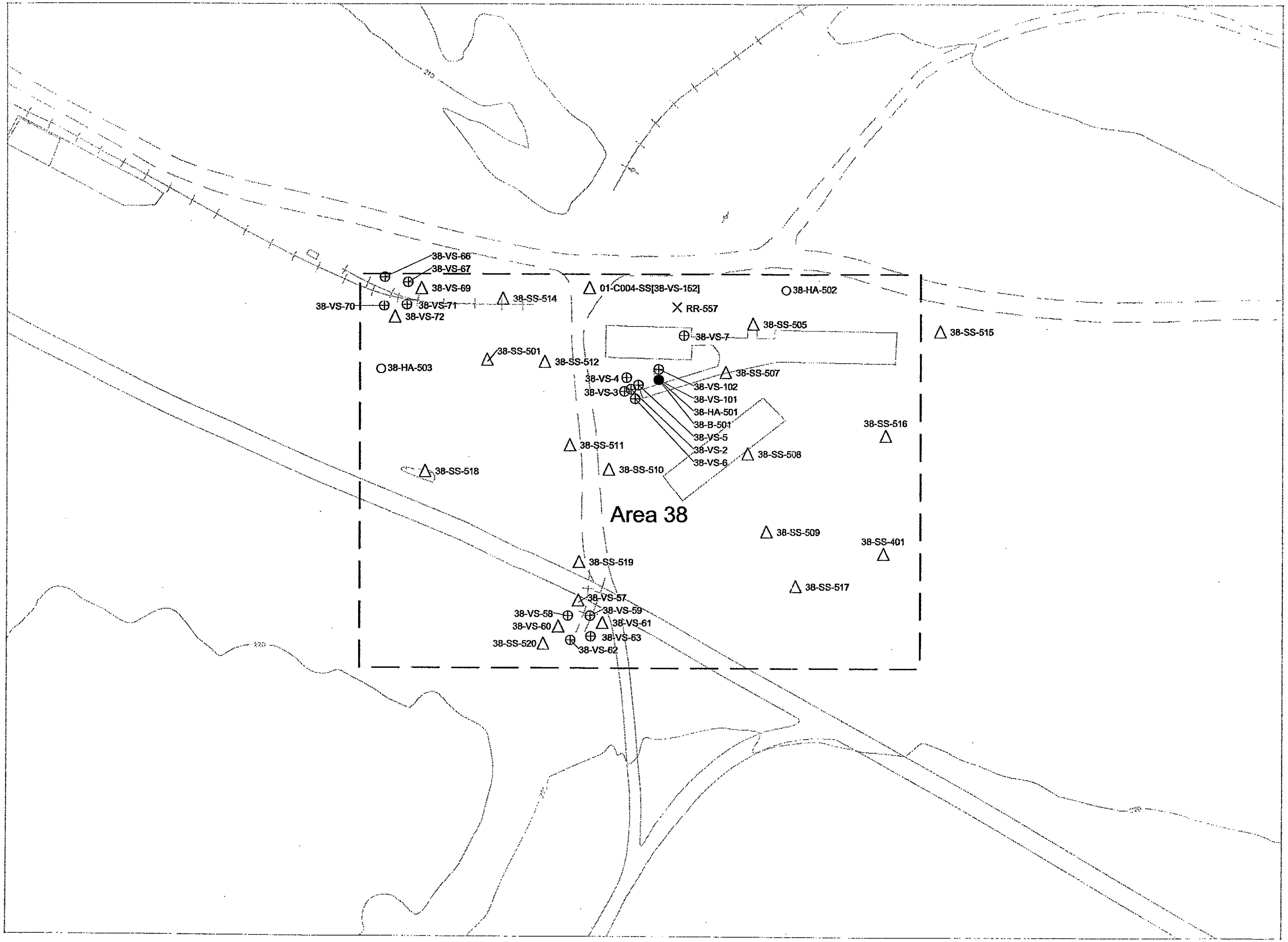
FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 26\Area 26A-Rev 3.dwg
EDIT DATE: 03/18/02 AT: 09:20

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 26 Soil Sample Locations	Figure 2.12-1
URS			



FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 31\Area-31b 1_80-Rev 3.dwg
EDIT DATE: 04/25/02 AT: 13:41

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 31 Soil Sample Locations	Figure 2.13-1
URS			



Legend

- 38-B-501 Boring Sample Location
- 38-HA-501 Hand Auger Sample Location
- RR-557 Railroad Sample Location
- 26-SS-502 Surface Sample Location
- 38-VS-101 Verification Sample Location
- 220 Contour Line (ft)
- Road or Trail
- Area Boundary
- Railroad

Notes

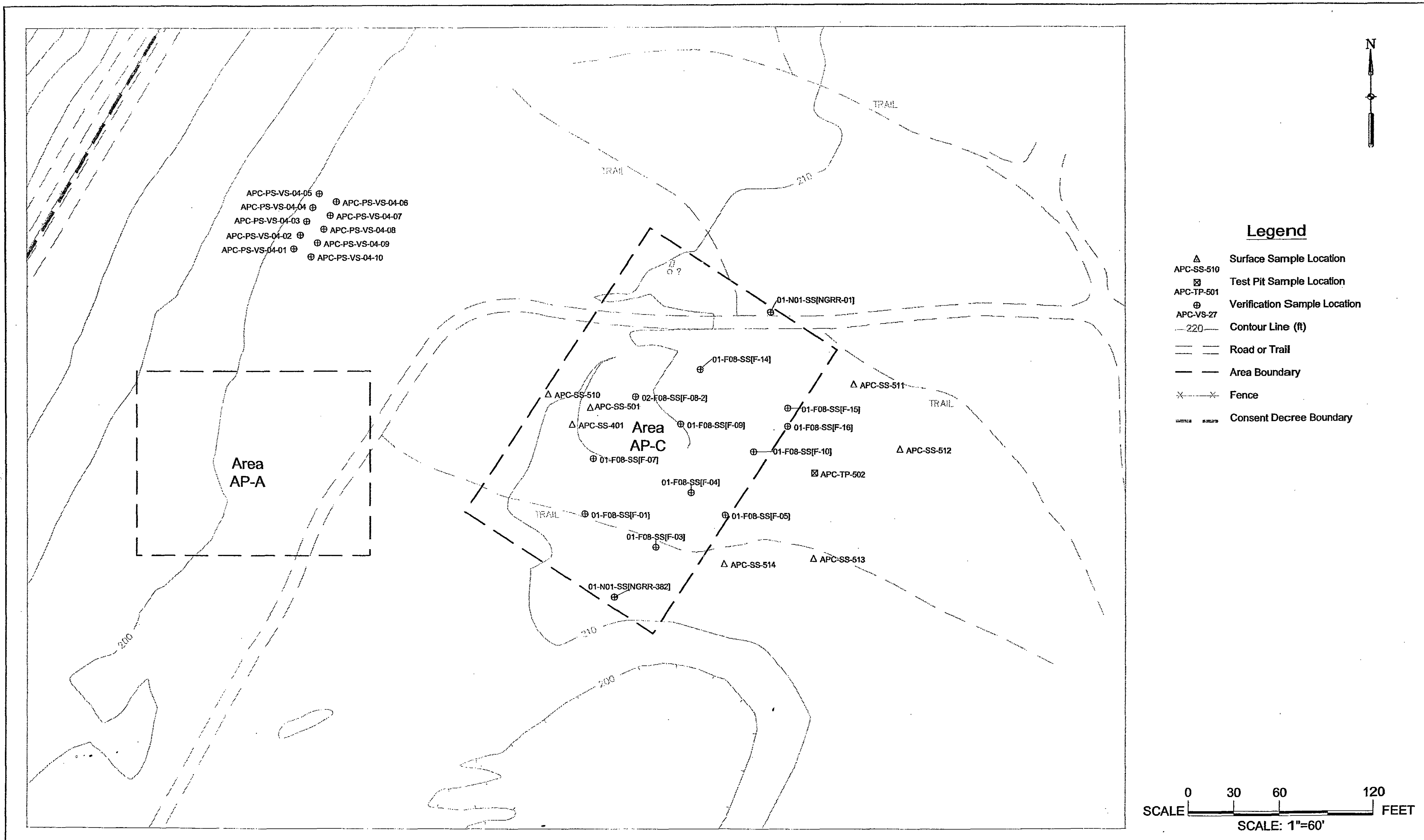
1) Samples 38-HA-501, 38-B-501, 38-VS-101 and 38-VS-102 are all at the same coordinate points.

2) 38-HA-501 is a Hand Auger Location
38-B-501 is a Boring Location
38-VS-101 is a Verification Location

SCALE 0 50 100 200 FEET
1"=100'

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 38\Area-38-Rev 3.dwg
EDIT DATE: 04/15/02 AT: 09:54

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 38 Soil Sample Locations	Figure 2.14-1
URS			



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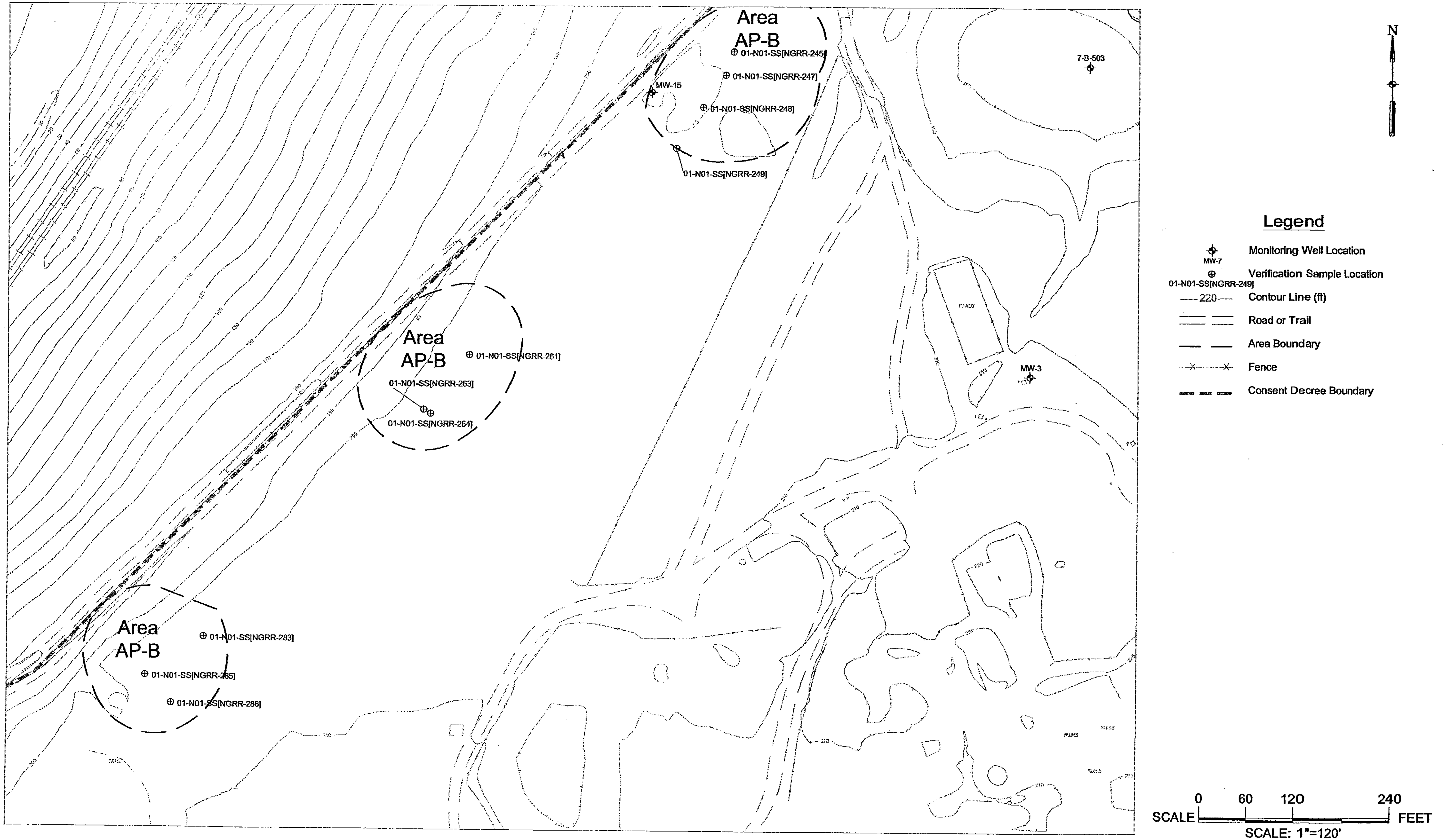
EDIT DATE: 04/15/02 AT: 09:59

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Areas AP-A and AP-C Soil Sample Locations	Figure 2.15-1
URS			



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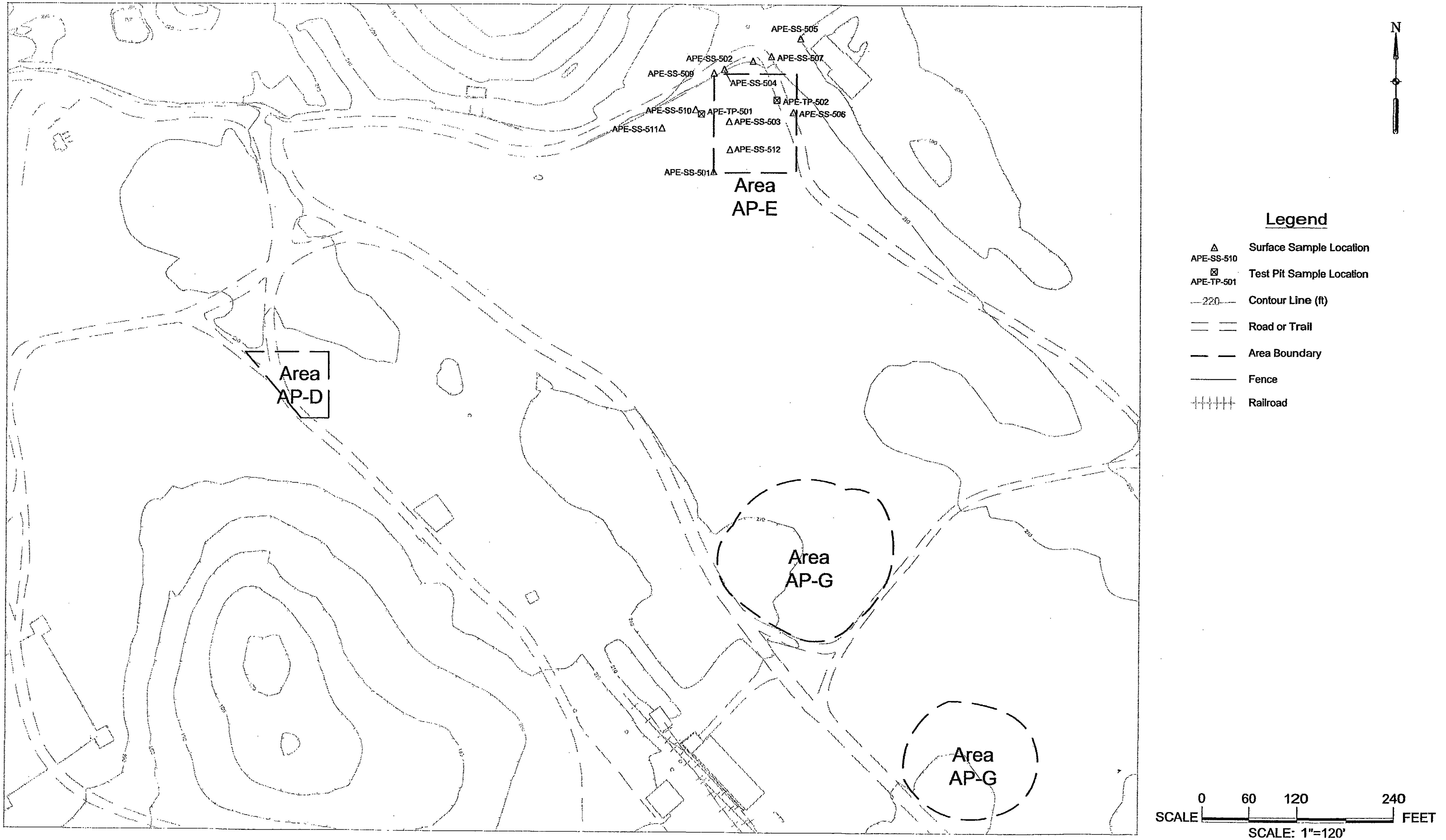
EDIT DATE: 04/15/02 AT: 10:02

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area AP-B Soil Sample Locations	Figure 2.15-2
URS			



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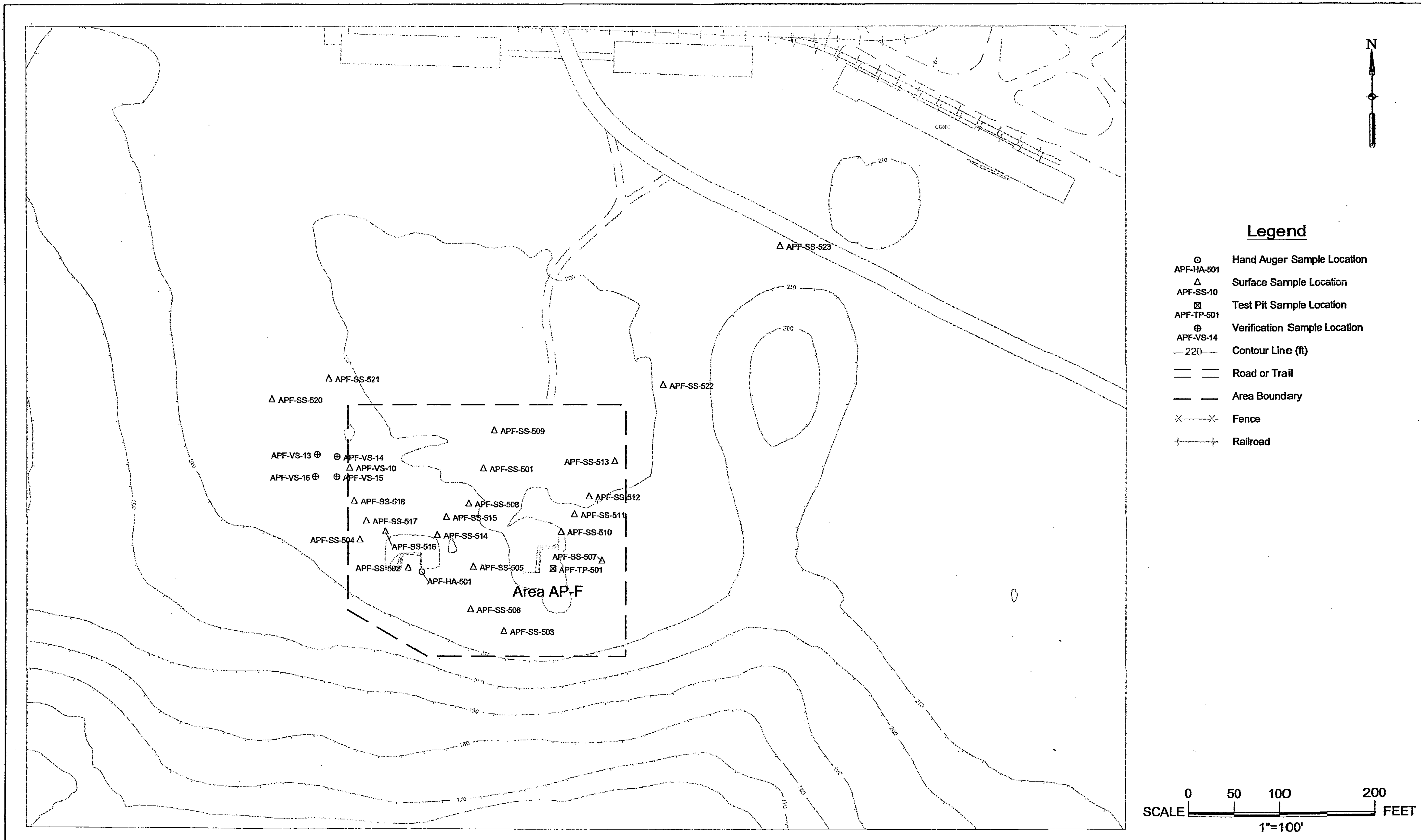
EDIT DATE: 04/15/02 AT: 10:04

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Areas AP-D, E, and G Soil Sample Locations	Figure 2.15-3
URS			



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EDIT DATE: 04/09/02 AT: 09:01

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area AP-F Soil Sample Locations	Figure 2.15-4
URS			

Weyerhaeuser - DuPont, WA

Area 18 Reference Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.16-1

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 18\Area-18-REF-Rev 2.dwg
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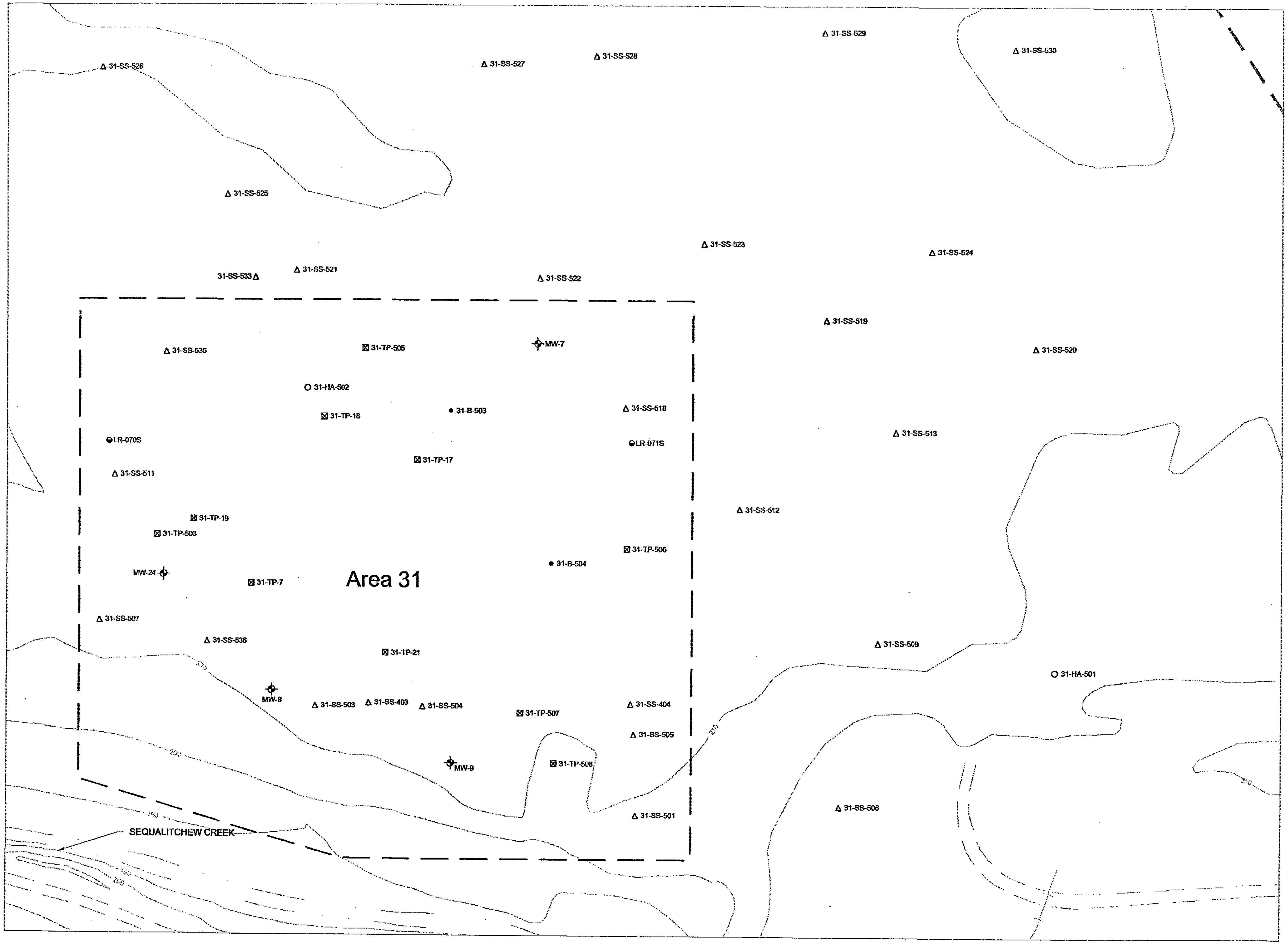


N

Legend

31-B-504-S-2	Boring Sample Location
31-HA-502-S-3	Hand Auger Sample Location
MW-7	Monitoring Well Location
31-SS-632	Surface Sample Location
LR-070-S	Lead Reference Sample Location
31-TP-506-S-2	Test Pit Sample Location
	Road or Trail
	Railroad
	Area Boundary
	Consent Decree Boundary

SCALE 0 50 100 200 FEET
1"=100'

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 31\Area-31Ref-Rev3.dwg
EDIT DATE: 04/15/02 AT: 10:13

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 31 Reference Soil Sample Locations	Figure 2.16-2
URS			

Weyerhaeuser - DuPont, WA

Lead Reference Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.16-3

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\LR\LR-Rev-2.dwg
EDIT DATE: 04/15/02 AT: 14:25

Legend

LR-101 Lead Reference Sample Location

RR-130 RR Sample Location

30-VS-6 Verification Sample Location

220 Contour Line

Road or Trail

Consent Decree Boundary

Fence

SCALE 0 200 400 800 FEET
1"=400

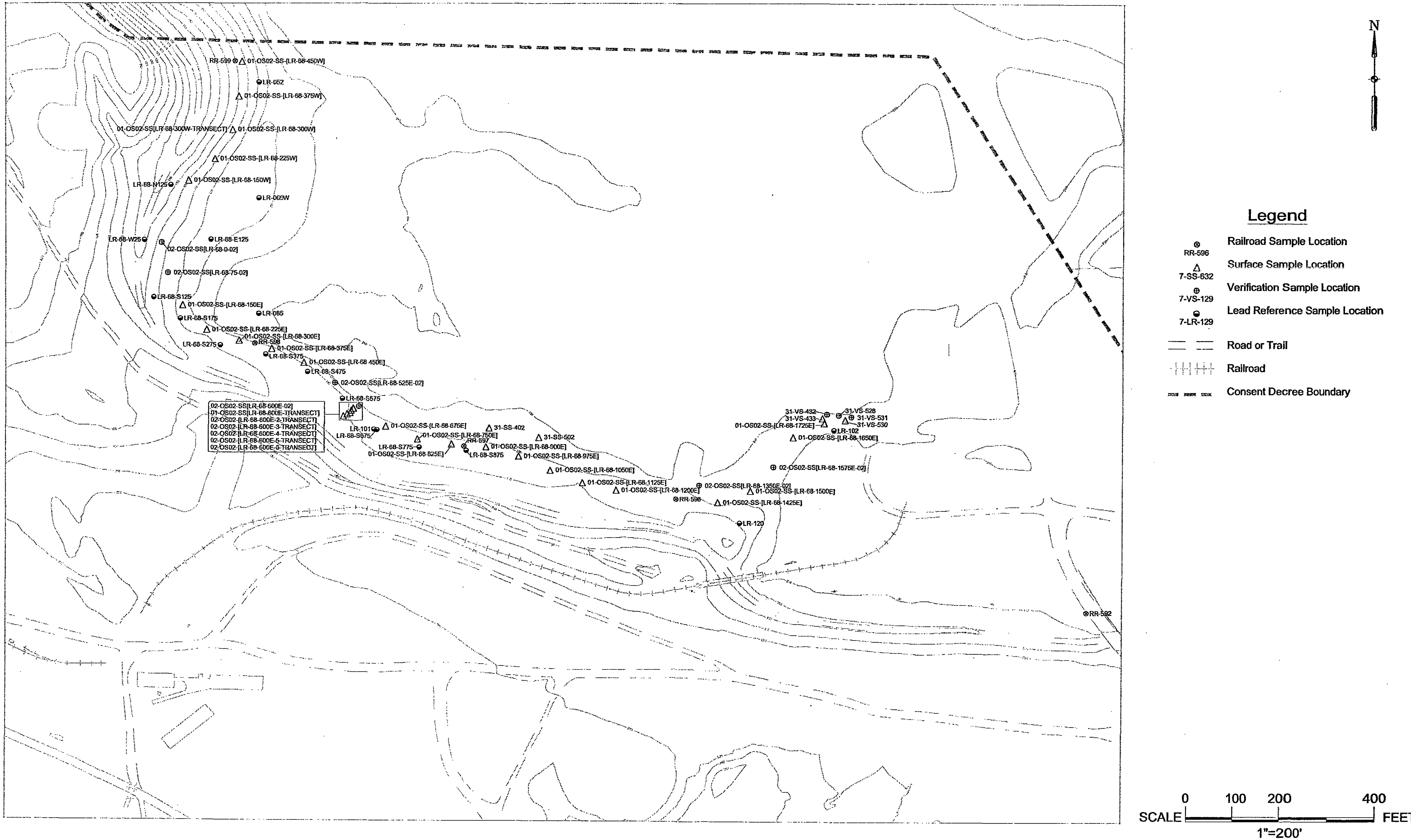
Weyerhaeuser - DuPont, WA

Historical Railroad Soil Sample Locations

Created by URS
Modified by PIONEER

Project No. 54-974033NC

Figure 2.17-1



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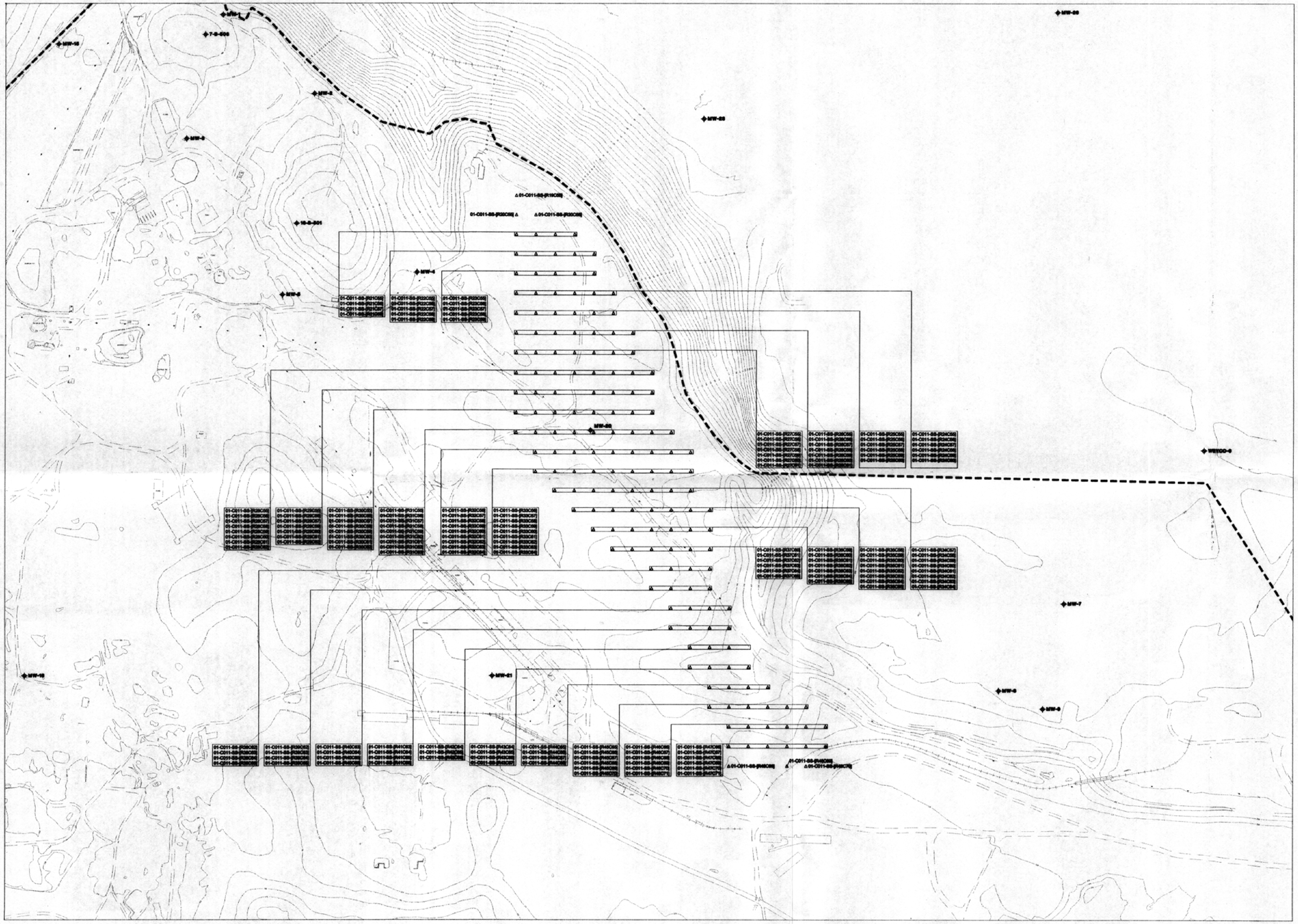
EDIT DATE: 04/15/02 AT: 10:16

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Creek Soil Sample Locations	Figure 2.18-1
URS			



N

Legend

- MW-7 — Monitoring Well Location
- 18R-11 — Surface Sample Location
- 220 — Contour Line (ft)
- Road or Trail
- Area Boundary
- Fence
- Railroad
- Consent Decree Boundary

Notes

1) Sample labels shown in columns represent west to east locations.

0 100 200 400
SCALE FEET
1"=200'

Weyerhaeuser - DuPont, WA

Candidate North Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.19-1

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Candidate\Candidate 1.dwg
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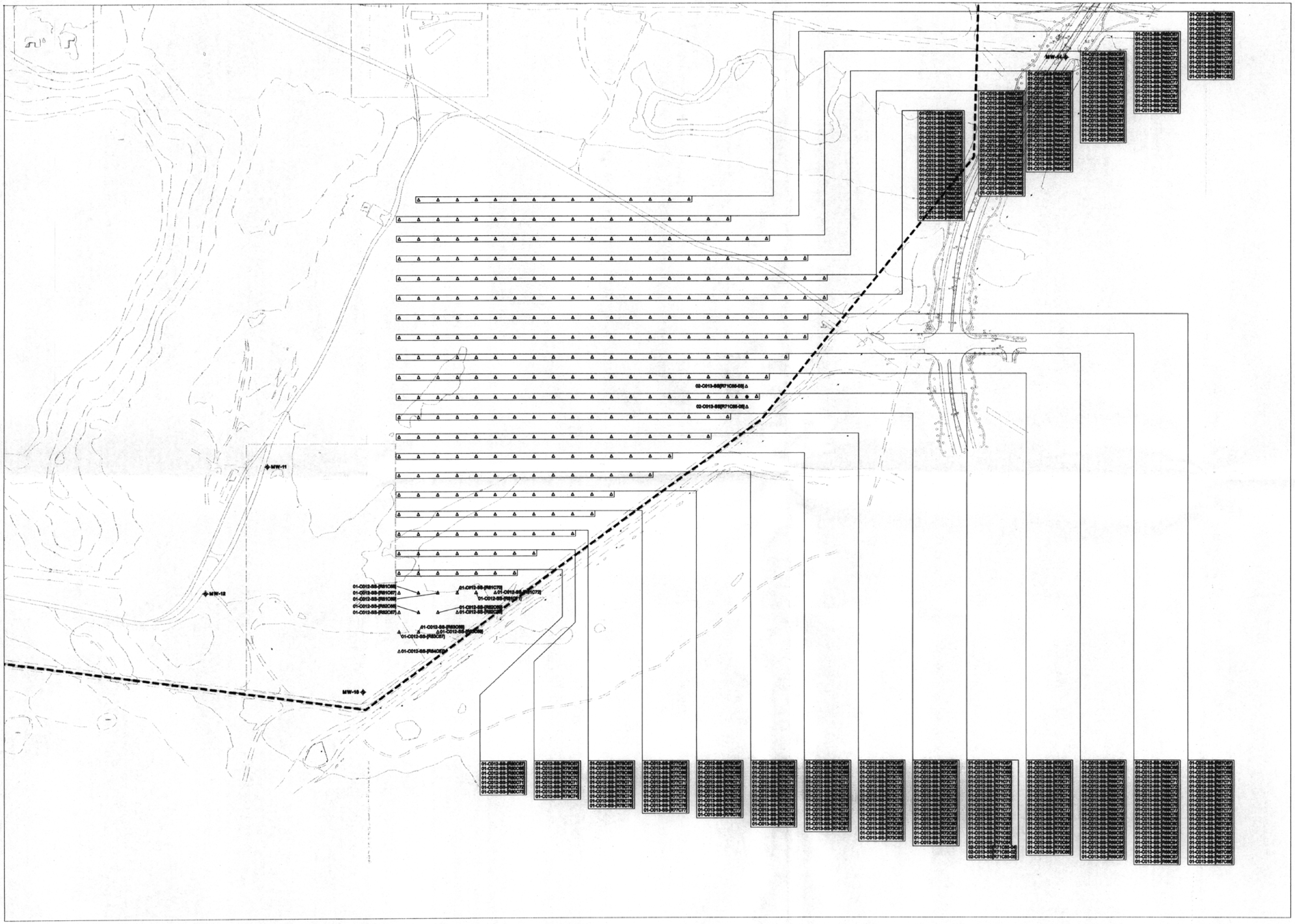

N

Legend

- MW-7 Monitoring Well Location
- 18R-11 Surface Sample Location
- 220 Contour Line (ft)
- Road or Trail
- Consent Decree Boundary
- Fence
- Railroad

Note

1) Sample labels shown in columns represent west to east locations.

SCALE 0 100 200 400 FEET
1"=200'

Weyerhaeuser - DuPont, WA

Candidate South Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.19-2

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Candidate\Candidate 2.dwg
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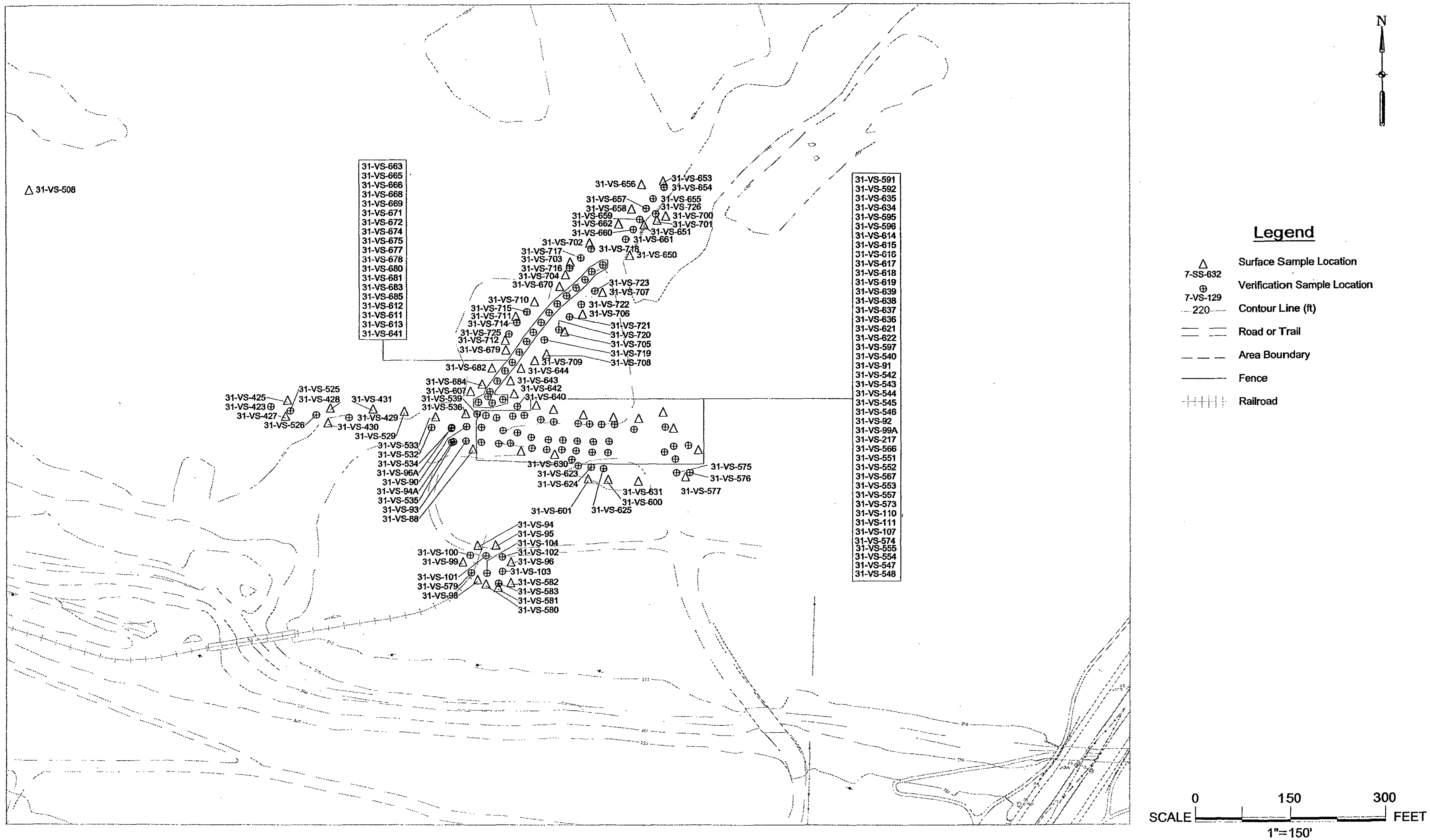

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	North of Creek Sample Locations	Figure 2-19-3
URS			

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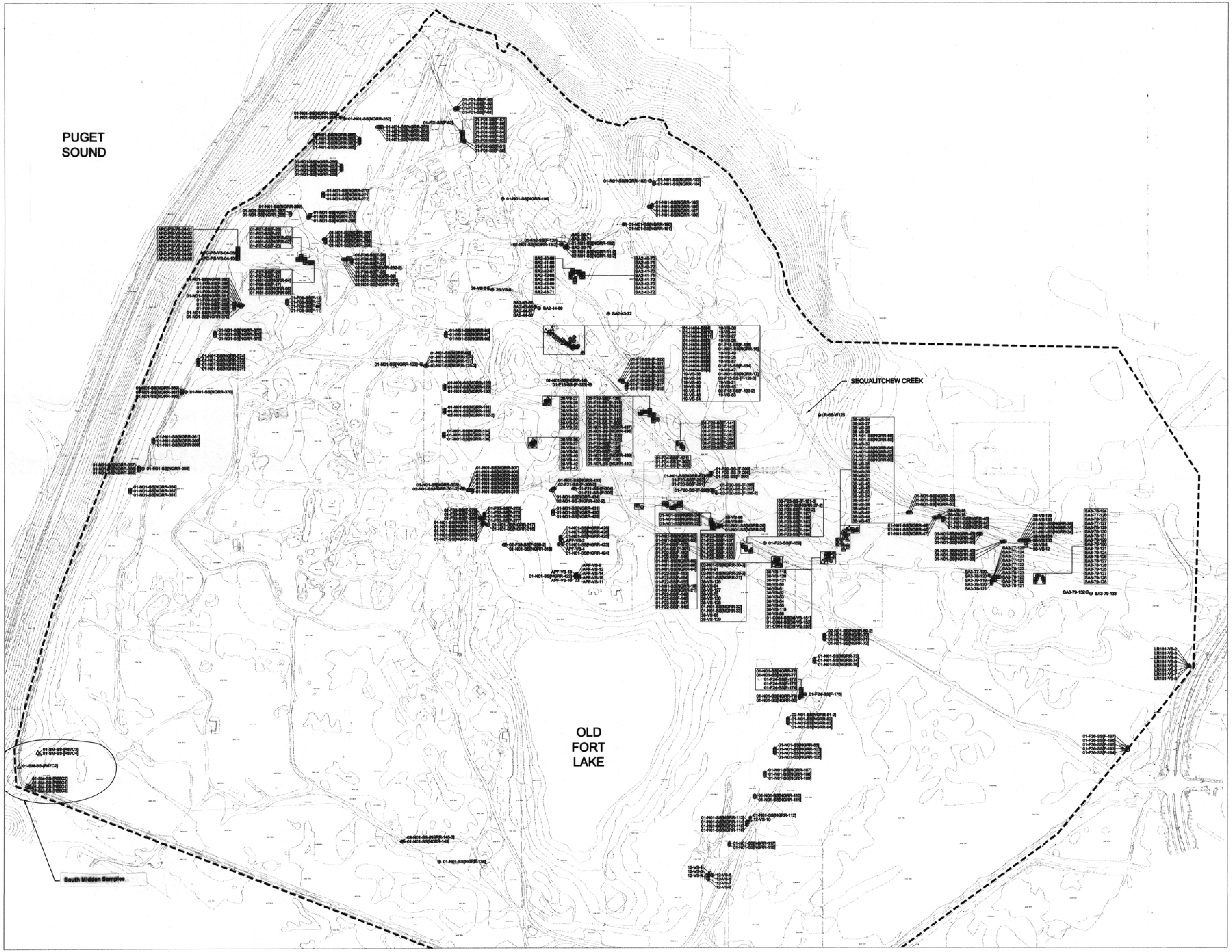

Legend

18R-11	Surface Sample Location
18-VS-220	Verification Sample Location
LR	Lead Reference Sample Locations
220	Contour Line (ft)
	Road or Trail
	Consent Decree Boundary
	Fence
	Railroad

N

SCALE 0 150 300 600 FEET
1"=300'

Weyerhaeuser - DuPont, WA

Miscellaneous Soil Sample Locations

URS Project No. 54-974033NC

Figure 2.19-4

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Misc\Misc-Rev-3.dwg
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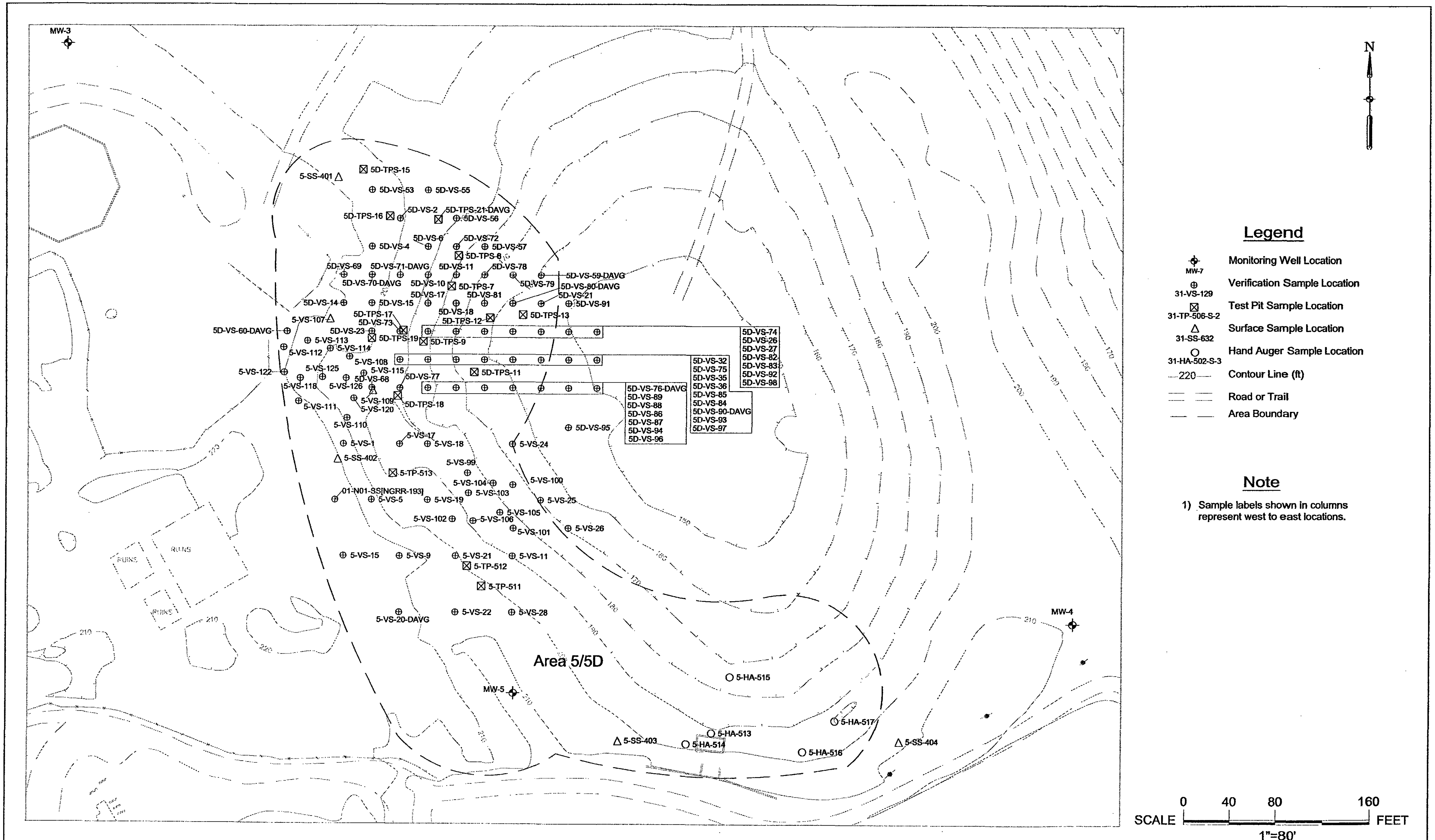

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EDIT DATE: 04/10/02 AT: 11:08

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Areas 5/5D Soil Sample Locations	Figure 2.20-1
	URS		

Weyerhaeuser - DuPont, WA

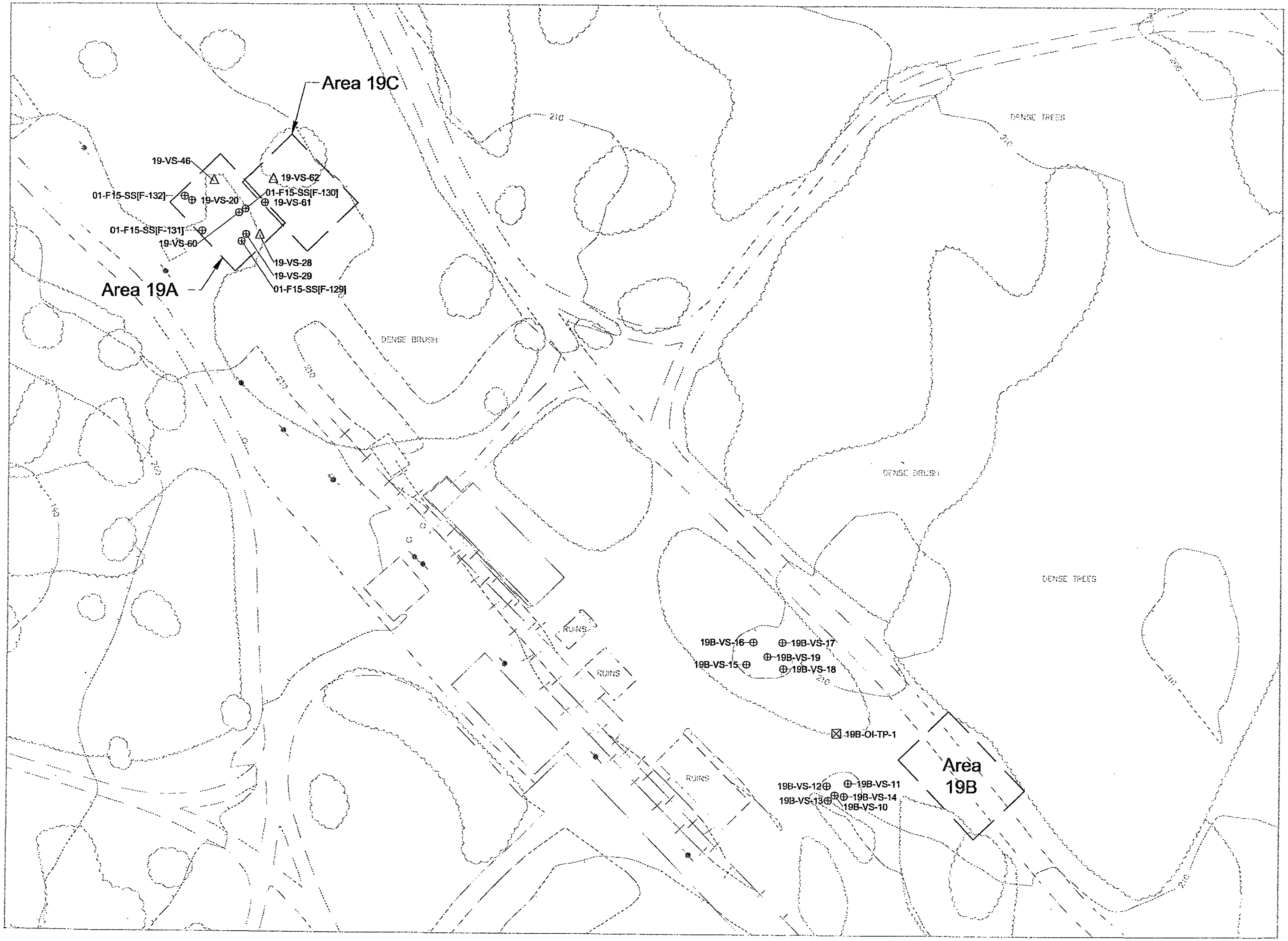
Area 8 Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.20-2

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 08\Area-8.dwg
EDIT DATE: 04/11/02 AT: 14:09



Legend

△ 7-SS-632	Surface Sample Location
⊠ 7-TP-506	Test Pit Sample Location
⊕ 7-VS-129	Verification Sample Location
220	Contour Line (ft)
	Road or Trail
	Area Boundary
	Railroad

SCALE 0 40 80 160 FEET
1"=80'

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 19 Soil Sample Locations	Figure 2.20-3
URS			

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 19\Area 19.dwg
EDIT DATE: 04/10/02 AT: 15:32

Legend

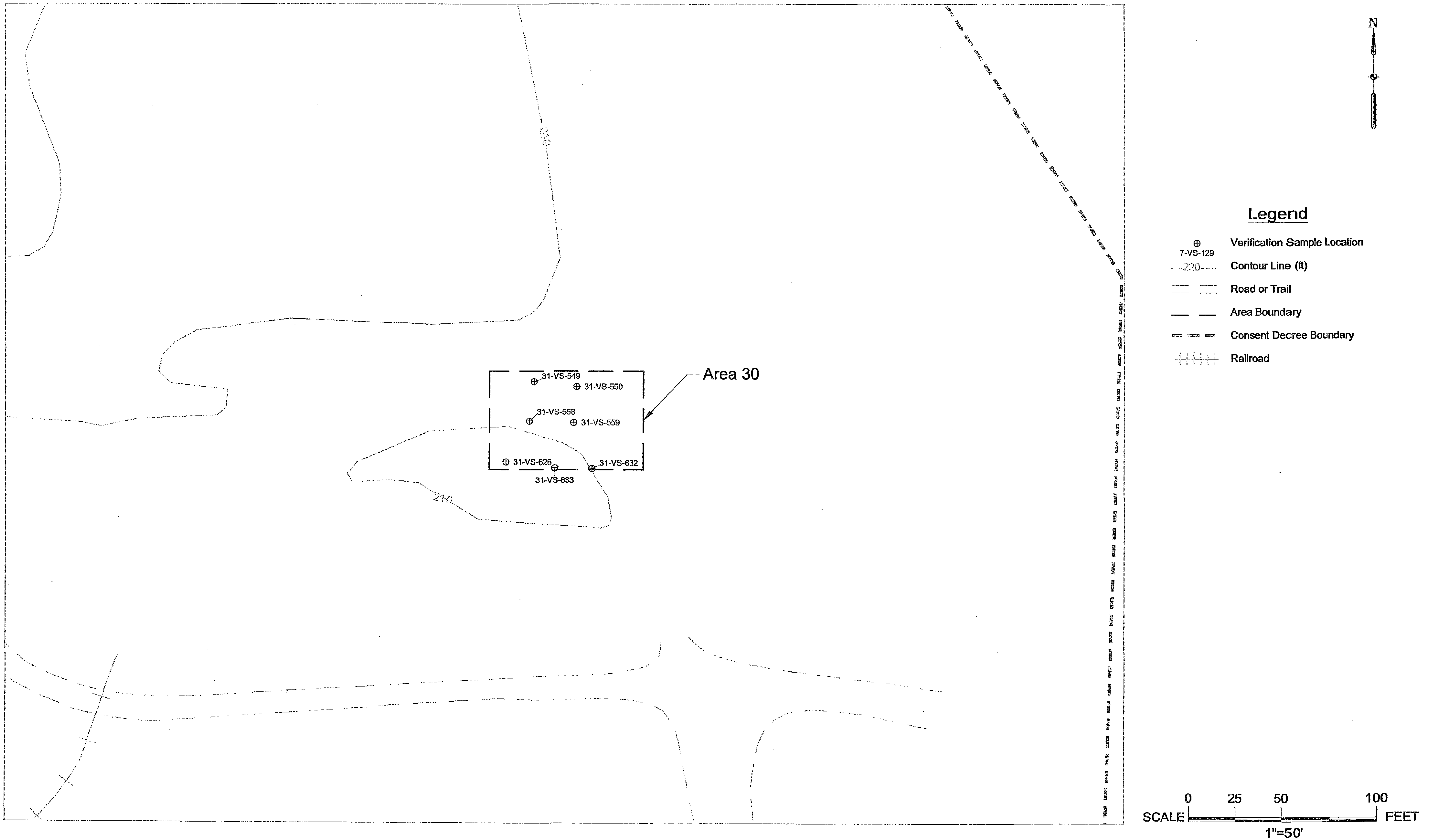
- 24-VS-105 — Verification Sample Location
- 220 — Contour Line (ft)
- Road or Trail
- Area Boundary

SCALE 0 25 50 100 FEET

1"=50'

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 24\Area-24.dwg
EDIT DATE: 04/29/02 AT: 11:19

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 24 Soil Sample Locations	Figure 2.20-4
URS			



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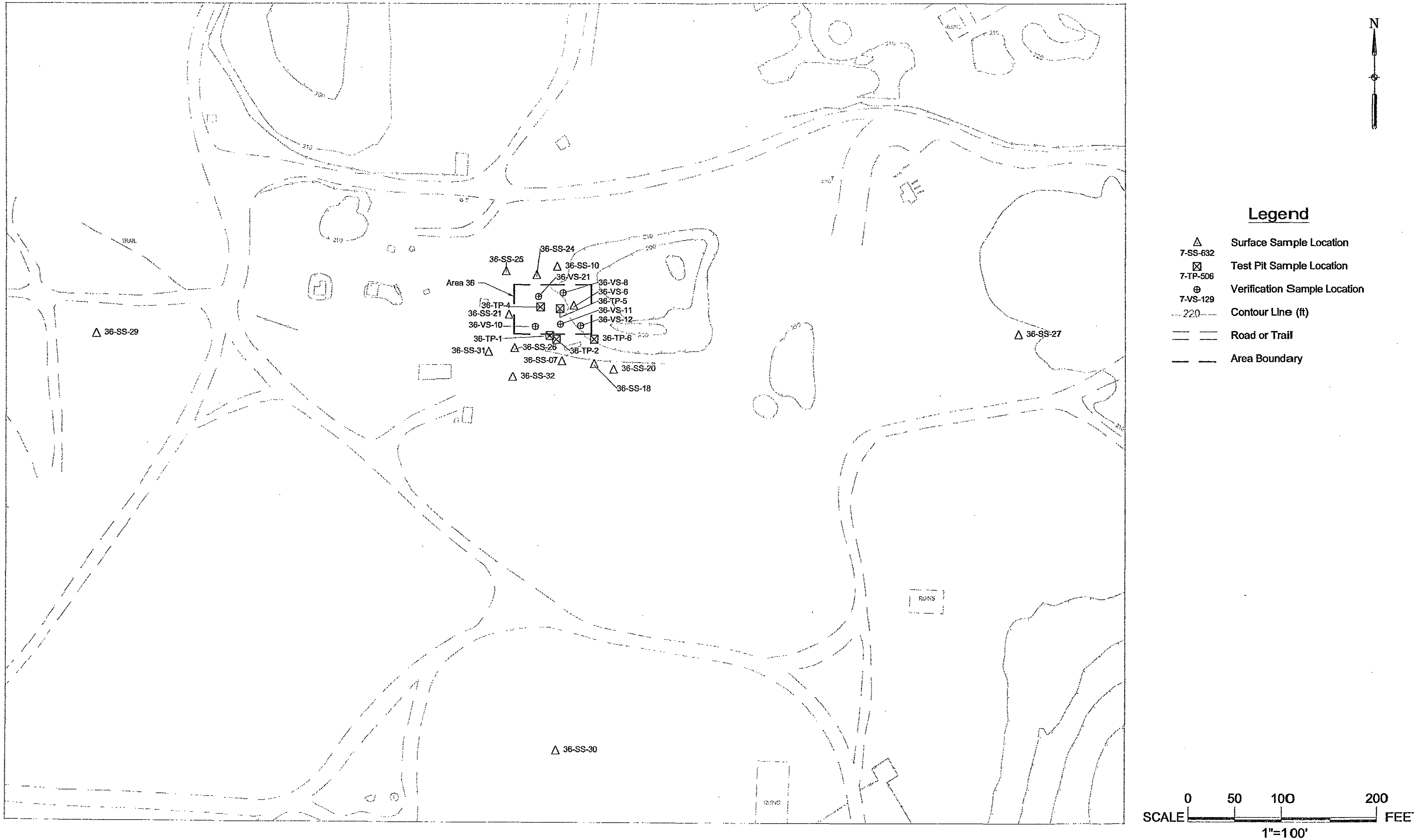
EDIT DATE: 04/11/02 AT: 10:35

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 30 Soil Sample Locations	Figure 2.20-5
URS			



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EDIT DATE: 04/11/02 AT: 11:12

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 36 Soil Sample Locations	Figure 2.20-6
URS			

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 39 Soil Sample Locations	Figure 2.20-7
URS			

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 39\Area 39.dwg
EDIT DATE: 04/11/02 AT: 11:39

Weyerhaeuser - DuPont, WA

Sand Laydown Areas Verification Soil Sample Locations

URS

Project No. 54-974033NC

Figure 2.20-8

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Sand Laydown Areas\Sand Laydown Areas.dwg
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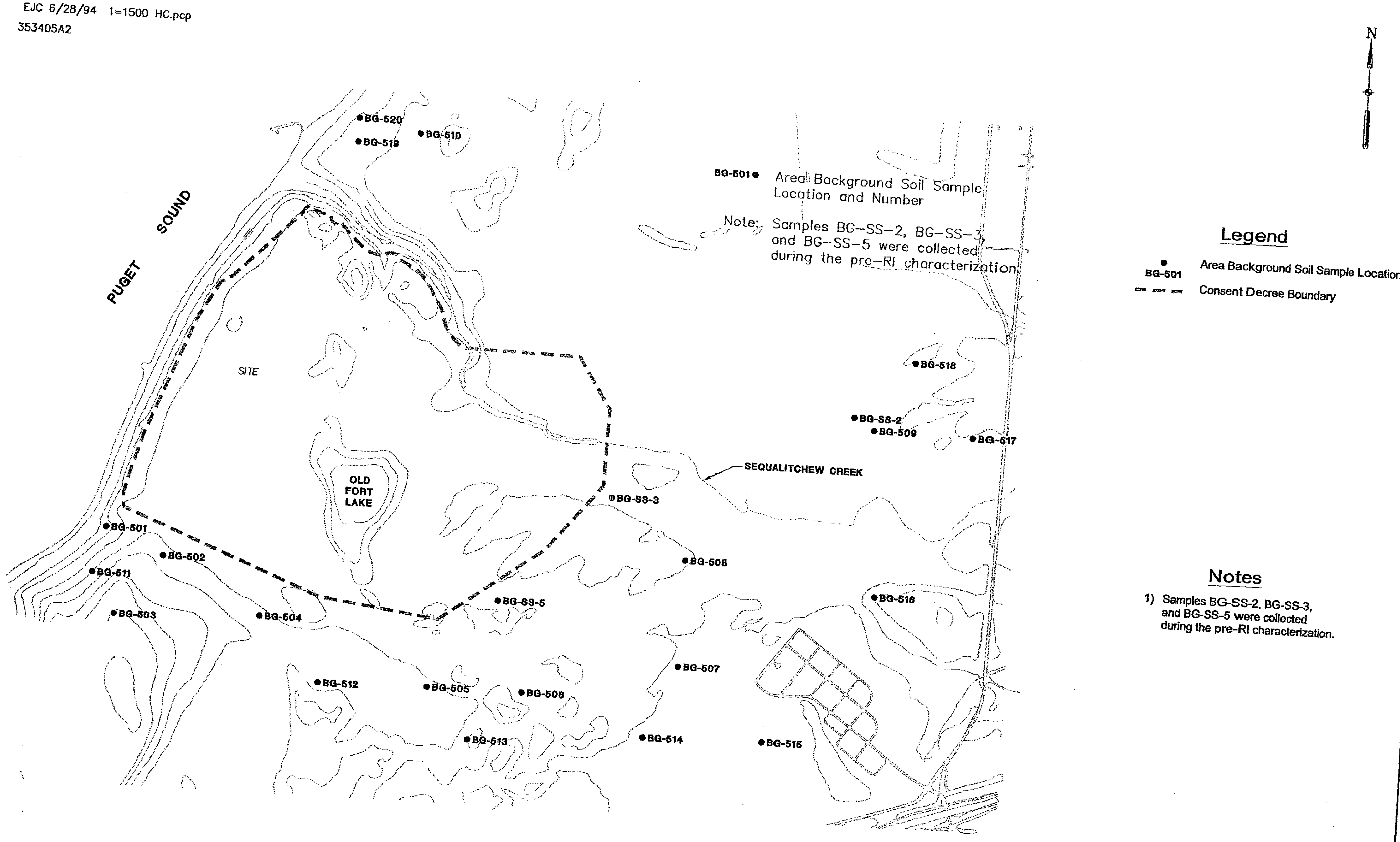
EJC 6/28/94 1=1500 HC.pcp
353405A2



FILENAME: O:\Geo\Weyerhaeuser\RI-2002\General\FIG2-2-1.dwg
EDIT DATE: 04/15/02 AT: 09:08

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area Background Soil Sampling Location Plan	Figure 2.2-1
URS			

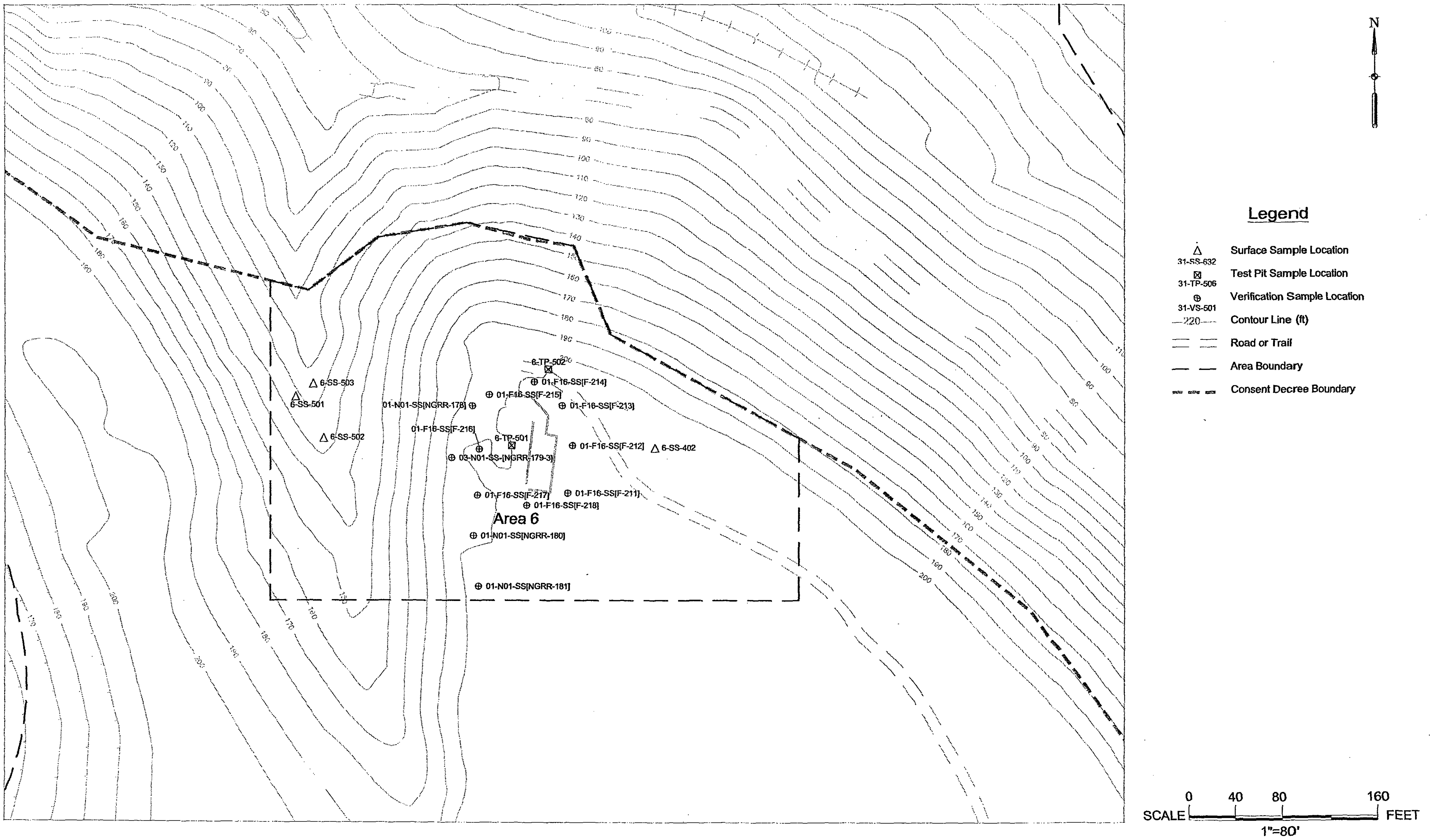
Exploration	Exploration Symbol	Exploration No. (1)
Soil Boring Sample	●	AREA NO.–B–__
Test Pit Sample	⊠	AREA NO.–TP–__
Hand–Augered Boring Sample	○	AREA NO.–HA–__
Surface Sample	△	AREA NO.–SS–__
Verification Sample	⊕	AREA NO.–VS–__
Monitoring Well	⌖	MW–__
Trench	◪	AREA NO.–TR–__
Railroad Location Sample	⊗	AREA NO.–RR–__
Lead Reference Sample	◒	AREA NO.–LR–__
Utility Corridor Sample	㊀	AREA NO.–UC–__
Unknown Sample	◇	AREA NO.–S–__

Notes:

1. Exploration number consists of the area number–exploration type–discrete number for the exploration. The addition of a GS designation (–TP–GS– or –SS–GS–) to the exploration number indicates a grid sampling location. Symbol types do not differentiate between pre–RI and RI explorations.
2. Area 18 has four maps, each map delineating the locations of a specific sample type.

FILENAME: Q:\Geo\Weyerhaeuser\RI–2002\General\W–03.dwg
DATE: 04/15/02 AT: 09:06

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Legend for Area-Specific Soil Location Maps	Figure 2.3-1
URS			



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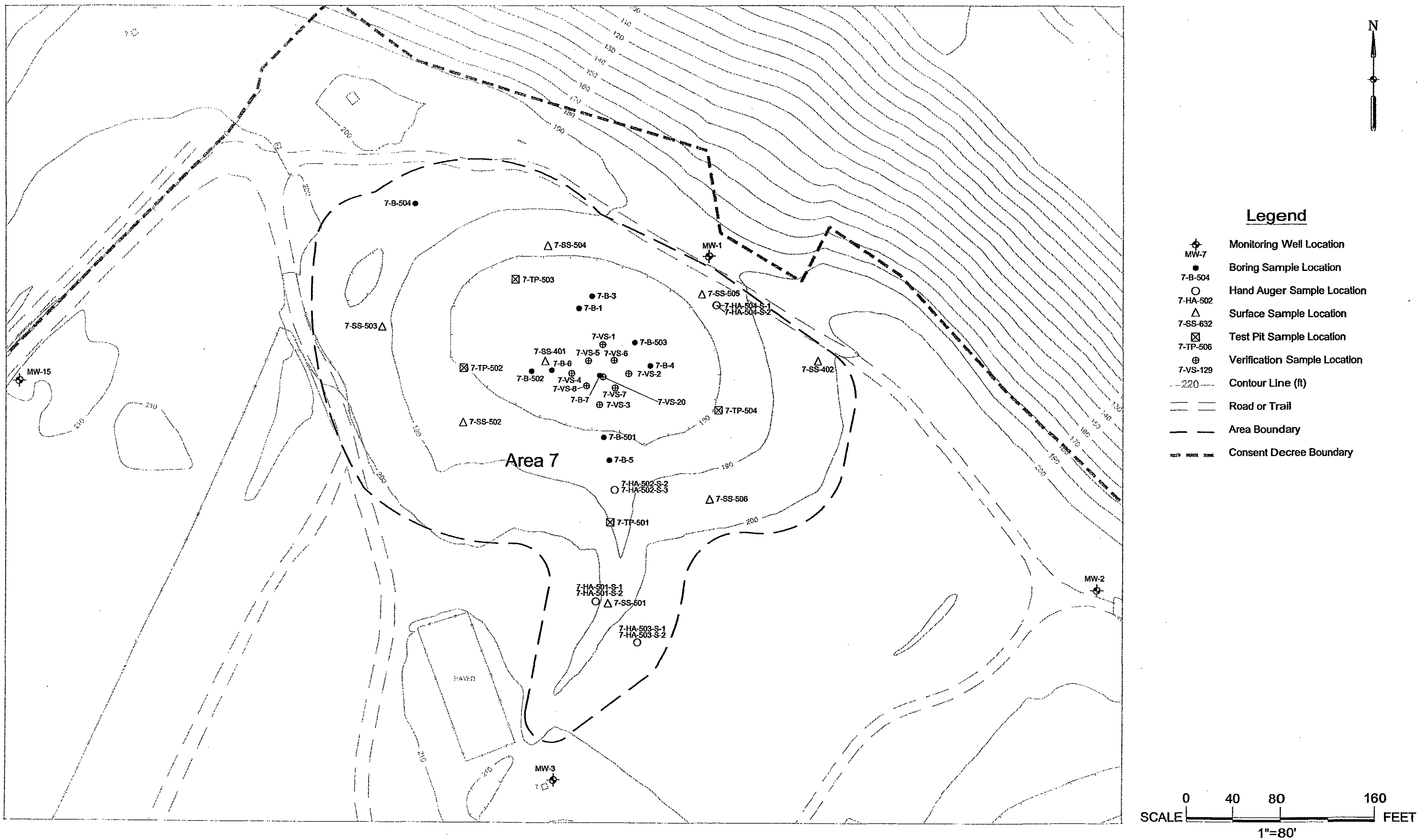
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 6 Soil Sample Locations	Figure 2.4-1
URS			



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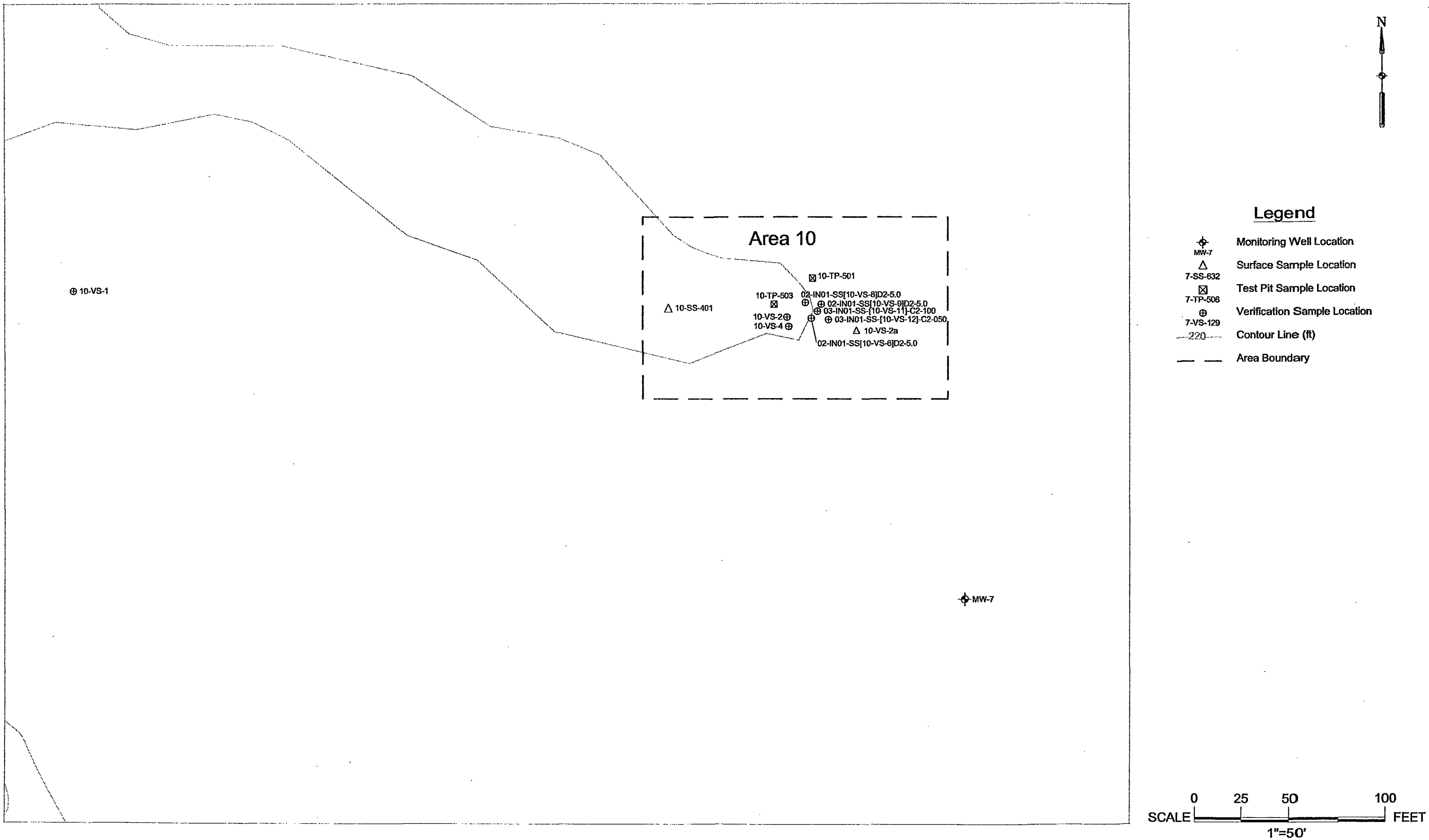
EDIT DATE: 04/15/02 AT: 09:20

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 7 Soil Sample Locations	Figure 2.5-1
URS			



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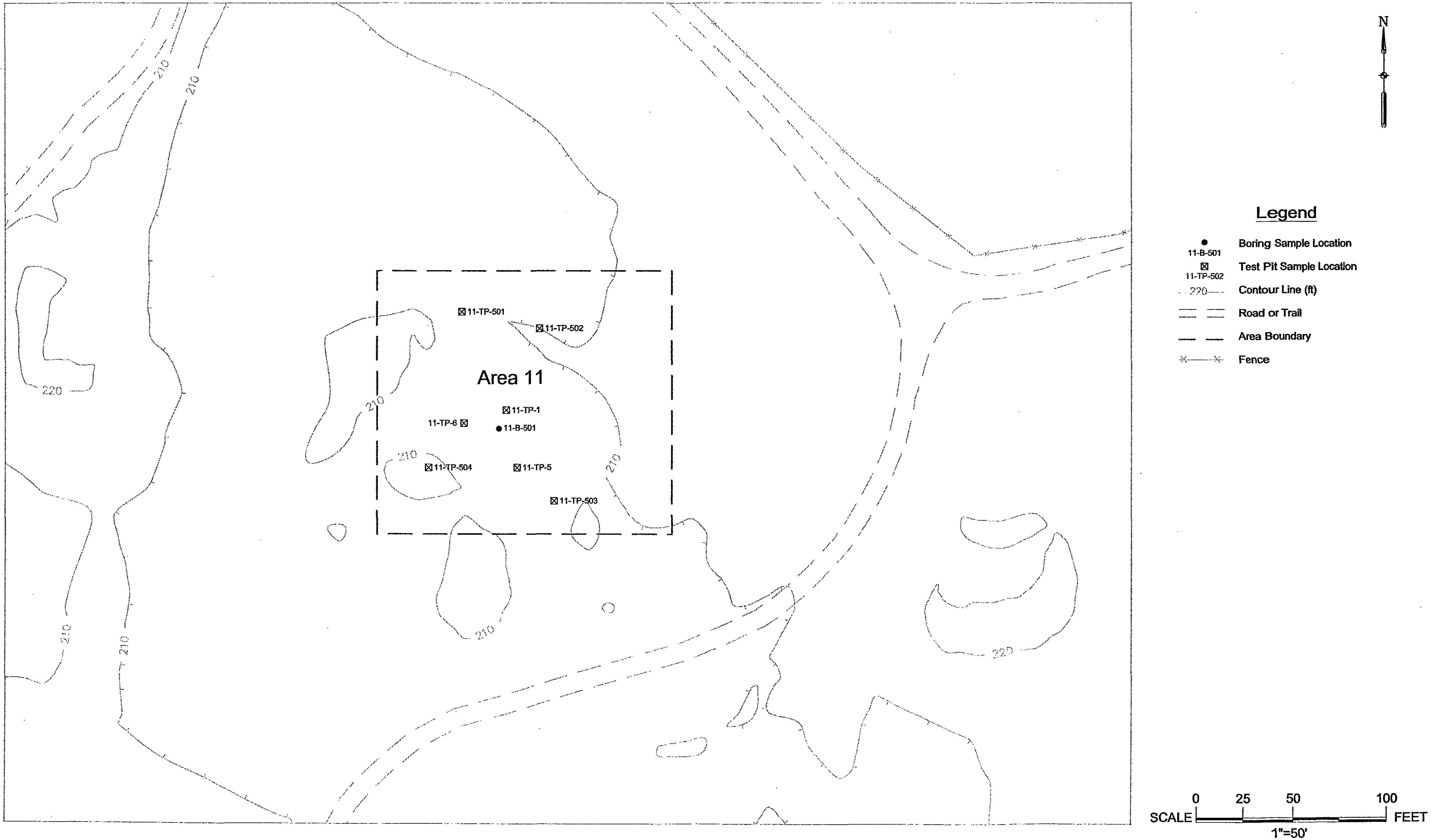
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 10 Soil Sample Locations	Figure 2.6-1
URS			



Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 11 Soil Sample Locations	Figure 2.7-1
URS			

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\AREA 11\Area-11 Rev1.dwg
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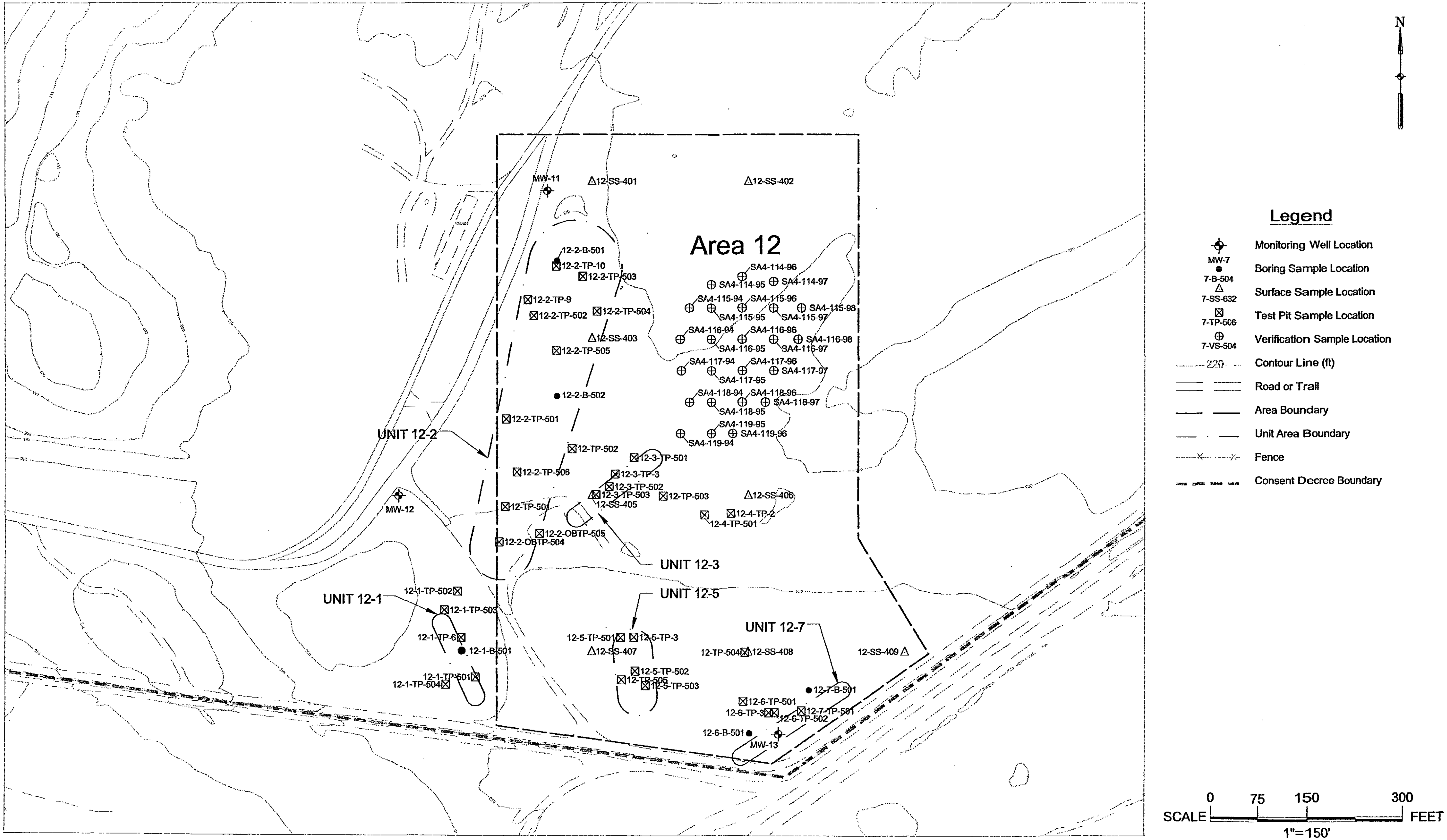

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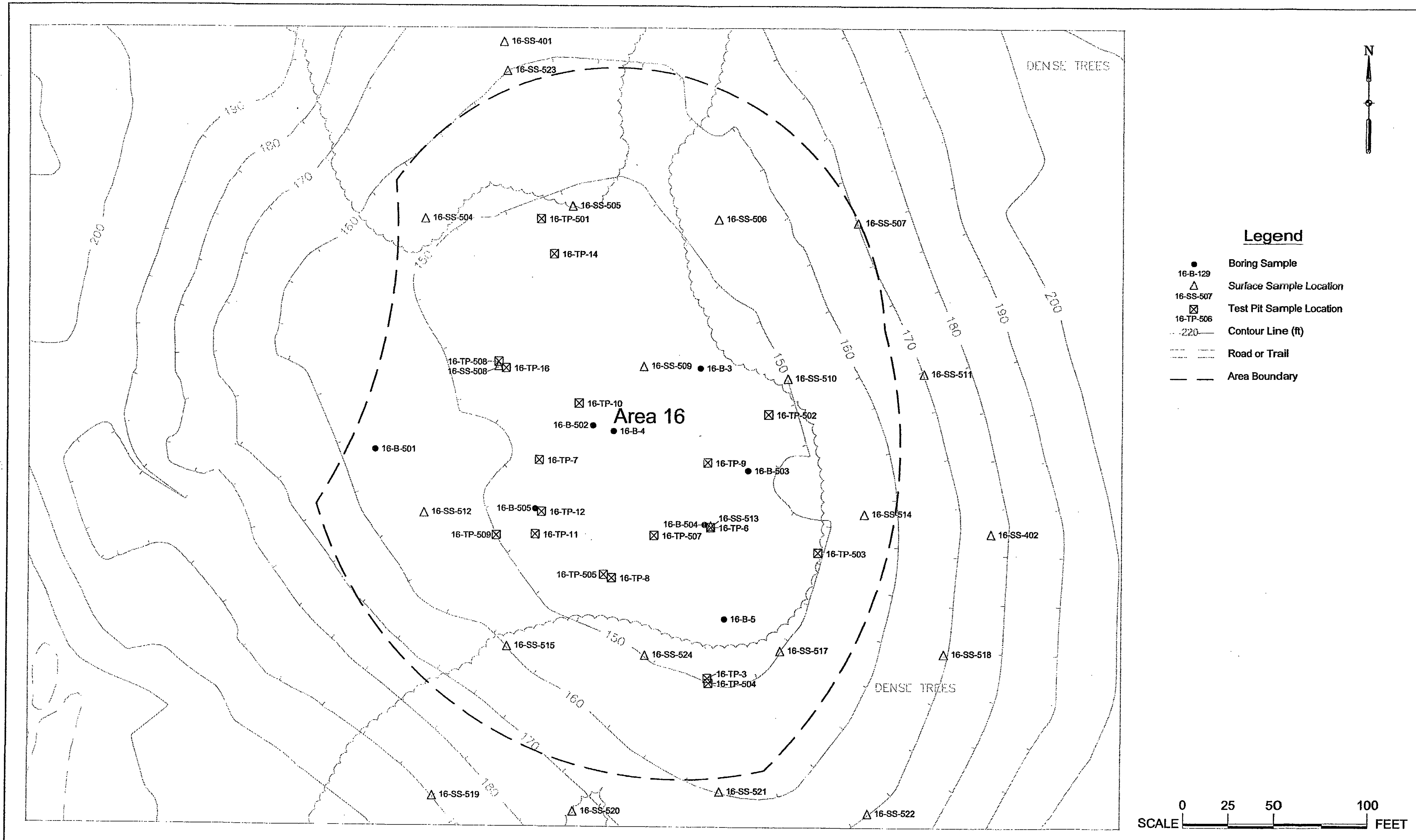
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 12 Soil Sample Locations	Figure 2.8-1
URS			



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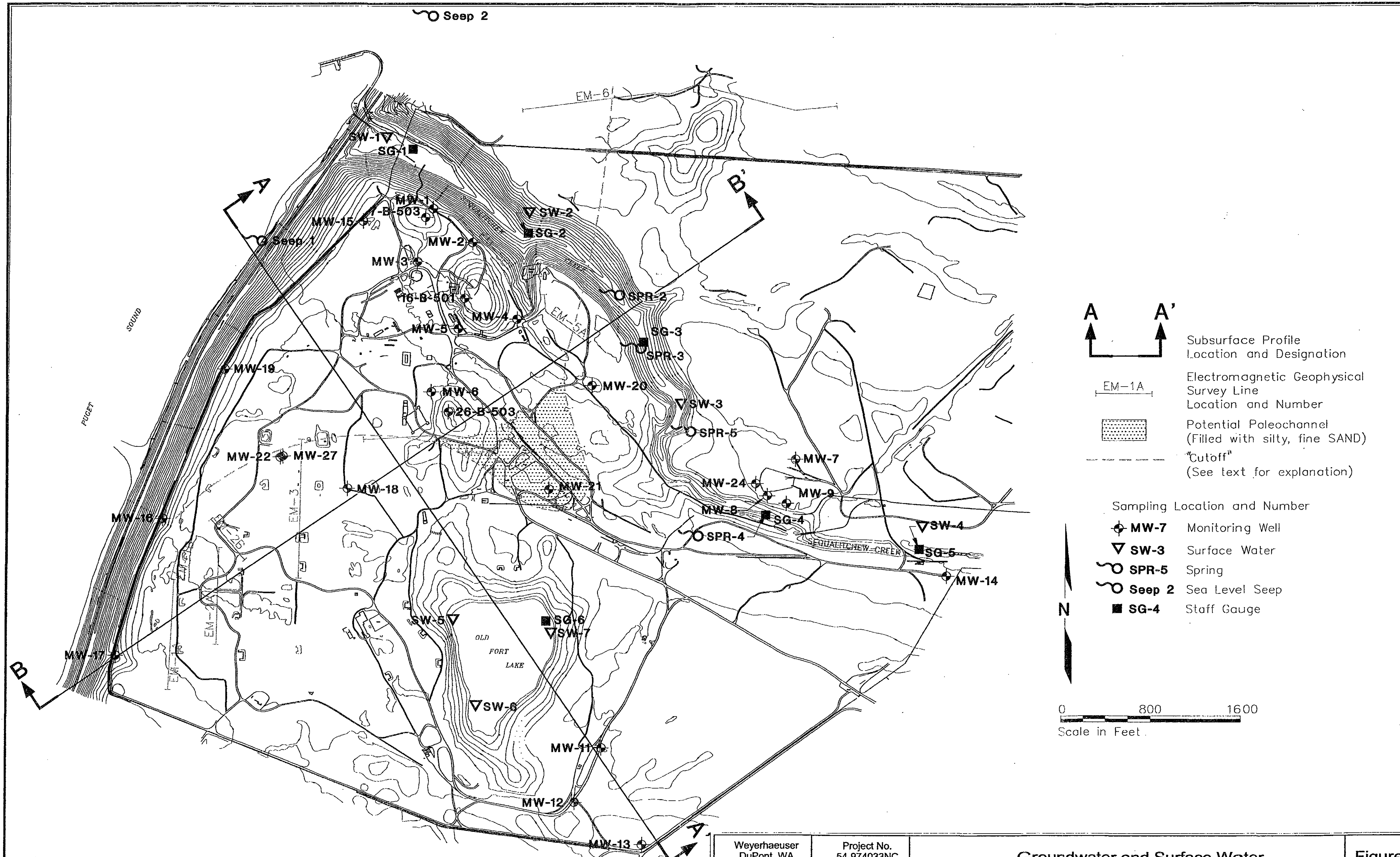
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Area 16 Soil Sample Locations	Figure 2.9-1
URS			



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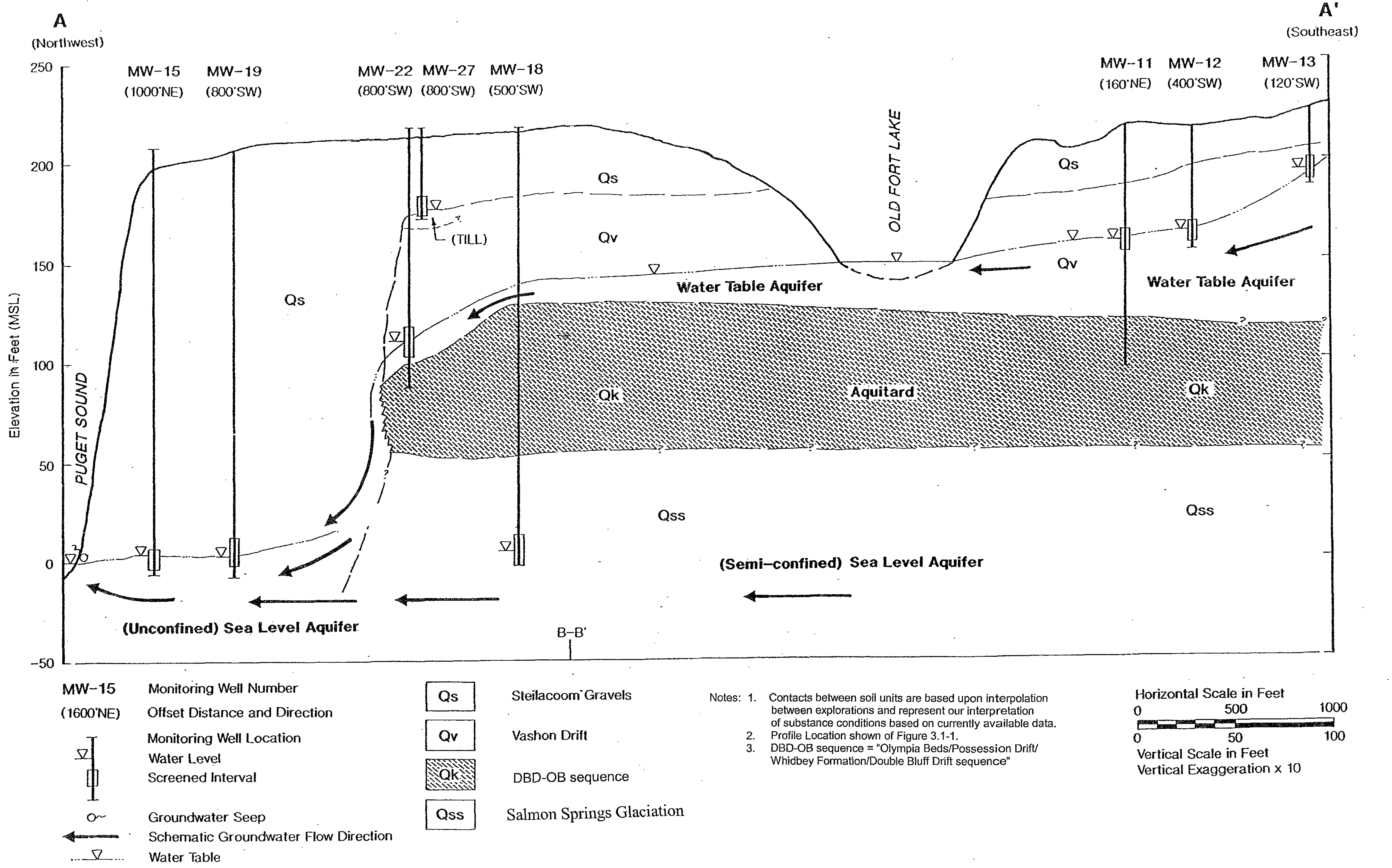
EDIT DATE: 03/11/02 AT: 11:01

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Groundwater and Surface Water Sampling Location Plan	Figure 3.1-1
Created by URS Modified by PIONEER			

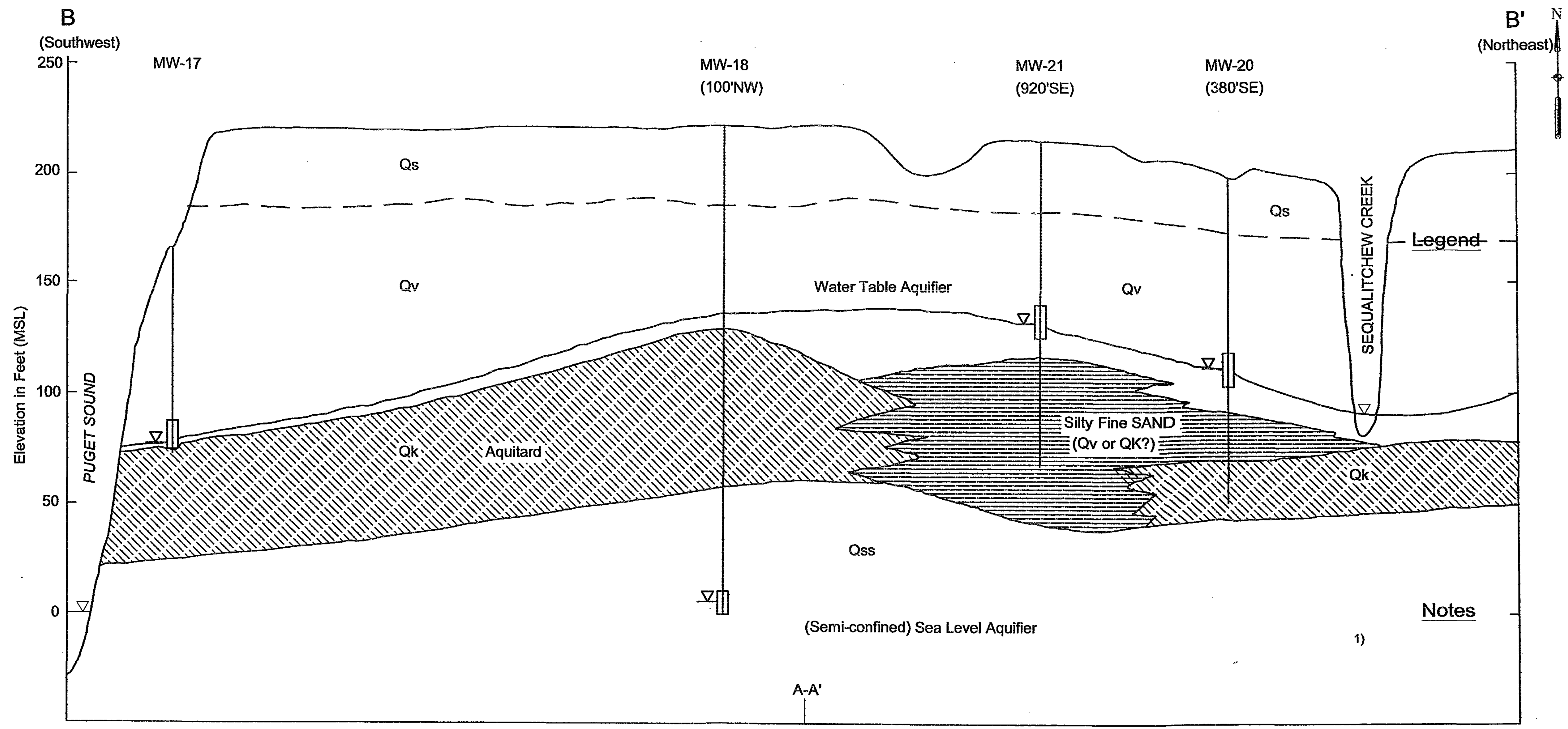


Weyerhaeuser DuPont, WA	Project No. 54-974033NC
Created by URS Modified by PIONEER	

Generalized Subsurface Profile A-A'

Figure 3.1-2

FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Borders\FIG3-1-2.dwg
EDIT DATE: 12/19/00 AT: 15:37



MW-18	Monitoring Well Number
(100"NW)	Offset Distance and Direction
	Monitoring Well Location
	Water Level
	Screened Interval
	Water Table

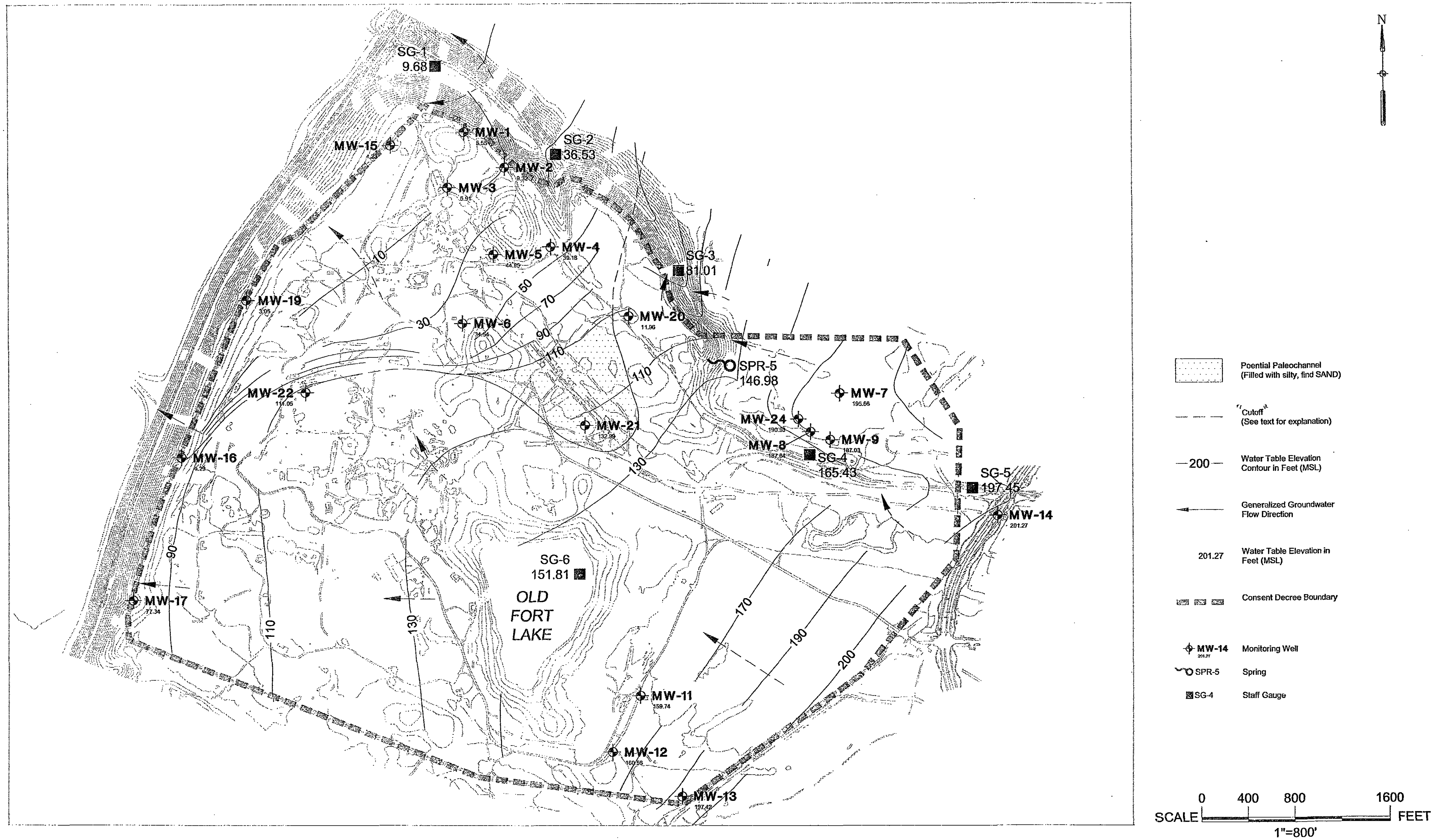
Qs	Steilacoom Gravels
Qv	Vashon Drift
(Qv or Qk)	Silty Fine Sand
Qk	DBD-OB sequence
Qss	Salmon Springs Glaciation

Notes:
1. Contacts between soil units are based upon interpolation between explorations and represent our interpretation of substance conditions based on currently available data.
2. Profile Location shown of Figure 3.1-1.
3. DBD-OB sequence = "Olympia Beds/Possession Drift/ Whidbey Formation/Double Bluff Drift sequence"

Horizontal Scale in Feet
0 500 1000
0 50 100
Vertical Scale in Feet
Vertical Scale Exaggeration x 10

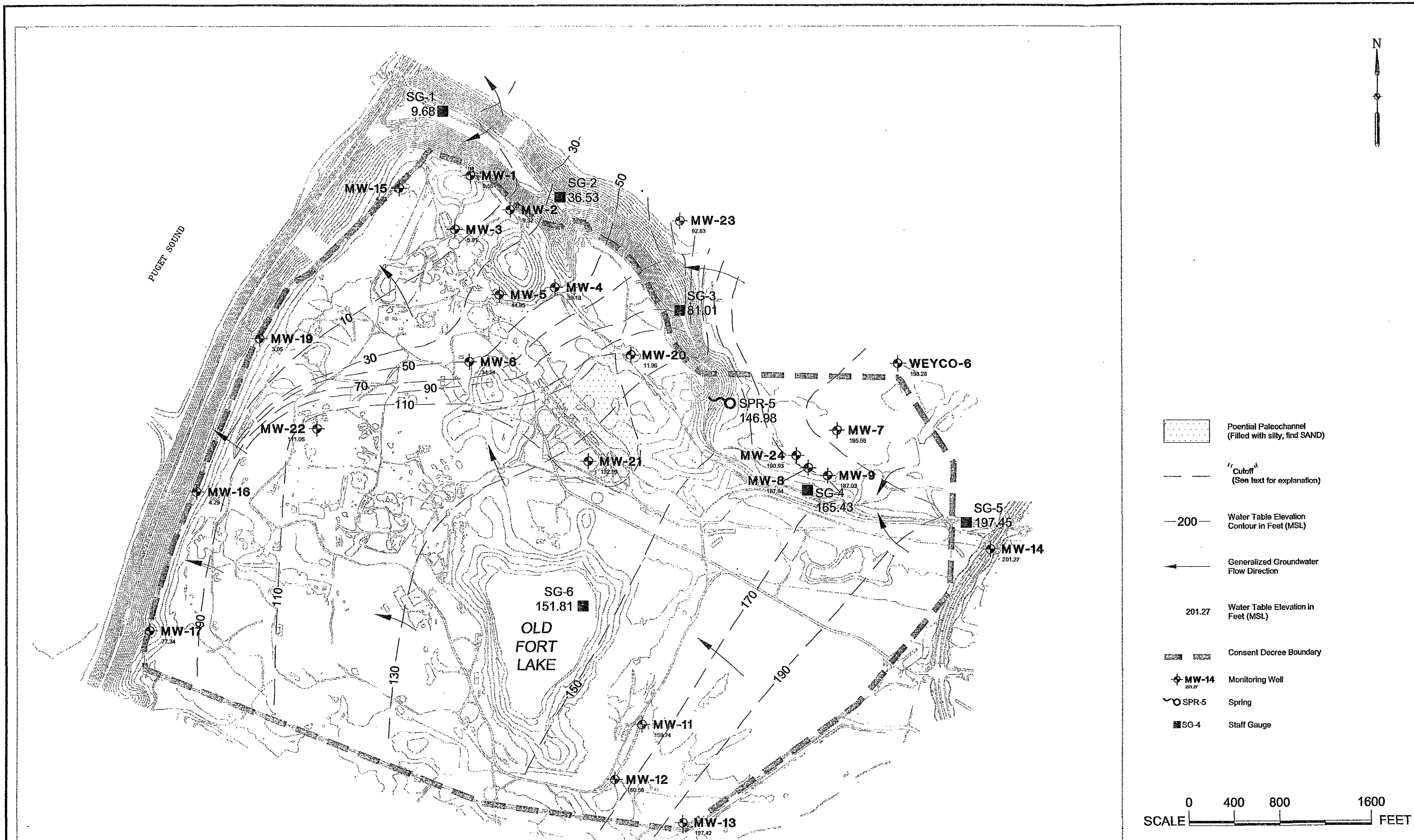
FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\FIG 3-1-3.dwg
EDIT DATE: 04/15/02 AT: 13:00

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Generalized Subsurface Profile B-B'	Figure 3.1-3
Created by URS Modified by PIONEER			



Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Water Table Elevation Contour Map - April 1992	Figure 3.1-4
Created by URS Modified by PIONEER			

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\FIG 3-1-4.dwg
EDIT DATE: 04/15/02 AT: 10:17

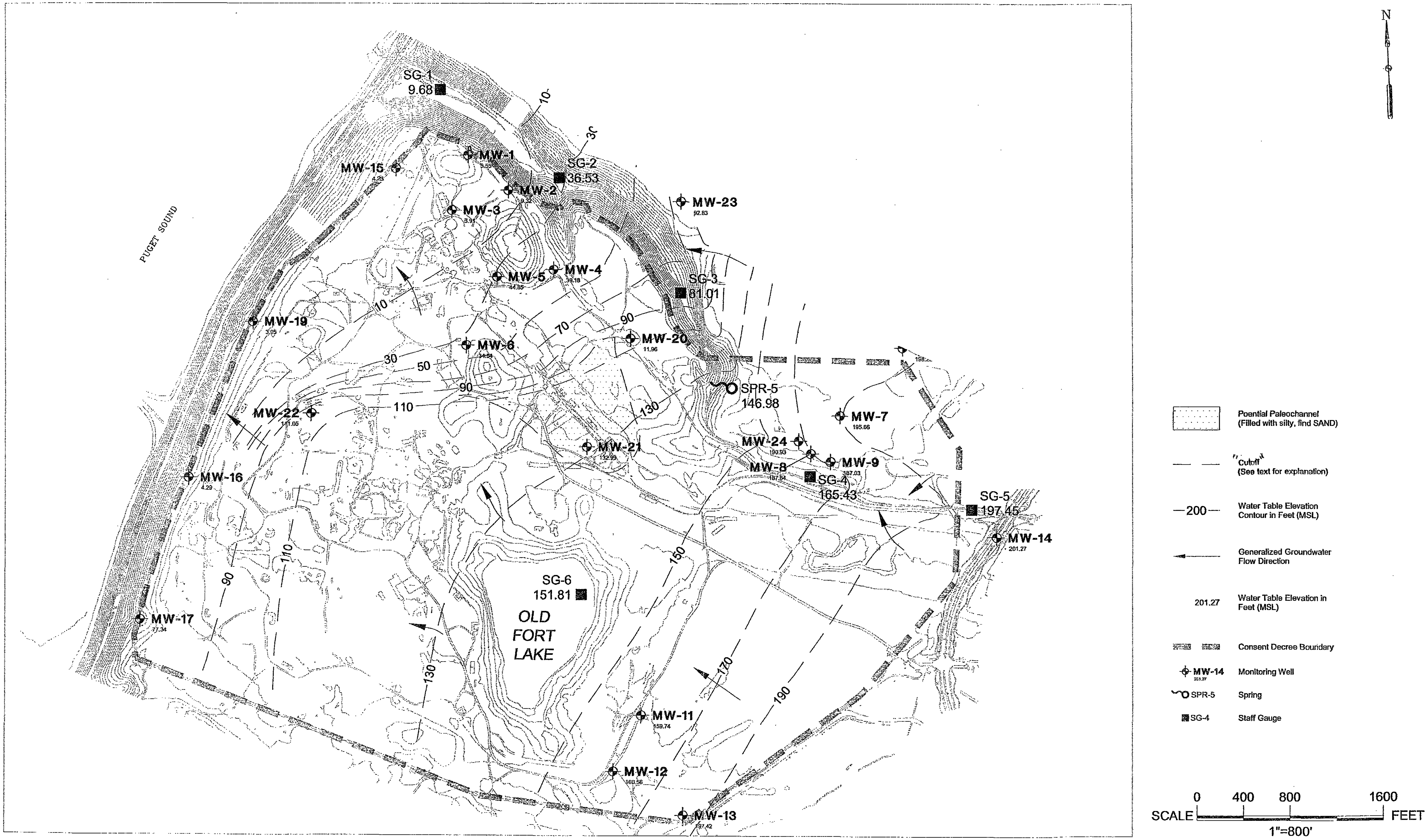


FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\FIG 3-1-5.dwg
EDIT DATE: 04/15/02 AT: 10:21

Weyerhaeuser DuPont, WA	Project No. 54-974033NC
Created by URS Modified by PIONEER	

Water Table Elevation Contour Map - August 1992

Figure 3.1-5



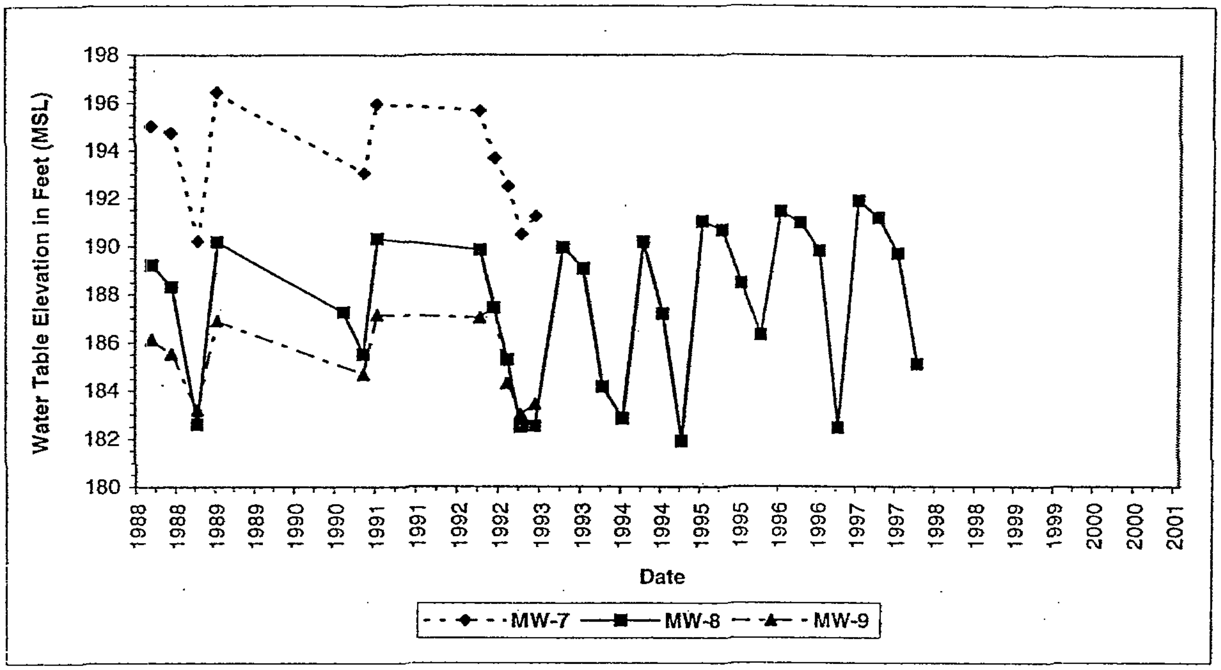
FILENAME: Q:\Geo\Weyerhauser\RI-2002\Cut & Paste\FIG 3-1-6.dwg
EDIT DATE: 04/15/02 AT: 10:21

Weyerhauser Dupont, WA	Project No. 54-974033NC
Created by URS Modified by PIONEER	

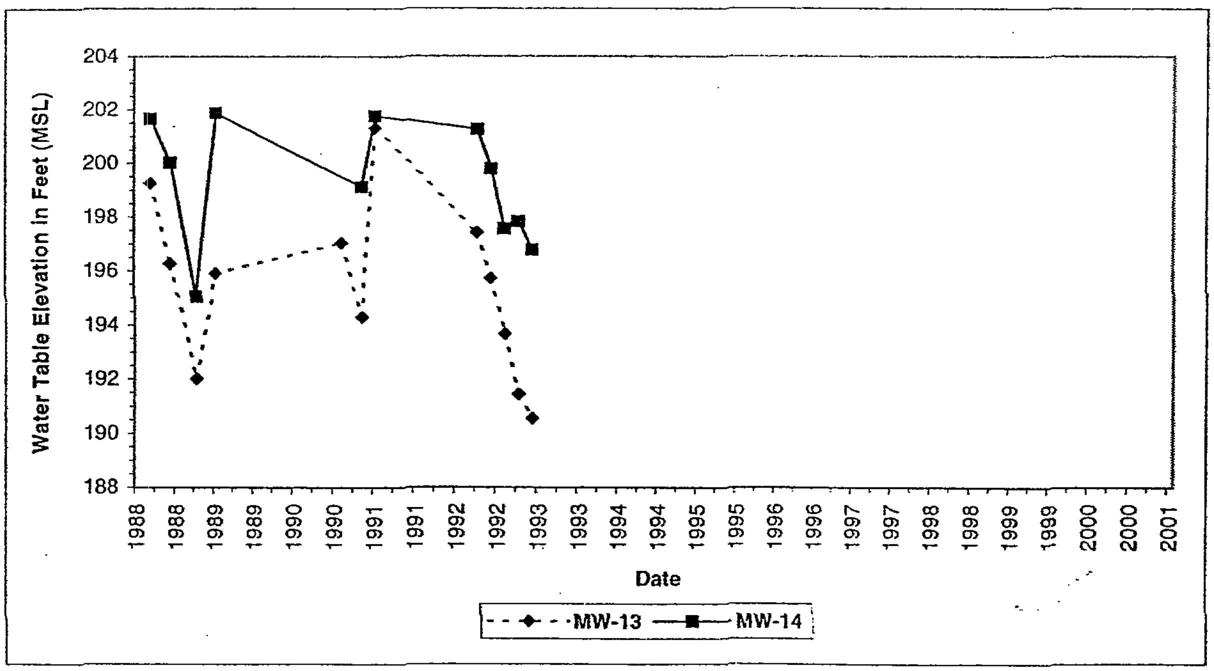
Water Table Elevation Contour Map - December 1992

Figure 3.1-6

Monitoring Wells North of Sequalitchew Creek



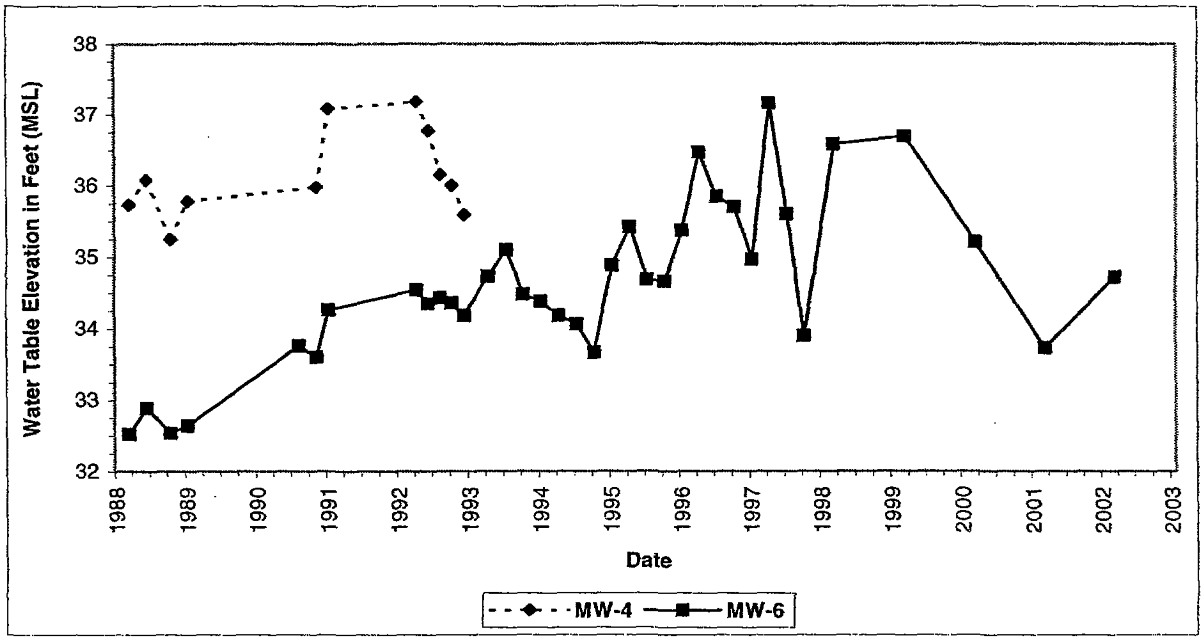
Monitoring Wells South of Sequalitchew Creek



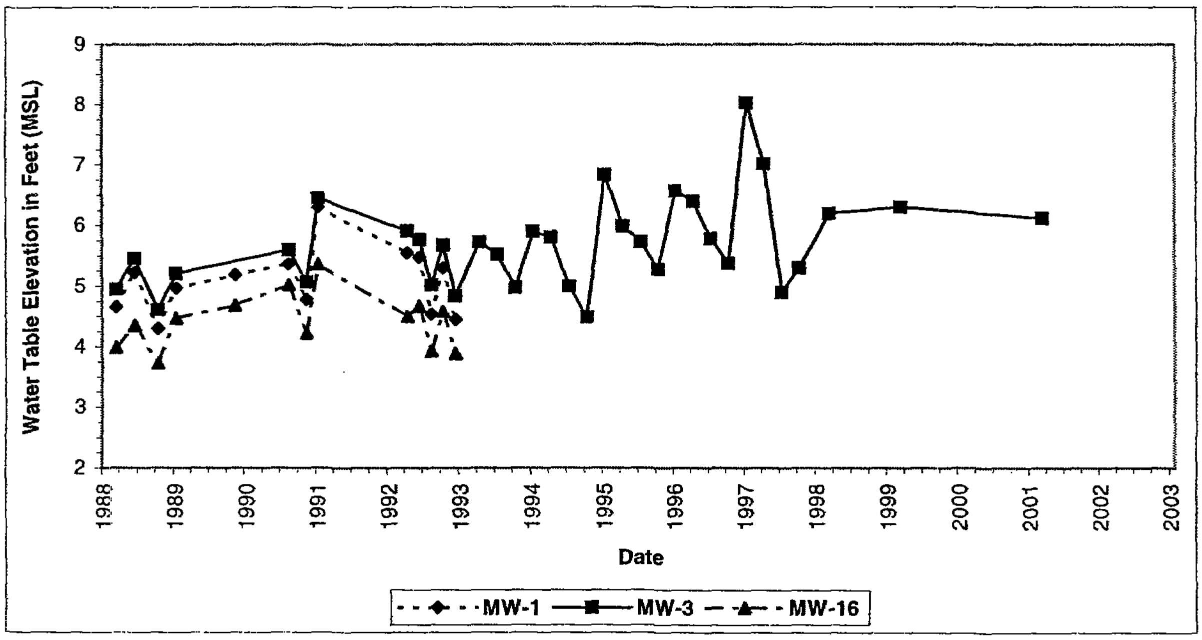
FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-1-7.dwg
EDIT DATE: 12/15/00 AT: 07:41

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Long-Term Hydrographs for Wells in the Water Table Aquifer	Figure 3.1-7
URS			

Monitoring Wells Immediately West of "Cutoff"



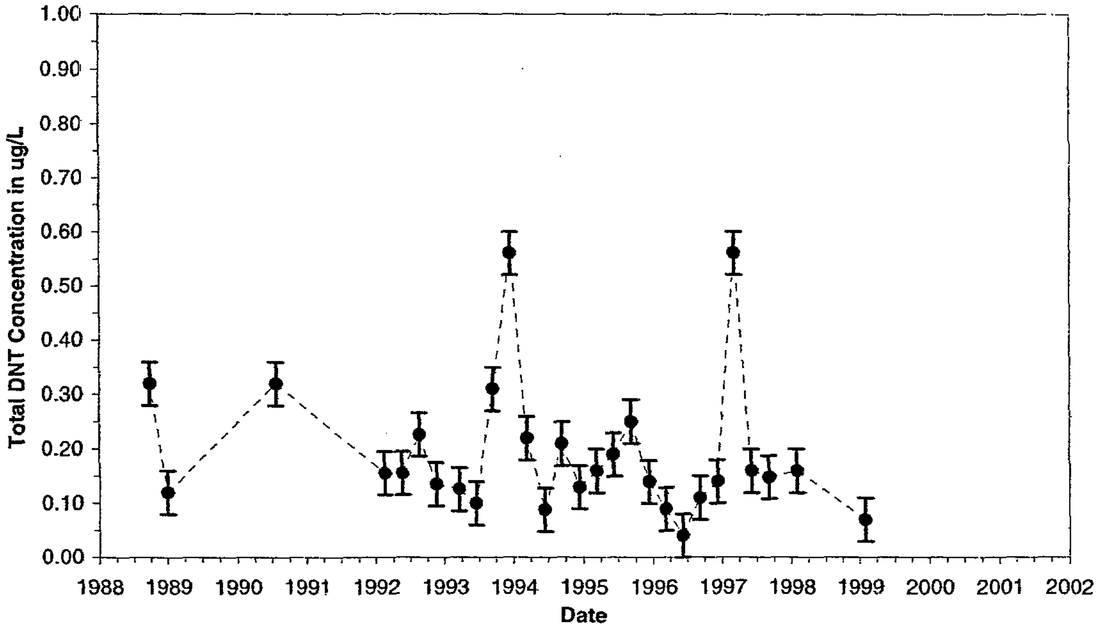
Monitoring Wells Further West of "Cutoff"



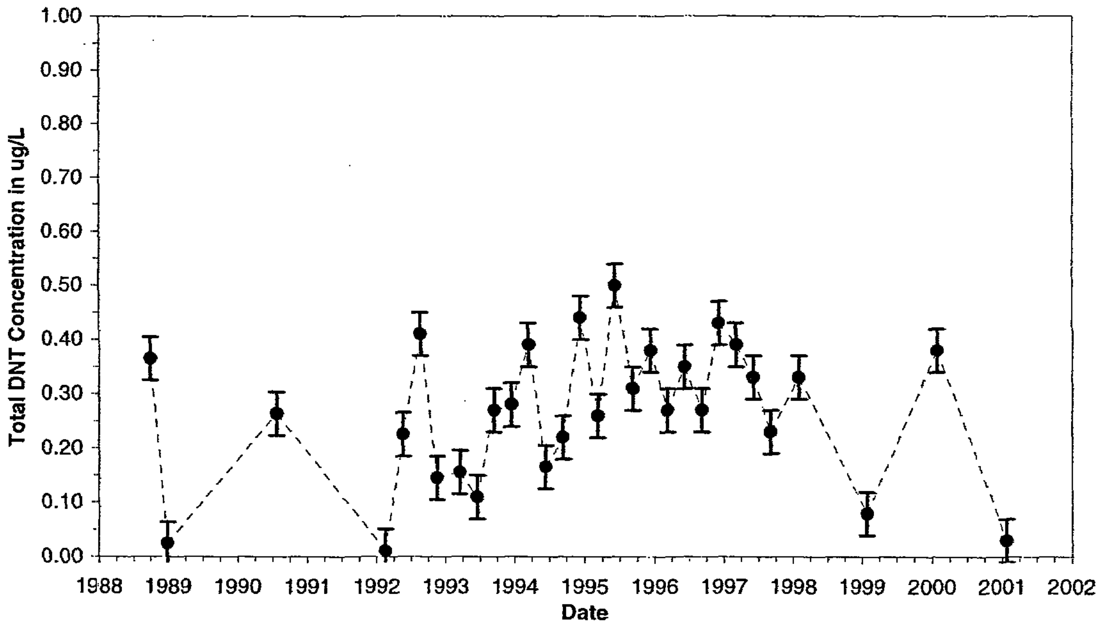
FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-1-8.dwg
DIT DATE: 12/19/00 AT: 11:35

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Long-Term Hydrographs for Wells in the Sea Level Aquifer	Figure 3.1-8
Created by URS Modified by PIONEER			

MW-3
Sea Level Aquifer Downgradient of Area 5



MW-6
Sea Level Aquifer Downgradient of Area 26



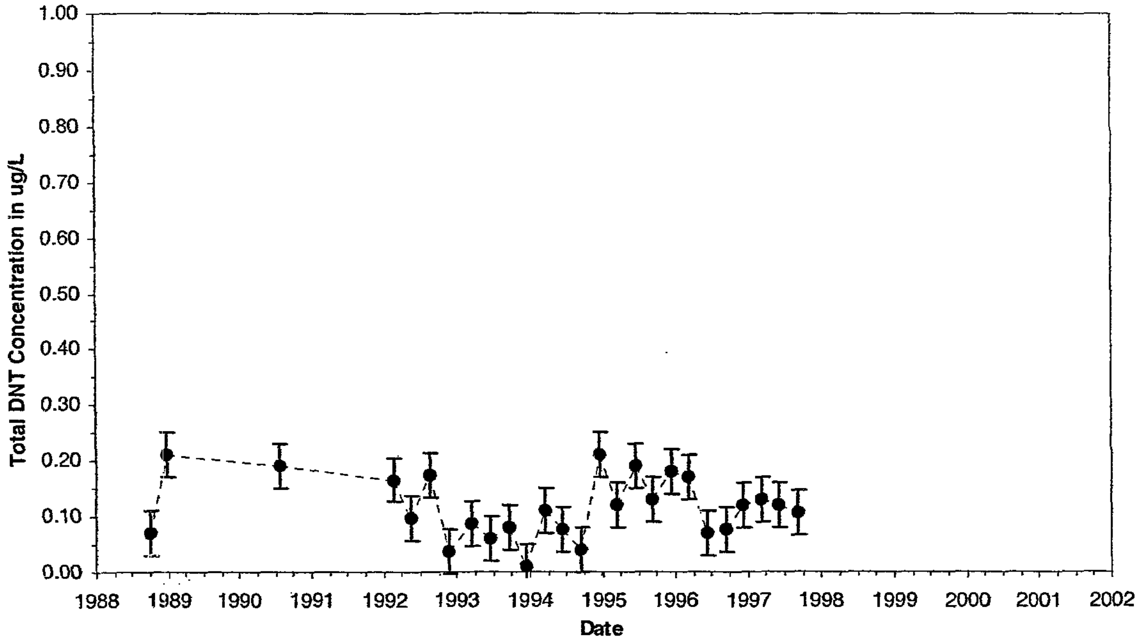
Notes:
1) Nondetects are plotted as 1/2 the sample detection limits.
2) Error bars are +0.04 ug/L (average difference observed between field duplicate sample pairs).

I:\974033nc\RI\Ri2000\Figures\Fig3.2-1to5.xls

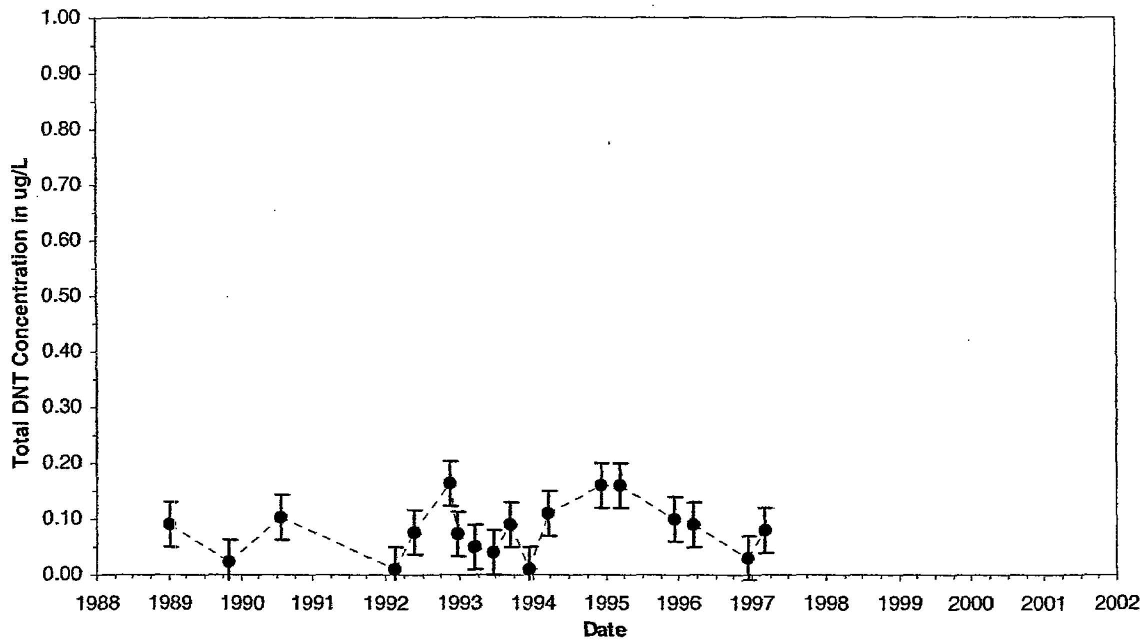
FILENAME: Q:\Geo2\CAD Projects\Ri-2002\Weyerhaeuser\BoFders\FIG3-2s\Cut & Poste\Border\FIG3-1-8.dwg
EDIT DATE: 02/19/02 AT: 11:05

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total DNT Concentrations in Groundwater Over Time (MW-3 and MW-6)	Figure 3.2-1
URS			

MW-8
Water Table Aquifer Downgradient of Area 31



MW-15
Sea Level Aquifer Downgradient of Area 5



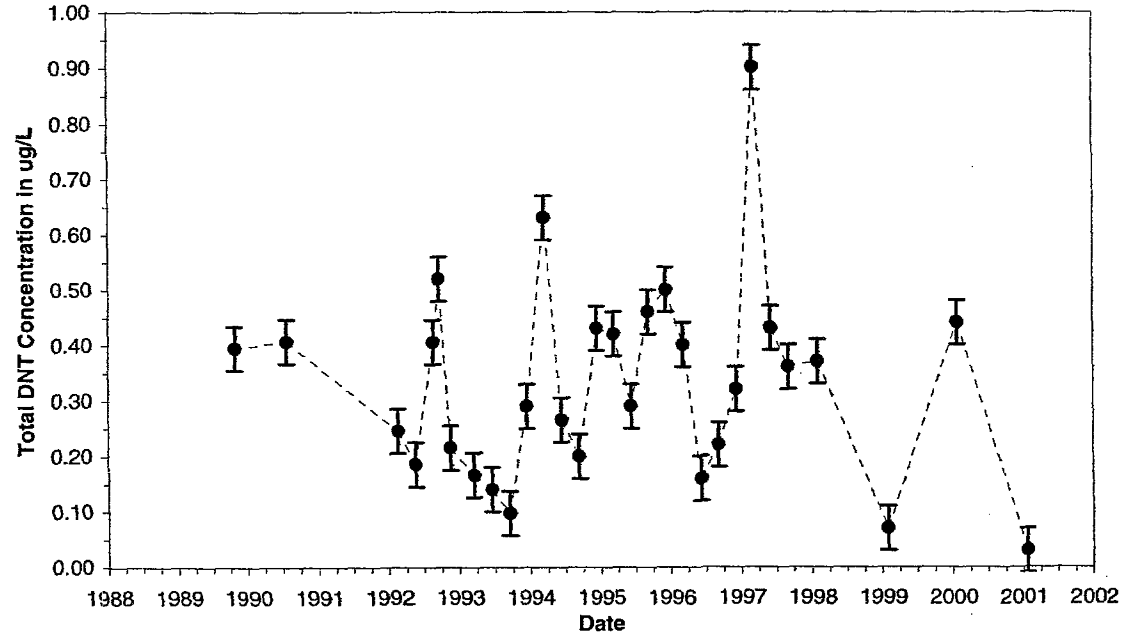
Notes:
1) Nondetects are plotted as 1/2 the sample detection limits.
2) Error bars are +0.04 ug/L (average difference observed between field duplicate sample pairs).

E\974033nc\RI\RI2000\Figures\Fig3.2-1to5.xls

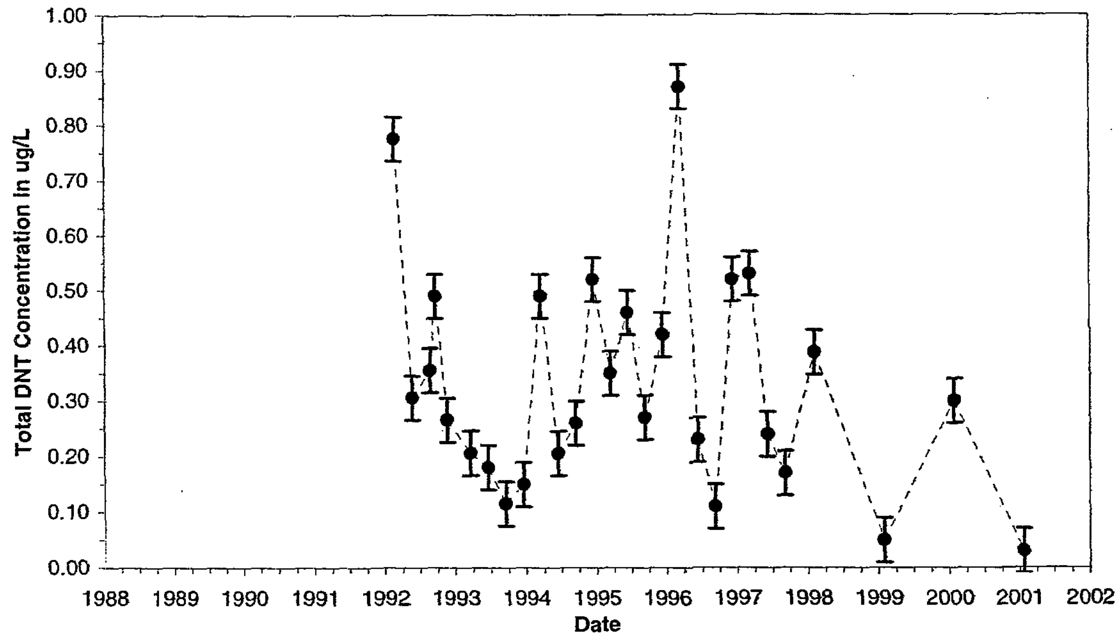
FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\Borders\MW-08 and MW-15.dwg
PLOT DATE: 04/02/02 AT: 15:46

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total DNT Concentrations in Groundwater Over Time (MW-8 and MW-15)	Figure 3.2-2
URS			

MW-19
Sea Level Aquifer Downgradient of Area 18



MW-22
Water Table Aquifer Downgradient of Area 18



Notes:
1) Nondetects are plotted as 1/2 the sample detection limits.
2) Error bars are +0.04 ug/L (average difference observed between field duplicate sample pairs).

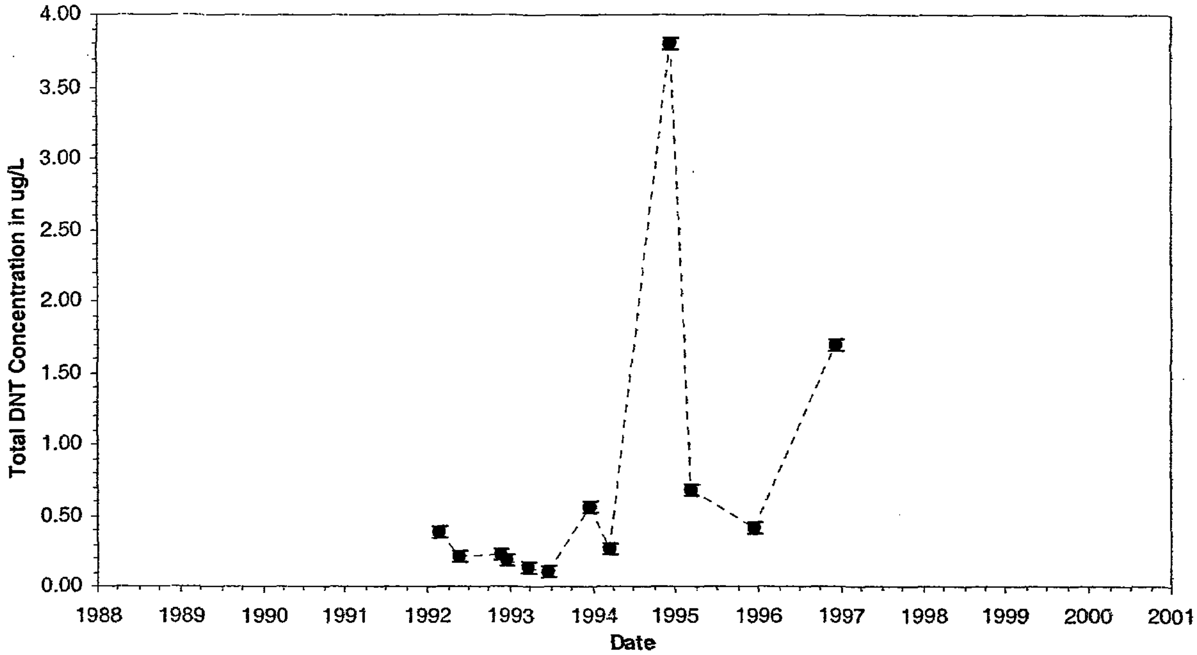
I:\974033nc\RI\Ri2000\Figures\Fig3.2-1to5.xls

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\Borders\FIG3-2-3.dwg
EDIT DATE: 03/11/02 AT: 11:08

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total DNT Concentrations in Groundwater Over Time (MW-19 and MW-22)	Figure 3.2-3
URS			

MW-27

Zone of Seasonally Perched Groundwater Beneath Area 18



Notes:

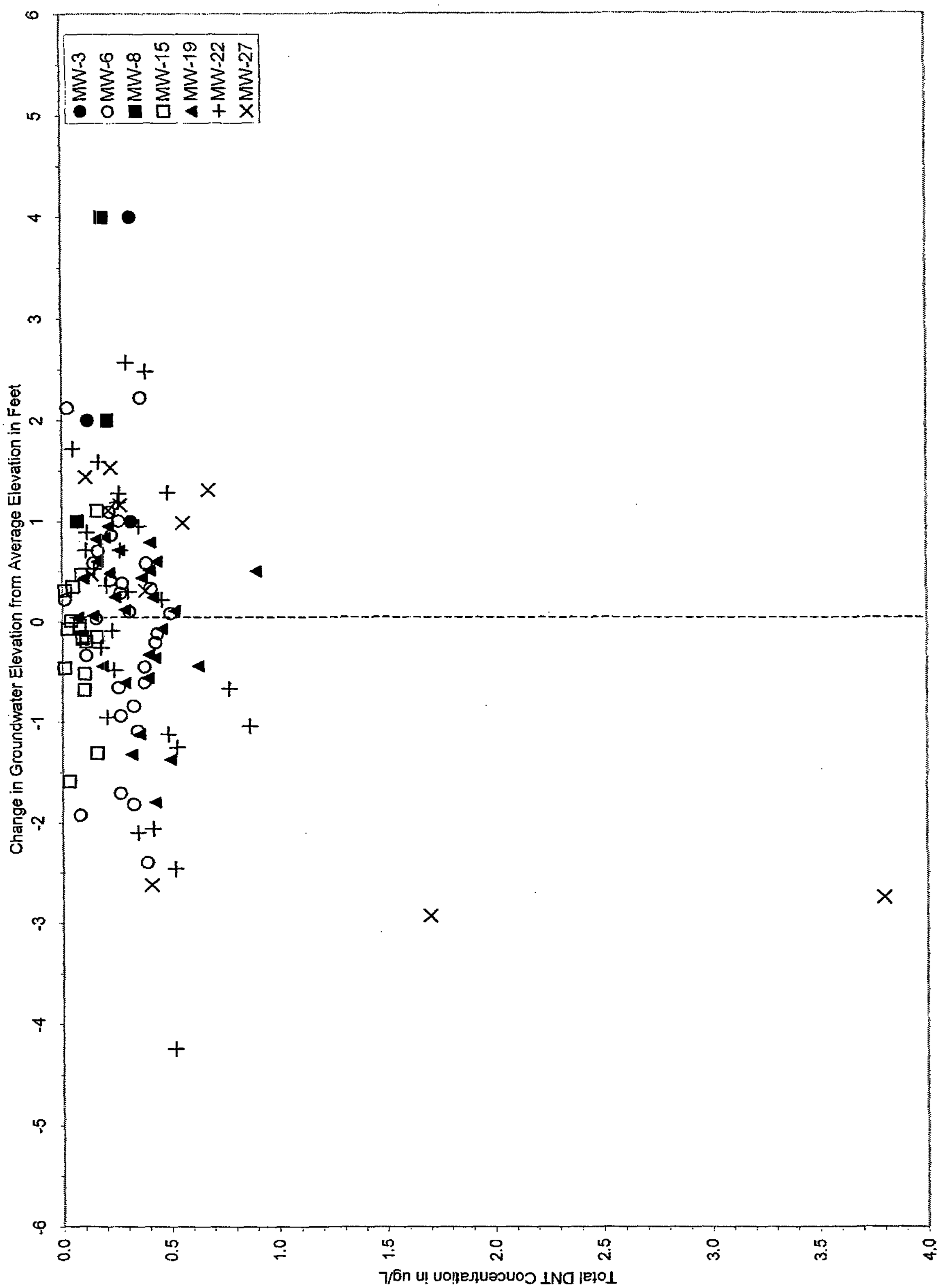
1) Nondetects are plotted as 1/2 the sample detection limits.

2) Error bars are +0.04 ug/L (average difference observed between field duplicate sample pairs).

I:\974033nc\RI\Ri2000\Figures\Fig3.2-1to5.xls

FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\Borders\MW-27.dwg
DATE: 04/02/02 AT: 15:46

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total DNT Concentrations in Groundwater Over Time (MW-27)	Figure 3.2-4
URS			



Data from Seven Quarterly Monitoring Well Locations

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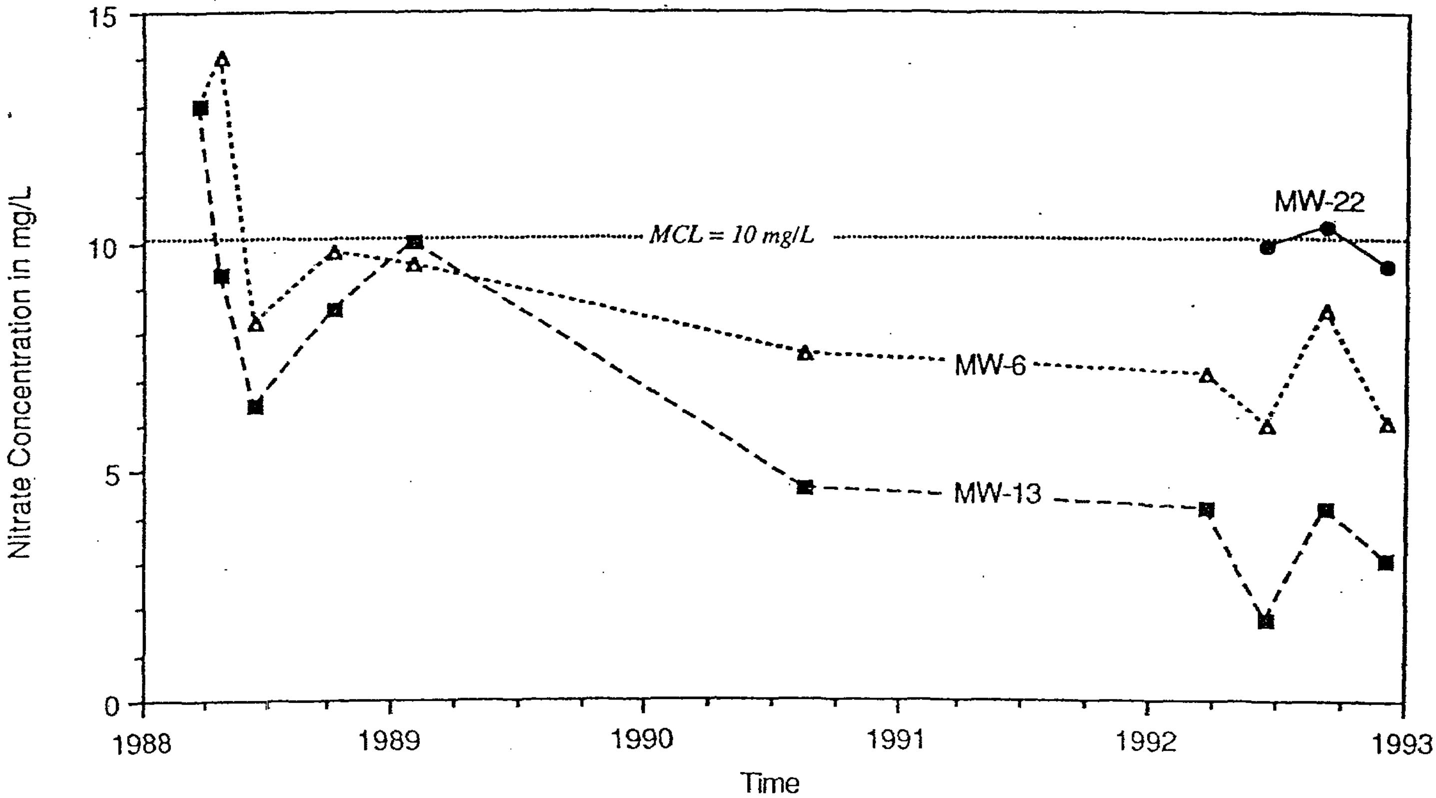
FILENAME: Q:\Geo\Weyerhaeuser\RI-2002\Cut & Paste\Borders\FIG3-2-5-REV1.dwg
EDIT DATE: 04/29/02 AT: 16:04

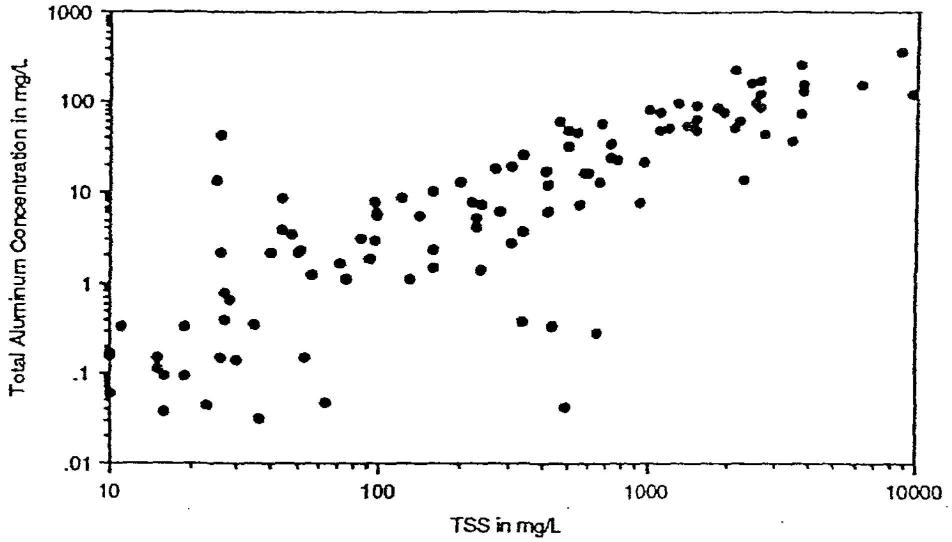
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Groundwater DNT Concentrations as a Function of Groundwater Elevation	Figure 3.2-5
URS			



FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-2-6.dwg
EDIT DATE: 12/19/00 AT: 12:57

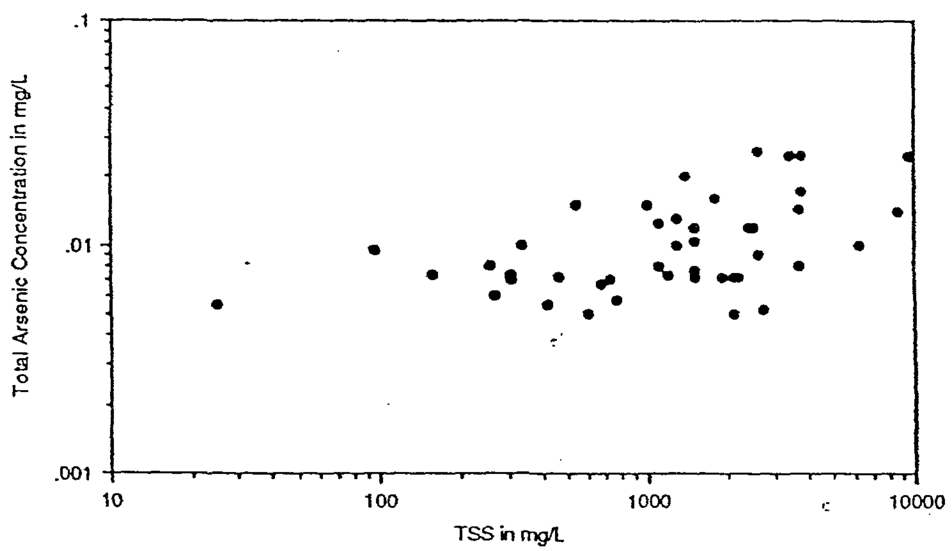
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Nitrate Concentrations in Groundwater Over Time	Figure 3.2-6
URS			

Total Aluminum vs. Total Suspended Solids (TSS)



Note: Only data with both detectable total aluminum and detectable TSS are plotted.

Total Arsenic vs. Total Suspended Solids (TSS)

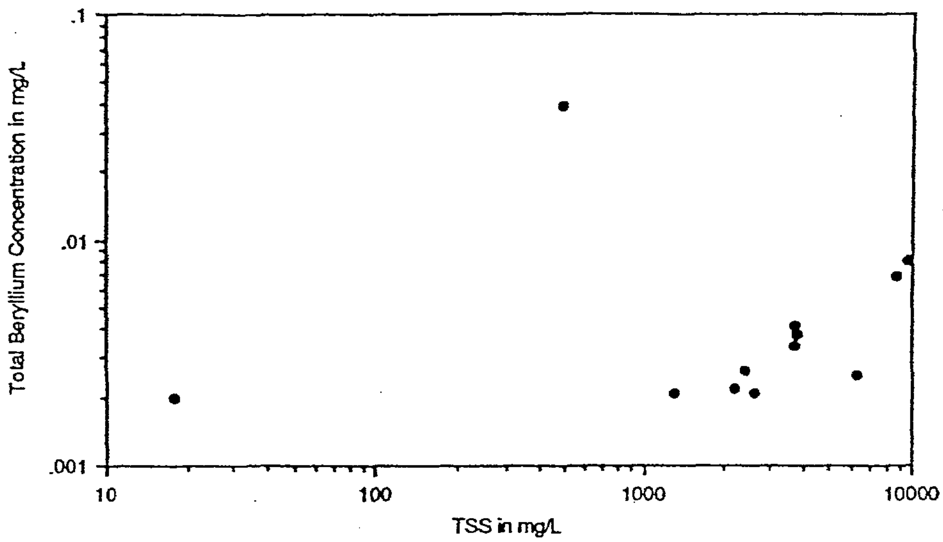


Note: Only data with both detectable total arsenic and detectable TSS are plotted.

FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-2-7.dwg
EDIT DATE: 12/19/00 AT: 12:59

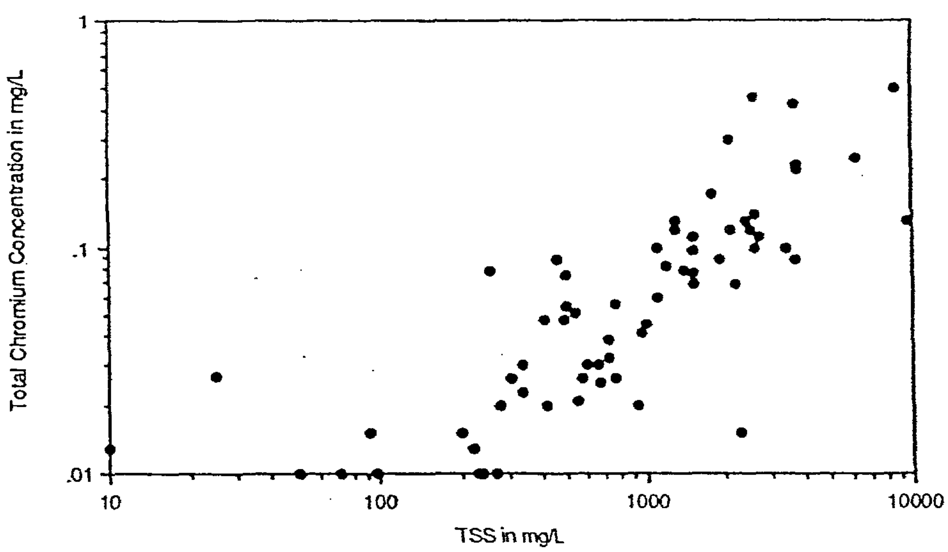
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total Aluminum vs. Total Suspended Solids (TSS) Total Arsenic vs. Total Suspended Solids (TSS)	Figure 3.2-7
URS			

Total Beryllium vs. Total Suspended Solids (TSS)



Note: Only data with both detectable total beryllium and detectable TSS are plotted.

Total Chromium vs. Total Suspended Solids (TSS)

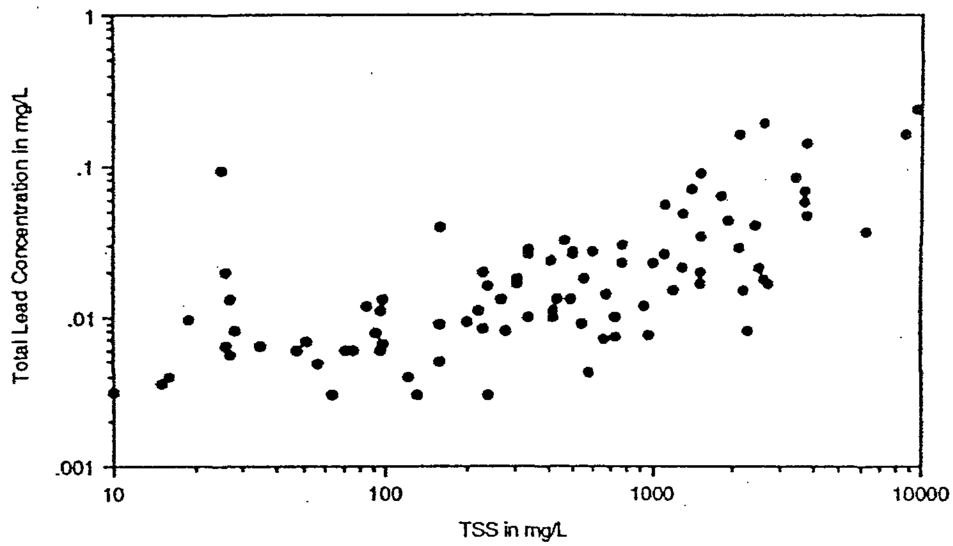


Note: Only data with both detectable total chromium and detectable TSS are plotted.

FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-2-8.dwg
EDIT DATE: 12/19/00 AT: 13:00

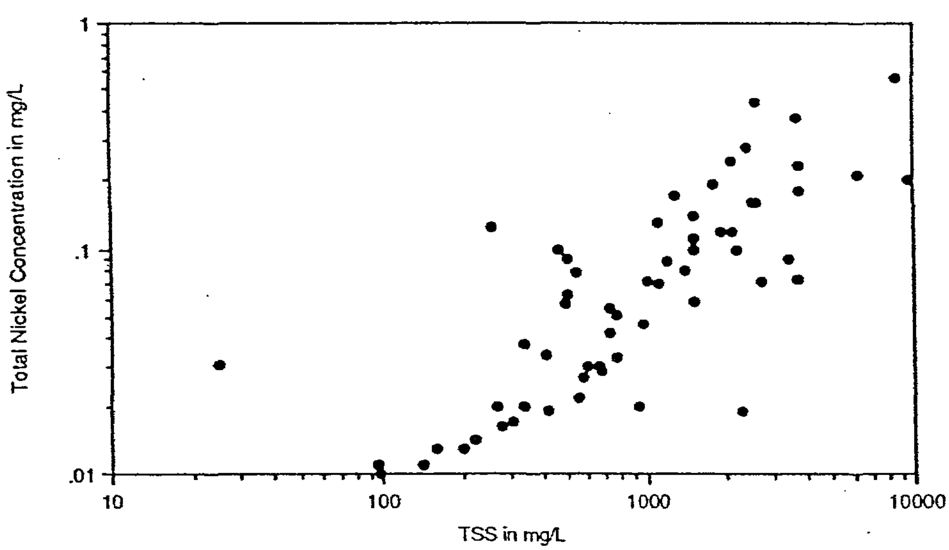
Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total Beryllium vs. Total Suspended Solids (TSS) Total Chromium vs. Total Suspended Solids (TSS)	Figure 3.2-8
URS			

Total Lead vs. Total Suspended Solids (TSS)



Note: Only data with both detectable total lead and detectable TSS are plotted.

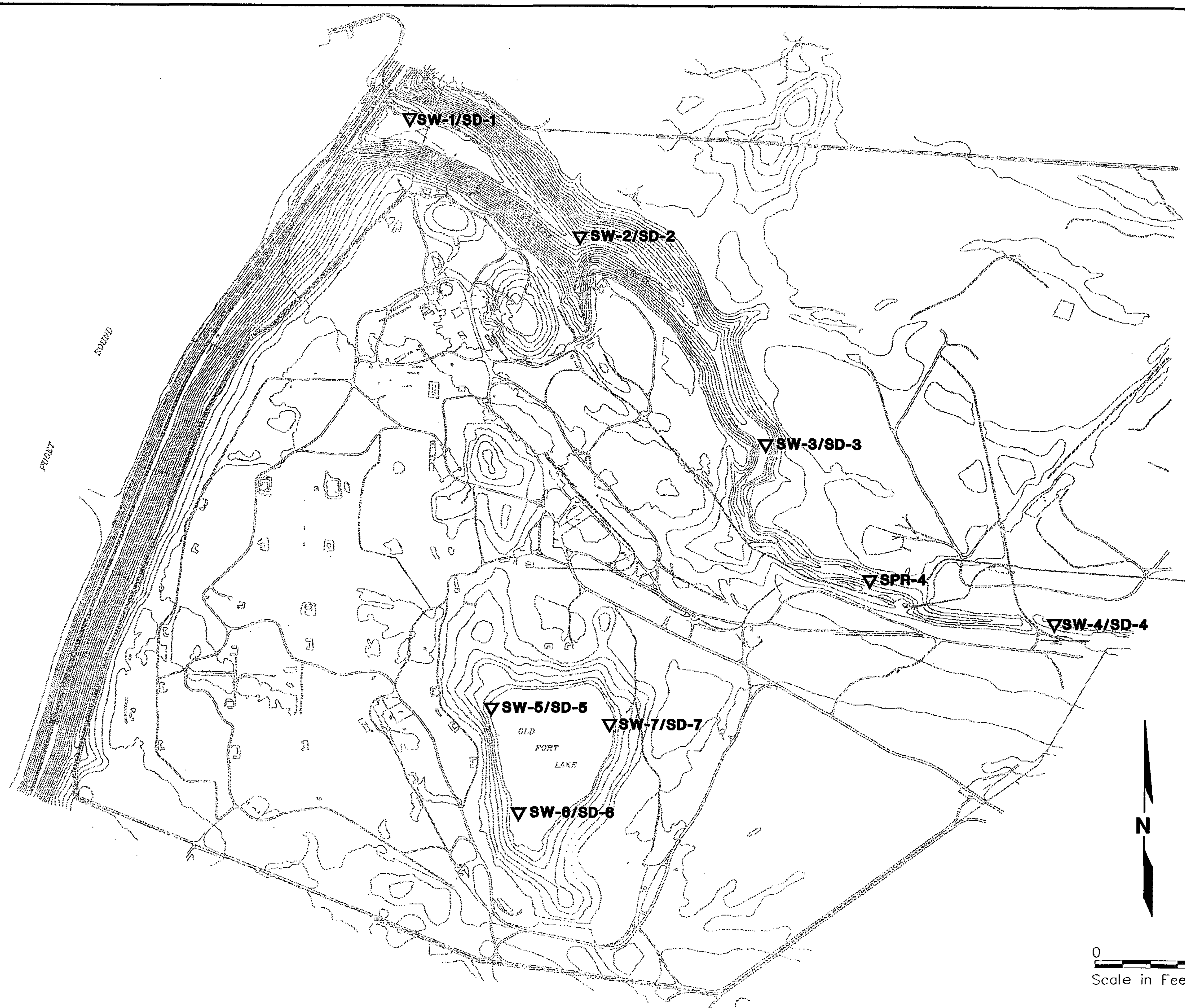
Total Nickel vs. Total Suspended Solids (TSS)



Note: Only data with both detectable total nickel and detectable TSS are plotted.

FILENAME: \\sea2\CAD Projects\Projects\Weyerhaeuser\DuPont WA\Areas\Cut & Paste\Border\FIG3-2-9.dwg
EDIT DATE: 12/19/00 AT: 13:02

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Total Lead vs. Total Suspended Solids (TSS) Total Nickel vs. Total Suspended Solids (TSS)	Figure 3.2-9
URS			



Sampling Location and Number

▽ SW-4/SD-4 Surface Water and Freshwater Sediment

Note: A Pre–RI Freshwater Sediment Sample from SPR–4 was collected. Groundwater, not Surface Water Samples were also collected at this location (refer to Figure 3.1–1).

N

0 800 1600

Scale in Feet

FILENAME: Q:\Geo\Weyerhaeuser\RI–2002\Cut & Paste\FIG4–1–1.dwg
EDIT DATE: 03/11/02 AT: 14:48

Weyerhaeuser DuPont, WA	Project No. 54-974033NC	Surface Water and Freshwater Sediment Sampling Location Plan	Figure 4.1-1
URS			

Table 1-1
Status of Site Areas

Area	Remedial Investigation Characterization (1992-1993)	Interim Source Removal (1990-1993)	Additional Characterization (1999-2002)	Additional Interim Source Removal (1999-2002)
1/2/3/4	X	X	X	X
5		X	X	X
6	X	X		X
7	X		X	X
8		X		X
10	X	X	X	X
11	X			X
12	X			
16	X			
18	X	X	X	X
19		X	X	X
20		X		X
22 (AP-B)	X	X		X
23 (AP-G)	X			
24A	X	X		X
25	X	X	X	X
26	X	X	X	X
30		X		X
31	X	X	X	X
35		X		
36		X	X	X
38	X	X	X	X
39		X	X	
AP-A	X			
AP-C	X			X
AP-D	X			
AP-E	X			
AP-F	X		X	X
Site Reference	X		X	X
Historical RR Grades	X		X	X
Sequalitchew Creek NGRR	X		X	X
Miscellaneous			X	X

Notes:
Areas 20 and 40 (Parcel 2) achieved No Further Action status in 1993 and 1996, respectively.
Areas 15 and 32 within the CDB underwent Independent Cleanup Actions (1981 to 1988).
Areas outside the CDB that are/will be the subject of other reports: 9, 13, 14, 17, 21, 24B, 27, 28, 29, 33, 34, and 37.
Areas outside the CDB that underwent Independent Cleanup Actions (1981 to 1988): 9, 21, 27, 28, 29, and 33.
Areas outside the CDB that achieved No Further Action status: 21, 27, 28, and 29.
CDB - Consent Decree Boundary
NGRR - Narrow Gauge Railroad
RR - railroad

Table 2.2-1
Summary Statistics of Soil Quality in Area Background Samples

	Range of Concentrations	Maximum Detection	Detection Frequency	Arithmetic Mean	Arithmetic Std. Dev.	Nat. Log. Mean	Nat. Log. Std. Dev.
Metal (total) in mg/kg							
Aluminum	11,000 to 33,000	33,000	13/13	19,462	6,936	9.82	0.34
Antimony	0.28 UJ to 3	3	9/13	1.1	0.8	-0.35	0.92
Arsenic	9.1 to 36	36	20/20	20.7	7.6	2.96	0.40
Beryllium	0.22 to 0.42	0.42	10/10	0.29	0.07	-1.25	0.22
Cadmium	0.22 J to 1.2 J	1.2	10/10	0.60	0.3	-0.66	0.59
Chromium	8 to 24	24	13/13	15.5	4.5	2.70	0.29
Copper	15 to 33	33	10/10	22.5	7.4	3.06	0.33
Lead	6.4 U to 57	57	12/13	28.2	16	3.05	0.76
Mercury	0.083 U to 0.2	0.2	3/10	0.17	0.06	-2.66	0.63
Nickel	11 to 22	22	10/10	16.6	3.6	2.79	0.24
Selenium	0.29 UJ to 0.34 J	0.34	1/10	0.34	0.06	-1.77	0.25
Silver	0.04 J to 0.12	0.12	10/10	0.08	0.03	-2.67	0.43
Thallium	0.29 U to 0.35 U	N/A	0/10	N/A	0.01	-1.85	0.06
Zinc	27 to 54	54	13/13	38.4	7.6	3.63	0.20
Explosives in mg/kg							
Monomethylamine nitrate	5.9 U to 7.6 U	N/A	0/10	3.16	0.26	1.15	0.08
Nitroglycerine	0.24 U to 0.31 U	N/A	0/10	0.13	0.01	-2.06	0.08
Nitrobenzene	0.07 U to 0.091 U	N/A	0/10	0.04	0.00	-3.29	0.08
1,3-Dinitrobenzene	0.047 U to 0.061 U	N/A	0/10	0.03	0.00	-3.68	0.08
1,3,5-Trinitrobenzene	0.035 U to 0.046 U	N/A	0/10	0.02	0.00	-3.97	0.08
2,4-Dinitrotoluene	0.0071 U to 0.0092 U	N/A	0/10	0.00	0.00	-5.58	0.08
2,6-Dinitrotoluene	0.0071 U to 0.0092 U	N/A	0/10	0.00	0.00	-5.58	0.08
2,4,6-Trinitrotoluene	0.0035 U to 0.0046 U	N/A	0/10	0.00	0.00	-6.27	0.08
PAHs (noncarcinogenic) in mg/kg							
Acenaphthene	0.2 U to 0.46	0.46	1/10	0.14	0.11	-2.10	0.47
Acenaphthylene	0.2 U to 0.25 U	N/A	0/10	0.11	0.01	-2.25	0.07
Anthracene	0.0099 U to 0.013 U	N/A	0/10	0.01	0.00	-5.24	0.09
Benzo(g,h,i)perylene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Fluoranthene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Fluorene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Naphthalene	0.099 U to 0.13 U	N/A	0/10	0.05	0.00	-2.94	0.09
Phenanthrene	0.0099 U to 0.013 U	N/A	0/10	0.01	0.00	-5.24	0.09
Pyrene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
PAHs (carcinogenic) in mg/kg							
Benzo(a)anthracene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Benzo(a)pyrene	0.02 U to 0.025	0.025	1/10	0.01	0.00	-4.47	0.28
Benzo(b)fluoranthene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Benzo(k)fluoranthene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
Chrysene	0.01 U to 0.16	0.16	7/10	0.04	0.05	-3.63	1.02
Dibenzo(a,h)anthracene	0.04 U to 0.052 U	N/A	0/10	0.02	0.00	-3.84	0.08
Indeno(1,2,3-c,d)pyrene	0.02 U to 0.025 U	N/A	0/10	0.01	0.00	-4.55	0.07
TPH in mg/kg							
TPH (418.1)	24 U to 31 U	N/A	0/10	12.75	1.06	2.54	0.08
Semivolatile organics in mg/kg							
bis(2-Ethylhexyl)phthalate	0.043 J to 0.71	0.71	4/11	0.15	0.19	-2.21	0.68
	No other constituents detected above detection limit						
Volatile organics in mg/kg	No constituents detected						
PCBs in mg/kg	No constituents detected						
Organochlorine pesticides in mg/kg	No constituents detected						
Organophosphorus pesticides in mg/kg	No constituents detected						

Notes:
J - estimated value
mg/kg - milligram per kilogram
N/A - not sufficient detections to calculate
PAH - polycyclic aromatic hydrocarbons
PCB - polychlorinated biphenyl
TPH - total petroleum hydrocarbons
U - not detected a detection limit indicated
UJ - not detected at estimated detection limit indicated

Table 2.2-2
90th Percentile Metals Concentrations in Site Area and Regional Background Samples

	Concentration in mg/kg (ppm)						
	RI Site Area Background[a,b]				Puget Sound[c]	Northern Puget Sound[d]	Western United States[e]
	n-censored	n-uncensored	Mean	90th %			
Aluminum	0	13	19,462	29,498	32,600		
Antimony	2	11	1.1	2.5			0.62
Arsenic	0	20	21	33	7.0		
Beryllium	0	10	0.29	0.39	0.6		
Cadmium	0	10	0.60	1.2	1.0		
Chromium	0	13	16	22	48		
Copper	0	10	23	33	36		
Lead	1	12	28	51	24		
Mercury	7	3	0.17	0.20	0.07		
Nickel	0	10	17	22	48		
Selenium	10	1	0.34	0.32			0.34
Silver	0	10	0.08	0.13		0.5	
Thallium	10	0	N/A	N/A			9.8
Zinc	0	13	38	49	85		

[a]Source: Hart Crowser 1987 and current study
[b]Source: Hart Crowser 1987 and current study
[c]Source: Ecology 1994
[d]Source: Harper & Owes 1985; METRO (unpublished)
[e]Source: Shacklette & Boerngen 1984

Notes:
mg/kg - milligram per kilogram
PPM - parts per million
RI - remedial investigation

Table 3.1-1
Summary of Hydraulic Conductivity (K) Estimates

Water Table Aquifer

Site-Specific Data:

Well No.	Method	Estimated K in cm/sec
MW-12	Short-term pumping test	2×10^{-2}
MW-7	Short-term pumping test	7×10^{-2}
MW-8	Slug test	2×10^{-3}
MW-14	Slug test	1×10^{-2}
MW-22	Slug test	2×10^{-3}
MW-24	Slug test	2×10^{-3}
Various[a]	Grain size data	5×10^{-1} to 4

Regional Data:

Well No.	Method	Estimated K in cm/sec
City of DuPont No. 1[b]	Pumping test	4×10^{-3}
PW-1A[c]	Pumping test	9×10^{-3} to 2×10^{-2}

Best Estimate Range[d] for Water Table Aquifer: 5×10^{-3} to 5×10^{-2}

Semi-confined Sea Level Aquifer (East of "Cutoff")

Site-Specific Data:

Well No.	Method	Estimated K in cm/sec
MW-18	Slug test	4×10^{-3}

Regional Data:

Well No.	Method	Estimated K in cm/sec
Bell Hill No. 1[e]	Pumping test	5×10^{-2}
Bell Hill No. 2[f]	Pumping test	4×10^{-2}
Weyerhaeuser No. 3[b]	Pumping test	1×10^{-2}
Fort Lewis No. 18[b]	Pumping test	6×10^{-3}

Best Estimate Range[d] for Semi-confined Sea Level Aquifer: 1×10^{-2} to 5×10^{-2}

Unconfined Sea Level Aquifer (West of "Cutoff")

Site-Specific Data:

Well No.	Method	Estimated K in cm/sec
MW-2	Slug test	3×10^{-3}
MW-4	Slug test	2×10^{-3}
MW-6	Slug test	4×10^{-2}
MW-16	Slug test	2×10^{-2}
Various[a]	Grain size data	2×10^{-1} to 1

Regional Data:

Well No.	Method	Estimated K in cm/sec
None[c]	Literature review	4×10^{-1} to 4

Best Estimate Range[d] for Unconfined Sea Level Aquifer: 1×10^{-2} to 1

Table 3.1-1 (Continued)
Summary of Hydraulic Conductivity (K) Estimates

[a]K estimates from grain size data are presented in Table 3.1-2.
[b]From Associated Earth Sciences 1984.
[c]From Woodward-Clyde Consultants 1990.
[d]The Best Estimate Range represents the best estimate of the reasonable range of aquifer K values based on all available data.
[e]From Hart Crowser 1988b.
[f]Pumping test conducted in Bell Hill No. 1 during drilling of Bell Hill No. 2 to deeper aquifer (from Hart Crowser 1990).

Note:
cm/sec - centimeter per second

Table 3.1-2
Hydraulic Conductivity (K) Estimates Based on Application of Kozeny-Carmen Equation to Grain Size Data

Sample No.	Sample Description From Grain Size	d50 in cm	Estimated K in cm/sec assuming	
			porosity = 0.2	porosity = 0.35
Water Table Aquifer				
MW-13, S-3	Slightly silty, very sandy GRAVEL	0.7	3	24
MW-20, S-17	Very gravelly SAND	0.178	0.2	2
MW-21, S-17	Slightly silty, very sandy GRAVEL	0.484	1	11
MW-22, S-20	Slightly silty, very sandy GRAVEL	0.807	4	32
MW-24, S-11	Slightly silty, very sandy GRAVEL	0.383	0.9	7
		Geometric Mean of Values:	1.2	10
Unconfined Sea Level Aquifer (West of Cutoff)				
MW-4, S-8	Gravelly SAND	0.1	0.06	0.5
MW-5, S-8	Slightly silty, gravelly SAND	0.3	0.5	4
		Geometric Mean of Values:	0.2	1

Notes:

Grain size data for wells MW-20 through MW-24 presented in Appendix D.

Grain size data for MW-13, MW-4, and MW-5 from Hart Crowser 1988a.

Kozeny Carmen Equation is $(pg/1.8\mu) * (d50)^2 * [n^3/(1-n)^2]$ (Freeze and Cherry 1979),

where p = density of water in kg/m^3; g = gravitational acceleration in m/sec^2; 1.8 is units correction factor;

n = porosity; d50 is median grain size in cm. At 15°C, $pg/1.8\mu$ is 478 $cm^{-1}sec^{-1}$.

cm/sec - centimeter per second

Table 3.1-1 (Continued)
Summary of Hydraulic Conductivity (K) Estimates

[a]K estimates from grain size data are presented in Table 3.1-2.
[b]From Associated Earth Sciences 1984.
[c]From Woodward-Clyde Consultants 1990.
[d]The Best Estimate Range represents the best estimate of the reasonable range of aquifer K values based on all available data.
[e]From Hart Crowser 1988b.
[f]Pumping test conducted in Bell Hill No. 1 during drilling of Bell Hill No. 2 to deeper aquifer (from Hart Crowser 1990).

Note:
cm/sec - centimeter per second

Table 3.2-1
Summary of Groundwater Sampling (by Location) Conducted to Date

Sampling Location	Pre-RI							RI											
	Dec-86	Mar-88	Jun-88	Oct-88	Jan-89	Nov-89	Aug-90	Mar-92	Jun/ Jul-92	Sep-92	Dec-92	Jan-93	Apr-93	Jul-93	Oct-93	Jan-94	Apr-94	Jul-94	Oct-94
MW-1		X	X	X	X	X	X	X	X	X	X								
MW-2		X	X	X	X			X	X	X	X								
MW-3		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
MW-4		X	X	X	X			X	X	X	X								
MW-5		X	X	X	X			X	X	X	X								
MW-6		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
MW-7		X	X	X	X			X	X	X	X								
MW-8		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
MW-9		X	X	X	X			X	X	X	X								
MW-11		X	X	X	X			X	X	X	X								
MW-12		X	X	X	X			X	X	X	X								
MW-13		X	X	X	X		X	X	X	X	X								
MW-14		X	X	X	X			X	X	X	X								
MW-15		X	X		X	X	X	X	X	Dry	X	X	X	X	X	X	X	Dry	Dry
MW-16		X	X	X	X	X		X	X	X	X								
MW-17		Dry			X	X	X	X	X	X	X								
MW-18						X	X	X	X	X	X								
MW-19						X	X	X	X	X	X		X	X	X	X	X	X	X
MW-20								X	X	X	X								
MW-21								X	X	X	X								
MW-22								X	X	X	X		X	X	X	X	X	X	X
MW-24								X	X	X	X								
MW-26									X	X	X	X							
MW-27								X	X	Dry	X	X	X	X	Dry	X	X	Dry	Dry
7-B-503									X										
SEEP 1						X	X	X	X	X	X		X	X	X	X	X	X	X
SEEP 2						X	X	X	X	X	X								
SPR-4	X	X	X	X	X			X	X	X	X								
W-1																			
W-2																			
W-3															X				

Table 3.2-1 (Continued)
Summary of Groundwater Sampling (by Location) Conducted to Date

	RI																
Sampling Location	Jan-95	Apr-95	Jul-95	Oct-95	Jan-96	Apr-96	Jul-96	Oct-96	Jun/ Jan-97	Apr-97	Jul-97	Oct-97	Mar-98	Mar-99	Mar-00	Mar-01	Mar-02
MW-1																	
MW-2																	
MW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Dry	X	X
MW-4																	
MW-5																	
MW-6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-7																	
MW-8	X	X	X	X	X	X	X	X	X	X	X	X					
MW-9																	
MW-11																	
MW-12																	
MW-13																	
MW-14																	
MW-15	X	X	Dry	Dry	X	X	Dry	Dry	X	X	Dry	Dry					
MW-16																	
MW-17																	
MW-18																	
MW-19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-20																	
MW-21																	
MW-22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-24																	
MW-26																	
MW-27	X	X	Dry	Dry	X	Dry	Dry	Dry	X	Dry	Dry	Dry					
7-B-503																	
SEEP 1	X	X	X	X	X	X	X	X	X	X	X	X					
SEEP 2																	
SPR-4																	
W-1		X			X	X	X	X	X	X	X	X					
W-2		X			X	X	X	X	X	X	X	X	X	X	X	X	X
W-3					X												

Notes:
RI - remedial investigation
X - location sampled

Table 3.2-2
Number of Usable Data Points (Analyses) for Each Groundwater Sampling Location

Location	Nitrate	Total Lead Only	14 Total Metals	Dissolved Lead Only	14 Dissolved Metals	NAX	NG	MMAN	TPH	PAHs	PCBs	OC Pesticides	OP Pesticides	VOCs	SVOCs
MW-1	10		4	4	4	8	6	7	4	4				[3]	
MW-2	8		4	3	4	6	4	5	4	4	4	4	4	4	4
MW-3	9		4	3	4	29	5	6	4	4	4	4	4	6	4
MW-4	8		4	3	4	6	4	5	4	4	4			[1]	
MW-5	8		4	3	4	6	4	5	4	4	4	4	4	[1]	
MW-6	10		4	3	4	30	5	6	4	4				[2]	
MW-7	8		4	3	4	6	4	5	4	4	4			[1]	
MW-8	9	2	4	3	4	26	5	6	4	4	4			4	4
MW-9	8		4	3	4	6	4	5	4	4				4	4
MW-11	9		4	3	4	6	4	5	4	4				4	4
MW-12	9		4	3	4	6	4	5	4	4		4	4	4	4
MW-13	10		4	3	4	7	5	6	4	4				[2]	
MW-14	8		4	3	4	6	4	5	4	4				[1]	
MW-15	9	1	4	3	4	18	4	5	3	4	2			4	2
MW-16	9	2	4	4	4	7	5	6	4	4	4			5	4
MW-17	5		4	1	4	7	5	5	4	4				[2]	
MW-18	6		4	1	4	6	4	4	4	4				[2]	
MW-19	6		4	1	4	30	4	4	4	4	4			[2]	
MW-20	4		4		4	4	4	4	4	4					
MW-21	4		4		4	4	4	4	4	4					
MW-22	4		4		4	28	4	4	4	4					
MW-24	4		4		4	4	4	4	4	4	4				
MW-27	2		1		2	12	2	2	1	1					
7-B-503	0		1		1	1	0	0	0	1					
SEEP 1	6	1	4	1	4	25	4	4	4	4	4				
SEEP 2	6		4	1	4	6	4	4	4	4	4				
SPR-4	9	1	4	3	4	6	4	5	4	4				4	4
W-1						7									
W-2						13									
W-3						2									

Notes:

Blanks indicate constituent was not proposed for analysis at that sampling location in the RI/FS Management Plan.

Numbers in brackets [ ] are usable data points for constituents not proposed for analysis in RI/FS Management Plan, but analyses were conducted.

Total number of total or dissolved lead analyses are equal to the sum of the lead only (pre-RI) and 14 metals (RI) numbers of analyses.

FS - feasibility study
MMAN - monomethylamine nitrate
NAX - nitroaromatic explosives
NG - nitroglycerine
OC - organochlorine
OP - organophosphorus
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
RI - remedial investigation
SVOC - semivolatile organic compound
TPH - total petroleum hydrocarbons
VOC - volatile organic compound

Table 4.1-1
Number of Usable Data Points (Analyses) for Each Surface Water Sampling Location

Location	Nitrate	Total Lead Only	14 Total Metals	Dissolved Lead Only	14 Dissolved Metals	NAX	NG	MMAN	TPH	PAHs	PCBs	OC Pesticides	OP Pesticides	VOCs	SVOCs
Sequalitchew Creek															
SW-3	4	1	4	2	4	6	4	5	4	4		[1]		[1]	[1]
SW-4	2	1	2	2	2	3	3	4	2	2		[1]		[1]	[1]
Old Fort Lake															
SW-5	4	1	4	2	4	6	4	5	4	4				[1]	[1]
SW-6	4	1	4	2	4	6	4	5	4	4				[1]	[1]
SW-7	4	1	4	2	4	6	4	5	4	4				[1]	[1]

Notes:

Blanks indicate constituent was not proposed for analysis at that sampling location in the RI/FS Management Plan.

Numbers in brackets [ ] are usable data points for constituents not proposed for analysis in RI/FS Management Plan, but analyses were conducted.

Total number of total or dissolved lead analyses are equal to the sum of the lead only (pre-RI) and 14 metals (RI) numbers of analyses.

FS - feasibility study
MMAN - monomethylamine nitrate
NAX - nitroaromatic explosives
NG - nitroglycerine
OC - organochlorine
OP - organophosphorus
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
RI - remedial investigation
SVOC - semivolatile organic compound
TPH - total petroleum hydrocarbons
VOC - volatile organic compound

Appendix A
Field Procedures and Logs

The material in Appendix A was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

APPENDIX A: FIELD PROCEDURES

The Remedial Investigation (RI) field program was initiated in February 1992. The initial phase of soil sampling was conducted between February and May 1992. Following Washington State Department of Ecology (Ecology) review of the initial soil quality results from the kettle Areas 7, 16, and 26 as presented in Hart Crowser (1992d), additional soil sampling was conducted in the three kettle areas and selected other areas in late June and July 1992. Supplementary soil sampling was conducted in selected areas of the Site between October 1992 and January 1994. Quarterly groundwater sampling for the RI has been conducted from March 1992 through April 1994 (Table 3.2-1 in Volume 1 summarizes all pre-RI and RI groundwater sampling conducted to date).

Soil Quality Explorations

The RI soil sampling program included completion of the following explorations:

- 328 test pits;
- 15 observational test pits (from which samples were generally not collected);
- 40 trenching locations around foundations;
- 30 soil borings;
- 41 hand-augered borings; and
- 1,676 surface samples.

In addition, 10 samples of railroad ties (wood) were collected. The number of explorations indicated above does not include additional samples collected during the pre-RI and interim source removal.

The results of the RI subsurface exploration program are presented on the exploration logs, which are grouped by Site RI Area, within this appendix. Surface soil sampling forms are not presented in this appendix. The exploration logs represent our interpretation of data compiled from drilling and excavation, sampling, and field testing information at the time of the exploration (exploration dates are listed on each log). Because these logs describe conditions encountered at the time of exploration, soil sample depths and ground surface elevations on all exploration logs are referenced to the grade at the time of exploration, and have not been adjusted for regrading or removal resulting from interim source removal, as was done in the body of this report. Although interim source removal has removed most of the Area 5 explorations completed during the RI, the exploration logs are included in this appendix. Those samples removed during subsequent interim source removal (and thus not representative of current Site conditions) are denoted with (R) next to the sample number on the exploration logs. Field procedures for each of the exploration types are discussed in more detail below.

Test Pit Excavations

Test pits were excavated using a four-wheel-drive Case 580K backhoe, which was capable of operating to depths of approximately 10 to 12 feet. To minimize the sloughing of the test pit side walls, the backhoe was generally used to dig as deep as required to collect the shallowest proposed sample. Once the sample had been collected, the pit was deepened to the bottom of the next proposed sampling depth. The soil samples were composited from the determined sample depth interval (e.g., 3 to 6 feet), and generally from the two long walls of the excavation (i.e., parallel to the direction of the scoop), except in cases where a discrete portion of the excavation was sampled based on field observations (e.g., stained soils).

If signs of subsurface alteration (e.g., unnatural staining, deteriorated gravels) were still evident at a depth of 10 feet, every effort was made to excavate and sample deeper. However, sloughing gravelly soils generally prevented excavation beyond a depth of approximately 10 feet. The sample intervals specified in the area-specific soil sampling and analysis plans (RI/FS Management Plan; Hart Crowser, 1992a) were followed to the extent possible; however, sample collection intervals were based on field conditions and best professional judgement.

Soil samples from the test pits were collected either by removing depth-specific sample material from the center of the backhoe bucket with a stainless steel spoon, or by using a stainless steel spoon with 10-foot-long extending handle to sample the test pit walls. Soil samples were mixed in a stainless steel bowl, at which time gravels larger than approximately 1/2 inch in diameter were removed since they would not be analyzed by standard laboratory methods. The samples were placed in laboratory-supplied clean glass jar(s) with teflon-lined screw caps, and immediately placed in a cooled ice chest. Soil samples collected for field headspace vapor measurements and volatile organic analyses were placed directly into appropriate sampling jars without mixing. Prior to placement in the ice chest, all sampling jars collected for nitroaromatic explosive (NAX) analysis were wrapped in aluminum foil to limit photolysis (light-induced breakdown) of the nitroaromatic compounds. Samples selected based on the RI/FS Sampling and Analysis Plan (Section 4 in Hart Crowser, 1992a) and field observations were delivered to the analytical laboratory (ATI-Renton or Hart Crowser Chemistry Laboratory) for chemical analyses. Remaining samples were stored under refrigeration at the Site.

The backhoe bucket was steam cleaned after each test pit excavation. All steam cleaning water was collected in a galvanized trough and pumped into 55-gallon drums. Sampling equipment was decontaminated between collection of each soil sample as discussed in the ***Equipment Decontamination*** section.

Soils and other materials encountered in the test pits were documented on a field test pit log form (Figure 5-4 in Hart Crowser, 1992a). Test pits were photographed to show the excavation in relation to its immediate surroundings. Once sampling was completed and the test pit logged and photographed, the test pit excavations were backfilled with the excavated soil and compacted using the backhoe. The test pit locations were staked for subsequent survey.

Observational test pits were also completed in some locations for the purpose of observing subsurface conditions. Dimensions of these excavations varied depending on the conditions to be observed. Soil samples were collected from some observational test pits based on conditions encountered. All excavation and sampling protocols were generally consistent with those described above for typical test pits.

In addition, trenches approximately 4 feet deep were excavated around the perimeters of selected foundations in Area 18 to observe the presence of potential buried pipes or other drainage systems. Discrete soil samples were collected from depths of 0 to 1 foot and 3 to 4 feet at locations based on field observation. All excavation and sampling protocols were generally consistent with those described above for typical test pits.

Soil Borings

A hollow-stem auger was used to drill soil borings completed for soil quality sampling during the RI. The borings were advanced using either a Mobile B-61 or a Jefco SD-300 drill rig, using 4-inch inside diameter hollow-stem auger. The Jefco rig was used for completion of the deep Phase II RI borings in the kettles, since it has the capability of switching from hollow-stem auger to air rotary operation if refusal was encountered with auger operation at depth. However, all soil borings for soil sample collection (chemical analyses) were completed using hollow-stem auger operation, even to a depth of 100 feet in 26-B-503 completed in the bottom of the Area 26 kettle.

Standard hollow-stem auger drilling techniques were used in advancing the soil borings. No grease other than vegetable oil was used on the auger section joints or accessory tooling. No water was added to the boreholes. Soil borings were photographed to show the exploration in relation to its immediate surroundings and staked for surveying.

Soil Sampling in the Borings. During hollow-stem auger drilling, soil samples were typically collected at 2.5-foot-depth intervals or continuously, beginning at a depth of 2.5 feet below ground surface. Surficial samples were collected manually from the upper 6 inches of material at each boring location following the removal of vegetation or forest duff, if present. Continuous sampling was often required to collect adequate soil sample volume as a result of poor sample recovery caused by the gravelly soils.

Soil samples obtained during hollow-stem auger drilling were collected using the Standard Penetration Test (SPT) procedure described in ASTM D 1587 modified to include a 3-inch-diameter split-spoon and a 300-pound hammer. The procedure involves driving a standard 3-inch outside diameter split-spoon sampler into the soil a distance of 18 inches beyond the end of the borehole. The sampler is driven by a 300-pound hammer dropping 30 inches onto the end of the drilling rod. The number of blows required to drive the sampler the final 12 inches is the (modified) Penetration Resistance. This resistance provides a measure of the density of granular soils (sands and gravels) and consistency of finer grained cohesive soils (silts and clays). This information, along with soil descriptions and other observations, was recorded on field boring forms (Figure 5-4 in Hart Crowser, 1992a).

Samples to be retained for chemical analysis were placed in laboratory-supplied clean glass jar(s) with teflon-lined screw caps, and immediately placed in a cooled ice chest. Where poor recovery occurred, soil was placed in a clean stainless steel bowl covered with aluminum foil and composited with the next sample interval (typically immediately below). Gravels larger than approximately 1/2 inch in diameter were removed from the samples since they would not be analyzed by standard laboratory methods. Soil samples collected for field headspace vapor measurements and volatile organic analyses were placed directly into appropriate sampling jars without mixing. Prior to placement in the ice chest, all sampling jars collected for nitroaromatic explosive (NAX) analysis were wrapped in aluminum foil to limit photolysis (light-induced breakdown) of the nitroaromatic compounds. Selected samples based on field observations and soil recovery were delivered to ATI-Renton for chemical analysis. Remaining samples were stored under refrigeration at the Site.

The auger flights and all downhole sampling equipment was steam cleaned after completion of each boring. The split-spoon sampler and all other sampling equipment (e.g., stainless steel spoons or bowls) were decontaminated after each sample using the procedures discussed in the ***Equipment Decontamination*** section.

Hand-Augered Borings

Hand-augered borings were completed throughout the Site where backhoe and drill rig access was limited. Depending on soil conditions, a combination of stainless steel hand-auger, shovel, or post hole digger were used to excavate soils to a depth of three feet.

All samples were collected as the boring was advanced, either from the hand-auger or from the side walls of the (shovel) excavations. Samples were composited in a stainless steel bowl and placed in laboratory-supplied clean glass jar(s) with teflon-lined screw caps, and immediately placed in a cooled ice chest. Gravels larger than approximately 1/2 inch in diameter were removed from the samples since they would not be analyzed by standard laboratory methods. Prior to placement in the ice chest, all sampling jars collected for NAX analysis were wrapped in aluminum foil to limit photolysis (light-induced breakdown) of the nitroaromatic compounds. Soil samples collected for field headspace vapor measurements and volatile organic analyses were placed directly into appropriate sampling jars without mixing.

The hand-augered boring data were recorded on field test pit logs (Figure 5-3 in Hart Crowser, 1992a). Selected samples based on field observations and soil recovery were delivered to the analytical laboratory for chemical analysis. Remaining samples were stored under refrigeration at the Site. All equipment was thoroughly decontaminated between sample locations as discussed in the ***Equipment Decontamination*** section. Hand-augered borings were photographed to show the exploration in relation to its immediate surroundings, and staked for surveying.

Surface Soil Samples

Surface samples were collected from the upper six inches of soil following the removal of vegetation or forest duff, if present. Each sample was collected using a decontaminated shovel and/or stainless steel spoon. The soil was placed in a decontaminated stainless steel bowl. Gravels larger than approximately 1/2 inch in diameter were removed from the samples since they would not be analyzed by standard laboratory methods. The samples were placed in laboratory-supplied clean glass jar(s) with teflon-lined screw caps, and immediately placed in a cooled ice chest. Prior to placement in the ice chest, all sampling jars collected for explosive analysis were wrapped in aluminum foil to limit photolysis (light-induced breakdown) of the explosive compounds. No surface samples were analyzed for volatile organics or field screened using the HNU photoionization detector (PID).

All surface sample soil descriptions and observations were recorded on Surface Sample Collection forms (Figure 5-5 in Hart Crowser, 1992a). After completion of sampling, each location was staked or flagged for subsequent survey. Surface samples collected on a grid across the Site Reference Area were generally surveyed prior to sample collection. All equipment was thoroughly decontaminated between sample locations as discussed in the ***Equipment Decontamination*** section.

Headspace Vapor Measurements

In areas where volatile organic analyses of soils were performed, a portion of the soil was collected for soil vapor headspace measurements to screen for the presence of volatile organic compounds (VOCs).

For soil samples to be screened for VOCs, a portion of the sample was retained in a clean glass jar, leaving an air "headspace" above the soil. The mouth of the sampling jar was covered with aluminum foil prior to capping with the plastic cover. The aluminum foil helped limit escape of volatile compounds as the measurement was taken. The soil samples were screened using an HNU PID, Model PID 101, with a 10.2 eV lamp. The headspace measurements were recorded on appropriate field logs.

Railroad Tie Sampling

Wood samples were collected from remaining railroad ties along various stretches of historical railways throughout the Site. The wood samples were collected using an electric drill and 5/8-inch ship-type auger drill bit. Samples consisted of wood cuttings generated during drilling through the thickness of the tie. The wood cuttings were mixed in a stainless steel bowl prior to placement in a laboratory-supplied glass jar with teflon-lined cap.

Hydrogeologic Explorations

The RI hydrogeologic field exploration program included installation of the following:

- Seven monitoring wells (MW-20 through MW-26) in the Water Table Aquifer;
- One monitoring well (MW-27) in a zone of perched groundwater above the Water Table Aquifer;
- Three monitoring wells completed to intercept perched water, if present, beneath the three major geologic kettles (7-B-503 in Area 7, 16-B-501 in Area 16, and 26-B-503 in Area

26);

- Four wellpoints at spring locations (SPR-2 through SPR-5) for groundwater sampling or water level measurements; and

- Six staff gages for measuring surface water elevation (SG-1 through SG-5 in Sequalitchew Creek, and SG-6 in Old Fort Lake).

Monitoring Well Drilling

Two methods of drilling, hollow-stem auger and air rotary, were used for drilling and installation of monitoring wells during the RI. Procedural details of drilling and soil sampling are discussed below.

Hollow-Stem Auger Drilling Methods. Hollow-stem auger was used to drill and complete monitoring wells MW-24, MW-25, and MW-26, as well as the three monitoring wells completed to monitor perched water in each of the three kettle areas (7-B-503, 16-B-501, and 26-B-503). Standard hollow-stem auger drilling techniques were used to advance the soil borings. No grease other than vegetable oil was used on the auger section joints or accessory tooling. No water was added to the boreholes.

In general, soil samples were collected at 5-foot-depth intervals to the depth of exploration indicated on the exploration logs (Figures A-MW-1 through A-MW-8). Samples were collected more frequently when changes in soil type were noted or when sample recovery was poor. The soil samples were collected using the Standard Penetration Test (SPT) procedure described in ASTM D 1587, modified to include a 3-inch-diameter split-spoon and a 300-pound hammer. The sampling procedures were similar to those discussed above for soil quality sampling from borings, except that samples from the monitoring well borings were retained in plastic jars since they were not submitted for chemical analysis. Samples collected from the monitoring well borings were retained only for physical testing (e.g., grain size or laboratory permeability testing), and to allow more detailed observation of geologic material types (e.g., between borings).

Air Rotary Drilling Methods. The air rotary method was used to drill and install five monitoring wells (MW-20 through MW-23 and MW-27). Borings were advanced with a TH-60 top-drive air rotary drill rig using an air-driven percussion bit inside 6- and 9-inch-diameter driven casings. Standard air rotary drilling techniques were used. In general, these techniques involve drilling ahead of the temporary driven casing a distance of one to three feet, driving the casing the same distance by means of a rig-mounted air hammer, and returning the drill cuttings to the surface with pressurized air exiting from the drill bit. An in-line oil trap was used on the air compressor discharge line to restrict oils or greases potentially present in the pressurized air from entering the borehole. A sample of particulate matter entrained in the compressed air was collected to evaluate potential contributions of hydrocarbons to the boreholes. This sampling indicated negligible amounts of hydrocarbon were added to the borehole during drilling (refer to Section 3.2.3 in Volume 1).

In drilling the first monitoring well boring, a thin zone of saturation was observed perched on a till unit. Monitoring well MW-27 was completed in this perched water unit, which is present only seasonally. As a result, the drilling method for the remaining borings was altered to include dual casings, such that the perched unit was sealed off prior to drilling through it to the underlying aquifer (in accordance with Chapter 173-160 WAC). In drilling with the dual casings, the borings were advanced to a depth of approximately 50 feet using 9-inch-diameter threaded casing. Once the 9-inch casing was set into the low-permeability till unit, the 6-inch-diameter threaded casing was telescoped down within the outer casing and was advanced through the till to the depth of exploration. As it turned out, the till and perched water were observed only at the MW-27 location (well MW-22 was advanced with the dual casings through the till to the Water Table Aquifer). Regardless, the dual casing method was used in the other air rotary boreholes as a precaution.

In monitoring wells MW- 20 and MW-21, collapsing borehole (heaving) conditions were encountered in fine sand and it was necessary to add water to the borehole to control heave and advance the borehole. The majority of this added water was removed during normal air rotary drilling operations. Regardless, the volume of water added to each boring was recorded on the field log and subsequently removed during well development.

In general, soil samples were collected from the air rotary borings at 5-foot-depth intervals to depths of 100 feet and 10-foot-depth intervals below a depth of 100 feet. Samples were collected more frequently when changes in soil type or conditions were noted in cuttings. Air rotary samples were collected using the Standard Penetration Test (SPT) procedure described in ASTM D 1587 modified to include a 3-inch-diameter split-spoon and a 300-pound hammer. Air rotary samples were used only for descriptive and or physical testing purposes, and were retained in plastic jars.

In accordance with the RI/FS Management Plan (Hart Crowser, 1992a) drill cuttings from monitoring well borings were retained on visqueen-covered, visqueen-lined bermed piles or shallow pits next to the wellheads.

Samples of Kitsap Aquitard Material. Two undisturbed samples of the Kitsap Aquitard were collected during air rotary drilling of the monitoring wells. The samples were collected using a 3-inch outside diameter split-spoon with brass ring inserts. Three 6-inch brass rings were inserted in the sampler, which was lowered down the borehole and driven with a 300-pound hammer. The undisturbed samples collected from MW-20 and MW-23 were submitted for vertical hydraulic conductivity tests using flexible wall permeameter methods at Hart Crowser's geotechnical laboratory. Following extraction from the split-spoon, the samples were capped and sealed with electrical tape and placed in sealable plastic bags with moist paper towels to avoid desiccation.

The first attempt to collect an undisturbed sample of the aquitard material (from MW-22) using a shelby tube was unsuccessful because after the shelby tube was driven into the very stiff silt (too stiff for the tube to be pushed), the pins attaching it to the drill rods snapped during the retrieval attempt. The shelby tube remained in the bottom of the boring preventing further sampling efforts. No cohesive soils suitable for laboratory hydraulic conductivity (K) testing were encountered during the drilling of MW-21.

Monitoring Well and Wellpoint Installation

Monitoring Well Installation. Groundwater monitoring wells were installed in general accordance with Chapter 173-160 WAC "Minimum Standards for Construction and Maintenance of Wells". The monitoring well construction diagrams for the newly installed wells are presented on Figures A-MW-1 through A-MW-8 at the end of this appendix. The well installation procedures were essentially the same for all monitoring wells, regardless of the drilling method (hollow-stem auger or air rotary), and are discussed below.

The well installation procedure began by pulling back the auger or temporary steel casing to the desired depth. If the well completion depth was above the bottom of the boring, the lower portion of the borehole was backfilled with bentonite. As well installation proceeds, the auger or casing was incrementally withdrawn.

A threaded end cap was attached to the bottom of the 10-foot or 15-foot length of 2-inch-diameter Schedule 40 PVC 0.020-inch slotted well screen. For each well, the well screen was threaded to the PVC riser pipe and lowered into the casing. No glues or solvents were used to couple the PVC casing. In an attempt to keep the PVC straight in the deep monitoring wells, the PVC was generally suspended from a drill rig line throughout installation.

Silica sand (Colorado 10/20) was used as a filter pack around the well screen, and typically extended to a level three to five feet above the top of the screen. Bentonite chips were placed as an annular seal above the sand pack. The annular seal extended up to a depth of approximately 2 to 5 feet below ground. All new wells were completed with concrete surface seals and locking above-ground protective steel monuments. The PVC well cap was vented and marked with the well number.

Installation of Wellpoints for Springs 2, 3, 4, and 5. Four wellpoints were installed for the purpose of monitoring groundwater quality and/or water levels at spring locations along Sequalitchew Creek.

The wellpoints were installed at Springs 2, 4, and 5 using a 12-pound sledge hammer to drive the point to a depth of approximately 3 to 4 feet below ground. The wellpoint at Spring 3 was driven horizontally 2.5 feet into the creek bank directly above a compressed peat layer (Kitsap Aquitard), over which the spring discharge occurs. The 3-foot-long wellpoint screen sections consisted of 1.25-inch inside diameter, PVC-lined, galvanized steel with crescent-shaped openings covered by 0.010-inch mesh screen. All well points were subsequently surveyed for location coordinates and elevations.

Monitoring Well Development

The newly installed monitoring wells were developed using either a Grundfos Ready Flow II submersible pump and/or a Geoguard gas drive pump. The Geoguard pump was driven by an air compressor fitted with an in-line oil trap.

Monitoring wells MW-20 through MW-24 and MW-27 were initially developed using the submersible pump. During development of these wells, the pump frequently shut down due to accumulations of fine-grained sediment inside of the pump housing, necessitating that the pump be pulled and cleaned several times per well. After each cleaning, the performance of the pump gradually deteriorated as the pump became clogged with silt.

Following the first round of groundwater sampling in March 1992, additional well development was performed in each of the newly installed monitoring wells using the Geoguard gas drive (air-lift) pump in an effort to redevelop the well and decrease the turbidity of the groundwater samples. Because the air lift system was less impeded by suspended sediment in the water, the second round of well development was more successful than the initial effort using the submersible pump. The two Area 40 wells installed in July 1992 (MW-25 and MW-26) were developed using the air lift pump alone.

All downhole development equipment was decontaminated before use and between wells. The decontamination consisted of scrubbing with Alconox solution, followed by a tap water rinse and a thorough spray with deionized water. In addition, the submersible pump was run submersed in an Alconox solution followed by tap water. Following development, each newly installed well was fitted with a new dedicated PVC bailer and new polyethylene rope kept within a plastic bag in the well monument.

All development water from the new monitoring wells was barreled and subsequently transferred to on-site Baker tanks (under the direction of DuPont Environmental Remediation Services [DERS]) for subsequent disposal.

Field Exploration Documentation

A record of drilling and soil sampling operations was maintained on a field exploration log form. Soil samples recovered during drilling were visually classified in the field in general accordance with the system presented on Figure A-1, Key to Exploration Logs. The soil descriptions included the following properties: density of sands and gravel/consistency of silts and clays, moisture, color, minor constituents, and major constituents. The presence of non-soil substances (e.g., debris or wood) was also noted.

Other pertinent data recorded on the field exploration logs included:

- Soil sample interval, type, and recovery;
- Drilling conditions;
- Depth at which groundwater was encountered in boring;
- Soil vapor headspace (PID) readings, if applicable; and

- Soil pH measurements, if applicable, using pH paper in a soil/deionized water slurry.

The logs for monitoring wells, test pits, soil borings, and hand-augered borings completed during the RI are provided at the end of this appendix. Following the RI monitoring wells, all the soil quality exploration logs are arranged according to area (e.g., Area 6, Area 7, etc.). The figure numbers for these logs include the area number (e.g., Figure A-6-1 for Area 6, etc.).

Equipment Decontamination

Before drilling began, the drill rig, auger sections, steel casing sections, and downhole equipment were steam cleaned. Between each boring, the drilling and downhole soil sampling equipment was steam cleaned using tap water from the on-site fire protection system. All steam cleaning water was collected in a galvanized trough and pumped into 55-gallon drums. At the completion of drilling activities all decontamination water was collected and pumped into on-site Baker Tanks (under the direction of DERS) for subsequent disposal.

Between collection of each soil sample for chemical analysis, all soil sampling equipment was decontaminated using the following procedures:

- Scrub with detergent solution (ALCONOX);
- Rinse with tap water; and
- Thoroughly spray with deionized water.

Borehole Abandonment

Boreholes, which were not completed as monitoring wells, were abandoned by pouring bentonite chips down the auger as the auger was withdrawn, in accordance with Chapter 173-160 WAC. The borings were capped with concrete surface plugs and staked for subsequent surveying.

Exploration Survey (Horizontal and Vertical Control)

Horizontal and vertical surveying control was provided for the newly installed monitoring wells. The surveying was completed by ESM, Inc. of Renton, Washington. The top of the PVC well casings were surveyed to a vertical accuracy of 0.01 foot, relative to National Geodetic Vertical Datum (NGVD). The surveyed measuring point was identified on the well casings for reference during depth to water measurements. Horizontal positions of the well casings were electronically surveyed to an accuracy of 0.1 foot, relative to state plane coordinates.

The horizontal and vertical positions of all soil quality explorations, wellpoints, springs, sea level seeps, surface water sampling locations, and staff gages were surveyed by Hart Crowser using a Pentax PTS-II Series Electronic Total Station Laser Transit. The transit was calibrated at each location using panel marks and survey points established by ESM, Inc., or surveyed monitoring well top of casings.

Soil sampling locations except for selected locations within the Site Reference Area and the area background samples were surveyed by Hart Crowser using the Total Station Laser Transit. At each location, the State Plane coordinates (northing and easting) were recorded. Ground surface elevations were also generally recorded. The grid coordinates for the initial Site Reference Area samples were located on detailed 1 inch = 100 feet base maps (developed from the aerial flyover), and then field located according to these maps using conventional tape and compass techniques and landmarks as guides. Sample locations for Site Reference Area sampling conducted in November 1993 through January 1994 were surveyed prior to sampling based on predetermined grid coordinates. The (off-site) area background samples were measured from landmarks (e.g., dirt roads) using tape and compass techniques.

Groundwater and Surface Water Sampling

The first four rounds of RI groundwater and surface water sampling were conducted at all locations which could be sampled in March, June, September, and December of 1992. A fifth round of sampling was conducted at selected locations in January 1993. Quarterly groundwater sampling at selected locations has subsequently been conducted in April, July, and October 1993, and January and April 1994. Additional discussions of groundwater sampling and surface water sampling conducted to date are provided in Sections 3.2.1 and 4.2.1 of Volume 1, respectively. The following sections discuss the equipment and procedures used for groundwater and surface water sampling.

Groundwater Sampling Equipment

The following equipment was used for groundwater and surface water sampling:

- pH, temperature, and electrical conductivity meters;
- Oxygen meter;
- Electronic well sounder;
- Dedicated polyethylene rope;
- Dedicated PVC bailer;
- Stainless steel funnel;
- Stainless steel bucket;
- 0.45 micron filter and peristaltic pump with silicone and polyethylene tubing;
- Laboratory-supplied sampling containers with appropriate preservatives already added;
- Blue Ice and cooler; and
- Sample Custody Record.

Monitoring Well and Wellpoint Sampling Procedures

Groundwater samples were collected from monitoring wells and wellpoints (at springs) using the following procedures:

- The water levels in each well were measured and the volume of water within the well casing calculated.

- The sampling site was prepared by laying out visqueen around the base of each monitoring well. The Groundwater Sampling Data Form (Figure 5-7 in Hart Crowser, 1992a) was filled out;

- Three casing volumes of water were purged from the well using a dedicated PVC bailer and rope. A 1-inch-diameter stainless steel bailer was used for the wellpoints (not dedicated). All purge water was barreled. During purging, field parameters (pH, temperature, and specific conductance) were measured following removal of one, two, and three casing volumes. If the pH and conductance measurements were approximately stable between the second and third casing volumes, the dissolved oxygen and temperature were measured and the groundwater sample was collected. If the parameters were not considered stable, purging continued with parameter measurements after each additional half casing volume. All readings were recorded on the Groundwater Sampling Form. Because Spring-3 flowed continually (from the horizontal wellpoint), it was sampled without purging;

- Once purging was completed, the groundwater sample was collected using the dedicated PVC bailer in the monitoring wells, or 1-inch-diameter stainless steel bailer in the wellpoints, and poured through a decontaminated stainless steel funnel into clean, labeled bottles provided by the laboratory;

- For samples collected for priority pollutants, bottles for volatile organics (VOC) analysis were filled first. The VOC sample bottles were slowly filled with water, capped, inverted, and tapped to check for remaining air bubbles. Samples for dissolved metals analysis were filtered directly from the bailer using a peristaltic pump with in-line 0.45 micron filter;

- Once filled, each bottle was capped and placed into coolers with Blue Ice. VOC bottles were placed in plastic sealable bags to minimize possible cross contamination and/or breaking of the bottles. These bottles were also kept away from direct contact with the Blue Ice to prevent freezing of the sample water;

- At the end of each sampling day, the samples were hand delivered to ATI-Renton using standard chain of custody procedures.

Background Groundwater Quality Sampling Procedures

Groundwater samples were also collected twice (July and December 1992) from six off-site wells to evaluate area background groundwater quality. These six wells included four production wells and two monitoring wells. Locations of the background wells are discussed in Section 3.2 of Volume 1.

Samples from the production wells were collected from sampling spigots positioned in-line prior to any treatment systems. Prior to sample collection the pump was run for sufficient time to purge three casing volumes. Samples from these spigots were poured directly into the sample bottles through decontaminated stainless steel funnels. Samples for dissolved metals were filtered from water collected in a decontaminated stainless steel bucket using the same procedures as for on-site monitoring wells. Samples from the monitoring wells were collected from dedicated Hydrostar sampling pumps in the wells. These pumps were driven by an air compressor. The sampling procedures were the same as for the production wells.

Surface Water and Sea Level Seep Sampling Procedures

Surface water samples were collected using a decontaminated stainless steel bucket dipped into the lake or creek. For sampling of Sequalitchew Creek, the samples were collected beginning at the furthest downstream location (SW-1) and moving upstream. For the Sea Level seeps on the beach, the bucket was positioned to intercept the seepage. Because the seeps are submerged at high tides, the Sea Level seeps were sampled at low tide.

Field parameters and dissolved oxygen content were recorded prior to sample collection. Sample bottles were filled through a stainless steel funnel into the sample bottles. Samples for dissolved metals analysis were filtered directly from the bucket using a peristaltic pump with in-line 0.45 micron filter.

As with all water samples collected during the RI, each bottle was capped and placed into coolers with Blue Ice. At the end of each sampling day, the samples were hand-delivered to ATI-Renton using standard chain of custody procedures.

Freshwater Sediment Sampling Procedures

Freshwater sediment samples were collected from each of the 7 surface water sampling locations concurrent with the first round of RI surface water sampling in March 1992. At each sampling location, the surface water sample was collected prior to collection of the sediment sample to avoid creating excessive turbidity (non-representative) in the water sample.

Freshwater sediment samples collected in March 1992 were grab samples collected from the upper 6 inches of sediment substrate using a decontaminated shovel. The sediment sample was mixed in a stainless steel bowl using a stainless steel spoon prior to placing the sample in sample jars. Gravels larger than approximately 1/2 inch in diameter were removed since they would not be analyzed by standard laboratory methods. At two locations in the creek and one location in the lake, an additional portion of sample was retained for grain size analysis (Appendix E).

In July 1993, six Old Fort Lake sediment samples were collected from randomly selected locations within a 100-foot grid system. All samples were located at least 50 feet from the low water line at the time of sampling. Two surface and subsurface composite samples were collected from each of the six locations at depths of 0 to 2 cm and 2 to 15 cm. A diver collected the samples using a push-core sampler.

The sampling equipment was thoroughly decontaminated between each sampling location by scrubbing with an Alconox solution, followed by successive rinses with tap water and deionized water.

Marine sediment sample collection methods are discussed in Appendix D.

Sample Custody Documentation

This section discusses handling, labeling, and custody of soil, water, and sediment samples.

Sample Handling. Field samples were collected according to the procedures specified in the sections above. Preservation and storage measures for all samples were followed in general accordance with the Quality Assurance Project Plan (Section 5) in the RI/FS Management Plan (Hart Crowser, 1992a).

Sample Labeling. Sample numbers, date and time, sampler's initials, Hart Crowser job number, and other pertinent comments such as preservation were recorded on each sample label. To expedite sample collection, labels were generally filled out prior to sampling with only the time and date needing completion at the time of sampling.

Sample Custody. Custody records were maintained for all soil, water, and sediment samples collected during the RI. Samples were delivered by the Hart Crowser field representative to the laboratory, generally at the end of each sampling day, therefore the chain of custody form was signed only by the Hart Crowser representative and the laboratory representative.

Specifications for chemical analyses were made on the custody record under the Testing header. Other information listed on this form included date of sampling, sample designations, sampler's signature, Hart Crowser project name and job number, sample matrix, laboratory-assigned number, total number of sample containers, method of shipment, and any additional specialized instructions for sample holding, extraction, or analysis with reference to specific laboratory work orders. Copies of all chain of custody records are retained by Hart Crowser.

Hydrogeologic Data Collection

Water level monitoring, *in situ* hydraulic conductivity testing (slug testing), and short-term pumping tests were conducted to provide data on groundwater flow directions and rates. The equipment and field procedures used are discussed below.

Water Level Monitoring

Depth to water measurements in all groundwater and surface water locations were made every two months between April 1992 and December 1992. Water level measurements were collected using an electric well probe and tape measure graduated in 0.01-foot increments. Depth to water below the top of surveyed measuring point on the top of the PVC well casing was recorded to 0.01 foot. The tip of the well probe was rinsed between each measurement. The water level data are presented in Table A-1.

In Situ Hydraulic Conductivity Testing (Slug Testing)

In situ hydraulic conductivity tests (slug tests) were conducted in 12 monitoring wells during the RI. Slug tests are the typical method for estimating hydraulic conductivity (K) of subsurface soils near a well, by measuring the rate of water level fall or rise in the well after the static water level is suddenly displaced.

In falling head slug tests, a 10-foot-long, 1.5-inch-diameter, solid PVC rod was "instantaneously" lowered into the well, causing a sudden rise in the water level. An automatic data acquisition system with downhole 7 psi pressure transducer recorded the falling water level over time as it re-equilibrated toward the static level. In the rising head tests, the situation was reversed; the slug rod was "instantaneously" withdrawn from the well, causing the water level to drop, followed by a water level rise to equilibrium. The slug rod and pressure transducer were decontaminated between the testing of different monitoring wells.

Because all monitoring wells tested are in aquifers under unconfined conditions, data from all tests were analyzed by the method of Bouwer and Rice (1976) for unconfined (water table) aquifer conditions. The water level response in newly installed monitoring wells MW-20 and MW-21 was too fast to provide any usable data for analysis. The results of the slug tests are provided in Section 3.1.

Short-Term Pumping Tests

In addition to the slug tests, short-term pumping tests were conducted in two selected monitoring wells. The primary reason these pumping tests were conducted instead of additional slug tests was that, by pumping continuously, a larger portion of the aquifer could potentially be stressed, resulting in more representative data.

In conducting the tests, a 2-inch-diameter submersible pump was placed near the bottom of the well casing. The automatic data logger's pressure transducer was placed as deep as possible above the pump. The pump was run at the maximum rate (4 to 5 gpm depending on lift) for approximately 45 minutes, during which time drawdown data were recorded automatically. The discharge rate was monitored frequently during pumping by measuring the time required to fill a 4-gallon bucket. After approximately 45 minutes, the pump was shut off and the water level recovery data were recorded until static conditions were achieved. The pump discharge hose and pressure transducer cable occupied most of the space within the monitoring well casing. Therefore, it was not possible to collect manual (well sounder) depth-to-water measurements as backup to the data logger readings. The 7 psi transducer was manufactured by Instrumentation Northwest (INW) of Redmond, Washington. The transducers are routinely sent back to INW for recalibration using a pressure cell apparatus.

The water produced during the pumping tests was collected in the drums also used for storing groundwater sampling purge water. This water was collected and pumped into on-site Baker Tanks (under the direction of DERS) for subsequent disposal.

All downhole development equipment was decontaminated before use and between wells. The decontamination consisted of scrubbing with Alconox solution, followed by a tap water rinse and a thorough spray with deionized water. In addition, the submersible pump was run submersed in an Alconox solution followed by tap water.

Data from all tests were analyzed by the Cooper-Jacob semi-logarithmic method (Cooper and Jacob, 1946). Because the monitoring wells were not designed to be hydraulically efficient, it is likely that a substantial portion of the drawdown observed during pumping may have been attributable to well loss. As a result, the recovery data (when pump was turned off) were generally considered more representative of aquifer response than the pumping data. The results of the pumping tests are provided in Section 3.1.

References for Appendix A

Bouwer, H. and R.C. Rice, 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, V. 12, No. 3, pp. 423-428.

Cooper, H.H. and C.E. Jacob, 1946. A Generalized Graphical Method for Evaluating Formation Constants and Summarizing Well Field History, Transactions of the American Geophysical Union, V. 27, pp. 526-534.

MONITORING WELL
BORING LOGS AND CONSTRUCTION DATA

Key to Exploration Logs

Sample Description

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual–manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
Density/consistency, moisture, color, minor constituents, MAJOR CONSTITUENT, additional remarks.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance.
Soil density/consistency in test pits is estimated based on visual observation and is presented parenthetically on the test pit logs.

SAND or GRAVEL Density	Standard Penetration Resistance (N) in Blows/Foot	SILT or CLAY Consistency	Standard Penetration Resistance (N) in Blows/Foot	Approximate Shear Strength in TSF
Very loose	0 – 4	Very soft	0 – 2	<0.125
Loose	4 – 10	Soft	2 – 4	0.125 – 0.25
Medium dense	10 – 30	Medium stiff	4 – 8	0.25 – 0.5
Dense	30 – 50	Stiff	8 – 15	0.5 – 1.0
Very dense	>50	Very stiff	15 – 30	1.0 – 2.0
		Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture
Damp	Some perceptible moisture, probably below optimum
Moist	Probably near optimum moisture content
Wet	Much perceptible moisture, probably above optimum

Minor Constituents

	Estimated Percentage
Not identified in description	0 – 5
Slightly (clayey, silty, etc.)	5 – 12
Clayey, silty, sandy, gravelly	12 – 30
Very (clayey, silty, etc.)	30 – 50

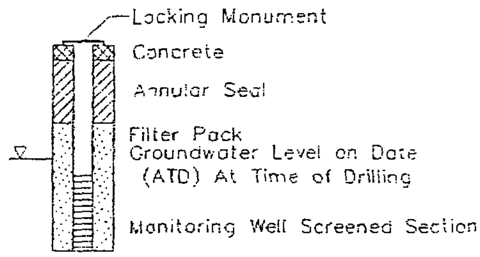
Legends

Sampling Test Symbols

BORING SAMPLES

- Split Spoon
- Shelby Tube
- Cuttings
- Core Run
- * No Sample Recovery
- P Tube Pushed, Not Driven

Groundwater Observations



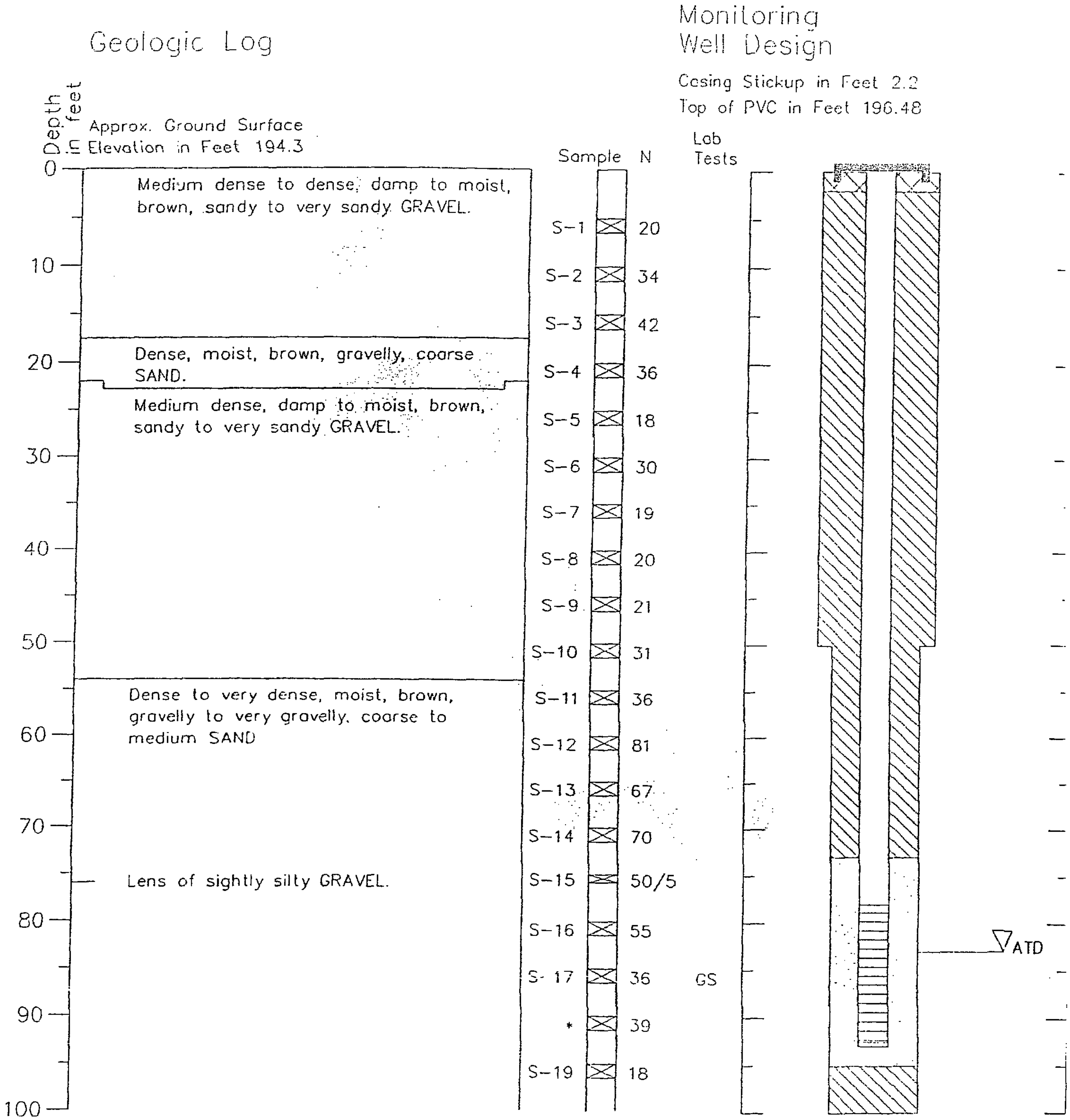
Test Symbols

GS	Grain Size Classification
CN	Consolidation
TUU	Triaxial Unconsolidated Undrained
TCU	Triaxial Consolidated Undrained
TCD	Triaxial Consolidated Drained
QU	QU
DS	Direct Shear
K	Permeability
PP	Pocket Penetrometer Approximate Compressive Strength in TSF
TV	Torvane Approximate Shear Strength in TSF
CBR	California Bearing Ratio
MD	Moisture Density Relationship
AL	Atterberg Limits Water Content in Percent Liquid Limit Natural Plastic Limit
(R)	Sample Removed during Interim Source Removal

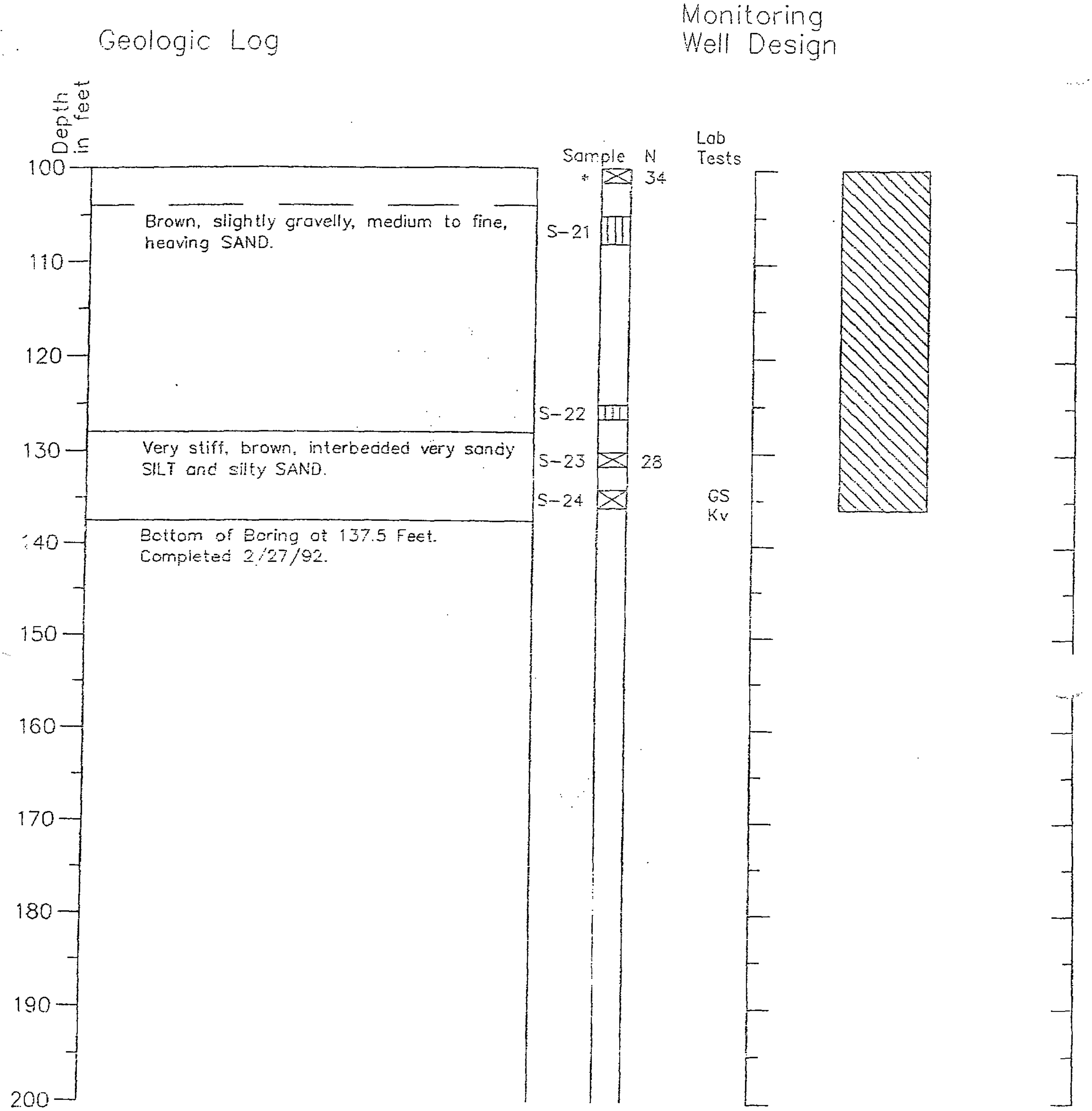
Figure A-1

Boring Log and Construction Data for

Monitoring Well MW-20



Boring Log and Construction Data for Monitoring Well MW-20



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Boring Log and Construction Data for Monitoring Well MW-21

Geologic Log

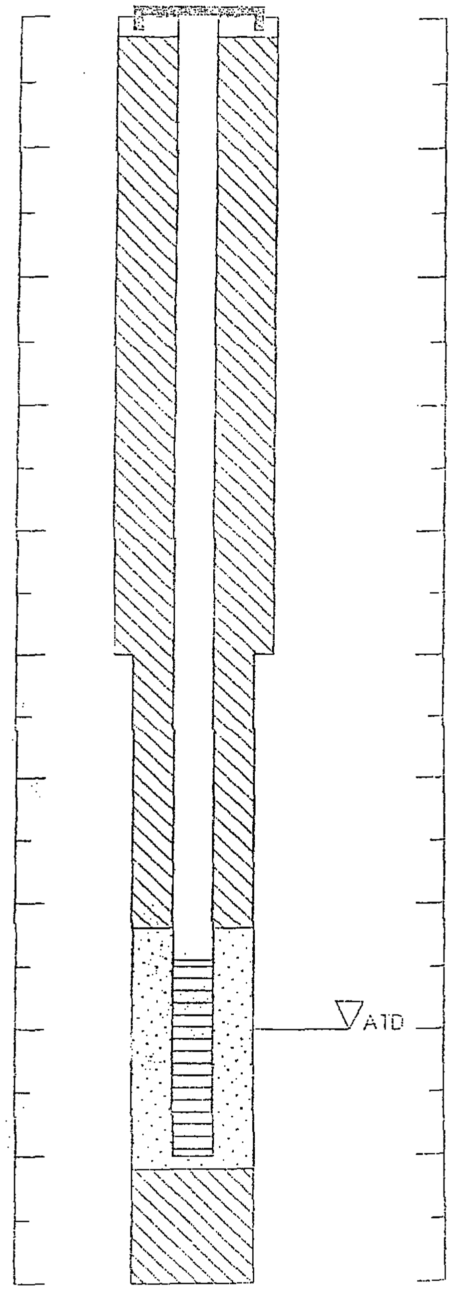
Approx. Ground Surface Elevation in Feet 213.3

Depth in Feet	Description	Sample	N	Lab Tests
0	Very dense, damp, brown, very sandy GRAVEL.			
		s-1	80/10	
10		s-2	50/6	
		s-3	55	
20	Very dense, damp to moist, brown, gravelly SAND.	S-4	50/6	
		S-5	62	
30		S-6	42	
		S-7	51	
40		S-8	67	
		S-9	53	
50	Very dense, damp, brown, slightly sandy GRAVEL.	S-10	53	
	Medium dense to dense, damp, brown, slightly gravelly SAND.	S-11	58	
60		S-12	41	
	Very dense, damp to wet, brown, gravelly SAND.	S-13	50/6	
70		*	50/5	
	Becomes wet.	S-15	50/6	
80		S-16	50/5	
	Lens of sandy GRAVEL.	S-17	55	GS
90	(Very dense), brown, wet, slightly silty, slightly gravelly SAND. (Heaving)	*	51	
		S-19		
100				

Monitoring Well Design

Casing Stickup in Feet 2.6

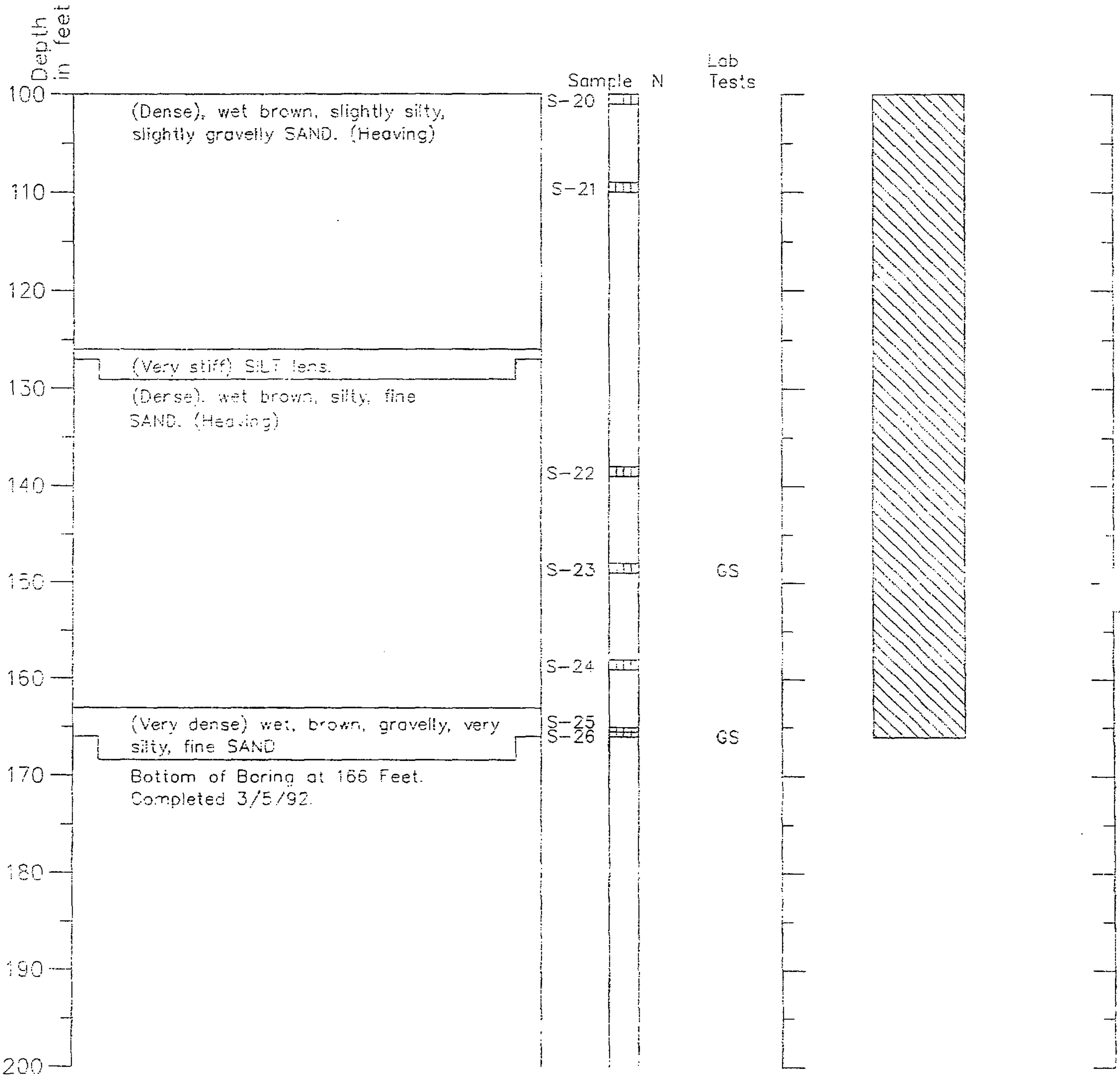
Top of PVC in Feet 215.86



Boring Log and Construction Data for Monitoring Well MW-21

Geologic Log

Monitoring Well Design



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-MW-2 2 of 2

Monitoring Well MW-22

Geologic Log

Depth in Feet

Approx. Ground Surface Elevation in Feet 216.7

Depth (ft)	Description
0	Dense, damp, brown, slightly sandy to sandy GRAVEL.
40	Very dense, moist to wet, gray, slightly silty to silty, sandy GRAVEL (TILL-like)
49	Very dense, wet to moist, brown, slightly silty, gravelly to very gravelly SAND.
62	Very dense, wet to moist, brown, sandy to very sandy GRAVEL.
92	Dense to very dense, damp to moist, brown, gravelly to very gravelly SAND.
100	

Sample	N
S-1	37
S-2	23
S-3	42
S-4	35
S-5	31
S-6	37
S-7	87/10
S-8	50/4
*	50/3
S-9	50/5
S-10	90/9
S-11	50/5
S-12	50/5
S-13	50/2
S-14	70/2
S-15	50/4
S-16	104/8
S-17	50/2
S-18	39

Monitoring Well Design

Casing Stickup in Feet 2.5

Top of PVC in Feet 219.17

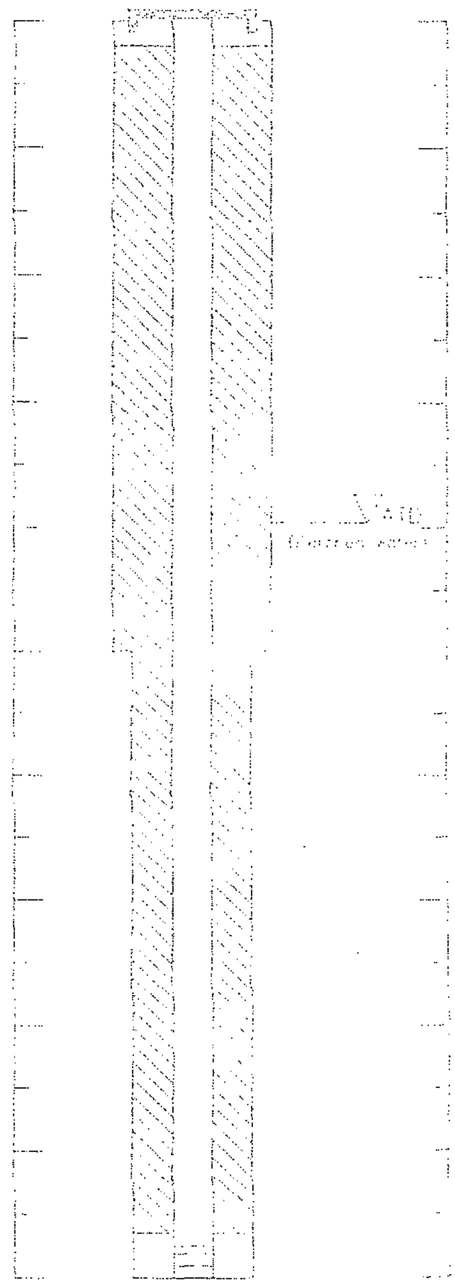
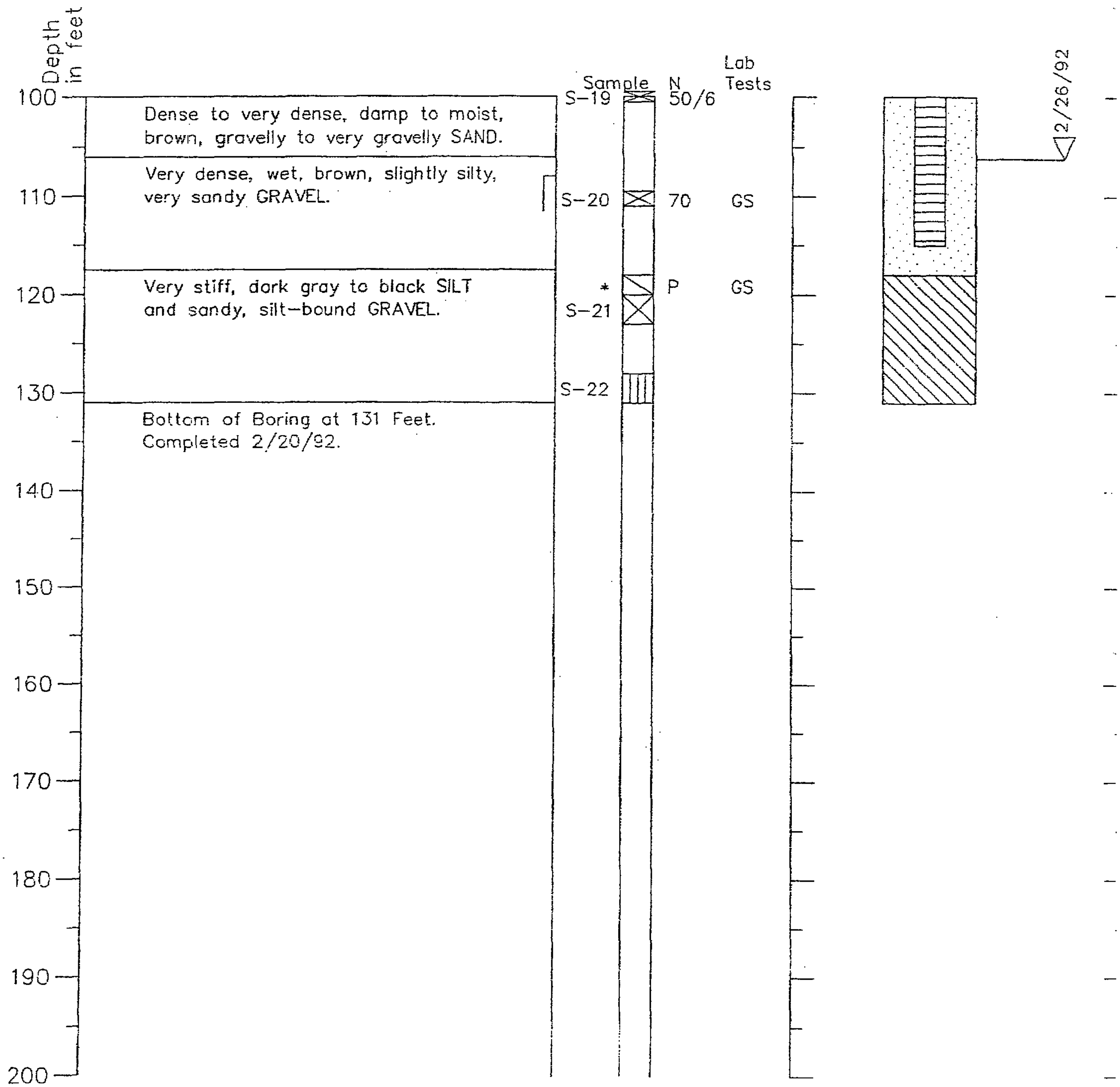


Figure A-MW-8 1 of 7

Boring Log and Construction Data for Monitoring Well MW-22

Geologic Log

Monitoring Well Design



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Sample S-22 was cuttings sample collected after attempted shelby tube broke off of drill rods.

Figure A-MW-3 2 of

Boring Log and Construction Data for *Monitoring Well MW-23*

Geologic Log

Depth in feet

Approx. Ground Surface Elevation in Feet 207.4

Very dense, damp, yellow-brown, sandy GRAVEL

Dense, damp to moist, brown-gray, very gravelly, coarse SAND.

Dense to very dense, damp to moist, brown, sandy to very sandy GRAVEL.

Dense, moist, brown with rusty-orange mottling, slightly silty, very gravelly coarse SAND.

Dense to very dense, damp to moist, brown, sandy to very sandy GRAVEL.

Sample	N	Lab Tests
S-1	52/6	
S-2	90/10	
S-3	53	
S-4	40	
S-4	32	
S-6	43	
S-7	39	
S-8	29	
S-9	52	
S-10	65	
S-11	69	
S-12	58	
S-13	31	
S-14	38	
S-15	45	
S-16	44	
S-17	57	
S-18	28	
S-19	48	
S-20	86/11	

0 10 20 30 40 50 60 70 80 90 100

Monitoring Well Design

Casing Stickup in Feet 2.4

Top of PVC in Feet 209.81

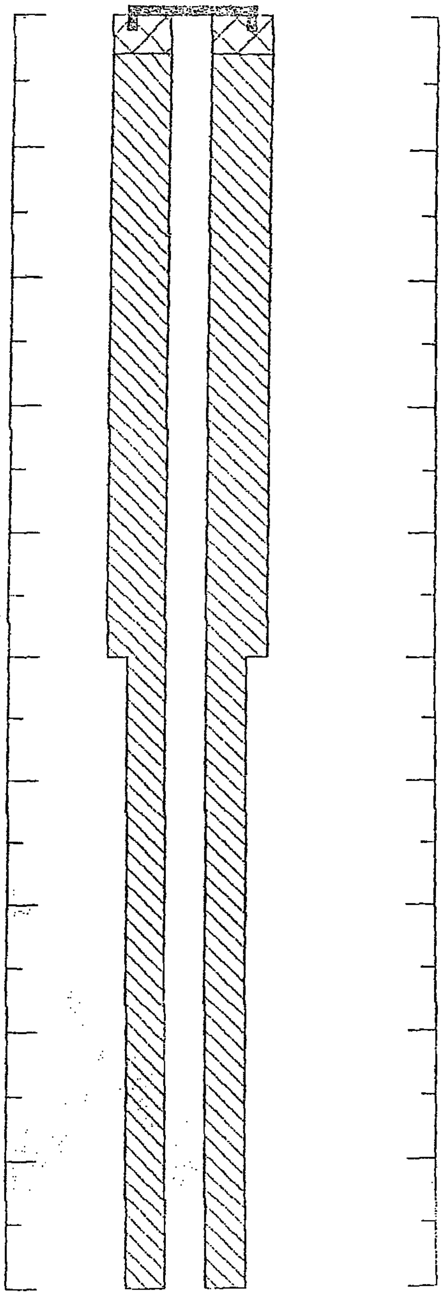
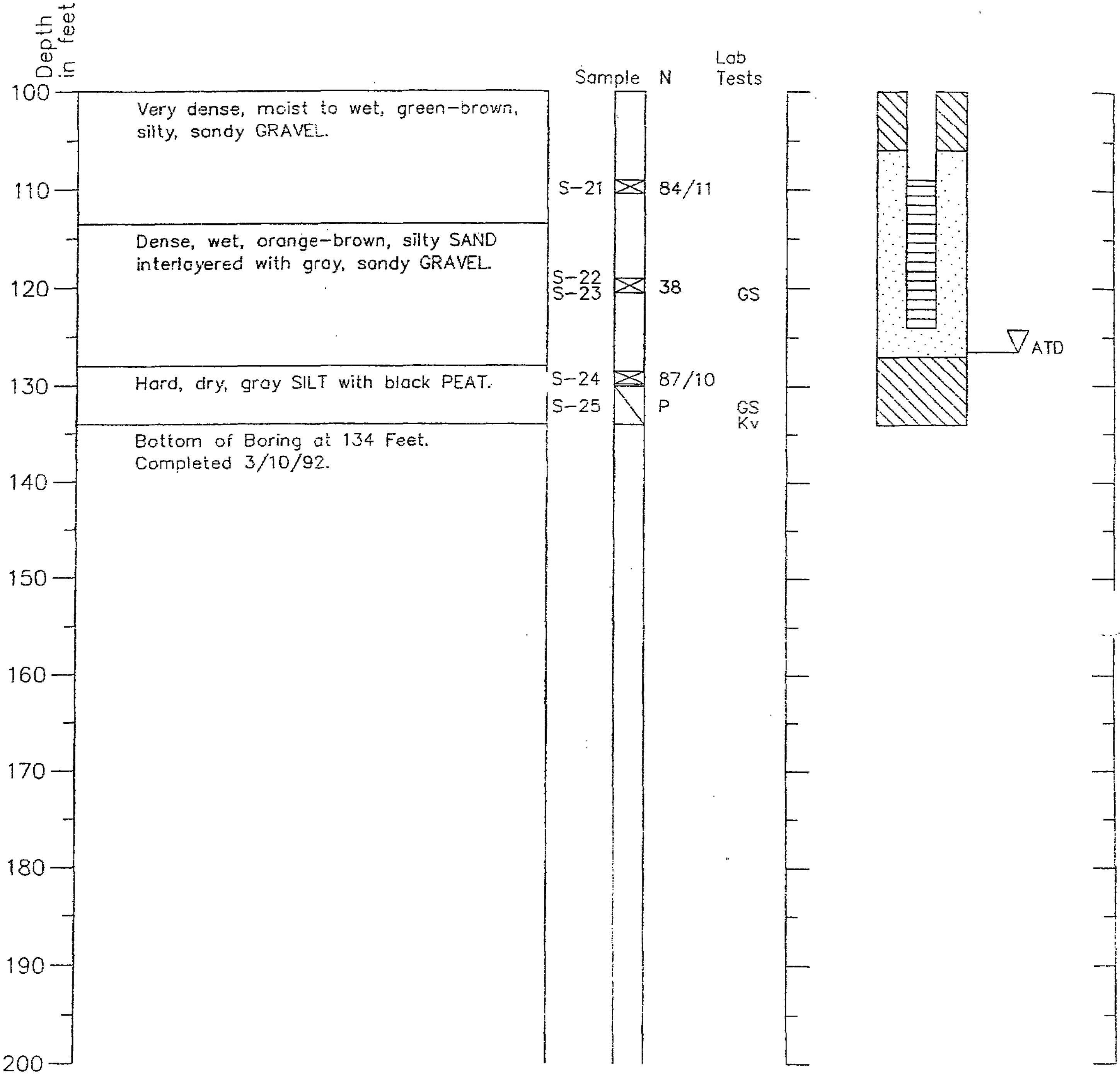


Figure A-MW-4 1 of 2

Boring Log and Construction Data for Monitoring Well MW-23

Geologic Log

Monitoring Well Design



1. Refer to Figure A–1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

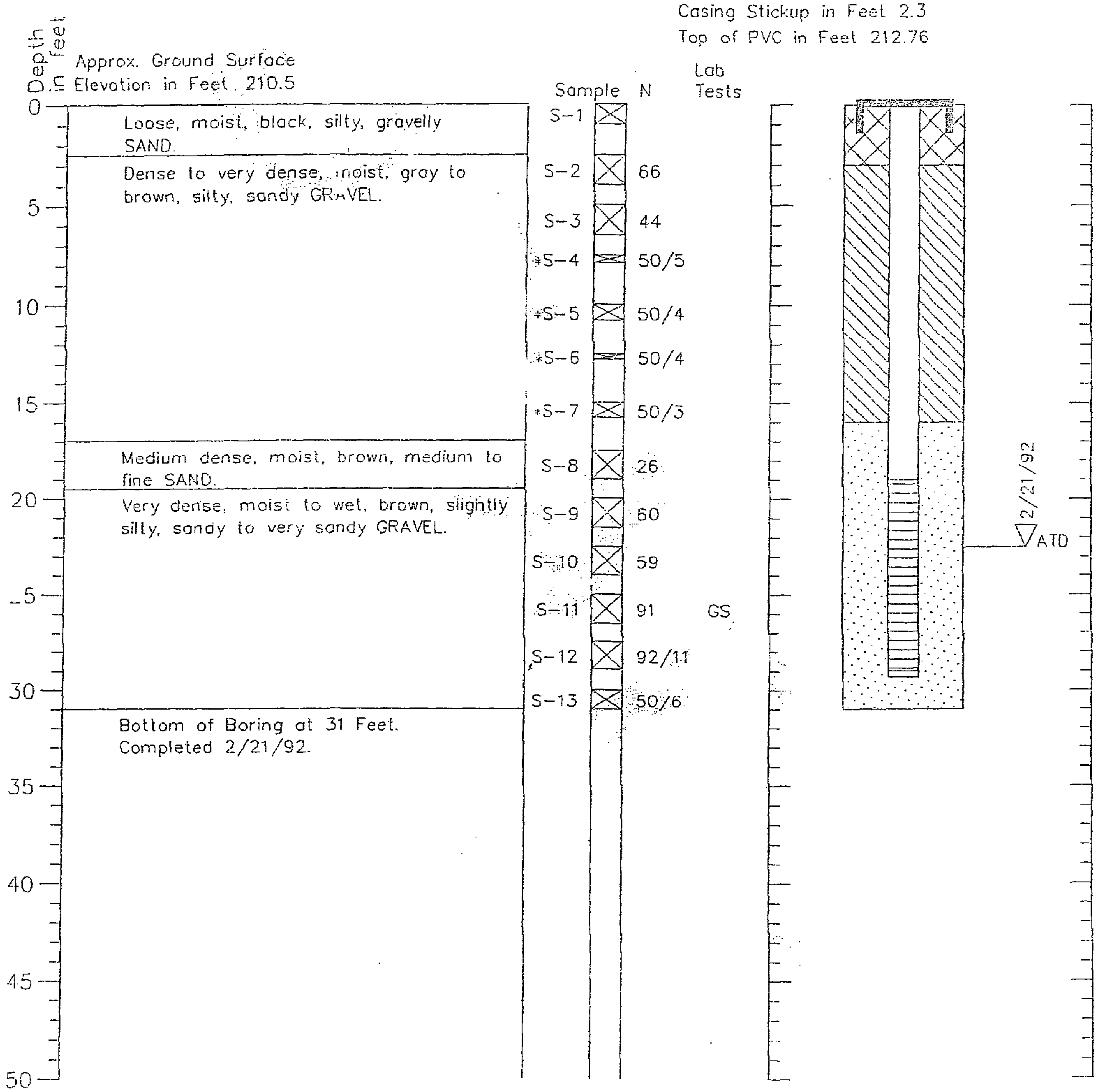
Figure A-MW-4 2 of .

Boring Log and Construction Data for Monitoring Well MW-24

Geologic Log

Monitoring Well Design

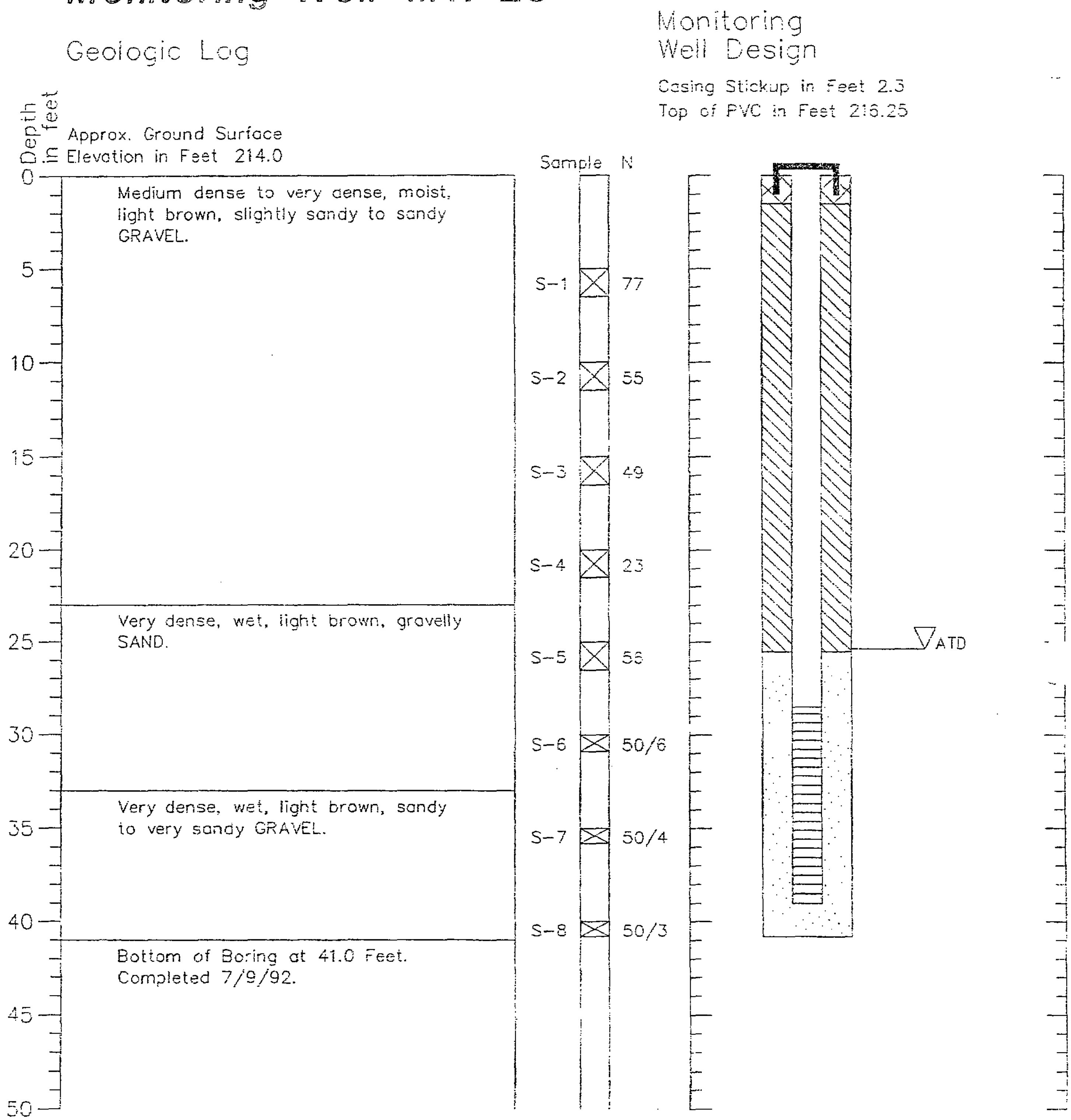
Casing Stickup in Feet 2.3
Top of PVC in Feet 212.76



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-MW-6

Boring Log and Construction Data for Monitoring Well MW-25



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-MW-6

Monitoring Well MW-26

Geologic Log

Depth in feet

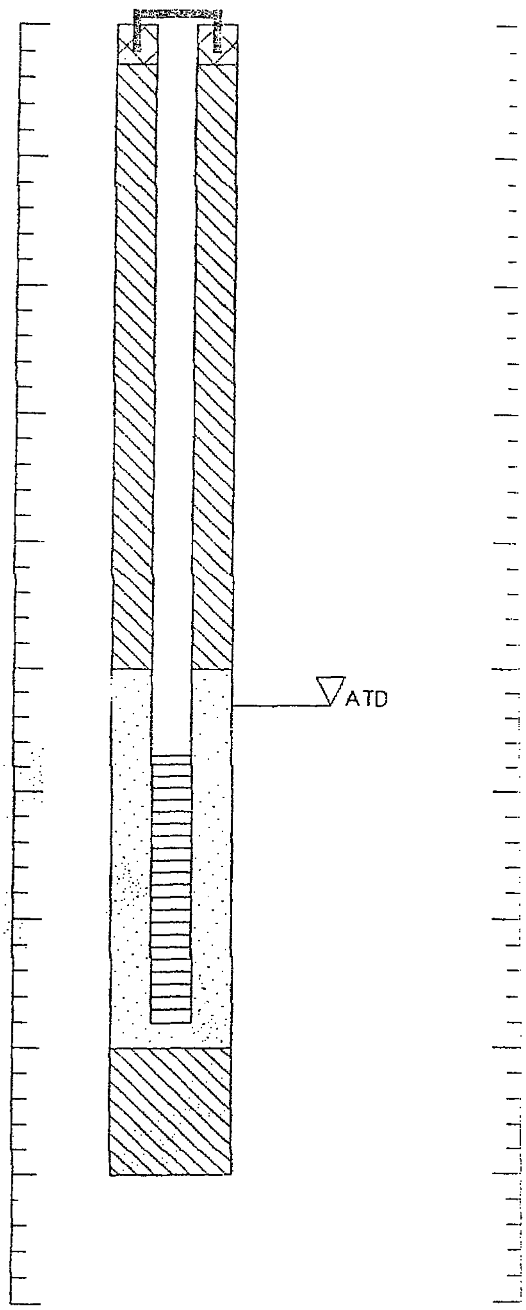
Approx. Ground Surface Elevation in Feet 213.6

Monitoring Well Design

Casing Stickup in Feet 2.3

Top of PVC in Feet 215.88

Depth (feet)	Description	Sample	N
0–8	Medium dense, moist, dark brown, silty, sandy GRAVEL with minor pieces of wood and brick. (FILL)	S-1	26
8–28	Medium dense to very dense, moist to wet, light brown, slightly silty, sandy GRAVEL.	S-2	28
		S-3	56
20	Maroon sand.	S-4	34
		S-5	23
28–33	Very dense, wet, light brown, gravelly SAND.	S-6	75
33–45	Very dense, wet, light brown to gray brown GRAVEL and sandy GRAVEL.	S-7	100/9"
		S-8	50/3
45	Bottom of Boring at 45.0 Feet. Completed 7/8/92.	S-9	50/4



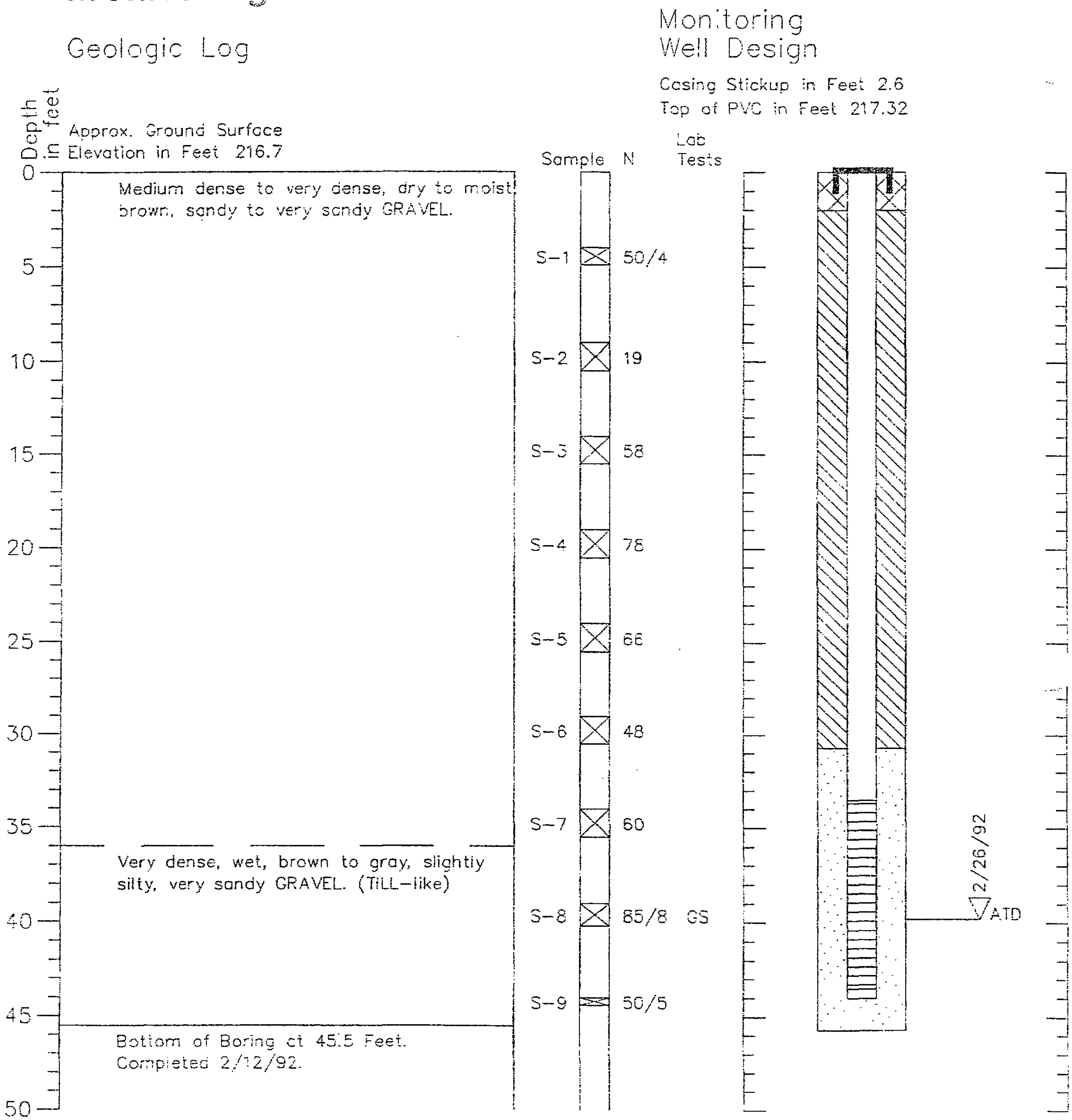
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

HARTCROWSER

J-3534-07 7/9

Figure A-MW-7

Boring Log and Construction Data for Monitoring Well MW-27



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-MW-8

AREA 5
EXPLORATION LOGS

Log of Test Pit 5-TP-501
Ground Surface Elevation Approximately 211.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1.5	(Medium dense), moist, brown, slightly silty, very gravelly SAND with abundant roots.
S-2(R)	3 to 6	5	1.5 to 10	(Dense), moist, gray, sandy GRAVEL (stratified).
S-3(R)	8 to 10	5		

Bottom of 5-TP-501 at 10 feet, completed 2/25/92.

Log of Test Pit 5-TP-502
Ground Surface Elevation Approximately 211.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2.5	(Medium dense), moist, rusty brown, sandy GRAVEL (stratified).
S-2(R)	3 to 6	5	2.5 to 10	(Dense), moist, rusty brown, sandy to slightly sandy GRAVEL, with lens of silty, sandy gravel from 5.5 to 6 feet.
S-3(R)	8 to 10	5		

Bottom of 5-TP-502 at 10 feet, completed 2/25/92.

Note:
Stratification in upper 2.5 feet dips to the west, away from the kettle. Below 2.5 feet, bedding is horizontal.

Log of Test Pit 5-TP-503
Ground Surface Elevation Approximately 162.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Medium dense), moist, brown, gravelly, silty SAND with abundant roots.
S-2(R)	3 to 6	5	2 to 10	(Medium dense), moist, light brown, slightly gravelly SAND with occasional large roots.
S-3(R)	8 to 10	5		

Bottom of 5-TP-503 at 10 feet, completed 2/25/92.

Note:
1.5-foot-long piece of iron strapping encountered at 1-foot depth.

Log of Test Pit 5-TP-504
Ground Surface Elevation Approximately 158.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	NM	0 to 2.5	(Medium dense), moist, tan and brown, slightly gravelly, silty SAND with abundant debris (bricks, can, metal strapping) and potential asbestos-containing material.

Bottom of 5-TP-504 at 2.5 feet, completed 2/26/92.

Note:
5-TP-504 abandoned because of presence of abundant potential asbestos-containing material in upper 1.5 feet. Surface sample 5-SS-501 collected adjacent to abandoned test pit.

Log of Test Pit 5-TP-505
Ground Surface Elevation Approximately 156.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 0.5	(Loose), moist, purplish red, vitrified material.
S-2(R)	3 to 6	5	0.5 to 3	(Medium dense), moist, tan and brown, sandy GRAVEL with metal debris (strapping) in upper foot.
			3 to 7	(Medium dense), moist, brownish gray, sandy GRAVEL.
S-3(R)	8 to 10	5	7 to 10	(Dense), moist, gray, gravelly, medium SAND.

Bottom of 5-TP-505 at 10 feet, completed 2/26/92.

Log of Test Pit 5-TP-506
Ground Surface Elevation Approximately 160.0 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No samples collected	0 to 3	(Dense), moist, gray, sandy GRAVEL with drum fragments and purplish red, vitrified material.

Bottom of 5-TP-506 at 3 feet, completed 2/25/92.

Note:
5-TP-506 abandoned because of drum fragments encountered in upper 1.5 feet. Test pit replaced by 5-TP-507.

Log of Test Pit 5-TP-507
Ground Surface Elevation Approximately 157.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1.5	(Medium dense), moist, gray, sandy GRAVEL with abundant purplish red, vitrified material.

Bottom of 5-TP-507 at 1.5 feet, completed 2/25/92.

Note:
5-TP-507 abandoned due to presence of purplish red, vitrified material. Sample S-1 is sample of that material.

Log of Test Pit 5-TP-508
Ground Surface Elevation Approximately 147.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	3.5	0 to 1	(Medium dense), moist, brownish red, slightly silty, gravelly SAND with interlayered red SILT and abundant potential asbestos-containing material.

Bottom of 5-TP-508 at 1 foot, completed 3/12/92.

Notes:
1) 5-TP-508 was replacement for 5-HA-506 since backhoe access was possible at that location.
2) 5-TP-508 was abandoned due to presence of potential asbestos-containing material in upper 1 foot.

Log of Test Pit 5-TP-509
Ground Surface Elevation Approximately 202.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5.5	0 to 0.5	(Medium dense), damp, dark brown, slightly silty, slightly sandy GRAVEL with abundant roots and brick debris.
			0.5 to 3.5	(Dense), damp to moist, brown, sandy GRAVEL with occasional roots.
S-2(R)	3 to 6	5	3.5 to 6	(Loose), moist, gray, gravelly, medium SAND.

Bottom of 5-TP-509 at 6 feet, completed 3/12/92.

Note:
5-TP-509 was replacement for 5-HA-511 since backhoe access was possible at that location.

Log of Test Pit 5-TP-510
Ground Surface Elevation Approximately 211.8 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No samples collected	0 to 1.5	(Medium dense), moist, brownish red, slightly silty, sandy GRAVEL with abundant potential asbestos-containing material.

Bottom of 5-TP-510 at 1.5 feet, completed 3/12/92.

Notes:
1) 5-TP-510 was second attempt in general location of 5-TP-508.
2) 5-TP-510 was abandoned due to presence of potential asbestos-containing material in upper 1 foot.

Log of Hand Auger Boring 5-HA-501
Ground Surface Elevation Approximately 171.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1	(Loose), moist, dark brown, silty, sandy GRAVEL.
S-2(R)	2 to 3	5	1 to 3	(Loose), moist, light brown-gray, sandy GRAVEL.

Bottom of 5-HA-501 at 3 feet, completed 3/12/92.

Note:
5-HA-501 completed within the ditch below the southern of two former drain lines from the acid production area.

Log of Hand Auger Boring 5-HA-502
Ground Surface Elevation Approximately 173.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1.5	(Loose), damp, black-brown, slightly silty, gravelly, medium to fine SAND with minor roots; rusted metal flakes in top 2 inches.
S-2(R)	3 to 4	5	1.5 to 4	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 5-HA-502 at 4 feet, completed 3/9/92.

Log of Hand Auger Boring 5-HA-503
Ground Surface Elevation Approximately 174.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4.5	0 to 1	(Loose to medium dense), damp, red-brown, silty, gravelly, medium to fine SAND; abundant rusted metal flake in top 4 inches.
S-2(R)	2 to 3	4.5	1 to 3	(Medium dense), damp, brown, slightly silty, sandy GRAVEL.

Bottom of 5-HA-503 at 3 feet, completed 3/9/92.

Log of Hand Auger Boring 5-HA-504
Ground Surface Elevation Approximately 177.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4.5	0 to 3	(Dense), damp, light brown-gray, slightly sandy GRAVEL to 8-inch diameter.
S-2(R)	2 to 3	4.5		

Bottom of 5-HA-504 at 3 feet, completed 3/9/92.

Note:
5-HA-504 completed within the deep ditch below the northern of two former drain lines (with spillway) from the acid production area.

Log of Hand Auger Boring 5-HA-505
Ground Surface Elevation Approximately 193.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 0.5	(Loose), damp, black, gravelly SAND mixed with cobbles.
			0.5 to 1.5	(Dense), damp, dark brown, sandy GRAVEL.
S-2(R)	2 to 3	4	1.5 to 3.5	(Dense), damp, light brown, sandy GRAVEL.

Bottom of 5-HA-505 at 3.5 feet, completed 3/10/92.

Log of Hand Auger Boring 5-HA-507
Ground Surface Elevation Approximately 176.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 2	(Loose), purplish red, vitrified, granular FILL, with glass fragments and stained cobbles.
S-2(R)	2.5 to 3.5	5	2 to 3.5	(Medium dense), moist, brown, sandy GRAVEL.

Bottom of 5-HA-507 at 3.5 feet, completed 3/10/92.

Log of Hand Auger Boring 5-HA-508
Ground Surface Elevation Approximately 169.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4.5	0 to 3	(Dense), damp, brown, slightly silty, gravelly SAND with minor roots.
S-2(R)	2 to 3	5		

Bottom of 5-HA-508 at 3 feet, completed 3/10/92.

Log of Hand Auger and Boring 5-HA-509
Ground Surface Elevation Approximately 181.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 3	(Dense), damp, brown, slightly silty, gravelly, medium to fine SAND; organics in top 2 inches.
S-2(R)	2 to 3	4.5		

Bottom of 5-HA-509 at 3 feet, completed 3/10/92.

Log of Hand Auger Boring 5-HA-510
Ground Surface Elevation Approximately 182.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 1	(Loose), damp, dark brown, slightly silty, gravelly, medium to fine SAND.
S-2(R)	2 to 3	4	1 to 3	(Dense), damp, brown, gravelly, medium to fine SAND.

Bottom of 5-HA-510 at 3 feet, completed 3/12/92.

Log of Hand Auger Boring 5-HA-512
Ground Surface Elevation Approximately 189.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 1.5	(Loose), moist, black SAND; petroleum odor at 0 to 1 foot; ½ inch of oil on surface; bricks and rusted metal flakes from depths of 1 to 1.5 feet.
			1.5 to 2	(Medium dense), moist, purplish red, granular FILL with cobbles.
S-2(R)	2 to 3	4	2 to 3	(Medium dense), moist, light brown, gravelly SAND.

Bottom of 5-HA-512 at 3 feet, completed 3/26/92.

Log of Hand Auger Boring 5-HA-513
Ground Surface Elevation Approximately 191.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.5	Moist, dark brown, silty SAND with roots; plastic flakes at surface.
			0.5 to 2	Moist, brown, gravelly SAND.
S-2	2 to 3	5	2 to 3	Moist, orange-brown, sandy GRAVEL, oxidized.

Bottom of 5-HA-513 at 3 feet, completed 3/12/92.

Log of Hand Auger Boring 5-HA-514
Ground Surface Elevation Approximately 197.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), moist, brown, slightly sandy to sandy GRAVEL.
S-2	2 to 3	4		

Bottom of 5-HA-514 at 3 feet, completed 3/12/92.

Log of Hand Auger Boring 5-HA-515
Ground Surface Elevation Approximately 172.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 1	(Loose), moist, brown, sandy GRAVEL.
S-2	2 to 3	4	1 to 3	(Loose), moist, light brown, silty, medium to fine SAND.

Bottom of 5-HA-515 at 3 feet, completed 3/12/92.

Log of Hand Auger Boring 5-HA-516
Ground Surface Elevation Approximately 194.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2.5	(Loose), moist, brown, silty, gravelly, medium to fine SAND.
S-2	2 to 3	4	2.5 to 3	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 5-HA-516 at 3 feet, completed 3/12/92.

Log of Hand Auger Boring 5-HA-517
Ground Surface Elevation Approximately 188.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, brown, silty, gravelly, medium to fine SAND.
S-2	2 to 3	5	1 to 3	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 5-HA-517 at 3 feet, completed 3/12/92.

AREA 6
EXPLORATION LOGS

Log of Test Pit 6-TP-501
Ground Surface Elevation Approximately 200.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Medium dense), moist, medium brown, silty, sandy GRAVEL with abundant bricks, mortar, and metal piping (FILL)
S-2	3 to 6	5	2.5 to 6	(Dense), moist, light brown, sandy GRAVEL with abundant bricks and mortar (FILL)
S-3	8 to 10	5	6 to 10	(Dense), moist, light brown, sandy GRAVEL

Bottom of 6-TP-501 at 10 feet, completed 4/20/92.

Notes:
1) 4-foot-long, 3-inch-diameter steel casing exposed in side wall of test pit. Casing full of soil.
2) Test pit excavated along south side of former Ammonia Nitrate Crystallizer foundation. Concrete wall of foundation extended to depth of 6 feet in north wall of excavation.

Log of Test Pit 6-TP-502
Ground Surface Elevation Approximately 198.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, light brown, very sandy GRAVEL
S-2	3 to 6	5	1 to 10	(Dense), moist, light brown, sandy GRAVEL with interbedded layers of GRAVEL (native)
S-3	8 to 10	5		

Bottom of 6-TP-502 at 10 feet, completed 4/20/92.

AREA 7
EXPLORATION LOGS

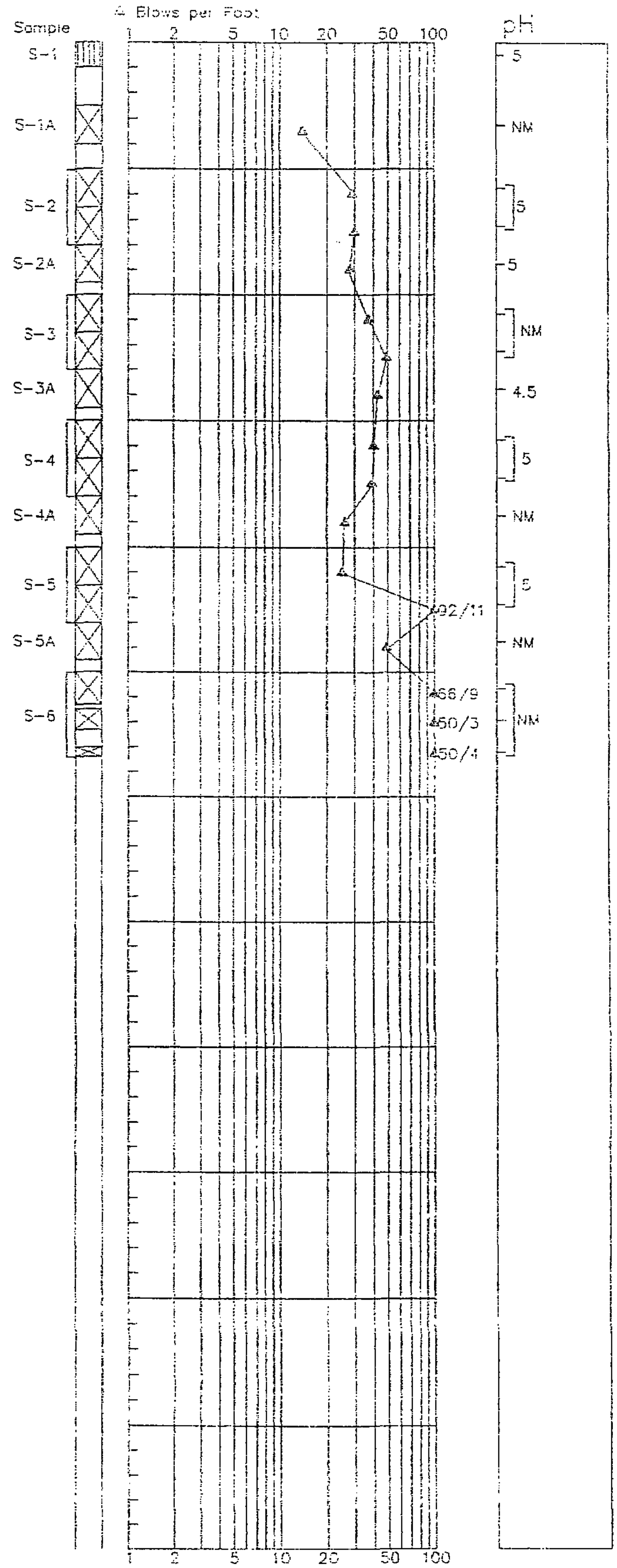
Boring Log 7-B-501

Soil Descriptions

Ground Surface Elevation in Feet 179.6

Soil Descriptions	Depth in Feet
(Loose), moist, black, slightly silty, sandy GRAVEL.	0
Medium dense, moist, greenish gray, slightly sandy GRAVEL. Faint sulfurous odor.	5
Dense, moist, gray, sandy GRAVEL. Faint sulfurous odor and greenish staining on gravels.	10–15
Medium dense, moist, gray, medium to fine SAND.	20
Very dense, moist, gray, sandy to slightly sandy GRAVEL with minor yellow and green staining on gravels.	25
Bottom of Boring at 28.3 Feet. Completed 2/28/92	30

STANDARD PENETRATION RESISTANCE



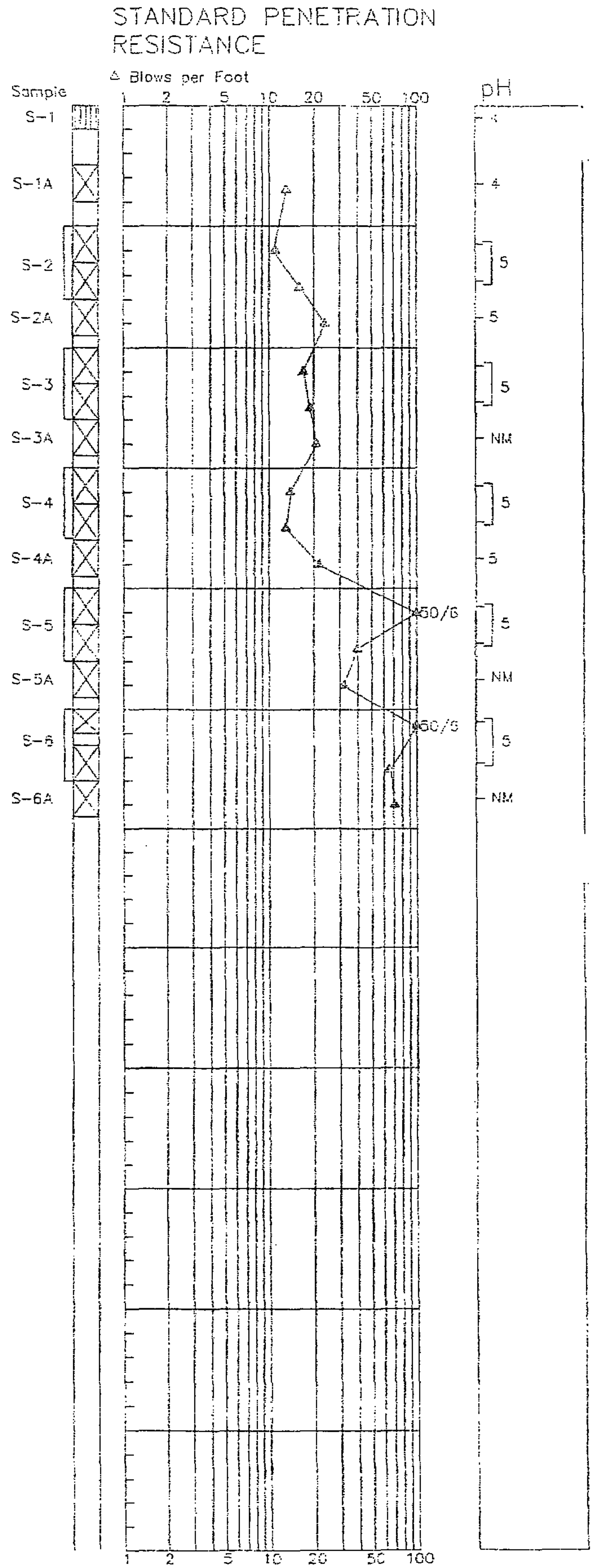
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Boring Log 7-B-502

Soil Descriptions

Ground Surface Elevation in Feet 172.3

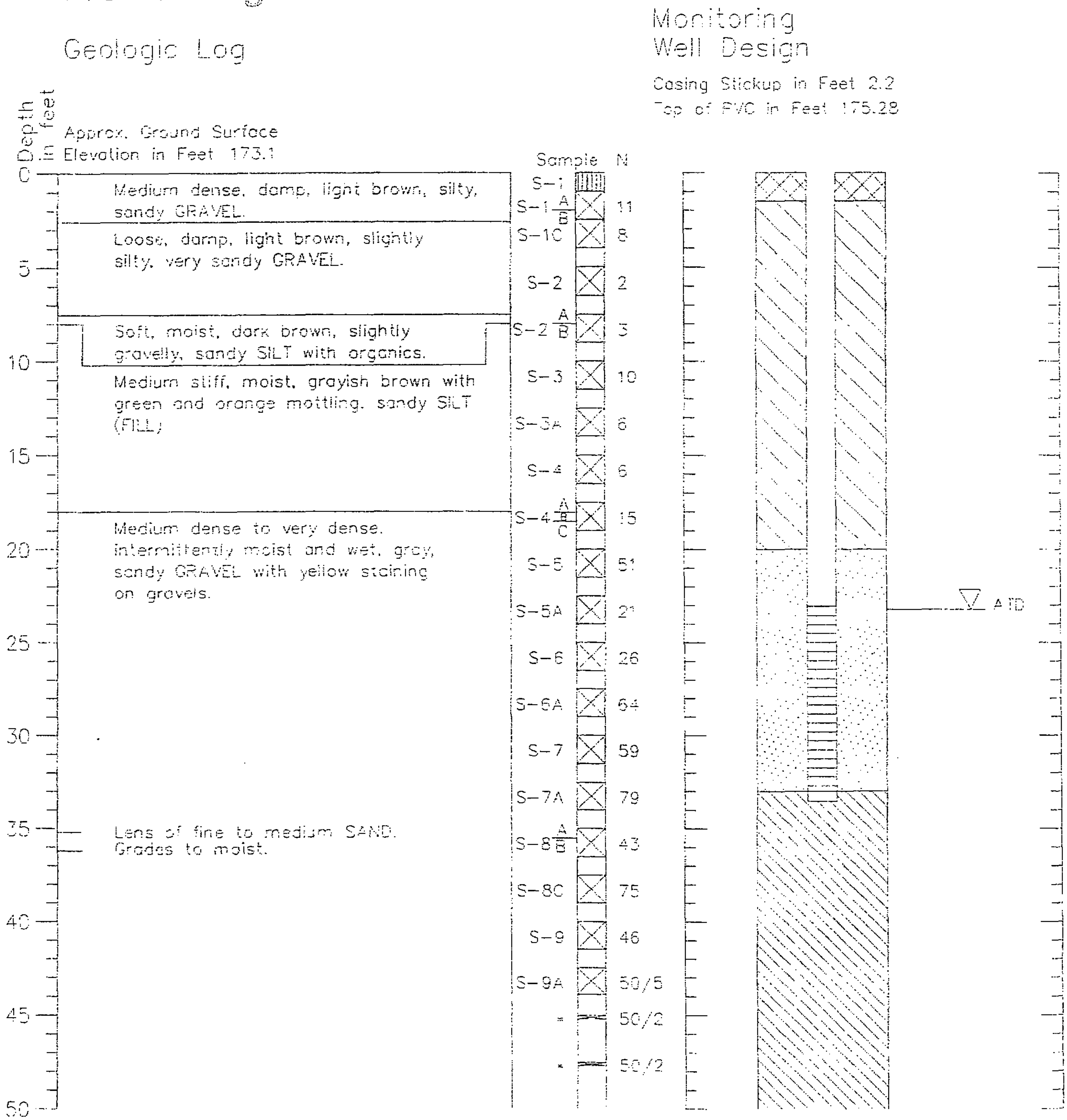
Soil Descriptions	Depth in Feet
6 inches of black, silty SAND with roots over loose, wet to moist, gray, slightly gravelly, very silty to silty SAND.	0
Medium dense, moist, gray, sandy GRAVEL with faint sulfurous odor and occasional green staining on gravels.	5
Medium dense, moist, gray, medium to fine SAND.	14.5
Dense, to very dense, moist, brownish gray slightly sandy GRAVEL with yellow staining on gravels.	19.5
Bottom of Boring at 29.5 Feet. Completed 2/28/9?	29.5



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-7-2 1/1

Boring Log and Construction Data for Monitoring Well 7-B-503



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-7-3 1/2

Boring Log 7-B-504

Soil Descriptions

Ground Surface Elevation in Feet 196.49

Depth in Feet

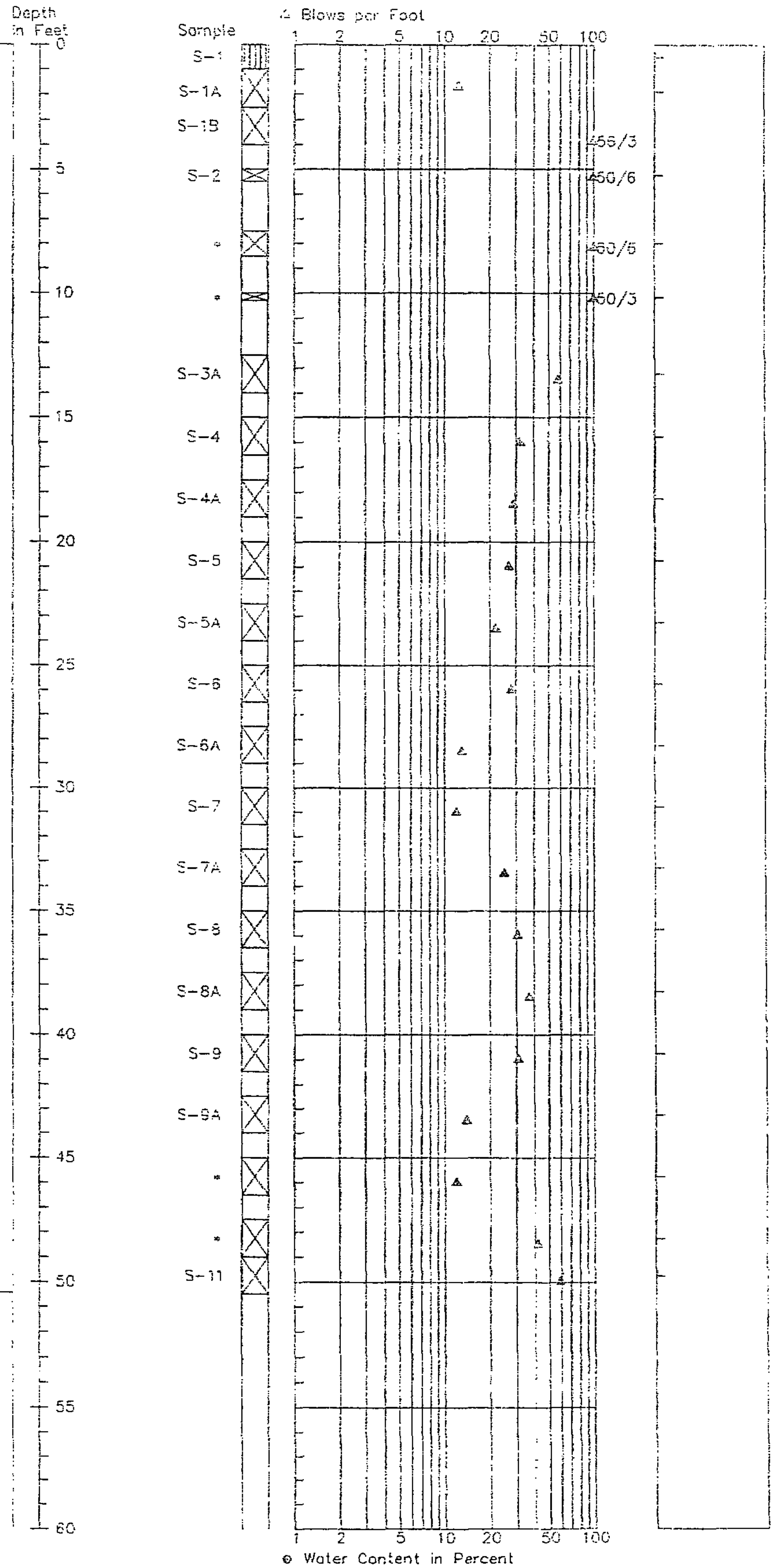
Medium dense to very dense, moist, light brown and grayish brown, slightly silty, sandy GRAVEL.

Grades to non-silty.

Bottom of Boring at 50.5 Feet.
Completed 7/17/92

STANDARD PENETRATION RESISTANCE

LAB TESTS



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-7-4 1/1

Log of Test Pit 7-TP-501
Ground Surface Elevation Approximately 185.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 0.5	(4 inches of forest duff over medium dense), moist, dark brown, sandy GRAVEL with abundant roots and grass.
S-2	3 to 6	4.5	0.5 to 10	(Medium dense), damp, silvery gray, slightly sandy to sandy GRAVEL with boulders to 1 foot and some green staining on gravels. Discontinuous 3-inch-thick layer of Bunker C oil staining at depth of 0.5 foot. Thin gravel lens at depth of 1.5 feet. Distinct zone of yellowish green staining on gravels between depths of 8 and 9 feet.
S-3	8 to 10	4		

Bottom of 7-TP-501 at 10 feet, completed 3/5/92.

Log of Test Pit 7-TP-502
Ground Surface Elevation Approximately 179.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	Two inches of grass and organic debris over (medium dense), moist, brown, slightly silty, sandy GRAVEL with abundant roots.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, grayish brown, sandy GRAVEL with 6-inch-thick gravel lens at a depth of 5.5 feet.
S-3	8 to 10	5		

Bottom of 7-TP-502 at 10 feet, completed 3/5/92.

Log of Test Pit 7-TP-503
Ground Surface Elevation Approximately 176.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2.5	One inch of grass and organic debris over (medium dense), moist, light brownish gray, sandy GRAVEL with occasional roots. Two-inch-thick lens of moist, black, slightly silty, gravelly SAND at 1.25 feet depth. Four-inch-thick lens of moist, black, silty SAND at 2.5 feet depth.
S-2	3 to 6	4	2.5 to 5	(Medium dense), moist, gray and light brown, very silty, fine SAND.
S-3	8 to 10	4	5 to 10	(Medium dense), moist, gray, sandy GRAVEL with rust and yellow staining between depths of 7 and 9 feet.

Bottom of 7-TP-503 at 10 feet, completed 3/5/92.

Log of Test Pit 7-TP-504
Ground Surface Elevation Approximately 181.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	Four inches of black, silty, slightly gravelly SAND with abundant roots over (loose), moist, brown, slightly gravelly, silty SAND.
			2 to 3.5	(Medium dense), moist, brownish gray, very sandy SILT.
S-2	3 to 6	5	3.5 to 7.5	(Medium dense), moist, brown, very sandy GRAVEL.
S-3	8 to 10	5	7.5 to 10	(Medium dense), moist, brown, gravelly SAND.

Bottom of 7-TP-504 at 10 feet, completed 3/5/92.

Log of Observation Test Pit 7-OB-TP-501
Ground Surface Elevation Approximately 171.7 Feet

Sample Number	Stratum Depth in Feet*	Soil Description
No samples collected	0 to (1-3)	(Loose), damp, gray, silty, sandy GRAVEL (FILL).
	(1-3) to (2-7)	(Soft), moist, gray SILT (Sludge-like FILL), some burnt wood fragments found in upper section of silt layer.
	(2-7) to (5-8)	(Medium dense), moist, gray-brown, sandy GRAVEL (Native?).

Bottom of 7-OB-TP-501 at 8.0 feet, completed 6/29/92.

Notes:
1) Observational test pit; no samples collected.
2) *: The strata in 7-OB-TP-501 dip in a northerly direction toward middle of kettle. Therefore, stratum top and bottom depths are variable across the excavation, and are indicated with a range of depths in parentheses.
3) Test pit excavation approximately 20 feet in length, oriented from southeast corner of kettle toward kettle center.

Log of Observation Test Pit 7-OB-TP-502
Ground Surface Elevation Approximately 181.1 Feet

Sample Number	Sample Depth in Feet	Soil Description
No samples collected		(Loose), damp, gray and bleached white, sandy GRAVEL with slight sulfur odor and area of green and yellow stained rocks at depth of 2 to 4.5 feet in center of excavation. Brown, sandy GRAVEL (appears native) observed in upper 2 feet along western edge of excavation.

Bottom of 7-OB-TP-502 at 6.0 feet, completed 6/29/92.

Notes:
1) Observational test pit; no samples collected.
2) Observed layer of Bunker C oil staining near surface at southwest end of test pit.
3) Test pit excavation approximately 20 feet in length, oriented east-west.

Log of Hand Auger Boring 7-HA-501
Ground Surface Elevation Approximately 201.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, light brown, silty, sandy GRAVEL.
S-2	1 to 2		
S-3	2 to 3		

Bottom of 7-HA-501 at 3.0 feet, completed 6/29/92.

Note:
Observed Bunker C oil staining just beneath layer of moss at surface.

Log of Hand Auger Boring 7-HA-502
Ground Surface Elevation Approximately 183.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 0.5	(Medium dense), damp, light brown, sandy GRAVEL with grass roots.
S-2	1 to 2	0.5 to 2.0	(Medium dense), damp, gray, sandy GRAVEL.
S-3	2 to 3	2 to 3	(Loose), damp, gray, gravelly SAND with tree roots.

Bottom of 7-HA-502 at 3.0 feet, completed 7/1/92.

Log of Hand Auger Boring 7-HA-503
Ground Surface Elevation Approximately 201.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, light brown, silty, sandy GRAVEL
S-2	1 to 2		
S-3	2 to 3		

Bottom of 7-HA-503 at 3.0 feet, completed 6/29/92.

Note:
Observed Bunker C oil staining in upper 3 inches of soil.

Log of Hand Auger Boring 7-HA-504
Ground Surface Elevation Approximately 180.6 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, brown to tan, silty, sandy GRAVEL.
S-2	1 to 2		
S-3	2 to 3		

Bottom of HA-504 at 3.0 feet, completed 6/29/92.

AREA 10
EXPLORATION LOGS

Log of Test Pit 10-TP-501
Ground Surface Elevation Approximately 210 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 2	(Medium dense), moist, black, slightly silty, sandy GRAVEL with a lid from a 55-gallon drum at surface.
S-2	3 to 6	2 to 7	(Medium dense), moist, tan-brown, sandy GRAVEL
S-3	7 to 9	7 to 9	(Medium dense), moist, tan-brown, slightly gravelly SAND

Bottom of 10-TP-501 at 9 feet, completed 2/24/92.

Log of Test Pit 10-TP-502
Ground Surface Elevation Approximately 210 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 2	(Medium dense), moist, black, slightly gravelly, silty SAND.
S-2	3 to 6	2 to 4.5	(Medium dense), moist, tan, sandy GRAVEL.
S-3	8 to 9	4.5 to 9	(Medium dense), moist, gray, sandy GRAVEL

Bottom of 10-TP-502 at 9 feet, completed 2/24/92.

Log of Test Pit 10-TP-503
Ground Surface Elevation Approximately 209 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	(Medium dense), moist, black, slightly gravelly, silty SAND with water gel bags (see note below).
		1.5 to 3	(Medium dense), moist, tan-brown, slightly silty, gravelly SAND.
S-2	3 to 6	3 to 10	(Medium dense), moist, medium brown, sandy GRAVEL.
S-3	8 to 10		

Bottom of 10-TP-503 at 10 feet, completed 2/24/92.

Note:
12 water gel bags observed in upper 1.5 feet, some containing apparent residual water gel.

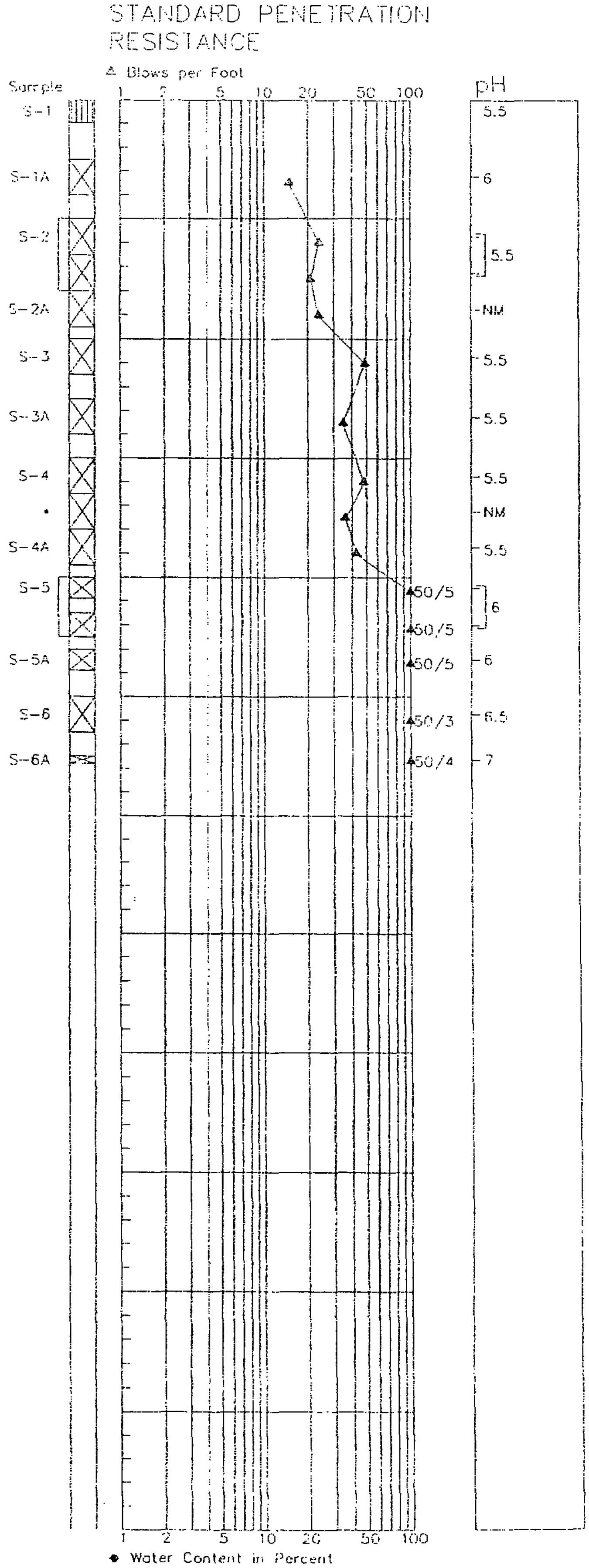
AREA 11
EXPLORATION LOGS

Boring Log 11-B-501

Soil Descriptions

Depth in Feet	Soil Descriptions (Ground Surface Elevation in Feet 205.7)
0	(Loose), moist, dark brown, slightly silty, gravelly SAND (FILL)
	Medium dense, moist, dark brown, slightly silty, sandy GRAVEL. (FILL?)
5	Grades to slightly sandy GRAVEL
10	Dense, moist, brown, slightly sandy GRAVEL. 4-inch layer of black SAND.
15	Dense, moist to wet, gray-brown, slightly silty, slightly sandy GRAVEL.
	Dense to very dense, moist, gray, slightly gravelly, sandy SILT. (Till-like)
20	Very dense, moist, gray, slightly gravelly, silty SAND. (Till-like?)
	Very dense, moist, red-brown, sandy GRAVEL.
25	Very dense, moist, light gray, slightly silty, slightly sandy to sandy GRAVEL.
	Bottom of Boring at 28.0 Feet. Completed 2/21/92.

ATD



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-11-1 1/1

Log of Test Pit 11-TP-501
Ground Surface Elevation Approximately 207 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 1	(Loose), moist, dark brown, silty SAND with abundant roots.
			1 to 2	(Loose), damp, tan-brown, medium SAND.
S-2	3 to 6	6.0	2 to 7	(Medium dense), damp, yellow-brown, slightly silty, sandy GRAVEL.
			7 to 8	(Medium dense), damp, yellow-brown GRAVEL.
S-3	8 to 10	6.0	8 to 10	(Medium dense), damp, yellow-brown, slightly silty, sandy GRAVEL.

Bottom of 11-TP-501 at 10 feet, completed 2/21/92.

Log of Test Pit 11-TP-502
Ground Surface Elevation Approximately 210 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	1 to 4	(Loose), damp, reddish brown, slightly gravelly, silty SAND with abundant roots.
S-2	3 to 6	6.0	4 to 10	(Medium dense), damp, yellow-brown, sandy GRAVEL. Soils grade to moist below depth of 8 feet.
S-3	8 to 10	6		

Bottom of 11-TP-502 at 10 feet, completed 2/21/92.

Log of Test Pit 11-TP-503
Ground Surface Elevation Approximately 208 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 1	(Loose), moist, dark brown, gravelly, silty SAND with roots.
S-2	3 to 6	6.0	1 to 3.5	(Medium dense), damp, yellowish brown, sandy GRAVEL.
S-3	8 to 10	6.0	3.5 to 10	(Dense), moist, yellowish brown, slightly sandy GRAVEL with occasional gravel layers.

Bottom of 11-TP-503 at 10 feet, completed 2/21/92.

Log of Test Pit 11-TP-504
Ground Surface Elevation Approximately 210 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 2.5	(Loose), moist, dark reddish brown, silty SAND with roots and other organics.
S-2	3 to 6	6.0	2.5 to 4	(Medium dense), damp, yellowish brown, sandy GRAVEL with minor roots.
S-3	8 to 10	5.5	4 to 10	(Medium dense), moist to wet, yellowish brown, slightly sandy GRAVEL. Saturated below depth of 8.5 feet.

Bottom of 11-TP-504 at 10 feet, completed 2/21/92.

AREA 12
EXPLORATION LOGS

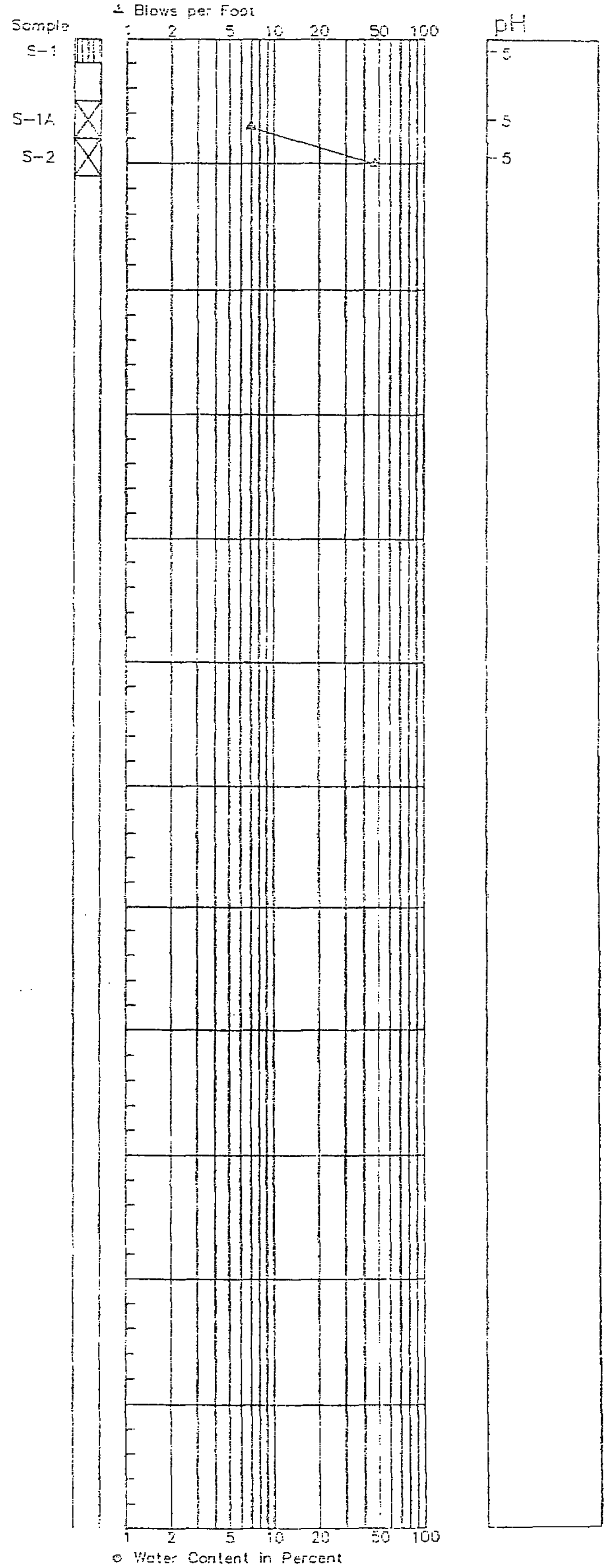
Boring Log 12-1-B-501

STANDARD PENETRATION RESISTANCE

Soil Descriptions

Ground Surface Elevation in Feet 215.3

Soil Descriptions	Depth in Feet
(Medium dense), moist, dark brown, slightly silty, gravelly to very gravelly SAND.	0
Loose, moist, brown, very gravelly SAND.	
Begin observing abundant plastic water gel bags and scattered sawdust.	5
Bottom of Boring at 5.5 Feet. Completed 3/23/92.	
Note: Abandoned boring due to presence of water gel bags. Boring replaced with Boring 12-1-B-501A located 3 feet west.	10



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

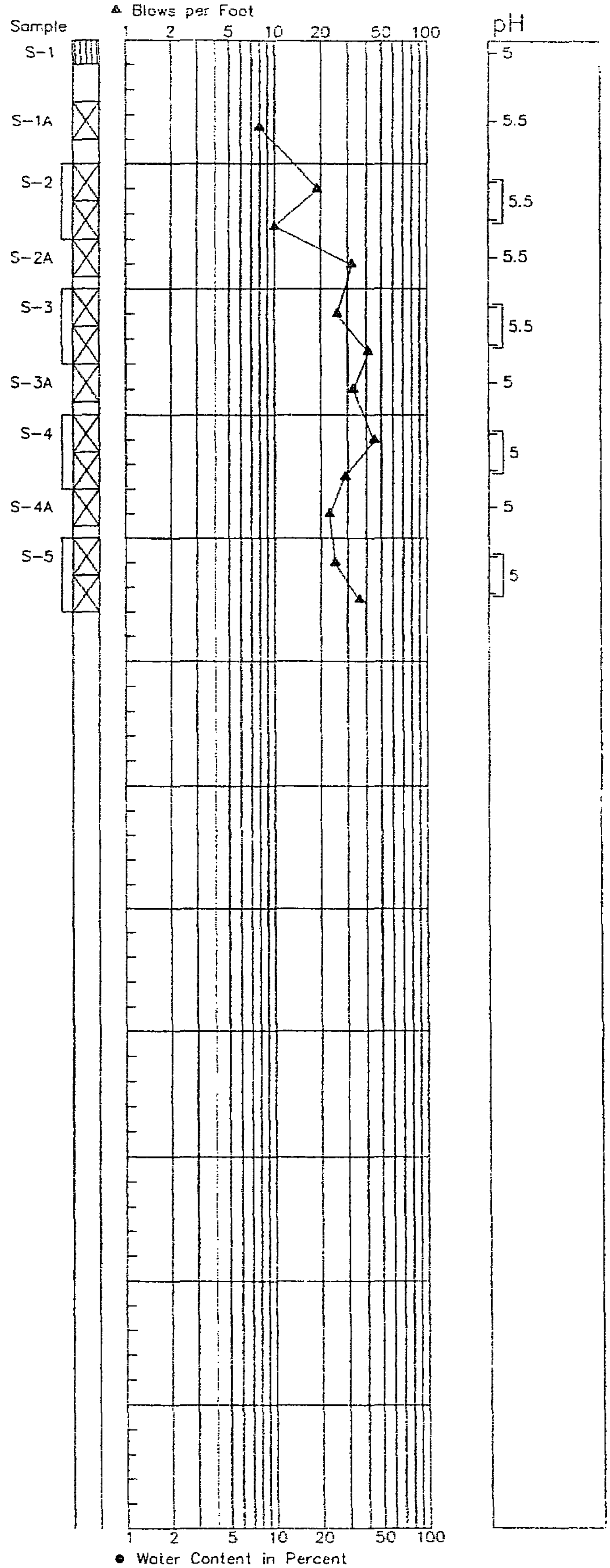
Figure A-12-1 1/1

Boring Log 12-1-B-501A

Soil Descriptions

Soil Descriptions	Depth in Feet
(Medium dense), moist, dark brown, slightly silty, very gravelly SAND.	0
Grades to sandy GRAVEL.	
Medium dense, moist to wet, dark brown to brown, very sandy GRAVEL with plastic water gel bags from 5- to 6-foot depth.	5
Dense, moist, brown, very sandy GRAVEL.	
Grades to sandy GRAVEL.	10
Grades to slightly sandy GRAVEL.	15
Medium dense, moist, gray brown, slightly sandy GRAVEL.	
Becomes moist to wet.	20
Bottom of Boring at 23.0 Feet. Completed 3/23/92.	25
	30
	35
	40
	45
	50
	55
	60

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-12-2 1/1

Boring Log 12-2-B-501

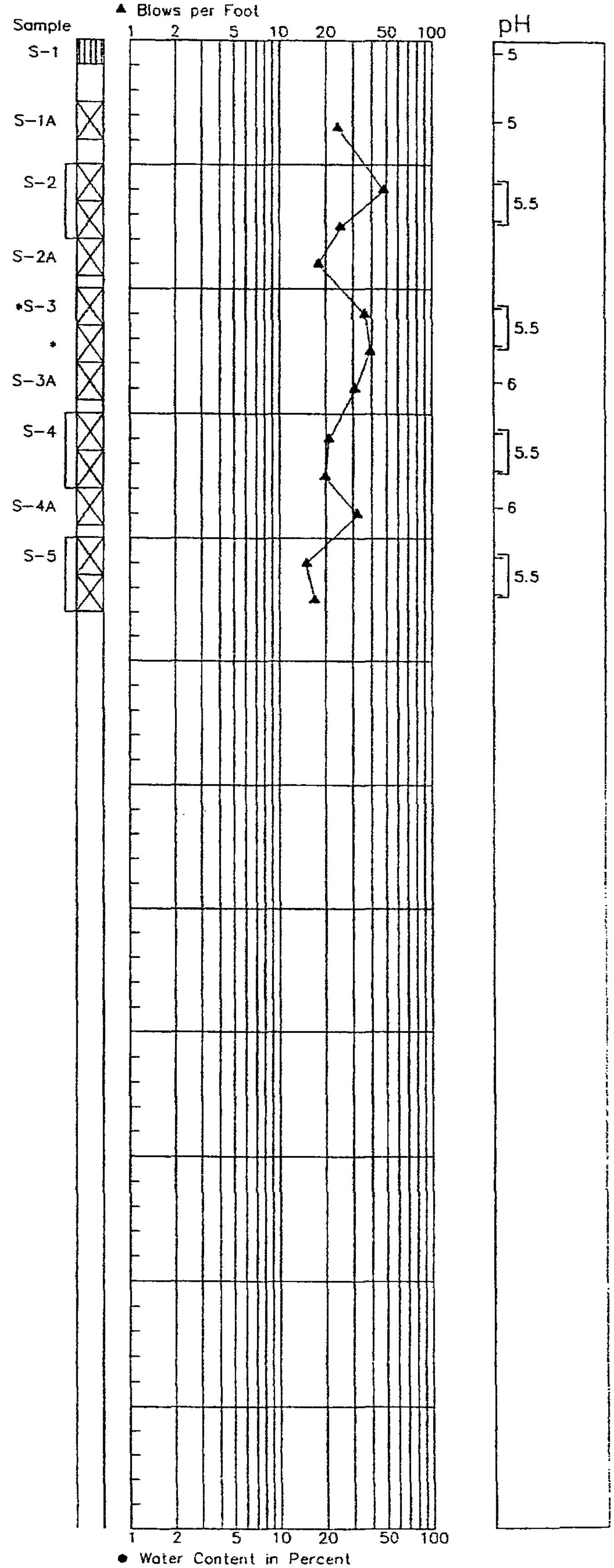
Soil Descriptions

Ground Surface Elevation in Feet 215.6

Soil Descriptions	Depth in Feet
(Medium dense) to dense, moist, black to dark brown, silty, very sandy GRAVEL to sandy GRAVEL with abundant debris (plastic, water gel bags and nylon netting).	0 – 7.5
Medium dense to dense, moist, grayish brown, sandy GRAVEL with aluminum cans and plastic.	7.5 – 13.5
Medium dense, moist, brown, gravelly SAND.	13.5 – 14.7
Dense to medium dense, moist, gray-brown, very sandy to sandy GRAVEL. — Becomes moist to wet.	14.7 – 23.0
Bottom of Boring at 23.0 Feet. Completed 3/24/92.	

Depth scale (feet): 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

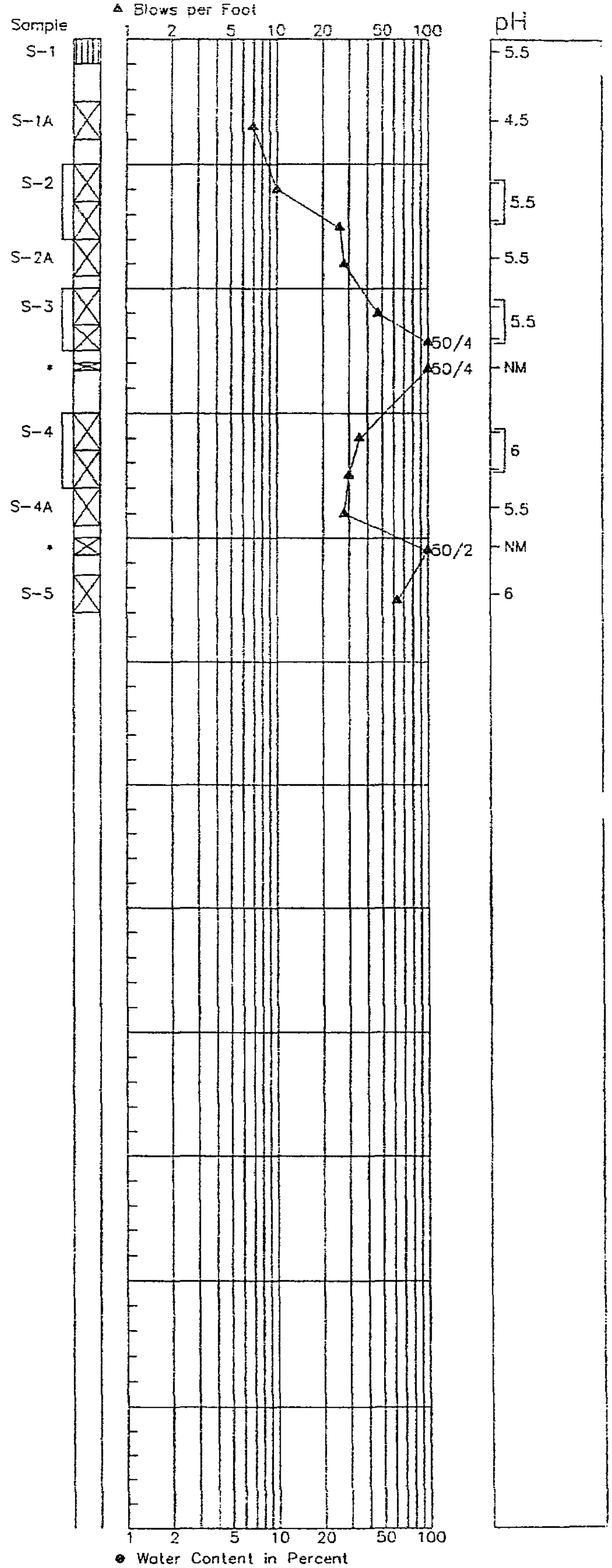
Boring Log 12-2-B-502

Soil Descriptions

Ground Surface Elevation in Feet 213.1 — Depth in Feet

Depth (ft)	Soil Description
0	(Medium dense) to loose, moist, medium to dark brown, sandy GRAVEL.
	Wood fragments and brown paper.
	Pieces of old hydraulic lines.
	Medium dense, moist, grayish brown, sandy GRAVEL.
	Dense to very dense, moist, dark gray, slightly sandy to sandy GRAVEL.
	Dense, moist to wet, rust colored, slightly sandy to sandy GRAVEL.
	Brown-gray
	Very dense, moist, brownish gray, very gravelly SAND.
23.0	Bottom of Boring at 23.0 Feet. Completed 3/24/92.

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-12-4 1/1

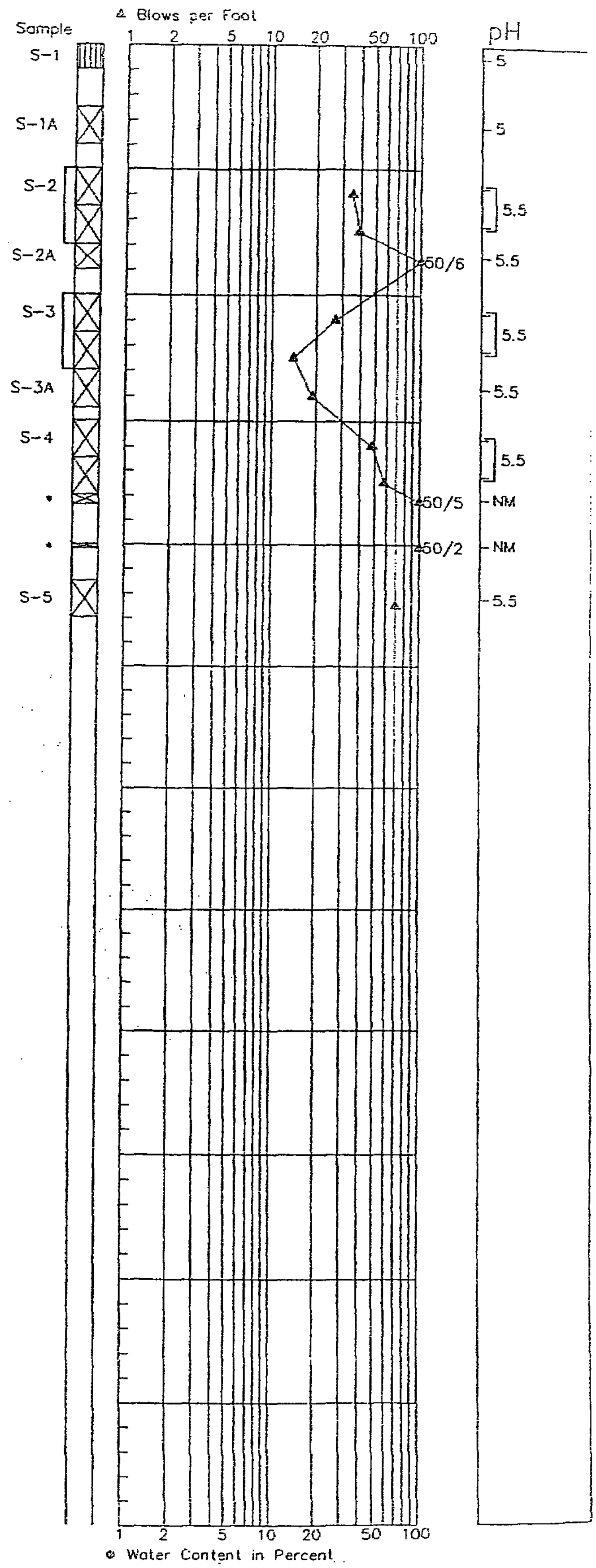
Boring Log 12-6-B-501

Soil Descriptions

Ground Surface Elevation in Feet 226.2 — Depth in Feet

Soil Description	Depth in Feet
Grass sod over (medium dense), moist, dark brown, slightly silty, very gravelly SAND. — Small brick fragments.	0
Dense, moist, brown, sandy GRAVEL.	5
Medium dense, moist to wet, grayish brown, sandy GRAVEL.	10
Dense, moist, brown, slightly silty, sandy GRAVEL to sandy GRAVEL.	15
Very dense, moist to wet, brown, slightly silty, medium to fine SAND.	20
Bottom of Boring at 23.0 Feet. Completed 3/25/92.	25

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

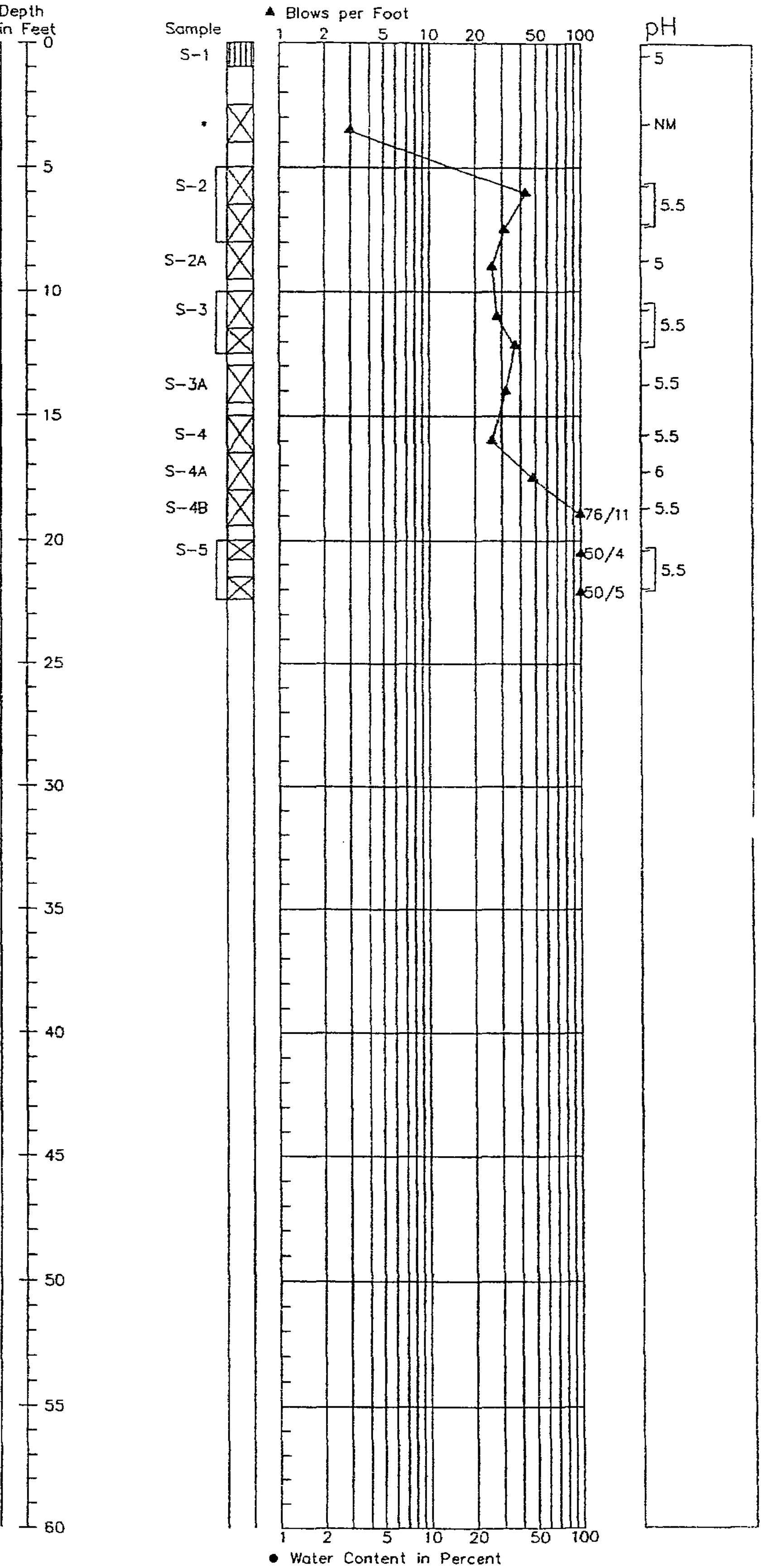
Figure A-12-5 1/1

Boring Log 12-7-B-501

Soil Descriptions

Ground Surface Elevation in Feet 225.3

Soil Description	Depth in Feet
Sod over (medium dense), moist, dark brown, slightly silty, gravelly SAND.	0
Dense, moist, brown, gravelly SAND to sandy GRAVEL.	5
Medium dense to dense, moist, brown, slightly silty, sandy GRAVEL to gravelly SAND	10
Dense to medium dense, moist to wet, brown, slightly silty, sandy GRAVEL.	15
Dense to very dense, moist, brown, sandy GRAVEL.	
Very dense, moist to wet, brown, sandy GRAVEL with silt covered gravels.	20
Bottom of Boring at 23.0 Feet. Completed 3/25/92.	25



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-12-6 1/1

Log of Test Pit 12-1-TP-501
Ground Surface Elevation Approximately 215.6 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 0.5	(Loose), moist, dark brown, sandy GRAVEL (FILL).
		0.5 to 2.5	(Loose), moist, brown, sandy GRAVEL with abundant debris (FILL) (see note below).
		2.5 to 3	(Loose), moist, black, silty, sandy GRAVEL (possibly NATIVE).
S-2	3 to 6	3 to 10	(Loose), moist, brown, sandy GRAVEL (NATIVE).
S-3	8 to 10		

Bottom of 12-1-TP-501 at 10 feet, completed 4/13/92.

Notes:

1) Debris observed from 1 to 3 feet: apparently empty, white, water gel, plastic bags.
2) Observed plastic banding (strapping), steel banding, and plastic 55-gallon drum liners.

Log of Test Pit 12-1-TP-502
Ground Surface Elevation Approximately 215.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 0.5	(Loose), moist, dark brown, silty, sandy GRAVEL.
S-2	3 to 6	0.5 to 10	(Loose), moist, brown, slightly sandy GRAVEL with occasional interbedded gravel layers.
S-3	8 to 10		

Bottom of 12-1-TP-502 at 10 feet, completed 4/13/92.

Log of Test Pit 12-1-TP-503
Ground Surface Elevation Approximately 216.3 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	(Loose), moist, dark brown, slightly silty, sandy GRAVEL.
S-2	3 to 6	1 to 10	(Loose), moist, brown, slightly sandy, cross-bedded GRAVEL.
S-3	8 to 10		

Bottom of 12-1-TP-503 at 10 feet, completed 4/13/92.

Log of Test Pit 12-1-TP-504
Ground Surface Elevation Approximately 214.2 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, black, silty, gravelly SAND.
S-2	3 to 6	1.5 to 10	(Loose), moist, medium brown, slightly sandy GRAVEL with cross-bedded gravel layers.
S-3	8 to 10		

Bottom of 12-1-TP-504 at 10 feet, completed 4/13/92.

Log of Observation Test Pit 12-1-OB-TP-501
Ground Surface Elevation Approximately 217.2 Feet

Sample Number	Stratum Depth in Feet	Soil Description
Not Sampled	0 to 1.5	6 inches of grass sod with scattered white plastic over water gel bags (empty) over (medium dense), moist, black, slightly silty, very gravelly SAND with moderate organics (roots, etc.) (NATIVE).
	1.5 to 3	(Dense), moist, brown, sandy to very sandy GRAVEL (NATIVE).

Bottom of 12-1-OB-TP-501 at 3 feet, completed 4/14/92.

Notes:
1) Soils appear native below 0.5 foot.
2) No samples collected (observational test pit).

Log of Observation Test Pit 12-1-OB-TP-502
Ground Surface Elevation Approximately 218.0 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 1.5	Six inches of grass sod with clear plastic bag, old tire, and logging debris over (medium dense), moist, black, slightly silty, gravelly SAND with moderate organics (NATIVE).
	1.5 to 3	(Dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-1-OB-TP-502 at 3 feet, completed 4/14/92.

Notes:
1) Soils below 0.5 foot appear native.
2) No residual water gel noted in empty plastic bag.
3) No samples collected (observational test pit).

Log of Observation Test Pit 12-1-OB-TP-503
Ground Surface Elevation Approximately 221.7 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 1.7	6 inches of sod with one plastic water gel bag, partially exposed, over (medium dense), moist, black, slightly silty, gravelly SAND (NATIVE).
	1.7 to 3.5	(Dense), moist, brown, very sandy GRAVEL (NATIVE).

Bottom of 12-1-OB-TP-503 at 3.5 feet, completed 4/14/92.

Notes:
1) Soils appear native below 0.5 foot.
2) No residual water gel in empty plastic bag.
3) No samples collected (observational test pit).

Log of Test Pit 12-2-TP-501
Ground Surface Elevation Approximately 214.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 7	(Loose), moist, black and brown, stratified, sandy GRAVEL with abundant debris (FILL) (see note below).
S-2	3 to 6		
		7 to 8	(Loose), moist, black, silty, sandy GRAVEL (possibly NATIVE).
S-3	8 to 10	8 to 10	(Loose), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-2-TP-501 at 10 feet, completed 4/13/92.

Note:
Debris observed from 1.5 to 7.3 feet: old truck tire, assorted metal debris, metal banding, potential asbestos-containing material, plastic bags (unmarked), 2-inch-diameter rubber hose, tin and aluminum cans, foam rubber, plastic banding, various rubber and paper debris, wood debris (RR ties), abundant stacks of wax-covered cardboard, and a firehose.

Log of Test Pit 12-2-TP-502
Ground Surface Elevation Approximately 214.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6.5	(Medium dense), moist, dark brown, sandy GRAVEL with roots in top foot and abundant debris (FILL) (see note below).
S-2	3 to 6	4		
S-3	8 to 10	4	6.5 to 10	(Medium dense), moist, light brown, sandy GRAVEL (NATIVE).

Bottom of 12-2-TP-502 at 10 feet, completed 4/14/92.

Note:
Debris observed included abundant plastic strapping and a few clear plastic bags from depth of 1 to 3.5 feet. Plastic bag with scraps of metal, apparently a drum liner with a lid, from depth of 4 to 6 feet. No residual water gel observed in bags.

Log of Test Pit 12-2-TP-503
Ground Surface Elevation Approximately 215.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 1	(Medium dense), moist, brownish gray, sandy GRAVEL, with small scraps of cloth (FILL).
S-2	2 to 4	4	1 to 7	(Medium dense), moist, dark brown-black, sandy GRAVEL, with abundant debris (FILL) (see Note 1 below).
S-3	2.5	4		
S-4	4 to 6	5.5		
S-5	8 to 10	5.5	7 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL (NATIVE).

Bottom of 12-2-TP-503 at 10 feet, completed 4/14/92.

Notes:
1) Debris observed from depth of 1 to 6 feet: few boards (1.5 feet long) with some plastic-coated paper, drum liner, old smashed drum (scraps of metal mesh and strapping) which had no odor or product, abundant clear plastic, some water gel bags (one bag had apparent residual water gel present), lump of grayish clay, pieces of plywood, yellow (resin-like) substance, old tire, rope fibers, empty white water gel bags, and assorted wood debris.
2) Sample S-3 was a discrete sample near apparent residual water gel.

Log of Test Pit 12-2-TP-504
Ground Surface Elevation Approximately 217.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Medium dense), moist, black, slightly silty, very sandy GRAVEL with roots from 0 to 1 foot and debris (FILL) (see note below).
S-2	3 to 6	5	3 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL with interbedded gravel layers (NATIVE).
S-3	8 to 10	4		

Bottom of 12-2-TP-504 at 10 feet, completed 4/14/92.

Note:
Debris observed from depth of 1.5 to 3.0 feet: old log, few pieces of metal strapping, and a knotted ball of black plastic strapping.

Log of Test Pit 12-2-TP-505
Ground Surface Elevation Approximately 213.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 9	(Medium dense), moist, dark brown, sandy GRAVEL with debris and noticeable creosote odor (FILL) (see note below).
S-2	3 to 6	4.5		
S-3	9 to 10	4.5	9 to 10	(Medium dense), moist, medium gray, sandy GRAVEL (NATIVE).

Bottom of 12-2-TP-505 at 10 feet, completed 4/14/92.

Note:
Debris observed from depth of 1 to 3 feet: many wooden posts (strong creosote odor), 6-foot-long rubber hose, metal banding, occasional tin cans and scraps of plastic, sheets of plastic, and thick cardboard.

Log of Test Pit 12-2-TP-506
Ground Surface Elevation Approximately 213.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	(Medium dense), moist, black, silty, gravelly SAND with debris from 1.3 to 6 feet (FILL) (see note below).
S-2	3 to 6	4.5		
S-3	8 to 10	4.5	6 to 10	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-2-TP-506 at 10 feet, completed 4/15/92.

Note:
Debris observed from depth of 1.3 to 6 feet: abundant cardboard, 4-inch-diameter pipe (plastic and steel), concrete, plaster, tin cans, steel garbage can, and aluminum roofing; decomposing cardboard had hydrogen sulfide odor.

Log of Observation Test Pit 12-2-OB-TP-501
Ground Surface Elevation Approximately 210.3 Feet

Sample Number	Stratum Depth in Feet*	Soil Description
No Samples Collected	0 to (0.8- 1.5)	(Medium dense), moist, black, slightly silty, gravelly SAND with black, 3/4-inch rusted steel banding at approximately 0.5 foot (FILL).
	(0.8-1.5) to 2	(Dense), moist, brown, very gravelly SAND (NATIVE).

Bottom of 12-2-OB-TP-501 at 2.0 feet, completed 4/14/92.

Notes:
1) *: Fill/native soil contact dips toward the east (contact depth at 0.8 foot at west end of pit; 1.5 feet at east end). Variable depths across test pit indicated as range in parentheses.
2) No samples collected (observational test pit).

Log of Observation Test Pit 12-2-OB-TP-502
Ground Surface Elevation Approximately 209.3 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 0.5	(Medium dense), moist, black, slightly silty, gravelly SAND (FILL?).
	0.5 to 2.5	(Dense), moist, brown, very sandy, stratified GRAVEL and very gravelly SAND (NATIVE).

Bottom of 12-2-OB-TP-502 at 2.5 feet, completed 4/14/92.

Notes:
1) Soils below 0.5 foot appear native.
2) No residual water gel observed in empty water gel bag located on surface next to excavation.
3) No samples collected (observational test pit).

Log of Observation Test Pit 12-2-OB-TP-503
Ground Surface Elevation Approximately 212.3 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 0.8	(Medium dense), moist, black, slightly silty, gravelly SAND (appears disturbed - FILL?).
	0.8 to 2.5	(Dense), moist, brown, very sandy GRAVEL (appears NATIVE).

Bottom of 12-2-OB-TP-503 at 2.5 feet, completed 4/14/92.

Note:
No samples collected (observational test pit).

Log of Observation Test Pit 12-2-OB-TP-504
Ground Surface Elevation Approximately 214.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	1 to 2	5	0 to 1.5	(Medium dense), moist, brown, sandy GRAVEL with debris from 0.5 to 1.5 feet (FILL) (see Note 1 below).
S-2	2 to 4	5	1.5 to 2.5	(Medium dense), moist, black, slightly silty, gravelly SAND with wood debris (FILL).
			2.5 to 6	(Medium dense), moist, dark brown, sandy to very sandy GRAVEL with minor debris (FILL) (see Note 2 below).
S-3	6 to 7	5	6 to 7	(Dense), moist, brown, very sandy GRAVEL (NATIVE).

Bottom of 12-2-OB-TP-504 at 7 feet, completed 4/15/92.

Notes:
1) Debris found from depth of 0.5 to 1.5 feet: flat waxed cardboard boxes and three unlabeled empty plastic drum liners.
2) Debris found from depth of 2.5 to 6.0 feet: scattered waxed cardboard pieces, plastic banding, and white plastic up to 6 by 6 inches.

Log of Observation Test Pit 12-2-OB-TP-505
Ground Surface Elevation Approximately 215.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	1 to 2	5	0 to 5.5	(Loose), moist, brown and black (interbedded), sandy GRAVEL with debris (FILL) (see note below).
S-2	2 to 4	5		
S-3	5.5 to 6.5	5	5.5 to 6.5	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-2-OB-TP-505 at 6.5 feet, completed 4/15/92.

Note:
Debris observed from depth of 0.6 to 5.5 feet: bottles and cans, metal banding, wood debris, one 5-gallon can (crushed), plastic, thick cardboard, and apparently empty water gel bags.

Log of Test Pit 12-3-TP-501
Ground Surface Elevation Approximately 217.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet*	Soil Description
S-1	0 to 1	4.5	0 to (2 - 4)	(Loose), black, moist, silty, gravelly SAND with debris (FILL) (see Note 1 below).
S-2	2 to 4	4.5		
S-3	8 to 10	4.5	(2 - 4) to 10	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-3-TP-501 at 10 feet, completed 4/15/92.

Notes:
1) Debris observed from depth of 0.5 to 4 feet: water gel bags containing residual water gel, wood debris (timbers), 55-gallon drum plastic liners, metal and plastic banding, strips of plastic, and white chalk-like material ("possibly nitric emulsion" per former DuPont employee).
2) Debris appeared to be approximately 60% of fill material from depth of 0.5 to 6 feet.
*: Fill/native soil contact depth is variable within excavation from 2 feet near east and west edges of pit to 4 feet in pit center. Depth range across test pit is indicated in parentheses.

Log of Test Pit 12-3-TP-502
Ground Surface Elevation Approximately 217.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	(Loose), moist, black, silty, sandy GRAVEL mixed with debris (FILL) (see Note 1 below).
S-2	2 to 4	4.5		
S-3	4 to 6	4.5		
S-4	8 to 10	4.5	6 to 10	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-3-TP-502 at 10 feet, completed 4/15/92.

Notes:
1) Debris observed from depth of 0.5 to 6 feet: water gel bags with small quantities of residual water gel, minor wood debris, green plastic tubes (4-inch-diameter), cardboard, and metal banding.
2) Small amount of water accumulation at 6 feet due to water retention in the plastic debris.
3) Debris observed to be confined to former trench. Native soil observed on east and west sides of test pit, surrounding the former trench.

Log of Test Pit 12-3-TP-503
Ground Surface Elevation Approximately 216.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 6	(Loose), black, moist, silty, sandy GRAVEL mixed with debris (FILL) (see Note 1 below).
S-2	3 to 6	4.5		
S-3	8 to 10	4.5	6 to 10	(Dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-3-TP-503 at 10 feet, completed 4/15/92.

Notes:
1) Debris observed from depth of 0.5 to 6 feet: white and clear plastic apparently empty water gel bags, minor cardboard, wood debris, 1-inch-diameter plastic tubing, one empty fertilizer paper bag.
2) Debris observed to be confined to former trench. Native soil observed on east and west sides of test pit, surrounding the former trench.

Log of Observation Test Pit 12-3-OB-TP-501
Ground Surface Elevation Approximately 217.1 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 2	(Medium dense), moist, black, slightly silty, very sandy GRAVEL with roots and minor metal and plastic scraps in north end of excavation (FILL).
	2 to 2.7	(Medium dense), moist, tan-brown, sandy GRAVEL (NATIVE).

Bottom of 12-3-OB-TP-501 at 2.7 feet, completed 4/16/92.

Notes:
1) No samples collected (observational test pit).
2) North wall of excavation appears to be the end of landfill trench.

Log of Observation Test Pit 12-3-OB-TP-502
Ground Surface Elevation Approximately 217.7 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 1.8	(Medium dense), moist, black, slightly silty, sandy GRAVEL (FILL?).
	1.8 to 2.7	(Medium dense), moist, tan-brown, sandy GRAVEL (NATIVE).

Bottom of 12-3-OB-TP-502 at 2.7 feet, completed 4/16/92.

Note:
Apparent FILL material (no debris observed) is confined to center of test pit. Native soils (brown, sandy GRAVEL) observed on east and west sides of apparent FILL material.

Log of Test Pit 12-4-TP-501

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1	Approximately 1 foot of organic debris (old logs and branches) over (medium dense), moist, light brown, very sandy GRAVEL.
S-2	3 to 6	4.5	1 to 7.5	(Medium dense to dense), moist, medium gray, slightly sandy GRAVEL with interbedded gravel layers with cobbles up to 10 inches.
S-3	8 to 10	4.5	7.5 to 9	(Very dense), moist, tan-brown, sandy GRAVEL.

Bottom of 12-4-TP-501 at 9 feet, completed 4/16/92.

Log of Test Pit 12-5-TP-501
Ground Surface Elevation Approximately 226.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	One inch of grass over (medium dense), moist, dark brown, slightly silty, sandy GRAVEL with roots to a depth of 2 feet and minor debris (FILL) (see note below).
S-2	3 to 6	4.5		
			6 to 8	(Medium dense), moist, tan-brown, sandy GRAVEL (NATIVE).
S-3	8 to 10	4.5	8 to 10	(Medium dense), moist, light tan, sandy GRAVEL.

Bottom of 12-5-TP-501 at 10 feet, completed 4/16/92.

Note:
Chunks of compressed paper (cardboard) observed from depth of 5 to 6 feet.

Log of Test Pit 12-5-TP-502
Ground Surface Elevation Approximately 222.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 5.5	One inch of grass over (medium dense), moist, dark brown to black, slightly silty, very sandy GRAVEL with minor debris (FILL) (see note below).
S-2	3 to 5.5	4.5		
			5.5 to 7	(Medium dense), moist, medium gray, sandy GRAVEL (NATIVE).
S-3	8 to 10	4.5	7 to 10	(Medium dense), moist, light brown, slightly sandy GRAVEL (NATIVE).

Bottom of 12-5-TP-502 at 10 feet, completed 4/16/92.

Note:
Debris observed from depth of 2 to 4 feet: layers of compressed cardboard and plastic strapping.

Log of Test Pit 12-5-TP-503
Ground Surface Elevation Approximately 223.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 4	(Medium dense), moist, dark brown, silty, very sandy GRAVEL with debris (FILL) (see note below).
S-2	2 to 4	4.5		
S-3	4 to 6	5.0	4 to 10	(Medium dense), moist, brown, sandy GRAVEL with gravel layers.

Bottom of 12-5-TP-503 at 10 feet, completed 4/17/92.

Note:
Observed abundant decomposed cardboard explosives packaging from depth of 1 to 4 feet.

Log of Test Pit 12-6-TP-501
Ground Surface Elevation Approximately 225.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Medium dense), moist, dark brown, silty, sandy GRAVEL.
S-2	3 to 6	5	1.5 to 6.5	(Loose), moist, brown GRAVEL.
S-3	8 to 10	5	6.5 to 10	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 12-6-TP-501 at 10 feet, completed 4/17/92.

Log of Test Pit 12-6-TP-502
Ground Surface Elevation Approximately 225.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 8	(Medium dense), moist, dark brown, silty, sandy GRAVEL with debris (FILL) (see note below).
S-2	3 to 6	5		
S-3	8 to 10	5	8 to 10	(Medium dense), moist, medium brown, sandy GRAVEL (NATIVE).

Bottom of 12-6-TP-502 at 10 feet, completed 4/17/92.

Note:
Debris observed from depth of 3 to 8 feet: 1-inch-diameter plastic apparently empty white tubing, 1 car radio, assorted plastic debris, scattered bottles, jars and cans, and ceramics.

Log of Test Pit 12-7-TP-501

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.2	(Medium dense), moist, dark brown, silty, sandy GRAVEL.
S-2	3 to 6	5	1.2 to 10	(Loose), moist, brown, slightly sandy GRAVEL with gravel layers.
S-3	8 to 10	5		

Bottom of 12-7-TP-501 at 10 feet, completed 4/17/92.

Log of Test Pit 12-TP-501

Ground Surface Elevation Approximately 213.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 5.5	(Medium dense), moist to wet, black, slightly silty, very sandy GRAVEL with debris (FILL) (see Note 1 below). Zones of saturation (standing water) within fill below depth of 4.5 feet. Hydrogen sulfide odor associated with saturated zones.
S-2	3 to 4.5	4		
			5.5 to 9	(Dense), moist, dark brown, gravelly silty SAND (appears NATIVE). Soils more consolidated between 6 and 7 feet.
S-3	9 to 10	5	9 to 10	

Bottom of 12-TP-501 at 10 feet, completed 4/16/92.

Note:

Debris observed from depth of 0.5 to 6 feet: timbers, logs, plywood, and rolls of red paper (approximately 2 inches wide); pieces of styrofoam, cardboard, and plastic banding; scraps of cotton-like cloth with yellow powder-like substance (pH of 0 on pH paper).

Log of Test Pit 12-TP-502
Ground Surface Elevation Approximately 217.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	(Medium dense), moist, black, slightly silty, very sandy GRAVEL with roots from 0 to 1 foot.
S-2	3 to 6	4	2 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL with interbedded layers of gray, sandy gravel.
S-3	8 to 10	4		

Bottom of 12-TP-502 at 10 feet, completed 4/16/92.

Log of Test Pit 12-TP-503
Ground Surface Elevation Approximately 217.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), moist, black, slightly silty, very sandy GRAVEL.
S-2	3 to 6	4.5	2 to 4	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-3	4 to 10	4.5	4 to 10	(Medium dense), moist, medium gray, sandy GRAVEL with interbedded gravel layers.

Bottom of 12-TP-503 at 10 feet, completed 4/16/92.

Log of Test Pit 12-TP-504
Ground Surface Elevation Approximately 225.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.3	(Medium dense), moist, dark brown, silty, sandy GRAVEL.
S-2	3 to 6	5	1.3 to 7	(Loose), moist, brown GRAVEL.
S-3	8 to 10	5	7 to 10	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 12-TP-504 at 10 feet, completed 4/17/92.

Log of Test Pit 12-TP-505
Ground Surface Elevation Approximately 222.1 Feet

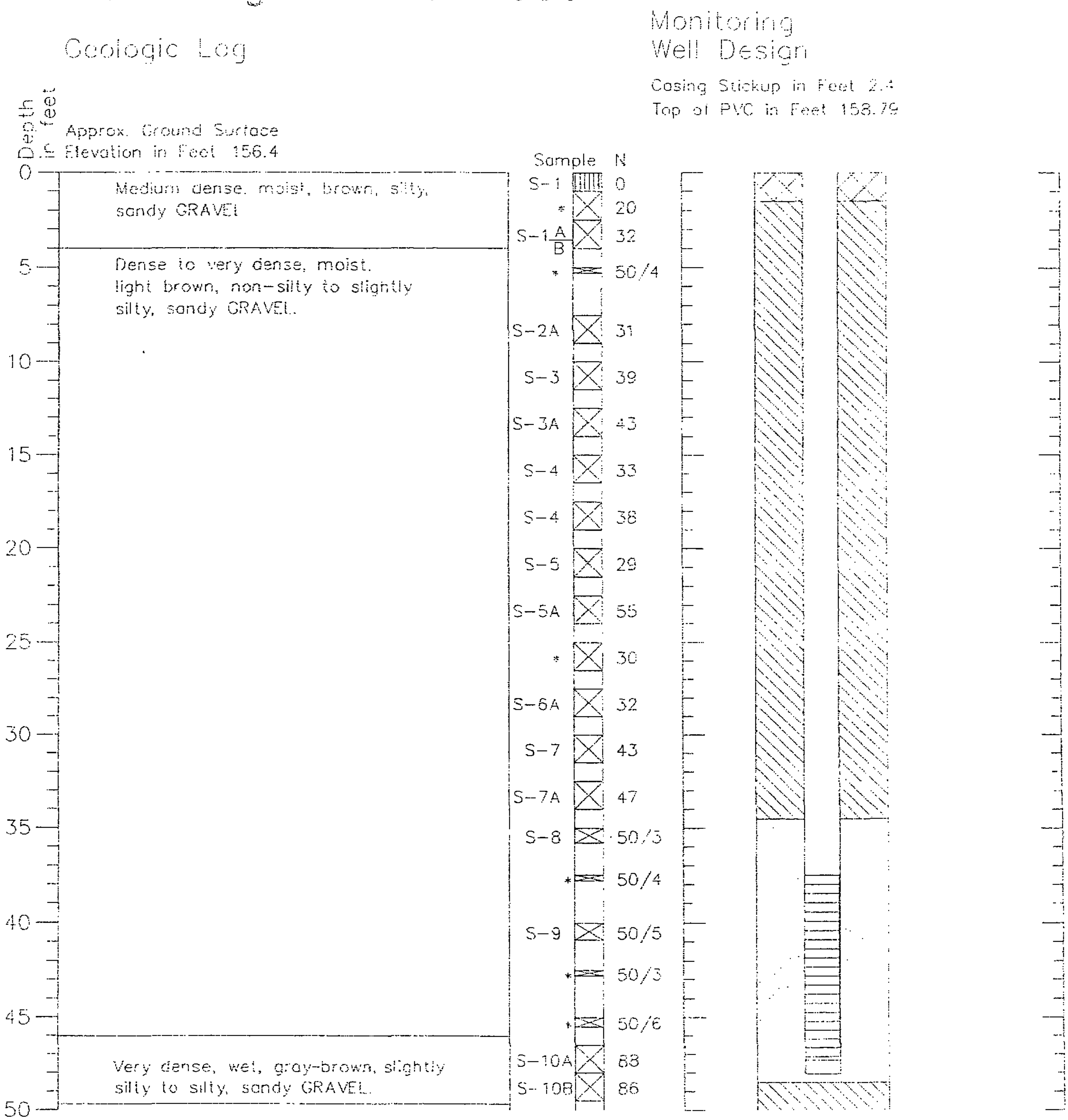
Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 6	(Medium dense), moist, dark brown, silty, sandy GRAVEL with abundant debris (FILL) (see note below).
S-2	3 to 6	5		
S-3	8 to 10	5	6 to 10	(Dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 12-TP-505 at 10 feet, completed 4/17/92.

Note:
Debris observed from depth of 1.5 to 6 feet: abundant water gel bags, minor amounts of plastic banding, metal banding (strapping), 1-inch-diameter plastic pipe, plastic drum liners, and cardboard. Did not observe any residual water gel.

AREA 16
EXPLORATION LOGS

Boring Log and Construction Data for Monitoring Well 16-B-501



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-16-1

Boring Log and Construction Data for Monitoring Well 16-B-501

Geologic Log

Monitoring Well Design

Casing Stickup in Feet 2.4
Top of PVC in Feet 0.00

Depth in feet

Approx. Ground Surface Elevation in Feet 0

Very dense, moist to wet, light brown to gray-brown, sligthly silty to non-silty, sandy to very sandy GRAVEL.

Bottom of Boring at 76.5 Feet.
Completed 7/16/92.

Sample	N
S-11	60
S-11A	62
S-12	84
S-12A	70
S-13	51
S-13	50/5
S-14	50/5
S-14A	50/3
S-15	37
S-15A	50/5
S-16	50/5

50
55
60
65
70
75
80
85
90
95
100

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

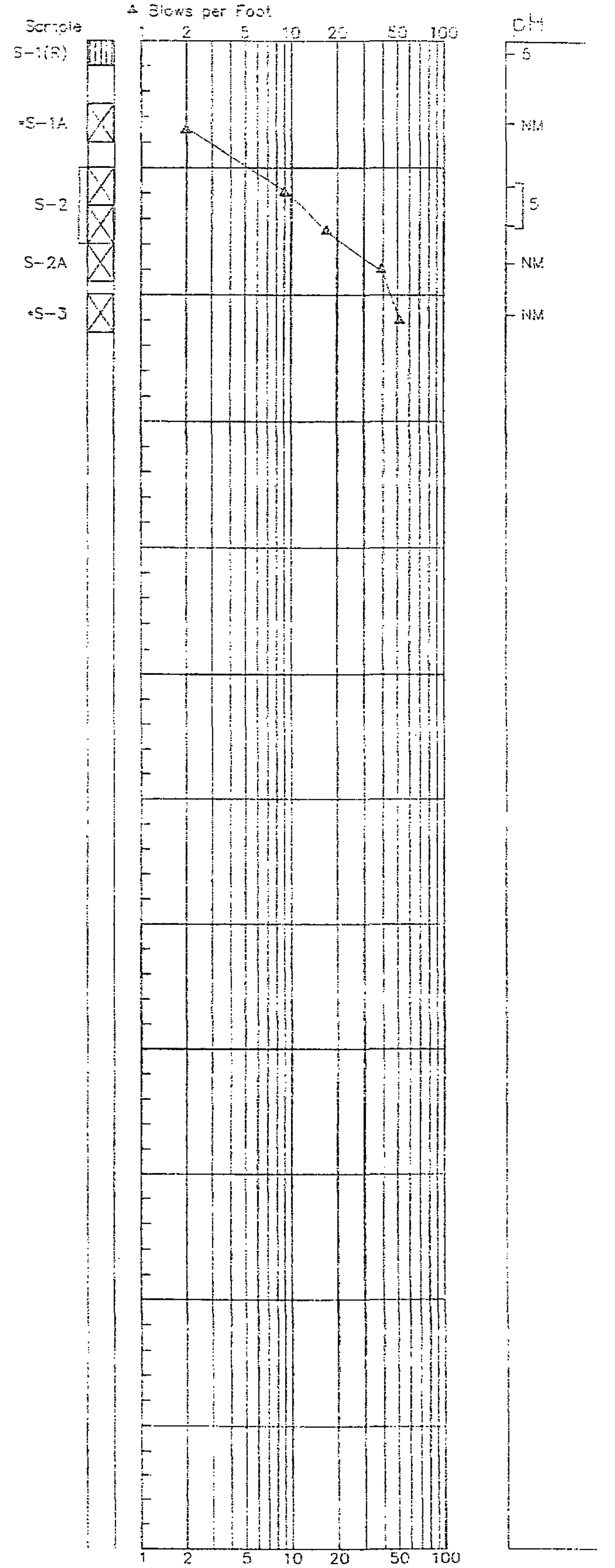
Boring Log 16-B-502

Soil Descriptions

Ground Surface Elevation in Feet 144.8

Soil Descriptions	Depth in Feet
(Loose), moist, light brown, gravelly, fine to medium SAND.	0
Medium dense, wet, brown, very gravelly, medium to coarse SAND.	5
Dense, wet, brown, sandy GRAVEL.	10
Bottom of Boring at 11.5 Feet. Completed 2/24/92	

STANDARD PENETRATION RESISTANCE



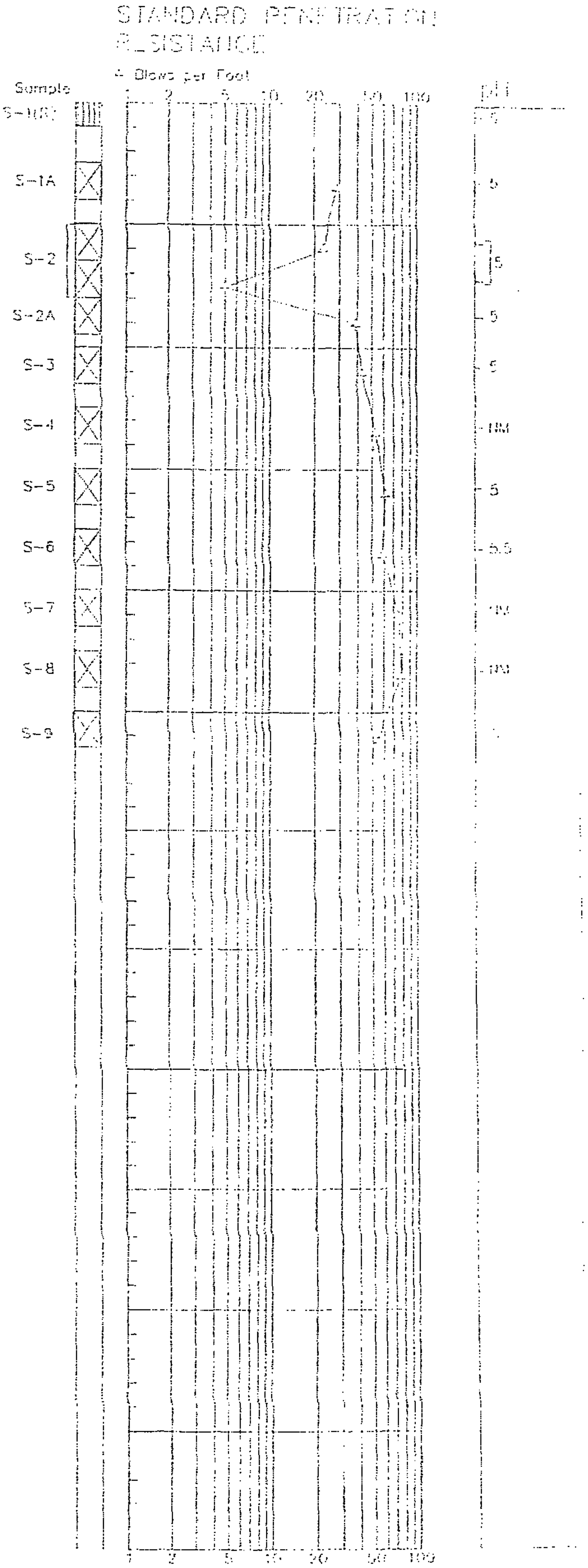
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

BORING LOG 10-B-603

Soil Descriptions

Ground Surface Elevation in Feet 143.9

Soil Descriptions	Depth in Feet
(Loose), moist, light brown, gravelly, fine to medium SAND	0
Medium dense, moist, brown and black, sandy GRAVEL	
Very dense, moist to wet, brown and reddish-brown, slightly silty to non-silty, slightly sandy GRAVEL.	13
Bottom of Boring at 26.5 Feet. Completed 2/24/92	26.5



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-10-6

Boring Log 16-B-504

Soil Descriptions

Ground Surface Elevation in Feet 141.3

Depth in Feet

(Loose), moist, gray, very silty SAND (ash-like).

Medium dense, wet, gray, silty, very sandy GRAVEL.

Dense, wet, brown, slightly silty, slightly sandy GRAVEL.

Loose, wet, brown, slightly gravelly, silty SAND.

Very dense, wet, brown, slightly sandy, GRAVEL.

Water in borehole between depths of 9 and 14 feet.

Very dense, moist, brown, very sandy GRAVEL.

Dense, moist, grayish brown, slightly silty, fine SAND.

Dense, to very dense, moist, brown, sandy GRAVEL.

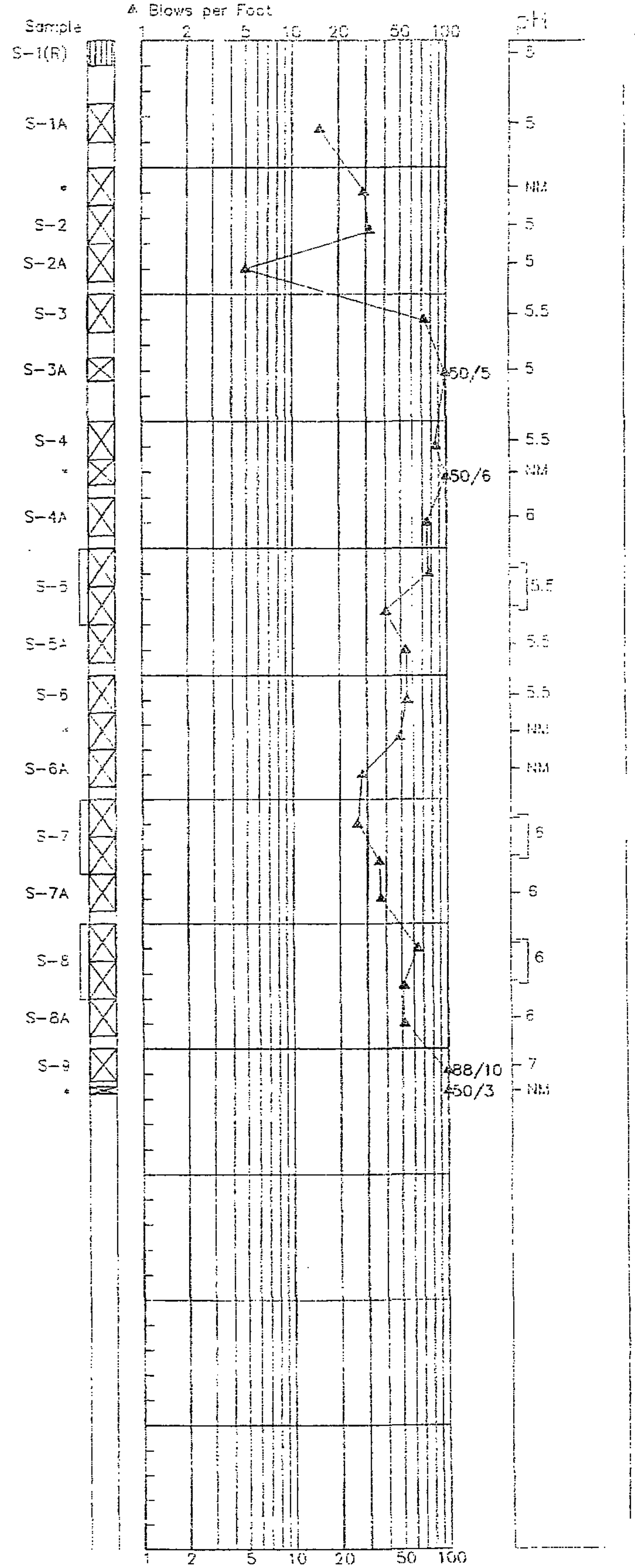
Dense, damp to moist, grayish brown, slightly gravelly, medium to fine SAND.

Grades to very gravelly SAND.

Grades to gravelly SAND.

Bottom of Boring at 41.5 Feet.
Completed 2/25/92.

STANDARD PENETRATION RESISTANCE



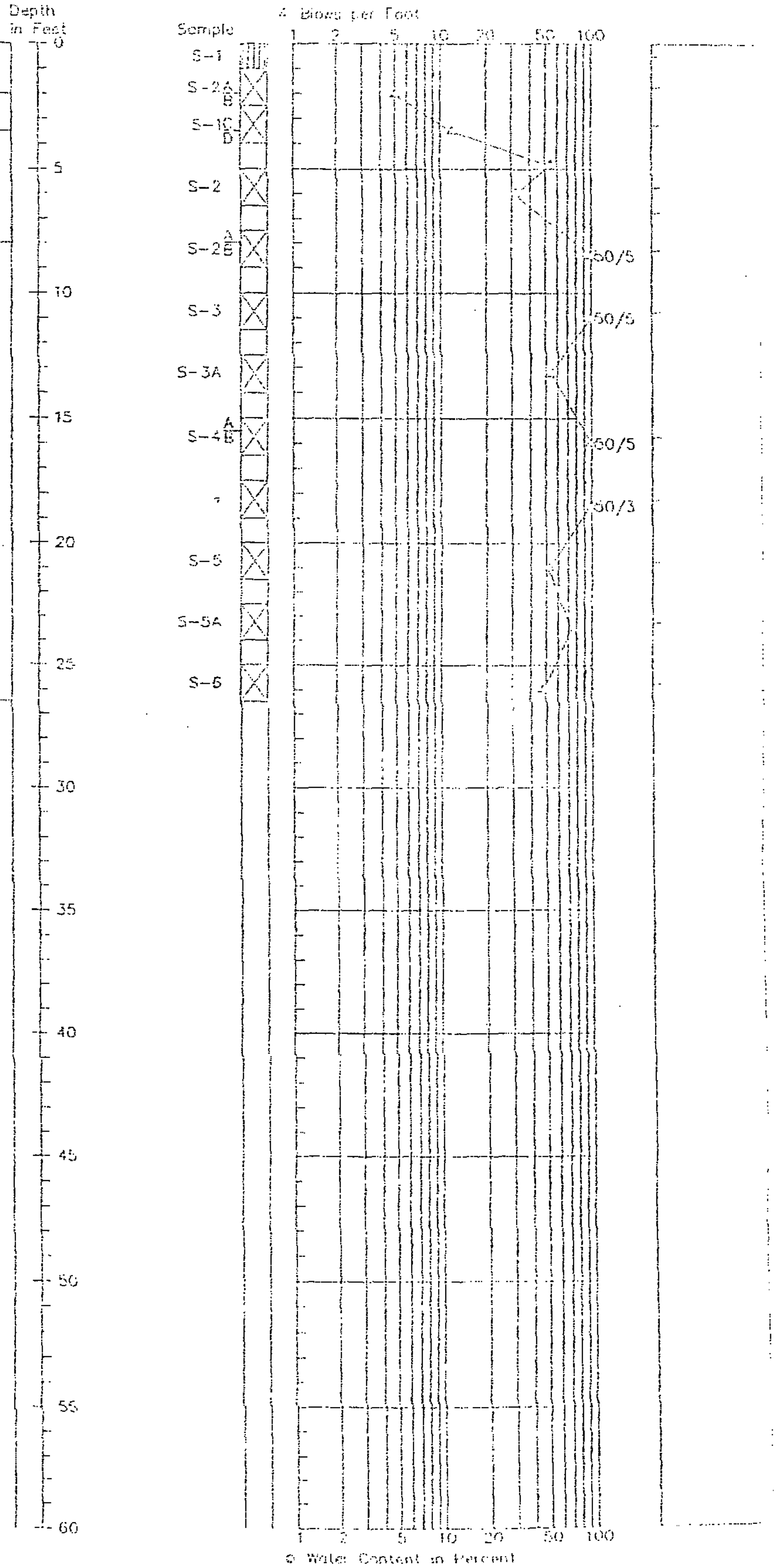
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Boring Log 16-B-505

Soil Descriptions

Ground Surface Elevation in Feet 142.6

Soil Descriptions
Loose, moist, light brown, slightly silty SAND.
Medium stiff, moist, light brown, gravelly, sandy SILT.
Medium dense, moist, light brown, silty sandy GRAVEL and gravelly, very silty SAND.
Very dense, moist, light to gray-brown, slightly silty to silty, sandy GRAVEL.
Bottom of Boring at 26.5 Feet Completed 7/14/92



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-16-5

Log of Test Pit 16-TP-501
Ground Surface Elevation Approximately 145.8 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5/0	0 to 2.5	Four inches of moist, black, silty, gravelly SAND with abundant roots over (medium dense), moist, tan and brown, very sandy GRAVEL.
S-2	3 to 6.5	5/0	2.5 to 6	(Medium dense), moist, grayish brown, very sandy to sandy GRAVEL.
			6 to 8	(Medium stiff), moist, gray and brown, sandy SILT.
S-3	8 to 10	5/0	8 to 10	(Medium dense), moist to wet, gray, sandy GRAVEL.

Bottom of 16-TP-501 at 10 feet, completed 3/10/92.

Log of Test Pit 16-TP-502
Ground Surface Elevation Approximately 143.8 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5/0	0 to 3	Four inches of organic debris over (medium dense), sandy GRAVEL with abundant roots.
S-2	3 to 6	5/0	3 to 8	(Medium dense), moist, brownish gray, sandy GRAVEL with layer of brick-red soil between depths of 7 and 8 feet.
S-3	7.5 to 10	4/0	8 to 10	(Medium dense), moist, brownish gray, very gravelly, medium SAND with zone of brick-red soil between depths of 8.5 and 9.5 feet.

Bottom of 16-TP-502 at 10 feet, completed 3/10/92.

Log of Test Pit 16-TP-503
Ground Surface Elevation Approximately 144.7 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5/0	0 to 0.5	Two inches of hard, residual Bunker C over 2 inches of black, silty SAND with roots over (medium dense), moist, brown, sandy GRAVEL with 1-inch-thick lens of black, very silty SAND at a depth of 0.5 foot.
S-2	3 to 6	5/0	0.5 to 3.5	(Medium dense), moist, brown, sandy GRAVEL.
S-3	8 to 10	5/0	3.5 to 10	(Medium dense), moist, gray, sandy GRAVEL.

Bottom of 16-TP-503 at 10 feet, completed 3/10/92.

Log of Test Pit 16-TP-504
Ground Surface Elevation Approximately 145.5 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4/0	0 to 2.5	Four inches of black, silty SAND with abundant roots over (medium dense), moist, brown, slightly gravelly, silty SAND.
S-2	3 to 6	4/0	2.5 to 7	(Medium dense), moist, gray, very silty, fine to medium SAND with 6-inch-thick non-silty sand lens at a depth of 3.5 feet.
S-3	8 to 10	4.5/0	7 to 10	(Medium dense), moist, brownish gray, sandy GRAVEL.

Bottom of 16-TP-504 at 10 feet, completed 3/10/92.

Log of Test Pit 16-TP-505
Ground Surface Elevation Approximately 142.6 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1.5	3.5/0	0 to 1.25	Four inches of grass over (soft), moist, brown and red, non-sandy to slightly sandy SILT with abundant organic matter.
			1.25 to 2.5	(Loose), moist, gray, slightly gravelly, silty SAND.
S-2	3 to 6	4.5/0	2.5 to 4	(Soft), moist, grayish orange, sandy SILT with minor wood fragments.
S-3	8 to 10	4.5/0	4 to 10	(Medium dense), moist, grayish orange, silty to slightly silty, sandy GRAVEL.

Bottom of 16-TP-505 at 10 feet, completed 3/11/92.

Log of Test Pit 16-TP-506
Ground Surface Elevation Approximately 147.8 Feet

Sample Number	Stratum Depth in Feet	Soil Description
No Samples Collected	0 to 0.5	Three inches of grass over (soft), moist, dark brown, slightly sandy SILT with abundant organics and drum fragments.

Bottom of 16-TP-506 at 0.5 feet, completed 3/11/92.

Note: 16-TP-506 abandoned due to presence of drum fragments in upper ½ foot. Replaced with 16-TP-509.

Log of Test Pit 16-TP-507
Ground Surface Elevation Approximately 141.0 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4/0	0 to 1	(Soft), moist, red, laminated SILT.
S-2	3 to 6	4/0	1 to 4	(Loose), moist, light grayish orange, silty, fine to medium SAND with wood fragments.
S-3	8 to 10	4/0	4 to 10	Medium dense, moist, brownish orange, slightly silty, sandy GRAVEL.

Bottom of 16-TP-507 at 10 feet, completed 3/11/92.

Log of Test Pit 16-TP-508
Ground Surface Elevation Approximately 147.1 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5/0	0 to 1.5	(Medium dense), damp, gray and dark brown, slightly silty, sandy GRAVEL with interbedded 1- to 2-inch-thick dark brown silty lenses and abundant roots and other organic matter.
S-2	3 to 6	5/0	1.5 to 9	(Medium dense), damp, reddish brown to brownish orange, sandy GRAVEL.
S-3	8 to 10	5/0	9 to 10	(Medium dense), moist, light brownish orange, fine to medium SAND.

Bottom of 16-TP-508 at 10 feet, completed 3/11/92.

Log of Test Pit 16-TP-509
Ground Surface Elevation Approximately 145.1 Feet

Sample Number	Sample Depth in Feet	pH/PID	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5/0	0 to 2.75	Two inches of hard, residual Bunker C over (medium dense), damp, gray, slightly silty, sandy GRAVEL with abundant roots and wood fragments.
			2.75 to 4.5	(Loose), damp to moist, dark gray, silty SAND with minor organic matter.
S-2	3 to 6	5/0	4.5 to 5	(Medium dense), moist, light brownish orange, slightly silty, fine SAND.
S-3	8 to 10	5/0	5 to 10	(Medium dense), moist, light brownish orange, slightly silty, sandy GRAVEL.

Bottom of 16-TP-509 at 10 feet, completed 3/11/92.

AREA 18
EXPLORATION LOGS

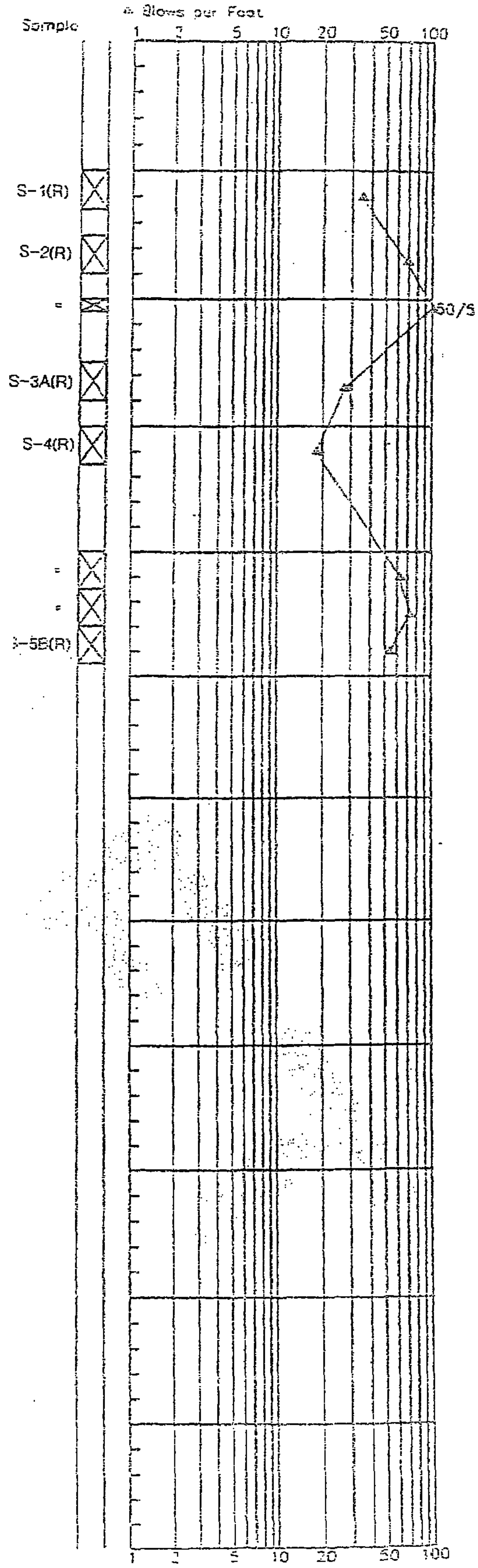
Boring Log 18-B-502

Soil Descriptions

Soil Descriptions	Depth in Feet
Medium dense to very dense, moist, dark brown to light brown, slightly silty, sandy GRAVEL.	0–24.5
Bottom of Boring at 24.5 Feet. Completed 11/5/92	24.5

STANDARD PENETRATION RESISTANCE

LAB TESTS



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-18-1

Boring Log 18-B-501

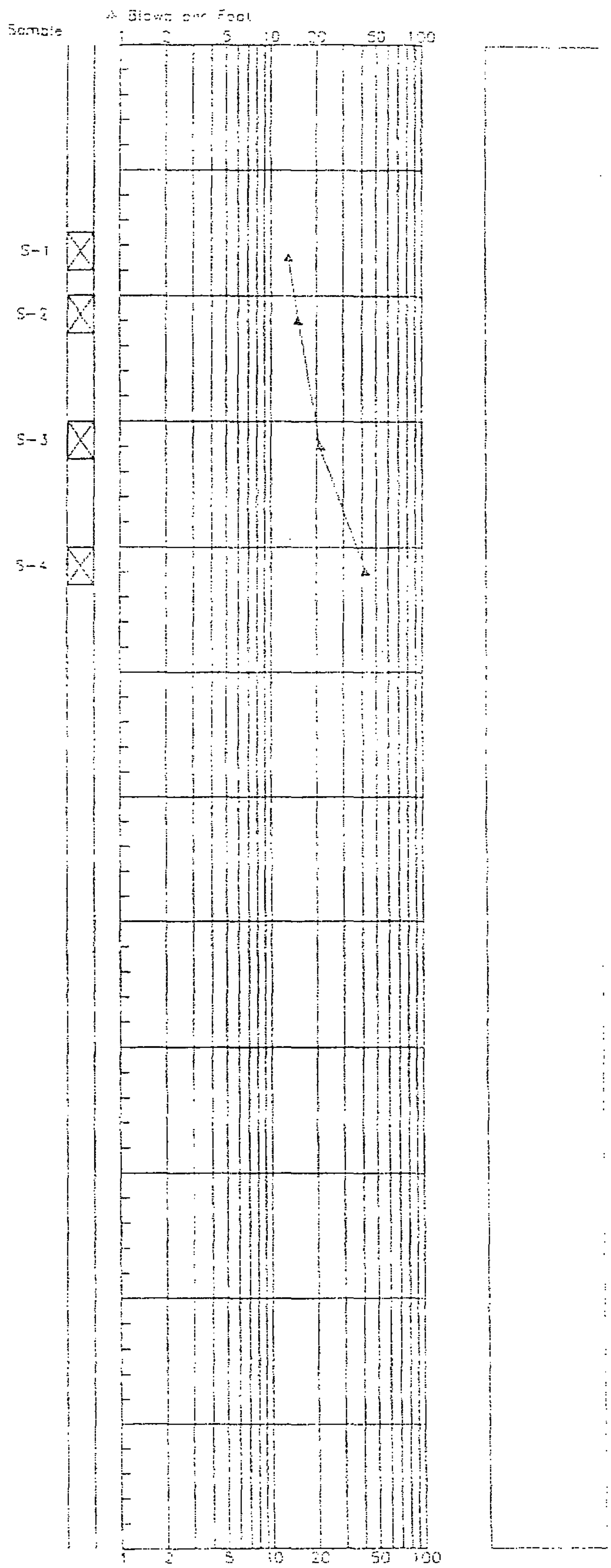
Soil Descriptions

Depth in Feet

Depth (ft)	Soil Description
0 – 21.5	Medium dense, moist, light brown, silty to slightly silty GRAVEL.
21.5	Bottom of Boring at 21.5 Feet. Completed 11/5/92

STANDARD PENETRATION RESISTANCE

LAB TESTS



1. Refer to Figure A-1 for explanation of descrip and symbols.
2. Soil descriptions and stratum lines are interpr and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-18-2 1/1

Log of Test Pit 18-TP-501

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), damp, brown, sandy GRAVEL with scattered concrete pieces.
S-1A	2.5 to 3	5	2.5 to 3	(Loose), moist, dark brown, gravelly SAND.
S-2.	3 to 6	5	3 to 9	(Medium dense), moist, brown, sandy GRAVEL.
S-3	8 to 10	5	9 to 10	(Very dense), moist, brown, sandy GRAVEL.

Bottom of 18-TP-501 at 10 feet, completed 5/11/92.

Log of Test Pit 18-TP-502

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 4	(Loose), moist, medium to dark brown, slightly gravelly, silty SAND.
S-2	4 to 6	4	4 to 6	(Loose), moist, light brown, very gravelly SAND.
S-3	8 to 10	4.5	6 to 10	(Loose), moist, medium gray, very gravelly SAND with gravel layers.

Bottom of 18-TP-502 at 10 feet, completed 5/1/92.

Note:
Sample S-1 is a 5-point composite of 0 to 1 foot within the foundation of Nitrator 1.

Log of Test Pit 18-TP-503

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 0.5	(Loose), moist, medium brown, slightly silty, sandy GRAVEL.
S-2	3 to 6	4.5	0.5 to 1	(Medium dense), moist, interbedded tan-brown and gray, sandy GRAVEL with a gray sand layer from depth of 3 to 3.5 feet and gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-503 at 10 feet, completed 5/1/92.

Note:
Sample S-1 is a 5-point composite from 0 to 1 foot within the foundation of Separator No. 1.

Log of Test Pit 18-TP-504

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 4	(Loose), damp, brown, sandy GRAVEL (FILL) with chunks of concrete.
S-2	3 to 6	5	4 to 10	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-504 at 10 feet, completed 5/1/92.

Note:
Sample S-1 is a 5-point composite from 0 to 1 foot in Neutralizing House No. 3 foundation.

Log of Test Pit 18-TP-505

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, very gravelly SAND with concrete and scattered wood (FILL).
S-2	3 to 6	5	1 to 10	(Very dense), moist, brown, slightly sandy to sandy GRAVEL (NATIVE) with gravel layers dipping west.
S-3	8 to 10	5		

Bottom of 18-TP-505 at 10 feet, completed 5/11/92.

Note:
Sample S-1 is a 5-point composite in Neutralizer No. 2 foundation.

Log of Test Pit 18-TP-506

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	Four inches of forest duff over (loose), moist, dark brown, very gravelly SAND with minor organics.
			1.5 to 3	(Dense), moist, gray and brown, sandy GRAVEL.
S-2	3 to 6	5	3 to 5	(Dense), moist, brown, sandy GRAVEL with minor silt which decreases with depth.
S-3	8 to 10	5	5 to 10	(Very dense), moist, brown, sandy to slightly sandy GRAVEL.

Bottom of 18-TP-506 at 10 feet, completed 5/12/92.

Note:
Native soils encountered at depth of 2.5 to 3 feet.

Log of Test Pit 18-TP-507

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	Three inches of forest duff over (loose), moist, dark brown, gravelly SAND with minor organics.
S-2	3 to 6	1.5 to 10	(Dense), moist, brown, gravelly SAND with interbedded gravel layers dipping to west.
S-3	8 to 10		

Bottom of 18-TP-507 at 10 feet, completed 5/12/92.

Log of Test Pit 18-TP-508

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, dark brown, gravelly SAND (Disturbed soils).
		1.5 to 2	(Medium dense), moist, rusty brown, sandy GRAVEL (weathered zone, appears NATIVE).
S-2	3 to 6	2 to 10	(Dense), moist, brown, gravelly SAND with interbedded sandy gravel layers dipping to the west.
S-3	8 to 10		

Bottom of 18-TP-508 at 10 feet, completed 5/12/92.

Note:
Approximately 6 to 8 inches of soil removed during demolition and prior to excavation.

Log of Test Pit 18-TP-509

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, gravelly SAND with minor organics.
			1 to 1.5	(Medium dense), moist, rusty brown, sandy GRAVEL (NATIVE).
S-2	3 to 6	5	1.5 to 10	(Dense), moist, brown, gravelly SAND with interbedded sandy gravel layers dipping toward SW (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-509 at 10 feet, completed 5/12/92.

Log of Test Pit 18-TP-510

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Loose), moist, dark brown, very gravelly SAND with minor organics.
S-2	3 to 6	5	2 to 3.5	(Medium dense), moist, rusty brown, sandy GRAVEL.
S-3	8 to 10	5	3.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.

Bottom of 18-TP-510 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-511

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
S-2(R)	3 to 6	5	1.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3(R)	8 to 10	5		

Bottom of 18-TP-511 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-512

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, very gravelly SAND with minor roots.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-512 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-513

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
S-2	3 to 6	5	2.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-513 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-514

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 4	(Loose), moist, dark brown, gravelly SAND with small pieces of concrete, rebar, and steel debris (Disturbed soils).
S-2	4 to 6	5	4 to 10	(Dense), moist, brown, slightly sandy GRAVEL with bedding dipping southwest (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-514 at 10 feet, completed 5/11/92.

Notes:

1) Sample S-1 is a 5-point composite from 0 to 1 foot in area of former Dynamite Mix House No. 2 structure.
2) Soil and debris from 0 to 4 feet appear to have been recently mixed from debris removal and sympathetic detonation.

Log of Test Pit 18-TP-515

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Loose), moist, dark brown, very gravelly SAND with scattered organics.
			2 to 3	(Medium dense), moist, tan, sandy GRAVEL.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-515 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-516

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
			1.5 to 2.5	(Medium dense), moist, tan, sandy GRAVEL with occasional roots.
S-2	3 to 6	5	2.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-516 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-517

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 0.8	5	0 to 3	(Loose), moist, brown, gravelly SAND with thin layer of black material at depth of 1 foot (Sample S-1A).
S-1A	0.8 to 1	NM		
S-2	3 to 6	5	3 to 10	(Medium dense), moist, brown, gravelly SAND with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-517 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-518

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, dark brown, sandy GRAVEL with abundant roots.
S-2	3 to 6	5	2.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-518 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-519

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, dark brown, gravelly SAND with minor organics and concrete debris.
S-2	3 to 6	5	2.5 to 10	(Dense), moist, brown, sandy GRAVEL with bedded gravel layers dipping southwest (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-519 at 10 feet, completed 5/11/92.

Note:
Sample S-1 was a 4-point composite around debris (concrete, rebar) in center of Gelatin Mix House No. 3 foundation.

Log of Test Pit 18-TP-520

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), damp, brown, slightly gravelly, silty SAND with a small lens of black burnt wood from 1.3 to 1.5 feet, and bricks with pier block.
S-2	3 to 6	5	1.5 to 10	(Loose), damp, light brown, slightly sandy GRAVEL with gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-520 at 10 feet, completed 4/27/92.

Log of Test Pit 18-TP-521

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 10	(Loose), damp, brown, sandy GRAVEL with interbedded gravel layers.
S-2(R)	3 to 6	5		
S-3	8 to 10	5		

Bottom of 18-TP-521 at 10 feet, completed 5/12/92.

Note:
Sample S-1 is a 5-point composite from 0 to 1 foot in former Gelatin Mix House No. 1 foundation.

Log of Test Pit 18-TP-522

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 1	(Loose), damp, light brown, silty, gravelly SAND.
			1 to 2.5	(Loose), damp, dark brown, silty, gravelly SAND.
S-2(R)	3 to 6	5	2.5 to 10	(Loose), damp, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-522 at 10 feet, completed 5/13/92.

Log of Test Pit 18-TP-523

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 8	(Medium dense), damp, medium and dark brown, silty, gravelly SAND with scattered pieces of burnt wood from 1 to 4 feet.
S-2	3 to 6	5		
S-3	8 to 10	5	8 to 10	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 18-TP-523 at 10 feet, completed 5/13/92.

Log of Test Pit 18-TP-524

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, very gravelly SAND with roots.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-524 at 10 feet, completed 5/12/92.

Log of Test Pit 18-TP-525

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Loose), moist, dark brown, gravelly SAND with roots and other organics.
			2 to 3.5	(Medium dense), moist, reddish brown, sandy GRAVEL with roots.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, brown, sandy GRAVEL with gravel layers (NATIVE).
S-3	8 to 10	5		

Bottom of 18-TP-525 at 10 feet, completed 5/12/92.

Log of Test Pit 18-TP-526

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 3	(Loose), damp, dark brown, silty, sandy GRAVEL (see notes below).
S-2	3 to 6	4.5	3 to 10	(Medium dense), damp, light brown, sandy GRAVEL.
S-3	8 to 10	4.5		

Bottom of 18-TP-526 at 10 feet, completed 4/30/92.

Notes:
1) Sample S-1 is a five-point composite of soil from 0 to 1 foot in Gelatin Mix House No. 2 foundation. Soil had been disturbed by heavy equipment prior to sampling.
2) Observed a piece of wood from 0.5 to 1 foot in depth that appeared to be an old gutter or pipe.

Log of Test Pit 18-TP-527

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, dark brown, silty, gravelly SAND.
S-2	3 to 6	5	2 to 10	(Medium dense), damp, light brown, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-527 at 10 feet, completed 5/13/92.

Note:
Surface disturbed by heavy equipment prior to excavation.

Log of Test Pit 18-TP-528

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 6	(Loose), damp, dark brown, silty, gravelly SAND (FILL?).
S-2	3 to 6	5		
S-3	8 to 10	5	6 to 10	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 18-TP-528 at 10 feet, completed 5/13/92.

Log of Test Pit 18-TP-529

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), damp, dark brown, silty, gravelly SAND.
S-2	3 to 6	5	3 to 10	(Medium dense), damp, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-529 at 10 feet, completed 5/13/92.

Log of Test Pit 18-TP-530

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), damp, black, silty, gravelly SAND with large roots.
S-2	3 to 6	5	2.5 to 10	(Medium dense), damp, light brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-530 at 10 feet, completed 5/13/92.

Log of Test Pit 18-TP-531

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2.5	(Loose), damp, brown, silty, gravelly SAND with organics.
S-2	3 to 6	2.5 to 10	(Dense), damp, brown, sandy GRAVEL.
S-3	8 to 10		

Bottom of 18-TP-531 at 10 feet, completed 5/15/92.

Log of Test Pit 18-TP-532

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	(Loose), damp, dark brown, silty, gravelly SAND (FILL)
S-2	3 to 5	4.5		
S-3	8 to 10	4.5	6 to 10	(Medium dense), damp, light brown, sandy GRAVEL (NATIVE).

Bottom of 18-TP-532 at 10 feet, completed 4/29/92.

Note:
Test pit excavated between 3 stem walls at Hall Packing House No. 4 foundation.

Log of Test Pit 18-TP-533

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	(Loose), damp, brown, slightly gravelly, silty SAND.
S-2	2 to 3	5.0	2 to 3	(Dense), damp, gray, slightly gravelly, sandy SILT.
S-3	3 to 6	5	3 to 7.5	(Dense), damp, brown, silty, gravelly SAND with a thin layer of burnt wood (charcoal) at depth of 5 feet.
S-4	8 to 10	5	7.5 to 10	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 18-TP-533 at 10 feet, completed 4/28/92.

Log of Test Pit 18-TP-534

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 3	(Loose), damp, dark and light brown, silty, gravelly SAND mixed with debris (FILL) (see note below).
S-2	3 to 6	4.5	3 to 10	(Loose), damp, light brown, sandy GRAVEL with gravel bedding (appears NATIVE).
S-3	8 to 10	4.5		

Bottom of 18-TP-534 at 10 feet, completed 4/30/92.

Note:
Debris observed from depth of 0 to 3 feet: wood debris, bricks, copper lines and potential asbestos-containing material (ACM). TLH Abatement Inc. removed potential ACM from excavation.

Log of Test Pit 18-TP-535

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), damp, light brown, sandy GRAVEL with bricks, metal fragments, and potential asbestos-containing material.
S-2	3 to 6	5	1.5 to 10	(Medium dense), damp, brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 18-TP-535 at 10 feet, completed 4/27/92.

Note:
TLH Abatement Inc. removed potential asbestos-containing material from excavation.

Log of Test Pit 18-TP-536

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Medium dense), damp, reddish brown, slightly gravelly, silty SAND with scattered charcoal and bricks.
S-2	3 to 6	5	3 to 10	(Dense), moist, light brown, slightly sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 18-TP-536 at 10 feet, completed 4/27/92.

Log of Test Pit 18-TP-537

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), damp, dark brown, silty, gravelly SAND.
S-2	3 to 6	5.5	2 to 8.5	(Loose), damp, light brown-gray, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	6	8.5 to 10	(Loose), damp, light brown-gray, gravelly SAND.

Bottom of 18-TP-537 at 10 feet, completed 4/24/92.

Log of Test Pit 18-TP-538

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 0.5	(Medium dense), damp, brown, silty SAND with scattered bricks.
S-2	3 to 6	5.5	0.5 to 10	(Loose), damp, light brown-gray, slightly sandy GRAVEL and interbedded gravel layers.
S-3	8 to 10	5.5		

Bottom of 18-TP-538 at 10 feet, completed 4/24/92.

Note:
Brick pier pad observed at depth of 0 to 2.5 feet.

Log of Test Pit 18-TP-539

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), damp, brown, silty, gravelly SAND with scattered bricks.
			1 to 3	(Loose), damp, light brown-gray, sandy GRAVEL.
S-2	3 to 6	5	3 to 6	(Medium dense), damp, dark brown, silty, gravelly SAND.
S-3	8 to 10	5	6 to 10	(Loose), damp, light brown-gray, sandy GRAVEL.

Bottom of 18-TP-539 at 10 feet, completed 4/24/92.

Log of Test Pit 18-TP-540

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), damp, brown, silty, gravelly SAND with scattered bricks.
S-2	3 to 5	5	1 to 10	(Loose), damp, light brown-gray, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-540 at 10 feet, completed 4/24/92.

Note:
Brick pier pad observed from depth of 0 to 2.5 feet.

Log of Test Pit 18-TP-541

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	6	0 to 1.2	(Loose), damp, medium brown, silty, gravelly SAND with scattered bricks, organics, burnt wood, and metal debris.
S-2	3 to 6	5	1.2 to 10	(Medium dense), damp, light brown-gray, sandy GRAVEL with a discontinuous gravel lens from 6.5 to 9.5 feet.
S-3	8 to 10	5		

Bottom of 18-TP-541 at 10 feet, completed 4/24/92.

Log of Test Pit 18-TP-542

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	(Loose), damp, dark brown, silty, sandy GRAVEL with scattered nails, charcoal, and other metal debris.
S-2	3 to 6	4.5	2 to 10	(Loose), damp, light brown, slightly sandy GRAVEL with gravel layers.
S-3	8 to 10	4.5		

Bottom of 18-TP-542 at 10 feet, completed 4/28/92.

Note:
Charcoal and metal debris observed on surface.

Log of Test Pit 18-TP-543

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), damp, medium brown, silty, gravelly SAND with scattered charcoal (to 0.7 foot) and nails.
S-2	3 to 6	5	1.5 to 10	(Loose), damp, light brown-gray, slightly sandy GRAVEL with interbedded gravel layers dipping west.
S-3	8 to 10	5		

Bottom of 18-TP-543 at 10 feet, completed 4/28/92.

Log of Test Pit 18-TP-544

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), damp, brown, slightly gravelly SAND.
S-2	3 to 6	5	1 to 6	(Medium dense), damp, medium brown, silty, sandy GRAVEL with debris (see notes below).
S-3	8 to 10	5	6 to 10	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 18-TP-544 at 10 feet, completed 5/15/92.

Note:
Debris observed from depth of 1 to 4 feet: 1-inch-diameter steel pipe, steel ducts approximately 3 feet in diameter (crushed), wood fragments, and crystals of copper salts.

Log of Test Pit 18-TP-545

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 3	Three inches of forest duff over (loose), damp, medium brown, slightly gravelly, silty SAND.
S-2	3 to 6	4.5	3 to 6	(Loose), damp, dark brown, silty, sandy GRAVEL (see notes below).
S-3	8 to 10	4.5	6 to 10	(Medium dense), damp, light brown, slightly sandy GRAVEL.

Bottom of 18-TP-545 at 10 feet, completed 4/29/92.

Notes:
1) Found wire wrapped around treated wood, which appears to be part of a former pipeline, from depth of 2.5 to 5 feet.
2) Test pit excavated between two concrete "stem walls". Observed a small void beneath east stem wall.

Log of Test Pit 18-TP-546

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), damp, medium brown, silty, gravelly SAND with a railroad tie and 1-inch-diameter metal pipe line near surface.
S-2	3 to 6	5	2 to 10	(Medium dense), damp, light brown, slightly sandy GRAVEL with gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-546 at 10 feet, completed 4/28/92.

Log of Test Pit 18-TP-547

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.5	(Loose), moist, dark brown, slightly silty, sandy GRAVEL (see note below).
S-2	3 to 6	5	0.5 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL increasing in moisture with depth.
S-3	8 to 10	5		

Bottom of 18-TP-547 at 10 feet, completed 5/1/92.

Note:
Sample S-1 is a 5-point composite from depth of 0 to 1 foot.

Log of Test Pit 18-TP-548

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
S-2	3 to 6	5	2.5 to 4	(Medium dense), moist, reddish brown, gravelly SAND.
S-3	8 to 10	5	4 to 10	(Medium dense), moist, brown, gravelly SAND with interbedded gravel layers.

Bottom of 18-TP-548 at 10 feet, completed 5/14/92.

Log of Test Pit 18-TP-549

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1	(Medium dense), moist, dark brown, slightly silty, sandy GRAVEL.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 18-TP-549 at 10 feet, completed 5/1/92.

Note:
Sample S-1 is a 5-point composite from 0 to 1 foot within Dynamite Mix House No. 1 foundation.

Log of Test Pit 18-TP-550

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2.5	(Loose), damp, intermixed brown SAND; dark brown, sandy GRAVEL; and black, gravelly SAND with debris (FILL) (see note below).
S-2	3 to 6	2.5 to 7	(Dense), damp, medium brown, sandy GRAVEL (NATIVE).
S-3	8 to 10	7 to 10	(Medium dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of 18-TP-550 at 10 feet, completed 5/15/92.

Note:
Debris observed from depth of 0.5 to 2.5 feet: 2 timbers, 1 steel pipe, and pieces of sheet metal.

Log of Test Pit 18-TP-551

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), damp, brown, silty, gravelly SAND with piece of plastic at 0.5 foot.
S-2	3 to 6	1.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with gravel layers.
S-3	8 to 10		

Bottom of 18-TP-551 at 10 feet, completed 5/15/92.

Log of Test Pit 18-TP-552

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	(Loose), damp, dark brown, silty, sandy GRAVEL with brick and mortar debris.
S-2	3 to 6	4.5	2 to 10	(Loose), damp, light brown, sandy GRAVEL with gravel layers.
S-3	8 to 10	4.5		

Bottom of 18-TP-552 at 10 feet, completed 4/29/92.

Log of Test Pit 18-TP-553

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	(Loose), damp, dark brown, silty, gravelly SAND with debris and strong creosote odor (see notes below).
S-2	3 to 6	4.5		

Bottom of 18-TP-553 at 6 feet, completed 4/29/92.

Notes:

1) Debris found from depth of 1 to 6 feet: crushed sections of sheet metal ducting which appeared to be approximately 3 feet in diameter, creosote-treated wood debris, and short lengths of iron.
2) Potential asbestos-containing material (ACM) encountered throughout excavation; TLH Abatement Inc removed potential ACM.

Log of Test Pit 18-TP-554

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6	(Loose), damp, dark brown-black, silty, gravelly SAND with 1-inch diameter PVC waterline at 0.5 foot.
S-2	3 to 6	4.5		
			6 to 8	(Loose), damp, light brown, gravelly SAND.
S-3	8 to 10	5	8 to 10	(Medium dense), damp, light brown-gray, sandy GRAVEL.

Bottom of 18-TP-554 at 10 feet, completed 4/29/92

Log of Test Pit 18-TP-555

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 6.5	(Loose), damp, dark brown, silty, sandy GRAVEL mixed with debris (FILL) (see notes below).
S-2	3 to 6	5		
S-3	8 to 10	4.5	6.5 to 10	(Medium dense), moist, light-brown, sandy GRAVEL.

Bottom of 18-TP-555 at 10 feet, completed 4/30/92.

Note:

1) Debris mixed in with soils from 0 to 6.5 feet: moderate amount of bricks, mortar, creosote-treated wood, metal, and ash.
2) Observed thin layer of crystalline copper salts mixed with black SAND, in the side wall between depth of 3 and 4 feet.

Log of Test Pit 18-TP-556

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 10	(Loose), damp, light brown, slightly sandy GRAVEL with interbedded gravel layers.
S-2	3 to 6	5		
S-3	8 to 10	5		

Bottom of 18-TP-556 at 10 feet, completed 5/13/92.

Note:
1 to 2 feet of soil removed during interim source removal prior to test pit excavation.

Log of Test Pit 18-TP-557

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 10	(Loose), damp, medium gray SAND with debris (FILL) (see note below).
S-2	3 to 6	4.5		
S-3	8 to 10	4.5		

Bottom of 18-TP-557 at 10 feet, completed 4/30/92.

Note:
Debris observed from depth of 0 to 10 feet: abundant chunks of wood debris (mostly creosote-treated wood), lengths of iron, and charcoal.

Log of Test Pit 18-TP-558

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.7	(Loose), damp, dark brown, silty, gravelly SAND mixed with wood fragments, lengths of iron, and scrap sheet metal (FILL).
S-2	1 to 2	4.5	1.7 to 2	(Loose), damp, black, silty SAND mixed with crystals of copper salts (FILL).
			2 to 3	(Loose), damp, dark brown, silty, gravelly SAND.
S-3	3 to 6	4.5	3 to 10	(Loose), damp, light brown, sandy GRAVEL.
S-4	8 to 10	4.5		

Bottom of 18-TP-558 at 10 feet, completed 4/30/92

Log of Test Pit 18-TP-559

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, medium brown, sandy GRAVEL.
S-2	3 to 6	5	1 to 9	(Loose), moist, medium gray, sandy GRAVEL with (medium dense), tan-brown GRAVEL lenses at depths of 5 and 6 feet.
S-3	8 to 10	5	9 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL.

Bottom of 18-TP-559 at 10 feet, completed 5/1/92.

Note: S-1 is a 5-point composite from 0 to 1 foot within the Biazzi-Nitrator foundation.

Log of Hand Auger Boring 18-HA-501

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Medium dense), damp, dark brown, silty, sandy GRAVEL with minor organics.
S-2	2 to 3	2 to 3	(Dense), damp, light brown, sandy GRAVEL.

Bottom of 18-HA-501 at 3 feet, completed 5/21/92.

Log of Hand Auger Boring 18-HA-502

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, brown, silty, gravelly SAND.
S-2	2 to 3		

Bottom of 18-HA-502 at 3 feet, completed 5/21/92.

Log of Hand Auger Boring 18-HA-503

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Dense), damp, dark brown, silty, gravelly SAND with minor organics and charcoal.
S-2	2 to 3		

Bottom of 18-HA-503 at 3 feet, completed 5/21/92.

Log of Test Pit 18-TP-600

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	3-6	0 to 1	(Medium dense), moist, dark brown, slightly silty, sandy GRAVEL.
S-2	8-10	1 to 10	(Medium dense), moist, brown, sandy to slightly sandy GRAVEL.

Bottom of 18-TP-600 at 10 feet, completed 11/5/92

Note: Test pit excavated adjacent to observed surficial residual DNT.

Log of Test Pit 18-TP-601

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 2.5	(Medium dense), moist, dark brown, slightly silty, sandy GRAVEL with abundant organics.
S-2	3 to 6	2.5 to 10	(Medium dense), moist, brown, slightly sandy to sandy GRAVEL.
S-3	8 to 10		

Bottom of 18-TP-601 at 10 feet, completed 11/5/92.

Log of Test Pit 18-TP-602

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1	(Medium dense), moist, dark brown, sandy GRAVEL.
S-2	2 to 3	1 to 10	(Medium dense), moist, slightly sandy to sandy GRAVEL.
S-3	8 to 10		

Bottom of 18-TP-602 at 10 feet, completed 11/5/92.

Log of Test Pit 18-TP-603

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 0.75	(Medium dense), moist, dark brown, sandy GRAVEL (upper 3 to 4 inches have been graded and disturbed).
S-2	3 to 6	0.75 to 10	(Medium dense), moist, brown, slightly sandy to sandy GRAVEL.
S-3	8 to 10		

Bottom of 18-TP-603 at 10 feet, completed 11/5/92.

Note: Test pit excavated adjacent to observed surficial residual DNT.

Log of Test Pit 18-TP-604

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	3-6	0 to 1.5	(Medium dense), moist, dark brown, sandy GRAVEL with abundant organics.
S-2	8-10	1.5 to 10	(Medium dense), moist, brown, slightly sandy to sandy GRAVEL.

Bottom of 18-TP-604 at 10 feet, completed 11/5/92

Note: Test pit excavated adjacent to observed surficial residual DNT.

Log of Test Pit 18-TR-101-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, gray, sandy GRAVEL.

Bottom of 18-TR-101-N at 4 feet, completed 6/28/93.

Log of Test Pit 18-TR-101-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-4	3-4	2-4	(Medium dense), moist, gray, sandy GRAVEL.

Bottom of 18-TR-101-S at 4 feet, completed 6/28/93.

Log of Test Pit 18-TR-102-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, dark brown TOPSOIL (FILL).
S-2	3-4	2-4	(Medium dense), moist, brown to gray, slightly sandy GRAVEL with concrete and copper debris (FILL).

Log of Test Pit 18-TR-102-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0 to 2	(Loose), moist, brown TOPSOIL (FILL).
S-4	3-4	2-4	(Medium dense), moist, brown to gray, slightly sandy GRAVEL with intact concrete foundation.

Bottom of 18-TR-102-E at 4 feet, completed 6/28/93.

Log of Test Pit 18-TR-103-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0 to 2	(Medium dense), moist, brown, slightly sandy GRAVEL.
S-4	3-4	2-4	(Medium dense), moist, brown to gray, slightly sandy GRAVEL (appears NATIVE).

Bottom of 18-TR-103-S at 4 feet, completed 6/28/93.

Log of Test Pit 18-TR-104-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0 to 2	(Loose), moist, brown sandy GRAVEL.
S-2	3-4	2-4	(Medium dense), moist, light gray, sandy GRAVEL.

Bottom of 18-TR-104-W at 4 feet, completed 6/28/93.

Log of Test Pit 18-TR-104-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	1-2	0-2	(Loose), moist, brown, sandy GRAVEL with broken pieces of concrete debris (FILL).
S-4	3-4	2-4	(Medium dense), moist, light gray sandy GRAVEL.

Note:
Bottom of 18-TR-104-E at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-105-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-3	(Loose), moist, brown, sandy GRAVEL with organics and concrete debris (FILL).
S-2	3-4	3-4	(Loose), moist, light brown, sandy GRAVEL.

Note:
Bottom of 18-TR-105-N at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-105-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-3	(Loose), moist, brown, sandy GRAVEL.
S-4	3-4	3-4	(Loose), moist, brown, sandy GRAVEL.

Bottom of 18-TR-105-S at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-106-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, dark brown TOPSOIL with organics, wood and steel debris (FILL).
S-2	3-4	2-4	(Medium dense), moist, brown, sandy GRAVEL.

Note:
Encountered a 6-inch cast iron water main, creosoted timbers, steel pipes, and cables at 1 foot depth. Bottom of 18-TR-106-W at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-106-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, dark brown TOPSOIL with organics, wood and steel debris (FILL).
S-4	3-4	2-4	(Medium dense), moist, brown, sandy GRAVEL.

Bottom of 18-TR-106-E at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-107-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, dark brown TOPSOIL with dark stained burned wood-charcoal (FILL).
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL with intermittent wood fragments (FILL).

Bottom of 18-TR-107-N at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-107-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, dark brown TOPSOIL with steel, copper, concrete, and plastic debris (FILL).
S-4	3-4	2-4	(Loose), moist, light brown to gray, sandy GRAVEL.

Bottom of 18-TR-107-S at 4 feet, completed 6/29/93.

Log of Test Pit 18-TR-108-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL with concrete debris (FILL).
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL with wood fragments (FILL).

Note:
Bottom of 18-TR-108-E at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-108-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL with burned wood layer (FILL).
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-108-W at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-109-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-109-W at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-109-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL with burned wood layer (FILL).
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-109-E at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-110-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL with abundant organics.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-110-N at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-110-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL with organics.
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-110-S at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-111-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-1.5	(Loose), moist, brown TOPSOIL with copper material (FILL).
S-2	3-4	1.5-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-111-E at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-111-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-1.5	(Loose), moist, brown TOPSOIL with organic matter.
S-4	3-4	1.5-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-111-W at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-112-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL with steel debris (FILL).
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-112-S at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-112-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL .
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-112-N at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-113-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-4	(Loose), moist, brown TOPSOIL with mixed debris (FILL).
S-2	3-4	0-4	(Loose), moist, light brown, TOPSOIL with mixed debris (FILL).

Bottom of 18-TR-113-W at 4 feet, completed 6/30/93.

Note: Brick, steel, ceramics, and cable debris along with 6-inch ceramic pipe leading from an adjacent structure was encountered.

Log of Test Pit 18-TR-113-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-4	(Very loose), moist, dark brown TOPSOIL with mixed debris (FILL).
S-4	3-4	0-4	(Loose), moist, dark brown TOPSOIL with mixed debris (FILL).

Note:
Brick, steel, ceramics, and cable debris along with 6-inch ceramic pipe leading from an adjacent structure was encountered. Bottom of 18-TR-113-N at 4 feet, completed 6/30/93.

Log of Test Pit 18-TR-114-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL with abundant organics.
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-114-W at 4 feet, completed 7/1/93.

Log of Test Pit 18-TR-115-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-115-N at 4 feet, completed 7/1/93.

Log of Test Pit 18-TR-115-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-115-S at 4 feet, completed 7/1/93.

Log of Test Pit 18-TR-116-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL with patches of gravelly SAND.

Bottom of 18-TR-116-E at 4 feet, completed 7/1/93.

Log of Test Pit 18-TR-116-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL with patches of gravelly SAND.

Bottom of 18-TR-116-W at 4 feet, completed 7/1/93.

Log of Test Pit 18-TR-Depression

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-1.5	(Medium dense), moist, light brown, sandy GRAVEL.
S-2	3-4	1.5-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-Depression at 4 feet, completed 7/7/93.

Log of Test Pit 18-TR-117-W

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	1-2	0-3	(Loose), wet, brown TOPSOIL mixed with concrete debris (FILL).
S-2	4-5	3-5	(Loose), wet, light brown, sandy GRAVEL.

Bottom of 18-TR-117-W at 5 feet, competed 7/2/93.

Log of Test Pit 18-TR-117-E

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-3	(Loose), wet, brown TOPSOIL.
S-4	3-4	3-5	(Loose), wet, light brown, sandy GRAVEL.

Bottom of 18-TR-117-E at 5 feet, completed 7/2/93.

Log of Test Pit 18-TR-118-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown SAND.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-118-N at 4 feet, completed 7/2/93.

Log of Test Pit 18-TR-118-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, brown TOPSOIL.
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL with patches of gravelly SAND.

Bottom of 18-TR-118-S at 4 feet, completed 7/2/93.

Log of Test Pit 18-TR-119-N

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, light brown SAND.
S-2	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-119-N at 4 feet, completed 7/2/93.

Log of Test Pit 18-TR-119-S

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-3	0-1	0-2	(Loose), moist, light brown SAND with burned wood layer (FILL).
S-4	3-4	2-4	(Loose), moist, light brown, sandy GRAVEL.

Bottom of 18-TR-119-S at 4 feet, completed 7/2/93.

TEST PITS PERFORMED AT GRID SAMPLE LOCATIONS

Log of Test Pit 18-TP-GS-16

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	1-2	0-2	(Medium dense), dry, light brown, sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), dry, light brown, sandy GRAVEL.

Note:
Undisturbed concrete occupied the 0 to 1 foot interval (transport angel walks). Bottom of 18-TP-GS-16 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-17

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), dry, light brown, sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), dry, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-17 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-22

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), dry, light brown, sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), dry, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-17 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-23

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, silty, sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-23 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-24

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0-1	0-2	(Medium dense), moist, brown, silty, sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-24 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-25

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, silty, sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-25 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-27

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, brown, slightly gravelly SAND with abundant organics. Berm material.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Note: Material encountered during 0-2 foot interval was from berms placed around buildings.
Bottom of 18-TP-GS-27 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-28

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
[illegible]	[illegible]	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
[illegible]	[illegible]	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-28 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-32

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-32 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-33

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-33 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-38

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-3	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	3-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-38 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-40

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-40 at 4 feet, completed 7/7/93.

Log of Test Pit 18-TP-GS-41

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-41 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-42

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-42 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-43

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Medium dense), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 18-TP-GS-43 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-47

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-1	(Loose), moist, brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	1-4	(Loose), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-47 at 4 feet, completed 7/12/93.

Log of Test Pit 18-TP-GS-49

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), dry, dark brown, slightly sandy GRAVEL with abundant organics.
S-2	3-4	2-4	(Loose), dry, light brown to light gray, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-49 at 4 feet, completed 7/12/93.

Log of Test Pit 18-TP-GS-53

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), dry, light brown, slightly sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), dry, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-53 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-54

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-1	(Loose), dry, light brown, slightly sandy GRAVEL with organics.
S-2	3-4	1-4	(Medium dense), dry, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-54 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-59

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, black to light brown, slightly sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-59 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-62

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), dry, light brown, slightly sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), dry, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-62 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-70

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-1.5	(Loose), dry, dark to light brown, slightly sandy GRAVEL with organics.
S-2	3-4	1.5-4	(Medium dense), dry, light brown, sandy GRAVEL with cobbles.

Note:
Sand content in gravel layer decreasing with depth.
Bottom of 18-TP-GS-70 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-72

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, dark brown, slightly sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Note:
Layer of gravel dipping from south to north.
Bottom of 18-TP-GS-72 at 4 feet, completed 7/6/93.

Log of Test Pit 18-TP-GS-81

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0-1	0-2	(Loose), moist, light brown, slightly sandy GRAVEL with organics.
S-2	3-4	2-4	(Medium dense), moist, light brown, sandy GRAVEL with cobbles.

Bottom of 18-TP-GS-81 at 4 feet, completed 7/6/93.

AREA 1234
EXPLORATION LOGS

Log of Test Pit 1234-TP-501

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.1	(Loose), moist, dark brown, gravelly SAND (abundant organics).
S-2	3 to 6.0	5	1.1 to 8.0	(Medium dense), moist, brown, very sandy GRAVEL (roots observed at a depth of 6 feet).
S-3	8 to 10	5	8 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL.

Bottom of 1234-TP-501 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-502

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 4	(Loose), moist, brown, gravelly SAND.
S-2	3 to 6	5	4 to 6	(Medium dense), moist, gray-brown, gravelly SAND.
S-3	8 to 10	5	6 to 10	(Medium dense), moist, gray-brown, gravelly SAND.

Bottom of 1234-TP-502 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-503

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Medium dense), moist, brown, sandy GRAVEL with some metal debris and roots (see Note 2).
			1.5 to 3	(Loose), moist, yellow-brown and gray SAND.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, gray-brown and rusty-brown, sandy GRAVEL with minor tar-like substance between 3 and 4 feet (see Note 3).
S-3	8 to 10	5		

Bottom of 1234-TP-503 at 10 feet, completed 5/21/92.

Notes:
1) Test pit excavated in area that was graded over during interim source removal.
2) Observed traces of potential asbestos-containing material.
3) Observed tar-like substance, similar to that observed on the bottom of NG gutters.

Log of Test Pit 1234-TP-504

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, brown, gravelly SAND with minor organics.
S-2	3 to 6	5	1 to 3.5	(Loose), moist, tan, slightly gravelly SAND.
S-3	8 to 10	5	3.5 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers.

Bottom of 1234-TP-504 at 10 feet, completed 5/19/92.

Note:
Observed "NG wash gutter" in test pit side wall from 1 to 2 feet in depth. 6 inches of gray sand observed directly below the gutter.

Log of Test Pit 1234-TP-505

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), dense, light brown, sandy GRAVEL.
S-2	3 to 6	5	1 to 6	(Medium dense), moist, brown, sandy GRAVEL with large concrete block, bricks, and large roots.
			6 to 8	(Medium dense), moist, brown, gravelly SAND.
S-3	8 to 10	5	8 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL (Native).

Bottom of 1234-TP-505 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-506

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, light brown, sandy GRAVEL.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-506 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-507

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, reddish brown, gravelly SAND.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-507 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-508

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), dense, tan, sandy GRAVEL with occasional roots.
S-2	3 to 6	5	3 to 6	(Medium dense), moist, brown, sandy GRAVEL with minor roots.
S-3	8 to 10	5	6 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers.

Bottom of 1234-TP-508 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-509

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, brown, very sandy GRAVEL.
			1 to 2	(Medium dense), moist, gray-brown, sandy GRAVEL.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, yellow-brown, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-509 at 10 feet, completed 5/21/92.

Log of Test Pit 1234-TP-510

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, silty, gravelly SAND with a few bricks and roots.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, yellow-brown, sandy GRAVEL with interbedded gravel layers.
S-3 .	8 to 10	5		

Bottom of 1234-TP-510 at 10 feet, completed 5/21/92.

Log of Test Pit 1234-TP-511

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), moist, dark brown, very sandy GRAVEL with minor organics.
S-2	3 to 6	5	2 to 4	(Medium dense), moist, yellow-brown, sandy GRAVEL.
S-3	8 to 10	5	4 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers.

Bottom of 1234-TP-511 at 10 feet, completed 5/21/92.

Log of Test Pit 1234-TP-512

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, gravelly SAND with roots.
S-2	3 to 6	5	1 to 8	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers and minor iron staining.
S-3	8 to 10	5	8 to 10	(Loose), moist, brown SAND.

Bottom of 1234-TP-512 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-513

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, light brown, gravelly SAND with pieces of ceramic tile (FILL).
S-2	3 to 6	5	2 to 10	(Medium dense), moist, yellow-brown sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-513 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-514

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.2	(Medium dense), damp, dark brown, silty, gravelly SAND.
S-2	3 to 6	5	1.2 to 10	(Loose), moist, light brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-514 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-515

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), damp, dark brown, silty, gravelly SAND.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, light brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-515 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-516

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
S-2	3 to 6	5	1.5 to 10	(Medium dense), moist, yellow-brown, sandy GRAVEL with alternating layers of yellow-brown and gray-brown sandy GRAVEL to a depth of 6 feet and yellow-brown, sandy GRAVEL below 6 feet.
S-3	8 to 10	5		

Bottom of 1234-TP-516 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-517

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), moist, dark brown, gravelly SAND with abundant roots.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, yellow-brown, sandy GRAVEL with alternating layers of yellow-brown and gray-brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 1234-TP-517 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-518

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, dark brown SAND with minor organics.
S-2	3 to 6	5	2.5 to 8.5	(Loose), moist, gray-brown SAND.
S-3	8 to 10	5	8.5 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL.

Bottom of 1234-TP-518 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-519

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, brown, gravelly SAND with large piece of wood from 0.5 to 2 feet.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-519 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-520

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, reddish brown, very gravelly SAND.
			1 to 3	(Medium dense), moist, gray-brown, sandy GRAVEL.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, gray-brown, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-520 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-521

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, dark brown, gravelly SAND (FILL).
			1 to 2	(Medium dense), moist, light brown, sandy GRAVEL with 4-inch layer of burnt wood at 1 foot depth (FILL).
S-2	3 to 6	5	2 to 8	(Medium dense), moist, gray-brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5	8 to 10	(Dense), moist, gray-brown GRAVEL.

Bottom of 1234-TP-521 at 10 feet, completed 5/18/92.

Log of Test Pit 1234-TP-522

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), moist, dark brown, gravelly SAND with minor organics.
S-2	3 to 6	5	1.5 to 10	(Medium dense), moist, yellow-brown, sandy GRAVEL with alternating layers of yellow-brown and gray-brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 1234-TP-522 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-523

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), moist, brown, gravelly SAND with minor organics.
S-2	3 to 6	5	1.5 to 8	(Medium dense), moist, gray-brown, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5	8 to 10.0	(Medium dense), wet, gray-brown, slightly sandy GRAVEL.

Bottom of 1234-TP-523 at 10 feet, completed 5/20/92.

Log of Test Pit 1234-TP-524

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), damp, brown, gravelly SAND.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, light brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-524 at 10 feet, completed 5/18/92.

Note:
Test pit excavated in the bottom of a previous 4-foot-deep trench.

Log of Test Pit 1234-TP-525

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), moist, brown, sandy GRAVEL with minor organics.
S-2	3 to 6	5	1 to 8	(Medium dense), moist, gray-brown, slightly sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5	8 to 10	(Medium dense), wet, gray-brown, slightly sandy GRAVEL.

Bottom of 1234-TP-525 at 10 feet, completed 5/20/92.

Note:
Test pit excavated in bottom of a previous 4-foot-deep trench.

Log of Test Pit 1234-TP-526

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), dense, dark brown, silty, gravelly SAND.
S-2	3 to 6	5	1 to 10	(Dense), moist, yellow-brown, sandy GRAVEL with interbedded gravel layers.
S-3	8 to 10	5		

Bottom of 1234-TP-526 at 10 feet, completed 5/19/92.

Log of Test Pit 1234-TP-527

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), moist, reddish brown, gravelly SAND with minor organics.
S-2	3 to 6	5	1.5 to 10	(Medium dense), moist, gray-brown, sandy GRAVEL with alternating layers of gray-brown and brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 1234-TP-527 at 10 feet, completed 5/18/92.

AREA 25
EXPLORATION LOGS

Boring Log 25-B-501

Soil Descriptions

Depth in Feet

(Medium dense), moist, dark brown, silty, sandy GRAVEL. (FILL)

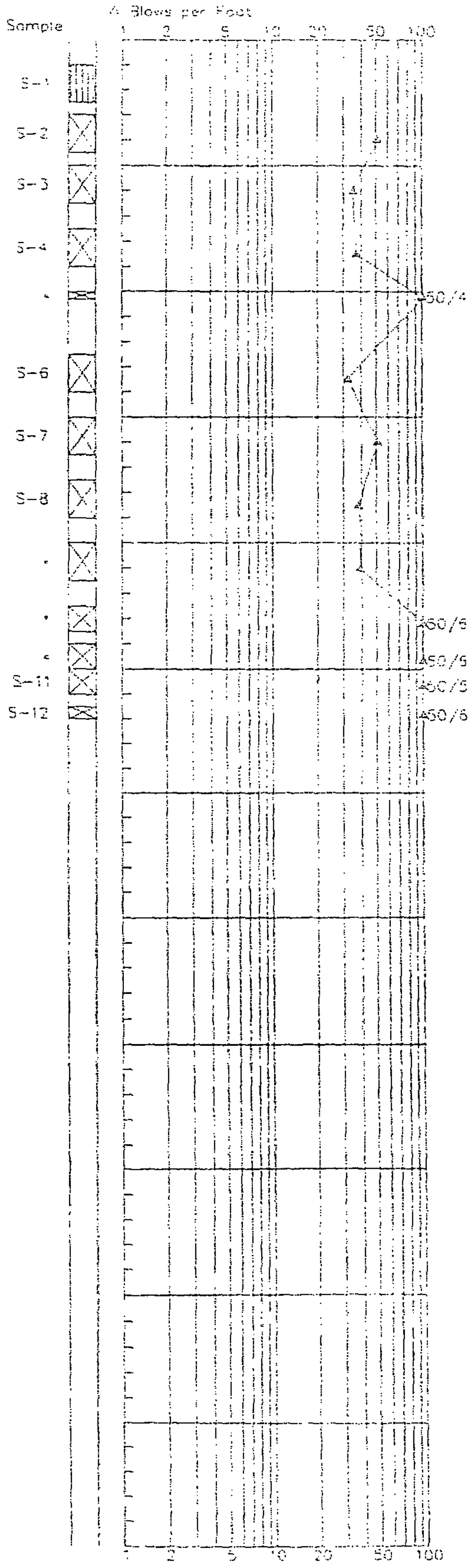
Charred wood at 3 feet.

Dense to very dense, moist, brown, slightly silty, sandy GRAVEL with weathered gravels and rust-colored staining.

Bottom of Boring at 27.0 Feet.
Completed 11/5/92

STANDARD PENETRATION RESISTANCE

LAB TESTS



1. *Refer to Figure A-1 for explanation of descriptions and symbols.*
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-25-1

Log of Test Pit 25-TP-501
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.8	(Medium dense), moist, silver-gray, slightly sandy CRUSHED ROCK (FILL).
			0.8 to 3	(Medium dense), moist, medium brown, slightly silty, sandy GRAVEL (NATIVE).
S-2	3 to 6	5	3 to 10	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 25-TP-501 at 10 feet, completed 4/22/92.

Log of Test Pit 25-TP-502
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Medium dense), moist, medium brown, slightly silty, sandy GRAVEL with small roots in upper foot and a 2-inch layer of black, slightly silty, sandy gravel at 0.5 foot.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, light brown, sandy GRAVEL with a 4-inch layer of very sandy gravel at 5 feet and abundant non-sandy gravel lenses.
S-3	8 to 10	5		

Bottom of 25-TP-502 at 10 feet, completed 4/22/91.

Log of Test Pit 25-TP-503
Ground Surface Elevation Approximately 209.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 1	(Medium dense), moist, grayish black, silty, gravelly SAND with debris (FILL) (see Note 1 below).
S-2(R)	1 to 3	4	1 to 4	(Medium dense), moist, reddish brown, sandy GRAVEL.
			4 to 5	(Medium dense), moist, dark yellowish brown GRAVEL.
S-3	5 to 7	3.5	5 to 10	(Medium dense), moist, dark yellowish brown, sandy GRAVEL with interbedded silver-gray sandy gravel.
S-4	8 to 10	4		

Bottom of 25-TP-503 at 10 feet, completed 4/22/92.

Notes:
1) Debris observed from 0 to 1 foot included 2-inch-diameter lead pipe, 2-foot-long 4-inch-diameter steel pipe, and scattered bricks. 3.5- by 6-foot concrete slab at surface on northeast side of excavation. Bottom of slab was stained yellow.
2) Deteriorated gravels from depth of 1 to 10 feet.

Log of Test Pit 25-TP-504
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	7	0 to 3	1-inch layer of silver-gray, sandy GRAVEL over (medium dense), moist, reddish brown, sandy GRAVEL.
S-2	3 to 6	6	3 to 10	(Medium dense), moist, medium gray, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 25-TP-504 at 10 feet, completed 4/22/92.

Log of Test Pit 25-TP-505
Ground Surface Elevation Approximately 209.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 4	(Medium dense), moist, medium brown, slightly silty, sandy GRAVEL with small roots to depth of 1.5 feet (see note below).
S-2	3 to 6	5	4 to 10	(Dense), moist, medium gray, sandy GRAVEL interbedded with light brown, sandy gravel and some cobbles up to 12 inches in size.
S-3	8 to 10	5		

Bottom of 25-TP-505 at 10 feet, completed 4/22/92.

Note:
Observed a brick and cement wall between depths of 1.5 and 4 feet on the southwest wall of the excavation, with orange-brown soil adjacent to it.

Log of Test Pit 25-TP-506
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	2 inches of medium gray, slightly silty SAND over (medium dense), moist, medium brown, slightly silty, sandy GRAVEL with small roots.
S-2	3 to 6	5	2 to 10	(Medium dense), moist, light brown, sandy GRAVEL with interbedded layers of gravel and a 0.5-foot-thick layer of medium gray, very sandy gravel at 5.5 feet.
S-3	8 to 10	5		

Bottom of 25-TP-506 at 10 feet, completed 4/22/92.

Log of Test Pit 25-TP-507
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4.5	0 to 3	(Medium dense), moist, medium brown, slightly silty, sandy GRAVEL with abundant small roots.
S-2	3 to 6	4.5	3 to 10	(Medium dense), moist, light brown, sandy GRAVEL with a lens of gravel from 5 to 7 feet.
S-3	8 to 10	4.5		

Bottom of 25-TP-507 at 10 feet, completed 4/23/92.

Log of Test Pit 25-TP-508
Ground Surface Elevation Approximately 208.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 3	(Medium dense), moist, mottled red-brown, medium brown, and medium gray, slightly silty, sandy GRAVEL.
S-2	3 to 6	5	3 to 10	(Medium dense), moist, medium gray, sandy GRAVEL with scattered cobbles and interbedded layers of gravel.
S-3	8 to 10	5		

Bottom of 25-TP-508 at 10 feet, completed 4/23/92.

Log of Test Pit 25-TP-509
Ground Surface Elevation Approximately 205.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 10	Weathered GRAVEL on surface over (medium dense), moist, light grayish brown, sandy GRAVEL with scattered areas of darker yellow staining and interbedded gravel layers.
S-2	3 to 6	4.5		
S-3	8 to 10	4.5		

Bottom of 25-TP-509 at 10 feet, completed 4/23/92.

Log of Test Pit 25-TP-510
Ground Surface Elevation Approximately 212.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Medium dense), moist, black, slightly silty, sandy GRAVEL.
S-2	3 to 6	4.5	1.5 to 4.5	(Medium dense), moist, tan-brown, sandy GRAVEL with a few interbedded gravel layers.
S-3	8 to 10	4.5	4.5 to 10	(Medium dense), moist, medium gray, sandy GRAVEL with interbedded gravel layers.

Bottom of 25-TP-510 at 10 feet, completed 4/23/92.

Log of Test Pit 25-TP-511
Ground Surface Elevation Approximately 201.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	(Medium dense), moist, grayish black, slightly silty, sandy GRAVEL.
			2 to 3	(Medium dense), moist, reddish brown, slightly silty, sandy GRAVEL.
S-2	3 to 6	4	3 to 8	(Medium dense), moist, orange-brown, gray, tan-brown, and black (interlayered), slightly gravelly, silty SAND.
S-3	8 to 10	4	8 to 10	(Medium dense), moist, reddish brown and tan-brown, sandy GRAVEL.

Bottom of 25-TP-511 at 10 feet, completed 4/23/92.

Log of Test Pit 25-TP-512
Ground Surface Elevation Approximately 210.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 10	(Medium dense), moist, dark gray, sandy GRAVEL.
S-2	3 to 6		
S-3	8 to 10		

Bottom of 25-TP-512 at 10 feet, completed 11/4/92.

Note: Test pit excavated in area previously graded during interim source removal.

Log of Test Pit 25-TP-513
Ground Surface Elevation Approximately 208.3 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	Three inches of grass over (medium dense), moist, dark brownish gray, slightly silty, sandy GRAVEL with weathered/deteriorated gravels.
S-2	3 to 6	1.5 to 4	(Medium dense), moist, to damp, reddish brown, sandy GRAVEL with scattered weathered gravels and minor rusty staining.
S-3	8 to 10	4 to 10	(Dense), damp, brown, slightly sandy to sandy GRAVEL.

Bottom of 25-TP-513 at 10 feet, completed 11/4/92.

Log of Test Pit 25-TP-514
Ground Surface Elevation Approximately 209.3 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.75	Two inches of grass over (medium dense), moist, dark brownish gray, silty, sandy GRAVEL with deteriorated gravels (FILL?).
S-2	3 to 6	1.75 to 8	(Medium dense), damp, gray, silty, sandy GRAVEL with extremely deteriorated gravels.
S-3	8 to 10	8 to 12	(Dense), damp, gray, sandy GRAVEL with extremely deteriorated gravels.
S-4	12 to 14	12 to 14	(Dense), damp, brownish gray, sandy GRAVEL with bleached-looking gravels.

Bottom of 25-TP-514 at 14 feet, completed 11/4/92.

Note:
End of clay pipe visible at approximately 1-foot depth on north test pit wall. There was no evidence that the pipe extended through the test pit location.

Log of Test Pit 25-TP-515
Ground Surface Elevation Approximately 209.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	Three inches of grass over (medium dense), moist, dark brown, sandy GRAVEL.
		1 to 2.5	(Medium dense), moist, brown, slightly sandy GRAVEL.
S-2	3 to 6	2.5 to 6	(Medium dense), moist, brown GRAVEL.

Bottom of 25-TP-515 at 7 feet, completed 11/3/92.

Note: Eight-inch-diameter steel water line encountered at 2.5 feet. Excavation stopped at 7 feet because digging in the collapsing gravels may have compromised the pipe.

Log of Test Pit 25-TP-516
Ground Surface Elevation Approximately 210.2 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	Two inches of grass over (medium dense), moist, brown, sandy GRAVEL (FILL?).
S-2	1.5 to 3.5	1 to 3.5	(Medium dense), moist, dark gray, silty, sandy GRAVEL with deteriorated gravels.
S-3	4 to 6	3.5 to 10	(Dense), moist, brown, slightly sandy to non-sandy GRAVEL.
S-4	8 to 10		

Bottom of 25-TP-516 at 10 feet, completed 11/4/92.

Log of Test Pit 25-TP-517
Ground Surface Elevation Approximately 210.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 0.5	(Medium dense), moist, brown, sandy GRAVEL with minor brick fragments (FILL).
S-2	3 to 6	0.5 to 6	(Medium dense), moist, brown, non-sandy to slightly sandy GRAVEL.

Bottom of 25-TP-517 at 6 feet, completed 11/4/92.

Note: Excavation stopped at 6 feet due to collapsing of the excavation side walls.

Log of Test Pit 25-TP-518
Ground Surface Elevation Approximately 210.1 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 10	(Medium dense), moist, brown, sandy GRAVEL.
S-2	3 to 6		
S-3	8 to 10		

Bottom of 25-TP-518 at 10 feet, completed 11/4/92.

Log of Test Pit 25-TP-519
Ground Surface Elevation Approximately 210.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 0.5	(Medium dense), moist, dark brown, slightly sandy GRAVEL with minor lead debris.
S-2	3 to 6	0.5 to 7	(Medium dense), moist, brown, sandy GRAVEL.
S-3	8 to 10	7 to 10	(Dense), moist, brown, slightly sandy to non-sandy GRAVEL.

Bottom of 25-TP-519 at 10 feet, completed 11/4/92.

Log of Test Pit 25-TP-521
Ground Surface Elevation Approximately 210.6 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	(Medium dense), moist, dark brown, sandy GRAVEL with abundant organics (roots).
		1.5 to 3	(Medium dense), moist, brown, sandy GRAVEL with minor rust-colored staining.
S-2(R)	3 to 6	3 to 4.5	(Medium dense), moist, grayish brown, sandy to slightly sandy GRAVEL with minor sand interbeds.
S-3(R)	8 to 10	4.5 to 10	(Medium dense), moist, brown, sandy to slightly sandy GRAVEL with minor sand interbeds.

Bottom of 25-TP-521 at 10 feet, completed 11/2/92.

Log of Test Pit 25-TP-522
Ground Surface Elevation Approximately 212.1 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 3.5	(Medium dense), moist, dark brown, sandy GRAVEL with abundant organics (roots).
S-2(R)	3 to 6	3.5 to 10	(Medium dense), moist to damp, brown, sandy GRAVEL with abundant sand interbeds.
S-3(R)	8 to 10		

Bottom of 25-TP-522 at 10 feet, completed 11/2/92.

Log of Test Pit 25-TP-523
Ground Surface Elevation Approximately 211.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	(Dense), moist, dark brown, slightly silty, sandy GRAVEL with abundant organics (roots).
		1.5 to 3	(Dense), moist, light brown, sandy GRAVEL with minor rust-colored staining and roots to a depth of 2.5 feet.
S-2(R)	3 to 6	3 to 10	(Very dense), moist, brownish gray, slightly sandy to sandy GRAVEL with sand interbeds.
S-3(R)	8 to 10		

Bottom of 25-TP-523 at 10 feet, completed 11/2/92.

Log of Test Pit 25-TP-524
Ground Surface Elevation Approximately 213.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	Three inches of forest duff over (dense), moist, brown, sandy GRAVEL (FILL?).
		2 to 3	(Dense), moist, dark brown, sandy GRAVEL with abundant roots.
S-2	3 to 6	3 to 10	(Dense), damp, brown, non-sandy to sandy GRAVEL with gravelly sand interbeds.
S-3	8 to 10		

Bottom of 25-TP-524 at 10 feet, completed 11/2/92.

Log of Test Pit 25-TP-525
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	Five inches of grass over (medium dense), moist, brown, sandy GRAVEL with noticeable "sweet" odor and minor organics.
S-2(R)	3 to 6	1.5 to 10	(Medium dense), moist, brown, gravelly SAND and sandy GRAVEL with strong "sweet" odor.
S-3(R)	8 to 10		

Bottom of 25-TP-525 at 10 feet, completed 11/2/92.

AREA 26
EXPLORATION LOGS

Boring Log 26-B-501

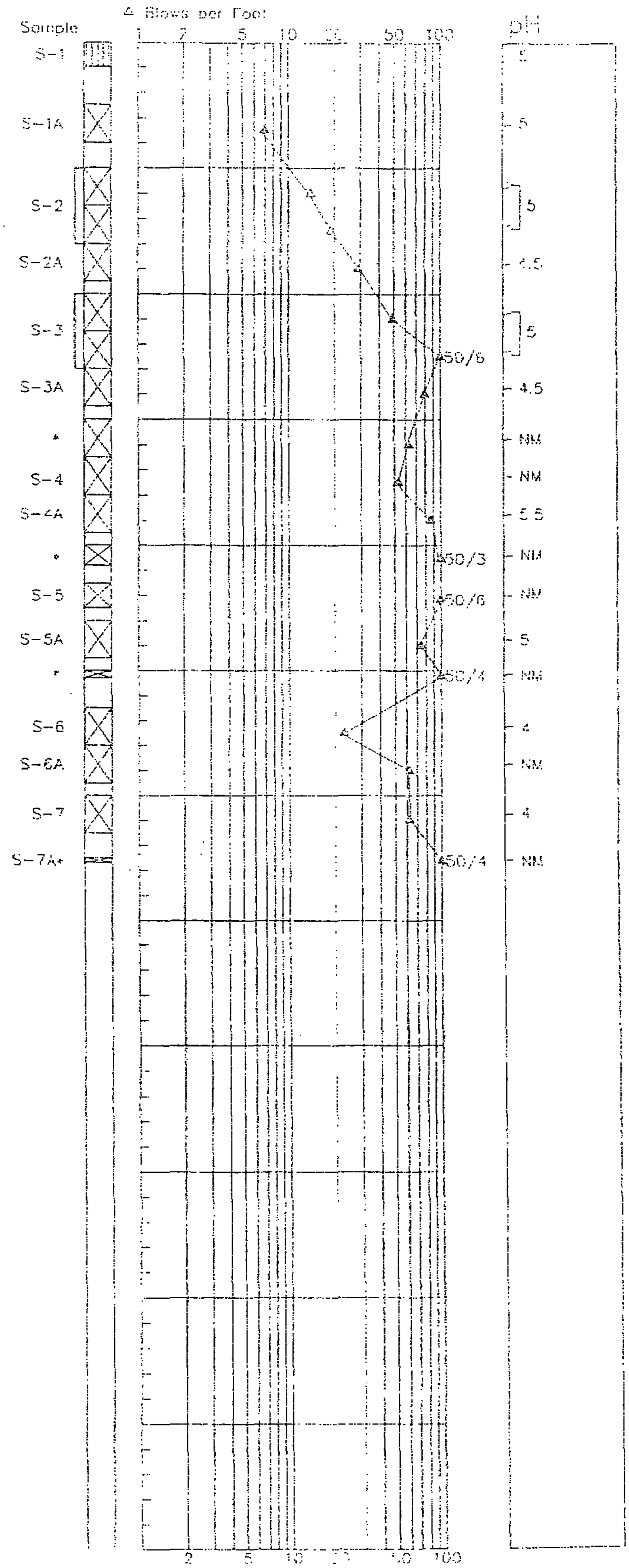
Soil Descriptions

Ground Surface Elevation in Feet 170.7 — Depth in Feet

Soil Description	Depth in Feet
Loose, wet to moist, dark grey, slightly gravelly, silty SAND.	0
Medium dense, wet to moist, brown, slightly gravelly, very silty to silty SAND.	5
Dense, moist, grey, fine SAND.	
Dense to very dense, moist, brown, slightly sandy GRAVEL.	10
Very dense, moist, grayish brown, slightly sandy, silty GRAVEL.	25
Dense to very dense, moist, grayish brown, slightly sandy GRAVEL.	
— Grades to gravelly SAND.	30
Bottom of Boring at 32.5 Feet. Completed 2/26/92	

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

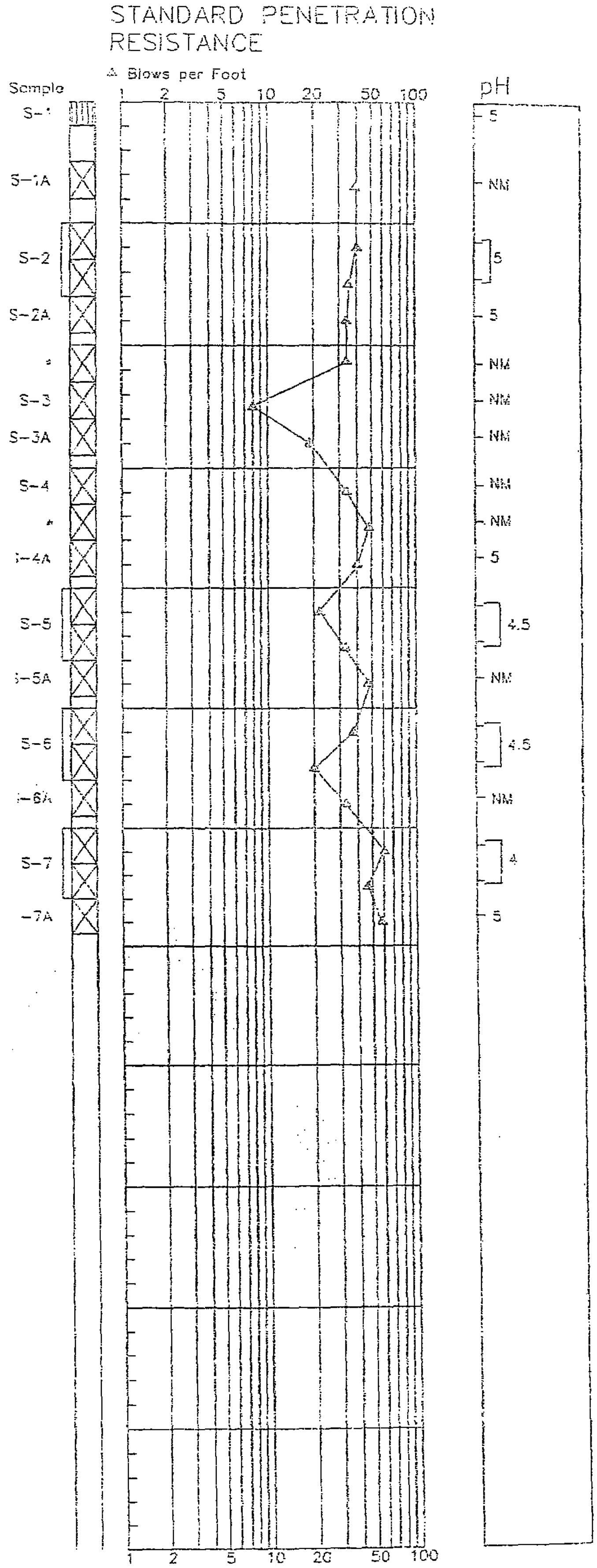
Figure A-26-1 1/1

Boring Log 26-B-002

Soil Descriptions

Ground Surface Elevation in Feet 169.4

Soil Descriptions	Depth in Feet
(Dense), moist, dark gray, slightly gravelly, silty SAND.	0
Grades to silty, sandy GRAVEL.	
Dense, moist, brown, sandy GRAVEL.	5
Loose to dense, wet to moist, dark gray GRAVEL.	10
Grades to silty, sandy GRAVEL.	15
6-inch zone of wet soils.	25
Bottom of Boring at 34.5 Feet. Completed 2/27/92.	35



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-26-2 1/1

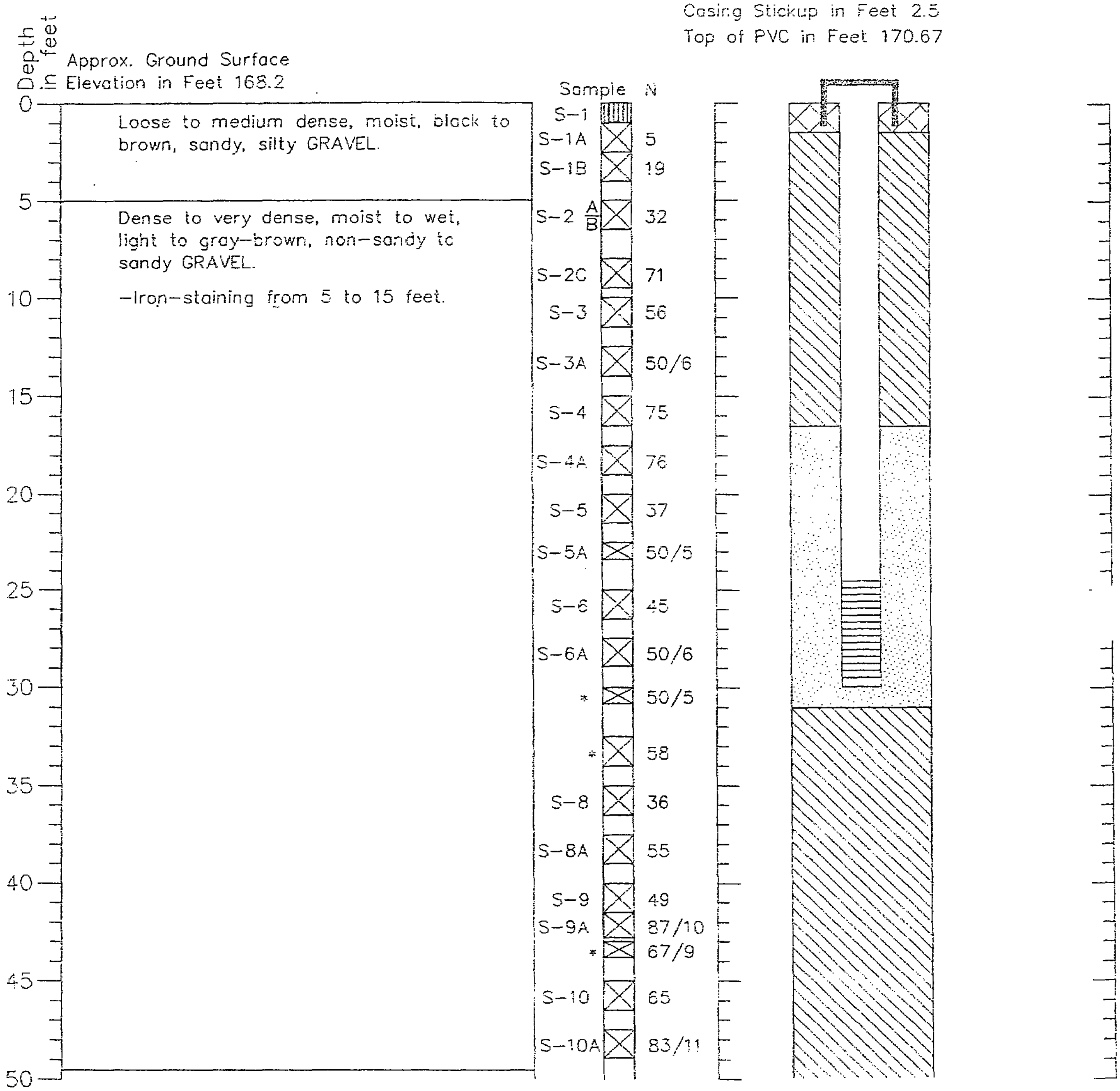
Boring Log and Construction Data for Monitoring Well 26-B-503

Geologic Log

Monitoring Well Design

Casing Stickup in Feet 2.5
Top of PVC in Feet 170.67

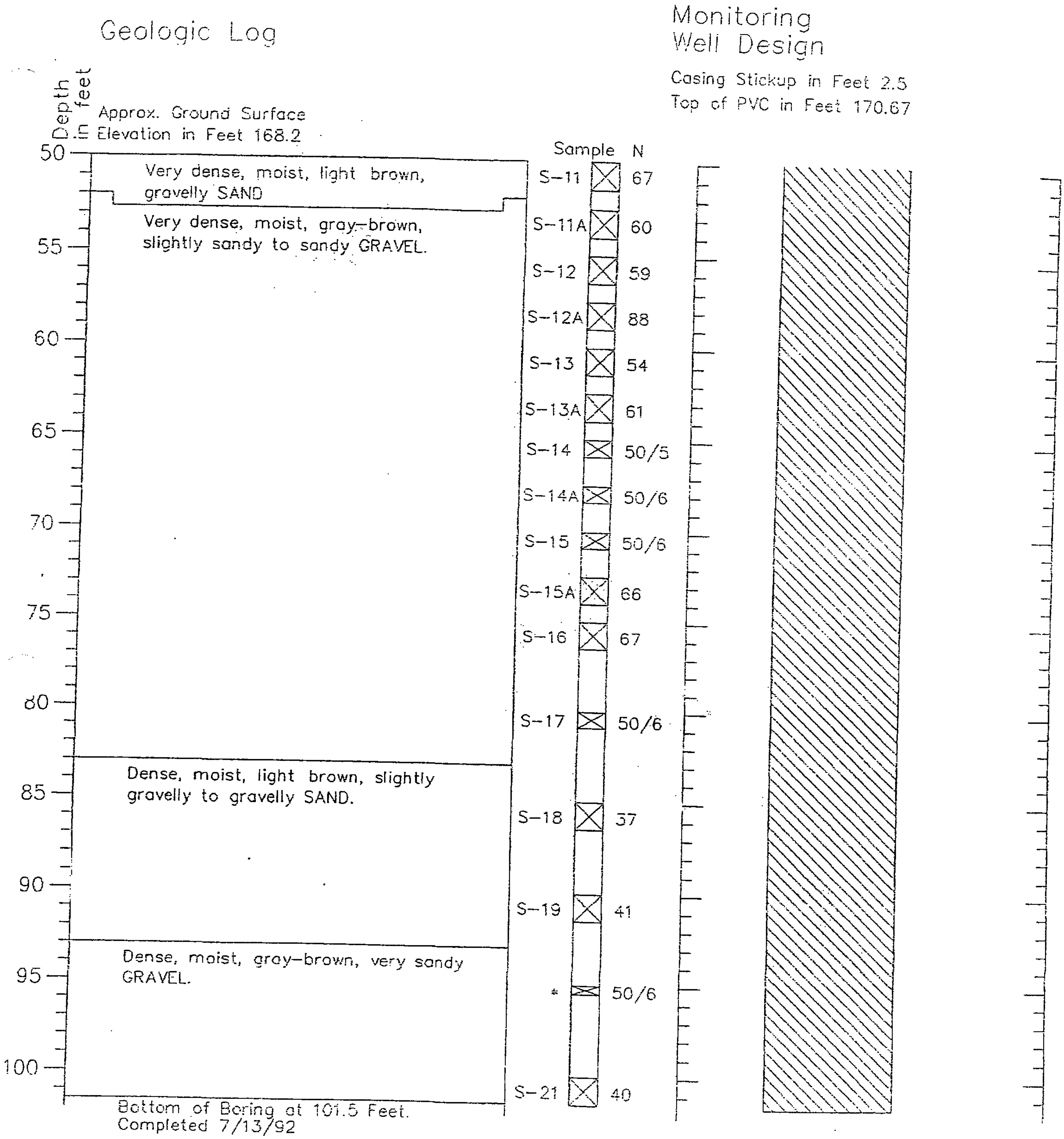
Approx. Ground Surface Elevation in Feet 168.2



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-26-3

Boring Log and Construction Data for Monitoring Well 26-B-503



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-26-3 2/2

Log of Test Pit 26-TP-501
Ground Surface Elevation Approximately 170.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), damp, dark gray, silty, gravelly SAND.
S-2	3 to 6	5	3 to 10	(Medium dense), damp to moist, brown, sandy GRAVEL with 6-inch-thick lens of iron-stained gravel at a depth of 3 feet.
S-3	8 to 10	5		

Bottom of 26-TP-501 at 10 feet, completed 3/23/92.

Log of Test Pit 26-TP-502
Ground Surface Elevation Approximately 174.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2.5	(Loose), damp, dark gray, silty, gravelly SAND with minor brick debris at surface.
S-2	3 to 6	4	2.5 to 10	(Medium dense), moist, gray and brown, silty, fine SAND. Sandy GRAVEL observed at a depth of 10 feet.
S-3	8 to 10	4		

Bottom of 26-TP-502 at 10 feet, completed 3/23/92.

Log of Test Pit 26-TP-503
Ground Surface Elevation Approximately 169.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), damp, dark gray, silty, gravelly SAND.
S-2	3 to 6	5	1 to 10	(Medium dense), moist, brown, sandy GRAVEL with abundant thin non-sandy gravel lenses.
S-3	8 to 10	5		

Bottom of 26-TP-503 at 10 feet, completed 3/23/92.

Log of Test Pit 26-TP-504
Ground Surface Elevation Approximately 174.7

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), damp, dark gray, silty, sandy GRAVEL.
			1.5 to 4	(Medium dense), damp, brown, sandy GRAVEL.
S-2	3 to 6	5.5	4 to 5.5	(Loose), moist, brown GRAVEL.
			5.5 to 8	(Dense), moist, brown SAND.
S-3	8 to 10	5	8 to 10	(Medium dense), moist, brown, sandy GRAVEL.

Bottom of 26-TP-504 at 10 feet, completed 3/23/92.

Log of Test Pit 26-TP-505
Ground Surface Elevation Approximately 182.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	6	0 to 2	(Loose), damp, dark gray, silty, gravelly SAND.
S-2	3 to 6	5.5	2 to 4	(Medium dense), moist, brown, silty SAND.
S-3	8 to 10	6	4 to 10	(Medium dense), moist, brown, sandy GRAVEL.

Bottom of 26-TP-505 at 10 feet, completed 3/23/92.

Log of Test Pit 26-TP-506
Ground Surface Elevation Approximately 176.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, dark gray, silty, gravelly SAND.
S-2	3 to 6	5	2 to 2.5	(Medium dense), damp, dark brown, sandy GRAVEL.
S-3	8 to 10	5	2.5 to 10	(Medium dense), moist, brown, sandy GRAVEL with lenses of slightly gravelly sand.

Bottom of 26-TP-506 at 10 feet, completed 3/24/92.

Log of Test Pit 26-TP-507
Ground Surface Elevation Approximately 172.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), damp, dark gray, silty, gravelly SAND with very thin zone of dark brown sand at a depth of 3 feet.
S-2	3 to 6	5.5	3 to 10	(Medium dense), moist, brown, sandy GRAVEL with interbedded non-sandy gravel lenses.
S-3	8 to 10	5		

Bottom of 26-TP-507 at 10 feet, completed 3/24/92.

Log of Test Pit 26-TP-508
Ground Surface Elevation Approximately 196.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 3	(Loose), damp, dark gray, silty, sandy GRAVEL with lead debris at surface and bricks to a depth of 3 feet (FILL).
S-2	3 to 6	5	3 to 4	(Medium dense), damp, brown, sandy GRAVEL, which thickens toward Unit 26-B kettle center (FILL).
			4 to 6	(Medium dense), damp, dark gray, silty, gravelly SAND with bricks (FILL).
S-3	8 to 10	4.5	6 to 10	(Dense), damp, brown, sandy GRAVEL.

Bottom of 26-TP-508 at 10 feet, completed 3/24/92.

Note:
Bricks were typically mortared together and appeared to have been pier blocks or footings for a former building.

Log of Test Pit 26-TP-509
Ground Surface Elevation Approximately 197.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 3.5	(Loose), damp, dark gray, silty, gravelly SAND with abundant roots. Grades to dark brown at a depth of 3 feet.
S-2	3 to 6	4.5	3.5 to 10	(Medium dense), damp, brown, very sandy GRAVEL with discontinuous lenses of gray, gravelly sand between depths of 7 and 7.5 feet.
S-4	7 to 7.5	4.5		
S-3	8 to 10	5		

Bottom of 26-TP-509 at 10 feet, completed 3/24/92.

Log of Test Pit 26-TP-510
Ground Surface Elevation Approximately 208.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), damp, dark gray, silty, sandy GRAVEL with bricks and bleached gravels at surface (FILL). Two lengths of 4-inch-diameter ceramic pipe (filled with soil) encountered between depths of 1 and 2 feet.
S-2	3 to 6	5	3 to 10	(Loose), damp, brown, slightly sandy GRAVEL with minor iron staining.
S-3	8 to 10	5		

Bottom of 26-TP-510 at 10 feet, completed 3/24/92.

Log of Test Pit 26-TP-511
Ground Surface Elevation Approximately 209.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	Blended rocks at surface over (loose), damp, dark gray and brown, silty, sandy GRAVEL with bricks, wood, and ceramic debris (FILL).
S-2	3 to 6	3 to 11	Twelve-inch-diameter ceramic pipeline overlying (dense), damp, gray, slightly sandy GRAVEL with indications of weathering. Distinct zone of yellow and brown staining observed immediately below pipeline extending to bottom of excavation.
S-2A	4 to 6		
S-3	8 to 10		

Bottom of 26-TP-511 at 11 feet, completed 3/25/92.

Notes:
1) S-2 is sample of unstained gray soil; S-2A and S-3 are samples of stained soil.
2) Ceramic pipeline slopes toward the south.

Log of Test Pit 26-TP-512
Ground Surface Elevation Approximately 211.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 3	(Loose), damp, dark gray, silty, sandy GRAVEL with concrete, brick, and wood debris (FILL). Three-inch-diameter lead pipe encountered at a depth of 1 foot.
S-2	3 to 6	5.5	3 to 10	(Medium dense), damp, brown, sandy GRAVEL.
S-3	8 to 10	5		

Bottom of 26-TP-512 at 10 feet, completed 3/25/92.

Note:
First two attempts to excavate within the former nitric acid recovery building foundation hit refusal when brick floor encountered. Location subsequently moved next to southwest corner of foundation.

Log of Test Pit 26-TP-513
Ground Surface Elevation Approximately 210.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), damp, dark gray, silty, sandy GRAVEL with brick debris in upper 1.5 feet (FILL). Four-inch-diameter ceramic pipe observed along south side of excavation at depth of 2 to 3 feet. Small area of yellowish brown staining observed beneath pipe coupling.
S-2	3 to 6	4	2.5 to 10	(Medium dense), damp, brown, slightly sandy GRAVEL. Large area of yellowish brown staining from depths of 4 to 10 feet on west side of excavation away from observed ceramic pipe.
S-3	8 to 10	4		

Bottom of 26-TP-513 at 10 feet, completed 3/25/92.

Notes:
1) S-2 is sample of unstained soil; S-3 is sample of stained soil.
2) Ceramic pipe slopes toward the south.

Log of Test Pit 26-TP-514
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet*	Soil Description
S-1	0 to 1	4	0 to (3 - 4)	(Loose), damp, dark gray, silty, sandy GRAVEL interbedded with gray SAND; brown, sandy GRAVEL; and purplish red, silty SAND (ash-like) and containing brick debris and deteriorated gravels. Lens of brownish yellow sandy gravel at depth of 1.5 to 2 feet.
S-3	3 to 6	4	(3 – 4) to 7	(Dense to very dense), damp, yellowish brown, slightly sandy GRAVEL.
S-4	6 to 7	4		

Bottom of 26-TP-514 at 7 feet, completed 3/25/92.

Notes:
1) Refusal at 7 feet due to cemented GRAVEL, which looked like native material but could not be penetrated by the backhoe.
2) Uneven contact between dark gray, silty, sandy GRAVEL and brownish yellow, sandy GRAVEL. Contact at 4 feet in center of pit, sloping up to 3 feet along the south and north sides. Range in depths across test pit indicated in parentheses.

Figure A-26-13

Log of Test Pit 26-TP-515
Ground Surface Elevation Approximately 211.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.25	(Loose), damp, dark brown, silty, gravelly SAND with occasional brick debris.
S-2	3 to 6	5	2.25 to 10	(Medium dense), damp, brown, slightly sandy GRAVEL.
S-3	8 to 10	5		

Bottom 26-TP-515 at 10 feet, completed 3/25/92.

Log of Test Pit 26-TP-516
Ground Surface Elevation Approximately 169.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	(Loose), damp, dark gray, silty, gravelly SAND.
S-2	3 to 4	1 to 4	(Medium dense), moist, dark brown, slightly silty, sandy GRAVEL.
S-2A	4 to 6	4 to 10	(Medium dense), moist, brown, gravelly, silty SAND with organics and wood chips (becomes less silty and more gravelly with depth).
S-3	8 to 10		

Bottom of 26-TP-516 at 10 feet, completed 6/30/92.

Log of Test Pit 26-TP-517
Ground Surface Elevation Approximately 210.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	(Loose), damp, tan, silty, sandy GRAVEL.
S-2	1 to 2	1 to 2	(Medium dense), damp, gray-brown and iron-stained, silty, sandy GRAVEL.
S-3	3 to 5	2 to 5	(Medium dense), moist, whitish gray and iron-stained, sandy GRAVEL.

Bottom of 26-TP-517 at 5.0 feet, completed 5/29/92.

Log of Test Pit 26-TP-518
Ground Surface Elevation Approximately 208.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2.5	(Loose), damp, gray-brown, silty, sandy GRAVEL with wood chunk (creosote odor) at depth of 2.5 feet.
S-2	1 to 2		
S-3	3 to 5	2.5 to 5	(Medium dense), damp, yellow brown and iron-stained, sandy GRAVEL.

Bottom of TP-518 at 5.0 feet, completed 6/29/92.

Log of Test Pit 26-TP-519
Ground Surface Elevation Approximately 210.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 5	(Medium dense), damp, light brown, silty, sandy GRAVEL with roots to depth of 4.5 feet.
S-2	1 to 2		
S-3	3 to 5		

Bottom of TP-519 at 5.0 feet, completed 6/29/92.

Log of Test Pit 26-TP-520
Ground Surface Elevation Approximately 211.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Loose), damp, brown, silty, sandy GRAVEL with minor brick fragments to depth of 1 foot.
S-2	1 to 2		
S-3	3 to 5	2 to 5	(Medium dense), moist, yellow-brown and iron-stained, sandy GRAVEL.

Bottom of TP-520 at 5.0 feet, completed 6/29/92.

Log of Test Pit 26-TP-521
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), damp, medium brown, silty, sandy GRAVEL.
S-2	1 to 2		
S-3	3 to 5	1.5 to 5	(Medium dense), moist, yellow-brown and iron-stained, sandy GRAVEL with cobbles.

Bottom of TP-521 at 5.0 feet, completed 6/29/92.

Log of Test Pit 26-TP-522
Ground Surface Elevation Approximately 212.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Loose), damp, brown, silty, sandy GRAVEL.
S-2	1 to 2		
S-3	3 to 5	2 to 5	(Medium dense), moist, yellow-brown and iron-stained, sandy GRAVEL.

Bottom of TP-522 at 5.0 feet, completed 6/29/92.

Log of Hand Auger Boring 26-HA-501
Ground Surface Elevation Approximately 183.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, brown, slightly silty, sandy GRAVEL with brick debris and glass.
S-2	1 to 2		
S-3	2 to 3		

Bottom of 26-HA-501 at 3.0 feet, completed 6/29/92.

Log of Hand Auger Boring 26-HA-502
Ground Surface Elevation Approximately 199.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), moist, brown and gray, silty, sandy GRAVEL with weathered green-stained gravels.
S-2	1 to 2		
S-3	2 to 3		

Bottom of 26-HA-502 at 3.0 feet, completed 6/29/92.

Log of Hand Auger Boring 26-HA-503
Ground Surface Elevation Approximately 198.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Medium dense), damp, dark to medium brown, silty, gravelly SAND with weathered gravels.
S-2	1 to 2		
S-3	2 to 3	2 to 3	(Medium dense), damp, gray, slightly gravelly, silty SAND.

Bottom of 26-HA-503 at 3.0 feet, completed 6/29/92.

Log of Hand Auger Boring 26-HA-504
Ground Surface Elevation Approximately 190.3 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), dry to damp, light brown, silty, sandy GRAVEL.
S-2	1 to 2		
S-3	2 to 3		

Bottom of 26-HA-504 at 3.0 feet, completed 6/29/92.

Log of Hand Auger Boring 26-HA-505
Ground Surface Elevation Approximately 201.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp, light and dark brown, silty, sandy GRAVEL with wood fragments.
S-2	1 to 2		
S-3	2 to 3		

Bottom of 26-HA-505 at 3.0 feet, completed 6/29/92.

Note:
Scattered wood debris found at depth of 1 to 3 feet.

AREA 31
EXPLORATION LOGS

Boring Log 31-B-501

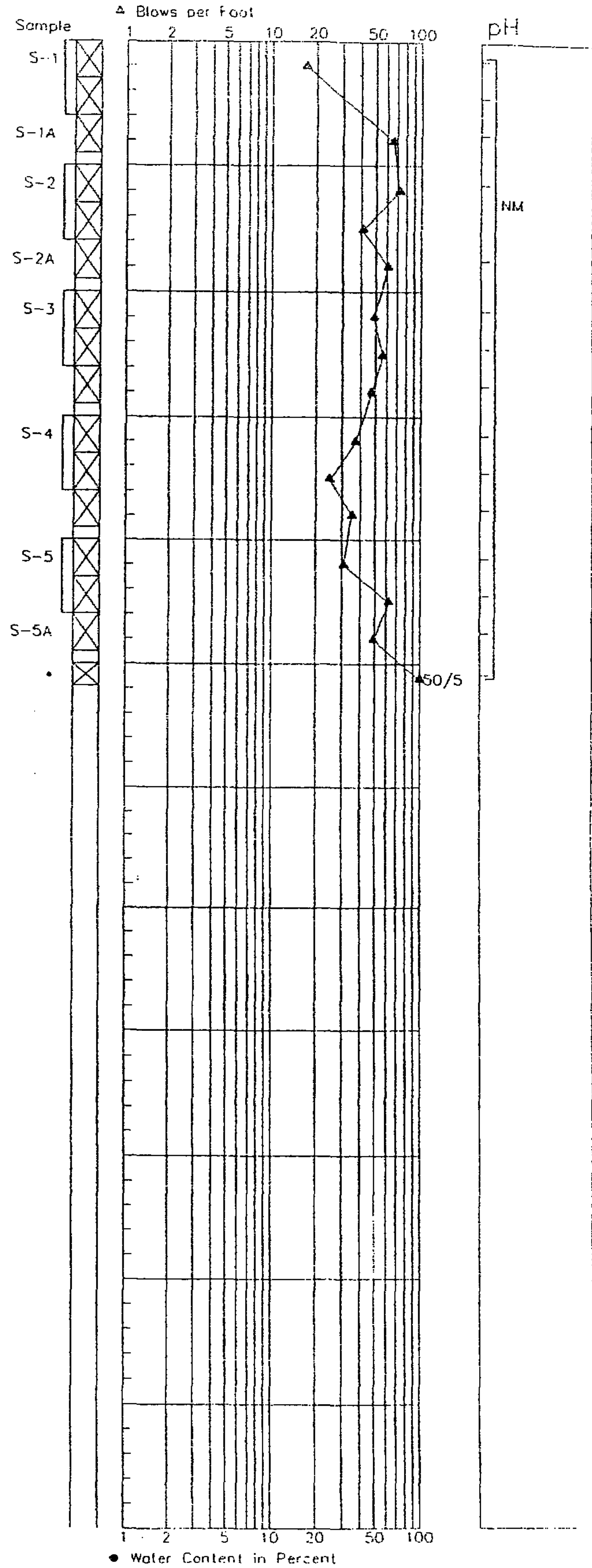
Soil Descriptions

Ground Surface Elevation in Feet 212.5

Depth in Feet	Soil Description
0	Medium dense, wet, dark brown to black, slightly silty, sandy GRAVEL with scattered lead, nails, and brick fragments (FILL)
	Very dense, moist, light brown, sandy GRAVEL with brick fragments. (FILL)
5	No bricks.
	Dense, moist, light brown, very gravelly SAND
	Very dense, moist, light brown, very sandy GRAVEL.
10	Dense, moist, light brown, slightly sandy GRAVEL.
	Dense to very dense, sandy GRAVEL.
15	
	Becomes wet.
	Grades to slightly sandy GRAVEL.
	Dense, wet, gray, slightly sandy to sandy GRAVEL.
20	
	Very dense, wet, gray brown, slightly sandy GRAVEL.
25	
	Bottom of Boring at 26.0 Feet. Completed 2/18/92

Depth in Feet: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

STANDARD PENETRATION RESISTANCE



1 Refer to Figure A-1 for explanation of descriptions and symbols.
2 Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3 Groundwater level, if indicated, is at time of drilling

Figure A-31-1 1/

Boring Log 31-B-802

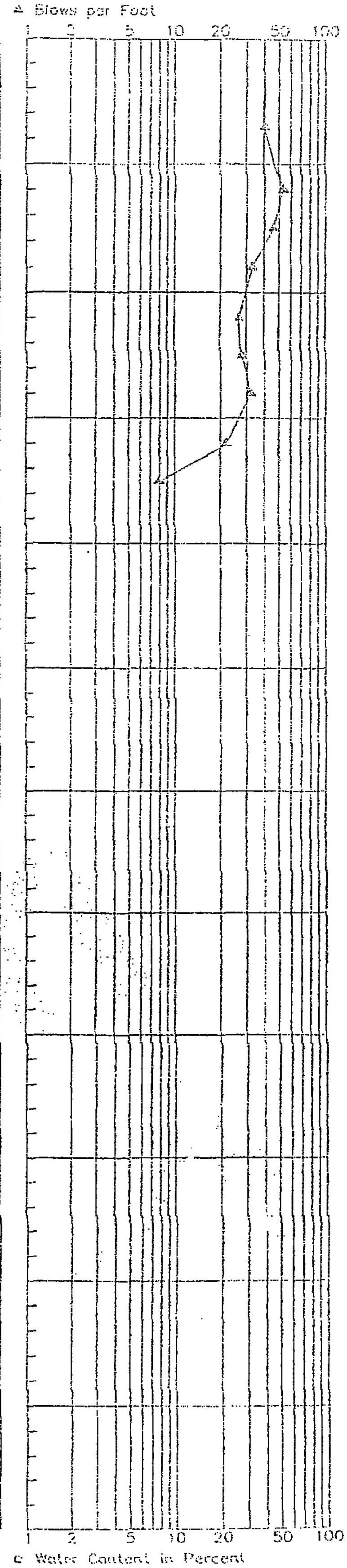
Soil Descriptions

Ground Surface Elevation in Feet 212.7	Depth in Feet
(Loose), wet, black, silty, gravelly, fine to medium SAND.	0
Dense to very dense, moist, light brown, very sandy GRAVEL.	5
Dense, moist, light brown, sandy GRAVEL.	
Medium dense, moist, light brown, sandy GRAVEL.	10
Grades to slightly sandy GRAVEL.	
Medium dense, moist, gray, sandy GRAVEL.	15
Becomes wet.	ATD
Bottom of Boring at 18.0 Feet Completed 2/29/92.	20

Depth scale continues: 25, 30, 35, 40, 45, 50, 55, 60

Sample: S-1(R), S-1A, S-2, S-2A, S-3, *, S-4, S-4

STANDARD PENETRATION RESISTANCE



pH
6.6
6.5
7.3
6.8
6.5
NM
6.5

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-31-2

Boring Log 31-B-503

Soil Descriptions

Ground Surface Elevation in Feet 215.1

Depth in Feet

(Loose), moist, black, silty, gravelly, fine to medium SAND.

Medium dense to dense, moist, light brown, sandy GRAVEL.

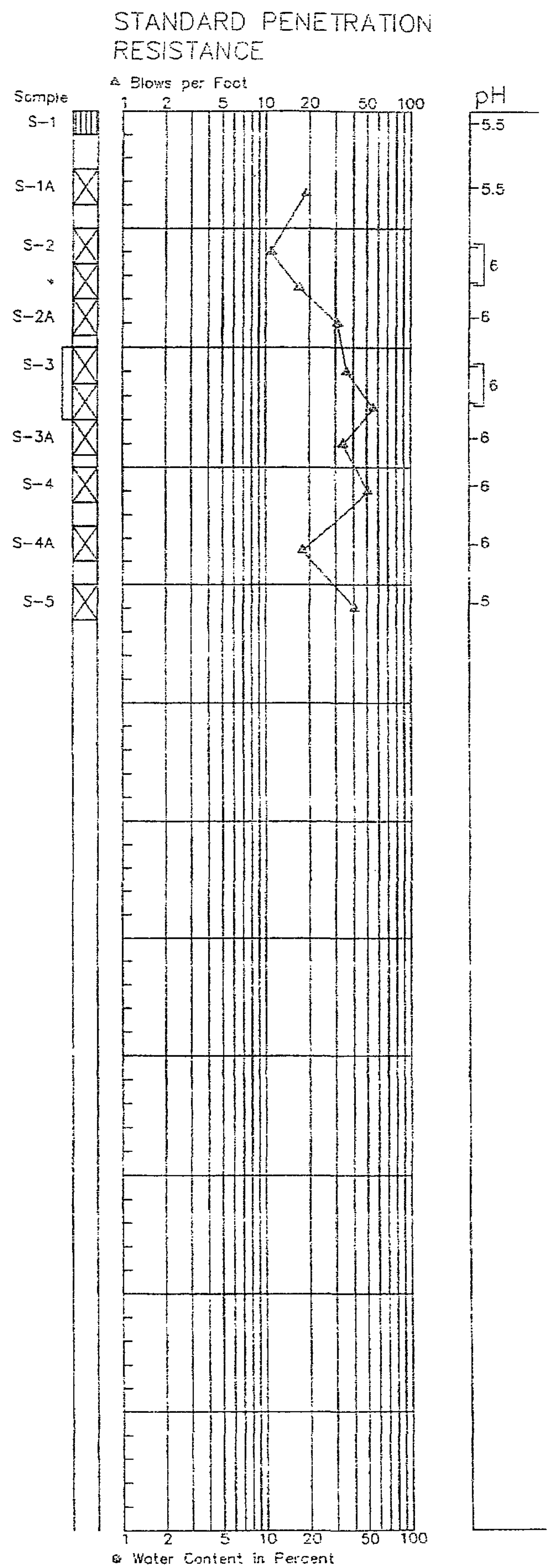
Dense, moist, dark brown, very sandy gravel.

Medium dense to very dense, moist, light brown green, sandy GRAVEL.

Grades to wet, slightly sandy GRAVEL.

ATD

Bottom of Boring at 21.5 Feet.
Completed 2/19/92.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-31-3 1/

Boring Log 31-B-504

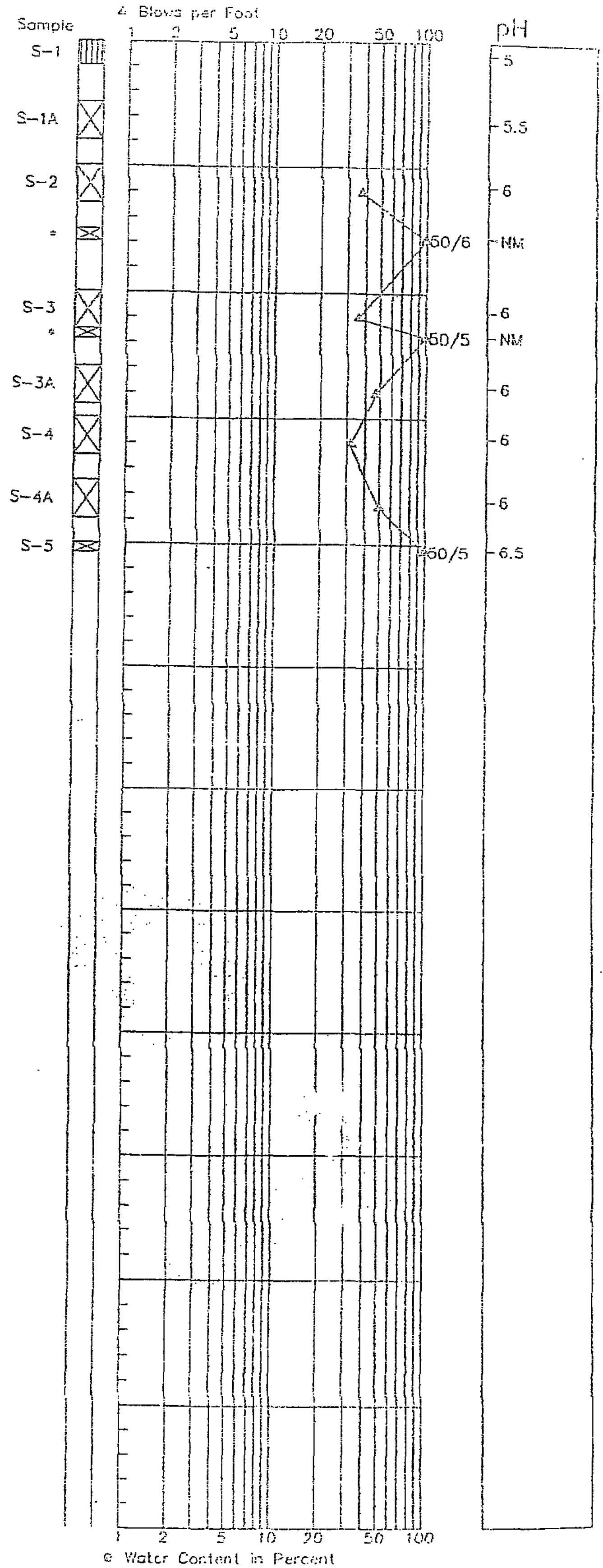
Soil Descriptions

Ground Surface Elevation in Feet 211.2

Soil Description	Depth in Feet
(Loose), black, silty, gravelly, medium to fine SAND.	0
Medium dense to dense, moist, brown to light brown, very to slightly sandy GRAVEL.	
Dense, wet, brown, slightly silty, slightly sandy GRAVEL.	
Very dense, wet, gray brown, slightly sandy GRAVEL.	20
Bottom of Boring at 20.5 Feet. Completed 2/20/92.	

ATD

STANDARD PENETRATION RESISTANCE



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-31-4 1/1

Log of Test Pit 31-TP-501
Ground Surface Elevation Approximately 212.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	4	0 to 0.8	(Medium dense), damp to moist, dark brown, silty, gravelly SAND with brick fragments, metal debris, burnt wood, and glass.
			0.8 to 2.1	(Dense), damp to moist, black, slightly silty, sandy GRAVEL with abundant roots and other organics.
S-2	3 to 6	6	2.1 to 10	(Dense), damp to moist, brown to tan, sandy GRAVEL.
S-3	8 to 10	6		

Bottom of 31-TP-501 at 10 feet, completed 2/26/92.

Log of Test Pit 31-TP-502
Ground Surface Elevation Approximately 215.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), damp, black, silty, sandy GRAVEL with roots and debris (sardine cans).
S-2	3 to 6	5.5	2 to 4.5	(Dense), damp, tan-brown, slightly gravelly to gravelly SAND.
S-3	8 to 10	6.0	4.5 to 10	(Very dense), moist, tan to brown-gray, sandy GRAVEL with cobbles up to 6 inches in diameter. Soil becomes more moist and less dense, below 6 feet.

Bottom of 31-TP-502 at 10 feet, completed 2/26/92.

Log of Test Pit 31-TP-503
Ground Surface Elevation Approximately 210.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	(Medium dense), moist, black, slightly gravelly, silty SAND with abundant roots.
S-2	3 to 6	5.5	2 to 4.5	(Medium dense), moist, tan-brown, very sandy GRAVEL.
S-3	8 to 10	5	4.5 to 10	(Dense), moist, tan-brown, sandy GRAVEL with cobbles up to 7 inches in diameter.

Bottom of 31-TP-503 at 10 feet, completed 2/27/92.

Log of Test Pit 31-TP-504
Ground Surface Elevation Approximately 212.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	Grass over (medium dense), damp to moist, black, slightly gravelly, silty SAND with roots and other organics.
S-2	3 to 6	5	1.5 to 4	(Medium dense), moist, tan-brown, sandy GRAVEL with a lens of dark brown sand at depth of 2 feet.
S-3	8 to 10	5	4 to 10	(Medium dense), moist, brownish gray, sandy GRAVEL with cobbles up to 8 inches in diameter.

Bottom of 31-TP-504 at 10 feet, completed 2/26/92.

Log of Test Pit 31-TP-505
Ground Surface Elevation Approximately 214.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet*	Soil Description
S-1	0 to 1	4	0 to 2	(Medium dense), moist, black, sandy, silty GRAVEL with roots and an old log from depth of 0.5 to 1.5 feet.
S-2	3 to 6	5.5	2 to 7	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-3	9 to 11	5.5	7 to 10.5	(Medium dense), moist, gray, gravelly SAND.
			10.5 to 11	(Medium dense), moist, orange-brown (iron-stained), slightly silty SAND with occasional roots.

Bottom of 31-TP-505 at 11 feet, completed 2/27/92.

Figure A-31-8

Log of Test Pit 31-TP-506
Ground Surface Elevation Approximately 211.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2	(Medium dense), moist, black, silty, sandy GRAVEL with roots and trace organics.
S-2	3 to 6	5	2 to 4	(Medium dense), moist, tan-brown, sandy GRAVEL.
			4 to 4.8	(Medium dense), moist, tan-brown, gravelly SAND with roots.
S-3	8 to 10	5	4.8 to 10	(Dense), moist, gray, sandy GRAVEL with cobbles up to 6 inches in diameter.

Bottom of 31-TP-506 at 10 feet, completed 2/27/92.

Log of Test Pit 31-TP-507
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	(Medium dense), moist, black, silty, gravelly SAND with roots and chunks of old logs.
S-2	3 to 6	5.5	2 to 4.5	(Medium dense), moist, tan, sandy GRAVEL with minor root fragments.
S-3	8 to 10	5	4.5 to 10	(Medium dense to dense), moist, gray, sandy GRAVEL with cobbles up to 8 inches in diameter. Becomes more moist and less sandy below a depth of 7 feet.

Bottom of 31-TP-507 at 10 feet, completed 2/27/92.

Log of Test Pit 31-TP-508
Ground Surface Elevation Approximately 209.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 3	(Medium dense), moist, medium brown, slightly gravelly, silty SAND with abundant small roots.
S-2	3 to 6	3 to 8	6 inches of black, silty SAND over (medium dense) moist, gray, slightly sandy GRAVEL with large roots and glass fragments.
S-3	8 to 10	8 to 10	(Medium dense), damp, gray, slightly sandy GRAVEL.

Bottom of 31-TP-508 at 10 feet, completed 2/24/92.

Log of Test Pit 31-TP-509
Ground Surface Elevation Approximately 209.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Medium dense), moist, black, sandy, silty GRAVEL with roots and an old log from depth of 0.5 to 1.5 feet.
S-2	3 to 6	5.5	1.5 to 10	(Medium dense to dense), moist, brownish gray, sandy GRAVEL with cobbles to 7 inches and abundant thin lenses of fine gravel.
S-3	8 to 10	5		

Bottom of 31-TP-509 at 10 feet, completed 2/27/92.

Log of Hand Auger Boring 31-HA-501

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), moist, dark brown to brown, slightly silty, sandy GRAVEL with organics in upper one foot.
S-2	2 to 3		

Bottom of 31-HA-501 at 3 feet, completed 11/3/92.

Log of Hand Auger Boring 31-HA-502

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), moist, dark brown to brown, silty to slightly silty, sandy GRAVEL with minor organics.
S-2	2 to 3		

Bottom of 31-HA-502 at 3 feet, completed 11/3/92.

AREA 38
EXPLORATION LOGS

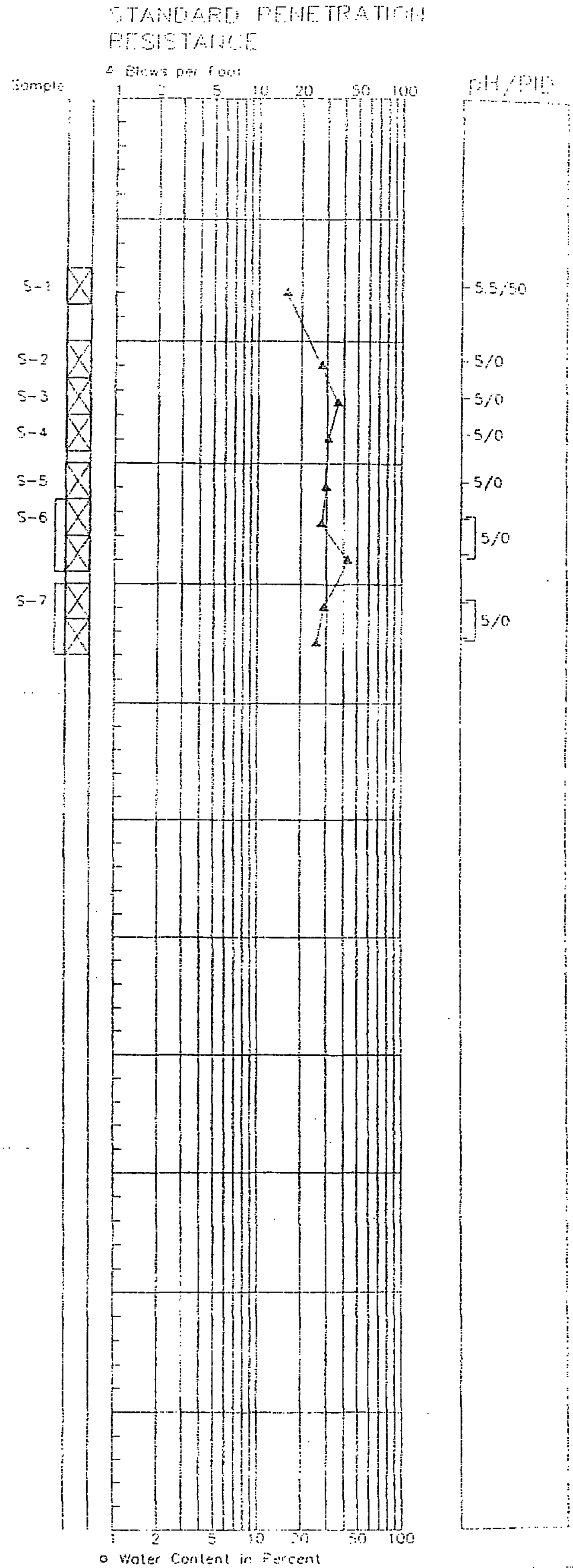
Boring Log 38-B-501

Soil Descriptions

Ground Surface Elevation in Feet 206.5

Soil Descriptions	Depth in Feet
Drywell (open hole to 7 feet)	0–7
Medium dense, wet to moist, gray, slightly gravelly, very sandy SILT (fill) with sulfur-like odor.	
Medium dense, moist to wet, brown, slightly silty, slightly sandy GRAVEL.	
Dense, wet to moist, brown, slightly sandy GRAVEL	
Medium dense, moist to wet, slightly silty, slightly sandy GRAVEL.	
Bottom of Boring at 23.0 Feet. Completed 3/25/92.	23.0

Note. Boring completed within 3-foot square drywell with wood-lined walls.



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Figure A-38-1 1/1

*Log of Test Pit 38-TP-501
Ground Surface Elevation Approximately 213.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.5	(Loose), damp, black, silty, sandy GRAVEL with red flakes of paint on surface.
S-2	2 to 4	5	0.5 to 6	(Loose), moist, gray and dark brown, silty, gravelly SAND with potential asbestos-containing material and debris (see notes below) inside of old trench (FILL). Adjacent to both sides of trench is (medium dense), moist, brown, sandy GRAVEL (NATIVE).
S-3	4 to 6	4.5		
S-4	6 to 8	5.5	6 to 8	(Medium dense), moist, gray, sandy GRAVEL.
S-5	8 to 10	5.5	8 to 10	(Dense), moist, brown, slightly silty GRAVEL

Bottom of 38-TP-501 at 10 feet, completed 4/21/92.

Notes:
1) Encountered potential asbestos-containing material from depth of 3 to 6 feet, which was removed by TLH Abatement, Inc.
2) An abandoned trench was filled in with soil from depth of 0 to 6 feet. The trench fill contained wood debris (old gutter?), copper wire, and a 3/4-inch-diameter water line.

Log of Hand Auger Boring 38-HA-502

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), moist, dark brown, silty, sandy GRAVEL with organics.
S-2	2 to 3		

Bottom of 38-HA-502 at 3 feet, completed 10/30/92.

Log of Hand Auger Boring 38-HA-503

Sample Number	Sample Depth in Feet	Stratum Depth in Feet*	Soil Description
S-1	0 to 1	0 to 3	(Medium dense), damp to moist, brown to dark brown, silty, sandy GRAVEL with organics.
S-2	2 to 3		

Bottom of 38-HA-503 at 3 feet, completed 10/30/92.

Figure A-38-3

AREA 40
EXPLORATION LOGS

Log of Test Pit 40-CR-TP-501
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.7	(Loose), damp, black, silty, very sandy GRAVEL.
S-2	1 to 1.7	5		
S-3	1.7 to 3	6	1.7 to 3	(Loose), damp, brown, sandy GRAVEL.
S-4	3 to 5	6	3 to 5	(Medium dense), moist, light gray, sandy GRAVEL .

Bottom of 40-CR-TP-501 at 5 feet, completed 4/3/92

Log of Test Pit 40-CR-TP-502
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1	(Loose), moist, medium brown, sandy GRAVEL.
S-2	1 to 2	4	1 to 2	(Loose), moist, medium gray, sandy GRAVEL with (medium dense), tan-brown GRAVEL lenses at depths of 5 and 6 feet.
S-3	2 to 3	5	2 to 5	(Loose), damp, light brown, sandy GRAVEL.
S-4	3 to 5	5		

Bottom of 40-CR-TP-502 at 5 feet, completed 4/3/92

Figure A-40-1

Log of Test Pit 40-CR-TP-503
Ground Surface Elevation Approximately 212.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 5.5	3 inches of (dense), damp, dark brown, silty, sandy GRAVEL over (dense), damp, interbedded black and brown, silty, sandy GRAVEL (FILL).
S-2	1 to 2	4		
S-3	2 to 3	4		
S-4	3 to 5	4	5.5 to 6	(Medium dense), damp, brown, sandy GRAVEL (NATIVE).

Bottom of 40-CR-TP-503 at 6 feet, completed 4/3/92.

Note:
Test pit located on abandoned railroad grade.

Log of Test Pit 40-CR-TP-504
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Loose), damp, black, silty, sandy GRAVEL.
S-2	1 to 2	5	1 to 2	(Medium dense), damp, brown, silty, sandy GRAVEL.
S-3	2 to 3	5	2 to 5	(Medium dense), damp, light brown, sandy GRAVEL.
S-4	3 to 5	5		

Bottom of 40-CR-TP-504 at 5 feet, completed 4/3/92.

Log of Test Pit 40-CR-TP-505
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	(Loose), damp, black, silty, sandy GRAVEL.
S-2	1 to 2	4		
S-3	2 to 3	4	2 to 3	(Medium dense) damp, brown, silty, sandy GRAVEL.
S-4	3 to 5	5	3 to 5	(Medium dense), damp, light brown, sandy GRAVEL.

Bottom of 40-CR-TP-505 at 5 feet, completed 4/3/92

Log of Test Pit 40-CR-TP-506
Ground Surface Elevation Approximately 210.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Medium dense), damp, black, silty, sandy GRAVEL.
S-2	1 to 2	5		
S-3	2 to 3	5	2 to 3	(Medium dense), damp, dark brown, silty, sandy GRAVEL.
S-4	3 to 5	6	3 to 6.5	(Loose), damp, light brown GRAVEL.
S-5	8 to 10	5	6.5 to 10	(Loose), damp dark gray, slightly sandy GRAVEL with boulders.

Bottom of 40-CR-TP-506 at 10 feet, completed 4/3/92

Note:
Abundant metal debris removed from surface prior to excavation.

Figure A-40-3

Log of Test Pit 40-GM-TP-501

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 5	Six inches of dark brown TOPSOIL over (medium dense), moist, yellow-brown, slightly silty, sandy GRAVEL with gravel content increasing with depth. Standing water encountered at depth of 2.5 feet.
S-2	3 to 5	6		

Bottom of 40-GM-TP-501 at 5 feet, completed 2/18/92.

Note:
Test pit located in depression below site of former Glaze Mill No. 2.

Log of Test Pit 40-GM-TP-502

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	Six inches of dark brown, very organic TOPSOIL over (medium stiff), moist, yellow-brown, sandy SILT with iron staining and roots.
S-2	3 to 5	6	1 to 5	(Medium dense), moist to wet, yellow-brown, slightly silty, sandy GRAVEL with some boulders. Standing water encountered at depth of 3 feet.

Bottom of 40-GM-TP-502 at 5 feet, completed 2/18/92.

Note:
Water encountered at depth of 3 feet, could not bail out with backhoe.

Log of Test Pit 40-GM-TP-503
Ground Surface Elevation Approximately 198.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	6	0 to 1	(Loose), moist, dark brown, gravelly, very silty SAND with abundant roots and other organics.
			2.5 to 3	(Medium stiff), moist, yellow-brown, slightly gravelly, silty CLAY.
S-2	3 to 5	6	3 to 5	(Medium dense), moist to wet, yellow-brown, silty, sandy GRAVEL with gravel content increasing with depth. Water encountered at depth of 4 feet.

Bottom of 40-CR-TP-503 at 5 feet, completed 2/18/92

Note:
Rapid seepage of water encountered at depth of 4 feet.

Log of Test Pit 40-GM-TP-504
Ground Surface Elevation Approximately 202.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	6	0 to 3	(Loose), damp, dark brown, silty, sandy GRAVEL with abundant organics (wood and roots).
S-2	3 to 5	5.5	3 to 7	(Medium dense), damp, yellow-brown, slightly silty, sandy GRAVEL with small roots.
S-3	5.5 to 6.5	6	7 to 10	(Medium dense), moist to wet, yellow-brown GRAVEL.

Bottom of 40-GM-TP-504 at 10 feet, completed 2/19/92.

Notes:
1) No standing water but GRAVEL was wet from depth of 9 to 10 feet.
2) Could not sample at depth of 8 to 10 feet because of sloughing of test pit walls.

Log of Test Pit 40-GM-TP-505
Ground Surface Elevation Approximately 215.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.8	(Loose), damp, dark brown, gravelly, very silty SAND with abundant roots.
S-2	3 to 5	6	1.8 to 5	(Medium dense), damp, yellow-brown, sandy GRAVEL with less sand content with depth and minor roots.

Bottom of 40-GM-TP-505 at 5 feet, completed 2/19/92

Log of Test Pit 40-GM-TP-506
Ground Surface Elevation Approximately 216.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 2.5	(Loose), damp, dark brown, silty SAND with abundant roots (FILL?).
			2.5 to 3	(Medium dense), damp, yellow-brown, sandy GRAVEL (FILL?).
S-2	3 to 5	5.5	3 to 5	(Loose), damp, dark brown, gravelly, very silty SAND with roots.

Bottom of 40-GM-TP-506 at 5 feet, completed 2/19/92

Note:
Root horizons above and below depth of 3 feet suggests more than one fill episode.

Log of Test Pit 40-GM-TP-507
Ground Surface Elevation Approximately 198.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, dark brown, gravelly, very silty SAND with roots.
S-2	2.5 to 4.5	6	3 to 5	(Medium dense), moist to wet, yellow-brown, sandy GRAVEL. Water encountered at depth of 4.5 feet.

Bottom of 40-GM-TP-507 at 5 feet, completed 2/19/92.

Log of Test Pit 40-MH-TP-501
Ground Surface Elevation Approximately 214.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, black, silty, sandy GRAVEL.
S-2	1 to 2	5		
S-3	2 to 3	4.5	2 to 5	(Medium dense), damp, light brown, sandy GRAVEL.
S-4	3 to 5	4.5		

Bottom of 40-MH-TP-501 at 5 feet, completed 4/1/92.

Log of Test Pit 40-MH-TP-502
Ground Surface Elevation Approximately 212.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	1 inch of moss over (medium dense), moist, black, slightly silty, sandy GRAVEL with abundant roots.
S-2	1 to 1.5	5		
S-3	1.5 to 2	5		
S-4	2 to 2.5	6	2 to 2.5	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-5	2.5 to 3	5.5	2.5 to 5	(Medium dense), moist to wet, medium gray, sandy GRAVEL.
S-6	3 to 5	5.5		

Bottom of 40-MH-TP-502 at 5 feet, completed 4/2/92

Log of Test Pit 40-MH-TP-503
Ground Surface Elevation Approximately 208.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, black, slightly silty, sandy GRAVEL with abundant roots.
S-2	1 to 2	5		
S-3	2.5 to 3	6	2.5 to 5	(Loose), moist, tan-brown, slightly sandy, pea-size GRAVEL.
S-4	3 to 5	6		

Bottom of 40-MH-TP-503 at 5 feet, completed 4/2/92

Log of Test Pit 40-MH-TP-504
Ground Surface Elevation Approximately 213.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Medium dense), moist, black, slightly silty, sandy GRAVEL with abundant roots.
S-2	1 to 1.5	5		
S-3	1.5 to 2	5		
S-4	2 to 2.5	6	2 to 2.5	(Medium dense), moist, tan-brown, sandy GRAVEL).
S-5	2.5 to 3	6	2.5 to 6.5	(Medium dense), moist, medium gray, sandy GRAVEL with cobbles. Moisture increases with depth.
S-6	3 to 5	6		
			6.5 to 7.5	(Loose), wet, sandy, pea-size GRAVEL.
S-7	8 to 10	6	7.5 to 10	(Medium dense), wet, medium gray, sandy GRAVEL.

Bottom of 40-MH-TP-504 at 10 feet, completed 4/2/92.

Log of Test Pit 40-MH-TP-505
Ground Surface Elevation Approximately 213.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	Forest Duff, wood, metal debris, and concrete blocks over (medium dense), moist, black, slightly silty, sandy GRAVEL with roots.
S-2	1 to 1.5	5		
S-3	1.5 to 2	5	1.5 to 2	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-4	2 to 2.5	5	2 to 8	(Medium dense) moist, medium gray, sandy GRAVEL.
S-5	2.5 to 3	5		
S-6	3 to 5	5		
S-7	8 to 10	4.5	8 to 10	(Loose), moist, gray, slightly gravelly SAND.

Bottom of 40-MH-TP-505 at 10 feet, completed 4/2/92

Log of Test Pit 40-MH-TP-506
Ground Surface Elevation Approximately 213.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Loose), damp, black, silty, sandy GRAVEL.
S-2	1 to 1.5	5		
S-3	1.5 to 2	5	1.5 to 5	(Loose), damp, light brown, sandy GRAVEL.
S-4	2 to 2.5	5		
S-5	2.5 to 3	5		
S-6	3 to 5	5		

Bottom of 40-MH-TP-506 at 5 feet, completed 4/2/92.

Log of Test Pit 40-MH-TP-507
Ground Surface Elevation Approximately 214.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, black, silty, very sandy GRAVEL.
S-2	1 to 2	4.5		
S-3	2 to 3	4.5	2 to 3	(Medium dense), damp, gray, sandy GRAVEL.
S-4	3 to 5	5	3 to 5	(Medium dense), damp, brown, sandy GRAVEL.

Bottom of 40-MH-TP-507 at 5 feet, completed 4/2/92.

Log of Test Pit 40-MH-TP-508
Ground Surface Elevation Approximately 214.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, dark brown, silty, very sandy GRAVEL.
S-2	1 to 2	5		
S-3	2 to 3	5	2 to 5	(Medium dense), damp, light brown, sandy GRAVEL.
S-4	3 to 5	5		

Bottom of 40-MH-TP-508 at 5 feet, completed 4/2/92

Log of Test Pit 40-PH-TP-501
Ground Surface Elevation Approximately 205.6 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Loose), moist, dark brown, silty, gravelly SAND.
		2 to 3	(Medium dense), damp, greenish gray, sandy GRAVEL. Sand is primarily coarse-grained with little silt.
S-2	3 to 5	3 to 5	(Medium dense), damp, yellow-brown, slightly silty, sandy GRAVEL with minor roots.
		5 to 6	(Medium dense), damp, yellow-brown, gravelly SAND.
S-3	8 to 10	6 to 10	(Medium dense), moist to wet, yellow-brown, very sandy GRAVEL.

Bottom of 40 PH-TP-501 at 10 feet, completed 2/20/92

Log of Test Pit 40-PH-TP-502
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Loose), moist, dark brown, gravelly, silty SAND and organics.
S-2	3 to 5	2 to 5	(Medium dense), damp, yellow-brown, sandy GRAVEL with abundant rounded cobbles.

Bottom of 40-PH-TP-502 at 5 feet, completed 2/20/92.

Log of Test Pit 40-PH-TP-503
Ground Surface Elevation Approximately 210.9 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	(Loose), moist, dark brown, gravelly, silty SAND with organics (roots).
S-2	3 to 5	1.5 to 5	(Medium dense), damp, yellow-brown, sandy GRAVEL with a few small roots.

Bottom of 40-PH-TP-503 at 5 feet, completed 2/20/92.

Log of Test Pit 40-PH-TP-504
Ground Surface Elevation Approximately 211.2 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	0 to 1.5	(Loose), moist, dark brown, gravelly, silty SAND with organics (roots).
S-2	3 to 5	1.5 to 5	(Medium dense), damp, yellow-brown, sandy GRAVEL with small roots.

Bottom of 40 PH-TP-504 at 5 feet, completed 2/20/92

Log of Test Pit 40-PH-TP-505
Ground Surface Elevation Approximately 211.6 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, dark brown, gravelly, silty SAND with organics (roots).
		1.5 to 3	(Medium dense), damp, yellow-brown, sandy GRAVEL with a 4-inch-thick lens of pea-size gravel at depth of 2.5 feet.
S-2	3 to 5	3 to 5	(Medium dense), damp, greenish gray, sandy GRAVEL.

Bottom of 40 PH-TP-505 at 5 feet, completed 2/20/92

Log of Test Pit 40-PR-TP-501
Ground Surface Elevation Approximately 211.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, black, silty, very sandy GRAVEL with sand lenses and roots.
S-2	1 to 2	5	2 to 5	(Medium dense), damp, light brown, sandy GRAVEL.
S-3	2 to 3	5.5		
S-4	3 to 5	5.5		

Bottom of 40-PR-TP-501 at 5 feet, completed 4/1/92.

Log of Test Pit 40-PR-TP-502
Ground Surface Elevation Approximately 210.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 2	(Loose), damp, black, slightly gravelly, silty, fine SAND.
S-2	1 to 2	4		
S-3	2 to 3	4	2 to 3	(Loose), damp, brown, silty, fine SAND.
S-4	3 to 5	4.5	3 to 5	(Medium dense), damp, light brown, gravelly, medium to fine SAND.

Bottom of 40-PR-TP-502 at 5 feet, completed 4/1/92.

Log of Test Pit 40-PR-TP-503
Ground Surface Elevation Approximately 209.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	5	0 to 2	(Loose), damp, black, silty, sandy GRAVEL with roots.
S-2	1 to 2	5		
S-3	2 to 3	5.5	2 to 3	(Medium dense), damp, Dark brown, silty, sandy GRAVEL.
S-4	3 to 5	4.5	3 to 10	(Medium dense), damp, light brown, sandy GRAVEL.
S-5	8 to 10	4		

Bottom of 40-PR-TP-503 at 10 feet, completed 4/1/92

Log of Test Pit 40-PR-TP-504
Ground Surface Elevation Approximately 212.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), damp, silty, very sandy GRAVEL with roots.
S-2	1 to 2	5		
S-3	2 to 3	5	2 to 5	(Medium dense), damp, light brown, sandy GRAVEL.
S-4	3 to 5	5		

Bottom of 40-PR-TP-504 at 5 feet, completed 4/1/92

Log of Test Pit 40-PR-TP-505
Ground Surface Elevation Approximately 214.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 0.3	(Loose), damp, black, silty, sandy GRAVEL.
S-2	1 to 2	4	0.3 to 3.5	(Loose), damp, brown, sandy GRAVEL intermixed with black, silty, sandy GRAVEL.
S-3	2 to 3	4		
S-4	4 to 5	4	3.5 to 5	(Loose), damp, dark brown, silty, gravelly SAND (NATIVE).

Bottom of 40-PR-TP-505 at 5 feet, completed 4/1/92.

Note:
Test pit located on old railroad grade. The fill/native soil contacts were difficult to locate because of native soils used as fill in building the grade.

Log of Hand Auger Boring 40-PR-HA-501
Ground Surface Elevation Approximately 209.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
--	--	--	0 to 3.5	Empty, wood-lined drywell 3.5 feet deep by 4 feet wide.
S-1(R)	3.5 to 4	5	3.5 to 7.5	(Loose), moist, black, slightly gravelly, silty SAND with twigs and small pieces of wood. Numerous wood chunks, fir needles, and twigs from depth of 5 to 7 feet. A few weathered rocks at depth of 7 feet.
S-2(R)	4 to 4.5	4.5		
S-3(R)	4.5 to 5	4.5		
S-4(R)	5 to 5.5	4.5		
S-5(R)	5.5 to 6	4		
S-6(R)	6 to 6.5	4		
S-7(R)	6.5 to 7	4.5		
S-8(R)	7 to 7.5	3.5		
S-9(R)	7.5 to 8	3	7.5 to 8.3	(Loose), wet, black, slightly gravelly, silty SAND with residual petroleum, slight petroleum odor.
S-10(R)	8 to 8.3	3		
S-11(R)	8.3 to 9	1	8.3 to 9	(Loose), moist, silver-gray SAND.
S-12(R)	9 to 9.5	1	9 to 10.5	(Loose), moist, gold-yellow SAND.
S-13 (R)	9.5 to 10	1		
S-14(R)	10 to 10.5	1		

Bottom of 40-PR-HA-501 at 10.5 feet, completed 4/9/92

Note:
Hand Auger drilled in bottom of drywell.

Figure A-40-19

Log of Test Pit 40-PU-TP-501
Ground Surface Elevation Approximately 199.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1(R)	0 to 1	7	0 to 1	(Medium dense), moist, black, slightly silty, sandy GRAVEL with metal debris, old lumber, and apparent dried white paint.
S-2	1 to 1.5	6	1 to 2	(Medium dense), moist, orange-brown, sandy GRAVEL.
S-3	1.5 to 2	6		
S-4	2 to 2.5	6	2 to 3	(Medium dense), moist, tan-brown, medium sandy GRAVEL.
S-5	2.5 to 3	6		
S-6	3 to 5	6	3 to 4.5	(Medium dense), moist to wet, medium gray, coarse sandy GRAVEL.
S-7	8 to 10	6	4.5 to 10	(Medium dense), moist to wet, tan-brown, medium sandy GRAVEL with a few small gravel layers.

Bottom of 40-PU-TP-501 at 10 feet, completed 4/6/92.

Log of Test Pit 40-PU-TP-502
Ground Surface Elevation Approximately 195 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, medium brown, slightly silty, very gravelly SAND with abundant roots.
S-2	1 to 2	5		
S-3	2 to 3	5.5	2 to 3	.(Loose), moist, light brown, slightly silty, very gravely SAND with minor roots.
S-4	3 to 5	6	3 to 5	(Loose), moist, tan-brown. sandy GRAVEL.

Bottom of 40-PU-TP-502 at 5 feet, completed 4/6/92

Log of Test Pit 40-PU-TP-503
Ground Surface Elevation Approximately 205.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 5	(Loose), moist, dark brown, slightly silty, sandy GRAVEL with roots to a depth of 2.5 feet.
S-2	1 to 1.5	5		
S-3	1.5 to 2	5		
S-4	2 to 2.5	5		
S-5	2.5 to 3	5		
S-6	3 to 5	5		

Bottom of 40-PU-TP-503 at 5 feet, completed 4/6/92

Figure A-40-21

Log of Test Pit 40-PU-TP-504
Ground Surface Elevation Approximately 208.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, dark brown, slightly silty, sandy GRAVEL with abundant roots.
S-2	1 to 2	5		
S-3	2 to 2.7	5	2 to 2.7	(Loose), moist, medium brown, sandy GRAVEL with occasional roots.
S-4	3 to 5	6	2.7 to 5	(Loose), moist, medium gray, sandy GRAVEL with areas of brown staining.

Bottom of 40-PU-TP-504 at 5 feet, completed 4/6/92.

Log of Test Pit 40-PU-TP-505
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, dark brown to black, slightly silty, sandy GRAVEL with abundant roots.
S-2	1 to 2	5		
S-3	2 to 3	6	2 to 5	(Loose), moist, tan-brown, sandy GRAVEL.
S-4	3 to 5	6		

Bottom of 40-PU-TP-505 at 5 feet, completed 4/6/92.

Log of Test Pit 40-PU-TP-506
Ground Surface Elevation Approximately 197.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 2	(Loose), moist, dark brown, slightly silty, sandy GRAVEL with broken glass from depth of 0 to 0.5 foot.
S-2	1 to 2	6		
S-3	2 to 3	6	2 to 4	(Loose), moist, light brown, sandy GRAVEL.
S-4	3 to 5	6	4 to 5	(Loose), moist, light gray-tan, very sandy GRAVEL.

Bottom of 40-PU-TP-506 at 5 feet, completed 4/6/92

Figure A-40-23

Log of Test Pit 40-WM1-TP-501
Ground Surface Elevation Approximately 207.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.5	(Medium dense), moist, black, silty, sandy GRAVEL with roots.
			0.5 to 2	(Medium dense), moist, tan-brown, sandy GRAVEL with roots.
S-2	3 to 5	5	2 to 6	(Medium dense to dense), moist, brownish gray, very sandy GRAVEL with 2 blocks of cement (1 foot square) at depth of 2 feet.
S-3	8 to 10	5	6 to 10	(Medium dense), moist, gray, gravelly SAND.
			10 to 10.5	(Medium dense to dense), moist, gray, sandy GRAVEL.

Bottom of 40-WM1-TP-501 at 10.5 feet, completed 2/28/92.

Notes:
1) Test pit excavated adjacent to foundation.
2) Bottom of foundation observed at depth of 7.5 feet.
3) Apparent fill material observed within approximately 2 feet away from foundation.

Log of Test Pit 40-WM1-TP-502
Ground Surface Elevation Approximately 208.3 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, black, silty, sandy GRAVEL with roots and other organics.
			1 to 3	(Medium dense), moist, orange-brown, sandy GRAVEL with roots and gravel to 4 inches in diameter.
S-2	3 to 5	4.5	3 to 5	(Medium dense), moist, brownish gray, sandy GRAVEL.

Bottom of 40-WM1-TP-502 at 5 feet, completed 2/28/92

Log of Test Pit 40-WM1-TP-503
Ground Surface Elevation Approximately 206.8 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	(Loose), damp, silty, very sandy GRAVEL with roots.
S-2	3 to 5	5	1.5 to 5	(Medium dense), moist, tan-gray, sandy GRAVEL.

Bottom of 40-WM1-TP-503 at 5 feet, completed 2/28/92

Log of Test Pit 40-WM1-TP-504
Ground Surface Elevation Approximately 205.6 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 2.5	(Medium dense), moist, black, silty, very sandy GRAVEL with roots and organic debris.
			2.5 to 3.5	(Medium dense to dense), moist, tan-brown, slightly sandy GRAVEL.
S-2	3 to 5	5.5	3.5 to 5	(Medium dense), moist, brownish gray, sandy GRAVEL.

Bottom of 40-WM1-TP-504 at 5 feet, completed 2/28/92.

Log of Test Pit 40-WM1-TP-505
Ground Surface Elevation Approximately 207.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	(Medium dense), moist, dark brown to black, silty, sandy GRAVEL with abundant roots.
S-2	3 to 5	5.5	1.5 to 5	(Medium dense), moist, brownish gray, sandy GRAVEL with occasional roots.

Bottom of 40-WM1-TP-505 at 5 feet, completed 2/28/92.

Log of Hand Auger Boring 40-WM1-HA-501
Ground Surface Elevation Approximately 198.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5.5	0 to 0.5 (outside drywell)	(Loose),moist, black, slightly gravelly, silty SAND with roots.
			0 to 4	Empty, wood-lined drywell 4 feet deep by 1.5 feet wide by 3 feet long.
S-2	4 to 4.5	5	4 to 4.5	Forest Duff over (medium dense), moist, medium brown, sandy GRAVEL with layer of wood at depth of 4.3 feet (old wood floor?).
S-3(R)	4.5 to 5	5.5	4.5 to 5	(Medium soft), moist to wet, black, gravelly, very sandy SILT.
S-4(R)	5 to 5.5	5	5 to 5.5	(Medium dense), moist, medium brown, sandy GRAVEL.

Bottom of 40-WM1-HA-501 at 5.5 feet, completed 3/31/92

Notes:
1) Hand auger dug in abandoned drywell.
2) Sample S-1 collected from soil around edge of drywell opening. Samples S-2 through S-4 collected beneath bottom of drywell bottom (4 feet below grade).
3) Observed hollow steel pipe coming from Wheel Mill foundation and going into drywell.

Figure A-40-27

Log of Test Pit 40-WM2-TP-501
Ground Surface Elevation Approximately 206.5 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1(R)	5	0 to 1.2	(Loose), moist, black, gravelly, silty SAND with rusted scrap metal and wood (old roof?).
S-2	3 to 6	5	1.2 to 10	(Medium dense), moist, light brown, sandy GRAVEL with cobbles up to 4 inches in diameter.
S-3	8 to 9.5	5		

Bottom of 40-WM2-TP-501 at 9.5 feet, completed 3/2/92.

Log of Test Pit 40-WM2-TP-502
Ground Surface Elevation Approximately 205.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, black, silty, gravelly SAND with roots.
			2 to 3.5	(Medium dense), moist, dark brown, sandy GRAVEL.
S-3	3 to 5	5	3.5 to 5	(Medium dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM2-TP-502 at 5 feet, completed 3/2/92.

Log of Test Pit 40-WM2-TP-503
Ground Surface Elevation Approximately 210.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, black, silty, gravelly SAND with roots.
			2 to 3	(Medium dense), moist, dark brown, sandy GRAVEL.
S-2	3 to 5	5	3 to 5	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM2-TP-503 at 5 feet, completed 3/2/92

Log of Test Pit 40-WM2-TP-504
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.7	(Loose), moist, black, silty, gravelly SAND with tree roots and iron staining.
S-2	3 to 5	5.5	1.7 to 5	(Dense), moist, light brown, sandy GRAVEL with cobbles up to 6 inches in diameter.

Bottom of 40-WM2-TP-504 at 5 feet, completed 3/2/92

Figure A-40-29

Log of Test Pit 40-WM2-TP-505
Ground Surface Elevation Approximately 211.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, black, silty, gravelly SAND with roots.
			2 to 2.5	(Medium dense), moist, dark brown, sandy GRAVEL.
S-2	3 to 5	5	2.5 to 5	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM2-TP-505 at 5 feet, completed 3/2/92.

Log of Test Pit 40-WM2-TP-506
Ground Surface Elevation Approximately 210.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, black, silty, gravelly SAND with tree roots.
			2 to 3.5	(Medium dense), moist, dark brown, sandy GRAVEL.
S-2	3 to 5	5	3.5 to 5	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM2-TP-506 at 5 feet, completed 3/2/92.

Log of Test Pit 40-WM2-TP-507
Ground Surface Elevation Approximately 205.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2	(Loose), moist, black, silty, gravelly SAND.
			2 to 2.5	(Medium dense), moist, dark brown, sandy GRAVEL.
S-3	3 to 5	5.5	2.5 to 5	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM2-TP-507 at 5 feet, completed 3/2/92.

Note:
Test pit excavated next to old post. The black SAND (surficial soil) occurred as fill immediately surrounding the post to the depth of exploration.

Figure A-40-31

Log of Test Pit 40-WM3-TP-501
Ground Surface Elevation Approximately 208.0 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 4	(Loose), moist, black, silty, sandy GRAVEL (see notes below).
S-2	3 to 6	5	4 to 4.5	(Medium dense), moist, dark brown, sandy GRAVEL.
S-3	8 to 10	5	4.5 to 10	(Dense), moist, light brown, sandy GRAVEL with scattered debris (see notes below).

Bottom of 40-WM3-TP-501 at 10 feet, completed 3/3/92.

Notes:
1) Test pit excavated next to the foundation in what appeared to be an abandoned drywell.
2) Observed a small "void" by corner of test pit location (loose soils).
3) Debris from depth of 2.5 to 7 feet included 4-foot steel (brass) ground red; rusted, galvanized sheet metal; scattered wood chunks; vertical 2- by 6-inch planking from depths of 4 to 7 feet.
4) Encountered a 4-inch-diameter, hollow pipe, along side of foundation, which possibly lead to drywell.

Log of Test Pit 40-WM3-TP-501A

Sample Number	Stratum Depth in Feet	Soil Description
Not sampled	0 to 3	(Medium dense), moist, medium to dark brown, sandy GRAVEL with abundant roots (0 to 1 foot depth) with numerous chunks of cement debris up to 2 feet in length) (FILL).

Bottom of 40-WM3-TP-501A at 3 feet, completed 3/3/92

Notes:
1) Test pit abandoned due to cement slab at depth of 3 feet.
2) Moved test pit to new location (see 40-WM3-TP-501)

Figure A-40-33

Log of Test Pit 40-WM3-TP-502
Ground Surface Elevation Approximately 206.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	2 inches of Forest Duff and branches over (medium dense to dense), moist, black, slightly sandy GRAVEL.
			1.5 to 4	A thin (<1 inch) layer of light orange-tan, gravelly SAND over (medium dense to dense), moist, medium brown, sandy GRAVEL.
S-2	3 to 5	5	4.0 to 5	(Medium dense), moist, light brown, very sandy GRAVEL.

Bottom of 40-WM3-TP-502 at 5 feet, completed 3/4/92.

Note:
Observed piece of rotten wood (post) from depth of 2.5 to 3 feet.

Log of Test Pit 40-WM3-TP-503
Ground Surface Elevation Approximately 209.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1	(Medium dense), moist, medium brown, sandy GRAVEL with roots.
			1 to 3.5	(Medium dense), moist, black, sandy GRAVEL.
S-2	3 to 5	5	3.5 to 5	(Medium dense), moist, light tan-brown, sandy GRAVEL.

Bottom of 40-WM3-TP-503 at 5 feet, completed 3/4/92

Log of Test Pit 40-WM3-TP-504
Ground Surface Elevation Approximately 209.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 2.5	(Loose), moist, black, silty, sandy GRAVEL.
S-2	3 to 5	5	2.5 to 5	(Dense), moist, light brown, sandy GRAVEL.

Bottom of 40-WM3-TP-504 at 5 feet, completed 3/3/92

Note:
Test pit excavated near abandoned railroad grade.

Log of Test Pit 40-WM3-TP-505
Ground Surface Elevation Approximately 213.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4	0 to 0.5	(Medium dense), moist, black, silty, very sandy GRAVEL.
			0.5 to 1.5	(Medium dense to dense), moist, tan- brown, sandy GRAVEL with 2 pieces of old wood.
S-2	3 to 5	4	1.5 to 5	(Medium dense to dense), moist, medium brown, sandy GRAVEL with occasional roots and cobbles.

Bottom of 40-WM3-TP-505 at 5 feet, completed 3/4/92.

Note:
Test pit excavated on former railroad grade.

Log of Test Pit 40-WM4-TP-501
Ground Surface Elevation Approximately 212.4 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 7	(Medium dense), moist, black, silty, sandy GRAVEL over (medium dense), moist, tan-brown, sandy GRAVEL.
S-2	3 to 6	5.5	7 to 7.5	(Loose), moist, medium gray, gravelly, medium to coarse SAND.
S-3	8 to 10	5.5	7.5 to 10	(Loose), moist, light yellowish-brown, coarse, sandy GRAVEL.

Bottom of 40-WM4-TP-501 at 10 feet, completed 3/16/92.

Log of Test Pit 40-WM4-TP-502
Ground Surface Elevation Approximately 213.2 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	(Medium dense), moist, black, slightly silty, sandy GRAVEL with roots.
			1.5 to 3	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-2	3 to 5	5.5	3 to 3.5	(Loose), moist, tan to gray, slightly gravelly, medium SAND.
			3.5 to 5	(Medium dense), moist, tan-brown, sandy GRAVEL.

Bottom of 40-WM4-TP-502 at 5 feet, completed 3/16/92

Log of Test Pit 40-WM4-TP-503
Ground Surface Elevation Approximately 214.1 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	4.5	0 to 1.5	(Medium dense), moist, black, slightly silty, sandy GRAVEL with roots.
			1.5 to 3	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-2	3 to 5	5.5	3.5 to 4	(Medium dense), moist medium gray, gravelly, medium to coarse SAND.
			4 to 5	(Medium dense), moist, brownish gray, very sandy GRAVEL.

Bottom of 40-WM4-TP-503 at 5 feet, completed 3/16/92

Log of Test Pit 40-WM4-TP-504
Ground Surface Elevation Approximately 215.7 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 0.5	(Medium dense), moist, dark brown, slightly silty, sandy GRAVEL with minor roots.
			0.5 to 2.5	(Medium dense), moist, light tan-brown to dark brown, sandy GRAVEL.
S-2	3 to 5	4.5	2.5 to 4	(Medium dense), moist, dark brown-black, slightly silty, sandy GRAVEL.
			4 to 5	(Medium dense), moist, medium brown, sandy GRAVEL with area of iron staining at depth of 4 feet.

Bottom of 40-WM4-TP-504 at 5 feet, completed 3/16/92.

Log of Test Pit 40-WM4-TP-505
Ground Surface Elevation Approximately 212.9 Feet

Sample Number	Sample Depth in Feet	pH	Stratum Depth in Feet	Soil Description
S-1	0 to 1	5	0 to 1.5	(Medium dense), moist, black, slightly silty, sandy GRAVEL with abundant roots.
			1.5 to 2.5	(Medium dense), moist, tan-brown, sandy GRAVEL.
S-2	3 to 5	5.5	2.5 to 3.4	(Medium dense), moist, medium gray, gravelly, medium to coarse SAND.
			3.4 to 3.8	(Medium dense), moist, tan-brown, sandy GRAVEL.
			3.8 to 5	(Medium dense), moist, grayish brown, sandy GRAVEL with an 8-inch diameter cement drain pipe at depth of 4 feet.

Bottom of 40-WM4-TP-505 at 5 feet, completed 3/16/92

Log of Observation Test Pit 40-OB-TP-501

Sample Number	Stratum Depth in Feet	Soil Description
Not Sampled	0 to 1	(Medium dense), moist, black, slightly silty, sandy GRAVEL with roots.
	1 to 3.5	(Medium dense), moist, tan-brown, sandy GRAVEL.

Bottom of 40-WM4-OB-TP-501 at 3.5 feet, completed 3/16/92.

Log of Test Pit 40-TP-600

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3.5	(Medium dense), moist, brownish gray, medium to fine SAND with scattered gravels and remnants of blasting wire (FILL).
S-2	4 to 6	3.5 to 10	(Medium dense), moist, dark brown to brown, sandy GRAVEL with occasional cobbles to 1 foot.
S-3	8 to 10		

Bottom of 40-TP-600 at 10 feet, completed 11/6/92.

AREAS OF POTENTIAL CONCERN
EXPLORATION LOGS

Log of Test Pit APA-TP-501
Ground Surface Elevation Approximately 204.5 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, brown, silty, sandy GRAVEL with minor organics.
		1.5 to 2.5	(Loose), moist, gray, pea-size GRAVEL.
S-2	3 to 5	2.5 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APA-TP-501 at 5 feet, completed 5/27/92.

Log of Test Pit APB-TP-501
Ground Surface Elevation Approximately 209.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 0.6	(Loose), damp, brown, silty, gravelly SAND with some roots
S-2	3 to 5	0.6 to 5	(Loose), damp, light brown, slightly sandy GRAVEL with interbedded gravelly, coarse sand lenses.

Bottom of APB-TP-501 at 5 feet, completed 5/27/92.

Log of Test Pit APB-TP-502
Ground Surface Elevation Approximately 202.7 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.4	(Loose), damp, brown, silty, sandy GRAVEL.
S-2	3 to 5	1.4 to 5	(Loose), damp, medium brown, sandy GRAVEL with interbedded gravel layers.

Bottom of APB-TP-502 at 5 feet, completed 5/27/92.

Log of Test Pit APC-TP-501
Ground Surface Elevation Approximately 209.8 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	(Medium dense), moist, light brown, silty, sandy GRAVEL.
		1 to 2	(Loose), damp, gray, pea-size GRAVEL.
S-2	3 to 5	2 to 5	(Medium dense), moist, brown, sandy GRAVEL.

Bottom of APC-TP-501 at 5 feet, completed 5/26/92.

Log of Test Pit APC-TP-502

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.25	Two inches of Forest Duff over 2 inches of charred soil over (medium dense), moist, dark brown, slightly silty, sandy GRAVEL.
S-2	1 to 2	1.25 to 10	(Medium dense), moist, brown, slightly sandy to sandy GRAVEL with 6-inch layer of medium to fine SAND at 4 feet. Bleached-looking soils observed between depths of 1 to 7 feet along southeast wall of pit.
S-3	3 to 6		
S-4	8 to 10		

Bottom of APC-TP-502 at 10 feet, completed 11/3/92.

Log of Test Pit APC-TP-503

Stratum Depth in Feet	Soil Description
0 to 4	(Medium dense), damp, dark brown to brown, sandy GRAVEL.

Bottom of APC-TP-503 at 4 feet, completed 11/5/92.

Note: Approximately 30 x 18-foot observational test pit excavation. No samples collected because no evidence of potential "sump well" (as indicated from historical drawings) observed.

Log of Test Pit APD-TP-501
Ground Surface Elevation Approximately 210.1 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 3	(Loose), moist, dark brown, silty, sandy GRAVEL with abundant brick debris, quartz, and glazed tile chunks.
S-2	3 to 5	3 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APD-TP-501 at 5 feet, completed 5/27/92.

Notes:
1) APD-TP-501 excavated along a length of approximately 20 feet in attempt to locate remnants of the former Asphalt Paint Building (in an area of graded surficial soils). Although construction debris (e.g., bricks) was encountered, no foundations, pilings, or other evidence of a former building was observed.
2) Observed a few pieces of a tar-like substance (up to 4 inches long) and lead debris on surface.

Log of Test Pit APE-TP-501
Ground Surface Elevation Approximately 217.1 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	Bricks and mortar over 2 inches of black, silty SAND over (medium dense), damp, brown, silty, gravelly SAND.
S-2	3 to 5	2 to 5	(Dense), moist, brown, sandy GRAVEL (NATIVE).

Bottom of APE-TP-501 at 5 feet, completed 5/26/92.

Log of Test Pit APE-TP-502

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	Two inches of sod over (medium dense), moist, brown, sandy GRAVEL with minor organics (FILL?).
S-2	1 to 2	1.5 to 5	(Medium dense), moist, brown, gravelly SAND.
S-3	3 to 5		

Bottom of APE-TP-502 at 5 feet, completed 11/3/92.

Note: Test pit excavated along edge of 6-inch-thick concrete slab (Main Transformer House foundation).

Log of Test Pit APF-TP-501

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2.5	(Loose), moist, dark brown, silty, gravelly SAND with minor organics.
S-2	3 to 5	2.5 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APF-TP-501 at 5 feet, completed 5/27/92.

Log of Hand Auger Boring APF-HA-501

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 2	(Medium dense), moist, dark brown, silty, sandy GRAVEL with abundant organics.
S-2	1 to 2		
S-3	2 to 3	2 to 3	(Medium dense), damp, brown, slightly silty, sandy GRAVEL.

Bottom of APF-HA-501 at 3 feet, completed 10/30/92.

Log of Test Pit APG-TP-501
Ground Surface Elevation Approximately 208.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, dark brown, silty, sandy GRAVEL with abundant roots and an old water line.
		1.5 to 3	(Loose), moist, gray, pea-size GRAVEL.
S-2	3 to 5	3 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APG-TP-501 at 5 feet, completed 5/26/92.

Log of Test Pit APG-TP-502
Ground Surface Elevation Approximately 209.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1	(Loose), moist, dark brown, silty, sandy GRAVEL with minor organics.
S-2	3 to 5	1 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APG-TP-502 at 5 feet, completed 5/26/92.

Log of Test Pit APG-TP-503
Ground Surface Elevation Approximately 211.0 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, brown, silty, sandy GRAVEL with minor organics.
		1.5 to 3	(Medium dense), moist, yellowish brown, sandy GRAVEL.
S-2	3 to 5	3 to 5	(Loose), moist, gray, pea-size GRAVEL.

Bottom of APG-TP-503 at 5 feet, completed 5/26/92.

Log of Test Pit APG-TP-504
Ground Surface Elevation Approximately 210.4 Feet

Sample Number	Sample Depth in Feet	Stratum Depth in Feet	Soil Description
S-1	0 to 1	0 to 1.5	(Loose), moist, brown, silty, sandy GRAVEL with minor organics and pieces of wire and rebar.
		1.5 to 3	(Loose), moist, gray, pea-size GRAVEL.
S-2	3 to 5	3 to 5	(Medium dense), moist, yellowish brown, sandy GRAVEL.

Bottom of APG-TP-504 at 5 feet, completed 5/27/92.

Appendix B
Soil Quality Data

CONTENTS

Appendix B presents soil quality data representing current Site conditions as of September 2001. The tables are organized and labeled according to area as discussed in Section 2. The tables are in the same order as that in which they are discussed in Section 2—Site Areas (by number), AP Areas, Site Reference Area (REF), and Narrow-Gauge Railroad (NGRR). Refer to Section 2 for a complete description of each Site Area. Specific notes for the tables are as follows:

1. Blanks indicate no analysis for a specific constituent.
2. Soil quality data representing Site conditions as of September 2001 are provided in the tables, including pre-RI, RI, and interim source removal verification sampling results.
3. Data qualifiers include the following:

   U Not detected at associated detection limit
   J Estimated concentration
   UJ Not detected; associated detection limit is an estimate
   R Rejected data, as determined during data validation
   S Sum of individual constituent concentrations (e.g., total cPAHs and total PCBs)
   X Elution pattern does not match typical product

4. Field duplicate samples are designated with sample ID suffixes of D, DUP, or SSE (the different suffixes have identical meanings).
5. As discussed in Section 2 of the report, soil quality data from the following areas have been redesignated as follows:
   - Areas AP-A and AP-G have been included in the Areas of Potential Concern tables.
   - Areas AP-B and AP-D have been included in Area 26.
   - Samples designated AP-H at the time of sampling have been divided into Areas 25 and 26.
   - Sampling locations within 25 feet of a narrow-gauge railroad grade have been included in the Narrow-Gauge Railroad designation.

The redesignated soil quality data have been included in soil quality data tables in this appendix for the appropriate areas as listed above.

The tables were developed on the basis of information provided to URS in an analytical database submitted in final form for this RI on April 1, 2002 (Pioneer 2002).

Table B.1-1
Area 6 - Crystallizer Drum Area Soil Quality

Area	6	6	6	6	6
Sample ID	01-F16-SS[F-211]C2-005	01-F16-SS[F-212]C2-005	01-F16-SS[F-213]C2-005	01-F16-SS[F-214]C2-005	01-F16-SS[F-215]C2-005
Date Sampled	8/6/01	8/6/01	8/6/01	8/6/01	8/6/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Conventionals (mg/kg dry)					
Nitrate as Nitrogen					
Total Metals (mg/kg dry)					
Arsenic	3.8	5	4.7	3.5	4.2
Cadmium					
Chromium					
Copper					
Lead	20	40	35	20	45
Mercury					
Nickel					
Zinc					
TPH (mg/kg dry)					
TPH (418.1)					

Area	6	6	6	6	6
Sample ID	01-F16-SS[F-216]C2-005	01-F16-SS[F-217]C2-005	01-F16-SS[F-218]C2-005	01-N01-SS[NGRR-178]C2-005	01-N01-SS[NGRR-180]C2-005
Date Sampled	8/6/01	8/6/01	8/6/01	8/6/01	8/6/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	1.5 to 2	1.5 to 2
Conventionals (mg/kg dry)					
Nitrate as Nitrogen					
Total Metals (mg/kg dry)					
Arsenic	25	33	7.9	3.5	18
Cadmium					
Chromium					
Copper					
Lead	69	60	49	37	9.9
Mercury					
Nickel					
Zinc					
TPH (mg/kg dry)					
TPH (418.1)					

Table B.1-1
Area 6 - Crystallizer Drum Area Soil Quality

Area	6	6	6	6	6
Sample ID	01-N01-SS[NGRR-181]C2-005	03-N01-SS-[NGRR-179-3]-C2-050	6-SS-402	6-SS-501	6-SS-502
Date Sampled	8/6/01	9/13/01	11/4/93	4/21/92	4/21/92
Depth	1.5 to 2	3.5 to 4	0 to 0.5	0 to 0.5	0 to 0.5
Conventionals (mg/kg dry)					
Nitrate as Nitrogen				3	79.5
Total Metals (mg/kg dry)					
Arsenic	10	4.8	21	5.8	9.1
Cadmium				0.51	0.46
Chromium				24	120
Copper				50	100
Lead	7.6	87		180	410
Mercury				0.34	0.68
Nickel				17	18
Zinc				290	300
TPH (mg/kg dry)					
TPH (418.1)				230	1700

Area	6	6	6	6	6
Sample ID	6-SS-503	6-TP-501-S-2	6-TP-501-S-3	6-TP-502-S-1	6-TP-502-S-2
Date Sampled	4/21/92	4/20/92	4/20/92	4/20/92	4/20/92
Depth	0 to 0.5	3 to 6	8 to 10	0 to 1	3 to 6
Conventionals (mg/kg dry)					
Nitrate as Nitrogen	38.1	0.7	0.8	2.5 UJ	0.7
Total Metals (mg/kg dry)					
Arsenic	10	3.6	1.8	1.6	1.2
Cadmium	0.67	0.079	0.058	0.071	0.046
Chromium	59	14	12	10	12
Copper	93	18	13	14	13
Lead	400	39	16	12	5.3 U
Mercury	1.2	0.076 U	0.09	0.081 U	0.089 U
Nickel	26	17	18	15	15
Zinc	630	49	40	34	30
TPH (mg/kg dry)					
TPH (418.1)	1900	39	22 U	21 U	22 U

Table B.1-1
Area 6 - Crystallizer Drum Area Soil Quality

Area	**6**
Sample ID	**6-TP-502-S-3**
Date Sampled	**4/20/92**
Depth	**8 to 10**
Conventionals (mg/kg dry)	
Nitrate as Nitrogen	2.5 UJ
Total Metals (mg/kg dry)	
Arsenic	1.5
Cadmium	0.08
Chromium	13
Copper	15
Lead	20
Mercury	0.096 U
Nickel	16
Zinc	30
TPH (mg/kg dry)	
TPH (418.1)	140

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-B-1,S-1**	**7-B-3,S-1**	**7-B-3,S-3**	**7-B-3,S-5**	**7-B-3,S-6**	**7-B-4,S-1-DAVG**	**7-B-4,S-11**	**7-B-4,S-3**
Date Sampled	**12/1/86**	**4/28/87**	**4/28/87**	**4/28/87**	**4/28/87**	**4/29/87**	**4/29/87**	**4/29/87**
Depth	**2.5 to 4**	**3.5 to 5**	**8.5 to 10**	**13.5 to 15**	**16.5 to 18**	**3.5 to 5**	**28.5 to 30**	**8.5 to 10**
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony	4							
Arsenic								
Cadmium								
Chromium	6 U							
Copper								
Lead	94	110	31	32	30	52	66	52
Mercury								
Nickel								
Zinc								

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-4,S-5	7-B-4,S-6	7-B-4,S-9	7-B-5,S-1-DAVG	7-B-5,S-3	7-B-5,S-5	7-B-5,S-7	7-B-501-S-1
Date Sampled	4/29/87	4/29/87	4/29/87	4/28/87	4/28/87	4/28/87	4/28/87	2/27/92
Depth	13.5 to 15	16 to 17.5	23.5 to 25	3 to 4.5	8 to 9.5	13 to 14.5	18 to 19.5	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic								4.1
Cadmium								0.024
Chromium								1.6
Copper								5.7
Lead	30	26	51	320	41	54	170	230
Mercury								3.2
Nickel								1.9
Zinc								2.4

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-B-501-S-1A**	**7-B-501-S-2-DAVG**	**7-B-501-S-3-DAVG**	**7-B-501-S-4-DAVG**	**7-B-501-S-5**	**7-B-501-S-6**	**7-B-502-S-1**	**7-B-502-S-1A**
Date Sampled	**6/26/92**	**2/27/92**	**2/27/92**	**2/28/92**	**2/28/92**	**2/28/92**	**2/28/92**	**6/26/92**
Depth	**2.5 to 4**	**5 to 8**	**10 to 13**	**15 to 18**	**20 to 23**	**25 to 28.5**	**0 to 1**	**2.5 to 4**
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic	18		6.9				4.4	1.5
Cadmium	0.076 J		0.2				0.044	
Chromium	1		2.9				3.1	0.69
Copper	9.7		47				29	3
Lead	350	280	54 J	27	16	150	720	82
Mercury	0.93 J		0.15				3	0.13 J
Nickel	1.3 U		1.5				4.6	0.65 U
Zinc	5.1		9				4.2	2.4

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-502-S-2	7-B-502-S-3	7-B-502-S-4	7-B-502-S-5	7-B-502-S-6	7-B-503-S-1	7-B-503-S-12	7-B-503-S-13
Date Sampled	2/28/92	2/28/92	2/28/92	2/28/92	2/28/92	7/20/92	7/21/92	7/21/92
Depth	5 to 8	10 to 13	15 to 18	20 to 23	25 to 28	0 to 1	55 to 56.5	60 to 61.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic		3.5 J			17	2.3		
Cadmium		0.33			0.084	0.022		
Chromium		1.6			5	1.2		
Copper		3.5			18	6.2		
Lead	54	39 J	120	130	120 J	130	85	96
Mercury		0.076 U			0.078 U	2.7		
Nickel		0.52 U			2.5	2.3		
Zinc		1.4			11	3.2		

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-503-S-14	7-B-503-S-15	7-B-503-S-15A	7-B-503-S-1C-DAVG	7-B-503-S-3	7-B-503-S-4	7-B-503-S-5	7-B-503-S-6
Date Sampled	7/21/92	7/21/92	7/21/92	7/20/92	7/20/92	7/20/92	7/20/92	7/20/92
Depth	65 to 66.5	70 to 71.5	72.5 to 74	2.5 to 4	10 to 11.5	15 to 16.5	20 to 21.5	25 to 26.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	74	110	66	530	6.1 U	6.6 U	30	58
Mercury								
Nickel								
Zinc								

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area Sample ID Date Sampled Depth	7 7-B-503-S-7 7/20/92 30 to 31.5	7 7-B-503-S-8 7/20/92 35 to 35.5	7 7-B-503-S-9 7/21/92 40 to 41.5	7 7-B-504-S-1-DAVG 7/17/92 0 to 1	7 7-B-504-S-11 7/17/92 49 to 50.4	7 7-B-504-S-2 7/17/92 5 to 6.5	7 7-B-504-S-3A 7/17/92 12.5 to 14	7 7-B-504-S-4A 7/17/92 17.5 to 19
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic				16				
Cadmium				0.14				
Chromium				8.5				
Copper				11				
Lead	120	25	130	15	5.2 U	4.2 U	5.4 U	5.1 U
Mercury				0.097 U				
Nickel				12				
Zinc				23				

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-504-S-5	7-B-504-S-6	7-B-504-S-7	7-B-504-S-9	7-B-6,S-1	7-B-6,S-3	7-B-6,S-5	7-B-6,S-6
Date Sampled	7/17/92	7/17/92	7/17/92	7/17/92	4/28/87	4/28/87	4/28/87	4/28/87
Depth	20 to 21.5	25 to 26.5	32.5 to 34	40 to 41.5	3.5 to 5	8.5 to 10	13.5 to 15	16 to 17.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5.5 U	5.3 U	5.2 U	5.4 U	140	28	71	130
Mercury								
Nickel								
Zinc								

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-7,S-4-DAVG	7-HA-501-S-1-DAVG	7-HA-501-S-2-DAVG	7-HA-502-S-2-DAVG	7-HA-502-S-3	7-HA-503-S-1	7-HA-503-S-2	7-HA-504-S-1
Date Sampled	4/29/87	6/29/92	6/29/92	7/1/92	7/1/92	6/29/92	6/29/92	6/29/92
Depth	11 to 12.5	0 to 1	1 to 2	1 to 2	2 to 3	0 to 1	1 to 2	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Antimony								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	230	1800	650	48	32	39	5.8	130
Mercury								
Nickel								
Zinc								

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-HA-504-S-2**	**7-TP-501-S-1**	**7-TP-501-S-2**	**7-TP-501-S-3**	**7-TP-502-S-1**	**7-TP-502-S-2**	**7-TP-502-S-3**	**7-TP-503-S-1**
Date Sampled	**6/29/92**	**3/5/92**	**3/5/92**	**3/5/92**	**3/5/92**	**3/5/92**	**3/5/92**	**3/5/92**
Depth	**1 to 2**	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**
TCLP Metals (mg/L)								
Lead		0.52						
Total Metals (mg/kg dry)								
Antimony								
Arsenic		3.3		2.8 J	11			
Cadmium		0.017		0.011 U	0.22			
Chromium		1		0.88	16			
Copper		2.2		0.96	21			
Lead	36	3300	73	39	320	18	16	25
Mercury		0.62		0.09 U	0.077 U			
Nickel		0.55 U		0.58 U	18			
Zinc		1.3		0.97	49			

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-TP-503-S-2	7-TP-503-S-3	7-TP-504-S-1	7-TP-504-S-2	7-TP-504-S-3	7-SS-401	7-SS-402	7-SS-501
Date Sampled	3/5/92	3/5/92	3/5/92	3/5/92	3/5/92	11/1/93	11/1/93	2/13/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								0.13
Total Metals (mg/kg dry)								
Antimony								
Arsenic						1.7	7.2	
Cadmium								
Chromium								
Copper								
Lead	66	41	65	12	6.5			840
Mercury								
Nickel								
Zinc								

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7	7	7	7	7
Sample ID	**7-SS-502**	**7-SS-503**	**7-SS-504**	**7-SS-505**	**7-SS-506**	**7-VS-1**	**7-VS-2**	**7-VS-3**	**7-VS-4**
Date Sampled	**2/13/92**	**2/13/92**	**2/13/92**	**2/13/92**	**2/13/92**	**9/16/99**	**9/16/99**	**9/16/99**	**9/16/99**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
TCLP Metals (mg/L)									
Lead									
Total Metals (mg/kg dry)									
Antimony									
Arsenic			22	12		7.6	2.5	3.6	3.3
Cadmium			0.19	0.16					
Chromium			14	6.8					
Copper			29	37					
Lead	92	100	490	590	14	88	110	61	66
Mercury			0.099	2.1					
Nickel			14	9.7					
Zinc			37	29					

Table B.2-1
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Metals Results

Area	7	7	7	7	7
Sample ID	7-VS-5	7-VS-6	7-VS-7	7-VS-8	7-VS-20
Date Sampled	9/16/99	9/16/99	9/16/99	9/16/99	1/25/00
Depth	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	9.5 to 17.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Antimony					
Arsenic	2.6	2 U	2.1 U	2.1 U	3.2
Cadmium					
Chromium					
Copper					
Lead	120	30	36	48	510
Mercury					
Nickel					
Zinc					

Table B.2-2
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Explosives Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-B-501-S-2-DAVG**	**7-B-501-S-3-DAVG**	**7-B-501-S-4-DAVG**	**7-B-501-S-5**	**7-B-501-S-6**	**7-B-502-S-3**	**7-B-502-S-5**	**7-B-503-S-11**
Date Sampled	**2/27/92**	**2/27/92**	**2/28/92**	**2/28/92**	**2/28/92**	**2/28/92**	**2/28/92**	**7/21/92**
Depth	**5 to 8**	**10 to 13**	**15 to 18**	**20 to 23**	**25 to 28.5**	**10 to 13**	**20 to 23**	**50 to 51.5**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.033 U		0.033 U		0.033 U			0.033 U
1,3-Dinitrobenzene	0.044 U		0.044 U		0.044 U			0.044 U
2,4,6-Trinitrotoluene	0.0033 U		0.0033 U		0.0033 U			0.0033 U
2,4-Dinitrotoluene	0.0066 U	0.18 U	0.0067 U	0.19 U	0.0066 U	0.19 U	0.18 U	0.0066 U
2,6-Dinitrotoluene	0.0066 U	0.18 U	0.0067 U	0.19 U	0.0066 U	0.19 U	0.18 U	0.0066 U
Monomethylamine Nitrate	5.5 U		5.6 U		5.5 U			
Nitrobenzene	0.066 U	0.18 U	0.066 U	0.19 U	0.065 U	0.19 U	0.18 U	0.066 U
Total DNT	0.0132 U	0.36 U	0.0134 U	0.38 U	0.0132 U	0.38 U	0.36 U	0.0132 U

Table B.2-2
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Explosives Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-B-503-S-11B**	**7-B-503-S-15A**	**7-B-503-S-16**	**7-B-503-S-1C-DAVG**	**7-B-503-S-2-DAVG**	**7-B-503-S-2A**	**7-B-503-S-5A**	**7-B-503-S-6**
Date Sampled	**7/21/92**	**7/21/92**	**7/21/92**	**7/20/92**	**7/20/92**	**7/20/92**	**7/20/92**	**7/20/92**
Depth	**53 to 54.5**	**72.5 to 74**	**75 to 76.5**	**2.5 to 4**	**5 to 6.5**	**7.5 to 8**	**22.5 to 24**	**25 to 26.5**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.033 U				0.055 U	0.034 U	
1,3-Dinitrobenzene		0.043 U				0.074 U	0.045 U	
2,4,6-Trinitrotoluene		0.0033 U				0.0055 U	0.0034 U	
2,4-Dinitrotoluene		0.0065 U		0.37 U		0.011 U	0.0067 U	
2,6-Dinitrotoluene		0.0065 U		0.37 U		0.011 U	0.0067 U	
Monomethylamine Nitrate	5.5 U		5.6 U		5.6 U			5.6 U
Nitrobenzene		0.065 U		0.37 U		0.11 U	0.067 U	
Total DNT		0.013 U		0.74 U		0.022 U	0.0134 U	

Table B.2-2
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Explosives Results

Area	7	7	7	7
Sample ID	**7-TP-501-S-2-DAVG**	**7-TP-502-S-2**	**7-TP-503-S-2**	**7-TP-504-S-2**
Date Sampled	**3/5/92**	**3/5/92**	**3/5/92**	**3/5/92**
Depth	**3 to 6**	**3 to 6**	**3 to 6**	**3 to 6**
Explosives (mg/kg dry)				
1,3,5-Trinitrobenzene	0.034 U	0.032 U	0.035 U	0.033 U
1,3-Dinitrobenzene	0.045 U	0.042 U	0.047 U	0.044 U
2,4,6-Trinitrotoluene	0.0034 U	0.0032 U	0.0035 U	0.0033 U
2,4-Dinitrotoluene	0.0068 U	0.0063 U	0.0071 U	0.0065 U
2,6-Dinitrotoluene	0.0068 U	0.0063 U	0.0071 U	0.0065 U
Monomethylamine Nitrate	5.6 U	5.3 U	5.9 U	5.5 U
Nitrobenzene	0.067 U	0.063 U	0.07 U	0.065 U
Total DNT	0.0136 U	0.0126 U	0.0142 U	0.013 U

Table B.2-3
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil SVOC Results

Area	7	7	7	7	7
Sample ID	7-B-501-S-3-DAVG	7-B-501-S-5	7-B-502-S-3	7-B-502-S-5	7-B-503-S-1C-DAVG
Date Sampled	2/27/92	2/28/92	2/28/92	2/28/92	7/20/92
Depth	10 to 13	20 to 23	10 to 13	20 to 23	2.5 to 4
Semivolatiles (mg/kg dry)					
1,2,4-Trichlorobenzene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
1,2-Dichlorobenzene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
1,3-Dichlorobenzene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
1,4-Dichlorobenzene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2,4,5-Trichlorophenol	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
2,4,6-Trichlorophenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2,4-Dichlorophenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2,4-Dimethylphenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2,4-Dinitrophenol	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
2-Chloronaphthalene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2-Chlorophenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2-Methylphenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
2-Nitroaniline	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
2-Nitrophenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
3,3'-Dichlorobenzidine	0.37 U	0.39 U	0.38 U	0.37 U	0.74 U
3-Nitroaniline	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
4,6-Dinitro-2-Methylphenol	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
4-Bromophenyl Phenyl Ether	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
4-Chloroaniline	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
4-Chlorophenyl-Phenylether	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
4-Methylphenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
4-Nitroaniline	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
4-Nitrophenol	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
Aniline	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Benzidine	1.8 U	1.9 U	1.9 U	1.8 U	3.7 U
Benzoic Acid	0.93 U	0.97 U	0.96 U	0.92 U	1.8 U
Benzyl Alcohol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Bis(2-Chloroethyl) Ether	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Bis(2-Ethylhexyl)Phthalate	0.037 J	0.19 U	0.19 U	0.18 U	0.37 U
Butylbenzylphthalate	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Di-N-Butylphthalate	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Di-N-Octylphthalate	0.063 J	0.11 J	0.091 J	0.14 J	0.37 U
Dibenzofuran	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Diethylphthalate	0.18 U	0.19 U	0.19 U	0.18 U	2.7
Dimethylphthalate	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Hexachlorobenzene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Hexachlorobutadiene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Hexachlorocyclopentadiene	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Hexachloroethane	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Isophorone	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
N-Nitroso-Di-Phenylamine	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
N-Nitroso-Di-Propylamine	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
N-Nitroso-Dimethylamine	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Pentachlorophenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U
Phenol	0.18 U	0.19 U	0.19 U	0.18 U	0.37 U

Table B.2-4
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil PAH Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-501-S-2-DAVG	7-B-501-S-3-DAVG	7-B-501-S-4-DAVG	7-B-501-S-5	7-B-501-S-6	7-B-502-S-2	7-B-502-S-3	7-B-502-S-4
Date Sampled	2/27/92	2/27/92	2/28/92	2/28/92	2/28/92	2/28/92	2/28/92	2/28/92
Depth	5 to 8	10 to 13	15 to 18	20 to 23	25 to 28.5	5 to 8	10 to 13	15 to 18
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Benzo(a)Pyrene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Benzo(b)Fluoranthene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Benzo(k)Fluoranthene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Chrysene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Dibenzo(a,h)Anthracene	0.038 U	0.18 U	0.038 U	0.19 U	0.037 U	0.042 U	0.19 U	0.04 U
Indeno(1,2,3-c,d)Pyrene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
2-Methylnaphthalene		0.18 U		0.19 U			0.19 U	
Acenaphthene	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.21 U	0.19 U	0.19 U
Acenaphthylene	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.21 U	0.19 U	0.19 U
Anthracene	0.0092 U	0.18 U	0.0093 U	0.19 U	0.0091 U	0.01 U	0.19 U	0.0097 U
Benzo(g,h,i)Perylene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Fluoranthene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Fluorene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
Naphthalene	0.092 U	0.18 U	0.093 U	0.19 U	0.091 U	0.1 U	0.19 U	0.097 U
Phenanthrene	0.0092 U	0.18 U	0.0093 U	0.19 U	0.0091 U	0.01 U	0.19 U	0.0097 U
Pyrene	0.018 U	0.18 U	0.019 U	0.19 U	0.018 U	0.021 U	0.19 U	0.019 U
PAH (Non-Carc) - Total	0.5424 U	1.8 U	0.5676 U	1.9 U	0.5412 U	0.624 U	1.9 U	0.5724 U
Total Carcinogenic PAHS (BaP TEQs)	0.061598 U	0.41598 U	0.062909 U	0.4391 U	0.0606 U	0.0695 U	0.4391 U	0.0649 U

Table B.2-4

Area 7 - Waste Drainage Pit (Old Salt Lake) Soil PAH Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-B-502-S-5**	**7-B-502-S-6**	**7-B-503-S-1**	**7-B-503-S-1C-DAVG**	**7-B-503-S-6**	**7-B-504-S-1-DAVG**	**7-B-504-S-2**	**7-B-504-S-4A**
Date Sampled	**2/28/92**	**2/28/92**	**7/20/92**	**7/20/92**	**7/20/92**	**7/17/92**	**7/17/92**	**7/17/92**
Depth	**20 to 23**	**25 to 28**	**0 to 1**	**2.5 to 4**	**25 to 26.5**	**0 to 1**	**5 to 6.5**	**17.5 to 19**
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.018 U	0.017 U	0.018 U
Benzo(a)Pyrene	0.18 U	0.018 U	0.71	0.37 U	0.019 U	0.074	0.017 U	0.018 U
Benzo(b)Fluoranthene	0.18 U	0.018 U	0.56	0 37 U	0 019 U	0.064	0.017 U	0.018 U
Benzo(k)Fluoranthene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.027	0.017 U	0.018 U
Chrysene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.13	0.023	0.018 U
Dibenzo(a,h)Anthracene	0.18 U	0.038 U	0.37 U	0 37 U	0.038 U	0.037 U	0.036 U	0.037 U
Indeno(1,2,3-c,d)Pyrene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.018 U	0.017 U	0.018 U
2-Methylnaphthalene	0.18 U			0.37 U				
Acenaphthene	0.18 U	0.18 U	1.8 U	0.37 U	0.19 U	0.18 U	0.17 U	0.18 U
Acenaphthylene	0.18 U	0.18 U	1.8 U	0.37 U	0.19 U	0.18 U	0.17 U	0.18 U
Anthracene	0.18 U	0.0092 U	0.091 U	0.37 U	0.0093 U	0.0089	0.0087 U	0.009 U
Benzo(g,h,i)Perylene	0.18 U	0.018 U	4.1	0.37 U	0.019 U	0.15	0.017 U	0.018 U
Fluoranthene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.087	0.017 U	0.018 U
Fluorene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.018 U	0.017 U	0.018 U
Naphthalene	0.18 U	0.092 U	0.91 U	0.37 U	0.093 U	0.089 U	0.087 U	0.09 U
Phenanthrene	0.18 U	0.0092 U	0.091 U	0.37 U	0.0093 U	0.032	0.0087 U	0.009 U
Pyrene	0.18 U	0.018 U	0.18 U	0.37 U	0.019 U	0.071	0.017 U	0.018 U
PAH (Non-Carc) - Total	1.8 U	0.5424 U	6.716	3.7 U	0.5676 U	0.5824	0.5124 U	0.54 U
Total Carcinogenic PAHS (BaP	0.416 U	0.0616 U	0.97	0.85507 U	0.0629 U	0.1011	0.0292	0.0606 U

Table B.2-4
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil PAH Results

Area	7	7	7
Sample ID	7-B-504-S-6	7-HA-501-S-1-DAVG	7-HA-504-S-1
Date Sampled	7/17/92	6/29/92	6/29/92
Depth	25 to 26.5	0 to 1	0 to 1
PAHs (mg/kg dry)			
Benzo(a)Anthracene	0.018 U	0.37 U	0.021 U
Benzo(a)Pyrene	0.018 U	1.1	0.021 U
Benzo(b)Fluoranthene	0.018 U	0.79	0.021 U
Benzo(k)Fluoranthene	0.018 U	0.37 U	0.021 U
Chrysene	0.018 U	0.7	0.098
Dibenzo(a,h)Anthracene	0.036 U	0.77 U	0.043 U
Indeno(1,2,3-c,d)Pyrene	0.018 U	0.37 U	0.021 U
2-Methylnaphthalene			
Acenaphthene	0.18 U	3.7 U	0.21 U
Acenaphthylene	0.18 U	3.7 U	0.21 U
Anthracene	0.0089 U	0.19 U	0.01 U
Benzo(g,h,i)Perylene	0.018 U	4.9	0.081
Fluoranthene	0.018 U	0.37 U	0.021 U
Fluorene	0.018 U	0.37 U	0.021 U
Naphthalene	0.089 U	1.9 U	0.1 U
Phenanthrene	0.0089 U	0.19 U	0.01 U
Pyrene	0.018 U	0.37 U	0.021 U
PAH (Non-Carc) - Total	0.5388 U	10.295	0.3825
Total Carcinogenic PAHS (BaP TEQs)	0.0596 U	1.60355	0.0354

Table B.2-5

Area 7 - Waste Drainage Pit (Old Salt Lake) Soil Pesticide and PCB Results

Area	7
Sample ID	**7-B-1,S-1**
Date Sampled	**12/1/86**
Depth	**2.5 to 4**
Pesticides (mg/kg dry)	
4,4'-DDD	4.78 U
4,4'-DDE	4.78 U
4,4'-DDT	4.78 U
Aldrin	2.39 U
Alpha-BHC	2.39 U
Beta-BHC	239 U
Chlordane	23.9 U
Delta-BHC	2.39 U
Dieldrin	4.78 U
Endosulfan I	2.39 U
Endosulfan II	4.78 U
Endosulfan Sulfate	4.78 U
Endrin	0.848 J
Endrin Ketone	4.78 U
Gamma-BHC	2.39 U
Heptachlor	2.39 U
Heptachlor Epoxide	2.39 U
Methoxychlor	23.9 U
Toxaphene	47.8 U
PCBs (mg/kg dry)	
PCB-1016	0.0239 U
PCB-1221	0.0239 U
PCB-1232	0.0239 U
PCB-1242	0.0239 U
PCB-1248	0.0239 U
PCB-1254	0.0478 U
PCB-1260	0.0478 U

Table B.2-6
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil TPH Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-1,S-1	7-B-3,S-1	7-B-3,S-3	7-B-3,S-5	7-B-3,S-6	7-B-4,S-1-DAVG	7-B-4,S-11	7-B-4,S-3
Date Sampled	12/1/86	4/28/87	4/28/87	4/28/87	4/28/87	4/29/87	4/29/87	4/29/87
Depth	2.5 to 4	3.5 to 5	8.5 to 10	13.5 to 15	16.5 to 18	3.5 to 5	28.5 to 30	8.5 to 10
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	27 U	20 UX	20 UX	20 UX	20 UX	20 UX	39 X	140 X

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-4,S-5	7-B-4,S-6	7-B-4,S-9	7-B-5,S-1-DAVG	7-B-5,S-3	7-B-5,S-5	7-B-5,S-7	7-B-6,S-1
Date Sampled	4/29/87	4/29/87	4/29/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87
Depth	13.5 to 15	16 to 17.5	23.5 to 25	3 to 4.5	8 to 9.5	13 to 14.5	18 to 19.5	3.5 to 5
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	26 X	37 X	32 X	560 X	20 UX	20 UX	44 X	630 X

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-6,S-3	7-B-6,S-5	7-B-6,S-6	7-B-7,S-4-DAVG	7-B-501-S-2-DAVG	7-B-501-S-4-DAVG	7-B-501-S-6	7-B-502-S-2
Date Sampled	4/28/87	4/28/87	4/28/87	4/29/87	2/27/92	2/28/92	2/28/92	2/28/92
Depth	8.5 to 10	13.5 to 15	16 to 17.5	11 to 12.5	5 to 8	15 to 18	25 to 28.5	5 to 8
TPH (mg/kg dry)								
TPH Scan					34 J	20 U	20 U	240 J
Oil And Grease	20 UX	20 UX	20 UX	45 X				

Table B.2-6
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil TPH Results

Area	7	7	7	7	7	7	7	7
Sample ID	7-B-502-S-4	7-B-502-S-6	7-B-503-S-1	7-B-503-S-6	7-B-504-S-1-DAVG	7-B-504-S-2	7-B-504-S-4A	7-B-504-S-6
Date Sampled	2/28/92	2/28/92	7/20/92	7/20/92	7/17/92	7/17/92	7/17/92	7/17/92
Depth	15 to 18	25 to 28	0 to 1	25 to 26.5	0 to 1	5 to 6.5	17.5 to 19	25 to 26.5
TPH (mg/kg dry)								
TPH Scan Oil And Grease	20 U	20 U	4400	22 U	100	21 U	21 U	21 U

Area	7	7	7	7	7	7	7	7
Sample ID	7-HA-501-S-1-DAVG	7-HA-501-S-2	7-HA-502-S-2-DAVG	7-HA-502-S-3	7-HA-504-S-1	7-HA-504-S-2	7-TP-501-S-1	7-TP-501-S-2 -DAVG
Date Sampled	6/29/92	6/29/92	7/1/92	7/1/92	6/29/92	6/29/92	3/5/92	3/5/92
Depth	0 to 1	1 to 2	1 to 2	2 to 3	0 to 1	1 to 2	0 to 1	3 to 6
TPH (mg/kg dry)								
TPH Scan Oil And Grease	7600	1800	73	34	100	22 U	880	63

Area	7	7	7	7	7	7	7	7
Sample ID	7-TP-501-S-3	7-TP-502-S-1	7-TP-502-S-2	7-TP-502-S-3	7-TP-503-S-1	7-TP-503-S-2	7-TP-503-S-3	7-TP-504-S-1
Date Sampled	3/5/92	3/5/92	3/5/92	3/5/92	3/5/92	3/5/92	3/5/92	3/5/92
Depth	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
TPH (mg/kg dry)								
TPH Scan Oil And Grease	20 U	20 U	20 U	20 U	24	30	20 U	20 U

Table B.2-6
Area 7 - Waste Drainage Pit (Old Salt Lake) Soil TPH Results

Area	7	7	7	7	7	7	7	7
Sample ID	**7-TP-504-S-2**	**7-TP-504-S-3**	**7-SS-501**	**7-SS-502**	**7-SS-503**	**7-SS-504**	**7-SS-505**	**7-SS-506**
Date Sampled	**3/5/92**	**3/5/92**	**2/13/92**	**2/13/92**	**2/13/92**	**2/13/92**	**2/13/92**	**2/13/92**
Depth	**3 to 6**	**8 to 10**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
TPH (mg/kg dry)								
TPH Scan	20 U	20 U	2400	20 U	20 U	20 U	10000	20 U
Oil And Grease								

Table B.3-1
Area 10 - Aluminum Water Gel Area Soil Metals Results

Area	10	10	10	10
Sample ID	10-TP-501-S-3	10-TP-503-S-2	10-TP-503-S-3	10-SS-401
Date Sampled	2/24/92	2/24/92	2/24/92	11/8/93
Depth	4 to 6	0 to 3	5 to 7	0 to 0.5
Total Metals (mg/kg dry)				
Aluminum	14000	11000	7500	
Antimony	0.26 UJ	0.27 UJ	0.26 UJ	
Arsenic	3	2.1	1.7	48 J
Beryllium	0.21	0.16	0.13	
Cadmium	0.066	0.044	0.044	
Chromium	17	12	8.7	
Copper	17	13	9.9	
Lead	5.4 U	5.1 U	5.4 U	
Mercury	0.085 U	0.086 U	0.072 U	
Nickel	21	18	14	
Selenium	0.26 U	0.27 U	0.27 U	
Silver	0.02 UJ	0.016 UJ	0.013 UJ	
Thallium	0.26 U	0.27 U	0.27 U	
Zinc	26	22	21	

Table B.3-2
Area 10 - Aluminum Water Gel Area Soil Explosives Results

Area	**10**	**10**	**10**	**10**
Sample ID	**10-TP-501-S-3**	**10-TP-503-S-2**	**10-TP-503-S-3**	**10-VS-1-DAVG**
Date Sampled	**2/24/92**	**2/24/92**	**2/24/92**	**3/8/93**
Depth	**4 to 6**	**0 to 3**	**5 to 7**	**3 to 3.5**
Explosives (mg/kg dry)				
1,3,5-Trinitrobenzene	0.033 U	0.032 U	0.033 U	0.031 U
1,3-Dinitrobenzene	0.044 U	0.042 U	0.044 U	0.041 U
2,4,6-Trinitrotoluene	0.004	0.013	0.21	0.027
2,4-Dinitrotoluene	0.0065 U	0.0063 U	0.0066 U	0.0062 U
2,6-Dinitrotoluene	0.0065 U	0.0063 U	0.0066 U	0.0062 U
Monomethylamine Nitrate	5.5 U	5.3 U	5.6 U	
Nitrobenzene	0.065 U	0.063 U	0.066 U	0.062 U
Nitroglycerine	0.22 U	0.21 U	0.22 U	

Area	**10**	**10**	**10**	**10**
Sample ID	**10-VS-2**	**10-VS-2a**	**10-VS-4**	**02-IN01-SS[10-VS-6]D2-5.0**
Date Sampled	**3/8/93**	**1/25/00**	**3/8/93**	**8/1/01**
Depth	**3 to 3.5**	**0 to 0.5**	**0 to 0.5**	**2 to 2.5**
Explosives (mg/kg dry)				
1,3,5-Trinitrobenzene	0.034 U		0.082 U	
1,3-Dinitrobenzene	0.045 U		0.11 U	
2,4,6-Trinitrotoluene	0.031	0.059 U	0.13	1
2,4-Dinitrotoluene	0.0067 U		0.016 U	0.046 U
2,6-Dinitrotoluene	0.0067 U		0.016 U	0.046 U
Monomethylamine Nitrate				
Nitrobenzene	0.067 U		0.16 U	
Nitroglycerine				

Area	**10**	**10**	**10**	**10**
Sample ID	**02-IN01-SS[10-VS-8]D2-5.0**	**02-IN01-SS[10-VS-9]D2-5.0**	**03-IN01-SS[10-VS-11]-C2-100**	**03-IN01-SS[10-VS-12]-C2-050**
Date Sampled	**8/1/01**	**8/1/01**	**9/4/01**	**9/4/01**
Depth	**2 to 2.5**	**2 to 2.5**	**6 to 6.5**	**3 to 6**
Explosives (mg/kg dry)				
1,3,5-Trinitrobenzene				
1,3-Dinitrobenzene				
2,4,6-Trinitrotoluene	0.073 J	0.13	0.2	0.048 U
2,4-Dinitrotoluene	0.044 U	0.044 U	0.047 U	0.048 U
2,6-Dinitrotoluene	0.044 U	0.044 U	0.047 U	0.048 U
Monomethylamine Nitrate				
Nitrobenzene				
Nitroglycerine				

Table B.3-3
Area 10 - Aluminum Water Gel Area Soil PAH and SVOC Results

Area	10	10	10	10
Sample ID	10-TP-501-S-2	10-TP-501-S-3	10-TP-503-S-2	10-TP-503-S-3
Date Sampled	2/24/92	2/24/92	2/24/92	2/24/92
Depth	0 to 3	4 to 6	0 to 3	5 to 7
PAHs (mg/kg dry)				
Benzo(a)Anthracene		0.18 U	0.18 U	0.17 U
Benzo(a)Pyrene		0.18 U	0.18 U	0.17 U
Benzo(b)Fluoranthene		0.18 U	0.18 U	0.17 U
Benzo(k)Fluoranthene		0.18 U	0.18 U	0.17 U
Chrysene	0.17 U	0.18 U	0.18 U	0.17 U
Dibenzo(a,h)Anthracene	0.17 U	0.18 U	0.18 U	0.17 U
Indeno(1,2,3-c,d)Pyrene	0.17 U	0.18 U	0.18 U	0.17 U
2-Methylnaphthalene	0.17 U	0.18 U	0.18 U	0.17 U
Acenaphthene	0.17 U	0.18 U	0.18 U	0.17 U
Acenaphthylene	0.17 U	0.18 U	0.18 U	0.17 U
Anthracene	0.17 U	0.18 U	0.18 U	0.17 U
Benzo(g,h,i)Perylene	0.17 U	0.18 U	0.18 U	0.17 U
Fluoranthene	0.17 U	0.18 U	0.18 U	0.17 U
Fluorene	0.17 U	0.18 U	0.18 U	0.17 U
Naphthalene	0.17 U	0.18 U	0.18 U	0.17 U
Phenanthrene	0.17 U	0.18 U	0.18 U	0.17 U
Pyrene	0.17 U	0.18 U	0.18 U	0.17 U
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.17 U	0.18 U	0.18 U	0.17 U
1,2-Dichlorobenzene	0.17 U	0.18 U	0.18 U	0.17 U
1,3-Dichlorobenzene	0.17 U	0.18 U	0.18 U	0.17 U
1,4-Dichlorobenzene	0.17 U	0.18 U	0.18 U	0.17 U
2,4,5-Trichlorophenol	0.89 U	0.92 U	0.9 U	0.88 U
2,4,6-Trichlorophenol	0.17 U	0.18 U	0.18 U	0.17 U
2,4-Dichlorophenol	0.17 U	0.18 U	0.18 U	0.17 U
2,4-Dimethylphenol	0.17 U	0.18 U	0.18 U	0.17 U
2,4-Dinitrophenol	0.89 U	0.92 U	0.9 U	0.88 U
2-Chloronaphthalene	0.17 U	0.18 U	0.18 U	0.17 U
2-Chlorophenol	0.17 U	0.18 U	0.18 U	0.17 U
2-Methylphenol	0.17 U	0.18 U	0.18 U	0.17 U
2-Nitroaniline	0.89 U	0.92 U	0.9 U	0.88 U
2-Nitrophenol	0.17 U	0.18 U	0.18 U	0.17 U
3,3'-Dichlorobenzidine	0.35 U	0.37 U	0.36 U	0.35 U
3-Nitroaniline	0.89 U	0.92 U	0.9 U	0.88 U
4,6-Dinitro-o-Cresol	0.89 U	0.92 U	0.9 U	0.88 U
4-Bromophenyl Phenyl Ether	0.17 U	0.18 U	0.18 U	0.17 U
4-Chloroaniline	0.17 U	0.18 U	0.18 U	0.17 U
4-Chlorophenyl-Phenylether	0.17 U	0.18 U	0.18 U	0.17 U
4-Methylphenol	0.17 U	0.18 U	0.18 U	0.17 U
4-Nitroaniline	0.89 U	0.92 U	0.9 U	0.88 U
4-Nitrophenol	0.89 U	0.92 U	0.9 U	0.88 U
Aniline	0.17 U	0.18 U	0.18 U	0.17 U
Benzidine	1.7 U	1.8 U	1.8 U	1.7 U
Benzoic Acid	0.89 U	0.92 U	0.9 U	0.88 U
Benzyl Alcohol	0.17 U	0.18 U	0.18 U	0.17 U
Bis(2-Chloroethoxy) Methane	0.17 U	0.18 U	0.18 U	0.17 U
Bis(2-Chloroethyl) Ether	0.17 U	0.18 U	0.18 U	0.17 U
Bis(2-Chloroisopropyl) Ether	0.17 U	0.18 U	0.18 U	0.17 U
Bis(2-Ethylhexyl)Phthalate	0.17 U	0.18 U	0.18 U	0.17 U

Table B.3-3
Area 10 - Aluminum Water Gel Area Soil PAH and SVOC Results

Area	10	10	10	10
Sample ID	10-TP-501-S-2	10-TP-501-S-3	10-TP-503-S-2	10-TP-503-S-3
Date Sampled	2/24/92	2/24/92	2/24/92	2/24/92
Depth	0 to 3	4 to 6	0 to 3	5 to 7
N-Butyl-Benzyl-Phthalate	0.17 U	0.18 U	0.18 U	0.17 U
Di-N-Butylphthalate	0.17 U	0.18 U	0.18 U	0.17 U
Di-N-Octylphthalate	0.17 U	0.18 U	0.18 U	0.17 U
Dibenzofuran	0.17 U	0.18 U	0.18 U	0.17 U
Diethylphthalate	0.17 U	0.18 U	0.18 U	0.17 U
Dimethylphthalate	0.17 U	0.18 U	0.18 U	0.17 U
Hexachlorobenzene	0.17 U	0.18 U	0.18 U	0.17 U
Hexachlorobutadiene	0.17 U	0.18 U	0.18 U	0.17 U
Hexachlorocyclopentadiene	0.17 U	0.18 U	0.18 U	0.17 U
Hexachloroethane	0.17 U	0.18 U	0.18 U	0.17 U
Isophorone	0.17 U	0.18 U	0.18 U	0.17 U
N-Nitroso-Di-Phenylamine	0.17 U	0.18 U	0.18 U	0.17 U
N-Nitroso-Di-Propylamine	0.17 U	0.18 U	0.18 U	0.17 U
N-Nitroso-Dimethylamine	0.17 U	0.18 U	0.18 U	0.17 U
Pentachlorophenol	0.17 U	0.18 U	0.18 U	0.17 U
Phenol	0.17 U	0.18 U	0.18 U	0.17 U

Table B.4-1
Area 11 - Water Gel Wash-Up Waste Pit Area Soil Metals Results

Area	11	11	11	11	11	11
Sample ID	**11-B-501-S-1**	**11-B-501-S-3**	**11-TP-5,S-1**	**11-TP-5,S-2-DAVG**	**11-TP-6,S-1**	**11-TP-6,S-2**
Date Sampled	**2/21/92**	**2/21/92**	**4/28/87**	**4/28/87**	**4/28/87**	**4/28/87**
Depth	**0 to 1**	**10 to 11.5**	**0 to 3**	**3 to 6**	**0 to 3**	**3 to 6**
Total Metals (mg/kg dry)						
Aluminum	16000	12000				
Antimony	0.3 U	0.27 U				
Arsenic	9.4	2.3				
Beryllium	0.24	0.16				
Cadmium	0.37	0.26				
Chromium	17	13				
Copper	21	17				
Lead	20	5.5 U	28	27	15	13
Mercury	0.088 U	0.084 U				
Nickel	20	15				
Selenium	0.3 U	0.27 U				
Silver	0.031	0.016				
Thallium	0.3 U	0.27 U				
Zinc	71	77				

Table B.4-1
Area 11 - Water Gel Wash-Up Waste Pit Area Soil Metals Results

Area	11	11	11	11	11
Sample ID	**11-TP-501-S-2**	**11-TP-502-S-2**	**11-TP-503-S-2**	**11-TP-504-S-2**	**11-TP-504-S-3**
Date Sampled	**2/21/92**	**2/21/92**	**2/21/92**	**2/21/92**	**2/21/92**
Depth	**3 to 6**	**3 to 6**	**3 to 6**	**3 to 6**	**8 to 10**
Total Metals (mg/kg dry)					
Aluminum	11000	16000	14000	13000	7000
Antimony	0.27 U	0.28 U	0.27 U	0.26 U	0.26 U
Arsenic	1.6	2.8	1.7	3.3	1.4
Beryllium	0.14	0.24	0.23	0.2	0.12
Cadmium	0.034	0.05	0.04	0.046	0.03
Chromium	12	18	14	12	8.1
Copper	14	14	15	17	8.6
Lead	5.3 U	5.5 U	5.3 U	5.3 U	5.2 U
Mercury	0.094 U	0.092 U	0.09 U	0.079 U	0.091 U
Nickel	16	21	16	15	12
Selenium	0.27 U	0.28 U	0.27 U	0.26 U	0.26 U
Silver	0.021	0.028	0.019	0.012	0.01 U
Thallium	0.27 U	0.28 U	0.27 U	0.26 U	0.26 U
Zinc	25	27	26	27	13

Table B.4-2
Area 11 - Water Gel Wash-Up Waste Pit Area Soil Explosives Results

Area	11	11	11	11	11	11	11	11
Sample ID	**11-B-501-S-1**	**11-B-501-S-2**	**11-B-501-S-3**	**11-B-501-S-4**	**11-B-501-S-5**	**11-B-501-S-6**	**11-TP-1,S-2**	**11-TP-5,S-1**
Date Sampled	**2/21/92**	**2/21/92**	**2/21/92**	**2/21/92**	**2/21/92**	**2/21/92**	**11/17/86**	**4/28/87**
Depth	**0 to 1**	**5 to 8**	**10 to 11.5**	**15 to 16.5**	**20 to 22.5**	**25 to 26.5**	**3 to 4**	**0 to 3**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.036 U	0.067 U	0.033 U	0.033 U	0.034 U	0.034 U		
1,3-Dinitrobenzene	0.048 U	0.089 U	0.043 U	0.044 U	0.046 U	0.045 U		
2,4,6-Trinitrotoluene	0.21	0.237	0.048	0.056	0.013	0.0034 U		0.08 U
2,4-Dinitrotoluene	0.0073 U	0.012	0.0065 U	0.0065 U	0.0068 U	0.0067 U		0.08 J
2,6-Dinitrotoluene	0.0073 U	0.01	0.0065 U	0.0065 U	0.0068 U	0.0067 U		0.08 U
Monomethylamine Nitrate	6.1 U	5.6 U	5.4 U	5.4 U	5.7 U	5.6 U		0.03 U
Nitrobenzene	0.072 U	0.132 U	0.065 U	0.065 U	0.068 U	0.067 U		
Nitroglycerine	0.24 U	0.22 U	0.22 U	0.22 U	0.23 U	0.22 U	0.35	0.2 U
Total DNT	*0.015 U*	*0.022*	*0.013 U*	*0.013 U*	*0.014 U*	*0.013 U*		*0.12*

Table B.4-2
Area 11 - Water Gel Wash-Up Waste Pit Area Soil Explosives Results

Area	11	11	11	11	11	11	11	11
Sample ID	11-TP-5,S-2-DAVG	11-TP-501-S-1	11-TP-501-S-2	11-TP-501-S-3	11-TP-502-S-1	11-TP-502-S-2	11-TP-502-S-3	11-TP-503-S-1-DAVG
Date Sampled	4/28/87	2/21/92	2/21/92	2/21/92	2/21/92	2/21/92	2/21/92	2/21/92
Depth	3 to 6	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.046 U	0.032 U	0.034 U	0.035 U	0.034 U	0.033 U	0.034 U
1,3-Dinitrobenzene		0.062 U	0.043 U	0.046 U	0.047 U	0.046 U	0.044 U	0.046 U
2,4,6-Trinitrotoluene	15	0.0046 U	0.0032 U	0.0034 U	0.0035 U	0.0034 U	0.011	0.18
2,4-Dinitrotoluene	0.07 J	0.0092 U	0.0065 U	0.0068 U	0.007 U	0.0068 U	0.0065 U	0.019
2,6-Dinitrotoluene	0.23 U	0.0092 U	0.0065 U	0.0068 U	0.007 U	0.0068 U	0.0065 U	0.0069 U
Monomethylamine Nitrate	2.9	7.7 UJ	5.4 UJ	5.7 U	5.9 UJ	5.7 U	5.5 UJ	5.8 UJ
Nitrobenzene		0.092 U	0.12	0.068 U	0.078	0.17	0.15	0.068 U
Nitroglycerine	0.57 U	0.31 U	0.22 U	0.23 U	0.23 U	0.23 U	0.22 U	0.23 U
Total DNT	*0.185*	*0.018 U*	*0.013 U*	*0.014 U*	*0.014 U*	*0.014 U*	*0.013 U*	*0.02245*

Table B.4-2
Area 11 - Water Gel Wash-Up Waste Pit Area Soil Explosives Results

Area	11	11	11	11	11	11	11
Sample ID	11-TP-503-S-2	11-TP-503-S-3	11-TP-504-S-1	11-TP-504-S-2	11-TP-504-S-3	11-TP-6,S-1	11-TP-6,S-2
Date Sampled	2/21/92	2/21/92	2/21/92	2/21/92	2/21/92	4/28/87	4/28/87
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 3	3 to 6
Explosives (mg/kg dry)							
1,3,5-Trinitrobenzene	0.033 U	0.032 U	0.037 U	0.032 U	0.032 U		
1,3-Dinitrobenzene	0.043 U	0.043 U	0.049 U	0.043 U	0.043 U		
2,4,6-Trinitrotoluene	0.21	0.026	0.0037 U	0.0032 U	0.0032 U	0.08	42
2,4-Dinitrotoluene	0.0065 U	0.0064 U	0.0074 U	0.0065 U	0.0064 U	0.08 U	0.09 J
2,6-Dinitrotoluene	0.0065 U	0.0064 U	0.0074 U	0.0065 U	0.0064 U	0.08 U	0.09
Monomethylamine Nitrate	5.4 U	5.4 U	6.2 U	5.4 U	5.4 U	0.03 U	1.4
Nitrobenzene	0.065 U	0.064 U	0.073 U	0.064 U	0.064 U		
Nitroglycerine	0.22 U	0.21 U	0.25 U	0.22 U	0.21 U	0.19 U	0.23 U
Total DNT	*0.013 U*	*0.0128 U*	*0.015 U*	*0.013 U*	*0.013 U*	*0.16 U*	*0.18*

Table B.4-3
Area 11 - Water Gel Wash-Up Waste Pit Area Soil PAH and SVOC Results

Area	11	11	11
Sample ID	**11-B-501-S-1**	**11-B-501-S-3**	**11-B-501-S-4**
Date Sampled	**2/21/92**	**2/21/92**	**2/21/92**
Depth	**0 to 1**	**10 to 11.5**	**15 to 16.5**
PAHs (mg/kg dry)			
Benzo(a)Anthracene	0.2 U	0.18 U	0.18 U
Benzo(a)Pyrene	0.2 U	0.18 U	0.18 U
Benzo(b)Fluoranthene	0.2 U	0.18 U	0.18 U
Benzo(k)Fluoranthene	0.2 U	0.18 U	0.18 U
Chrysene	0.2 U	0.18 U	0.18 U
Dibenzo(a,h)Anthracene	0.2 U	0.18 U	0.18 U
Indeno(1,2,3-c,d)Pyrene	0.2 U	0.18 U	0.18 U
2-Methylnaphthalene	0.2 U	0.18 U	0.18 U
Acenaphthene	0.2 U	0.18 U	0.18 U
Acenaphthylene	0.2 U	0.18 U	0.18 U
Anthracene	0.2 U	0.18 U	0.18 U
Benzo(g,h,i)Perylene	0.2 U	0.18 U	0.18 U
Fluoranthene	0.2 U	0.18 U	0.18 U
Fluorene	0.2 U	0.18 U	0.18 U
Naphthalene	0.2 U	0.18 U	0.18 U
Phenanthrene	0.2 U	0.18 U	0.18 U
Pyrene	0.2 U	0.18 U	0.18 U
Total Carcinogenic PAHs (BAP TEQs)	*0.4622 U*	*0.41598 U*	*0.41598 U*
Total Non-carcinogenic PAHs	*2 U*	*1.8 U*	*1.8 U*
Semivolatiles (mg/kg dry)			
1,2,4-Trichlorobenzene	0.2 U	0.18 U	0.18 U
1,2-Dichlorobenzene	0.2 U	0.18 U	0.18 U
1,3-Dichlorobenzene	0.2 U	0.18 U	0.18 U
1,4-Dichlorobenzene	0.2 U	0.18 U	0.18 U
2,4,5-Trichlorophenol	1 U	0.91 U	0.93 U
2,4,6-Trichlorophenol	0.2 U	0.18 U	0.18 U
2,4-Dichlorophenol	0.2 U	0.18 U	0.18 U
2,4-Dimethylphenol	0.2 U	0.18 U	0.18 U
2,4-Dinitrophenol	1 U	0.91 U	0.93 U
2-Chloronaphthalene	0.2 U	0.18 U	0.18 U
2-Chlorophenol	0.2 U	0.18 U	0.18 U
2-Methylphenol	0.2 U	0.18 U	0.18 U
2-Nitroaniline	1 U	0.91 U	0.93 U
2-Nitrophenol	0.2 U	0.18 U	0.18 U
3,3'-Dichlorobenzidine	0.41 U	0.37 U	0.37 U
3-Nitroaniline	1 U	0.91 U	0.93 U
4,6-Dinitro-2-Methylphenol	1 U	0.91 U	0.93 U
4-Bromophenyl Phenyl Ether	0.2 U	0.18 U	0.18 U
4-Chloroaniline	0.2 U	0.18 U	0.18 U
4-Chlorophenyl-Phenylether	0.2 U	0.18 U	0.18 U
4-Methylphenol	0.2 U	0.18 U	0.18 U
4-Nitroaniline	1 U	0.91 U	0.93 U
4-Nitrophenol	1 U	0.91 U	0.93 U
Aniline	0.2 U	0.18 U	0.18 U
Benzidine	2 U	1.8 U	1.8 U
Benzoic Acid	1 U	0.91 U	0.93 U
Benzyl Alcohol	0.2 U	0.18 U	0.18 U

Table B.4-3
Area 11 - Water Gel Wash-Up Waste Pit Area Soil PAH and SVOC Results

Area	11	11	11
Sample ID	11-B-501-S-1	11-B-501-S-3	11-B-501-S-4
Date Sampled	2/21/92	2/21/92	2/21/92
Depth	0 to 1	10 to 11.5	15 to 16.5
Bis(2-Chloroethoxy) Methane	0.2 U	0.18 U	0.18 U
Bis(2-Chloroethyl) Ether	0.2 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.2 U	0.18 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.2 U	0.18 U	0.18 U
Butylbenzylphthalate	0.2 U	0.18 U	0.18 U
Di-N-Butylphthalate	0.2 U	0.18 U	0.18 U
Di-N-Octylphthalate	0.2 U	0.18 U	0.19 U
Dibenzofuran	0.2 U	0.18 U	0.18 U
Diethylphthalate	0.2 U	0.18 U	0.18 U
Dimethylphthalate	0.2 U	0.18 U	0.18 U
Hexachlorobenzene	0.2 U	0.18 U	0.18 U
Hexachlorobutadiene	0.2 U	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.2 U	0.18 U	0.18 U
Hexachloroethane	0.2 U	0.18 U	0.18 U
Isophorone	0.2 U	0.18 U	0.18 U
N-Nitroso-Di-Phenylamine	0.2 U	0.18 U	0.18 U
N-Nitroso-Di-Propylamine	0.2 U	0.18 U	0.18 U
N-Nitroso-Dimethylamine	0.2 U	0.18 U	0.18 U
Pentachlorophenol	0.2 U	0.18 U	0.18 U
Phenol	0.2 U	0.18 U	0.18 U

Table B.4-4
Area 11 - Water Gel Wash-Up Waste Pit Area Soil TPH Results

Area	11	11	11	11
Sample ID	11-TP-5,S-1	11-TP-5,S-2	11-TP-6,S-1-DAVG	11-TP-6,S-2
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87
Depth	0 to 3	3 to 6	0 to 3	3 to 6
TPH (mg/kg dry)				
Oil And Grease	30 X	93 X	20 UX	51 X

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-1-TP-501-S-2	12-1-TP-503-S-2-DAVG	12-1-TP-6,S-1	12-1-TP-6,S-2	12-2-B-501-S-1	12-2-B-501-S-3A	12-2-B-502-S-1-DAVG	12-2-B-502-S-2-DAVG
Date Sampled	4/15/92	4/16/92	4/24/87	4/24/87	3/24/92	3/24/92	3/24/92	3/24/92
Depth	3 to 6	3 to 6	0 to 3	3 to 6	0 to 1	13 to 14.5	0 to 1	5 to 8
Total Metals (mg/kg dry)								
Aluminum	12000	9900			12000	9600	9400	6200
Antimony	2.8 U	2.6 U						
Arsenic	2	1.3 J			3.6 J	1.4	2	1.9
Beryllium	0.22	0.19			0.31	0.16	0.18	0.12
Cadmium	0.04	0.055			0.12 J	0.18 J	0.086 J	0.095 J
Chromium	12	8.3			10	10 J	7.8	6.9
Copper	13 J	15			21	15	14	12
Lead	5.4 U	5.3 U	15	23	18	9.4	12	11
Mercury	0.082 U	0.086 U			0.094 UJ	0.17 J	0.1 UJ	0.083 UJ
Nickel	16	14			14	15	12	9.2
Selenium	0.28 U	0.26 U			0.49 J	0.26 UJ	0.26 UJ	0.27 UJ
Silver	0.4	0.51			0.042	0.035	0.034 J	0.029 UJ
Thallium	0.27 U	0.26 U			0.29 UJ	0.26 UJ	0.26 UJ	0.27 UJ
Zinc	24	24			26	21	18	16

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-B-502-S-3	12-2-TP-10,S-1	12-2-TP-10,S-2	12-2-TP-501-S-2	12-2-TP-502-S-2	12-2-TP-503-S-2	12-2-TP-504-S-2-DAVG	12-2-TP-505-S-2-DAVG
Date Sampled	3/24/92	4/23/87	4/23/87	4/15/92	4/14/92	4/15/92	4/15/92	4/15/92
Depth	10 to 12.3	0 to 3	3 to 6	3 to 6	3 to 6	2 to 4	3 to 6	3 to 6
Total Metals (mg/kg dry)								
Aluminum	9400			13000	10000	14000	7900	14000
Antimony				2.9 U	2.7 U	2.8 U	2.6 U	2.8 U
Arsenic	1.3			2.8	2.2	1.8	0.99	3
Beryllium	0.17			0.26	0.2	0.26	0.15	0.28
Cadmium	0.15 J			0.13	0.082	0.055	0.036	0.089
Chromium	11 J			11	15	55	7.5	14
Copper	17			18 J	12 J	12 J	11 J	15 J
Lead	7	36	48	5.8 U	23	6.2	5 U	5.7 U
Mercury	0.1 UJ			0.092 U	0.084 U	0.079 U	0.092 U	0.099 U
Nickel	15			15	13	19	12	19
Selenium	0.28 UJ			0.29 U	0.28 U	0.26 U	0.26 U	0.28 U
Silver	0.052 J			0.46	0.46	0.46	0.35	0.49
Thallium	0.28 UJ			0.29 U	0.28 U	0.26 U	0.26 U	0.28 U
Zinc	20			29	23	22	16	30

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-TP-9,S-1	12-2-TP-9,S-2	12-3-TP-3,S-1	12-3-TP-3,S-2	12-3-TP-501-S-2-DAVG	12-4-TP-2,S-1	12-5-TP-3,S-1	12-5-TP-3,S-2
Date Sampled	4/24/87	4/24/87	4/27/87	4/27/87	4/16/92	11/11/86	4/27/87	4/27/87
Depth	0 to 3	3 to 6	0 to 3	3 to 6	2 to 4	0 to 3	0 to 3	3 to 6
Total Metals (mg/kg dry)								
Aluminum					15000			
Antimony					3.3 U	3 U		
Arsenic					15.3 J			
Beryllium					0.29			
Cadmium					0.52			
Chromium					14	24		
Copper					24			
Lead	35	39	28	29	39	10	24	21
Mercury					0.12			
Nickel					17			
Selenium					0.31 U			
Silver					0.58			
Thallium					0.31 U			
Zinc	69	79			37			

Table B.5-1

Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	**12-6-B-501-S-2**	**12-6-TP-3,S-1**	**12-6-TP-3,S-2-DAVG**	**12-6-TP-502-S-2**	**12-7-B-501-S-2**	**12-SS-401**	**12-SS-402**	**12-SS-403**
Date Sampled	**3/25/92**	**4/27/87**	**4/27/87**	**4/17/92**	**3/25/92**	**11/17/93**	**11/18/93**	**11/17/93**
Depth	**5 to 8**	**0 to 3**	**3 to 6**	**3 to 6**	**5 to 8**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Aluminum	8900			12000	9900			
Antimony				3 U				
Arsenic	2.7			23 J	3.2	22	23	6
Beryllium	0.17			0.24	0.17			
Cadmium	0.089 J			0.46	0.15 J			
Chromium	13			9.3	13 J			
Copper	27			15	29			
Lead	9.4	18	35	15	12			
Mercury	0.1 UJ			0.11 U	0.099 UJ			
Nickel	11			11	15			
Selenium	0.26 UJ			0.3 U	0.25 UJ			
Silver	0.043 J			0.41	0.034 J			
Thallium	0.26 UJ			0.3 U	0.25 UJ			
Zinc	17			23	41			

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-SS-405	12-SS-406	12-SS-407	12-SS-408	12-SS-409	12-TP-501-S-1-DAVG	12-TP-501-S-2-DAVG	12-TP-502-S-1-DAVG
Date Sampled	11/17/93	11/18/93	11/18/93	11/18/93	11/18/93	4/16/92	4/16/92	4/16/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 1	3 to 4.5	0 to 1
Total Metals (mg/kg dry)								
Aluminum						20000	18000	18000
Antimony						2.8 U	3.2 U	3.1 U
Arsenic	6.5	30	25	19	9.3	3.2 J	18 J	3.2
Beryllium						0.39	0.34	0.4
Cadmium						0.087	0.48	0.19
Chromium						14	15	12
Copper						13	17	14
Lead						5.8 U	15	6.1 U
Mercury						0.089 U	0.1 U	0.11 U
Nickel						19	17	16
Selenium						0.28 U	0.32 U	0.31 U
Silver						0.48	0.77	0.44
Thallium						0.28 U	0.32 U	0.31 U
Zinc						30	47	32

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-TP-502-S-2-DAVG	12-TP-503-S-1	12-TP-503-S-2	12-TP-504-S-1-DAVG	12-TP-504-S-2-DAVG	12-TP-505-S-1-DAVG	12-TP-505-S-2-DAVG	SA4-114-95
Date Sampled	4/17/92	4/16/92	4/16/92	4/17/92	4/17/92	4/17/92	4/17/92	10/13/99
Depth	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6	1.5 to 3.5
Total Metals (mg/kg dry)								
Aluminum	10000	22000	12000	24000	8000	17000	16000	
Antimony	2.7 U	3.2 U	2.6 U	3.4 U	2.6 U	7.3 U	2.9 U	
Arsenic	1.3	2.8 J	1.4 J	4.5 J	1.7 J	15 J	17 J	4.2
Beryllium	0.23	0.42	0.2	0.52	0.18	0.35	0.32	
Cadmium	0.039	0.079	0.04	0.082	0.044	0.3	0.18	
Chromium	9.7	13	11	11	8.9	11	13	
Copper	15	11	13	16	11	19	13	
Lead	5.2 U	6.5 U	5.5 U	6.6 U	5 U	17	22	8.3
Mercury	0.089 U	0.012	0.094 U	0.12 U	0.09 U	0.11 U	0.11 U	
Nickel	14	17	15	14	14	15	13	
Selenium	0.27 U	0.32 U	0.26 U	0.34 U	0.26 U	0.3	0.28 U	
Silver	0.31	0.58	0.4	0.51	0.35	1.2	0.4	
Thallium	0.27 U	0.32 U	0.26 U	0.34 U	0.26 U	0.3 U	0.28 U	
Zinc	21	31	23	29	19	34	24	

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	SA4-114-96	SA4-114-97	SA4-115-94	SA4-115-95	SA4-115-96	SA4-115-97	SA4-115-98	SA4-116-94
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	2.4	3.1	4.3	2.5 U	2.4 U	5.7	2.4 U	2.3 U
Beryllium								
Cadmium								
Chromium								
Copper								
Lead	4.7	5.4	8.2	5.2	5.1	6.2	5.7	5.1
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12	12
Sample ID	SA4-116-95	SA4-116-96	SA4-116-97	SA4-116-98	SA4-117-94	SA4-117-95	SA4-117-96	SA4-117-97
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	2.2 U	3	3 5	3 3	2 2 U	2.5 U	2.2 U	2.3 U
Beryllium								
Cadmium								
Chromium								
Copper								
Lead	5.1	5.3	5 5	7 3	4.7	5.3	4.4	4.9
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.5-1
Area 12 - Works Magazine Landfill Soil Metals Results

Area	12	12	12	12	12	12	12
Sample ID	SA4-118-94	SA4-118-95	SA4-118-96	SA4-118-97	SA4-119-94	SA4-119-95	SA4-119-96
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)							
Aluminum							
Antimony							
Arsenic	2.4	2.3 U	2.4 U	2 U	2 U	2.2 U	2.6
Beryllium							
Cadmium							
Chromium							
Copper							
Lead	5.6	4.7	5	4.6	4.1	4.7	4.9
Mercury							
Nickel							
Selenium							
Silver							
Thallium							
Zinc							

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-1-B-501A-S-1	12-1-B-501A-S-2	12-1-B-501A-S-3	12-1-B-501A-S-4	12-1-B-501A-S-5	12-1-TP-501-S-2	12-1-TP-502-S-2-DAVG	12-1-TP-503-S-2-DAVG
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92	4/15/92	4/16/92	4/16/92
Depth	0 to 1	5 to 8	10 to 13	15 to 18	20 to 23	3 to 6	3 to 5	3 to 6
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.033 U	0.032 U		0.032 U	0.033 U	0.032 U	0.032 U
1,3-Dinitrobenzene		0.044 U	0.043 U		0.043 U	0.044 U	0.042 U	0.042 U
2,4,6-Trinitrotoluene		0.0033 U	0.0032 U		0.0032 U	0.0033 U	0.0032 U	0.0032 U
2,4-Dinitrotoluene		0.0066 U	0.0064 U		0.0064 U	0.0066 U	0.0064 U	0.0063 U
2,6-Dinitrotoluene		0.0066 U	0.0064 U		0.0064 U	0.0066 UJ	0.0064 U	0.0063 U
Monomethylamine Nitrate	6 U	5.5 U	5.4 U	5.4 U	5.4 U	5.5 U	5.3 U	5.2 U
Nitrobenzene		0.065 U	0.064 U		0.064 U	0.065 UJ	0.063 U	0.063 U
Nitroglycerine		0.22 U	0.21 U		0.21 U		0.21 U	
DNT - Total		*0.0132 U*	*0.0128 U*		*0.0128 U*	*0.0132 U*	*0.0128 U*	*0.0126 U*

Area	12	12	12	12	12	12	12	12
Sample ID	12-1-TP-504-S-2	12-1-TP-6,S-1	12-1-TP-6,S-2	12-2-B-501-S-1	12-2-B-501-S-2A	12-2-B-501-S-2-DAVG	12-2-B-501-S-3A	12-2-B-501-S-4-DAVG
Date Sampled	4/15/92	4/24/87	4/24/87	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92
Depth	3 to 6	0 to 3	3 to 6	0 to 1	8 to 9.5	5 to 8	13 to 14.5	15 to 18
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U					0.035 U	0.032 U	
1,3-Dinitrobenzene	0.042 U					0.047 U	0.043 U	
2,4,6-Trinitrotoluene	0.0032 U					0.0035 U	0.0032 U	
2,4-Dinitrotoluene	0.0064 U				0.18 U	0.007 U	0.0065 U	
2,6-Dinitrotoluene	0.0064 UJ				0.18 U	0.007 U	0.0065 U	
Monomethylamine Nitrate	5.3 U	0.072	2900	5.8 U		66 J	5.4 U	5.4 U
Nitrobenzene	0.063 UJ				0.18 U	0.069 U	0.064 U	
Nitroglycerine	0.21 U					0.23 U	0.22 U	
DNT - Total	*0.0128 U*				*0.36 U*	*0.014 U*	*0.013 U*	

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-B-501-S-5	12-2-B-502-S-1-DAVG	12-2-B-502-S-2-DAVG	12-2-B-502-S-3	12-2-B-502-S-4	12-2-B-502-S-5-DAVG	12-2-OBTP-504-S-2	12-2-OBTP-505-S-2
Date Sampled	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92	4/16/92	4/16/92
Depth	20 to 23	0 to 1	5 to 8	10 to 12.3	15 to 18	20 to 23	2 to 4	2 to 4
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U		0.032 U	0.032 U		0.032 U	0.46 U	0.17 U
1,3-Dinitrobenzene	0.042 U		0.043 U	0.043 U		0.042 U	0.61 U	0.22 U
2,4,6-Trinitrotoluene	0.0032 U		0.0032 U	0.0032 U		0.0032 U	0.046 U	0.017 U
2,4-Dinitrotoluene	0.0064 U		0.0064 U	0.0064 U		0.0063 U	0.092 U	0.034 U
2,6-Dinitrotoluene	0.0064 U		0.0064 U	0.0064 U		0.0063 U	0.092 U	0.034 U
Monomethylamine Nitrate	5.3 U	5.3 U	5.4 U	5.4 U	5.3 U	5.3 U	7.6 U	5.6 U
Nitrobenzene	0.063 U		0.064 U	0.064 U		0.063 U	0.91 U	0.33 U
Nitroglycerine	0.21 U		0.21 U	0.21 U		0.21 U		
DNT - Total	*0.0128 U*		*0.0128 U*	*0.0128 U*		*0.0126 U*	*0.184 U*	*0.068 U*

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-OBTP-505-S-3	12-2-TP-10,S-1	12-2-TP-10,S-2	12-2-TP-501-S-2	12-2-TP-501-S-3	12-2-TP-502-S-2	12-2-TP-503-S-3-DAVG	12-2-TP-503-S-4
Date Sampled	4/16/92	4/23/87	4/23/87	4/15/92	4/16/92	4/14/92	4/14/92	4/13/92
Depth	5.5 to 6.5	0 to 3	3 to 6	3 to 6	8 to 10	3 to 6	8 to 10	4 to 6
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U			0.17 U	0.031 U	0.66 U	0.044 U	
1,3-Dinitrobenzene	0.042 U			0.23 U	0.042 U	0.89 U	0.058 U	
2,4,6-Trinitrotoluene	0.0032 U			0.017 U	0.0031 U	0.066 U	0.0044 U	
2,4-Dinitrotoluene	0.0063 U			0.035 U	0.0062 U	0.13 U	0.0088 U	0.19 U
2,6-Dinitrotoluene	0.0063 U			0.035 UJ	0.0062 U	0.13 UJ	0.0088 UJ	0.19 U
Monomethylamine Nitrate	5.3 U	0.054	0.84	5.7 U	5.1 U	5.4 U	8.8 U	5.8 U
Nitrobenzene	0.063 U			0.35 UJ	0.062 U	1.3 UJ	0.087 UJ	0.19 U
Nitroglycerine						0.22 U		
DNT - Total	*0.0126 U*			*0.07 U*	*0.0124 U*	*0.26 U*	*0.0176 U*	*0.38 U*

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-TP-504-S-2-DAVG	12-2-TP-505-S-1	12-2-TP-505-S-2-DAV(	12-2-TP-505-S-3	12-2-TP-506-S-2	12-2-TP-9,S-1	12-2-TP-9,S-2	12-3-TP-3,S-1
Date Sampled	4/15/92	4/13/92	4/15/92	4/15/92	4/16/92	4/24/87	4/24/87	4/27/87
Depth	3 to 6	0 to 1	3 to 6	9 to 10	3 to 6	0 to 3	3 to 6	0 to 3
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.031 U		0.034 U		0.036 U			
1,3-Dinitrobenzene	0.042 U		0.045 U		0.048 U			
2,4,6-Trinitrotoluene	0.0031 U		0.0034 U		0.0036 U			
2,4-Dinitrotoluene	0.0063 U	0.18 U	0.0068 U	0.18 U	0.0073 U			
2,6-Dinitrotoluene	0.0063 UJ	0.18 U	0.0068 UJ	0.18 U	0.0073 U			
Monomethylamine Nitrate	5.2 U		5.7 U		6.1 U	1000	390	1.7
Nitrobenzene	0.062 UJ	0.18 U	0.067 UJ	0.18 U	0.072 U			
Nitroglycerine	0.21 U							
DNT - Total	*0.0126 U*	*0.36 U*	*0.0136 U*	*0.36 U*	*0.0146 U*			

Area	12	12	12	12	12	12	12	12
Sample ID	12-3-TP-3,S-2	12-3-TP-501-S-2-DAVG	12-3-TP-501-S-3	12-3-TP-502-S-2	12-3-TP-502-S-3	12-3-TP-503-S-2	12-3-TP-503-S-3	12-4-TP-2,S-1
Date Sampled	4/27/87	4/16/92	4/16/92	4/16/92	4/16/92	4/16/92	4/16/92	11/11/86
Depth	3 to 6	2 to 4	8 to 10	2 to 4	4 to 6	3 to 6	8 to 10	0 to 3
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.19 U	0.032 U	0.035 U	0.036 U	0.036 U	0.032 U	
1,3-Dinitrobenzene		0.25 U	0.042 U	0.046 U	0.048 U	0.048 U	0.043 U	
2,4,6-Trinitrotoluene		0.019 U	0.0032 U	0.0035 U	0.0036 U	0.0036 U	0.0032 U	0.18 U
2,4-Dinitrotoluene		0.038 U	0.0064 U	0.0069 U	0.0072 U	0.0072 U	0.0065 U	0.18 U
2,6-Dinitrotoluene		0.038 U	0.0064 U	0.0069 U	0.0072 U	0.0072 U	0.0065 U	0.18 U
Monomethylamine Nitrate	*210*	*160 J*	*5.2 U*	*5.8 U*	*6 U*	*6 U*	*5.4 U*	
Nitrobenzene		0.38 U	0.063 U	0.069 U	0.072 U	0.071 U	0.064 U	
Nitroglycerine								0.36 U
DNT - Total		*0.076 U*	*0.0128 U*	*0.0138 U*	*0.0144 U*	*0.0144 U*	*0.013 U*	*0.36 U*

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	**12-4-TP-501-S-2**	**12-5-TP-3,S-1**	**12-5-TP-3,S-2**	**12-5-TP-501-S-2**	**12-5-TP-501-S-3**	**12-5-TP-502-S-2-DAV(**	**12-5-TP-502-S-3-DAVG**	**12-5-TP-503-S-2**
Date Sampled	**4/16/92**	**4/27/87**	**4/27/87**	**4/17/92**	**4/17/92**	**4/17/92**	**4/17/92**	**4/17/92**
Depth	**3 to 6**	**0 to 3**	**3 to 6**	**3 to 6**	**3 to 6**	**3 to 5.5**	**8 to 10**	**2 to 4**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.031 U			0.035 U	0.032 U	0.18 U	0.032 U	0.041 U
1,3-Dinitrobenzene	0.042 U			0.046 U	0.043 U	0.25 U	0.042 U	0.055 U
2,4,6-Trinitrotoluene	0.0031 U			0.0035 U	0.0032 U	0.018 U	0.0032 U	0.0041 U
2,4-Dinitrotoluene	0.0063 U			0.0069 U	0.0064 U	0.037 U	0.0064 U	0.0082 U
2,6-Dinitrotoluene	0.0063 U			0.0069 U	0.0064 U	0.037 U	0.0064 U	0.0082 U
Monomethylamine Nitrate	5.2 U	0.042	0.051 J	5.8 U	5.4 U	6.1 U	5.3 U	6.9 U
Nitrobenzene	0.062 U			0.069 U	0.064 U	0.37 U	0.063 U	0.081 U
Nitroglycerine				0.23 U		0.25 U		
DNT - Total	*0.0126 U*			*0.0138 U*	*0.0128 U*	*0.074 U*	*0.0128 U*	*0.0164 U*

Area	12	12	12	12	12	12	12	12
Sample ID	**12-5-TP-503-S-3**	**12-5-TP-503-S-4**	**12-6-B-501-S-1**	**12-6-B-501-S-2**	**12-6-B-501-S-3**	**12-6-B-501-S-5**	**12-6-TP-3,S-1**	**12-6-TP-3,S-2-DAVG**
Date Sampled	**4/17/92**	**4/17/92**	**3/25/92**	**3/25/92**	**3/25/92**	**3/25/92**	**4/27/87**	**4/27/87**
Depth	**4 to 6**	**8 to 10**	**0 to 1**	**5 to 8**	**10 to 13**	**20 to 23**	**0 to 3**	**3 to 6**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U	0.032 U		0.032 U	0.032 U	0.035 U		
1,3-Dinitrobenzene	0.043 U	0.042 U		0.042 U	0.042 U	0.047 U		
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U		0.0032 U	0.0032 U	0.0035 U		
2,4-Dinitrotoluene	0.0064 U	0.0063 U		0.0063 U	0.0063 U	0.0071 U		
2,6-Dinitrotoluene	0.0064 U	0.0063 U		0.0063 U	0.0063 U	0.0071 U		
Monomethylamine Nitrate	5.4 U	5.3 U	6.8 U	5.3 U	5.3 U	5.9 U	3600	30000
Nitrobenzene	0.063 U	0.063 U		0.063 U	0.063 U	0.07 U		
Nitroglycerine				0.21 U	0.21 U	0.24 U		
DNT - Total	*0.0128 U*	*0.0126 U*		*0.0126 U*	*0.0126 U*	*0.0142 U*		

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	**12-6-TP-501-S-1**	**12-6-TP-501-S-2**	**12-6-TP-501-S-3**	**12-6-TP-502-S-1**	**12-6-TP-502-S-2**	**12-6-TP-502-S-3**	**12-7-B-501-S-1**	**12-7-B-501-S-2**
Date Sampled	**4/17/92**	**4/17/92**	**4/17/92**	**4/17/92**	**4/17/92**	**4/17/92**	**3/25/92**	**3/25/92**
Depth	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**	**5 to 8**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.032 U	0.032 U		0.037 U	0.032 U		0.032 U
1,3-Dinitrobenzene		0.042 U	0.042 U		0.05 U	0.043 U		0.043 U
2,4,6-Trinitrotoluene		0.0032 U	0.0032 U		0.0037 U	0.0032 U		0.0032 U
2,4-Dinitrotoluene		0.0063 U	0.0063 U		0.0075 U	0.0065 U		0.0064 U
2,6-Dinitrotoluene		0.0063 U	0.0063 U		0.0075 U	0.0065 U		0.0064 U
Monomethylamine Nitrate	7.1 U	5.3 U	5.3 U	5.7 U	77	5.4 U	5.9 U	5.4 U
Nitrobenzene		0.063 U	0.063 U		0.074 U	0.064 U		0.064 U
Nitroglycerine		0.21 U			0.25 U	0.21 U		0.21 U
DNT - Total		*0.0126 U*	*0.0126 U*		*0.015 U*	*0.013 U*		*0.0128 U*

Area	12	12	12	12	12	12	12	12
Sample ID	**12-7-B-501-S-3**	**12-7-B-501-S-4**	**12-7-B-501-S-5**	**12-7-TP-501-S-1-DAVG**	**12-7-TP-501-S-2**	**12-7-TP-501-S-3**	**12-TP-501-S-1-DAVG**	**12-TP-501-S-2-DAVG**
Date Sampled	**3/25/92**	**3/25/92**	**3/25/92**	**4/16/92**	**4/17/92**	**4/17/92**	**4/16/92**	**4/16/92**
Depth	**10 to 13**	**15 to 18**	**20 to 22.4**	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**	**3 to 4.5**
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U	0.034 U	0.032 U		0.031 U	0.032 U	0.036 U	0.039 U
1,3-Dinitrobenzene	0.043 U	0.045 U	0.043 U		0.041 U	0.042 U	0.048 U	0.052 U
2,4,6-Trinitrotoluene	0.0032 U	0.0034 U	0.0032 U		0.0031 U	0.0032 U	0.0036 U	0.0039 U
2,4-Dinitrotoluene	0.0064 U	0.0068 U	0.0064 U		0.0061 U	0.0063 U	0.0071 U	0.0078 U
2,6-Dinitrotoluene	0.0064 U	0.0068 U	0.0064 U		0.0061 U	0.0063 U	0.0071 U	0.0078 U
Monomethylamine Nitrate	5.3 U		5.4 U	6.8 U	5.1 U	5.1 U	6 U	6.4 U
Nitrobenzene	0.064 U	0.067 U	0.064 U		0.061 U	0.062 U	0.071 U	0.077 U
Nitroglycerine	0.21 U	0.23 U	0.21 U		0.21 U	0.21 U		0.26 U
DNT - Total	*0.0128 U*	*0.0136 U*	*0.0128 U*		*0.0122 U*	*0.0126 U*	*0.0142 U*	*0.0156 U*

Table B.5-2
Area 12 - Works Magazine Landfill Soil Explosives Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-TP-501-S-3	12-TP-502-S-1-DAVG	12-TP-502-S-2-DAVG	12-TP-502-S-3	12-TP-503-S-1	12-TP-503-S-2	12-TP-503-S-3	12-TP-504-S-1-DAVG
Date Sampled	4/16/92	4/16/92	4/17/92	4/16/92	4/16/92	4/16/92	4/16/92	4/17/92
Depth	9 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene		0.037 U	0.031 U		0.039 U	0.031 U		0.041 U
1,3-Dinitrobenzene		0.049 U	0.042 U		0.052 U	0.042 U		0.055 U
2,4,6-Trinitrotoluene		0.0037 U	0.0031 U		0.0039 U	0.0031 U		0.0041 U
2,4-Dinitrotoluene		0.0073 U	0.0063 U		0.0077 U	0.0063 U		0.0082 U
2,6-Dinitrotoluene		0.0073 U	0.0063 U		0.0077 U	0.0063 U		0.0082 U
Monomethylamine Nitrate	5.3 U	6.1 U	5.3 U	5.3 U	6.4 U	5.3 U	5.4 U	6.1 U
Nitrobenzene		0.073 U	0.062 U		0.077 U	0.062 U		0.082 U
Nitroglycerine			0.21 U		0.26 U			
DNT - Total		*0.0146 U*	*0.0126 U*		*0.0154 U*	*0.0126 U*		*0.0164 U*

Area	12	12	12	12	12
Sample ID	12-TP-504-S-2-DAVG	12-TP-504-S-3	12-TP-505-S-1-DAVG	12-TP-505-S-2-DAVG	12-TP-505-S-3
Date Sampled	4/17/92	4/17/92	4/17/92	4/17/92	4/17/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
Explosives (mg/kg dry)					
1,3,5-Trinitrobenzene	0.031 U		0.038 U	0.039 U	
1,3-Dinitrobenzene	0.042 U		0.051 U	0.052 U	
2,4,6-Trinitrotoluene	0.0031 U		0.0038 U	0.0039 U	
2,4-Dinitrotoluene	0.0062 U		0.0076 U	0.0077 U	
2,6-Dinitrotoluene	0.0062 U		0.0076 U	0.0077 U	
Monomethylamine Nitrate	5.2 U	5.2 U	6.4 U	6.5 U	5.6 U
Nitrobenzene	0.062 U		0.075 U	0.077 U	
Nitroglycerine	0.21 U			0.26 U	
DNT - Total	*0.0124 U*		*0.0152 U*	*0.0154 U*	

Table B.5-3
Area 12 - Works Magazine Landfill Soil SVOC Results

Area	12	12	12	12
Sample ID	**12-1-B-501A-S-2**	**12-1-TP-502-S-2-DAVG**	**12-2-B-501-S-2A**	**12-2-B-502-S-2-DAVG**
Date Sampled	**3/23/92**	**4/16/92**	**3/24/92**	**3/24/92**
Depth	**5 to 8**	**3 to 5**	**8 to 9.5**	**5 to 8**
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.19 U	0.18 U	0.18 U	3.7 U
1,2-Dichlorobenzene	0.19 U	0.18 U	0.18 U	3.7 U
1,3-Dichlorobenzene	0.19 U	0.18 U	0.18 U	3.7 U
1,4-Dichlorobenzene	0.19 U	0.18 U	0.18 U	3.7 U
2,4,5-Trichlorophenol	0.94 U	0.88 U	0.9 U	19 U
2,4,6-Trichlorophenol	0.19 U	0.18 U	0.18 U	3.7 U
2,4-Dichlorophenol	0.19 U	0.18 U	0.18 U	3.7 U
2,4-Dimethylphenol	0.19 U	0.18 U	0.18 U	3.7 U
2,4-Dinitrophenol	0.94 U	0.88 U	0.9 U	19 U
2-Chloronaphthalene	0.19 U	0.18 U	0.18 U	3.7 U
2-Chlorophenol	0.19 U	0.18 U	0.18 U	3.7 U
2-Methylphenol	0.19 U	0.18 U	0.18 U	3.7 U
2-Nitroaniline	0.94 U	0.88 U	0.9 U	19 U
2-Nitrophenol	0.19 U	0.18 U	0.18 U	3.7 U
3,3'-Dichlorobenzidine	0.37 U	0.35 U	0.36 U	7.5 U
3-Nitroaniline	0.94 U	0.88 U	0.9 U	19 U
4,6-Dinitro-2-Methylphenol	0.94 U	0.88 U	0.9 U	19 U
4-Bromophenyl Phenyl Ether	0.19 U	0.18 U	0.18 U	3.7 U
4-Chloroaniline	0.19 U	0.18 U	0.18 U	3.7 U
4-Chlorophenyl-Phenylether	0.19 U	0.18 U	0.18 U	3.7 U
4-Methylphenol	0.19 U	0.18 U	0.18 U	3.7 U
4-Nitroaniline	0.94 U	0.88 U	0.9 U	19 U
4-Nitrophenol	0.94 U	0.88 U	0.9 U	19 U
Aniline	0.19 U	0.18 U	0.18 U	3.7 U
Benzidine		1.8 U		37 U
Benzoic Acid	0.94 U	0.88 U	0.9 U	19 U
Benzyl Alcohol	0.19 U	0.18 U	0.18 U	3.7 U
Bis(2-Chloroethoxy) Methane	0.19 U	0.18 U	0.18 U	3.7 U
Bis(2-Chloroethyl) Ether	0.19 U	0.18 U	0.18 U	3.7 U
Bis(2-Chloroisopropyl) Ether	0.19 U	0.18 U	0.18 U	3.7 U
Bis(2-Ethylhexyl)Phthalate	0.044 J	0.05 J	0.18 U	3.7 U
Butylbenzylphthalate	0.19 U	0.18 U	0.18 U	3.7 U
Di-N-Butylphthalate	0.19 U	1 U	0.18 U	3.7 U
Di-N-Octylphthalate	0.18 J	0.18 U	0.16 J	3.7 U
Dibenzofuran	0.19 U	0.18 U	0.18 U	3.7 U
Diethylphthalate	0.19 U	0.18 U	0.18 U	3.7 U
Dimethylphthalate	0.19 U	0.18 U	0.18 U	3.7 U
Hexachlorobenzene	0.19 U	0.18 U	0.18 U	3.7 U
Hexachlorobutadiene	0.19 U	0.18 U	0.18 U	3.7 U
Hexachlorocyclopentadiene	0.19 U	0.18 U	0.18 U	3.7 U
Hexachloroethane	0.19 U	0.18 U	0.18 U	3.7 U
Isophorone	0.19 U	0.18 U	0.18 U	3.7 U
N-Nitroso-Di-Phenylamine	0.19 U	0.18 U	0.18 U	3.7 U
N-Nitroso-Di-Propylamine	0.19 U	0.18 U	0.18 U	3.7 U
N-Nitroso-Dimethylamine	0.19 U	0.18 U	0.18 U	3.7 U
Pentachlorophenol	0.19 U	0.18 U	0.18 U	3.7 U
Phenol	0.19 U	0.18 U	0.18 U	3.7 U

Table B.5-3
Area 12 - Works Magazine Landfill Soil SVOC Results

Area Sample ID Date Sampled Depth	12 12-2-TP-501-S-3 4/16/92 8 to 10	12 12-2-TP-503-S-4 4/13/92 4 to 6	12 12-2-TP-505-S-1 4/13/92 0 to 1	12 12-2-TP-505-S-2-DAVG 4/15/92 3 to 6
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.17 U	0.19 U	0.18 U	0.18 U
1,2-Dichlorobenzene	0.17 U	0.19 U	0.18 U	0.18 U
1,3-Dichlorobenzene	0.17 U	0.19 U	0.18 U	0.18 U
1,4-Dichlorobenzene	0.17 U	0.19 U	0.18 U	0.18 U
2,4,5-Trichlorophenol	0.86 U	0.97 U	0.92 U	0.92 U
2,4,6-Trichlorophenol	0.17 U	0.19 U	0.18 U	0.18 U
2,4-Dichlorophenol	0.17 U	0.19 U	0.18 U	0.18 U
2,4-Dimethylphenol	0.17 U	0.19 U	0.18 U	0.18 U
2,4-Dinitrophenol	0.86 U	0.97 U	0.92 U	0.92 U
2-Chloronaphthalene	0.17 U	0.19 U	0.18 U	0.18 U
2-Chlorophenol	0.17 U	0.19 U	0.18 U	0.18 U
2-Methylphenol	0.17 U	0.19 U	0.18 U	0.18 U
2-Nitroaniline	0.86 U	0.97 U	0.92 U	0.92 U
2-Nitrophenol	0.17 U	0.19 U	0.18 U	0.18 U
3,3'-Dichlorobenzidine	0.34 U	0.39 U	0.37 U	0.37 U
3-Nitroaniline	0.86 U	0.97 U	0.92 U	0.92 U
4,6-Dinitro-2-Methylphenol	0.86 U	0.97 U	0.92 U	0.92 U
4-Bromophenyl Phenyl Ether	0.17 U	0.19 U	0.18 U	0.18 U
4-Chloroaniline	0.17 U	0.19 U	0.18 U	0.18 U
4-Chlorophenyl-Phenylether	0.17 U	0.19 U	0.18 U	0.18 U
4-Methylphenol	0.17 U	0.19 U	0.18 U	0.18 U
4-Nitroaniline	0.86 U	0.97 U	0.92 U	0.92 U
4-Nitrophenol	0.86 U	0.97 U	0.92 U	0.92 U
Aniline	0.17 U	0.19 U	0.18 U	0.18 U
Benzidine	1.7 U	1.9 U	1.8 U	1.8 U
Benzoic Acid	0.86 U	0.97 U	0.92 U	0.92 U
Benzyl Alcohol	0.17 U	0.19 U	0.18 U	0.18 U
Bis(2-Chloroethoxy) Methane	0.17 U	0.19 U	0.18 U	0.18 U
Bis(2-Chloroethyl) Ether	0.17 U	0.19 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.17 U	0.19 U	0.18 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.17 U	0.093 J	0.18 U	0.18 U
Butylbenzylphthalate	0.17 U	0.19 U	0.18 U	0.18 U
Di-N-Butylphthalate	1.3 U	0.4 U	0.44 U	1.3 U
Di-N-Octylphthalate	0.17 U	0.19 U	0.18 U	0.18 U
Dibenzofuran	0.17 U	0.19 U	0.18 U	0.18 U
Diethylphthalate	0.17 U	0.19 U	0.18 U	0.18 U
Dimethylphthalate	0.17 U	0.19 U	0.18 U	0.18 U
Hexachlorobenzene	0.17 U	0.19 U	0.18 U	0.18 U
Hexachlorobutadiene	0.17 U	0.19 U	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.17 U	0.19 U	0.18 U	0.18 U
Hexachloroethane	0.17 U	0.19 U	0.18 U	0.18 U
Isophorone	0.17 U	0.19 U	0.18 U	0.18 U
N-Nitroso-Di-Phenylamine	0.17 U	0.19 U	0.18 U	0.18 U
N-Nitroso-Di-Propylamine	0.17 U	0.19 U	0.18 U	0.18 U
N-Nitroso-Dimethylamine	0.17 U	0.19 U	0.18 U	0.18 U
Pentachlorophenol	0.17 U	0.19 U	0.18 U	0.18 U
Phenol	0.17 U	0.19 U	0.18 U	0.18 U

Table B.5-3
Area 12 - Works Magazine Landfill Soil SVOC Results

Area	12	12	12	12
Sample ID	12-2-TP-505-S-3	12-3-TP-501-S-2-DAVG	12-5-TP-502-S-2-DAVG	12-6-TP-502-S-2
Date Sampled	4/15/92	4/16/92	4/17/92	4/17/92
Depth	9 to 10	2 to 4	3 to 5.5	3 to 6
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.18 U	0.21 U	33 U	0.2 U
1,2-Dichlorobenzene	0.18 U	0.21 U	33 U	0.2 U
1,3-Dichlorobenzene	0.18 U	0.21 U	33 U	0.2 U
1,4-Dichlorobenzene	0.18 U	0.21 U	33 U	0.2 U
2,4,5-Trichlorophenol	0.88 U	1.1 U	160 U	1 U
2,4,6-Trichlorophenol	0.18 U	0.21 U	33 U	0.2 U
2,4-Dichlorophenol	0.18 U	0.21 U	33 U	0.2 U
2,4-Dimethylphenol	0.18 U	0.21 U	33 U	0.2 U
2,4-Dinitrophenol	0.88 U	1.1 U	160 U	1 U
2-Chloronaphthalene	0.18 U	0.21 U	33 U	0.2 U
2-Chlorophenol	0.18 U	0.21 U	33 U	0.2 U
2-Methylphenol	0.18 U	0.21 U	33 U	0.2 U
2-Nitroaniline	0.88 U	1.1 U	160 U	1 U
2-Nitrophenol	0.18 U	0.21 U	33 U	0.2 U
3,3'-Dichlorobenzidine	0.35 U	0.43 U	66 U	0.4 U
3-Nitroaniline	0.88 U	1.1 U	160 U	1 U
4,6-Dinitro-2-Methylphenol	0.88 U	1.1 U	160 U	1 U
4-Bromophenyl Phenyl Ether	0.18 U	0.21 U	33 U	0.2 U
4-Chloroaniline	0.18 U	0.21 U	33 U	0.2 U
4-Chlorophenyl-Phenylether	0.18 U	0.21 U	33 U	0.2 U
4-Methylphenol	0.18 U	0.21 U	33 U	0.2 U
4-Nitroaniline	0.88 U	1.1 U	160 U	1 U
4-Nitrophenol	0.88 U	1.1 U	160 U	1 U
Aniline	0.18 U	0.21 U	33 U	0.2 U
Benzidine	1.8 U	2.1 U	330 U	2 U
Benzoic Acid	0.88 U	0.078 J	160 U	1 U
Benzyl Alcohol	0.18 U	0.21 U	33 U	0.2 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.21 U	33 U	0.2 U
Bis(2-Chloroethyl) Ether	0.18 U	0.21 U	33 U	0.2 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.21 U	33 U	0.2 U
Bis(2-Ethylhexyl)Phthalate	0.18 U	0.21 U	33 U	0.2 U
Butylbenzylphthalate	0.18 U	0.26	33 U	0.2 U
Di-N-Butylphthalate	0.74 U	2.3 U	33 U	1.3 U
Di-N-Octylphthalate	0.18 U	0.21 U	33 U	0.2 U
Dibenzofuran	0.18 U	0.21 U	33 U	0.2 U
Diethylphthalate	0.18 U	0.21 U	33 U	0.2 U
Dimethylphthalate	0.18 U	0.21 U	33 U	0.2 U
Hexachlorobenzene	0.18 U	0.21 U	33 U	0.2 U
Hexachlorobutadiene	0.18 U	0.21 U	33 U	0.2 U
Hexachlorocyclopentadiene	0.18 U	0.21 U	33 U	0.2 U
Hexachloroethane	0.18 U	0.21 U	33 U	0.2 U
Isophorone	0.18 U	0.21 U	33 U	0.2 U
N-Nitroso-Di-Phenylamine	0.18 U	0.21 U	33 U	0.2 U
N-Nitroso-Di-Propylamine	0.18 U	0.21 U	33 U	0.2 U
N-Nitroso-Dimethylamine	0.18 U	0.21 U	33 U	0.2 U
Pentachlorophenol	0.18 U	0.21 U	33 U	0.2 U
Phenol	0.18 U	0.21 U	33 U	0.2 U

Table B.5-3
Area 12 - Works Magazine Landfill Soil SVOC Results

Area	12	12	12	12
Sample ID	12-7-B-501-S-2	12-TP-501-S-2-DAVG	12-TP-502-S-2-DAVG	12-TP-503-S-2
Date Sampled	3/25/92	4/16/92	4/17/92	4/16/92
Depth	5 to 8	3 to 4.5	3 to 6	3 to 6
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.71 U	0.21 U	0.17 U	0.18 U
1,2-Dichlorobenzene	0.71 U	0.21 U	0.17 U	0.18 U
1,3-Dichlorobenzene	0.71 U	0.21 U	0.17 U	0.18 U
1,4-Dichlorobenzene	0.71 U	0.21 U	0.17 U	0.18 U
2,4,5-Trichlorophenol	3.5 U	1 U	0.87 U	0.89 U
2,4,6-Trichlorophenol	0.71 U	0.21 U	0.17 U	0.18 U
2,4-Dichlorophenol	0.71 U	0.21 U	0.17 U	0.18 U
2,4-Dimethylphenol	0.71 U	0.21 U	0.17 U	0.18 U
2,4-Dinitrophenol	3.5 U	1 U	0.87 U	0.89 U
2-Chloronaphthalene	0.71 U	0.21 U	0.17 U	0.18 U
2-Chlorophenol	0.71 U	0.21 U	0.17 U	0.18 U
2-Methylphenol	0.71 U	0.21 U	0.17 U	0.18 U
2-Nitroaniline	3.5 U	1 U	0.87 U	0.89 U
2-Nitrophenol	0.71 U	0.21 U	0.17 U	0.18 U
3,3'-Dichlorobenzidine	1.4 U	0.42 U	0.35 U	0.36 U
3-Nitroaniline	3.5 U	1 U	0.87 U	0.89 U
4,6-Dinitro-2-Methylphenol	3.5 U	1 U	0.87 U	0.89 U
4-Bromophenyl Phenyl Ether	0.71 U	0.21 U	0.17 U	0.18 U
4-Chloroaniline	0.71 U	0.21 U	0.17 U	0.18 U
4-Chlorophenyl-Phenylether	0.71 U	0.21 U	0.17 U	0.18 U
4-Methylphenol	0.71 U	0.21 U	0.17 U	0.18 U
4-Nitroaniline	3.5 U	1 U	0.87 U	0.89 U
4-Nitrophenol	3.5 U	1 U	0.87 U	0.89 U
Aniline	0.71 U	0.21 U	0.17 U	0.18 U
Benzidine	7.1 U	2.1 U	1.7 U	1.8 U
Benzoic Acid	3.5 U	1 U	0.87 U	0.89 U
Benzyl Alcohol	0.71 U	0.21 U	0.17 U	0.18 U
Bis(2-Chloroethoxy) Methane	0.71 U	0.21 U	0.17 U	0.18 U
Bis(2-Chloroethyl) Ether	0.71 U	0.21 U	0.17 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.71 U	0.21 U	0.17 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.71 U	0.077 J	0.17 U	0.18 U
Butylbenzylphthalate	0.71 U	0.21 U	0.048 J	0.081 J
Di-N-Butylphthalate	0.71 U	2.1 U	1.4 U	2.1 U
Di-N-Octylphthalate	0.71 U	0.21 U	0.17 U	0.18 U
Dibenzofuran	0.71 U	0.21 U	0.17 U	0.18 U
Diethylphthalate	0.71 U	0.21 U	0.17 U	0.18 U
Dimethylphthalate	0.71 U	0.21 U	0.17 U	0.18 U
Hexachlorobenzene	0.71 U	0.21 U	0.17 U	0.18 U
Hexachlorobutadiene	0.71 U	0.21 U	0.17 U	0.18 U
Hexachlorocyclopentadiene	0.71 U	0.21 U	0.17 U	0.18 U
Hexachloroethane	0.71 U	0.21 U	0.17 U	0.18 U
Isophorone	0.71 U	0.21 U	0.17 U	0.18 U
N-Nitroso-Di-Phenylamine	0.71 U	0.21 U	0.17 U	0.18 U
N-Nitroso-Di-Propylamine	0.71 U	0.21 U	0.17 U	0.18 U
N-Nitroso-Dimethylamine	0.71 U	0.21 U	0.17 U	0.18 U
Pentachlorophenol	0.71 U	0.21 U	0.17 U	0.18 U
Phenol	0.71 U	0.21 U	0.17 U	0.18 U

Table B.5-3
Area 12 - Works Magazine Landfill Soil SVOC Results

Area	12	12
Sample ID	12-TP-504-S-2-DAVG	12-TP-505-S-2-DAVG
Date Sampled	4/17/92	4/17/92
Depth	3 to 6	3 to 6
Semivolatiles (mg/kg dry)		
1,2,4-Trichlorobenzene	0.18 U	0.21 U
1,2-Dichlorobenzene	0.18 U	0.21 U
1,3-Dichlorobenzene	0.18 U	0.21 U
1,4-Dichlorobenzene	0.18 U	0.21 U
2,4,5-Trichlorophenol	0.88 U	1 U
2,4,6-Trichlorophenol	0.18 U	0.21 U
2,4-Dichlorophenol	0.18 U	0.21 U
2,4-Dimethylphenol	0.18 U	0.21 U
2,4-Dinitrophenol	0.88 U	1 U
2-Chloronaphthalene	0.18 U	0.21 U
2-Chlorophenol	0.18 U	0.21 U
2-Methylphenol	0.18 U	0.21 U
2-Nitroaniline	0.88 U	1 U
2-Nitrophenol	0.18 U	0.21 U
3,3'-Dichlorobenzidine	0.35 U	0.41 U
3-Nitroaniline	0.88 U	1 U
4,6-Dinitro-2-Methylphenol	0.88 U	1 U
4-Bromophenyl Phenyl Ether	0.18 U	0.21 U
4-Chloroaniline	0.18 U	0.21 U
4-Chlorophenyl-Phenylether	0.18 U	0.21 U
4-Methylphenol	0.18 U	0.21 U
4-Nitroaniline	0.88 U	1 U
4-Nitrophenol	0.88 U	1 U
Aniline	0.18 U	0.21 U
Benzidine	1.8 U	2.1 U
Benzoic Acid	0.88 U	1 U
Benzyl Alcohol	0.18 U	0.21 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.21 U
Bis(2-Chloroethyl) Ether	0.18 U	0.21 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.21 U
Bis(2-Ethylhexyl)Phthalate	0.18 U	0.07 J
Butylbenzylphthalate	0.18 U	0.21 U
Di-N-Butylphthalate	1.7 U	2.1 U
Di-N-Octylphthalate	0.18 U	0.21 U
Dibenzofuran	0.18 U	0.21 U
Diethylphthalate	0.18 U	0.21 U
Dimethylphthalate	0.18 U	0.21 U
Hexachlorobenzene	0.18 U	0.21 U
Hexachlorobutadiene	0.18 U	0.21 U
Hexachlorocyclopentadiene	0.18 U	0.21 U
Hexachloroethane	0.18 U	0.21 U
Isophorone	0.18 U	0.21 U
N-Nitroso-Di-Phenylamine	0.18 U	0.21 U
N-Nitroso-Di-Propylamine	0.18 U	0.21 U
N-Nitroso-Dimethylamine	0.18 U	0.21 U
Pentachlorophenol	0.18 U	0.21 U
Phenol	0.18 U	0.21 U

Table B.5-4
Area 12 - Works Magazine Landfill Soil PAH Results

Area	12	12	12	12	12	12	12	12
Sample ID	**12-1-B-501A-S-2**	**12-1-B-501A-S-5**	**12-1-TP-502-S-2-DAVG**	**12-2-B-501-S-2A**	**12-2-B-501-S-2-DAVG**	**12-2-B-501-S-5**	**12-2-B-502-S-2-DAVG**	**12-2-B-502-S-5-DAVG**
Date Sampled	**3/23/92**	**3/23/92**	**4/16/92**	**3/24/92**	**3/24/92**	**3/24/92**	**3/24/92**	**3/24/92**
Depth	**5 to 8**	**20 to 23**	**3 to 5**	**8 to 9.5**	**5 to 8**	**20 to 23**	**5 to 8**	**20 to 23**
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Benzo(a)Pyrene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Benzo(b)Fluoranthene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Benzo(k)Fluoranthene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Chrysene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Dibenz(a,h)anthracene	0.037 U	0.037 U	0.036 U	0.18 U	0.04 U	0.036 U	0.044 U	0.036 U
Indeno(1,2,3-cd)pyrene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Total Carcinogenic PAHs (BaP TEQs)	*0.060598 U*	*0.060598 U*	*0.059598 U*	*0.41598 U*	*0.064909 U*	*0.059598 U*	*0.071531 U*	*0.059598 U*
2-Methylnaphthalene	0.19 U		0.18 U	0.18 U			3.7 U	
Acenaphthene	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.21 U	0.18 U
Acenaphthylene	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.21 U	0.18 U
Anthracene	0.0091 U	0.0089 U	0.0088 U	0.18 U	0.0097 U	0.0088 U	0.0107 U	0.0088 U
Benzo(g,h,i)Perylene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Fluoranthene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Fluorene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Naphthalene	0.091 U	0.089 U	0.088 U	0.18 U	0.097 U	0.088 U	0.107 U	0.088 U
Phenanthrene	0.0091 U	0.0089 U	0.0088 U	0.18 U	0.0097 U	0.0088 U	0.0107 U	0.0088 U
Pyrene	0.018 U	0.018 U	0.018 U	0.18 U	0.019 U	0.018 U	0.021 U	0.018 U
Total Non-carcinogenic PAHs	*0.7312 U*	*0.5388 U*	*0.7176 U*	*1.8 U*	*0.5724 U*	*0.5376 U*	*4.3324 U*	*0.5376 U*

Table B.5-4
Area 12 - Works Magazine Landfill Soil PAH Results

Area	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Sample ID	**12-2-TP-501-S-3**	**12-2-TP-503-S-4**	**12-2-TP-505-S-1**	**12-2-TP-505-S-2-DAVG**	**12-2-TP-505-S-3**	**12-3-TP-501-S-2-DAVG**	**12-5-TP-502-S-2-DAVG**	**12-5-TP-502-S-3-DAVG**
Date Sampled	**4/16/92**	**4/13/92**	**4/13/92**	**4/15/92**	**4/15/92**	**4/16/92**	**4/17/92**	**4/17/92**
Depth	**8 to 10**	**4 to 6**	**0 to 1**	**3 to 6**	**9 to 10**	**2 to 4**	**3 to 5.5**	**8 to 10**
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Benzo(a)Pyrene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Benzo(b)Fluoranthene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Benzo(k)Fluoranthene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Chrysene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Dibenz(a,h)anthracene	0.17 U	0.04 U	0.038 U	0.039 U	0.037 U	0.21 U	0.16 U	0.036 U
Indeno(1,2,3-cd)pyrene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Total Carcinogenic PAHs (BaP TEQs)	*0.39287 U*	*0.06622 U*	*0.062909 U*	*0.063909 U*	*0.060598 U*	*0.48531 U*	*0.260947 U*	*0.059598 U*
2-Methylnaphthalene	0.17 U	0.19 U	0.18 U	0.18 U	0.18 U	0.21 U	33 U	
Acenaphthene	0.17 U	0.2 U	0.19 U	0.19 U	0.18 U	0.21 U	0.77 U	0.18 U
Acenaphthylene	0.17 U	0.2 U	0.19 U	0.19 U	0.18 U	0.21 U	0.77 U	0.18 U
Anthracene	0.17 U	0.0098 U	0.0094 U	0.0095 U	0.0089 U	0.21 U	0.038 U	0.0088 U
Benzo(g,h,i)Perylene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Fluoranthene	0.17 U	0.039 J	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Fluorene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Naphthalene	0.17 U	0.098 U	0.094 U	0.095 U	0.089 U	0.21 U	0.4	0.088 U
Phenanthrene	0.17 U	0.0098 U	0.0094 U	0.0095 U	0.0089 U	0.078 J	0.038 U	0.0088 U
Pyrene	0.17 U	0.02 U	0.019 U	0.019 U	0.018 U	0.21 U	0.077 U	0.018 U
Total Non-carcinogenic PAHs	*1.7 U*	*0.4228*	*0.7488 U*	*0.75 U*	*0.7188 U*	*1.023*	*17.862*	*0.5376 U*

Table B.5-4
Area 12 - Works Magazine Landfill Soil PAH Results

Area Sample ID Date Sampled Depth	12 12-6-B-501-S-3 3/25/92 10 to 13	12 12-6-TP-502-S-2 4/17/92 3 to 6	12 12-6-TP-502-S-3 4/17/92 8 to 10	12 12-7-B-501-S-2 3/25/92 5 to 8	12 12-7-B-501-S-3 3/25/92 10 to 13	12 12-7-TP-501-S-3 4/17/92 8 to 10	12 12-TP-501-S-2-DAVG 4/16/92 3 to 4.5	12 12-TP-502-S-2-DAVG 4/17/92 3 to 6
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Benzo(a)Pyrene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Benzo(b)Fluoranthene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Benzo(k)Fluoranthene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Chrysene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Dibenz(a,h)anthracene	0.036 U	0.2 U	0.037 U	0.71 U	0.036 U	0.036 U	0.045 U	0.036 U
Indeno(1,2,3-cd)pyrene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Total Carcinogenic PAHs (BaP TEQs)	*0.059598 U*	*0.4622 U*	*0.060598 U*	*1.64081 U*	*0.059598 U*	*0.058287 U*	*0.073842 U*	*0.058287 U*
2-Methylnaphthalene		0.2 U		0.71 U			0.21 U	0.17 U
Acenaphthene	0.18 U	0.2 U	0.18 U	0.71 U	0.18 U	0.17 U	0.22 U	0.17 U
Acenaphthylene	0.18 U	0.2 U	0.18 U	0.71 U	0.18 U	0.17 U	0.22 U	0.17 U
Anthracene	0.0088 U	0.2 U	0.0089 U	0.71 U	0.0089 U	0.0087 U	0.011 U	0.0087 U
Benzo(g,h,i)Perylene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Fluoranthene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Fluorene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Naphthalene	0.088 U	0.2 U	0.089 U	0.71 U	0.089 U	0.087 U	0.11 U	0.087 U
Phenanthrene	0.0088 U	0.2 U	0.0089 U	0.71 U	0.0089 U	0.0087 U	0.011 U	0.0087 U
Pyrene	0.018 U	0.2 U	0.018 U	0.71 U	0.018 U	0.017 U	0.022 U	0.017 U
Total Non-carcinogenic PAHs	*0.5376 U*	*2 U*	*0.5388 U*	*7.1 U*	*0.5388 U*	*0.5124 U*	*0.87 U*	*0.6824 U*

Table B.5-4
Area 12 - Works Magazine Landfill Soil PAH Results

Area	12	12	12
Sample ID	12-TP-503-S-2	12-TP-504-S-2-DAVG	12-TP-505-S-2-DAVG
Date Sampled	4/16/92	4/17/92	4/17/92
Depth	3 to 6	3 to 6	3 to 6
PAHs (mg/kg dry)			
Benzo(a)Anthracene	0.018 U	0.017 U	0.022 U
Benzo(a)Pyrene	0.018 U	0.017 U	0.022 U
Benzo(b)Fluoranthene	0.018 U	0.017 U	0.022 U
Benzo(k)Fluoranthene	0.018 U	0.017 U	0.022 U
Chrysene	0.018 U	0.017 U	0.022 U
Dibenz(a,h)anthracene	0.036 U	0.036 U	0.044 U
Indeno(1,2,3-cd)pyrene	0.018 U	0.017 U	0.022 U
Total Carcinogenic PAHs (BaP TEQs)	*0.059598 U*	*0.058287 U*	*0.072842 U*
2-Methylnaphthalene	0.18 U	0.18 U	0.21 U
Acenaphthene	0.18 U	0.17 U	0.22 U
Acenaphthylene	0.18 U	0.17 U	0.22 U
Anthracene	0.0088 U	0.0087 U	0.011 U
Benzo(g,h,i)Perylene	0.018 U	0.017 U	0.022 U
Fluoranthene	0.018 U	0.017 U	0.022 U
Fluorene	0.018 U	0.017 U	0.022 U
Naphthalene	0.088 U	0.087 U	0.11 U
Phenanthrene	0.0088 U	0.0087 U	0.081 J
Pyrene	0.018 U	0.017 U	0.022 U
Total Non-carcinogenic PAHs	*0.7176 U*	*0.6924 U*	*0.5105*

Table B.5-5
Area 12 - Works Magazine Landfill Soil Pesticide and PCB Results

Area Sample ID Date Sampled Depth	12 12-1-B-501A-S-2 3/23/92 5 to 8	12 12-2-B-501-S-2A 3/24/92 8 to 9.5	12 12-2-B-502-S-2-DAVG 3/24/92 5 to 8	12 12-2-TP-501-S-2 4/15/92 3 to 6
Pesticides (mg/kg dry)				
4,4'-DDD	0.011 U	0.011 U	0.011 U	0.011 U
4,4'-DDE	0.011 U	0.011 U	0.011 U	0.011 U
4,4'-DDT	0.011 U	0.011 U	0.011 U	0.011 U
Aldrin	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Alpha-BHC	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Beta-BHC	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Chlordane	0.056 U	0.054 U	0.056 U	0.057 U
Delta-BHC	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Dieldrin	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan I	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Endosulfan II	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan Sulfate	0.011 U	0.011 U	0.011 U	0.011 U
Endrin	0.011 U	0.011 U	0.011 U	0.011 U
Endrin Ketone	0.011 U	0.011 U	0.011 U	0.011 U
Gamma-BHC	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Heptachlor	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Heptachlor Epoxide	0.0056 U	0.0054 U	0.0056 U	0.0057 U
Methoxychlor	0.056 U	0.054 U	0.056 U	0.057 U
Toxaphene				0.11 U
Azinphos Methyl (Guthion)	0.15 U	0.14 U	0.15 U	
Demeton (Total)	0.075 U	0.072 U	0.075 U	
Diazinon	0.037 U	0.036 U	0.037 U	
Disulfoton	0.037 U	0.036 U	0.037 U	
Malathion	0.037 U	0.036 U	0.037 U	
Methyl Parathion	0.037 U	0.036 U	0.037 U	
Parathion	0.037 U	0.036 U	0.037 U	
PCBs (mg/kg dry)				
PCB-1016	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1221	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1232	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1242	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1248	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1254	0.11 U	0.11 U	0.11 U	0.11 U
PCB-1260	0.11 U	0.11 U	0.11 U	0.11 U

Table B.5-5
Area 12 - Works Magazine Landfill Soil Pesticide and PCB Results

Area	12	12	12	12
Sample ID	**12-3-TP-501-S-2-DAVG**	**12-3-TP-503-S-2**	**12-7-B-501-S-2**	**12-7-B-501-S-3**
Date Sampled	**4/16/92**	**4/16/92**	**3/25/92**	**3/25/92**
Depth	**2 to 4**	**3 to 6**	**5 to 8**	**10 to 13**
Pesticides (mg/kg dry)				
4,4'-DDD	0.013 U	0.011 U	0.011 U	0.011 U
4,4'-DDE	0.013 U	0.011 U	0.011 U	0.011 U
4,4'-DDT	0.013 U	0.011 U	0.011 U	0.011 U
Aldrin	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Alpha-BHC	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Beta-BHC	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Chlordane	0.064 U	0.057 U	0.053 U	0.053 U
Delta-BHC	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Dieldrin	0.013 U	0.011 U	0.011 U	0.011 U
Endosulfan I	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Endosulfan II	0.013 U	0.011 U	0.011 U	0.011 U
Endosulfan Sulfate	0.013 U	0.011 U	0.011 U	0.011 U
Endrin	0.013 U	0.011 U	0.011 U	0.011 U
Endrin Ketone	0.013 U	0.011 U	0.011 U	0.011 U
Gamma-BHC	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Heptachlor	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Heptachlor Epoxide	0.0064 U	0.0057 U	0.0053 U	0.0053 U
Methoxychlor	0.064 U	0.057 U	0.053 U	0.053 U
Toxaphene	0.13 U	0.11 U		
Azinphos Methyl (Guthion)		0.15 U	0.14 U	0.14 U
Demeton (Total)		0.076 U	0.071 U	0.071 U
Diazinon		0.038 U	0.035 U	0.035 U
Disulfoton		0.038 U	0.035 U	0.035 U
Malathion		0.038 U	0.035 U	0.035 U
Methyl Parathion		0.038 U	0.035 U	0.035 U
Parathion		0.038 U	0.035 U	0.035 U
PCBs (mg/kg dry)				
PCB-1016		0.11 U	0.11 U	0.11 U
PCB-1221		0.11 U	0.11 U	0.11 U
PCB-1232		0.11 U	0.11 U	0.11 U
PCB-1242		0.11 U	0.11 U	0.11 U
PCB-1248		0.11 U	0.11 U	0.11 U
PCB-1254		0.11 U	0.11 U	0.11 U
PCB-1260		0.11 U	0.11 U	0.11 U

Table B.5-5
Area 12 - Works Magazine Landfill Soil Pesticide and PCB Results

Area	12	12	12
Sample ID	12-TP-501-S-2-DAVG	12-TP-502-S-2-DAVG	12-TP-505-S-2-DAVG
Date Sampled	4/16/92	4/17/92	4/17/92
Depth	3 to 4.5	3 to 6	3 to 6
Pesticides (mg/kg dry)			
4,4'-DDD	0.013 U	0.01 U	0.012 U
4,4'-DDE	0.013 U	0.01 U	0.012 U
4,4'-DDT	0.013 U	0.01 U	0.012 U
Aldrin	0.0063 U	0.0052 U	0.0059 U
Alpha-BHC	0.0063 U	0.0052 U	0.0059 U
Beta-BHC	0.0063 U	0.0052 U	0.0059 U
Chlordane	0.063 U	0.052 U	0.059 U
Delta-BHC	0.0063 U	0.0052 U	0.0059 U
Dieldrin	0.013 U	0.01 U	0.012 U
Endosulfan I	0.0063 U	0.0052 U	0.0059 U
Endosulfan II	0.013 U	0.01 U	0.012 U
Endosulfan Sulfate	0.013 U	0.01 U	0.012 U
Endrin	0.013 U	0.01 U	0.012 U
Endrin Ketone	0.013 U	0.01 U	0.012 U
Gamma-BHC	0.0063 U	0.0052 U	0.0059 U
Heptachlor	0.0063 U	0.0052 U	0.0059 U
Heptachlor Epoxide	0.0063 U	0.0052 U	0.0059 U
Methoxychlor	0.063 U	0.052 U	0.059 U
Toxaphene	0.13 U	0.1 U	0.12 U
Azinphos Methyl (Guthion)			
Demeton (Total)			
Diazinon			
Disulfoton			
Malathion			
Methyl Parathion			
Parathion			
PCBs (mg/kg dry)			
PCB-1016	0.13 U	0.1 U	0.12 U
PCB-1221	0.13 U	0.1 U	0.12 U
PCB-1232	0.13 U	0.1 U	0.12 U
PCB-1242	0.13 U	0.1 U	0.12 U
PCB-1248	0.13 U	0.1 U	0.12 U
PCB-1254	0.13 U	0.1 U	0.12 U
PCB-1260	0.13 U	0.1 U	0.12 U

Table B.5-6
Area 12 - Works Magazine Landfill Soil TPH Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-1-B-501A-S-1	12-1-B-501A-S-2	12-1-B-501A-S-3	12-1-B-501A-S-4	12-1-B-501A-S-5	12-1-TP-501-S-2	12-1-TP-502-S-2-DAVG	12-1-TP-503-S-2-DAVG
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92	4/15/92	4/16/92	4/16/92
Depth	0 to 1	5 to 8	10 to 13	15 to 18	20 to 23	3 to 6	3 to 5	3 to 6
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	20 U	120	26	20 U	20 U	22 U	21 U	21 U

Area	12	12	12	12	12	12	12	12
Sample ID	12-1-TP-6,S-1	12-1-TP-6,S-2	12-2-B-501-S-1	12-2-B-501-S-3A	12-2-B-501-S-4-DAVG	12-2-B-501-S-5	12-2-B-502-S-1-DAVG	12-2-B-502-S-2-DAVG
Date Sampled	4/24/87	4/24/87	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92
Depth	0 to 3	3 to 6	0 to 1	13 to 14.5	15 to 18	20 to 23	0 to 1	5 to 8
TPH (mg/kg dry)								
TPH Scan	230 X	500 X						
Oil And Grease			20 U	20 U	20 U	20 U	20 U	10000

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-B-502-S-3	12-2-B-502-S-4	12-2-B-502-S-5-DAVG	12-2-TP-10,S-1	12-2-TP-10,S-2	12-2-TP-501-S-2	12-2-TP-501-S-3	12-2-TP-502-S-2
Date Sampled	3/24/92	3/24/92	3/24/92	4/23/87	4/23/87	4/15/92	4/16/92	4/14/92
Depth	10 to 12.3	15 to 18	20 to 23	0 to 3	3 to 6	3 to 6	8 to 10	3 to 6
TPH (mg/kg dry)								
TPH Scan				19000 X	1200 X			
Oil And Grease	1600	20 U	20 U			10000	21 U	160

Table B.5-6
Area 12 - Works Magazine Landfill Soil TPH Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-2-TP-503-S-2	12-2-TP-504-S-2-DAVG	12-2-TP-505-S-2-DAVG	12-2-TP-9,S-1	12-2-TP-9,S-2	12-3-TP-3,S-1	12-3-TP-3,S-2	12-4-TP-2,S-1
Date Sampled	4/15/92	4/15/92	4/15/92	4/24/87	4/24/87	4/27/87	4/27/87	11/11/86
Depth	2 to 4	3 to 6	3 to 6	0 to 3	3 to 6	0 to 3	3 to 6	0 to 3
TPH (mg/kg dry)								
TPH Scan				73 X	910 X	36 X	110 X	22 U
Oil And Grease	23 U	21 U	22 U					

Area	12	12	12	12	12	12	12	12
Sample ID	12-5-TP-3,S-1	12-5-TP-3,S-2	12-5-TP-501-S-2	12-5-TP-502-S-2-DAVG	12-5-TP-502-S-3-DAVG	12-5-TP-503-S-3	12-6-B-501-S-2	12-6-B-501-S-5
Date Sampled	4/27/87	4/27/87	4/17/92	4/17/92	4/17/92	4/17/92	3/25/92	3/25/92
Depth	0 to 3	3 to 6	3 to 6	3 to 5.5	8 to 10	4 to 6	5 to 8	20 to 23
TPH (mg/kg dry)								
TPH Scan	20000 X	4700 X						
Oil And Grease			3600	36000	1800	21 U	20 U	20 U

Area	12	12	12	12	12	12	12	12
Sample ID	12-6-TP-3,S-1	12-6-TP-3,S-2-DAVG	12-6-TP-502-S-2	12-6-TP-502-S-3	12-7-B-501-S-2	12-7-B-501-S-3	12-7-B-501-S-5	12-7-TP-501-S-2
Date Sampled	4/27/87	4/27/87	4/17/92	4/17/92	3/25/92	3/25/92	3/25/92	4/17/92
Depth	0 to 3	3 to 6	3 to 6	8 to 10	5 to 8	10 to 13	20 to 22.4	3 to 6
TPH (mg/kg dry)								
TPH Scan	39 X	1400 X						
Oil And Grease			55	22 U	1600	870	20 U	21 U

Table B.5-6
Area 12 - Works Magazine Landfill Soil TPH Results

Area	12	12	12	12	12	12	12	12
Sample ID	12-7-TP-501-S-3	12-TP-501-S-1-DAVG	12-TP-501-S-2-DAVG	12-TP-501-S-3	12-TP-502-S-1-DAVG	12-TP-502-S-2-DAVG	12-TP-502-S-3	12-TP-503-S-1
Date Sampled	4/17/92	4/16/92	4/16/92	4/16/92	4/16/92	4/17/92	4/16/92	4/16/92
Depth	8 to 10	0 to 1	3 to 4.5	9 to 10	0 to 1	3 to 6	8 to 10	0 to 1
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	21 U	24 U	20 U	21 U	25 U	21 U	21 U	26 U

Area	12	12	12	12	12	12	12	12
Sample ID	12-TP-503-S-2	12-TP-503-S-3	12-TP-504-S-1-DAVG	12-TP-504-S-2-DAVG	12-TP-504-S-3	12-TP-505-S-1-DAVG	12-TP-505-S-2-DAVG	12-TP-505-S-3
Date Sampled	4/16/92	4/16/92	4/17/92	4/17/92	4/17/92	4/17/92	4/17/92	4/17/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	21 U	21 U	26 U	21 U	21 U	39	290	22 U

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-3,S-5-DAVG	16-B-4,S-1	16-B-4,S-3	16-B-4,S-4-DAVG	16-B-4,S-5	16-B-5,S-3	16-B-5,S-7-DAVG	16-B-501-S-10A
Date Sampled	4/27/87	4/27/87	4/28/87	4/28/87	4/27/87	4/27/87	4/27/87	7/16/92
Depth	12.5 to 14	2.5 to 4	7.5 to 9	10 to 11.5	11.5 to 14	6.5 to 8	16.5 to 18	46.5 to 48
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	46	80	180	64	91	34	30	5.6 U
Mercury								
Nickel								
Zinc								

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-12	16-B-501-S-13A	16-B-501-S-15	16-B-501-S-1B	16-B-501-S-1-DAVG	16-B-501-S-3	16-B-501-S-4	16-B-501-S-5
Date Sampled	7/16/92	7/16/92	7/16/92	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92
Depth	55 to 56.5	62.5 to 64	70 to 71.5	2.5 to 3.5	0 to 1	7.5 to 9	15 to 16.5	20 to 21.5
Total Metals (mg/kg dry)								
Arsenic				21	120	8.7	5.8	
Cadmium				0.085 J	0.36 J	0.072 J	0.12 J	
Chromium				11	12	7.3	8.2	
Copper				3.6	53	5.6	7	
Lead	14	13	5.5 U	400	1400	75	58	51
Mercury				4.3	100	0.56	0.087 U	
Nickel				10	11	8.5	18	
Zinc				45	210	17	16	

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area Sample ID Date Sampled Depth	16 16-B-501-S-7-DAVG 7/14/92 30 to 31.5	16 16-B-502-S-2 2/24/92 4 to 7	16 16-B-503-S-2 2/24/92 4 to 7	16 16-B-503-S-3 2/24/92 9 to 10.5	16 16-B-503-S-5 2/24/92 14 to 15.5	16 16-B-503-S-7 2/24/92 19 to 20.5	16 16-B-503-S-8 2/24/92 21.5 to 23	16 16-B-504-S-2 2/25/92 5.5 to 7
Total Metals (mg/kg dry)								
Arsenic			2.3					220
Cadmium			0.042					0.084
Chromium			8.7					19
Copper			13					13
Lead	22	35	300	220	6.4	20	21	480
Mercury			0.077 U					1.5
Nickel			14					10
Zinc			25					21

Area Sample ID Date Sampled Depth	16 16-B-504-S-2A 2/25/92 7 to 8.5	16 16-B-504-S-3 2/25/92 9 to 10.5	16 16-B-504-S-4A 2/25/92 17 to 16.5	16 16-B-504-S-5 2/25/92 19 to 22	16 16-B-504-S-5A 2/25/92 22 to 23.5	16 16-B-504-S-6A 2/25/92 17 to 28.5	16 16-B-505-S-1-DAVG 7/14/92 0 to 1	16 16-B-505-S-2 7/14/92 5 to 6.5
Total Metals (mg/kg dry)								
Arsenic	41	330	18 J	9.4 J	2.5 J		49	44
Cadmium	0.024	0.049					0.048 J	0.055 J
Chromium	17	17					15	15
Copper	10	15					12	11
Lead	430	38		5.7 U		6.8	190	110
Mercury	0.47	0.59 J					3 J	3 J
Nickel	12	14					11	10
Zinc	15	17					19	21

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-505-S-3	16-B-505-S-4A	16-B-505-S-5	16-B-505-S-5A	16-B-505-S-6	16-SS-401	16-SS-402	16-SS-504
Date Sampled	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92	11/2/93	11/2/93	10/20/93
Depth	10 to 11.5	15.5 to 16.5	20 to 21.5	22.5 to 24	25 to 26.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	233			4.5 J		14	29	24
Cadmium	0.11 J							
Chromium	9.9							
Copper	19.4							
Lead	170	130	150		55			25 J
Mercury	0.075 U							
Nickel	10							
Zinc	15							

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-505	16-SS-506	16-SS-507	16-SS-508	16-SS-509	16-SS-510	16-SS-511	16-SS-512
Date Sampled	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	15	12	30	12	24	9.5	30	120
Cadmium								
Chromium								
Copper								
Lead	31 J	14 J	45 J	200 J	120 J	8 J	30 J	1100 J
Mercury				10		0.16		
Nickel								
Zinc								

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-513	16-SS-514	16-SS-515	16-SS-517	16-SS-518	16-SS-519	16-SS-520	16-SS-521
Date Sampled	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	9.5	18	30	28	29	33	7.1	8.2
Cadmium								
Chromium								
Copper								
Lead	210 J	33 J	21 J	46 J	6.2 UJ	34 J	8.8 J	9.9 J
Mercury	42		0.19					
Nickel								
Zinc								

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-522	16-SS-523	16-SS-524-DAVG	16-TP-10,S-2	16-TP-11,S-2	16-TP-12,S-2	16-TP-14,S-2	16-TP-16,S-2
Date Sampled	10/20/93	10/20/93	10/20/93	4/27/87	4/27/87	4/27/87	4/27/87	4/27/87
Depth	0 to 0.5	0 to 0.5	0 to 0.5	2 to 5	2 to 5	2 to 5	2 to 5	2 to 5
Total Metals (mg/kg dry)								
Arsenic	3	7.8	170					
Cadmium								
Chromium								
Copper								
Lead	5.8 UJ	5.8 J	1500	96	480	160	130	660
Mercury			59					
Nickel								
Zinc								

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-TP-3,S-2	16-TP-501-S-1	16-TP-501-S-2	16-TP-501-S-3	16-TP-502-S-2	16-TP-502-S-3	16-TP-503-S-2	16-TP-503-S-3
Date Sampled	4/27/87	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92
Depth	3 to 6	0 to 1	2 to 5.5	7 to 9	2 to 5	6.5 to 9	2 to 5	7 to 9
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	11	50	6.1	5 U	12	130	6.3	5.2 U
Mercury								
Nickel								
Zinc								

Area	16	16	16	16	16	16	16	16
Sample ID	16-TP-504-S-2	16-TP-504-S-3	16-TP-505-S-2	16-TP-505-S-3	16-TP-507-S-2	16-TP-507-S-3	16-TP-508-S-2	16-TP-508-S-3
Date Sampled	2/25/92	2/25/92	2/25/92	3/11/92	3/11/92	3/11/92	3/11/92	3/11/92
Depth	2 to 5	7 to 9	2 to 5	7 to 9	2 to 5	7 to 9	2 to 5	7 to 9
Total Metals (mg/kg dry)								
Arsenic			436		171	244 J		
Cadmium			0.012		0.021			
Chromium			25		14			
Copper			16		8.9 U			
Lead	5.6 U	5.7 U	720	770	580	450	23	34
Mercury			1.6 J		0.4 J			
Nickel			8.5		5.3			
Zinc			13		8.5			

Table B.6-1
Area 16 - Kettle Beneath Area 5 Soil Metals Results

Area	16	16	16	16	16	16
Sample ID	16-TP-509-S-2	16-TP-509-S-3	16-TP-6,S-2	16-TP-7,S-2	16-TP-8,S-2	16-TP-9,S-2
Date Sampled	3/11/92	3/11/92	4/27/87	4/27/87	4/27/87	4/27/87
Depth	2 to 5	7 to 9	2 to 5	2 to 5	2 to 5	2 to 5
Total Metals (mg/kg dry)						
Arsenic	110	147				
Cadmium	0.063 J	0.033				
Chromium	24	17				
Copper	15	24				
Lead	390	710	100	920	160	140
Mercury	9.8	1.6 J				
Nickel	19	11				
Zinc	29	13				

Table B.6-2
Area 16 - Kettle Beneath Area 5 Soil TCLP Metals Results

Area	16	16
Sample ID	16-B-504-S-2	16-TP-509-S-2
Date Sampled	2/25/92	3/11/92
Depth	5.5 to 7	2 to 5
TCLP Metals (mg/L)		
Arsenic	0.05 U	0.05 U
Barium	0.32	0.12
Cadmium	0.005 U	0.005 U
Chromium	0.011	0.01 U
Lead	0.11	1
Mercury	0.0002 U	0.0002 U
Selenium	0.05 U	0.05 U
Silver	0.005 U	0.005 U

Table B.6-3
Area 16 - Kettle Beneath Area 5 Soil Explosives Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-3,S-3	16-B-3,S-5-DAVG	16-B-3,S-7	16-B-4,S-1	16-B-4,S-3	16-B-4,S-4-DAVG	16-B-501-S-10A	16-B-501-S-12
Date Sampled	4/24/87	4/27/87	4/24/87	4/27/87	4/28/87	4/28/87	7/16/92	7/16/92
Depth	8.5 to 10	12.5 to 14	18.5 to 20	2.5 to 4	7.5 to 9	10 to 11.5	46.5 to 48	55 to 56.5
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene							0.032 U	0.032 U
1,3-Dinitrobenzene							0.043 U	0.043 U
2,4,6-Trinitrotoluene							0.0032 U	0.0032 U
2,4-Dinitrotoluene							0.0065 U	0.0064 U
2,6-Dinitrotoluene							0.0065 U	0.0064 U
Total DNT							*0.013 U*	*0.0128 U*
Monomethylamine Nitrate	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.042		
Nitrobenzene							0.064 U	0.064 U
Nitroglycerine								

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-13A	16-B-501-S-15	16-B-501-S-16	16-B-501-S-1-DAVG	16-B-501-S-2A	16-B-501-S-3	16-B-501-S-3A	16-B-501-S-4
Date Sampled	7/16/92	7/16/92	7/16/92	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92
Depth	62.5 to 64	70 to 71.5	75 to 76.5	0 to 1	7.5 to 9	7.5 to 9	12.5 to 14	15 to 16.5
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.033 U		0.032 U	1.8 U	0.16 U	0.031 U		0.031 U
1,3-Dinitrobenzene	0.044 U		0.042 U	2.3 U	0.21 U	0.042 U		0.042 U
2,4,6-Trinitrotoluene	0.0033 U		0.0032 U	0.18 U	0.016 U	0.0031 U		0.0031 U
2,4-Dinitrotoluene	0.0065 U	0.18 U	0.0063 U	0.35 U	0.031 U	0.0063 U	0.18 U	0.0063 U
2,6-Dinitrotoluene	0.0065 U	0.18 U	0.0063 U	0.35 U	0.031 U	0.0063 U	0.18 U	0.0063 U
Total DNT	*0.013 U*	*0.36 U*	*0.0126 U*	*0.7 U*	*0.062 U*	*0.0126 U*	*0.36 U*	*0.0126 U*
Monomethylamine Nitrate								5.2 U
Nitrobenzene	0.065 U	0.18 U	0.063 U	3.5 U	0.31 U	0.062 U	0.18 U	0.062 U
Nitroglycerine				0.24 U	0.21 U			

Table B.6-3
Area 16 - Kettle Beneath Area 5 Soil Explosives Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-4A	16-B-501-S-5A	16-B-501-S-6A	16-B-501-S-7A	16-B-501-S-9	16-B-502-S-2	16-B-503-S-2	16-B-503-S-3
Date Sampled	7/14/92	7/14/92	7/14/92	7/14/92	7/16/92	2/24/92	2/24/92	2/24/92
Depth	17.5 to 19	22.5 to 24	27.5 to 29	32.5 to 34	40 to 41.5	4 to 7	4 to 7	9 to 10.5
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U		0.032 U		0.032 U	0.034 U	0.037 UJ	0.037 UJ
1,3-Dinitrobenzene	0.042 U		0.043 U		0.042 U	0.046 U	0.049 U	0.049 U
2,4,6-Trinitrotoluene	0.0032 U		0.0032 U		0.0032 U	0.061 J	0.0037 U	0.0037 U
2,4-Dinitrotoluene	0.0064 U	0.18 U	0.0064 U	0.18 U	0.0063 U	0.0069 U	0.0073 U	0.0073 U
2,6-Dinitrotoluene	0.0064 U	0.18 U	0.0064 U	0.18 U	0.0063 U	0.0069 U	0.0073 U	0.0073 U
Total DNT	*0.0128 U*	*0.36 U*	*0.0128 U*	*0.36 U*	*0.0126 U*	*0.0138 U*	*0.0146 U*	*0.0146 U*
Monomethylamine Nitrate						5.7 U		
Nitrobenzene	0.063 U	0.18 U	0.064 U	0.18 U	0.063 U	0.068 U	0.073 U	0.072 U
Nitroglycerine						0.23 U		

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-503-S-5	16-B-503-S-7	16-B-503-S-9	16-B-504-S-2	16-B-504-S-2A	16-B-504-S-3	16-B-504-S-4-DAVG	16-B-504-S-5
Date Sampled	2/24/92	2/24/92	2/24/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92
Depth	14 to 15.5	19 to 20.5	24 to 25.5	5.5 to 7	7 to 8.5	9 to 10.5	14 to 15.5	19 to 22
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.034 UJ	0.032 UJ	0.032 UJ		0.036 UJ	0.034 UJ	0.034 UJ	0.034 UJ
1,3-Dinitrobenzene	0.045 U	0.043 U	0.043 U		0.048 U	0.045 U	0.045 U	0.045 U
2,4,6-Trinitrotoluene	0.0034 U	0.0032 U	0.0032 U		0.0036 U	0.0034 U	0.0034 U	0.0034 U
2,4-Dinitrotoluene	0.0067 U	0.0065 U	0.0065 U		0.0072 U	0.0068 U	0.0067 U	0.0068 U
2,6-Dinitrotoluene	0.0067 U	0.0065 U	0.0065 U		0.0072 U	0.0068 U	0.0067 U	0.0068 U
Total DNT	*0.013 U*	*0.013 U*	*0.013 U*		*0.0144 U*	*0.0136 U*	*0.0134 U*	*0.0136 U*
Monomethylamine Nitrate				5.6 U			5.6 U	
Nitrobenzene	0.067 U	0.064 U	0.064 U		0.072 U	0.067 U	0.067 U	0.067 U
Nitroglycerine					0.24 U		0.22 U	

Table B.6-3
Area 16 - Kettle Beneath Area 5 Soil Explosives Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-504-S-6	16-B-504-S-7	16-B-504-S-8	16-B-504-S-9	16-B-505-S-1-DAVG	16-B-505-S-2	16-B-505-S-3	16-B-505-S-4
Date Sampled	2/25/92	2/25/92	2/25/92	2/25/92	7/14/92	7/14/92	7/14/92	7/14/92
Depth	25 to 25.5	29 to 32	34 to 37	39 to 40.5	0 to 1	5 to 6.5	10 to 11.5	15 to 15.5
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.033 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.32 U	0.35 U	0.033 U	0.17 U
1,3-Dinitrobenzene	0.044 U	0.041 U	0.041 U	0.042 U	0.43 U	0.46 U	0.044 U	0.23 U
2,4,6-Trinitrotoluene	0.0033 U	0.0031 U	0.0031 U	0.0031 U	0.032 U	0.035 U	0.0033 U	0.017 U
2,4-Dinitrotoluene	0.0066 U	0.0062 U	0.0062 U	0.0063 U	0.065 U	0.07 U	0.0066 U	0.034 U
2,6-Dinitrotoluene	0.0066 U	0.0062 U	0.0062 U	0.0063 U	0.065 U	0.07 U	0.0066 U	0.034 U
Total DNT	*0.0132 U*	*0.124 U*	*0.124 U*	*0.0126 U*	*0.13 U*	*0.14 U*	*0.0132 U*	*0.068 U*
Monomethylamine Nitrate	5.5 U							
Nitrobenzene	0.065 U	0.062 U	0.061 U	0.062 U	0.64 U	0.69 U	0.065 U	0.34 U
Nitroglycerine								

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-505-S-5	16-B-505-S-6	16-TP-11,S-2	16-TP-16,S-2	16-TP-507-S-2	16-TP-507-S-3	16-TP-508-S-2	16-TP-508-S-3
Date Sampled	7/14/92	7/14/92	4/27/87	4/27/87	3/11/92	3/11/92	3/11/92	3/11/92
Depth	20 to 21.5	25 to 26.5	2 to 5	2 to 5	2 to 5	7 to 9	2 to 5	7 to 9
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.034 U	0.035 U			0.035 U	0.033 U	0.032 U	0.032 U
1,3-Dinitrobenzene	0.045 U	0.046 U			0.047 U	0.044 U	0.042 U	0.042 U
2,4,6-Trinitrotoluene	0.0034 U	0.0035 U			0.0035 U	0.0033 U	0.0032 U	0.0032 U
2,4-Dinitrotoluene	0.0068 U	0.007 U			0.007 U	0.0067 U	0.0064 U	0.0063 U
2,6-Dinitrotoluene	0.0068 U	0.007 U			0.007 U	0.0067 U	0.0064 U	0.0063 U
Total DNT	*0.0136 U*	*0.014 U*			*0.014 U*	*0.134 U*	*0.0128 U*	*0.0126 U*
Monomethylamine Nitrate			0.03 U	0.03 U		5.6 U		5.3 U
Nitrobenzene	0.067 U	0.069 U			0.069 U	0.066 U	0.063 U	0.063 U
Nitroglycerine					0.23 U	0.22 U	0.21 U	0.21 U

Table B.6-4
Area 16 - Kettle Beneath Area 5 Soil SVOC Results

Area	16	16	16	16	16	16
Sample ID	16-B-501-S-1	16-B-501-S-10A	16-B-501-S-15	16-B-501-S-3A	16-B-501-S-5A	16-B-501-S-7A
Date Sampled	7/14/92	7/16/92	7/16/92	7/14/92	7/14/92	7/14/92
Depth	0 to 1	46.5 to 48	70 to 71.5	12.5 to 14	22.5 to 24	32.5 to 34
Semivolatiles (mg/kg dry)						
1,2,4-Trichlorobenzene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-Dichlorobenzene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
1,4-Dichlorobenzene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4,5-Trichlorophenol	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
2,4,6-Trichlorophenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4-Dichlorophenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4-Dimethylphenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4-Dinitrophenol	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
2-Chloronaphthalene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Chlorophenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Methylphenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Nitroaniline	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
2-Nitrophenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
3,3'-Dichlorobenzidine	1.6 U	0.37 U	0.35 U	0.35 U	0.35 U	0.36 U
3-Nitroaniline	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
4,6-Dinitro-2-Methylphenol	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
4-Bromophenyl Phenyl Ether	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Chloroaniline	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Chlorophenyl-Phenylether	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Methylphenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Nitroaniline	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
4-Nitrophenol	4 U	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
Aniline	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzidine	7.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Benzoic Acid	0.27 J	0.93 U	0.88 U	0.88 U	0.88 U	0.9 U
Benzyl Alcohol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Chloroethoxy) Methane	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Chloroethyl) Ether	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.79 U	0.19 U	0.04 J	0.18 U	0.18 U	0.18 U
Butylbenzylphthalate	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Di-N-Butylphthalate	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Di-N-Octylphthalate	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Dibenzofuran	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Diethylphthalate	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Dimethylphthalate	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorobenzene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorobutadiene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachloroethane	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Isophorone	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Nitroso-Di-Phenylamine	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Nitroso-Di-Propylamine	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Nitroso-Dimethylamine	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Pentachlorophenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Phenol	0.79 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U

Table B.6-5
Area 16 - Kettle Beneath Area 5 Soil PAH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-10A	16-B-501-S-15	16-B-501-S-1-DAVG	16-B-501-S-2A	16-B-501-S-3A	16-B-501-S-5A	16-B-501-S-7A	16-B-502-S-2
Date Sampled	7/16/92	7/16/92	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92	2/24/92
Depth	46.5 to 48	70 to 71.5	0 to 1	7.5 to 9	12.5 to 14	22.5 to 24	32.5 to 34	4 to 7
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.19 U	0.18 U	0 64	0 018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Benzo(a)Pyrene	0.19 U	0.18 U	0 76	0 018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Benzo(b)Fluoranthene	0.19 U	0.18 U	0 77	0 018	0.18 U	0.18 U	0.18 U	0.019 UJ
Benzo(k)Fluoranthene	0.19 U	0.18 U	0 32	0.018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Chrysene	0.19 U	0.18 U	1.2	0.026	0.18 U	0.18 U	0.18 U	0.019 UJ
Dibenzo(a,h)Anthracene	0.19 U	0.18 U	0.44 J	0.036 U	0.18 U	0.18 U	0.18 U	0.039 UJ
Indeno(1,2,3-c,d)Pyrene	0.19 U	0.18 U	0.56	0.018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Total Carcinogenic PAHs (BAP TEQs)	*0.4391 U*	*0.416 U*	*1.4014*	*0.031*	*0.416 U*	*0.416 U*	*0.416 U*	*0.064 U*
2-Methylnaphthalene	0.19 U	0.18 U	0.79 U		0.18 U	0.18 U	0.18 U	
Acenaphthene	0.19 U	0.18 U	0.2 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 UJ
Acenaphthylene	0.19 U	0.18 U	0.2 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 UJ
Anthracene	0.19 U	0.18 U	0.065	0.0088 U	0.18 U	0.18 U	0.18 U	0.0095 UJ
Benzo(g,h,i)Perylene	0.19 U	0.18 U	0.51	0.018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Fluoranthene	0.19 U	0.18 U	1.2	0.033	0.18 U	0.18 U	0.18 U	0.019 UJ
Fluorene	0.19 U	0.18 U	0.02 U	0.018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Naphthalene	0.19 U	0.18 U	0.098 U	0.088 U	0.18 U	0.18 U	0.18 U	0.095 UJ
Phenanthrene	0.19 U	0.18 U	0.2	0.0088 U	0.18 U	0.18 U	0.18 U	0.0095 UJ
Pyrene	0.19 U	0.18 U	0.79	0.018 U	0.18 U	0.18 U	0.18 U	0.019 UJ
Total Non-carcinogenic PAHs	*1.9 U*	*1.8 U*	*3.419*	*0.293*	*1.8 U*	*1.8 U*	*1.8 U*	*0.57 U*

Table B.6-5
Area 16 - Kettle Beneath Area 5 Soil PAH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-503-S-2	16-B-504-S-1A	16-B-505-S-1C	16-B-505-S-1-DAVG	16-SS-504	16-SS-505	16-SS-506	16-SS-507
Date Sampled	2/24/92	2/25/92	7/14/92	7/14/92	10/20/93	10/20/93	10/20/93	10/20/93
Depth	4 to 7	1.5 to 3	2.5 to 3.5	0 to 1	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
PAHs (mg/kg dry)								
Benzo(a)Anthracene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Benzo(a)Pyrene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Benzo(b)Fluoranthene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Benzo(k)Fluoranthene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Chrysene	0.02 UJ	0.019 UJ	0.02 U	0.018	0.019 U	0.022	0.019 U	0.019 U
Dibenzo(a,h)Anthracene	0.041 UJ	0.04 UJ	0.04 U	0.037 U	0.038 U	0.037 U	0.038 U	0.04 U
Indeno(1,2,3-c,d)Pyrene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Total Carcinogenic PAHs (BAP TEQs)	*0.067 U*	*0.065 U*	*0.066 U*	*0.03031*	*0.063 U*	*0.0303*	*0.063 U*	*0.065 U*
2-Methylnaphthalene								
Acenaphthene	0.2 UJ	0.19 UJ	0.2 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U
Acenaphthylene	0.2 UJ	0.19 UJ	0.2 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U
Anthracene	0.01 UJ	0.01 UJ	0.0098 U	0.009 U	0.0094 U	0.0091 U	0.0094 U	0.0097 U
Benzo(g,h,i)Perylene	0.02 UJ	0.019 UJ	0.023	0.02	0.019 U	0.018 U	0.019 U	0.019 U
Fluoranthene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Fluorene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Naphthalene	0.1 UJ	0.1 UJ	0.098 U	0.09 U	0.094 U	0.091 U	0.094 U	0.097 U
Phenanthrene	0.01 UJ	0.01 UJ	0.0098 U	0.009 U	0.0094 U	0.0091 U	0.0094 U	0.0097 U
Pyrene	0.02 UJ	0.019 UJ	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U
Total Non-carcinogenic PAHs	*0.6 U*	*0.576 U*	*0.312*	*0.281*	*0.569 U*	*0.541 U*	*0.569 U*	*0.572 U*

Table B.6-5
Area 16 - Kettle Beneath Area 5 Soil PAH Results

Area	16	16	16	16	16	16	16	16
Sample ID	**16-SS-508**	**16-SS-510**	**16-SS-512**	**16-SS-514**	**16-SS-519**	**16-SS-521**	**16-SS-524-DAVG**	**16-TP-501-S-1**
Date Sampled	**10/20/93**	**10/20/93**	**10/20/93**	**10/20/93**	**10/20/93**	**10/20/93**	**10/20/93**	**2/25/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 1**
PAHs (mg/kg dry)								
Benzo(a)Anthracene	3.4	0.018 U	0.1	0.018 U	0.019 U	0.02 U	0.69	0.02 UJ
Benzo(a)Pyrene	2.8	0.018 U	0.097	0.018 U	0.019 U	0.02 U	0.93	0.02 UJ
Benzo(b)Fluoranthene	3.7	0.018 U	0.019 U	0.018 U	0.019 U	0.02 U	0.77	0.02 UJ
Benzo(k)Fluoranthene	1.7	0.018 U	0.019 U	0.018 U	0.019 U	0.02 U	0.3	0.02 UJ
Chrysene	4.5	0.018 U	0.19	0.018 U	0.019 U	0.02 U	0.67	0.026 J
Dibenzo(a,h)Anthracene	0.37 U	0.037 U	0.039 U	0.038 U	0.038 U	0.04 U	0.51	0.041 UJ
Indeno(1,2,3-c,d)Pyrene	1.6	0.018 U	0.039	0.018 U	0.019 U	0.02 U	0.21	0.02 UJ
Total Carcinogenic PAHs (BAP TEQs)	*3.877*	*0.061 U*	*0.132*	*0.062 U*	*0.063 U*	*0.066 U*	*1.61067*	*0.034*
2-Methylnaphthalene								
Acenaphthene	1.8 U	0.18 U	0.19 U	0.18 U	0.19 U	0.2 U	1.8 U	0.2 UJ
Acenaphthylene	1.8 U	0.18 U	0.19 U	0.18 U	0.19 U	0.2 U	1.8 U	0.2 UJ
Anthracene	0.4	0.0091 U	0.0096 U	0.0092 U	0.0093 U	0.0098 U	0.088 U	0.01 UJ
Benzo(g,h,i)Perylene	1.6	0.018 U	0.1	0.018 U	0.019 U	0.02 U	0.61	0.07 J
Fluoranthene	5.9	0.018 U	0.086	0.018 U	0.019 U	0.02 U	0.58	0.02 UJ
Fluorene	0.18 U	0.018 U	0.019 U	0.018 U	0.019 U	0.02 U	0.18 U	0.02 UJ
Naphthalene	0.89 U	0.091 U	0.096 U	0.092 U	0.093 U	0.098 U	0.88 U	0.1 UJ
Phenanthrene	1.1	0.0091 U	0.061	0.0092 U	0.0093 U	0.0098 U	0.088 U	0.01 UJ
Pyrene	3	0.018 U	0.051	0.018 U	0.019 U	0.02 U	0.32	0.02 UJ
Total Non-carcinogenic PAHs	*14.34*	*0.541 U*	*0.55*	*0.542 U*	*0.568 U*	*0.598 U*	*3.928*	*0.36*

Table B.6-6
Area 16 - Kettle Beneath Area 5 Soil Pesticide and PCB Results

Area	16	16	16	16	16	16
Sample ID	16-B-3,S-1	16-B-3,S-3	16-B-3,S-5-DAVG	16-B-3,S-7	16-B-501-S-1C	16-B-501-S-1-DAVG
Date Sampled	4/24/87	4/24/87	4/27/87	4/24/87	7/14/92	7/14/92
Depth	3.5 to 5	8.5 to 10	12.5 to 14	18.5 to 20	3.5 to 4	0 to 1
Pesticides (mg/kg dry)						
4,4'-DDD					0.01 U	0.012 UJ
4,4'-DDE					0.01 U	0.012 UJ
4,4'-DDT					0.01 U	0.012 UJ
Aldrin					0.0052 U	0.006 U
Alpha-BHC					0.0052 U	0.006 U
Beta-BHC					0.0052 U	0.006 U
Chlordane					0.052 U	0.06 U
Delta-BHC					0.0052 U	0.006 U
Dieldrin					0.01 U	0.012 UJ
Endosulfan I					0.0052 U	0.006 U
Endosulfan II					0.01 U	0.012 UJ
Endosulfan Sulfate					0.01 U	0.012 UJ
Endrin					0.01 U	0.015
Endrin Ketone					0.01 U	0.012 UJ
Gamma-BHC					0.0052 U	0.006 U
Heptachlor					0.0052 U	0.006 U
Heptachlor Epoxide					0.0052 U	0.006 U
Methoxychlor					0.052 U	0.06 U
Toxaphene					0.1 U	0.12 UJ
PCBs (mg/kg dry)						
PCB-1016	0.094 U	0.078 U	0.076 U	0.074 U	0.1 U	0.12 UJ
PCB-1221	0.094 U	0.078 U	0.076 U	0.074 U	0.1 U	0.12 UJ
PCB-1232	0.094 U	0.078 U	0.076 U	0.074 U	0.1 U	0.12 UJ
PCB-1242	0.094 U	0.078 U	0.076 U	0.074 U	0.1 U	0.12 UJ
PCB-1248	0.094 U	0.078 U	0.076 U	0.074 U	0.1 U	0.12 UJ
PCB-1254	0.58	0.16 U	0.15 U	0.15 U	0.1 U	0.12 UJ
PCB-1260	0.19 U	0.16 U	0.15 U	0.15 U	0.1 U	0.12 UJ

Table B.6-6

Area 16 - Kettle Beneath Area 5 Soil Pesticide and PCB Results

Area	16	16	16	16	16
Sample ID	16-B-501-S-3A	16-B-501-S-4A	16-B-505-S-1-DAVG	16-TP-3,S-2	16-TP-14,S-2
Date Sampled	7/14/92	7/14/92	7/14/92	4/27/87	4/27/87
Depth	12.5 to 14	17.5 to 19	0 to 1	3 to 6	2 to 5
Pesticides (mg/kg dry)					
4,4'-DDD	0.011 U	0.011 U	0.011 U		
4,4'-DDE	0.011 U	0.011 U	0.011 U		
4,4'-DDT	0.011 U	0.011 U	0.011 U		
Aldrin	0.0053 U	0.0053 U	0.0054 U		
Alpha-BHC	0.0053 U	0.0053 U	0.0054 U		
Beta-BHC	0.0053 U	0.0053 U	0.0054 U		
Chlordane	0.053 U	0.053 U	0.054 U		
Delta-BHC	0.0053 U	0.0053 U	0.0054 U		
Dieldrin	0.011 U	0.011 U	0.011 U		
Endosulfan I	0.0053 U	0.0053 U	0.0054 U		
Endosulfan II	0.011 U	0.011 U	0.011 U		
Endosulfan Sulfate	0.011 U	0.011 U	0.011 U		
Endrin	0.011 U	0.011 U	0.011 U		
Endrin Ketone	0.011 U	0.011 U	0.011 U		
Gamma-BHC	0.0053 U	0.0053 U	0.0054 U		
Heptachlor	0.0053 U	0.0053 U	0.0054 U		
Heptachlor Epoxide	0.0053 U	0.0053 U	0.0054 U		
Methoxychlor	0.053 U	0.053 U	0.054 U		
Toxaphene	0.11 U	0.11 U	0.11 U		
PCBs (mg/kg dry)					
PCB-1016	0.11 U	0.11 U	0.11 U	0.042 U	0.04 U
PCB-1221	0.11 U	0.11 U	0.11 U	0.042 U	0.04 U
PCB-1232	0.11 U	0.11 U	0.11 U	0.042 U	0.04 U
PCB-1242	0.11 U	0.11 U	0.11 U	0.042 U	0.04 U
PCB-1248	0.11 U	0.11 U	0.11 U	0.042 U	0.04 U
PCB-1254	0.11 U	0.11 U	0.11 U	0.084 U	0.08 U
PCB-1260	0.11 U	0.11 U	0.11 U	0.084 U	0.08 U

Table B.6-7
Area 16 - Kettle Beneath Area 5 Soil TPH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-3,S-5-DAVG	16-B-4,S-1	16-B-4,S-3	16-B-4,S-4-DAVG	16-B-4,S-5	16-B-5,S-3	16-B-5,S-7-DAVG	16-B-501-S-10A
Date Sampled	4/27/87	4/27/87	4/28/87	4/28/87	4/27/87	4/27/87	4/27/87	7/16/92
Depth	12.5 to 14	2.5 to 4	7.5 to 9	10 to 11.5	11.5 to 14	6.5 to 8	16.5 to 18	46.5 to 48
TPH (mg/kg dry)								
TPH Scan								22 U
Oil And Grease	87 X	1200 X	20 UX	20 UX	20 UX	2200 X	48 X	

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-12	16-B-501-S-14	16-B-501-S-16	16-B-501-S-1-DAVG	16-B-501-S-2A	16-B-501-S-3	16-B-501-S-4	16-B-501-S-5
Date Sampled	7/16/92	7/16/92	7/16/92	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92
Depth	55 to 56.5	65 to 66.5	75 to 76.5	0 to 1	7.5 to 9	7.5 to 9	15 to 16.5	20 to 21.5
TPH (mg/kg dry)								
TPH Scan	21 U	21 U	21 U	1600 J	73 J	21 UJ	21 UJ	22 UJ
Oil And Grease								

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-501-S-6A	16-B-501-S-8	16-B-502-S-2	16-B-503-S-2	16-B-503-S-3	16-B-503-S-4	16-B-503-S-6	16-B-503-S-9
Date Sampled	7/14/92	7/14/92	2/24/92	2/24/92	2/24/92	2/24/92	2/24/92	2/24/92
Depth	27.5 to 29	35 to 36.5	4 to 7	4 to 7	9 to 10.5	11.5 to 13	16.5 to 18	24 to 25.5
TPH (mg/kg dry)								
TPH Scan	22 UJ	22 UJ	120 J	130	27	20 U	20 U	20 U
Oil And Grease								

Table B.6-7
Area 16 - Kettle Beneath Area 5 Soil TPH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-504-S-1A	16-B-504-S-2A	16-B-504-S-4-DAVG	16-B-504-S-5	16-B-504-S-6A	16-B-504-S-8	16-B-504-S-9	16-B-505-S-1C
Date Sampled	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	7/14/92
Depth	1.5 to 3	7 to 8.5	14 to 15.5	19 to 22	27 to 28.5	34 to 37	39 to 40.5	2.5 to 3.5
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	35 J	20 U	20 U	20 U	20 U	20 U	20 U	74

Area	16	16	16	16	16	16	16	16
Sample ID	16-B-505-S-1-DAVG	16-B-505-S-2A	16-B-505-S-3	16-B-505-S-5	16-B-505-S-6	16-SS-504	16-SS-505	16-SS-506
Date Sampled	7/14/92	7/14/92	7/14/92	7/14/92	7/14/92	10/20/93	10/20/93	10/20/93
Depth	0 to 1	7.5 to 8	10 to 11.5	20 to 21.5	25 to 26.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	420	210	360	28	23 U	35	1100	38

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-507	16-SS-508	16-SS-509	16-SS-510	16-SS-511	16-SS-512	16-SS-513	16-SS-514
Date Sampled	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	55	2500	2200	22 U	39	320	2200	22 U

Table B.6-7
Area 16 - Kettle Beneath Area 5 Soil TPH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-515	16-SS-517	16-SS-518	16-SS-519	16-SS-520	16-SS-521	16-SS-522	16-SS-523
Date Sampled	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg dry)								
TPH Scan	25 U	73	24 U	22 U	24 U	24 U	23 U	22 U
Oil And Grease								

Area	16	16	16	16	16	16	16	16
Sample ID	16-SS-524-DAVG	16-TP-10,S-2	16-TP-11,S-2	16-TP-12,S-2	16-TP-14,S-2	16-TP-16,S-2	16-TP-3,S-2	16-TP-501-S-1
Date Sampled	10/20/93	4/27/87	4/27/87	4/27/87	4/27/87	4/27/87	4/27/87	2/25/92
Depth	0 to 0.5	2 to 5	2 to 5	2 to 5	2 to 5	2 to 5	3 to 6	0 to 1
TPH (mg/kg dry)								
TPH Scan	2800							1200
Oil And Grease		52 X	20 UX	330 X	22 X	23 X	30 X	

Area	16	16	16	16	16	16	16	16
Sample ID	16-TP-501-S-2	16-TP-501-S-3	16-TP-502-S-2	16-TP-502-S-3	16-TP-503-S-2	16-TP-503-S-3	16-TP-504-S-2	16-TP-504-S-3
Date Sampled	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92	2/25/92
Depth	2 to 5.5	7 to 9	2 to 5	6.5 to 9	2 to 5	7 to 9	2 to 5	7 to 9
TPH (mg/kg dry)								
TPH Scan	63	20 U	20 U	20 U	20 U	20 U	25	20 U
Oil And Grease								

Table B.6-7
Area 16 - Kettle Beneath Area 5 Soil TPH Results

Area	16	16	16	16	16	16	16	16
Sample ID	16-TP-505-S-2	16-TP-505-S-3	16-TP-507-S-2	16-TP-507-S-3	16-TP-508-S-2	16-TP-508-S-3	16-TP-509-S-2	16-TP-509-S-3
Date Sampled	2/25/92	3/11/92	3/11/92	3/11/92	3/11/92	3/11/92	3/11/92	3/11/92
Depth	2 to 5	7 to 9	2 to 5	7 to 9	2 to 5	7 to 9	2 to 5	7 to 9
TPH (mg/kg dry)								
TPH Scan	67	100	20 U	20 U	120	72	200	20 U
Oil And Grease								

Area	16	16	16	16
Sample ID	16-TP-6,S-2	16-TP-7,S-2	16-TP-8,S-2	16-TP-9,S-2
Date Sampled	4/27/87	4/27/87	4/27/87	4/27/87
Depth	2 to 5	2 to 5	2 to 5	2 to 5
TPH (mg/kg dry)				
TPH Scan				
Oil And Grease	20 UX	30 X	1200 X	59 X

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-C-SS[PW-1]C2-005	01-F29-SS[F-199]C2-005	01-F29-SS[F-200]C2-005	01-F29-SS[F-201]C2-005
Date Sampled	7/11/01	8/2/01	8/2/01	8/2/01
Depth	1 to 1.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	6.4	6	9.2	4.3
Lead	8.6	10	20	74

Area	18	18	18	18
Sample ID	01-F29-SS[F-202]C2-005	01-F29-SS[F-203]C2-005	01-F29-SS[F-204]C2-005	01-F29-SS[F-206]C2-005
Date Sampled	8/2/01	8/2/01	8/2/01	8/2/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	3.9	4.1	4.7	3.8
Lead	12	11	25	6.7

Area	18	18	18	18
Sample ID	01-F29-SS[F-207]C2-005	01-F29-SS[F-208]C2-005	01-F29-SS[F-209]C2-005	01-F29-SS[F-210]C2-005
Date Sampled	8/2/01	8/2/01	8/2/01	8/2/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	17	5.2	8.1	9.5
Lead	53	24	33	51

Area	18	18	18	18
Sample ID	01-F30-SS[F-220]C2-005	01-F30-SS[F-221]C2-005	01-F30-SS[F-222]C2-005	01-F30-SS[F-223]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	7.2	8.7	8.7	6.9
Lead	7.8	23	12	15

Area	18	18	18	18
Sample ID	01-F30-SS[F-224]C2-005	01-F30-SS[F-225]C2-005	01-F30-SS[F-226]C2-005	01-F30-SS[F-228]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	6	4.6	5	4.8
Lead	7.9	5.7	11	12

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-F30-SS[F-229]C2-005	01-F31-SS[F-231]C2-005	01-F31-SS[F-232]C2-005	01-F31-SS[F-234]C2-005
Date Sampled	8/8/01	8/9/01	8/9/01	8/9/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	7.4	8.4	5.4	5.1
Lead	9.3	7	6	4.5

Area	18	18	18	18
Sample ID	01-F31-SS[F-235]C2-005	01-F31-SS[F-236]C2-005	01-F31-SS[F-237]C2-005	01-F31-SS[F-238]C2-005
Date Sampled	8/9/01	8/9/01	8/9/01	8/9/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	6.1	6.9	3.6	5.2
Lead	14	16	14	29

Area	18	18	18	18
Sample ID	01-F31-SS[F-239]C2-005	01-F31-SS[F-240]C2-005	01-F32-SS[F-268]C2-005	01-F32-SS[F-269]C2-005
Date Sampled	8/9/01	8/9/01	8/22/01	8/22/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	4.9	6.5	3.6	26
Lead	5.1	6.1	3.9	32

Area	18	18	18	18
Sample ID	01-F32-SS[F-270]C2-005	01-F32-SS[F-271]C2-005	01-F32-SS[F-272]C2-005	01-F37-SS[F-183]C2-005
Date Sampled	8/22/01	8/22/01	8/22/01	7/30/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	4.5	2.8	4.4	8.6
Lead	4.3	2.5	5.6	9

Area	18	18	18	18
Sample ID	01-F37-SS[F-184]C2-005	01-F37-SS[F-185]C2-005	01-F37-SS[F-186]C2-005	01-F37-SS[F-187]C2-005
Date Sampled	7/30/01	7/30/01	7/30/01	7/30/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	13	26	8.6	3.6
Lead	10	9.9	14	3.9

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-F37-SS[F-188]C2-005	01-F37-SS[F-189]C2-005-DAVG	01-F37-SS[F-191]C2-005	01-F37-SS[F-192]C2-005
Date Sampled	7/30/01	7/30/01	7/30/01	7/30/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg)				
Arsenic	13	4.5	4.7	6.9
Lead	62	2.95	5.5	5.2

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-139]C2-005	01-N01-SS[NGRR-140]C2-005	01-N01-SS[NGRR-141]C2-005	01-N01-SS[NGRR-142]C2-005
Date Sampled	7/30/01	7/30/01	7/30/01	7/30/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5.4	18	24	13
Lead	5.3	16	28	15

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-144]C2-005	01-N01-SS[NGRR-146]C2-005	01-N01-SS[NGRR-148]C2-005	01-N01-SS[NGRR-149]C2-005
Date Sampled	7/31/01	7/30/01	7/31/01	7/31/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	11	28	13	7.3
Lead	8.8	12	8.2	4.6

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-150]C2-005	01-N01-SS[NGRR-151]C2-005	01-N01-SS[NGRR-152]C2-005	01-N01-SS[NGRR-153]C2-005-DAVG
Date Sampled	7/31/01	7/31/01	7/31/01	7/31/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5.8	5.1	3.6	3.5
Lead	3.4	2.8	2.1 U	2.25

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-157]C2-005	01-N01-SS[NGRR-158]C2-005	01-N01-SS[NGRR-159]C2-005	01-N01-SS[NGRR-160]C2-005
Date Sampled	7/31/01	7/31/01	7/31/01	7/31/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	6.4	16	10	4.3
Lead	6.8	17	3.9	5

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-161]C2-005	01-N01-SS[NGRR-162]C2-005	01-N01-SS[NGRR-163]C2-005	01-N01-SS[NGRR-164]C2-005-DAVG
Date Sampled	7/31/01	7/31/01	7/31/01	8/2/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	4.7	4.3	10	10.5
Lead	5.5	4.1	9	54.5

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-166]C2-005	01-N01-SS[NGRR-167]C2-005	01-N01-SS[NGRR-168]C2-005	01-N01-SS[NGRR-169]C2-005
Date Sampled	8/2/01	8/2/01	8/2/01	8/2/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5.7	17	7.7	4.5
Lead	8.5	17	13	6.1

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-170]C2-005	01-N01-SS[NGRR-171]C2-005	01-N01-SS[NGRR-172]C2-005	01-N01-SS[NGRR-173]C2-005
Date Sampled	8/2/01	8/2/01	8/2/01	8/2/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5	21	6.4	5.6
Lead	6.1	6.1	7.6	3.1

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-174]C2-005	01-N01-SS[NGRR-175]C2-005	01-N01-SS[NGRR-176]C2-005	01-N01-SS[NGRR-209]C2-005
Date Sampled	8/2/01	8/2/01	8/2/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	3.5	15	4.6	8
Lead	2.2 U	3.2	2.7	7.5

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-210]C2-005	01-N01-SS[NGRR-211]C2-005	01-N01-SS[NGRR-212]C2-005	01-N01-SS[NGRR-213]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	11	7.7	5	4.9
Lead	9.4	4.1	3.6	3.3

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-214]C2-005	01-N01-SS[NGRR-215]C2-005	01-N01-SS[NGRR-216]C2-005	01-N01-SS[NGRR-217]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	38	55	7.2	5.2
Lead	11	4.2	4.8	4.8

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-218]C2-005	01-N01-SS[NGRR-219]C2-005	01-N01-SS[NGRR-220]C2-005	01-N01-SS[NGRR-221]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	50	7.4	9.8	9.1
Lead	66	6.2	6.7	5.4

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-222]C2-005	01-N01-SS[NGRR-223]C2-005-DAVG	01-N01-SS[NGRR-225]C2-005	01-N01-SS[NGRR-226]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	14	6.3	5.6	18
Lead	5.3	5.8	5.5	25

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-227]C2-005	01-N01-SS[NGRR-228]C2-005	01-N01-SS[NGRR-229]C2-005	01-N01-SS[NGRR-230]C2-005
Date Sampled	8/8/01	8/8/01	8/8/01	8/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	4.9	5	4.9	16
Lead	6.2	4.2	4.4	9.4

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-231]C2-005	01-N01-SS[NGRR-232]C2-005	01-N01-SS[NGRR-233]C2-005	01-N01-SS[NGRR-234]C2-005
Date Sampled	8/9/01	8/9/01	8/9/01	8/9/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	6.5	6	6.4	5.1
Lead	25	4.9	6	4.8

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-235]C2-005-DAVG	01-N01-SS[NGRR-237]C2-005	01-N01-SS[NGRR-238]C2-005	01-N01-SS[NGRR-239]C2-005
Date Sampled	8/9/01	8/9/01	8/9/01	8/9/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	6.5	4.8	6	4.6
Lead	7	6.1	7.8	5.4

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-240]C2-005	01-N01-SS[NGRR-241]C2-005	01-N01-SS[NGRR-242]C2-005	01-N01-SS[NGRR-243]C2-005
Date Sampled	8/9/01	8/9/01	8/9/01	8/9/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	11	13	3.9	5.9
Lead	13	8.3	5.2	4.8

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-297]C2-005	01-N01-SS[NGRR-298]C2-005	01-N01-SS[NGRR-299]C2-005	01-N01-SS[NGRR-300]C2-005
Date Sampled	8/15/01	8/15/01	8/15/01	8/15/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	8.4	7.8	18	5.9
Lead	7.7	9.6	26	55

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-319]C2-005	01-N01-SS[NGRR-321]C2-005-DAVG	01-N01-SS[NGRR-323]C2-005	01-N01-SS[NGRR-324]C2-005
Date Sampled	8/16/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	8.9	42 U	40 U	37 U
Lead	76	21 U	41	18 U

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-325]C2-005	01-N01-SS[NGRR-326]C2-005	01-N01-SS[NGRR-327]C2-005	01-N01-SS[NGRR-328]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	36 U	37 U	36 U	39 U
Lead	18 U	18 U	18 U	19 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-329]C2-005	01-N01-SS[NGRR-330]C2-005	01-N01-SS[NGRR-331]C2-005	01-N01-SS[NGRR-333]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	37 U	39 U	35 U	46 U
Lead	19 U	19 U	18 U	23 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-334]C2-005	01-N01-SS[NGRR-335]C2-005	01-N01-SS[NGRR-336]C2-005	01-N01-SS[NGRR-337]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	42 U	43 U	38 U	39 U
Lead	21 U	22	19 U	19 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-338]C2-005	01-N01-SS[NGRR-339]C2-005	01-N01-SS[NGRR-340]C2-005	01-N01-SS[NGRR-341]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	41 U	38 U	39 U	41 U
Lead	20 U	19 U	19 U	21 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-342]C2-005-DAVG	01-N01-SS[NGRR-344]C2-005	01-N01-SS[NGRR-345]C2-005	01-N01-SS[NGRR-346]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	42 U	43 U	39 U	41 U
Lead	46 J	21 UJ	20 UJ	21 UJ

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-347]C2-005	01-N01-SS[NGRR-348]C2-005	01-N01-SS[NGRR-349]C2-005	01-N01-SS[NGRR-350]C2-005
Date Sampled	8/20/01	8/20/01	8/20/01	8/20/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	38 U	41 U	38 U	40 U
Lead	19 UJ	20 UJ	19 UJ	20 UJ

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-362]C2-005	01-N01-SS[NGRR-363]C2-005	01-N01-SS[NGRR-364]C2-005	01-N01-SS[NGRR-365]C2-005
Date Sampled	8/21/01	8/21/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5.5	6.7	6	3.6
Lead	13	8.3	5.3	3.4

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-383]C2-005-DAVG	01-N01-SS[NGRR-385]C2-005	01-N01-SS[NGRR-386]C2-005	01-N01-SS[NGRR-387]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	5.05	5.7	6	3.5
Lead	5.35	6.8	3.8	2.2 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-388]C2-005	01-N01-SS[NGRR-389]C2-005	01-N01-SS[NGRR-390]C2-005	01-N01-SS[NGRR-391]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	6.6	8.6	5.9	7.1
Lead	6.2	7	3.7	3.4

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-392]C2-005	01-N01-SS[NGRR-393]C2-005	01-N01-SS[NGRR-395]C2-005	01-N01-SS[NGRR-396]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	7.9	3.6	4	3.4
Lead	4.3	62	4	3.6

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-397]C2-005	01-N01-SS[NGRR-398]C2-005	01-N01-SS[NGRR-399]C2-005	01-N01-SS[NGRR-400]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	7.8	3.3	13	3.3
Lead	17	3.1	15	4.5

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-401]C2-005	01-N01-SS[NGRR-402]C2-005	01-N01-SS[NGRR-403]C2-005	01-N01-SS[NGRR-404]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	4.5	10	8.4	8.7
Lead	2.7	8.3	9.3	6.8

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-405]C2-005	01-N01-SS[NGRR-406]C2-005	01-N01-SS[NGRR-407]C2-005	01-N01-SS[NGRR-408]C2-005
Date Sampled	8/23/01	8/23/01	8/23/01	8/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	7	6.5	9.8	13
Lead	6.1	9	16	15

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-409]C2-005	01-N01-SS[NGRR-410]C2-005	01-N01-SS[NGRR-411]C2-005-DAVG	01-N01-SS[NGRR-413]C2-005
Date Sampled	8/23/01	8/23/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	10	14	9.3	3
Lead	11	18	8.1	2 U

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-414]C2-005	01-N01-SS[NGRR-415]C2-005	01-N01-SS[NGRR-416]C2-005	01-N01-SS[NGRR-417]C2-005
Date Sampled	8/27/01	8/27/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	10	6.6	7.7	11
Lead	8.2	3.9	7.7	11

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18
Sample ID	01-N01-SS[NGRR-418]C2-005	01-N01-SS[NGRR-419]C2-005	01-N01-SS[NGRR-420]C2-005	01-N01-SS[NGRR-421]C2-005
Date Sampled	8/27/01	8/27/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	8.3	11	6.3	6.4
Lead	5.4	8.6	4	5

Area	18	18	18	18
Sample ID	01-TS03-SS-[R23C09]-D1-015	01-TS03-SS-[R24C08]-D1-015	01-TS03-SS-[R24C09]-D1-015	01-TS03-SS-[R24C10]-D1-015
Date Sampled	9/4/01	9/4/01	9/4/01	9/4/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	7	5.8	10	10
Lead	17	8.8	9.2	28

Area	18	18	18	18
Sample ID	01-TS03-SS-[R25C08]-D1-015	01-TS03-SS-[R25C09]-D1-015	01-TS03-SS-[R25C10]-D1-015	01-TS04-SS[R35C14]-D1-015
Date Sampled	9/4/01	9/4/01	9/4/01	9/4/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	9.5	8.9	4.8	33
Lead	21	96	12	19

Area	18	18	18	18
Sample ID	01-TS04-SS[R35C15]-D1-015	01-TS04-SS[R35C16]-D1-015	01-TS04-SS[R36C16]-D1-015	01-TS04-SS[R37C17]-D1-015
Date Sampled	9/4/01	9/4/01	9/4/01	9/4/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg)				
Arsenic	10	8.1	19	16
Lead	9.5	15	31	22

Area	18	18	18	18
Sample ID	02-F29-SS[F-205-2]C2-030	02-F30-SS[F-227-2]C2-030	02-F31-SS[F-233-2]C2-030	02-N01-SS[NGRR-156-2]C2-025
Date Sampled	8/30/01	8/30/01	8/30/01	8/30/01
Depth	3 to 3.5	3 to 3.5	3 to 3.5	2.5 to 3
Total Metals (mg/kg)				
Arsenic	3.9	5.6	5.7	5.3
Lead	13	35 J	54 J	2

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	**18**
Sample ID	**02-TS04-SS-[R34C15-2]-D2-030**
Date Sampled	**9/19/01**
Depth	**2 to 2.5**
Total Metals (mg/kg)	
Arsenic	8.2
Lead	5.8

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-501-DAVG	18-SS-502	18-SS-503	18-SS-504	18-SS-505	18-SS-507	18-SS-508	18-SS-509
Date Sampled	5/7/92	5/7/92	5/7/92	5/7/92	5/7/92	3/4/92	5/7/92	3/4/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	36	55	28	57	31	120	190	270
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-510	18-SS-511	18-SS-514	18-SS-515	18-SS-516	18-SS-517	18-SS-518	18-SS-519
Date Sampled	3/4/92	5/7/92	3/4/92	5/4/92	5/4/92	5/4/92	5/4/92	5/4/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	59	5 U	87	31	25	190	28	33
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-520	18-SS-521-DAVG	18-SS-522	18-SS-523	18-SS-524	18-SS-525	18-SS-527	18-SS-528
Date Sampled	3/4/92	3/4/92	5/4/92	3/4/92	5/4/92	5/4/92	5/4/92	5/4/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead	1.1			2.3				
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	1300	340	110	1800	76	15	390	190
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18 North	18	18	18 North	18 North
Sample ID	18-SS-529	18-SS-530	18-SS-531	18-SS-532	18-SS-533	18-SS-534	18-SS-536	18-SS-537
Date Sampled	5/5/92	3/4/92	5/5/92	3/4/92	5/5/92	5/5/92	5/5/92	5/5/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	25	570	15	46	7	62	520	210
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18	18
Sample ID	18-SS-538	18-SS-539	18-SS-540-DAVG	18-SS-541	18-SS-542	18-SS-543	18-SS-546	18-SS-547
Date Sampled	5/5/92	3/4/92	5/5/92	3/4/92	3/4/92	3/4/92	5/7/92	4/27/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5 U	5.8 U	250	25	26	27	16	110
Mercury								
Nickel								
Zinc								

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-548	18-SS-550	18-SS-551	18-SS-560-DAVG	18-SS-561	18-SS-562	18-SS-563	18-SS-564
Date Sampled	4/27/92	4/27/92	5/5/92	5/5/92	5/6/92	3/4/92	3/4/92	5/6/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	110	62	8	31	25	56	26	25
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-565	18-SS-566	18-SS-568	18-SS-569	18-SS-570	18-SS-571	18-SS-575	18-SS-576
Date Sampled	5/6/92	3/4/92	5/6/92	5/6/92	5/6/92	5/6/92	5/6/92	5/6/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	89	44	290	37	40	82	5 U	55
Mercury								
Nickel								
Zinc								

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-577	18-SS-578	18-SS-580	18-SS-581	18-SS-583-DAVG	18-SS-584-2	18-SS-585	18-SS-586
Date Sampled	5/7/92	5/6/92	5/6/92	5/6/92	5/7/92	7/1/93	5/6/92	5/6/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic					21.4	150		
Cadmium					0.32 J			
Chromium					14.1			
Copper					26			
Lead	180	120	58	38	28	75	19	26
Mercury					0.09			
Nickel					20			
Zinc					71.8			

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-587	18-SS-588	18-SS-590	18-SS-591	18-SS-592	18-SS-593	18-SS-594-DAVG	18-SS-595
Date Sampled	5/6/92	5/6/92	5/6/92	5/7/92	5/6/92	3/4/92	5/6/92	3/4/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic			6.4 J					
Cadmium			0.18					
Chromium			13.5					
Copper			18.4					
Lead	21	43	6.6 U	37	150	140	84	160
Mercury			0.13 U					
Nickel			16.7					
Zinc			112					

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18	18	18 North	18	18	18	18
Sample ID	18-SS-666	18-SS-667	18-SS-668	18-SS-670	18-SS-671	18-SS-672	18-SS-673	18-SS-674
Date Sampled	11/2/92	11/2/92	11/2/92	11/3/92	11/2/92	11/2/92	11/2/92	11/2/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	99	6.6 U	8.5	16	190	140	87	26
Mercury								
Nickel								
Zinc								

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-675	18-SS-676	18-SS-677	18-SS-678	18-SS-679	18-SS-680	18-SS-681	18-SS-682
Date Sampled	11/2/92	11/2/92	11/2/92	11/2/92	11/2/92	11/2/92	11/2/92	11/2/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	47	77	45	16	86	59	33	62
Mercury								
Nickel								
Zinc								

Area	18	18	18	18 North	18 North	18	18 North	18
Sample ID	18-SS-683	18-SS-685	18-SS-686-DAVG	18-SS-687	18-SS-688	18-SS-689	18-SS-690	18-SS-691
Date Sampled	11/2/92	11/2/92	11/2/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	51	76	59	620	86	240	170	38
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18 North	18 North	18 North	18 North
Sample ID	18-SS-692-DAVG	18-SS-693	18-SS-694	18-SS-695	18-SS-696	18-SS-697	18-SS-[illegible]	18-SS-699
Date Sampled	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	8.3	130	86	81	570	110	110	38
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-701	18-SS-702-DAVG	18-SS-703	18-SS-705	18-SS-706	18-SS-707	18-SS-708	18-SS-709
Date Sampled	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92	11/3/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	140	120	42	94	34	1000	930	330
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18	18	18	18	18 North	18
Sample ID	18-SS-711	18-SS-713	18-SS-730	18-SS-731	18-SS-732	18-SS-733-DAVG	18-SS-802	18-SS-803
Date Sampled	11/3/92	11/3/92	12/18/92	12/18/92	12/18/92	12/18/92	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	130	150	8.8	72	28	14	24	34
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-804	18-SS-806	18-SS-807	18-SS-808	18-SS-809	18-SS-810	18-SS-811	18-SS-812
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	57	31	76	130	20	150	27	71
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18	18	18	18	18	18 North
Sample ID	18-SS-813	18-SS-814	18-SS-815-DAVG	18-SS-816	18-SS-817	18-SS-819	18-SS-820	18-SS-821
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	14	20	9.3	110	270	5.8	63	36
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18
Sample ID	18-SS-822	18-SS-823	18-SS-824	18-SS-825	18-SS-826	18-SS-827	18-SS-828	18-SS-829
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	97	81	120	56	48	5 U	33	67
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-831	18-SS-832	18-SS-833	18-SS-834	18-SS-835	18-SS-836	18-SS-839	18-SS-840
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	76	200	5.7	39	75	1600	280	200 J
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-841	18-SS-842	18-SS-843-DAVG	18-SS-844	18-SS-845	18-SS-846	18-SS-847	18-SS-852
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	180	21	69 J	390	200	190	420	290
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18	18 North	18 North	18 North	18	18
Sample ID	18-SS-853	18-SS-854	18-SS-856	18-SS-857	18-SS-858	18-SS-859	18-SS-860-DAVG	18-SS-861
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	590	11	34	63	165	61	44	25
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18	18	18	18 North	18 North
Sample ID	18-SS-862	18-SS-863	18-SS-864	18-SS-865	18-SS-866	18-SS-867	18-SS-868	18-SS-869
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5 U	379	204	17	106	59	37	21
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18	18	18	18	18
Sample ID	18-SS-870	18-SS-871	18-SS-874	18-SS-875-DAVG	18-SS-876	18-SS-877	18-SS-878	18-SS-879
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	72	54	18	19	79	42	98	73
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-880	18-SS-881	18-SS-882	18-SS-883	18-SS-884	18-SS-885	18-SS-887	18-SS-888
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	120	160	140	220 J	44	38	140	33
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18 North	18 North	18 North	18	18 North
Sample ID	18-SS-889	18-SS-891	18-SS-892	18-SS-893	18-SS-894	18-SS-896	18-SS-897	18-SS-898
Date Sampled	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93	4/5/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	28	65	170	130	92	360	220	1000
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-SS-899	18-SS-900	18-SS-901	18-SS-902	18-SS-903	18-SS-904	18-SS-905	18-SS-906
Date Sampled	4/5/93							
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	10	2200	810	230	1000	450	360	140
Mercury								
Nickel								
Zinc								

Area	18-SS-909	18-SS-910	18-SS-915	18-SS-917	18-SS-918	18-SS-919	18-SS-920	18-SS-921
Sample ID								
Date Sampled								
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	7.6 J	7.6	130	15	25	120	250	150
Mercury								
Nickel								
Zinc								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18-SS-922	18-SS-924	18-SS-925	18-SS-926	18-SS-927	18-SS-932	18-SS-933	18-SS-934
Sample ID								
Date Sampled								
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5 U	93	31	270	160	160	130	110
Mercury								
Nickel								
Zinc								

Area	18-SS-935
Sample ID	
Date Sampled	
Depth	0 to 0.5
TCLP Metals (mg/L)	
Lead	
Total Metals (mg/kg)	
Arsenic	
Cadmium	
Chromium	
Copper	
Lead	110
Mercury	
Nickel	
Zinc	

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18S-PS-VS-01-01	18S-PS-VS-01-02	18S-PS-VS-01-03	18S-PS-VS-01-04	18S-PS-VS-01-06	18S-PS-VS-01-07	18S-PS-VS-01-08	18S-PS-VS-01-11-DAVG
Date Sampled	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98
Depth	1.7 to 3.65	1 to 2.5	1.3 to 2.85	1 to 2.5	1.2 to 2.65	1 to 2.5	1.2 to 2.65	1.3 to 2.85
Total Metals (mg/kg)								
Arsenic	3.1	3.6	5.3	3.6	3.9	3.3	4.3	4.65
Cadmium								
Lead	6.2	5.6	5.8	5.6	6	4.9	5.3	4.95
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-104	18-VS-123	18-VS-13A	18-VS-144	18-VS-14A	18-VS-150-DAVG	18-VS-155	18-VS-165
Date Sampled	8/26/93	8/26/93	12/9/92	8/26/93	12/9/92	8/26/93	8/26/93	8/26/93
Depth	2 to 2.5	0 to 1	0 to 1	1 to 1.5	0 to 1	1 to 2	4 to 5	1 to 1.5
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Lead	7.4	5.9	340	55	63	5.5 U	5.4 U	6 U
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-175-ST	18-VS-176-ST	18-VS-19-DAVG	18-VS-216	18-VS-217	18-VS-218	18-VS-220	18-VS-221
Date Sampled	8/31/93	8/31/93	4/12/93	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99
Depth	1 to 2	1 to 2	2 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	20	22		63	15	25	2.8	5.3
Cadmium	1.5	2.9						
Lead	520	300	5.6 U	44	11	25	2.7	5.2
Mercury	0.44	0.23						

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-222	18-VS-223	18-VS-224-DAVG	18-VS-225	18-VS-226	18-VS-227	18-VS-230	18-VS-231
Date Sampled	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99
Depth	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	36	4.9	9.35	67	350	40	4.9	2.3 U
Cadmium								
Lead	22	3.9	6.85	95	25	50	2.9	3.3
Mercury								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-232	18-VS-233	18-VS-234	18-VS-235	18-VS-236	18-VS-237	18-VS-238	18-VS-239
Date Sampled	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99
Depth	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	6.9	56	150	36	8	2.4	6.7	2.3 U
Cadmium								
Lead	12	52	99	33	52	5 7	11	2.7
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-240	18-VS-240A	18-VS-241	18-VS-241A	18-VS-242	18-VS-243	18-VS-244	18-VS-245
Date Sampled	9/22/99	10/18/99	9/22/99	10/18/99	9/22/99	9/22/99	9/22/99	9/22/99
Depth	1 to 2.5	1 to 2.5	0 to 0.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	4.8	5	27	50	3.3	30	180	36
Cadmium								
Lead	11	4.9	11	5.9	3.1	13	110	21
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-246	18-VS-247	18-VS-248	18-VS-249	18-VS-250	18-VS-251	18-VS-252	18-VS-253
Date Sampled	9/22/99	9/22/99	9/22/99	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	1.9 U	1.9	9.7	27	3.8	3.8	4.8	8.5
Cadmium								
Lead	2	1.9	14	15	38	12	14	110
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-254	18-VS-255	18-VS-256	18-VS-257	18-VS-258	18-VS-259	18-VS-260	18-VS-261
Date Sampled	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg)								
Arsenic	6.4	2.7	4.4	120	34	240	35	60
Cadmium								
Lead	92	15	49	52	39	80	16	37
Mercury								

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-262	18-VS-263	18-VS-264	18-VS-29	18-VS-300	18-VS-32	18-VS-3A	18-VS-4A
Date Sampled	9/23/99	9/23/99	9/23/99	4/12/93	1/25/00	4/12/93	12/8/92	12/8/92
Depth	1 to 2.5	1 to 2.5	1 to 2.5	3 to 3.5	6.5 to 11.5	15 to 15.5	0 to 1	0 to 1
Total Metals (mg/kg)								
Arsenic	29	16	6.7		2.3 U			
Cadmium								
Lead	12	9.1	4.8	5.1 U	11	5.6 U	33	24
Mercury								

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-54	18-VS-59	18-VS-69	18-VS-6A	18-VS-73	18-VS-76	18-VS-8A	18-VS-90
Date Sampled	4/12/93	8/26/93	8/26/93	12/8/92	8/26/93	8/26/93	12/8/92	8/26/93
Depth	0 to 1	2 to 2.5	2 to 2.5	0 to 1	0 to 0.5	0 to 0.5	0 to 1	1 to 1.5
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Lead	5.8 U	5.1 U	5.3 U	58	5.4 U	240	8.1	120
Mercury								

Area	18	18
Sample ID	18-VS-92	18-VS-9A
Date Sampled	8/26/93	12/8/92
Depth	2 to 2.5	0 to 1
Total Metals (mg/kg)		
Arsenic		
Cadmium		
Lead	240	240
Mercury		

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18 North	18 North
Sample ID	18-TP-21,S-1	18-TP-25,S-1	18-TP-26,S-1	18-TP-27,S-1	18-TP-28,S-1	18-TP-29,S-1	18-TP-30,S-1	18-TP-31,S-1
Date Sampled	4/16/87	4/29/87	4/29/87	4/29/87	4/29/87	4/29/87	4/29/87	4/29/87
Depth	0 to 4	0 to 4	0 to 4	0 to 5	0 to 5	0 to 5	0 to 5	0 to 5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	16	2400	520	120	26	390	730	300
Mercury								
Nickel								
Zinc								

Area	18	18	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-TP-33,S-1-DAVG	18-TP-34,S-1	18-TP-501-S-1-DAVG	18-TP-501-S-2-DAVG	18-TP-501-S-3	18-TP-502-S-1	18-TP-502-S-2	18-TP-502-S-3
Date Sampled	4/30/87	4/30/87	5/11/92	5/11/92	5/11/92	5/1/92	5/1/92	5/1/92
Depth	0 to 4	0 to 3	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic				3.6 J			2.3	
Cadmium				0.03 J			0.057	
Chromium				15.9			11	
Copper				15			11	
Lead	2900	250	55	5.2 U	5 U	520	5.5 U	5 U
Mercury				0.11 U			0.092 U	
Nickel				19.9			16	
Zinc				27.6			19	

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-TP-503-S-1	18-TP-503-S-2	18-TP-503-S-3	18-TP-504-S-1	18-TP-504-S-2	18-TP-504-S-3	18-TP-505-S-1	18-TP-505-S-2
Date Sampled	5/1/92	5/1/92	5/1/92	5/11/92	5/11/92	5/11/92	5/11/92	5/11/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		2.4			3			3.3 J
Cadmium		0.076			0.09 J			0.07 J
Chromium		16			11.3			15.6
Copper		14			14.4			21.6
Lead	160	5.3 U	5 U	330	5.5	5 U	68	5.4 U
Mercury		0.079 U			0.11 U			0.11 U
Nickel		19			14.8			21.6
Zinc		24			21.6			29.8

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-TP-505-S-3	18-TP-506-S-1	18-TP-506-S-2	18-TP-506-S-3	18-TP-507-S-1	18-TP-507-S-2	18-TP-507-S-3	18-TP-508-S-1
Date Sampled	5/11/92	5/12/92	5/12/92	5/12/92	5/12/92	5/12/92	5/12/92	5/12/92
Depth	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	4 J	56	32	5 U	700	16	5 U	5 U
Mercury								
Nickel								
Zinc								

Area	18 North	18 North	18	18	18	18	18	18
Sample ID	18-TP-508-S-2	18-TP-508-S-3	18-TP-509-S-1	18-TP-509-S-2	18-TP-509-S-3	18-TP-510-S-2-DAVG	18-TP-510-S-3	18-TP-512-S-1
Date Sampled	5/12/92	5/12/92	5/12/92	5/12/92	5/12/92	5/14/92	5/14/92	5/14/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic						3.12		
Cadmium						0.1		
Chromium						13.7		
Copper						16.5		
Lead	5 U	5 U	56	5 U	5 U	5.3	5 U	60
Mercury						0.11 U		
Nickel						19.6		
Zinc						23		

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-512-S-2	18-TP-512-S-3	18-TP-513-S-1	18-TP-513-S-2	18-TP-513-S-3	18-TP-514-S-1-DAVG	18-TP-514-S-2	18-TP-514-S-3
Date Sampled	5/14/92	5/14/92	5/14/92	5/14/92	5/14/92	5/11/92	5/11/92	5/11/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic	2.54			3.15			4.5 J	
Cadmium	0.06			0.06			0.08 J	
Chromium	14.6			17.4			14.8	
Copper	19.3			18.6			16.5	
Lead	5.5 U	5 U	19	5.4 U	5 U	220	5.3 U	5 U
Mercury	0.11 U			0.11 U			0.11 U	
Nickel	20.2			20.9			17.9	
Zinc	24.3			25			25.8	

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-515-S-2	18-TP-515-S-3	18-TP-516-S-1	18-TP-516-S-2	18-TP-516-S-3	18-TP-517-S-1	18-TP-517-S-2	18-TP-517-S-3
Date Sampled	5/14/92	5/14/92	5/14/92	5/14/92	5/14/92	5/14/92	5/14/92	5/14/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5 U	5 U	19	5 U	5 U	92	5 U	5 U
Mercury								
Nickel								
Zinc								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-518-S-1	18-TP-518-S-2	18-TP-518-S-3	18-TP-519-S-2-DAVG	18-TP-519-S-3	18-TP-520-S-1	18-TP-520-S-2-DAVG	18-TP-520-S-3
Date Sampled	5/14/92	5/14/92	5/14/92	5/11/92	5/11/92	4/27/92	4/27/92	4/27/92
Depth	0 to 1	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic				3.5			1.4	
Cadmium				0.07 J			0.62	
Chromium				17.5			8.3	
Copper				18.7			20	
Lead	21	5 U	5 U	5.3 U	18	5.7 U	5.2 U	5.4 U
Mercury				0.11 U			0.085 U	
Nickel				18.6			12	
Zinc				26.1			53	

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-521-S-3	18-TP-522-S-3	18-TP-523-S-2	18-TP-523-S-3	18-TP-524-S-1	18-TP-524-S-2	18-TP-524-S-3	18-TP-525-S-2
Date Sampled	5/12/92	5/13/92	5/13/92	5/13/92	5/12/92	5/12/92	5/12/92	5/12/92
Depth	8 to 10	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	3 to 6
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								4.57 J
Cadmium								0.05 J
Chromium								15.7
Copper								18.6
Lead	5 U	5 U	5 U	5 U	68	5 U	5 U	5.4 U
Mercury								0.11 U
Nickel								20.6
Zinc								29.5

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-525-S-3	18-TP-526-S-1	18-TP-526-S-2	18-TP-526-S-3	18-TP-527-S-1-DAVG	18-TP-527-S-2-DAVG	18-TP-527-S-3	18-TP-528-S-1
Date Sampled	5/12/92	4/30/92	4/30/92	4/30/92	5/13/92	5/13/92	5/13/92	5/13/92
Depth	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic			4.36					
Cadmium			0.09					
Chromium			23.2					
Copper			28.5					
Lead	5 U	140	5.2 U	5 U	5 U	5 U	5 U	13
Mercury			0.11 U					
Nickel			24.4					
Zinc			41.6					

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-528-S-2	18-TP-528-S-3	18-TP-529-S-1	18-TP-529-S-2	18-TP-529-S-3	18-TP-530-S-1	18-TP-530-S-2	18-TP-530-S-3
Date Sampled	5/13/92	5/13/92	5/13/92	5/13/92	5/13/92	5/13/92	5/13/92	5/13/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	6	6	5 U	7	5 U	5 U	5 U	5
Mercury								
Nickel								
Zinc								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-531-S-1-DAVG	18-TP-531-S-2	18-TP-531-S-3	18-TP-532-S-1	18-TP-532-S-2	18-TP-532-S-3	18-TP-533-S-1-DAVG	18-TP-533-S-2-DAVG
Date Sampled	5/15/92	5/15/92	5/15/92	4/29/92	4/29/92	4/29/92	4/28/92	4/28/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	2 to 3
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		3.33			7.05			2.6
Cadmium		0.08			0.1			0.9
Chromium		12.2			19.7			22
Copper		16.4			29.6			12
Lead	12	5.4 U	5 U	97	67	5 U	21	5.9 U
Mercury		0.11 U			0.12 U			0.09 U
Nickel		19.4			23.4			21
Zinc		29.8			49.3			25

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18 North	18 North	18 North	18 North	18 North
Sample ID	18-TP-533-S-4	18-TP-534-S-2	18-TP-534-S-3	18-TP-535-S-1-DAVG	18-TP-535-S-2	18-TP-535-S-3	18-TP-536-S-1	18-TP-536-S-2
Date Sampled	4/28/92	4/30/92	4/30/92	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92
Depth	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		3.43			2.4			2.8
Cadmium		0.07			1			0.41
Chromium		14.5			13			12
Copper		14.5			24000			19
Lead	5.3 U	5.2 U	5 U	90	60	26	59	5.5 U
Mercury		0.11 U			0.1 U			0.094 U
Nickel		18.5			18			16
Zinc		53.3			1100			22

Area	18 North	18	18	18	18	18	18	18
Sample ID	18-TP-536-S-3	18-TP-537-S-2	18-TP-537-S-3	18-TP-538-S-1	18-TP-538-S-2	18-TP-538-S-3	18-TP-539-S-1	18-TP-539-S-2
Date Sampled	4/27/92	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92
Depth	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)								
Lead				0.45				
Total Metals (mg/kg)								
Arsenic		1.9			1			2.2
Cadmium		0.048			0.03			0.09
Chromium		11			6			11
Copper		16			14			13
Lead	5.2 U	5.4 U	4.9 U	960	5.3 U	37	36	5.5 U
Mercury		0.086 U			0.095 U			0.091 U
Nickel		17			10			15
Zinc		23			23			21

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-539-S-3	8-TP-540-S-2-DAV	18-TP-540-S-3	18-TP-541-S-1	18-TP-541-S-2	18-TP-541-S-3	18-TP-542-S-2-DAVG	18-TP-542-S-3
Date Sampled	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92	4/28/92	4/28/92
Depth	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		1.7			1.6		1.4 J	
Cadmium		0.062			0.032		0.031	
Chromium		10			8.1		7.9	
Copper		14			15		7 J	
Lead	4.9 U	5.4 U	7.1	18	5.2 U	5 U	5.2 U	5.5 U
Mercury		0.092 U			0.098 U		0.08 U	
Nickel		15			13		8.7	
Zinc		32			20		23	

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-543-S-1	18-TP-543-S-2	18-TP-543-S-3	18-TP-544-S-1	18-TP-544-S-2	18-TP-544-S-3	18-TP-545-S-1	18-TP-545-S-2
Date Sampled	4/28/92	4/28/92	4/28/92	5/15/92	5/15/92	5/15/92	4/29/92	4/29/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)	6.7							
Lead								
Total Metals (mg/kg)								
Arsenic		1.8			4.36			9.06
Cadmium		0.29			0.22			0.4
Chromium		8.3			13.4			21.2
Copper		13			61.8			17.3
Lead	1900	5.1 U	5 U	28	290	35	15	9.6
Mercury		0.077 U			0.11 U			0.12 U
Nickel		13			16.8			21.1
Zinc		21			147			269

Area	18	18	18	18 North	18 North	18 North	18	18
Sample ID	18-TP-545-S-3	18-TP-546-S-2	18-TP-546-S-3	18-TP-547-S-1-DAVG	18-TP-547-S-2-DAVG	18-TP-547-S-3	18-TP-548-S-1	18-TP-548-S-2
Date Sampled	4/29/92	4/28/92	4/28/92	5/1/92	5/1/92	5/1/92	5/14/92	5/14/92
Depth	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		5.8			2			2.61
Cadmium		0.076			0.062			0.08
Chromium		11			12			16.6
Copper		8.4 J			14			15.1
Lead	5 U	5.4 U	5.2 U	140	5.3 U	5 U	19	5.5 U
Mercury		0.082 U			0.082 U			0.11 U
Nickel		15			15			20.3
Zinc		41			22			30.8

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-548-S-3	18-TP-549-S-1	18-TP-549-S-2	18-TP-549-S-3	18-TP-550-S-1	18-TP-550-S-2	18-TP-550-S-3	18-TP-551-S-1
Date Sampled	5/14/92	5/1/92	5/1/92	5/1/92	5/15/92	5/15/92	5/15/92	5/15/92
Depth	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic			1.8			3.23		
Cadmium			0.062			0.17		
Chromium			8.5			14.9		
Copper			11			18		
Lead	5	85	5.4 U	5 U	8.6	60	5 U	33
Mercury			0.08 U			0.11 U		
Nickel			12			18.5		
Zinc			19			59.4		

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-551-S-2	18-TP-551-S-3	18-TP-552-S-1	18-TP-552-S-2	18-TP-552-S-3	18-TP-553-S-1	18-TP-553-S-2	18-TP-554-S-1
Date Sampled	5/15/92	5/15/92	4/29/92	4/29/92	4/29/92	4/29/92	4/29/92	4/29/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	0 to 1
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic	4.38			3.45			4.23	
Cadmium	0.06			0.08			0.71	
Chromium	16.7			15			20.7	
Copper	20			17			66.3	
Lead	5.7 U	5 U	11	5.2 U	5 U	11	46	40
Mercury	0.12 U			0.11 U			0.12 U	
Nickel	19			19.4			24.4	
Zinc	29.6			33.2			364	

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-554-S-2	18-TP-554-S-3	18-TP-555-S-1-DAVG	18-TP-555-S-2-DAVG	18-TP-555-S-3	18-TP-556-S-1	18-TP-556-S-2	18-TP-556-S-3
Date Sampled	4/29/92	4/29/92	4/30/92	4/30/92	4/30/92	5/13/92	5/13/92	5/13/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic	4.39			19.8			2.25	
Cadmium	0.07			0.24			0.1	
Chromium	17.2			23.4			10	
Copper	14.8			23.7			17	
Lead	5.6 U	5 U	31	160	5 U	7	5.2 U	6
Mercury	0.12 U			0.11 U			0.1 U	
Nickel	20.1			22.3			15.6	
Zinc	30.4			89.9			27.9	

Area	18	18	18	18	18	18	18 North	18 North
Sample ID	18-TP-557-S-1	18-TP-557-S-2	18-TP-557-S-3	18-TP-558-S-1	18-TP-558-S-3	18-TP-558-S-4	18-TP-559-S-1-DAVG	18-TP-559-S-2-DAVG
Date Sampled	4/30/92	4/30/92	4/30/92	4/30/92	4/30/92	4/30/92	5/1/92	5/1/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg)								
Arsenic		3.08			3.21			2.4
Cadmium		0.06			0.06			0.038
Chromium		19.1			17.1			4.3
Copper		16.3			20.8			3.1
Lead	5 U	9.4	260	26	5.1 U	5 U	76	23
Mercury		0.11 U			0.11 U			0.083 U
Nickel		21.5			22.5			2.9
Zinc		67.4			31.1			8.6

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18 North
Sample ID	18-TP-559-S-3
Date Sampled	5/1/92
Depth	8 to 10
TCLP Metals (mg/L)	
Lead	
Total Metals (mg/kg)	
Arsenic	
Cadmium	
Chromium	
Copper	
Lead	100
Mercury	
Nickel	
Zinc	

Area	18	18	18	18	18	18
Sample ID	18-HA-501-S-1-DAVG	18-HA-501-S-2	18-HA-502-S-1	18-HA-502-S-2	18-HA-503-S-1	18-HA-503-S-2
Date Sampled	5/21/92	5/21/92	5/21/92	5/21/92	5/21/92	5/21/92
Depth	0 to 1	2 to 3	0 to 1	2 to 3	0 to 1	2 to 3
TCLP Metals (mg/L)						
Arsenic						
Total Metals (mg/kg)						
Arsenic						
Lead	46	5.8	5	5	74	22

Area	18	18	18	18	18	18
Sample ID	18-MH-1	18-MH-2	18-MH-3	18-MH-4	18-MH-6	18-MH-7
Date Sampled	7/1/93	7/1/93	7/1/93	7/1/93	7/1/93	7/7/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Arsenic	*0.05 U*					
Total Metals (mg/kg)						
Arsenic	460	20	52	140	43	38
Lead						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	SA5-86-41	SA5-86-42	SA5-86-43	SA5-86-44	SA5-87-41a	SA5-87-42	SA5-87-43	SA5-87-44
Date Sampled	10/12/99	10/12/99	10/12/99	10/12/99	10/13/99	10/12/99	10/12/99	10/12/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	52	9.6	13	8.2	7	19	5.3	5.7
Lead	40	15	15	9.2	9.9	21	9.4	7.6

Area	18	18	18	18	18	18	18	18
Sample ID	SA5-87-45a	SA5-88-41a	SA5-88-42	SA5-88-43	SA5-88-44a	SA5-88-45a	SA5-89-40-DAVG	SA5-89-41a
Date Sampled	10/13/99	10/13/99	10/12/99	10/12/99	10/18/99	10/13/99	10/12/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	4 to 5.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	50	11	12	20	3.2	10	11.5	44
Lead	16	13	18	13	4.3	12	15.5	53

Area	18	18	18	18	18	18	18	18
Sample ID	SA5-89-42	SA5-89-43	SA5-89-45a	SA5-91-41	SA5-91-42	SA5-92-41	SA5-92-42a	SA5-92-43a
Date Sampled	10/12/99	10/12/99	10/13/99	10/12/99	10/12/99	10/12/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	9.5	10	2.9	7.3	58	4	5	24
Lead	10	15	5.8	9.7	52	5.8	6.9	22

Area	18	18	18	18	18	18	18	18
Sample ID	SA5-93-41	SA5-93-42	SA5-93-43	SA5-93-44a	SA5-94-41	SA5-94-42	SA5-94-43	SA5-94-44a
Date Sampled	10/12/99	10/12/99	10/12/99	10/13/99	10/12/99	10/12/99	10/12/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	4.2	7.7	3.4	2.8	6.9	5.7	4.6	2.6
Lead	5.2	8.4	5.1	4.9	8.8	6	5.6	4.6

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	SA5-95-41	SA5-95-42	SA5-95-43	SA5-96-42a	SA6-67-26	SA6-67-27	SA6-67-28	SA6-67-29
Date Sampled	10/12/99	10/12/99	10/12/99	10/13/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	4.9	4.7	4	2.8	20	16	2.7	7.2
Lead	6.4	5.3	5	4.7	37	43	8.8	24

Area	18	18	18	18	18	18	18	18
Sample ID	SA6-67-30	SA6-67-31	SA6-67-32	SA6-67-33	SA6-67-34	SA6-67-35	SA6-68-26	SA6-68-27
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	3.3	3.8	10	3.5	3	2.8	5.5	14
Lead	5.4	4.8	53	4.8	4.4	4.7	4.3 U	120

Area	18	18	18	18	18	18	18	18
Sample ID	SA6-68-28	SA6-68-29	SA6-68-30	SA6-68-31	SA6-68-32	SA6-68-33	SA6-68-34	SA6-68-35
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	9.4	16	5.2	6.2	4.3	18	4.4	4.9
Lead	15	39	12	7.1	6.3	16	7	8.3

Area	18	18	18	18	18	18	18	18
Sample ID	SA6-68-36	SA6-69-27	SA6-69-28	SA6-69-29	SA6-69-30	SA6-69-31	SA6-69-32	SA6-69-33
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	6.3	3.5	2.3	2.5	5.9	5.6	3.7	5.1
Lead	11	6.2	4.2 U	4.7 U	5.1	12	7.2	18

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	18	18	18	18	18	18	18	18
Sample ID	SA6-69-34	SA6-69-35	SA6-69-36	SA6-70-27	SA6-70-28	SA6-70-29	SA6-70-30	SA6-70-31
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	4	3.4	6.1	19	3.1	2.1 U	2.4	37
Lead	5.9	4.8	6.9	44	6.8	4.1 U	4.5 U	58

Area	18	18	18	18	18	18	18	18
Sample ID	SA6-70-32	SA6-70-33	SA6-70-34	SA6-70-35	SA6-70-36	SA6-71-28	SA6-71-29	SA6-71-30
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)								
Arsenic	12	6.2	3.7	7.8	3.6	39	2.9	4
Lead	27	11	6.4	15	5.7	110	3.8 U	5.4

Area	18	18	18	18	18
Sample ID	SA6-71-31	SA6-71-32	SA6-71-33	SA6-71-34	SA6-71-35
Date Sampled	10/15/99	10/15/99	10/15/99	10/15/99	10/15/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg)					
Arsenic	22	8.6	19	5.5	3.8
Lead	77	17	1600	8	6.9

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	01-F10-SS[F-177]C2-005	01-F10-SS[F-178]C2-005	01-F10-SS[F-179]C2-005	01-F10-SS[F-180]C2-005	01-F10-SS[F-181]C2-005	01-F10-SS[F-182]C2-005
Date Sampled	7/19/01	7/19/01	7/19/01	7/19/01	7/19/01	7/19/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic	2.4	11	5.5	10	12	4.6
Cadmium						
Chromium						
Copper						
Lead	4.5	98	89	60	16	18
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	01-N01-SS[NGRR-101]C2-005	01-N01-SS[NGRR-102]C2-005	01-N01-SS[NGRR-120]C2-005	01-N01-SS[NGRR-121]C2-005	01-N01-SS[NGRR-122]C2-005	1234-SS-501
Date Sampled	7/19/01	7/19/01	7/23/01	7/23/01	7/23/01	5/7/92
Depth	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic	6.5	3.1	13	4.3	5.7	
Cadmium						
Chromium						
Copper						
Lead	5.8	76	19	3.9	8.1	23
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-SS-502	1234-SS-503	1234-SS-504	1234-SS-505	1234-SS-506	1234-SS-507
Date Sampled	5/7/92	5/7/92	5/7/92	5/7/92	5/7/92	5/7/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	63	100	19	14	46	200
Mercury						
Nickel						
Zinc						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-SS-508	1234-SS-509	1234-SS-510	1234-SS-511	1234-SS-512	1234-SS-513-DAVG
Date Sampled	5/7/92	5/8/92	5/8/92	3/4/92	3/4/92	5/8/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	17	19	430	59	6.1 U	170
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-SS-514-DAVG	1234-SS-515	1234-TP-501-S-1	1234-TP-501-S-2	1234-TP-502-S-1	1234-TP-502-S-2
Date Sampled	3/4/92	5/8/92	5/18/92	5/18/92	5/18/92	5/18/92
Depth	0 to 0.5	0 to 0.5	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	51	48	270	79	7.8	5 U
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-502-S-3	1234-TP-503-S-1	1234-TP-503-S-2	1234-TP-503-S-3	1234-TP-504-S-1-DAVG	1234-TP-504-S-2
Date Sampled	5/18/92	5/21/92	5/21/92	5/21/92	5/19/92	5/19/92
Depth	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	5 U	100	5 U	5 U	300	42
Mercury						
Nickel						
Zinc						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-505-S-1	1234-TP-505-S-2	1234-TP-505-S-3	1234-TP-506-S-1	1234-TP-506-S-2	1234-TP-506-S-3
Date Sampled	5/19/92	5/19/92	5/19/92	5/20/92	5/20/92	5/20/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic					3.73	
Cadmium					0.16	
Chromium					12.3	
Copper					29.1	
Lead	50	68	5 U	54	65	7
Mercury					0.11 U	
Nickel					35	
Zinc					53.9	

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-507-S-1	1234-TP-507-S-2	1234-TP-507-S-3	1234-TP-508-S-1	1234-TP-508-S-2	1234-TP-508-S-3
Date Sampled	5/18/92	5/18/92	5/18/92	5/18/92	5/18/92	5/18/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	34	5 U	5 U	81	11	5 U
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-509-S-1	1234-TP-509-S-2	1234-TP-509-S-3	1234-TP-510-S-2-DAVG	1234-TP-511-S-1	1234-TP-511-S-2
Date Sampled	5/21/92	5/21/92	5/21/92	5/21/92	5/21/92	5/21/92
Depth	0 to 1	3 to 6	8 to 10	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	26	5 U	5 U	5 U	6	5 U
Mercury						
Nickel						
Zinc						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-512-S-1	1234-TP-512-S-2	1234-TP-513-S-1	1234-TP-513-S-2	1234-TP-514-S-1	1234-TP-514-S-2
Date Sampled	5/19/92	5/19/92	5/19/92	5/19/92	5/19/92	5/19/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead	28					
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	2500	19	560	15	470	36
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-515-S-1	1234-TP-515-S-2	1234-TP-516-S-1-DAVG	1234-TP-516-S-2	1234-TP-517-S-1	1234-TP-517-S-2
Date Sampled	5/19/92	5/19/92	5/20/92	5/20/92	5/20/92	5/20/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	19	5 U	52	20	200	5 U
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-518-S-1	1234-TP-518-S-2	1234-TP-519-S-1	1234-TP-519-S-2	1234-TP-520-S-1	1234-TP-520-S-2
Date Sampled	5/19/92	5/19/92	5/20/92	5/20/92	5/18/92	5/18/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	5 U	5 U	9	5 U	410	5 U
Mercury						
Nickel						
Zinc						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-521-S-1	1234-TP-521-S-2	1234-TP-522-S-1-DAVG	1234-TP-522-S-2-DAVG	1234-TP-523-S-1	1234-TP-523-S-2
Date Sampled	5/18/92	5/18/92	5/20/92	5/20/92	5/20/92	5/20/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	11	5 U	330	5 U	77	5 U
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-524-S-1	1234-TP-524-S-2	1234-TP-525-S-1	1234-TP-525-S-2	1234-TP-526-S-1-DAVG	1234-TP-526-S-2-DAVG
Date Sampled	5/18/92	5/18/92	5/20/92	5/20/92	5/19/92	5/19/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)						
Lead			14			
Total Metals (mg/kg dry)						
Arsenic						
Cadmium						
Chromium						
Copper						
Lead	310	32	1900	330	5 U	5 U
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-527-S-1	1234-TP-527-S-2	18-VS-195	18-VS-196	18-VS-197	18-VS-198
Date Sampled	5/18/92	5/18/92	9/20/99	9/20/99	9/20/99	9/20/99
Depth	0 to 1	3 to 6	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic			45	50	17	35
Cadmium						
Chromium						
Copper						
Lead	30	5 U	450	40	150	280
Mercury						
Nickel						
Zinc						

Table B.7-1
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Metals Results

Area	1234	1234	1234	1234	1234	1234
Sample ID	18-VS-199	18-VS-200	18-VS-201	18-VS-202	18-VS-203	18-VS-204
Date Sampled	9/20/99	9/20/99	9/20/99	9/20/99	9/21/99	9/21/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic	23	32	110	24	13	1.9
Cadmium						
Chromium						
Copper						
Lead	380	200	500	580	760	310
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234	1234
Sample ID	18-VS-205	18-VS-206	18-VS-207	18-VS-208	18-VS-209	18-VS-210
Date Sampled	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99
Depth	0 to 0.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)						
Lead						
Total Metals (mg/kg dry)						
Arsenic	10	8.8	12	24	26	12
Cadmium						
Chromium						
Copper						
Lead	300	560	1600	800	410	2700
Mercury						
Nickel						
Zinc						

Area	1234	1234	1234	1234	1234
Sample ID	18-VS-211	18-VS-212	18-VS-213	18-VS-214	18-VS-215
Date Sampled	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99
Depth	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	12	2 U	5.8	2.2	2 U
Cadmium					
Chromium					
Copper					
Lead	15	16	61	62	42
Mercury					
Nickel					
Zinc					

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	02-C-SS-[18-TR-18N,S-1]-C2-010	18-B-501-S-1	18-B-501-S-2	18-B-501-S-3	18-B-501-S-4	18-HA-501-S-1-DAVG	18-HA-501-S-2	18-HA-502-S-1
Date Sampled	8/15/01	11/5/92	11/5/92	11/5/92	11/5/92	[illegible]	5/21/92	5/21/92
Depth	3 to 3.5	7.5 to 9	10 to 11.5	15 to 16.5	20 to 21.5	0 to 1	2 to 3	0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene		0.043 U	0.043 U	0.042 U	0.042 UJ	0.26 U	0.23 U	0.091 U
2,4-Dinitrotoluene	0.023 J	0.009	0.005 J	0.0063 U	0.008 J	0.04 U	0.035 U	0.014 U
2,6-Dinitrotoluene	0.045 U	0.0064 U	0.0064 U	0.0063 U	0.0058 J	0.04 U	0.035 U	0.014 U
DNT - Total	*0.0455*	*0.0122*	*0.0082*	*0.0126 U*	*0.0138*	*0.08 U*	*0.07 U*	*0.028 U*
Monomethylamine Nitrate								
Nitrobenzene		0.063 U	0.064 U	0.063 U	0.062 UJ	0.39 U	0.34 U	0.14 U
Nitroglycerine						*0.26 U*	*0.23 U*	*0.23 U*
1,3,5-Trinitrobenzene		0.032 U	0.032 U	0.032 U	0.031 UJ	0.2 U	0.17 U	0.069 U
2,4,6-Trinitrotoluene	0.045 U	0.0032 U	0.0032 U	0.0032 U	0.0031 UJ	0.02 U	0.017 U	0.0069 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-HA-502-S-2	18-HA-503-S-1	18-HA-503-S-2	18-SS-590	18-SS-614	18-SS-624	18-SS-625	18-SS-627
Date Sampled	5/21/92	5/21/92	5/21/92	5/6/92	10/27/92	10/27/92	10/27/92	10/27/92
Depth	*2 to 3*	*0 to 1*	*2 to 3*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.046 U	0.54 U	0.26 U	0.098 U				
2,4-Dinitrotoluene	0.0069 U	0.082 U	0.039 U	0.015 U	0.06 J	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.0069 U	0.082 U	0.039 U	0.015 U	0.13	0.05 U	0.05 U	0.05 U
DNT - Total	*0.0138 U*	*0.164 U*	*0.078 U*	*0.03 U*	*0.19*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.068 U	0.81 U	0.39 U	0.15 U				
Nitroglycerine	0.23 U	0.27 UJ	0.26 UJ					
1,3,5-Trinitrobenzene	0.034 U	0.41 U	0.19 U	0.074 U				
2,4,6-Trinitrotoluene	0.0034 U	0.041 U	0.019 U	0.0074 U				

Area	18	18	18	18 North	18	18	18	18
Sample ID	18-SS-628	18-SS-629	18-SS-630	18-SS-636	18-SS-639	18-SS-640	18-SS-644	18-SS-645
Date Sampled	10/27/92	10/27/92	10/27/92	10/27/92	10/27/92	10/27/92	10/27/92	10/27/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene							0.049 U	
2,4-Dinitrotoluene	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.051	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 UJ	0.05 U	0.0073 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.05465*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene							0.072 U	
Nitroglycerine								
1,3,5-Trinitrobenzene							0.037 U	
2,4,6-Trinitrotoluene							0.086	

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	**18-SS-646**	**18-SS-647**	**18-SS-648**	**18-SS-649**	**18-SS-650**	**18-SS-652**	**18-SS-653**	**18-SS-654**
Date Sampled	**10/27/92**	**10/27/92**	**10/27/92**	**10/27/92**	**10/27/92**	**10/27/92**	**10/27/92**	**10/27/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene					0.049 U	0.26 U		
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 UJ	0.038	0.51	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 UJ	0.0073 U	0.084 J	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.04165*	*0.594*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene					0.073 U	0.39 U		
Nitroglycerine								
1,3,5-Trinitrobenzene					0.037 U	0.2 U		
2,4,6-Trinitrotoluene					0.005	0.64 J		

Area	18	18	18	18	18	18	18	18
Sample ID	**18-SS-656**	**18-SS-657**	**18-SS-658**	**18-SS-659**	**18-SS-660**	**18-SS-661**	**18-SS-662**	**18-SS-663-DAVG**
Date Sampled	**10/28/92**	**10/28/92**	**10/28/92**	**10/28/92**	**10/28/92**	**10/28/92**	**10/28/92**	**10/28/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.05 U							
2,4-Dinitrotoluene	0.066	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-Dinitrotoluene	0.0072 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
DNT - Total	*0.0696*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.07 U							
Nitroglycerine								
1,3,5-Trinitrobenzene	0.04 U							
2,4,6-Trinitrotoluene	0.033							

Area	18 North	18 North	18 North	18	18	18	18	18
Sample ID	**18-SS-664-DAVG**	**18-SS-665**	**18-SS-666**	**18-SS-667**	**18-SS-668**	**18-SS-715**	**18-SS-716**	**18-SS-725**
Date Sampled	**11/2/92**	**11/2/92**	**11/2/92**	**11/2/92**	**11/2/92**	**11/5/92**	**11/5/92**	**11/30/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.093 U	0.57 U	0.1 U	0.1 U	0.47 U	0.27 UJ	0.1 U	
2,4-Dinitrotoluene	0.014 U	0.086 U	0.015 U	0.015	0.07 U	0.046 J	0.26	0.05 U
2,6-Dinitrotoluene	0.014 U	0.086 U	0.015 U	0.015 U	0.07 U	0.023 J	0.011 J	0.1 U
DNT - Total	*0.028 U*	*0.172 U*	*0.03 U*	*0.0225*	*0.14 U*	*0.069*	*0.271*	*0.15 U*
Monomethylamine Nitrate	5.8 U	7.1 U						
Nitrobenzene	0.14 U	0.85 U	0.15 U	0.15 U	0.69 U	0.4 UJ	0.15 U	
Nitroglycerine	0.23 U	0.29 UJ	0.25 U	0.25 U	0.23 U			
1,3,5-Trinitrobenzene	0.07 U	0.43 U	0.075 U	0.074 U	0.35 U	0.2 UJ	0.077 U	
2,4,6-Trinitrotoluene	0.007 U	0.043 U	0.0075 U	0.0074 U	0.035 U	0.023 J	0.0085	

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area Sample ID Date Sampled Depth	18 18-SS-726 11/30/92 0 to 0.5	18 18-SS-727 11/30/92 0 to 0.5	18 18-SS-729 11/5/92 0 to 0.5	18 18-SS-GS-05 0 to 0.5	18 18-SS-GS-06 0 to 0.5	18 18-SS-GS-11 0 to 0.5	18 18-SS-GS-12 0 to 0.5	18 18-SS-GS-13 0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area Sample ID Date Sampled Depth	18 18-SS-GS-14 0 to 0.5	18 18-SS-GS-18 0 to 0.5	18 18-SS-GS-20 0 to 0.5	18 18-SS-GS-21 0 to 0.5	18 18-SS-GS-26 0 to 0.5	18 18-SS-GS-29 0 to 0.5	18 18-SS-GS-30 0 to 0.5	18 18-SS-GS-31 7/6/93 0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								0.089 U
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.013 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.013 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.026 U*
Monomethylamine Nitrate								
Nitrobenzene								0.13 U
Nitroglycerine								
1,3,5-Trinitrobenzene								0.067 U
2,4,6-Trinitrotoluene								0.0067 U

Area Sample ID Date Sampled Depth	18 18-SS-GS-34 0 to 0.5	18 18-SS-GS-35 0 to 0.5	18 18-SS-GS-36 0 to 0.5	18 18-SS-GS-37 0 to 0.5	18 18-SS-GS-39 0 to 0.5	18 18-SS-GS-44 0 to 0.5	18 18-SS-GS-45 0 to 0.5	18 18-SS-GS-46 0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-GS-48	18-SS-GS-50	18-SS-GS-51	18-SS-GS-52	18-SS-GS-55	18-SS-GS-56	18-SS-GS-57	18-SS-GS-58
Date Sampled								
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-GS-60	18-SS-GS-61	18-SS-GS-63	18-SS-GS-64	18-SS-GS-65	18-SS-GS-66	18-SS-GS-67	18-SS-GS-68
Date Sampled							7/7/93	
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene							0.26 U	
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.038 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.038 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.076 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene							0.38 U	
Nitroglycerine								
1,3,5-Trinitrobenzene							0.19 U	
2,4,6-Trinitrotoluene							0.019 U	

Area	18	18	18	18	18	18	18	18
Sample ID	18-SS-GS-69	18-SS-GS-71	18-SS-GS-73	18-SS-GS-74	18-SS-GS-75	18-SS-GS-76	18-SS-GS-77	18-SS-GS-78
Date Sampled								
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18 North	18 North	18 North	18 North
Sample ID	18-SS-GS-79	18-SS-GS-80	18-TP-21,S-1	18-TP-41-S-1	18-TP-501-S-1-DAVG	18-TP-501-S-2-DAVG	18-TP-501-S-3	18-TP-502-S-1
Date Sampled			4/16/87	7/6/93	5/11/92	5/11/92	5/11/92	5/1/92
Depth	0 to 0.5	0 to 0.5	0 to 4	0 to 1	0 to 1	3 to 6	8 to 10	0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene				0.095 U	0.083 U	0.043 U	0.043 U	0.5 UJ
2,4-Dinitrotoluene	0.1 U	0.1 U	0.09 U	0.014 U	0.076	0.0064 U	0.023	0.65 J
2,6-Dinitrotoluene	0.05 U	0.05 U	0.09 U	0.014 U	0.043	0.0064 U	0.024	0.49 J
DNT - Total	*0.15 U*	*0.15 U*	*0.18 U*	*0.028 U*	*0.119*	*0.0128 U*	*0.047*	*1.14*
Monomethylamine Nitrate								
Nitrobenzene				0.14 U	0.12 U	0.063 U	0.065 U	0.74 UJ
Nitroglycerine			0.22 U		0.21 U	0.21 U	0.22 U	8.5 UF
1,3,5-Trinitrobenzene				0.071 U	0.062 U	0.032 U	0.033 U	0.37 UJ
2,4,6-Trinitrotoluene				0.0071 U	0.0062 U	0.0032 U	0.0033 U	0.037 UJ

Area	18 North	18 North	18 North	18 North	18 North	18 North	18 North	18 North
Sample ID	18-TP-502-S-2	18-TP-502-S-3	18-TP-503-S-1	18-TP-503-S-2	18-TP-503-S-3	18-TP-504-S-1	18-TP-504-S-2	18-TP-504-S-3
Date Sampled	5/1/92	5/1/92	5/1/92	5/1/92	5/1/92	5/11/92	5/11/92	5/11/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.043 UJ	0.042 UJ	0.5 UJ	0.042 UJ	0.045 UJ	0.43 U	0.086 U	0.042 U
2,4-Dinitrotoluene	0.0065 UJ	0.0063 UJ	0.12 J	0.0063 UJ	0.0067 UJ	0.064 U	0.033	0.0064 U
2,6-Dinitrotoluene	0.0065 UJ	0.0063 UJ	0.16 J	0.0063 UJ	0.0067 UJ	0.064 U	0.034	0.0064 U
DNT - Total	*0.013 U*	*0.0126 U*	*0.28*	*0.0126 U*	*0.0134 U*	*0.128 U*	*0.067*	*0.0128 U*
Monomethylamine Nitrate								
Nitrobenzene	0.064 UJ	0.063 UJ	0.74 UJ	0.063 UJ	0.066 UJ	0.64 U	0.13 U	0.063 U
Nitroglycerine	0.21 U	0.21 U	0.25 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U
1,3,5-Trinitrobenzene	0.032 UJ	0.032 UJ	0.37 UJ	0.032 UJ	0.033 UJ	0.32 U	0.065 U	0.032 U
2,4,6-Trinitrotoluene	0.0032 UJ	0.0032 UJ	0.037 UJ	0.0032 UJ	0.0033 UJ	0.032 U	0.006 U	0.0032 U

Area	18 North	18 North	18 North	18 North	18 North	18 North	18	18
Sample ID	18-TP-505-S-1	18-TP-505-S-2	18-TP-505-S-3	18-TP-506-S-1	18-TP-507-S-2	18-TP-508-S-1	18-TP-509-S-2	18-TP-510-S-2-DAVG
Date Sampled	5/11/92	5/11/92	5/11/92	5/12/92	5/12/92	5/12/92	5/12/92	5/14/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	0 to 1	3 to 6	3 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.92 U	0.043 U	0.042 U	0.24 U	0.044 U	0.25 U	0.042 U	0.042 U
2,4-Dinitrotoluene	0.25	0.0064 U	0.0063 U	0.09	0.0066 U	0.089	0.0064 U	0.013 J
2,6-Dinitrotoluene	0.26	0.0064 U	0.0063 U	0.087	0.0066 U	0.086	0.0064 U	0.0062 U
DNT - Total	*0.51*	*0.0128 U*	*0.0126 U*	*0.177*	*0.0132 U*	*0.175*	*0.0128 U*	*0.0161*
Monomethylamine Nitrate								
Nitrobenzene	1.4 U	0.064 U	0.063 U	0.36 U	0.065 U	0.37 U	0.063 U	0.062 U
Nitroglycerine	0.23 U	0.21 U	0.21 U					
1,3,5-Trinitrobenzene	0.69 U	0.032 U	0.032 U	0.18 U	0.033 U	0.19 U	0.032 U	0.031 U
2,4,6-Trinitrotoluene	0.069 U	0.0032 U	0.0032 U	0.018 U	0.0033 U	0.019 U	0.0032 U	0.0031 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	**18-TP-510-S-3**	**18-TP-512-S-2**	**18-TP-512-S-3**	**18-TP-513-S-2**	**18-TP-513-S-3**	**18-TP-514-S-1-DAVG**	**18-TP-514-S-2**	**18-TP-514-S-3**
Date Sampled	**5/14/92**	**5/14/92**	**5/14/92**	**5/14/92**	**5/14/92**	**5/11/92**	**5/11/92**	**5/11/92**
Depth	**8 to 10**	**3 to 6**	**8 to 10**	**3 to 6**	**8 to 10**	**0 to 1**	**3 to 6**	**8 to 10**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.043 U	0.22 U	0.043 U	0.086 U	2.2 U	0.87 U	0.043 U	0.042 U
2,4-Dinitrotoluene	0.0064 U	0.21 J	0.048 J	0.013 U	0.32 U	0.56	0.0065 U	0.0063 U
2,6-Dinitrotoluene	0.0064 U	0.028 J	0.013 J	0.013 U	0.32 U	0.52	0.0065 U	0.0063 U
DNT - Total	*0.0128 U*	*0.238*	*0.061*	*0.026 U*	*0.64 U*	*1.08*	*0.013 U*	*0.0126 U*
Monomethylamine Nitrate								
Nitrobenzene	0.064 U	0.32 U	0.064 U	0.13 U	3.2 U	1.3 U	0.065 U	0.062 U
Nitroglycerine						0.22 U	0.22 U	0.21 U
1,3,5-Trinitrobenzene	0.032 U	0.16 U	0.032 U	0.065 U	1.6 U	0.65 U	0.033 U	0.031 U
2,4,6-Trinitrotoluene	0.0032 U	0.42 J	0.025 J	0.0065 U	0.16 U	0.15	0.0033 U	0.0031 U

Area	18	18	18	18	18	18	18	18
Sample ID	**18-TP-515-S-2**	**18-TP-516-S-1**	**18-TP-517-S-2**	**18-TP-518-S-1**	**18-TP-519-S-2-DAVG**	**18-TP-519-S-3**	**18-TP-520-S-2-DAVG**	**18-TP-521-S-3**
Date Sampled	**5/14/92**	**5/14/92**	**5/14/92**	**5/14/92**	**5/11/92**	**5/11/92**	**4/27/92**	**5/12/92**
Depth	**3 to 6**	**0 to 1**	**3 to 6**	**0 to 1**	**3 to 6**	**8 to 10**	**3 to 6**	**8 to 10**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	4.4 U	0.52 U	0.05 U	0.25 U	0.043 U	0.43 UJ	0.042 U	0.042 U
2,4-Dinitrotoluene	1 J	0.078 U	0.0074 U	0.037 U	0.0065 U	0.15 J	0.0063 U	0.0064 U
2,6-Dinitrotoluene	0.66 U	0.078 U	0.0074 U	0.037 U	0.0065 U	0.14 J	0.0063 U	0.0064 U
DNT - Total	*1.33*	*0.156 U*	*0.0148 U*	*0.074 U*	*0.013 U*	*0.29*	*0.0126 U*	*0.0128 U*
Monomethylamine Nitrate					5.4 U			
Nitrobenzene	6.6 U	0.78 U	0.074 U	0.37 U	0.064 U	0.64 UJ	0.062 U	0.063 U
Nitroglycerine					0.21 U	0.21 U		0.21 U
1,3,5-Trinitrobenzene	3.3 U	0.39 U	0.037 U	0.18 U	0.032 U	0.32 UJ	0.031 U	0.032 U
2,4,6-Trinitrotoluene	0.33 U	0.039 U	0.0037 U	0.018 U	0.0032 U	0.032 UJ	0.0031 U	0.0032 U

Area	18	18	18	18	18	18	18	18
Sample ID	**18-TP-523-S-2**	**18-TP-524-S-1**	**18-TP-525-S-2**	**18-TP-525-S-3**	**18-TP-526-S-1**	**18-TP-526-S-2**	**18-TP-526-S-3**	**18-TP-527-S-2-DAVG**
Date Sampled	**5/13/92**	**5/12/92**	**5/12/92**	**5/12/92**	**4/30/92**	**4/30/92**	**4/30/92**	**5/13/92**
Depth	**3 to 6**	**0 to 1**	**3 to 6**	**8 to 10**	**0 to 1**	**3 to 6**	**8 to 10**	**3 to 6**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.096 U	0.46 U	0.88 U	0.043 U	0.49 U	0.044 U	0.043 U	0.043 U
2,4-Dinitrotoluene	0.014 U	0.14	0.53	0.009	0.46	0.02	0.027	0.0064 U
2,6-Dinitrotoluene	0.014 U	0.15	0.35	0.0081	0.13	0.0049	0.032	0.0064 U
DNT - Total	*0.028 U*	*0.29*	*0.88*	*0.0171*	*0.59*	*0.0249*	*0.059*	*0.0128 U*
Monomethylamine Nitrate						5.5 U		
Nitrobenzene	0.14 U	0.68 U	1.3 U	0.065 U	0.72 U	0.065 U	0.064 U	0.064 U
Nitroglycerine					0.24 U	0.22 U	0.22 U	
1,3,5-Trinitrobenzene	0.072 U	0.34 U	0.66 U	0.033 U	0.36 U	0.033 U	0.032 U	0.032 U
2,4,6-Trinitrotoluene	0.0072 U	0.034 U	0.066 U	0.025	0.036 U	0.0033 U	0.011	0.0032 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area Sample ID Date Sampled Depth	18 18-TP-528-S-1 5/13/92 0 to 1	18 18-TP-529-S-2 5/13/92 3 to 6	18 18-TP-530-S-1 5/13/92 0 to 1	18 18-TP-531-S-1-DAVG 5/15/92 0 to 1	18 18-TP-532-S-1 4/29/92 0 to 1	18 18-TP-533-S-1-DAVG 4/28/92 0 to 1	18 North 18-TP-535-S-1-DAVG 4/27/92 0 to 1	18 18-TP-53-S-1 7/6/93 0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.47 U	0.043 U	0.1 U	0.097 U	0.24 U	0.048 U	0.043 U	0.087 U
2,4-Dinitrotoluene	0.071 U	0.0065 U	0.015 U	0.015 U	0.036 U	0.0072 U	0.0065 U	0.013 U
2,6-Dinitrotoluene	0.071 U	0.0065 U	0.015 U	0.015 U	0.036 U	0.0072 U	0.0065 U	0.013 U
DNT - Total	*0.142 U*	*0.013 U*	*0.03 U*	*0.03 U*	*0.072 U*	*0.0144 U*	*0.013 U*	*0.026 U*
Monomethylamine Nitrate				6.1 U		6 U		
Nitrobenzene	0.7 U	0.065 U	0.15 U	0.14 U	0.36 U	0.071 U	0.064 U	0.13 UJ
Nitroglycerine				0.24 U	0.24 U	0.24 U		
1,3,5-Trinitrobenzene	0.35 U	0.033 U	0.077 U	0.073 U	0.18 U	0.036 U	0.032 U	0.065 U
2,4,6-Trinitrotoluene	0.035 U	0.0033 U	0.0077 U	0.0073 U	0.018 U	0.0036 U	0.0032 U	0.0065 U

Area Sample ID Date Sampled Depth	18 18-TP-541-S-2 4/24/92 3 to 6	18 18-TP-542-S-2-DAVG 4/28/92 3 to 6	18 18-TP-543-S-2 4/28/92 3 to 6	18 18-TP-544-S-2 5/15/92 3 to 6	18 18-TP-545-S-1 4/29/92 0 to 1	18 18-TP-546-S-2 4/28/92 3 to 6	18 North 18-TP-547-S-1-DAVG 5/1/92 0 to 1	18 North 18-TP-547-S-2-DAVG 5/1/92 3 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.042 U	0.043 U	0.23 U	0.045 U	0.043 U	0.46 UJ	0.043 UJ
2,4-Dinitrotoluene	0.0064 U	0.0062 U	0.0064 U	0.035 U	0.0067 U	0.0064 U	0.077 J	0.0064 UJ
2,6-Dinitrotoluene	0.0064 U	0.0062 U	0.0064 U	0.035 U	0.0067 U	0.0064 U	0.1 J	0.0064 UJ
DNT - Total	*0.0128 U*	*0.0124 U*	*0.0128 U*	*0.07 U*	*0.0134 U*	*0.0128 U*	*0.177*	*0.0128 U*
Monomethylamine Nitrate		5.2 U	5.4 U					
Nitrobenzene	0.063 U	0.062 U	0.064 U	0.34 U	0.066 U	0.064 U	0.69 UJ	0.063 UJ
Nitroglycerine		0.21 U	0.21 U	0.23 U	0.22 U	0.21 U	0.23 U	0.21 U
1,3,5-Trinitrobenzene	0.032 U	0.031 U	0.032 U	0.17 U	0.033 U	0.032 U	0.35 UJ	0.032 UJ
2,4,6-Trinitrotoluene	0.0032 U	0.0031 U	0.0032 U	0.017 U	0.0033 U	0.0032 U	0.035 UJ	0.0032 UJ

Area Sample ID Date Sampled Depth	18 North 18-TP-547-S-3 5/1/92 8 to 10	18 18-TP-548-S-1 5/14/92 0 to 1	18 18-TP-548-S-2 5/14/92 3 to 6	18 18-TP-548-S-3 5/14/92 8 to 10	18 18-TP-549-S-1 5/1/92 0 to 1	18 18-TP-549-S-2 5/1/92 3 to 6	18 18-TP-549-S-3 5/1/92 8 to 10	18 18-TP-550-S-1 5/15/92 0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 UJ	0.25 U	0.046 U	0.044 U	0.89 UJ	0.042 UJ	0.042 UJ	0.22 U
2,4-Dinitrotoluene	0.0063 UJ	0.037 U	0.0069 U	0.0066 U	0.026 J	0.0063 UJ	0.0064 UJ	0.032 U
2,6-Dinitrotoluene	0.0063 UJ	0.037 U	0.0069 U	0.0066 U	0.13 UJ	0.0063 UJ	0.0064 UJ	0.032 U
DNT - Total	*0.0126 U*	*0.074 U*	*0.0138 U*	*0.0132 U*	*0.091*	*0.0126 U*	*0.0128 U*	*0.064 U*
Monomethylamine Nitrate								
Nitrobenzene	0.063 UJ	0.37 U	0.068 U	0.066 U	1.3 UJ	0.063 UJ	0.063 UJ	0.32 U
Nitroglycerine	0.21 U				0.24	0.21 U	0.21 U	0.22 U
1,3,5-Trinitrobenzene	0.032 UJ	0.19 U	0.035 U	0.033 U	0.67 UJ	0.032 UJ	0.032 UJ	0.16 U
2,4,6-Trinitrotoluene	0.0032 UJ	0.019 U	0.0035 U	0.0033 U	0.4 J	0.0032 UJ	0.0032 UJ	0.016 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-551-S-2	18-TP-552-S-1	18-TP-553-S-2	18-TP-554-S-1	18-TP-555-S-2-DAVG	18-TP-556-S-1	18-TP-557-S-2	18-TP-558-S-3
Date Sampled	5/15/92	4/29/92	4/29/92	4/29/92	4/30/92	5/13/92	4/30/92	4/30/92
Depth	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6	0 to 1	3 to 6	3 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.046 U	0.11 U	0.25 U	0.099 U	0.45 U	0.043 U	0.42 U	0.043 U
2,4-Dinitrotoluene	0.0068 U	0.017 U	0.037 U	0.22	0.068 U	0.0064 U	0.064 U	0.011
2,6-Dinitrotoluene	0.0068 U	0.017 U	0.037 U	0.092	0.068 U	0.0064 U	0.064 U	0.0064 U
DNT - Total	*0.0136 U*	*0.034 U*	*0.074 U*	*0.312*	*0.136 U*	*0.0128 U*	*0.128 U*	*0.0142*
Monomethylamine Nitrate					5.8 U	5.3 U	5.3 U	
Nitrobenzene	0.068 U	0.17 U	0.37 U	0.15 U	0.67 U	0.063 U	0.63 U	0.063 U
Nitroglycerine	0.23 U	0.29 U	0.24 U	0.25 U	0.23 U	0.21 U	0.21 U	0.21 U
1,3,5-Trinitrobenzene	0.034 U	0.086 U	0.18 U	0.074 U	0.34 U	0.032 U	0.32 U	0.032 U
2,4,6-Trinitrotoluene	0.0034 U	0.0086 U	0.018 U	0.022	0.034 U	0.0032 U	0.032 U	0.0032 U

Area	18 North	18 North	18 North	18	18	18	18	18
Sample ID	18-TP-559-S-1-DAVG	18-TP-559-S-2-DAVG	18-TP-559-S-3	18-TP-600-S-1	18-TP-600-S-2	18-TP-601-S-2	18-TP-601-S-3	18-TP-602-S-2
Date Sampled	5/1/92	5/1/92	5/1/92	11/5/92	11/5/92	11/5/92	11/5/92	11/5/92
Depth	0 to 1	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	5 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.91 UJ	0.044 UJ	0.044 UJ	0.044 U	0.043 U	0.042 U	0.044 U	0.043 U
2,4-Dinitrotoluene	0.14 UJ	0.0065 UJ	0.0066 UJ	0.092	0.09	0.0062 J	0.0064 J	0.009
2,6-Dinitrotoluene	0.14 UJ	0.0065 UJ	0.0066 UJ	0.035	0.006 J	0.0064 U	0.0066 U	0.0065 U
DNT - Total	*0.28 U*	*0.013 U*	*0.0132 U*	*0.127*	*0.096*	*0.0094*	*0.0097*	*0.01225*
Monomethylamine Nitrate								
Nitrobenzene	1.4 UJ	0.065 UJ	0.065 UJ	0.066 U	0.065 U	0.063 U	0.065 U	0.064 U
Nitroglycerine	0.23 U	0.22 U	0.22 U					
1,3,5-Trinitrobenzene	0.68 UJ	0.033 UJ	0.033 UJ	0.033 U	0.033 U	0.032 U	0.033 U	0.032 U
2,4,6-Trinitrotoluene	0.068 UJ	0.0033 UJ	0.0033 UJ	2.4	0.79	0.0032 U	0.0033 U	0.0032 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-602-S-3	18-TP-603-S-2-DAVG	18-TP-603-S-3	18-TP-604-S-1	18-TP-604-S-2	18-TP-DEP,S-1	18-TP-DEP,S-2	18-TP-GS-16-S-2
Date Sampled	11/5/92	11/5/92	11/5/92	11/5/92	11/5/92			
Depth	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1	3 to 4	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.043 U	0.044 U	0.044 U	0.044 U	0.043 U			
2,4-Dinitrotoluene	0.0084	0.036	0.014	0.0076	0.01	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.0064 U	0.0065 U	0.0066 U	0.0067 U	0.0065 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.0116*	*0.03925*	*0.0173*	*0.01095*	*0.01325*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.064 U	0.065 U	0.065 U	0.066 U	0.064 U			
Nitroglycerine								
1,3,5-Trinitrobenzene	0.032 U	0.033 U	0.033 U	0.033 U	0.032 U			
2,4,6-Trinitrotoluene	0.0032 U	0.066 J	0.0044	0.0054	0.031			

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18		18	18	18	18	18
Sample ID	[illegible]GS-17-S-1	18-TP-GS-17-S-2	[illegible]-S-2	18-TP-GS-23-S-1	18-TP-GS-23-S-2	18-TP-GS-24-S-2	18-TP-GS-25-S-1	18-TP-GS-25-S-2
Date Sampled								
Depth	0 to 1	3 to 4	3 to 4	0 to 1	3 to 4	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-GS-27-S-1	18-TP-GS-27-S-2	18-TP-GS-28-S-1	18-TP-GS-28-S-2	18-TP-GS-32-S-1	18-TP-GS-32-S-2	18-TP-GS-33-S-1	18-TP-GS-33-S-2
Date Sampled	7/6/93							
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.094 U							
2,4-Dinitrotoluene	0.014 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.014 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.028 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.14 U							
Nitroglycerine								
1,3,5-Trinitrobenzene	0.071 U							
2,4,6-Trinitrotoluene	0.0071 U							

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-GS-38-S-1	18-TP-GS-38-S-2	18-TP-GS-40-S-1	18-TP-GS-40-S-2	18-TP-GS-41-S-1	18-TP-GS-41-S-2	18-TP-GS-42-S-1	18-TP-GS-42-S-2
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-GS-43-S-1	18-TP-GS-43-S-2	18-TP-GS-47-S-1	18-TP-GS-47-S-2	18-TP-GS-49-S-1	18-TP-GS-49-S-2	18-TP-GS-53-S-1	18-TP-GS-53-S-2
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-GS-54-S-1	18-TP-GS-54-S-2	18-TP-GS-59-S-1	18-TP-GS-59-S-2	18-TP-GS-62-S-1	18-TP-GS-62-S-2	18-TP-GS-70-S-1	18-TP-GS-70-S-2
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TP-GS-72-S-1	18-TP-GS-72-S-2	18-TP-GS-81-S-1	18-TP-GS-81-S-2	18-TR-101N,S-3	18-TR-101N,S-4	18-TR-101S,S-1	18-TR-101S,S-2
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-102E,S-1	18-TR-102E,S-2	18-TR-102W,S-3	18-TR-102W,S-4	18-TR-103S,S-1	18-TR-103S,S-2	18-TR-104E,S-3	18-TR-104E,S-4
Date Sampled		6/28/93			6/28/93			
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	1 to 2	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene		0.09 U			0.23 U			
2,4-Dinitrotoluene	0.1 U	0.014 U	0.1 U	0.1 U	0.069	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.014 U	0.05 U	0.05 U	0.057	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.028 U*	*0.15 U*	*0.15 U*	*0.126*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene		0.14 U			0.34 U			
Nitroglycerine								
1,3,5-Trinitrobenzene		0.069 U			0.17 U			
2,4,6-Trinitrotoluene		0.007 U			0.027			

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-104W,S-1	18-TR-104W,S-2	18-TR-105N,S-1	18-TR-105N,S-2	18-TR-105S,S-3	18-TR-105S,S-4	18-TR-106E,S-3	18-TR-106E,S-4
Date Sampled	6/29/93						6/29/93	6/29/93
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.24 U						0.1 U	0.23 U
2,4-Dinitrotoluene	0.12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.15	0.034 U
2,6-Dinitrotoluene	0.075	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.072	0.034 U
DNT - Total	*0.195*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.222*	*0.068 U*
Monomethylamine Nitrate								
Nitrobenzene	0.35 U						0.15 U	0.33 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.18 U						0.074 U	0.17 U
2,4,6-Trinitrotoluene	0.014						0.007 U	0.017 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-106W,S-1	18-TR-106W,S-2	18-TR-107N,S-1	18-TR-107N,S-2	18-TR-107S,S-3	18-TR-107S,S-4	18-TR-109E,S-3	18-TR-109E,S-4
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-109W,S-1	18-TR-109W,S-2	18-TR-110N,S-1	18-TR-110N,S-2	18-TR-110S,S-3	18-TR-110S,S-4	18-TR-111E,S-1	18-TR-111E,S-2
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-111W,S-3	18-TR-111W,S-4	18-TR-112N,S-3	18-TR-112N,S-4	18-TR-112S,S-1	18-TR-112S,S-2	18-TR-113N,S-3	18-TR-113N,S-4
Date Sampled								
Depth	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-113S,S-1	18-TR-113S,S-2	18-TR-114-S-2	18-TR-114W,S-3	18-TR-114W,S-4	18-TR-115N,S-1	18-TR-115N,S-2	18-TR-115S,S-3
Date Sampled	7/1/93		7/1/93					
Depth	1.5 to 2.5	3 to 4	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.46 U		4.4 UJ					
2,4-Dinitrotoluene	0.069 U	0.1 U	0.66 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.008 J	0.05 U	0.66 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.0425*	*0.15 U*	*1.32 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.68 U		6.5 UJ					
Nitroglycerine								
1,3,5-Trinitrobenzene	0.35 U		3.3 UJ					
2,4,6-Trinitrotoluene	0.035 U		0.33 UJ					

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-115S,S-4	18-TR-116E,S-1	18-TR-116E,S-2	18-TR-116W,S-3	18-TR-116W,S-4	18-TR-117E,S-3	18-TR-117E,S-4	18-TR-117W,S-1
Date Sampled								
Depth	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	0 to 1	3 to 4	1 to 2
Explosive (mg/kg dry)								
1,3-Dinitrobenzene								
2,4-Dinitrotoluene	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene								
Nitroglycerine								
1,3,5-Trinitrobenzene								
2,4,6-Trinitrotoluene								

Area	18	18	18	18	18	18	18	18
Sample ID	18-TR-117W,S-2	18-TR-119S,S-4	18-VS-101	18-VS-102	18-VS-103	18-VS-104	18-VS-105	18-VS-106
Date Sampled			8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	4 to 5	3 to 4	1 to 1.5	2 to 2.5	6 to 6.5	2 to 2.5	15 to 15.5	15 to 15.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene			0.49 U	0.046 U	0.047 U	0.048 U	2.1 U	0.9 U
2,4-Dinitrotoluene	0.1 U	0.1 U	0.074	0.007 U	0.007 U	0.007 U	0.31 U	0.24
2,6-Dinitrotoluene	0.05 U	0.05 U	0.07 U	0.007 U	0.007 U	0.007 U	0.31 U	0.1 U
DNT - Total	*0.15 U*	*0.15 U*	*0.109*	*0.014 U*	*0.014 U*	*0.014 U*	*0.62 U*	*0.29*
Monomethylamine Nitrate								
Nitrobenzene			0.74 U	0.068 U	0.069 U	0.071 U	3.1 U	1.3 U
Nitroglycerine								
1,3,5-Trinitrobenzene			0.37 U	0.034 U	0.035 U	0.036 U	1.5 U	0.7 U
2,4,6-Trinitrotoluene			0.04 U	0.0034 U	0.0035 U	0.0036 U	1	3.1

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-107	18-VS-108	18-VS-109	18-VS-110	18-VS-111	18-VS-112	18-VS-113	18-VS-114
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	1 to 2	3 to 4	4 to 6	2 to 4	0 to 0.5	1 to 3	4 to 5	0 to 1
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.044 U	0.043 U	0.084 U	0.047 U	0.041 U	0.042 U	0.044 U
2,4-Dinitrotoluene	0.006 U	0.007 U	0.006 U	0.16	0.007	0.006 U	0.008	0.01
2,6-Dinitrotoluene	0.006 U	0.007 U	0.006 U	0.013 U	0.007 U	0.006 U	0.006 U	0.007 U
DNT - Total	*0.012 U*	*0.014 U*	*0.012 U*	*0.1665*	*0.0105*	*0.012 U*	*0.011*	*0.0135*
Monomethylamine Nitrate								
Nitrobenzene	0.062 U	0.065 U	0.063 U	0.13 U	0.069 U	0.061 U	0.063 U	0.066 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.031 U	0.033 U	0.032 U	0.063 U	0.035 U	0.031 U	0.032 U	0.033 U
2,4,6-Trinitrotoluene	0.0031 U	0.0033 U	0.0032 U	0.18	0.0035 U	0.0031 U	0.0032 U	0.007

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-115**	**18-VS-116**	**18-VS-117**	**18-VS-118**	**18-VS-119**	**18-VS-120-DAVG**	**18-VS-121**	**18-VS-122**
Date Sampled	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**
Depth	**0 to 0.5**	**2 to 4**	**1 to 3**	**4 to 7**	**1 to 2**	**0 to 1**	**0 to 0.5**	**0 to 2**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.25 U	0.047 U	0.828 U	0.044 U	0.046 U	0.049 U	0.049 U	0.042 U
2,4-Dinitrotoluene	0.079	0.22	0.29	0.016	0.028	0.008	0.02	0.006 U
2,6-Dinitrotoluene	0.037 U	0.036	0.124 U	0.025 U	0.007 U	0.007 U	0.007 U	0.006 U
DNT - Total	*0.0975*	*0.256*	*0.352*	*0.0285*	*0.0315*	*0.0115*	*0.0235*	*0.012 U*
Monomethylamine Nitrate								
Nitrobenzene	0.37 U	0.069 U	1.232 U	0.066 U	0.068 U	0.073 U	0.073 U	0.063 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.19 U	0.035 U	0.621 U	0.033 U	0.034 U	0.037 U	0.037 U	0.032 U
2,4,6-Trinitrotoluene	0.047	0.11	1.98	0.003	0.12	0.0037 U	0.0037 U	0.0032 U

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-123**	**18-VS-124**	**18-VS-125**	**18-VS-126**	**18-VS-127**	**18-VS-128**	**18-VS-129**	**18-VS-130-DAVG**
Date Sampled	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**
Depth	**0 to 1**	**1 to 2**	**1 to 2**	**3 to 4**	**1 to 2**	**4 to 5**	**0 to 1**	**0 to 2**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.042 U	0.041 U	0.042 U	0.041 U	0.044 U	0.049 U	0.044 U
2,4-Dinitrotoluene	0.006 U	0.012	0.099	0.015	0.006 U	0.007 U	0.03	0.028
2,6-Dinitrotoluene	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.007 U	0.007 U
DNT - Total	*0.012 U*	*0.015*	*0.102*	*0.018*	*0.012 U*	*0.014 U*	*0.0335*	*0.0315*
Monomethylamine Nitrate								
Nitrobenzene	0.062 U	0.063 U	0.062 U	0.062 U	0.062 U	0.065 U	0.073 U	0.066 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.031 U	0.032 U	0.031 U	0.031 U	0.031 U	0.033 U	0.037 U	0.033 U
2,4,6-Trinitrotoluene	0.003	0.0032 U	0.012	0.053	0.0031 U	0.0033 U	0.0037 U	0.0033 U

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-131**	**18-VS-132**	**18-VS-133**	**18-VS-134**	**18-VS-135**	**18-VS-136**	**18-VS-137**	**18-VS-138**
Date Sampled	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**
Depth	**0 to 0.5**	**1 to 2**	**0 to 1**	**0 to 1**	**0 to 0.5**	**7 to 9**	**10 to 12**	**11 to 14**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.053 U	0.046 U	0.045 U	0.044 U	0.46 U	0.042 U	0.045 U	0.042 U
2,4-Dinitrotoluene	0.033	0.007 U	0.014	0.007 U	0.068 U	0.006 U	0.075	0.006 U
2,6-Dinitrotoluene	0.018	0.007 U	0.007 U	0.007 U	0.068 U	0.006 U	0.007 U	0.006 U
DNT - Total	*0.051*	*0.014 U*	*0.0175*	*0.014 U*	*0.136 U*	*0.012 U*	*0.0785*	*0.012 U*
Monomethylamine Nitrate								
Nitrobenzene	0.078 U	0.068 U	0.067 U	0.066 U	0.68 U	0.063 U	0.067 U	0.062 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.039 U	0.034 U	0.034 U	0.033 U	0.34 U	0.032 U	0.034 U	0.031 U
2,4,6-Trinitrotoluene	0.0039 U	0.0034 U	0.0034 U	0.0033 U	0.034 U	0.0032 U	0.006	0.0031 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-139	18-VS-13A	18-VS-1[illegible]	[illegible]3-VS-140	18-VS-141	18-VS-142	18-VS-143	18-VS-144
Date Sampled	8/26/93	12/9/92	12/9/[illegible]	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	*5 to 7*	*0 to 1*	*3 to [illegible]*	*3 to 6*	*3 to 3.5*	2 to 2.5	4 to 4.5	1 to 1.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U			0.042 U	0.045 U	0.043 U	0.043 U	0.043 U
2,4-Dinitrotoluene	0.006 U	0.05 U	0.05 U	0.006 U	0.034	0.006	0.016	0.074
2,6-Dinitrotoluene	0.006 U	0.1 U	0.1 U	0.006 U	0.007 U	0.006 U	0.006 U	0.022
DNT - Total	*0.012 U*	*0.15 U*	*0.15 U*	*0.012 U*	*0.0375*	*0.009*	*0.019*	*0.096*
Monomethylamine Nitrate								
Nitrobenzene	0.063 U			0.063 U	0.068 U	0.064 U	0.063 U	0.065 U
Nitroglycerine								
1,3,5-Trinitrobenzene	*0.032 U*			*0.032 U*	*0.034 U*	*0.032 U*	*0.032 U*	*0.033 U*
2,4,6-Trinitrotoluene	0.0032 U			0.0032 U	0.006	0.0032 U	0.0032 U	0.008

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-145	18-VS-146	18-VS-147	18-VS-148	18-VS-149	18-VS-14A	18-VS-14B	18-VS-150-DAVG
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	12/9/92	12/9/92	8/26/93
Depth	4 to 4.5	15 to 15.5	6 to 6.5	7 to 7.5	0 to 1	0 to 1	3 to 6	1 to 2
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.052 U	0.215 U	0.042 U	0.043 U	0.041 U			0.043 U
2,4-Dinitrotoluene	0.015	0.445	0.013	0.072	0.006 U	0.05 U	0.05 U	0.007
2,6-Dinitrotoluene	0.008 U	0.222	0.006 U	0.011	0.006 U	0.1 U	0.1 U	0.006 U
DNT - Total	*0.019*	*0.667*	*0.016*	*0.083*	*0.012 U*	*0.15 U*	*0.15 U*	*0.01*
Monomethylamine Nitrate								
Nitrobenzene	0.077 U	0.32 U	0.063 U	0.064 U	0.061 U			0.064 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.039 U	0.161 U	0.032 U	0.032 U	0.031 U			0.032 U
2,4,6-Trinitrotoluene	0.0039 U	0.411	0.02	0.014	0.0031 U			0.009

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-151	18-VS-152	18-VS-153	18-VS-154	18-VS-155	18-VS-156	18-VS-157	18-VS-158
Date Sampled	8/26/93	9/23/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	2 to 3	4 to 4.5	0 to 0.5	3 to 4	4 to 5	10 to 13	7 to 9	4 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.042 U	0.053 U	0.049 U	0.048 U	0.048 U	0.047 U	0.048 UJ
2,4-Dinitrotoluene	0.017	0.006 U	0.035	0.011	0.008	0.007 U	0.098	0.007 UJ
2,6-Dinitrotoluene	0.006 U	0.006 U	0.067	0.008	0.007 U	0.007 U	0.028	0.007 UJ
DNT - Total	*0.02*	*0.012 U*	*0.102*	*0.019*	*0.0115*	*0.014 U*	*0.126*	*0.014 U*
Monomethylamine Nitrate								
Nitrobenzene	0.063 U	0.063 U	0.079 U	0.073 U	0.072 U	0.072 U	0.07 U	0.072 UJ
Nitroglycerine								
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.04 U	0.037 U	0.036 U	0.036 U	0.035 U	0.036 UJ
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U	0.004 U	0.0037 U	0.0036 U	0.0036 U	0.18	0.0036 UJ

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-159	18-VS-15-DAVG	18-VS-160	18-VS-162	18-VS-163	18-VS-164	18-VS-165	18-VS-166
Date Sampled	8/26/93	4/12/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	2 to 3	7 to 7.5	0 to 1	0 to 1	2 to 2.5	15 to 15.5	1 to 1.5	0 to 0.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.046 U	0.044 U	0.054 U	0.048 U	0.048 U	0.24 U	0.052 U	0.049 U
2,4-Dinitrotoluene	0.007 U	0.091	0.074	0.007 U	0.007 U	0.27	0.008 U	0.007 U
2,6-Dinitrotoluene	0.007 U	0.047	0.019	0.007 U	0.007 U	0.088	0.008 U	0.007 U
DNT - Total	*0.014 U*	*0.138*	*0.093*	*0.014 U*	*0.014 U*	*0.358*	*0.016 U*	*0.014 U*
Monomethylamine Nitrate								
Nitrobenzene	0.068 U	0.066 U	0.08 U	0.071 U	0.071 U	0.36 U	0.077 U	0.073 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.034 U	0.033 U	0.041 U	0.036 U	0.036 U	0.13	0.039 U	0.037 U
2,4,6-Trinitrotoluene	0.0034 U	0.0015 J	0.0041 U	0.027	0.0036 U	0.61	0.0039 U	0.0037 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-167	18-VS-168	18-VS-17	18-VS-170-DAVG	18-VS-171	18-VS-172	18-VS-173	18-VS-174
Date Sampled	8/26/93	8/26/93	4/12/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	0 to 1	1 to 2	3 to 3.5	0 to 1	2 to 4	12 to 14	5 to 7	8 to 10
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.049 U	0.051 U	0.042 U	0.051 U	0.041 U	0.047 U	0.046 U	0.049 U
2,4-Dinitrotoluene	0.038	0.008	0.026	0.008 U	0.006 U	0.033	0.007 U	0.007 U
2,6-Dinitrotoluene	0.007 U	0.008 U	0.035	0.008 U	0.006 U	0.007 U	0.007 U	0.007 U
DNT - Total	*0.0415*	*0.012*	*0.061*	*0.016 U*	*0.012 U*	*0.0365*	*0.014 U*	*0.014 U*
Monomethylamine Nitrate								
Nitrobenzene	0.073 U	0.076 U	0.063 U	0.075 U	0.061 U	0.069 U	0.068 U	0.073 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.037 U	0.038 U	0.032 U	0.038 U	0.031 U	0.24	0.034 U	0.037 U
2,4,6-Trinitrotoluene	0.0037 U	0.0038 U	0.0074	0.0038 U	0.0031 U	0.116	0.0034 U	0.0037 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-175	18-VS-176	18-VS-177	18-VS-18	18-VS-184	18-VS-186	18-VS-188	18-VS-191
Date Sampled	10/7/93	10/7/93	10/7/93	4/12/93	3/18/94	3/18/94	4/4/94	4/14/94
Depth	1 to 2	1 to 2	5 to 5.5	3 to 3.5	21 to 23	17 to 17.5	21 to 23	27 to 27.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.041 U	0.043 U	0.043 U	0.46 U	0.041 U	0.041 U	0.042 U	0.85 U
2,4-Dinitrotoluene	0.006 U	0.035 J	0.0064 U	0.19	0.095	0.18	0.3	0.33
2,6-Dinitrotoluene	0.006 U	0.0065 U	0.0064 U	0.36	0.025	0.31	1.3	1
DNT - Total	*0.012 U*	*0.03825*	*0.0128 U*	*0.55*	*0.12*	*0.49*	*1.6*	*1.33*
Monomethylamine Nitrate								
Nitrobenzene	0.061 U	0.064 U	0.064 U	0.68 U	0.06 U	0.061 U	0.063 U	1.3 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.031 U	0.058	0.032 U	0.34 U	0.03 U	0.037	0.17	0.64 U
2,4,6-Trinitrotoluene	0.0031 U	0.012	0.0032 U	0.071	0.003 U	0.0031 U	0.028	0.064 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-192	18-VS-194	18-VS-19-DAVG	18-VS-20	18-VS-21	18-VS-22	18-VS-23	18-VS-24-DAVG
Date Sampled	4/14/94	4/28/94	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93
Depth	23 to 25	25 to 27	2 to 2.5	5 to 5.5	5 to 5.5	3 to 3.5	3 to 3.5	3 to 3.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.042 U	0.042 U	0.042 U	0.043 U	0.043 U	0.044 U	0.044 UJ
2,4-Dinitrotoluene	0.095	0.013	0.006 U	0.006 U	0.0051 J	0.0075	0.0091	0.007 UJ
2,6-Dinitrotoluene	0.019	0.016	0.006 U	0.006 U	0.0042 J	0.006 U	0.0072	0.007 UJ
DNT - Total	*0.114*	*0.029*	*0.012 U*	*0.012 U*	*0.0093*	*0.0105*	*0.0163*	*0.014 U*
Monomethylamine Nitrate								
Nitrobenzene	0.063 U	0.063 U	0.062 U	0.063 U	0.065 U	0.064 U	0.066 U	0.065 UJ
Nitroglycerine								
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.031 U	0.032 U	0.033 U	0.032 U	0.033 U	0.033 UJ
2,4,6-Trinitrotoluene	0.0068	0.019	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 UJ

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-25	18-VS-26	18-VS-27	18-VS-28	18-VS-29	18-VS-31	18-VS-32	18-VS-33
Date Sampled	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93	4/12/93
Depth	15 to 15.5	3 to 3.5	2 to 2.5	7 to 7.5	3 to 3.5	15 to 15.5	15 to 15.5	15 to 15.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.043 U	0.043 U	0.43 U	0.043 U	0.042 U	2.1 U	0.042 U	0.047 U
2,4-Dinitrotoluene	0.006 U	0.014	0.15	0.0009 J	0.013	0.13 J	0.019	0.007 U
2,6-Dinitrotoluene	0.006 U	0.0054 J	0.3	0.0018 J	0.004 J	0.089 J	0.0019 J	0.007 U
DNT - Total	*0.012 U*	*0.0194*	*0.45*	*0.0027*	*0.017*	*0.219*	*0.0209*	*0.014 U*
Monomethylamine Nitrate								
Nitrobenzene	0.064 U	0.064 U	0.64 U	0.064 U	0.062 U	3.2 U	0.063 U	0.069 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.32 U	0.032 U	0.031 U	1.6 U	0.032 U	0.035 U
2,4,6-Trinitrotoluene	0.003 U	0.003 U	0.0036 J	0.003 U	0.003 U	0.027 J	0.003 U	0.0072

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-34	18-VS-37	18-VS-38	18-VS-39	18-VS-3A	18-VS-3B	18-VS-40	18-VS-41
Date Sampled	4/12/93	4/12/93	4/12/93	4/12/93	12/8/92	12/8/92	4/12/93	4/12/93
Depth	1 to 3	8 to 10	6 to 8	12 to 14	0 to 1	3 to 6	4 to 6	8 to 10
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.044 U	0.043 U	0.043 U	0.043 U			0.043 U	0.044 U
2,4-Dinitrotoluene	0.015	0.0014 J	0.007 U	0.007 U	0.1 U	0.1 U	0.002 J	0.0067 U
2,6-Dinitrotoluene	0.0026 J	0.004 J	0.0027 J	0.007 U	0.05 U	0.05 U	0.0018 J	0.0067 U
DNT - Total	*0.0176*	*0.0054*	*0.0062*	*0.014 U*	*0.15 U*	*0.15 U*	*0.0038*	*0.0134 U*
Monomethylamine Nitrate								
Nitrobenzene	0.066 U	0.064 U	0.064 U	0.064 U			0.064 U	0.066 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.033 U	0.032 U	0.033 U	0.033 U			0.032 U	0.033 U
2,4,6-Trinitrotoluene	0.003 U	0.003 U	0.003 U	0.003 U			0.003 U	0.0033 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-42-DAVG**	**18-VS-43**	**18-VS-44**	**18-VS-45**	**18-VS-46**	**18-VS-47**	**18-VS-48**	**18-VS-49**
Date Sampled	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**
Depth	**0 to 1**	**1 to 2**	**2 to 3**	**1 to 2**	**4 to 5**	**3 to 4**	**2 to 3**	**1 to 2**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.054 U	0.049 U	0.045 U	0.043 U	0.061 U	0.048 U	0.044 U	0.051 UJ
2,4-Dinitrotoluene	0.069	0.029	0.008	0.021	0.19	0.24	0.0022 J	0.0076 UJ
2,6-Dinitrotoluene	0.073	0.042	0.0038 J	0.047	0.14	0.3	0.0033 J	0.0057 J
DNT - Total	*0.142*	*0.071*	*0.0118*	*0.068*	*0.33*	*0.54*	*0.0055*	*0.0095*
Monomethylamine Nitrate								
Nitrobenzene	0.08 U	0.073 U	0.068 U	0.063 U	0.09 U	0.071 U	0.065 U	0.075 UJ
Nitroglycerine								
1,3,5-Trinitrobenzene	0.041 U	0.037 U	0.034 U	0.032 U	0.045 U	0.036 U	0.033 U	0.038 UJ
2,4,6-Trinitrotoluene	0.004 U	0.004 U	0.003 U	0.012	0.014	0.12	0.0033 U	0.0038 UJ

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-4A**	**18-VS-4B**	**18-VS-50**	**18-VS-51**	**18-VS-52**	**18-VS-53**	**18-VS-54**	**18-VS-55**
Date Sampled	**12/8/92**	**12/8/92**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**	**4/12/93**
Depth	**0 to 1**	**3 to 6**	**1 to 2**	**0 to 1**	**4 to 5**	**1 to 2**	**0 to 1**	**1 to 2**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene			0.052 U	0.26 U	0.24 U	0.05 U	0.048 U	0.62 U
2,4-Dinitrotoluene	0.1 U	0.1 U	0.008 U	0.42	0.2	0.011	0.01	0.01 J
2,6-Dinitrotoluene	0.05 U	0.05 U	0.0011 J	0.14	0.085	0.0092	0.0093	0.028 J
DNT - Total	*0.15 U*	*0.15 U*	*0.0051*	*0.56*	*0.285*	*0.0202*	*0.0193*	*0.038*
Monomethylamine Nitrate								
Nitrobenzene			0.077 U	0.39 U	0.36 U	0.074 U	0.071 U	0.92 U
Nitroglycerine								
1,3,5-Trinitrobenzene			0.039 U	0.2 U	0.18 U	0.037 U	0.036 U	0.46 U
2,4,6-Trinitrotoluene			0.004 U	0.14	0.015 J	0.0037 U	0.0036 U	0.046 U

Area	18	18	18	18	18	18	18	18
Sample ID	**18-VS-56**	**18-VS-57**	**18-VS-58**	**18-VS-59**	**18-VS-60-DAVG**	**18-VS-61**	**18-VS-62**	**18-VS-63**
Date Sampled	**4/12/93**	**4/12/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**	**8/26/93**
Depth	**2 to 3**	**1 to 2**	**1 to 1.5**	**2 to 2.5**	**8 to 8.5**	**6 to 6.5**	**2 to 2.5**	**4 to 4.5**
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.65 U	0.64 U	0.041 U	0.042 U	0.042 U	0.042 U	0.043 U	0.85 U
2,4-Dinitrotoluene	0.13	0.1	0.006 U	0.026	0.072	0.062	0.006 U	0.34
2,6-Dinitrotoluene	0.07 J	0.13	0.006 U	0.006 U	0.006 U	0.016	0.006 U	0.13 U
DNT - Total	*0.2*	*0.23*	*0.012 U*	*0.029*	*0.075*	*0.078*	*0.012 U*	*0.405*
Monomethylamine Nitrate								
Nitrobenzene	1 U	0.94 U	0.062 U	0.062 U	0.062 U	0.062 U	0.064 U	1.3 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.48 U	0.48 U	0.031 U	0.031 U	0.031 U	0.031 U	0.032 U	0.64 U
2,4,6-Trinitrotoluene	0.048 U	0.048 U	0.0031 U	0.0031 U	0.053	0.0031 U	0.0032 U	0.5

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-64	18-VS-65	18-VS-66	18-VS-67	18-VS-68	18-VS-69	18-VS-6A	18-VS-6B
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	12/8/92	12/8/92
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	3 to 3.5	2 to 2.5	0 to 1	3 to 6
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.043 U	0.042 U	0.043 U	0.044 U	0.042 U	0.043 U		
2,4-Dinitrotoluene	0.069	0.011	0.007 U	0.008	0.02	0.016	0.1 U	0.1 U
2,6-Dinitrotoluene	0.008	0.006 U	0.007 U	0.007 U	0.006 U	0.007 U	0.05 U	0.05 U
DNT - Total	*0.077*	*0.014*	*0.014 U*	*0.0115*	*0.023*	*0.0195*	*0.15 U*	*0.15 U*
Monomethylamine Nitrate								
Nitrobenzene	0.064 U	0.063 U	0.065 U	0.065 U	0.063 U	0.065 U		
Nitroglycerine								
1,3,5-Trinitrobenzene	0.033 U	0.032 U	0.033 U	0.033 U	0.032 U	0.033 U		
2,4,6-Trinitrotoluene	0.085	0.0032 U	0.0033 U	0.0033 U	0.0032 U	0.0033 U		

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-70	18-VS-71	18-VS-72	18-VS-73	18-VS-74	18-VS-75	18-VS-76	18-VS-77
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	2 to 2.5	0 to 0.5	3 to 4	0 to 0.5	0 to 1	0 to 1	0 to 0.5	1 to 2
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.044 U	0.043 U	0.041 U	0.043 U	0.427 U	0.043 U	0.44 U	0.043 U
2,4-Dinitrotoluene	0.007 U	0.006 U	0.006 U	0.007 U	0.87	0.036	0.72	0.006 U
2,6-Dinitrotoluene	0.007 U	0.006 U	0.006 U	0.007 U	0.064 U	0.006 U	0.068	0.006 U
DNT - Total	*0.014 U*	*0.012 U*	*0.012 U*	*0.014 U*	*0.902*	*0.039*	*0.788*	*0.012 U*
Monomethylamine Nitrate								
Nitrobenzene	0.065 U	0.064 U	0.061 U	0.065 U	0.64 U	0.064 U	0.66 U	0.063 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.033 U	0.032 U	0.031 U	0.033 U	0.32 U	0.032 U	0.33 U	0.032 U
2,4,6-Trinitrotoluene	0.0033 U	0.0032 U	0.0031 U	0.0033 U	0.032 U	0.0032 U	0.033 U	0.0032 U

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-78	18-VS-79	18-VS-80-DAVG	18-VS-81	18-VS-82	18-VS-83	18-VS-84	18-VS-85
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	3 to 4	0 to 1	1 to 2	1 to 2	0 to 1	0 to 1	0 to 0.5	2 to 3
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.044 U	0.046 U	0.045 U	0.042 U	0.041 U	0.045 U	0.042 U
2,4-Dinitrotoluene	0.006 U	0.007 U	0.007 U	0.007 U	0.006 U	0.006 U	0.016	0.006 U
2,6-Dinitrotoluene	0.006 U	0.007 U	0.007 U	0.007 U	0.006 U	0.006 U	0.007 U	0.006 U
DNT - Total	*0.012 U*	*0.014 U*	*0.014 U*	*0.014 U*	*0.012 U*	*0.012 U*	*0.0195*	*0.012 U*
Monomethylamine Nitrate								
Nitrobenzene	0.062 U	0.065 U	0.068 U	0.067 U	0.062 U	0.061 U	0.067 U	0.062 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.031 U	0.033 U	0.034 U	0.034 U	0.031 U	0.031 U	0.034 U	0.031 U
2,4,6-Trinitrotoluene	0.0031 U	0.0033 U	0.008	0.0034 U	0.0031 U	0.0031 U	0.0034 U	0.0031 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-86	18-VS-87	18-VS-88	18-VS-89	18-VS-8A	18-VS-8B	18-VS-90	18-VS-91
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	12/8/92	12/8/92	8/26/93	8/26/93
Depth	10 to 10.5	12 to 14	5 to 7	6 to 6.5	0 to 1	3 to 6	1 to 1.5	7 to 7.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.042 U	0.042 U	0.042 U	0.041 U			0.42 U	0.041 U
2,4-Dinitrotoluene	0.3	0.017	0.006 U	0.006 U	0.1 U	0.1 U	0.67	0.069
2,6-Dinitrotoluene	0.009	0.006 U	0.006 U	0.006 U	0.05 U	0.05 U	0.062 U	0.01
DNT - Total	*0.309*	*0.02*	*0.012 U*	*0.012 U*	*0.15 U*	*0.15 U*	*0.701*	*0.079*
Monomethylamine Nitrate								
Nitrobenzene	0.062 U	0.062 U	0.062 U	0.061 U			0.62 U	0.062 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.031 U	0.031 U	0.031 U	0.031 U			0.31 U	0.19 J
2,4,6-Trinitrotoluene	0.17	0.0031 U	0.0031 U	0.0031 U			0.031 U	0.094

Area	18	18	18	18	18	18	18	18
Sample ID	18-VS-92	18-VS-93	18-VS-94	18-VS-95	18-VS-96	18-VS-97	18-VS-98	18-VS-99
Date Sampled	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93
Depth	2 to 2.5	7 to 7.5	7 to 7.5	2 to 2.5	1 to 1.5	1 to 1.5	3 to 3.5	3 to 3.5
Explosive (mg/kg dry)								
1,3-Dinitrobenzene	0.44 U	0.41 U	0.041 U	0.42 U	0.42 U	0.044 U	0.042 U	0.043 U
2,4-Dinitrotoluene	0.23	0.061 U	0.006 U	0.087	0.11	0.007 U	0.089	0.006 U
2,6-Dinitrotoluene	0.067 U	0.061 U	0.006 U	0.063 U	0.063 U	0.007 U	0.011	0.006 U
DNT - Total	*0.2635*	*0.122 U*	*0.012 U*	*0.1185*	*0.1415*	*0.014 U*	*0.1*	*0.012 U*
Monomethylamine Nitrate								
Nitrobenzene	0.66 U	0.61 U	0.061 U	0.62 U	0.63 U	0.066 U	0.062 U	0.064 U
Nitroglycerine								
1,3,5-Trinitrobenzene	0.33 U	0.31 U	0.031 U	0.31 U	0.32 U	0.033 U	0.031 U	0.032 U
2,4,6-Trinitrotoluene	0.033 U	0.45	0.0031 U	0.031 U	0.032 U	0.0033 U	0.008	0.0032 U

Area	18	18
Sample ID	18-VS-9A	18-VS-9B
Date Sampled	12/8/92	12/8/92
Depth	0 to 1	3 to 6
Explosive (mg/kg dry)		
1,3-Dinitrobenzene		
2,4-Dinitrotoluene	0.1 U	0.1 U
2,6-Dinitrotoluene	0.05 U	0.05 U
DNT - Total	*0.15 U*	*0.15 U*
Monomethylamine Nitrate		
Nitrobenzene		
Nitroglycerine		
1,3,5-Trinitrobenzene		
2,4,6-Trinitrotoluene		

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

[illegible]	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-501-S-1	1234-TP-501-S-2	1234-TP-501-S-3	1234-TP-502-S-2	1234-TP-503-S-2	1234-TP-504-S-1-DAVG	1234-TP-504-S-2	1234-TP-504-S-3
Date Sampled	5/18/92	5/18/92	5/18/92	5/18/92	5/21/92	5/19/92	5/19/92	5/19/92
Depth	0 to 1	3 to 6	8 to 10	3 to 6	3 to 6	0 to 1	3 to 6	8 to 10
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	1.8 U	0.16 U	0.032 U	0.032 U	0.033 U	1.6 U	1.6 U	0.16 U
1,3-Dinitrobenzene	2.5 U	0.22 U	0.042 U	0.042 U	0.044 U	2.2 U	2.1 U	0.21 U
2,4,6-Trinitrotoluene	0.18 U	0.016 U	0.0032 U	0.0032 U	0.0033 U	0.16 U	0.16 U	0.016 U
2,4-Dinitrotoluene	0.37 U	0.033 U	0.0064 U	0.0063 U	0.0065 U	0.33 U	0.32 U	0.032 U
2,6-Dinitrotoluene	0.37 U	0.033 U	0.0064 U	0.0063 U	0.0065 U	0.33 U	0.32 U	0.032 U
DNT - Total	0.74 U	0.066 U	0.0128 U	0.0126 U	0.013 U	0.66 U	0.64 U	0.064 U
Nitrobenzene	3.7 U	0.32 U	[illegible] U	0.063 U	0.065 U	3.3 U	3.2 U	0.31 U
Nitroglycerine	0.24 U	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.21 U

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-505-S-2	1234-TP-506-S-2	1234-TP-506-S-3	1234-TP-507-S-2	1234-TP-508-S-2	1234-TP-509-S-2	1234-TP-510-S-2-DAVG	1234-TP-510-S-3
Date Sampled	5/19/92	5/20/92	5/20/92	5/18/92	5/18/92	5/21/92	5/21/92	5/21/92
Depth	3 to 6	3 to 6	8 to 10	3 to 6	3 to 6	3 to 6	3 to 6	8 to 10
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.16 U	0.064 U	0.032 U	0.032 U	0.033 U	0.032 U	0.032 U	0.033 U
1,3-Dinitrobenzene	0.22 U	0.086 U	0.042 U	0.042 U	0.043 U	0.042 U	0.043 U	0.044 U
2,4,6-Trinitrotoluene	0.016 U	0.0064 U	0.0032 U	0.0032 U	0.0033 U	0.0032 U	0.0032 U	0.0033 U
2,4-Dinitrotoluene	0.033 U	0.013 U	0.0064 U	0.0063 U	0.0065 U	0.0063 U	0.0064 U	0.0065 U
2,6-Dinitrotoluene	0.033 U	0.013 U	0.0064 U	0.0063 U	0.0065 U	0.0063 U	0.0064 U	0.0065 U
DNT - Total	0.066 U	0.026 U	0.0128 U	0.0126 U	0.013 U	0.0126 U	0.0128 U	0.013 U
Nitrobenzene	0.32 U	0.13 U	0.063 U	0.062 U	0.065 U	0.063 U	0.063 U	0.065 U
Nitroglycerine	0.22 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-511-S-2	1234-TP-511-S-3	1234-TP-512-S-2	1234-TP-512-S-3	1234-TP-513-S-1	1234-TP-513-S-2	1234-TP-513-S-3	1234-TP-514-S-2
Date Sampled	5/21/92	5/21/92	5/19/92	5/19/92	5/19/92	5/19/92	5/19/92	5/19/92
Depth	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	3 to 6
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.031 U	0.032 U	0.66 U	0.033 U	0.032 U	0.063 U
1,3-Dinitrobenzene	0.043 U	0.043 U	0.042 U	0.042 U	0.89 U	0.043 U	0.043 U	0.085 U
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.066 U	0.0033 U	0.0032 U	0.0063 U
2,4-Dinitrotoluene	0.0064 U	0.0064 U	0.0062 U	0.0064 U	0.13 U	0.0065 U	0.0065 U	0.013 U
2,6-Dinitrotoluene	0.0064 U	0.0064 U	0.0062 U	0.0064 U	0.13 U	0.0065 U	0.0065 U	0.013 U
DNT - Total	0.0128 U	0.0128 U	0.0124 U	0.0128 U	0.26 U	0.013 U	0.013 U	0.026 U
Nitrobenzene	0.063 U	0.063 U	0.062 U	0.063 U	1.3 U	0.065 U	0.064 U	0.13 U
Nitroglycerine	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.21 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-514-S-3	1234-TP-515-S-2	1234-TP-515-S-3	1234-TP-516-S-1-DAVG	1234-TP-516-S-2	1234-TP-516-S-3	1234-TP-517-S-2	1234-TP-517-S-3
Date Sampled	5/19/92	5/19/92	5/19/92	5/20/92	5/20/92	5/20/92	5/20/92	5/20/92
Depth	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	3 to 6	8 to 10
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.033 U	0.033 U	0.032 U	0.71 U	0.032 U	0.031 U	0.031 U	0.031 U
1,3-Dinitrobenzene	0.044 U	0.044 U	0.042 U	0.95 U	0.042 U	0.042 U	0.042 U	0.041 U
2,4,6-Trinitrotoluene	0.0033 U	0.0033 U	0.0032 U	0.071 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U
2,4-Dinitrotoluene	0.0066 U	0.0066 U	0.0064 U	0.14 U	0.0063 U	0.0063 U	0.0063 U	0.0062 U
2,6-Dinitrotoluene	0.0066 U	0.0066 U	0.0064 U	0.14 U	0.0063 U	0.0063 U	0.0063 U	0.0062 U
DNT - Total	0.0132 U	0.0132 U	0.0128 U	0.28 U	0.0126 U	0.0126 U	0.0126 U	0.0124 U
Nitrobenzene	0.066 U	0.066 U	0.063 U	1.4 U	0.063 U	0.062 U	0.062 U	0.061 U
Nitroglycerine	0.22 U	0.22 U	0.21 U	0.24 U	0.21 U	0.21 U	0.21 U	0.21 U

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-518-S-2	1234-TP-518-S-3	1234-TP-519-S-2	1234-TP-519-S-3	1234-TP-520-S-2	1234-TP-520-S-3	1234-TP-521-S-2	1234-TP-521-S-3
Date Sampled	5/19/92	5/19/92	5/20/92	5/20/92	5/18/92	5/18/92	5/18/92	5/18/92
Depth	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.031 U	0.032 U	0.033 U	0.032 U	0.033 U	0.032 U	0.032 U	0.031 U
1,3-Dinitrobenzene	0.041 U	0.043 U	0.044 U	0.042 U	0.045 U	0.043 U	0.042 U	0.042 U
2,4,6-Trinitrotoluene	0.0031 U	0.0032 U	0.0033 U	0.0032 U	0.0033 U	0.0032 U	0.0032 U	0.0031 U
2,4-Dinitrotoluene	0.0062 U	0.0064 U	0.0066 U	0.0063 U	0.0067 U	0.0064 U	0.0063 U	0.0063 U
2,6-Dinitrotoluene	0.0062 U	0.0064 U	0.0066 U	0.0063 U	0.0067 U	0.0064 U	0.0063 U	0.0063 U
DNT - Total	0.0124 U	0.0128 U	0.0132 U	0.0126 U	0.0134 U	0.0128 U	0.0126 U	0.0126 U
Nitrobenzene	0.061 U	0.063 U	0.065 U	0.063 U	0.066 U	0.063 U	0.063 U	0.062 U
Nitroglycerine	0.2 U	0.21 U	0.22 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-522-S-2-DAVG	1234-TP-522-S-3	1234-TP-523-S-2	1234-TP-523-S-3	1234-TP-524-S-2	1234-TP-524-S-3	1234-TP-525-S-2	1234-TP-525-S-3
Date Sampled	5/20/92	5/20/92	5/20/92	5/20/92	5/18/92	5/18/92	5/20/92	5/20/92
Depth	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.031	0.032 U	0.032 U	0.031 U	0.16 U	0.032 U	0.031 U	0.031 U
1,3-Dinitrobenzene	0.042	0.042 U	0.042 U	0.042 U	0.21 U	0.043 U	0.042 U	0.041 U
2,4,6-Trinitrotoluene	0.0031	0.0032 U	0.0032 U	0.0031 U	0.016 U	0.0032 U	0.0031 U	0.0031 U
2,4-Dinitrotoluene	0.0063	0.0064 U	0.0064 U	0.0063 U	0.031 U	0.0064 U	0.0063 U	0.0062 U
2,6-Dinitrotoluene	0.0063	0.0064 U	0.0064 U	0.0063 U	0.031 U	0.0064 U	0.0063 U	0.0062 U
DNT - Total	0.0126	0.0128 U	0.0128 U	0.0126 U	0.062 U	0.0128 U	0.0126 U	0.0124 U
Nitrobenzene	0.062	0.063 U	0.063 U	0.062 U	0.31 U	0.063 U	0.062 U	0.062 U
Nitroglycerine	0.21	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U

Table B.7-2
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Explosives Results

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1234-TP-526-S-2-DAVG	1234-TP-526-S-3	1234-TP-527-S-2	1234-TP-527-S-3	1-TP-14,S-1	1-TP-15,S-1	1-TP-15,S-2	1-TP-2,S-1
Date Sampled	5/19/92	5/19/92	5/18/92	5/18/92	11/21/86	4/22/87	4/22/87	11/11/86
Depth	3 to 6	8 to 10	3 to 6	8 to 10	0 to 4	0 to 3	3 to 6	1 to 4
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene	0.032 U	0.033 U	0.031 U	0.032 U				
1,3-Dinitrobenzene	0.043 U	0.044 U	0.041 U	0.043 U				
2,4,6-Trinitrotoluene	0.0032 U	0.0033 U	0.0031 U	0.0032 U		0.08 U	0.08 U	
2,4-Dinitrotoluene	0.0065 U	0.0066 U	0.0062 U	0.0065 U		0.08 U	0.07 U	
2,6-Dinitrotoluene	0.0065 U	0.0066 U	0.0062 U	0.0065 U		0.08 U	0.07 U	
DNT - Total	0.013 U	0.0132 U	0.0124 U	0.013 U		0.16 U	0.14 U	
Nitrobenzene	0.064 U	0.065 U	0.061 U	0.064 U				
Nitroglycerine	0.22 U	0.22 U	0.21 U	0.21 U	0.18 U	0.19 U	0.18 U	3.7

Area	1234	1234	1234	1234	1234	1234	1234	1234
Sample ID	1-TP-4,S-1	1-TP-6,S-1	1-TP-8,S-1	3-TP-1,S-1-DAVG	3-TP-1,S-2	3-TP-2,S-1	3-TP-2,S-2	3-TP-3,S-1
Date Sampled	11/11/86	11/11/86	11/11/86	4/22/87	4/22/87	4/22/87	4/22/87	4/26/87
Depth	1 to 4	0 to 2.5	1 to 5	0 to 3	3 to 6	0 to 3	3 to 6	0 to 3
Explosives (mg/kg dry)								
1,3,5-Trinitrobenzene								
1,3-Dinitrobenzene								
2,4,6-Trinitrotoluene								
2,4-Dinitrotoluene				0.09 U	0.07 U	0.09 U	0.07 U	0.08 U
2,6-Dinitrotoluene				0.09 U	0.07 U	0.09 U	0.07 U	0.08 U
DNT - Total				0.18 U	0.14 U	0.18 U	0.14 U	0.16 U
Nitrobenzene								
Nitroglycerine	0.36 U	0.18 U	0.19 U	0.21 U	0.18 U	0.22 U	0.18 U	0.21 U

Area	1234	1234	1234	1234	1234	1234	1234
Sample ID	3-TP-3,S-2	3-TP-4,S-1-DAVG	3-TP-4,S-2	3-TP-5,S-1	3-TP-5,S-2-DAVG	3-TP-6,S-1	3-TP-6,S-2
Date Sampled	4/26/87	4/21/87	4/21/87	4/21/87	4/21/87	4/21/87	4/21/87
Depth	3 to 6	0 to 3	3 to 6	0 to 3	3 to 6	0 to 3	3 to 6
Explosives (mg/kg dry)							
1,3,5-Trinitrobenzene							
1,3-Dinitrobenzene							
2,4,6-Trinitrotoluene							
2,4-Dinitrotoluene	0.08 U	0.09 U	0.08 U	0.08 U	0.07 U	0.08 U	0.07 U
2,6-Dinitrotoluene	0.08 U	0.09 U	0.08 U	0.08 U	0.07 U	0.08 U	0.07 U
DNT - Total	0.16 U	0.18 U	0.16 U	0.16 U	0.14 U	0.16 U	0.14 U
Nitrobenzene							
Nitroglycerine	0.19 U	0.21 U	0.19 U	0.2 U	0.18 U	0.21 U	0.18 U

Table B.7-3
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil VOCs Results

Area	1234	1234
Sample ID	1234-TP-510-S-2-DAVG	1234-TP-514-S-2
Date Sampled	5/21/92	5/19/92
Depth	3 to 6	3 to 6
Volatiles (mg/kg dry)		
1,1,1-Trichloroethane	0.053 U	0.052 U
1,1,2,2-Tetrachloroethane	0.053 U	0.052 U
1,1,2-Trichloroethane	0.053 U	0.052 U
1,1-Dichloroethane	0.053 U	0.052 U
1,1-Dichloroethene	0.053 U	0.052 U
1,2-Dichloroethane	0.053 U	0.052 U
1,2-Dichloroethylene	0.053 U	0.052 U
1,2-Dichloropropane	0.053 U	0.052 U
1,3(cis)-Dichloropropene	0.053 U	0.052 U
1,3(trans)-Dichloropropene	0.053 U	0.052 U
2-Hexanone	0.53 U	0.52 U
Acetone	1.1 U	1 U
Benzene	0.053 U	0.052 U
Bromodichloromethane	0.053 U	0.052 U
Bromoform	0.26 U	0.26 U
Bromomethane	0.53 U	0.52 U
Carbon Disulfide	0.053 U	0.052 U
Carbon Tetrachloride	0.053 U	0.052 U
Chlorobenzene	0.053 U	0.052 U
Chloroform	0.053 U	0.052 U
Chloromethane	0.53 U	0.52 U
Dibromochloromethane	0.053 U	0.052 U
Dichloromethane	0.26 U	0.27 U
Ethyl Benzene	0.053 U	0.052 U
Ethyl Chloride	0.053 U	0.052 U
Methyl Ethyl Ketone	0.41 U	0.52 U
Methyl Isobutyl Ketone	0.53 U	0.52 U
Styrene	0.053 U	0.052 U
Tetrachloroethene	0.063	0.052 U
Toluene	0.053 U	0.052 U
Trichloroethylene	0.053 U	0.052 U
Vinyl Acetate	0.53 U	0.52 U
Vinyl Chloride	0.053 U	0.052 U
Xylenes	0.053 U	0.052 U

Table B.7-4
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil PAH and SVOC Results

Area	18	18	18	18	18
Sample ID	**18-SS-577**	**18-SS-583-DAVG**	**18-SS-591**	**18-SS-592**	**18-TP-553-S-2**
Date Sampled	**5/7/92**	**5/7/92**	**5/7/92**	**5/6/92**	**4/29/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**3 to 6**
PAHs (mg/kg dry)					
Benzo(a)Anthracene	0.026	0.018 U	0.048	0.029	0.088
Benzo(a)Pyrene	0.026	0.018 U	0.042	0.048	0.11
Benzo(b)Fluoranthene	0.02 U	0.018 U	0.027	0.023	0.08
Benzo(k)Fluoranthene	0.02 U	0.018 U	0.019 U	0.021 U	0.051
Chrysene	0.098	0.021	0.09	0.021 U	0.15
Dibenzo(a,h)Anthracene	0.041 U	0.036 U	0.039 U	0.043 U	0.12
Indeno(1,2,3-c,d)Pyrene	0.02 U	0.018 U	0.033	0.021 U	0.02 U
Total Carcinogenic PAHs (BAP TEQs)	0.0513	0.029811	0.0725	0.0759	0.2485
Acenaphthene	0.2 U	0.18 U	0.19 U	0.21 U	0.2 U
Acenaphthylene	0.2 U	0.18 U	0.19 U	0.21 U	0.2 U
Anthracene	0.01 U	0.0089 U	0.01 U	0.01 U	0.029
Benzo(g,h,i)Perylene	0.02 U	0.018 U	0.061	0.021 U	0.02 U
Fluoranthene	0.02 U	0.018 U	0.086	0.021 U	0.36
Fluorene	0.02 U	0.018 U	0.019 U	0.021 U	0.02 U
Naphthalene	0.1 U	0.089 U	0.1 U	0.1 U	0.1 U
Phenanthrene	0.034	0.0089 U	0.038	0.019	0.14 J
Pyrene	0.066	0.018 U	0.063	0.031	0.25 J
Total Non-carcinogenic PAHs	0.385	0.5388 U	0.5025	0.3465	1.049

Table B.7-4
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil PAH and SVOC Results

Area	1234
Sample ID	1234-TP-506-S-2
Date Sampled	5/20/92
Depth	3 to 6
PAHs (mg/kg dry)	
Acenaphthene	0.18 U
Acenaphthylene	0.18 U
Anthracene	0.18 U
Benzo(a)Anthracene	0.18 U
Benzo(a)Pyrene	0.18 U
Benzo(b)Fluoranthene	0.056 J
Benzo(g,h,i)Perylene	0.18 U
Benzo(k)Fluoranthene	0.18 U
Chrysene	0.04 J
Dibenz(a,h)anthracene	0.18 U
Fluoranthene	0.044 J
Fluorene	0.18 U
Indeno(1,2,3-cd)pyrene	0.18 U
2-Methylnaphthalene	0.18 U
Naphthalene	0.18 U
Phenanthrene	0.18 U
Pyrene	0.045 J
PAH (Non-Carc) - Total	0.809
Total Carcinogenic PAHS (BaP TEQs)	0.20454
Semivolatiles (mg/kg dry)	
1,2,4-Trichlorobenzene	0.18 U
1,2-Dichlorobenzene	0.18 U
1,3-Dichlorobenzene	0.18 U
1,4-Dichlorobenzene	0.18 U
2,4,5-Trichlorophenol	0.92 U
2,4,6-Trichlorophenol	0.18 U
2,4-Dichlorophenol	0.18 U
2,4-Dimethylphenol	0.18 U
2,4-Dinitrophenol	0.92 U
2-Chloronaphthalene	0.18 U
2-Chlorophenol	0.18 U
2-Methylphenol	0.18 U
2-Nitroaniline	0.92 U
2-Nitrophenol	0.18 U
3,3'-Dichlorobenzidine	0.37 U
3-Nitroaniline	0.92 U
4,6-Dinitro-o-Cresol	0.92 U
4-Bromodiphenyl ether	0.18 U
4-Chloroaniline	0.18 U
4-Chlorophenyl-phenyl ether	0.18 U
4-Methylphenol	0.18 U
4-Nitroaniline	0.92 U
4-Nitrophenol	0.92 U
Aniline	0.18 U
Benzidine	1.8 U
Benzoic Acid	0.92 U

Table B.7-4
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil PAH and SVOC Results

Area	1234
Sample ID	1234-TP-506-S-2
Date Sampled	5/20/92
Depth	3 to 6
Benzyl Alcohol	0.18 U
Bis(2-Chloroethoxy)methane	0.18 U
Bis(2-Chloroisopropyl)ether	0.18 U
Bis(2-ethylhexyl)Phthalate (DEHP)	0.18 U
Bis(Chloroethyl)ether	0.18 U
Dibenzofuran	0.18 U
Dibutyl Phthalate	0.18 U
Diethyl Phthalate	0.18 U
Dimethyl Phthalate	0.18 U
Di-N-Octylphthalate	0.18 U
Hexachlorobenzene	0.18 U
Hexachlorobutadiene	0.18 U
Hexachlorocyclopentadiene	0.18 U
Hexachloroethane	0.18 U
Isophorone	0.18 U
N-Butyl Benzyl Phthalate	0.18 U
N-Nitrosodimethylamine	0.18 U
N-Nitrosodi-N-propylamine	0.18 U
N-Nitrosodiphenylamine	0.18 U
Pentachlorophenol	0.18 U
Phenol	0.18 U

Table B.7-5
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil TPH Results

Area	18	18	18	18
Sample ID	18-SS-577	18-SS-583-DAVG	18-SS-591	18-SS-592
Date Sampled	5/7/92	5/7/92	5/7/92	5/6/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg dry)				
TPH Scan	52	47	29 U	84

Table B.7-6
Area 18/1/2/3/4 - Nitroglycerin Production and Powderline Soil Nitrate Results

Area	18	18	18N	18N	18N	18N	18N	18
Sample ID	**18-TP-520-S-2-DAVG**	**18-TP-520-S-3**	**18-TP-535-S-1-DAVG**	**18-TP-535-S-3**	**18-TP-536-S-2**	**18-TP-536-S-3**	**18-TP-537-S-3**	**18-TP-538-S-2**
Date Sampled	**4/27/92**	**4/27/92**	**4/27/92**	**4/27/92**	**4/27/92**	**4/27/92**	**4/27/92**	**4/24/92**
Depth	**3 to 6**	**8 to 10**	**0 to 1**	**8 to 10**	**3 to 6**	**8 to 10**	**8 to 10**	**3 to 6**
Conventionals (mg/kg dry)								
Nitrate as Nitrogen	0.6 J	1.1 J	0.7 J	0.7 J	0.5 U	0.9 J	0.5 U	1.1

Area	18	18	18	18	18	18	18
Sample ID	**18-TP-538-S-3**	**18-TP-539-S-2**	**18-TP-539-S-3**	**18-TP-540-S-2-DAVG**	**18-TP-540-S-3**	**18-TP-541-S-2**	**18-TP-541-S-3**
Date Sampled	**4/24/92**	**4/24/92**	**4/24/92**	**4/24/92**	**4/24/92**	**4/24/92**	**4/24/92**
Depth	**8 to 10**	**3 to 6**	**8 to 10**	**3 to 6**	**8 to 10**	**3 to 6**	**8 to 10**
Conventionals (mg/kg dry)							
Nitrate as Nitrogen	0.8	0.5 U	0.5 U	0.7	0.6	0.5 U	0.7

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	25-TP-7,S-1	25-TP-7,S-2	25-TP-8,S-1	25-TP-8,S-2	25-TP-9,S-1
Date Sampled	4/15/87	4/15/87	4/15/87	4/15/87	4/15/87
Depth	0 to 3.5	3.5 to 7	0 to 3.5	3.5 to 7	0 to 3.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic					
Cadmium					
Chromium					
Copper					
Lead	76	8 J	4000	160	120
Mercury					
Nickel					
Zinc					

Area	25	25	25	25	25
Sample ID	25-TP-9,S-2	25-TP-10,S-1	25-TP-10,S-2	25-TP-11,S-1	25-TP-11,S-2
Date Sampled	4/15/87	4/15/87	4/15/87	4/15/87	4/15/87
Depth	3.5 to 7	0 to 3.5	3.5 to 7	0 to 3.5	3.5 to 7
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic					
Cadmium					
Chromium					
Copper					
Lead	71	2100	110	110	13
Mercury					
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	25-TP-501-S-2-DAVG	25-TP-502-S-1	25-TP-502-S-2	25-TP-503-S-3	25-TP-503-S-4
Date Sampled	4/22/92	4/22/92	4/22/92	4/22/92	4/22/92
Depth	3 to 6	0 to 1	3 to 6	2 to 4	5 to 7
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	2.6	5.4	2.4	67	110
Cadmium	0.033	0.1	0.029	0.089	0.025
Chromium	13	15	10	10	2.9
Copper	14	12	12	43	0.27 U
Lead	29	15	5.4 U	23	62
Mercury	0.12	0.14	0.094 U	2.6	0.8 J
Nickel	17	19	14	10	2.2
Zinc	27	37	22	23 J	6.4

Area	25	25	25	25	25
Sample ID	25-TP-505-S-2	25-TP-506-S-1	25-TP-506-S-2	25-TP-509-S-1	25-TP-509-S-2
Date Sampled	4/22/92	4/22/92	4/22/92	4/22/92	4/22/92
Depth	1 to 4	0 to 1	3 to 6	0 to 1	3 to 6
TCLP Metals (mg/L)					
Lead		1.83			
Total Metals (mg/kg dry)					
Arsenic	1.5	16	2.6	15	2.2
Cadmium	0.039	0.39	1.5	0.013	0.034
Chromium	8	16	11	1.4	4.8
Copper	9.3	96	23	5	8.4
Lead	5.5 U	3100	5.6 U	180	12
Mercury	0.087 UJ	0.84 J	0.081 UJ	0.11 UJ	0.084 UJ
Nickel	17	7.7	15	0.73	3.1
Zinc	13	65	34	4.6	9.6

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	25-TP-510-S-1	25-TP-510-S-2	25-TP-511-S-1	25-TP-511-S-2	25-TP-511-S-3
Date Sampled	4/22/92	4/22/92	4/22/92	4/22/92	4/22/92
Depth	0 to 1	3 to 6	0 to 1	3 to 6	8 to 10
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	9.9	1.9	3	3.6	7.1
Cadmium	0.37	0.11	1.2	0.022	0.025
Chromium	11	7.3	5.7	11	12
Copper	12	10	6.6	6.8	8.3
Lead	6.4 U	5.3 U	470	240	31
Mercury	0.1 UJ	0.078 UJ	0.65 J	0.083 UJ	0.083 UJ
Nickel	15	11	3.2	9.2	11
Zinc	32	14	6.3	14	13

Area	25	25	25	25	25
Sample ID	25-TP-514-S-3	25-TP-514-S-4	25-TP-515-S-1	25-TP-515-S-2	25-TP-516-S-1
Date Sampled	11/4/92	11/4/92	11/3/92	11/3/92	11/4/92
Depth	5 to 7	9 to 11	0 to 1	3 to 6	0 to 1
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	0.94	2.5 J	24	3.5	3.1
Cadmium		0.011			
Chromium					
Copper					
Lead	75	150	330	22	7.1 J
Mercury	0.1 UJ	0.11 U	3.1	0.33	0.1 UJ
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	25-TP-516-S-3	25-TP-517-S-1	25-TP-517-S-2	25-TP-518-S-2	25-B-501-S-4-DAVG
Date Sampled	11/4/92	11/4/92	11/4/92	11/4/92	11/5/92
Depth	4 to 6	0 to 1	3 to 6	0 to 3	7.5 to 9
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	34	13	2.8 J	2.4 J	4.5
Cadmium					
Chromium					
Copper					
Lead	380	95	5.8 UJ	26 J	7.3
Mercury	0.14 J	0.19 J	0.1 UJ	0.096 UJ	0.095 U
Nickel					
Zinc					

Area	25	25	25	25	25
Sample ID	25-B-501-S-7	25-SS-503	25-SS-510	25-SS-511	25-SS-514
Date Sampled	11/5/92	10/21/93	10/21/93	10/21/93	10/21/93
Depth	15 to 16.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	3.7 J	18	8.5	21	43
Cadmium					
Chromium					
Copper					
Lead	5.3 U	140	250	120	190
Mercury	0.11 U			0.32	
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area Sample ID Date Sampled Depth	25 25-SS-516 10/21/93 0 to 0.5	25 25-SS-518 10/21/93 0 to 0.5	25 25-SS-519 10/21/93 0 to 0.5	25 25-SS-520 10/21/93 0 to 0.5	25 25-SS-521 10/21/93 0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	9.5	9.5	5.7	3	6.3
Cadmium					
Chromium					
Copper					
Lead	41	89	8.4	5.7 U	16
Mercury				0.11 U	
Nickel					
Zinc					

Area Sample ID Date Sampled Depth	25 25-SS-522 10/21/93 0 to 0.5	25 25-SS-523 10/21/93 0 to 0.5	25 25-SS-524 10/21/93 0 to 0.5	25 25-SS-525 10/21/93 0 to 0.5	25 25-SS-526 10/21/93 0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	9	23 J	5.6 J	3.7 J	12 J
Cadmium					
Chromium					
Copper					
Lead	29	74	5.4 U	58	1800
Mercury	0.1 U		0.1 U		
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	25-SS-527	25-SS-528-DAVG	25-SS-529	25-SS-530-DAVG	25-VS-1
Date Sampled	10/21/93	10/21/93	10/21/93	10/21/93	6/16/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	3 to 6
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	370 J	28 J	11 J	22	
Cadmium					
Chromium					
Copper					
Lead	41	25	51	210	5.4 U
Mercury		0.19		0.44	
Nickel					
Zinc					

Area	25	25	25	25	25
Sample ID	25-VS-8	25-VS-12	26-VS-1	36-VS-5	36-VS-9
Date Sampled	6/16/93	6/16/93	9/15/99	9/20/99	9/20/99
Depth	3 to 6	15 to 15.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic			7.1	5.9	2.1 U
Cadmium					
Chromium					
Copper					
Lead	5.4 U	5.3 U	2500 J	280	23
Mercury					
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25
Sample ID	36-VS-13	36-VS-15	36-VS-16	36-VS-17	36-VS-18
Date Sampled	9/20/99	9/20/99	9/20/99	9/20/99	9/20/99
Depth	0 to 0.5	1 to 2.5	0 to 0.5	0 to 0.5	1 to 2.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	120	47	91	240	330
Cadmium					
Chromium					
Copper					
Lead	93	3800	460	210	14
Mercury					
Nickel					
Zinc					

Area	25	25	25	25	25
Sample ID	36-VS-19	36-VS-20	36-VS-22	APH-SS-506	APH-SS-510
Date Sampled	10/1/99	10/1/99	10/1/99	11/12/92	11/12/92
Depth	0 to 0.5	3 to 4.5	3 to 4.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic	28	6.2	22		
Cadmium					
Chromium					
Copper					
Lead	170	11	700	150	210
Mercury					
Nickel					
Zinc					

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area Sample ID Date Sampled Depth	25 APH-SS-512 11/12/92 0 to 0.5	25 APH-SS-514 11/12/92 0 to 0.5	25 APH-SS-515 11/12/92 0 to 0.5	25 APH-SS-516 11/12/92 0 to 0.5	25 APH-SS-518 11/12/92 0 to 0.5
TCLP Metals (mg/L)					
Lead					
Total Metals (mg/kg dry)					
Arsenic					
Cadmium					
Chromium					
Copper					
Lead	1100	710	24	6.2 U	480
Mercury					
Nickel					
Zinc					

Area Sample ID Date Sampled Depth	25 APH-SS-519 11/12/92 0 to 0.5
TCLP Metals (mg/L)	
Lead	
Total Metals (mg/kg dry)	
Arsenic	
Cadmium	
Chromium	
Copper	
Lead	120
Mercury	
Nickel	
Zinc	

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-F01-SS_F-29_C2-005	01-F01-SS_F-30_C2-005	01-F01-SS_F-31_C2-005	01-F01-SS_F-32_C2-005
Date Sampled	6/12/01	6/12/01	6/12/01	6/12/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	5.6	4.1	12	13
Lead	8.5	28	37	70

Area	25	25	25	25
Sample ID	01-F01-SS_F-33_C2-005	01-F01-SS_F-34_C2-005	01-F01-SS_F-35_C2-005	01-F01-SS_F-36_C2-005
Date Sampled	6/12/01	6/12/01	6/12/01	6/12/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	3.5	4.2	7	5.4
Lead	3.6	15	18	41

Area	25	25	25	25
Sample ID	01-F01-SS_F-37_C2-005	01-F01-SS_F-38_C2-005	01-F01-SS_F-39_C2-005	01-F01-SS_F-40_C2-005
Date Sampled	6/12/01	6/12/01	6/12/01	6/12/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	13	13	12	5.5
Lead	43	93	19	40

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-F01-SS_F-43_C2-005	01-F01-SS_F-44_C2-005	01-F01-SS_F-45_C2-005	01-F01-SS_F-46_C2-005
Date Sampled	6/12/01	6/12/01	6/12/01	6/14/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	7.7	7.9	9.1	7.8
Lead	53	41	67	37

Area	25	25	25	25
Sample ID	01-F01-SS_F-48_C2-005-DAVG	01-F01-SS_F-63_C2-005	01-F01-SS_F-66_C2-005	01-F01-SS_F-68_C2-005
Date Sampled	6/14/01	6/14/01	6/18/01	6/18/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	4.75	4.7	6.3	4.1
Lead	18	88	59	10

Area	25	25	25	25
Sample ID	01-F01-SS_F-69_C2-005	01-F01-SS_F-70_C2-005	01-F02-SS_F-73_C2-005	01-F02-SS_F-74_C2-005
Date Sampled	6/18/01	6/18/01	6/18/01	6/18/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	4.5	2.9	3.7	7.6
Lead	4.8	49	10	10

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-F02-SS_F-75_C2-005	01-F02-SS_F-82_C2-005	01-F02-SS_F-86_C2-005	01-F02-SS_F-87_C2-005
Date Sampled	6/18/01	6/18/01	6/19/01	6/19/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	3.7	3.5	8.5	5
Lead	5.9	3	100	6.8

Area	25	25	25	25
Sample ID	01-F03-SS_F-100_C2-005	01-F03-SS_F-102_C2-005-DAVG	01-F03-SS_F-104_C2-005	01-F03-SS_F-105_C2-005
Date Sampled	6/19/01	6/20/01	6/20/01	6/20/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	7.8	6.85	5.8	8.5
Lead	23	41.5	30	95

Area	25	25	25	25
Sample ID	01-F03-SS_F-106_C2-005	01-F03-SS_F-107_C2-005	01-F03-SS_F-108_C2-005	01-F03-SS_F-109_C2-005
Date Sampled	6/20/01	6/20/01	6/20/01	6/20/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	2.9	14	9.7	7.3
Lead	38	9.9	18	22

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-F03-SS_F-110_C2-005	01-F03-SS_F-111_C2-005	01-F03-SS_F-112_C2-005	01-F03-SS_F-113_C2-005
Date Sampled	6/20/01	6/20/01	6/20/01	6/20/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	7.1	11	8.2	12
Lead	75	4.8	82	26

Area	25	25	25	25
Sample ID	01-F03-SS_F-94_C2-005	01-F03-SS_F-95_C2-005	01-F03-SS_F-96_C2-005	01-F03-SS_F-97_C2-005
Date Sampled	6/19/01	6/19/01	6/19/01	6/19/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	3.9	10	2.8	5.5
Lead	7.7	89	5	83

Area	25	25	25	25
Sample ID	01-F03-SS_F-98_C2-005	01-F03-SS_F-99_C2-005	01-F04-SS_F-115_C2-005	01-F04-SS_F-116_C2-005-DAVG
Date Sampled	6/19/01	6/19/01	6/20/01	6/20/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	5.2	4.9	7.1	7.85
Lead	3.5	3.2	5.2	16

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-F04-SS_F-120_C2-005	01-F04-SS_F-122_C2-005	01-F04-SS_F-123_C2-005	01-F04-SS_F-125_C2-005
Date Sampled	6/20/01	6/21/01	6/21/01	6/21/01
Depth (ft bgs)	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg Dry)				
Arsenic	11	7.8	39	6.4
Lead	2.6	3.1	22	43

Area	25	25	25	25
Sample ID	01-N01-SS_NGRR-198_C2-005	01-N01-SS_NGRR-199_C2-005	01-N01-SS_NGRR-200_C2-005	01-N01-SS_NGRR-201_C2-005
Date Sampled	8/7/01	8/7/01	8/7/01	8/7/01
Depth (ft bgs)	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg Dry)				
Arsenic	13	4.6	5.2	5.3
Lead	30	7.3	55	14

Area	25	25	25	25
Sample ID	01-N01-SS_NGRR-202_C2-005	01-N01-SS_NGRR-204_C2-005	01-N01-SS_NGRR-205_C2-005	01-N01-SS_NGRR-206_C2-005
Date Sampled	8/7/01	8/7/01	8/7/01	8/7/01
Depth (ft bgs)	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg Dry)				
Arsenic	6.3	11	5.6	4.6
Lead	24	55	36	9.2

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	01-N01-SS_NGRR-207_C2-005	01-N01-SS_NGRR-90_C2-005	01-N01-SS_NGRR-91_C2-005	01-N01-SS_NGRR-92_C2-005
Date Sampled	8/7/01	7/19/01	7/19/01	7/19/01
Depth (ft bgs)	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg Dry)				
Arsenic	6	7.2	3.1	11
Lead	51	45	3.8	22

Area	25	25	25	25
Sample ID	01-N01-SS_NGRR-93_C2-005	01-N01-SS_NGRR-94_C2-005	02-F01-SS_F-42-2_C2-030	02-F01-SS_F-67-2_C2-030
Date Sampled	7/19/01	7/19/01	8/28/01	8/28/01
Depth (ft bgs)	1.5 to 2	1.5 to 2	3 to 3.5	3 to 3.5
Total Metals (mg/kg Dry)				
Arsenic	11	14	7.4	3.4
Lead	7.5	6.5	22	22

Area	25	25	25	25
Sample ID	02-F02-SS_F-78-2_C2-030	02-F02-SS_F-84-2_C3-030-DAVG	02-F02-SS_F-85-2_C2-030	02-F02-SS_F-91-2_C2-030
Date Sampled	8/28/01	8/28/01	8/28/01	8/28/01
Depth (ft bgs)	3 to 3.5	3 to 3.5	3 to 3.5	3 to 3.5
Total Metals (mg/kg Dry)				
Arsenic	4.5	4.2	6.9	6.2
Lead	100	82.5	80	62

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	02-F02-SS_F-92-2_C2-030	02-F03-SS_F-101-2_C2-030	02-F04-SS_F-118-2_C2-030	02-F04-SS_F-119-2_C2-030
Date Sampled	8/28/01	8/28/01	8/28/01	8/28/01
Depth (ft bgs)	3 to 3.5	3 to 3.5	3 to 3.5	3 to 3.5
Total Metals (mg/kg Dry)				
Arsenic	3.9	3.7	14	31
Lead	49	7.5	3.9	25

Area	25	25	25	25
Sample ID	02-F04-SS_F-121-2_C2-030	02-F04-SS_F-124-2_C2-030	02-N01-SS_NGRR-196-2_C2-025	02-N01-SS_NGRR-197-2_C2-025
Date Sampled	8/28/01	8/28/01	8/28/01	8/28/01
Depth (ft bgs)	3 to 3.5	3 to 3.5	2.5 to 3	2.5 to 3
Total Metals (mg/kg Dry)				
Arsenic	34	12	16	5.1
Lead	21	45	81	10

Area	25	25	25	25
Sample ID	02-N01-SS_NGRR-203-2_C2-025	02-N01-SS_NGRR-276-2_C2-025	02-N01-SS_NGRR-279-2_C2-025-DA\	02-N01-SS_NGRR-281-2_C2-025
Date Sampled	8/28/01	8/28/01	8/30/01	8/30/01
Depth (ft bgs)	2.5 to 3	2.5 to 3	2.5 to 3	2.5 to 3
Total Metals (mg/kg Dry)				
Arsenic	16	7.2	12.5	35
Lead	37	97	26.5	40 J

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25
Sample ID	03-F01-SS-_F-47-3_-C2-050	03-F02-SS-_F-76-3_-C2-050-DAVG	03-F02-SS-_F-88-3_-C2-050	04-F01-SS-_F-64-4_-C2-060
Date Sampled	9/13/01	9/13/01	9/13/01	9/19/01
Depth (ft bgs)	4 to 4.5	4 to 4.5	4 to 4.5	5 to 5.5
Total Metals (mg/kg Dry)				
Arsenic	7.7	6.15	5.6	4.9
Lead	6.1	24.5	62	66

Area	25	25	25	25
Sample ID	04-F02-SS-_F-72-4_-C2-060	04-F02-SS-_F-77-4_-C2-060	04-F02-SS-_F-79-4_-C2-060	04-F02-SS-_F-80-4_-C2-060
Date Sampled	9/19/01	9/19/01	9/19/01	9/19/01
Depth (ft bgs)	5 to 5.5	5 to 5.5	5 to 5.5	5 to 5.5
Total Metals (mg/kg Dry)				
Arsenic	3.3	2.7	9.6	12
Lead	23	40	290	520

Area	25	25	25	25
Sample ID	04-F02-SS-_F-81-4_-C2-060	04-F02-SS-_F-89-4_-C2-060-DAVG	04-F02-SS-_F-90-4_-C2-060-DAVG	RR-510-DAVG
Date Sampled	9/19/01	9/19/01	9/19/01	4/1/93
Depth (ft bgs)	5 to 5.5	5 to 5.5	5 to 5.5	0 to 0.5
Total Metals (mg/kg Dry)				
Arsenic	8	7.05	6.9	15
Lead	65	86.5	355	

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25	25
Sample ID	RR-525	RR-526	SA1-28-50	SA1-28-51	SA1-29-49	SA1-29-50
Date Sampled			10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	0 to 0.5	0 to 0.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)						
Arsenic	22 J	14 J	6.9	18	17	17
Lead			220	120	180	520

Area	25	25	25	25	25	25
Sample ID	SA1-29-51	SA1-30-49	SA1-30-50	SA1-30-51	SA1-31-48	SA1-31-49
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)						
Arsenic	13	2.1 U	5.5	37	1.9 U	2.1 U
Lead	640	26	230	61	1.4	17

Area	25	25	25	25	25	25
Sample ID	SA1-31-50	SA1-31-51	SA1-32-48	SA1-32-49	SA1-32-50	SA1-32-51
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)						
Arsenic	8	8.6	9.7	3.4	3	3.2
Lead	320	310	76	41	180	100

Table B.8-1
Area 25 - Acid Production Area Soil Metals Results

Area	25	25	25	25	25	25
Sample ID	SA1-33-48	SA1-33-49	SA1-33-50	SA1-33-51	SA1-33-52	SA1-34-47
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)						
Arsenic	3.5	2.1 U	17	4.1	6.7	1.9 U
Lead	36	4.8	230	680	120	3.9

Area	25	25	25	25	25	25
Sample ID	SA1-34-48	SA1-34-49	SA1-34-50	SA1-34-51	SA1-34-52	SA1-35-47
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)						
Arsenic	4	4.6	3.9	2.4 U	12	4.4
Lead	47	100	1000	58	51	26

Area	25	25	25	25	25
Sample ID	SA1-35-48	SA1-35-49	SA1-36-47	SA1-36-48	SA1-36-49
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth (ft bgs)	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5	3 to 6.5
Total Metals (mg/kg Dry)					
Arsenic	8.2	16	8.2	22	20
Lead	170	310	150	150	330

Table B.8-2
Area 25 - Acid Production Area Soil Explosives Results

Area	25	25	25	25	25
Sample ID	25-TP-501-S-2-DAVG	25-TP-501-S-3	25-TP-502-S-2	25-TP-502-S-3	25-TP-524-S-1
Date Sampled	4/22/92	4/22/92	4/22/92	4/22/92	11/2/92
Depth	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1
Explosive (mg/kg dry)					
1,3,5-Trinitrobenzene					0.064 U
1,3-Dinitrobenzene					0.085 U
2,4,6-Trinitrotoluene					0.0064 U
2,4-Dinitrotoluene					0.013 U
2,6-Dinitrotoluene					0.013 U
DNT - Total					0.026 U
Nitrobenzene					0.13 U
Nitroglycerine	0.22 U	0.21 U	0.22 U	0.21 U	

Area	25	25	25	25	25
Sample ID	25-TP-524-S-2	25-TP-524-S-3	25-VS-1-DAVG	25-VS-2	25-VS-4
Date Sampled	11/2/92	11/2/92	6/16/93	6/16/93	6/16/93
Depth	3 to 6	8 to 10	3 to 6	3 to 6	3 to 6
Explosive (mg/kg dry)					
1,3,5-Trinitrobenzene	0.032 U	0.031 U	0.033 U	0.032 U	0.032 U
1,3-Dinitrobenzene	0.043 U	0.042 U	0.044 U	0.043 U	0.042 U
2,4,6-Trinitrotoluene	0.0032 U	0.0031 U	0.0033 U	0.0032 U	0.0032 U
2,4-Dinitrotoluene	0.0064 U	0.0063 U	0.007 U	0.006 U	0.006 U
2,6-Dinitrotoluene	0.0064 U	0.0063 U	0.007 U	0.006 U	0.006 U
DNT - Total	0.0128 U	0.0126	0.014	0.012 U	0.012 U
Nitrobenzene	0.063 U	0.062 U	0.066 U	0.064 U	0.063 U
Nitroglycerine					

Table B.8-2
Area 25 - Acid Production Area Soil Explosives Results

Area	25	25	25	25	25
Sample ID	25-VS-5	25-VS-6	25-VS-7	25-VS-8	25-VS-9
Date Sampled	6/16/93	6/16/93	6/16/93	6/16/93	6/16/93
Depth	9 to 12	3 to 6	3 to 3.5	3 to 6	9 to 12
Explosive (mg/kg dry)					
1,3,5-Trinitrobenzene	0.032 U	0.031 U	0.032 U	0.033 U	0.032 U
1,3-Dinitrobenzene	0.043 U	0.042 U	0.043 U	0.044 U	0.043 U
2,4,6-Trinitrotoluene	0.0032 U	0.0031 U	0.0032 U	0.0033 U	0.0032 U
2,4-Dinitrotoluene	0.006 U	0.006 U	0.006 J	0.002 J	0.006 U
2,6-Dinitrotoluene	0.006 U	0.006 U	0.017	0.003 J	0.003 J
DNT - Total	0.012 U	0.012 U	0.023	0.005	0.006
Nitrobenzene	0.064 U	0.063 U	0.064 U	0.065 U	0.064 U
Nitroglycerine					

Area	25	25	25	25	25
Sample ID	25-VS-10	25-VS-12-DAVG	25-VS-13	25-VS-14	25-VS-29
Date Sampled	6/16/93	6/16/93	6/16/93	6/16/93	4/13/94
Depth	2 to 2.5	15 to 15.5	15 to 15.5	15 to 15.5	27 to 29
Explosive (mg/kg dry)					
1,3,5-Trinitrobenzene	0.62 U	0.64 U	32 U	0.032 U	0.072
1,3-Dinitrobenzene	0.83 U	0.85 U	43 U	0.043 U	0.042 U
2,4,6-Trinitrotoluene	0.062 U	0.064 U	7.4	0.025	0.0032
2,4-Dinitrotoluene	0.12 U	0.59	6.4 U	0.95	0.21
2,6-Dinitrotoluene	0.12 U	0.52	1.9	0.2	0.089
DNT - Total	0.24 U	1.11	5.1	1.15	0.299
Nitrobenzene	1.2 U	1.3 U	64 U	0.064 U	0.062 U
Nitroglycerine					

Table B.8-2
Area 25 - Acid Production Area Soil Explosives Results

Area	25	25	25	25
Sample ID	**25-VS-30**	**25-VS-25**	**25-VS-26**	**25-VS-27**
Date Sampled	**4/28/94**	**4/5/94**	**4/5/94**	**4/13/94**
Depth	**37 to 37.5**	**24 to 26**	**24 to 26**	**27 to 29**
Explosive (mg/kg dry)				
1,3,5-Trinitrobenzene	0.033 U	0.62	0.05	0.032 U
1,3-Dinitrobenzene	0.044 U	0.24 U	0.042 U	0.042 U
2,4,6-Trinitrotoluene	0.088	0.3	0.025	0.012
2,4-Dinitrotoluene	0.059	0.23	0.028	0.01
2,6-Dinitrotoluene	0.08	0.55	0.043	0.022
DNT - Total	0.139	0.78	0.71	0.32
Nitrobenzene	0.066 U	0.36 U	0.063 U	0.063 U
Nitroglycerine				

Table B.8-3
Area 25 - Acid Production Area Soil VOC, SVOC, and PAH Results

Area	25
Sample ID	25-TP-504-S-2
Date Sampled	4/22/92
Depth	0 to 3
PAHs (mg/kg dry)	
Benzo(a)Anthracene	0.17 U
Benzo(a)Pyrene	0.17 U
Benzo(b)Fluoranthene	0.17 U
Benzo(k)Fluoranthene	0.17 U
Chrysene	0.17 U
Dibenzo(a,h)Anthracene	0.17 U
Indeno(1,2,3-c,d)Pyrene	0.17 U
2-Methylnaphthalene	0.17 U
Acenaphthene	0.17 U
Acenaphthylene	0.17 U
Anthracene	0.17 U
Benzo(g,h,i)Perylene	0.17 U
Fluoranthene	0.17 U
Fluorene	0.17 U
Naphthalene	0.17 U
Phenanthrene	0.17 U
Pyrene	0.17 U
Semivolatiles (mg/kg dry)	
1,2,4-Trichlorobenzene	0.17 U
1,2-Dichlorobenzene	0.17 U
1,3-Dichlorobenzene	0.17 U
1,4-Dichlorobenzene	0.17 U
2,4,5-Trichlorophenol	0.89 U
2,4,6-Trichlorophenol	0.17 U
2,4-Dichlorophenol	0.17 U
2,4-Dimethylphenol	0.17 U
2,4-Dinitrophenol	0.89 U
2-Chloronaphthalene	0.17 U
2-Chlorophenol	0.17 U
2-Methylphenol	0.17 U
2-Nitroaniline	0.89 U
2-Nitrophenol	0.17 U
3,3'-Dichlorobenzidine	0.36 U
3-Nitroaniline	0.89 U
4,6-Dinitro-2-Methylphenol	0.89 U
4-Bromophenyl Phenyl Ether	0.17 U
4-Chloroaniline	0.17 U
4-Chlorophenyl-Phenylether	0.17 U
4-Methylphenol	0.17 U
4-Nitroaniline	0.89 U
4-Nitrophenol	0.89 U
Aniline	0.17 U
Benzidine	1.7 U
Benzoic Acid	0.89 U
Benzyl Alcohol	0.17 U
Bis(2-Chloroethoxy) Methane	0.17 U
Bis(2-Chloroethyl) Ether	0.17 U
Bis(2-Chloroisopropyl) Ether	0.17 U
Bis(2-Ethylhexyl)Phthalate	0.17 U

Table B.8-3

Area 25 - Acid Production Area Soil VOC, SVOC, and PAH Results

Area	25
Sample ID	25-TP-504-S-2
Date Sampled	4/22/92
Depth	0 to 3
Butylbenzylphthalate	0.17 U
Di-N-Butylphthalate	0.17 U
Di-N-Octylphthalate	0.17 U
Dibenzofuran	0.17 U
Diethylphthalate	0.17 U
Dimethylphthalate	0.17 U
Hexachlorobenzene	0.17 U
Hexachlorobutadiene	0.17 U
Hexachlorocyclopentadiene	0.17 U
Hexachloroethane	0.17 U
Isophorone	0.17 U
N-Nitroso-Di-Phenylamine	0.17 U
N-Nitroso-Di-Propylamine	0.17 U
N-Nitroso-Dimethylamine	0.17 U
Pentachlorophenol	0.17 U
Phenol	0.17 U
Volatiles (mg/kg dry)	
1,1,1-Trichloroethane	0.052 U
1,1,2,2-Tetrachloroethane	0.052 U
1,1,2-Trichloroethane	0.052 U
1,1-Dichloroethane	0.052 U
1,1-Dichloroethene	0.052 U
1,2-Dichloroethane	0.052 U
1,2-Dichloroethene(Total)	0.052 U
1,2-Dichloropropane	0.052 U
1,3(cis)-Dichloropropene	0.052 U
1,3(trans)-Dichloropropene	0.052 U
2-Butanone	0.52 U
2-Hexanone	0.52 U
4-Methyl-2-Pentanone	0.52 U
Acetone	1.6 U
Benzene	0.052 U
Bromodichloromethane	0.052 U
Bromoform	0.26 U
Bromomethane	0.52 U
Carbon Disulfide	0.052 U
Carbon Tetrachloride	0.052 U
Chlorobenzene	0.052 U
Chloroethane	0.052 U
Chloroform	0.052 U
Chloromethane	0.52 U
Dibromochloromethane	0.052 U
Ethylbenzene	0.052 U
Methylene Chloride	0.34 U
Styrene	0.052 U
Tetrachloroethene	0.052 U
Toluene	0.052 U
Trichloroethene	0.052 U
Vinyl Acetate	0.52 U
Vinyl Chloride	0.052 U
Xylene(Total)	0.052 U

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	01-F11-SS_F-247_C2-005	01-F35-SS_F-241_C2-005	01-F35-SS_F-242_C2-005
Date Sampled	8/14/01	8/14/01	8/14/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5
Metals			
Antimony			
Arsenic	15	6	8.3
Cadmium			
Chromium			
Copper			
Lead	93	12	25
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	01-F35-SS_F-243_C2-005	01-N01-SS_NGRR-277_C2-005	01-N01-SS_NGRR-278_C2-005
Date Sampled	8/14/01	8/14/01	8/14/01
Depth	2 to 2.5	1.5 to 2	1.5 to 2
Metals			
Antimony			
Arsenic	24	20	34
Cadmium			
Chromium			
Copper			
Lead	68	15	110
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	01-N01-SS_NGRR-87_C2-005	01-N01-SS_NGRR-88_C2-005	01-N01-SS_NGRR-89_C2-005
Date Sampled	7/19/01	7/19/01	7/19/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2
Metals			
Antimony			
Arsenic	3.4	3.9	37
Cadmium			
Chromium			
Copper			
Lead	5.1	7.5	25
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	02-F11-SS_F-246-2_C2-030	02-F11-SS_F-248-2_C2-030	02-F11-SS_F-253-2_C2-030
Date Sampled	8/29/01	8/29/01	8/29/01
Depth	3 to 3.5	3 to 3.5	3 to 3.5
Metals			
Antimony			
Arsenic	6.4 J	4.8 J	24 J
Cadmium			
Chromium			
Copper			
Lead	38	96	65
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	02-F11-SS_F-255-2_C2-030	02-F11-SS_F-256-2_C2-030	02-F11-SS_F-257-2_C2-030
Date Sampled	8/29/01	8/29/01	8/29/01
Depth	3 to 3.5	3 to 3.5	3 to 3.5
Metals			
Antimony			
Arsenic	11 J	4.9	4.3
Cadmium			
Chromium			
Copper			
Lead	47	9.5	60
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	03-F11-SS-_F-244-3_-C2-050	03-F11-SS-_F-245-3_-C2-050	03-F11-SS-_F-249-3_-C2-050
Date Sampled	9/10/01	9/10/01	9/10/01
Depth	4 to 4.5	4 to 4.5	4 to 4.5
Metals			
Antimony			
Arsenic	5.1	5.6	39
Cadmium			
Chromium			
Copper			
Lead	120	8.5	190
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	03-F11-SS-_F-251-3_-C2-050	03-F11-SS-_F-252-3_-C2-050	03-F11-SS-_F-254-3_-C2-050
Date Sampled	9/10/01	9/10/01	9/10/01
Depth	4 to 4.5	4 to 4.5	4 to 4.5
Metals			
Antimony			
Arsenic	3.9	7	19
Cadmium			
Chromium			
Copper			
Lead	51	360	170
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-1,S-2	26-B-2,S-1	26-B-2,S-10
Date Sampled	11/26/86	4/21/87	4/21/87
Depth	5 to 6.5	2.5 to 4	25 to 26.5
Metals			
Antimony	3 U		
Arsenic			
Cadmium			
Chromium	19		
Copper			
Lead	1200	1300	470
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-2,S-3	26-B-2,S-4-DAVG	26-B-2,S-6
Date Sampled	4/21/87	4/21/87	4/21/87
Depth	7.5 to 9	10 to 11.5	5 to 6.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	480	220	570
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-2,S-8	26-B-2,S-9	26-B-3,S-1
Date Sampled	4/21/87	4/21/87	4/23/87
Depth	20 to 21	22.5 to 24	2.5 to 4
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	610	550	2200
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-3,S-2	26-B-3,S-4	26-B-3,S-6-DAVG
Date Sampled	4/23/87	4/24/87	4/24/87
Depth	5 to 6.5	10 to 11.5	15 to 16.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	580	660	1800
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-4,S-1	26-B-4,S-2	26-B-4,S-4
Date Sampled	4/22/87	4/22/87	4/23/87
Depth	2.5 to 4	5 to 7.5	10 to 11
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	130	160	650
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-4,S-5-DAVG	26-B-5,S-1	26-B-5,S-2
Date Sampled	4/23/87	4/22/87	4/22/87
Depth	12.5 to 13.5	2.5 to 4	5 to 6.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	700	220	1000
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-5,S-4	26-B-5,S-6	26-B-501-S-1A
Date Sampled	4/22/87	4/22/87	2/26/92
Depth	10 to 11.5	15 to 15.5	2.5 to 4
Metals			
Antimony			
Arsenic			7.1
Cadmium			0.037 J
Chromium			7.4
Copper			11
Lead	27	33	210
Mercury			0.5 J
Nickel			2.7
Zinc			7.9

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-501-S-1-DAVG	26-B-501-S-2-DAVG	26-B-501-S-3
Date Sampled	2/26/92	2/26/92	2/26/92
Depth	0 to 1	5 to 8	10 to 11.5
Metals			
Antimony			
Arsenic	5.8 J		
Cadmium	0.1 J		
Chromium	10		
Copper	22		
Lead	560	220	20
Mercury	0.94 J		
Nickel	4.8		
Zinc	27		

Area	26	26	26
Sample ID	26-B-501-S-4	26-B-501-S-5A	26-B-501-S-7
Date Sampled	2/26/92	2/26/92	2/26/92
Depth	16.5 to 18	23 to 24.5	30 to 31.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	11	40	5.2 U
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-502-S-1	26-B-502-S-1A	26-B-502-S-2
Date Sampled	2/26/92	2/26/92	2/26/92
Depth	0 to 1	2.5 to 4	5 to 8
Metals			
Antimony			
Arsenic	12.6 J	14	
Cadmium	2.8 J	0.25 J	
Chromium	24	10	
Copper	190	22	
Lead	850	200	60
Mercury	4.6 J	1.8 J	
Nickel	22	10	
Zinc	540	42	

Area	26	26	26
Sample ID	26-B-502-S-3	26-B-502-S-4	26-B-502-S-5A
Date Sampled	2/26/92	2/26/92	2/26/92
Depth	11.5 to 13	15 to 16.5	23 to 24.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	27	46	120
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-502-S-7	26-B-503-S-11	26-B-503-S-13
Date Sampled	2/26/92	7/10/92	7/10/92
Depth	30 to 33	50 to 51.5	60 to 61.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	53	5.3 U	5.3 U
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-503-S-16	26-B-503-S-1A	26-B-503-S-1-DAVG
Date Sampled	7/13/92	7/10/92	7/10/92
Depth	75 to 76.5	1 to 2.5	0 to 1
Metals			
Antimony			
Arsenic		6.3	5.7
Cadmium		0.066	0.27
Chromium		7.9	9
Copper		8.8	56
Lead	11	310	25000
Mercury		6.7	8.8
Nickel		1.2	6
Zinc		3.1	26

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-503-S-2A	26-B-503-S-2C	26-B-503-S-3
Date Sampled	7/10/92	7/10/92	7/10/92
Depth	5 to 5.7	8 to 9.5	10 to 11.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	2500	730	110
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-503-S-5-DAVG	26-B-503-S-6	26-B-503-S-8A
Date Sampled	7/10/92	7/10/92	7/10/92
Depth	20 to 21.5	25 to 26.5	37.5 to 39
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	46	37	7.3
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-B-6,S-1	26-B-6,S-2	26-B-6,S-4
Date Sampled	4/21/87	4/21/87	4/21/87
Depth	2.5 to 4	5 to 6.5	10 to 11
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	210	150	27
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-B-6,S-6	26-B-6,S-7	26-HA-501-S-1
Date Sampled	4/21/87	4/21/87	6/30/92
Depth	15 to 16.5	17.5 to 9	0 to 1
Metals			
Antimony			
Arsenic			4.8
Cadmium			0.097 J
Chromium			12
Copper			16
Lead	12	12	170
Mercury			0.34
Nickel			14
Zinc			23

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-HA-501-S-2	26-HA-503-S-2	26-HA-504-S-1
Date Sampled	6/30/92	6/30/92	6/30/92
Depth	1 to 2	1 to 2	0 to 1
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	220	1400	100
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-HA-504-S-2	26-SS-403	26-SS-404
Date Sampled	6/30/92	11/11/93	11/11/93
Depth	1 to 2	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic		13	16
Cadmium			
Chromium			
Copper			
Lead	350		
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-SS-405-DAVG	26-SS-501	26-SS-502-DAVG
Date Sampled	11/30/93	3/23/92	3/23/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic	50		
Cadmium			
Chromium			
Copper			
Lead		5.7 U	120
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-SS-503	26-SS-504	26-TP-501-S-1-DAVG
Date Sampled	3/23/92	3/23/92	3/23/92
Depth	0 to 0.5	0 to 0.5	0 to 1
Metals			
Antimony			
Arsenic			24
Cadmium			0.15
Chromium			22
Copper			32
Lead	37	26	440
Mercury			0.5
Nickel			17
Zinc			42

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-501-S-2-DAVG	26-TP-501-S-3	26-TP-502-S-1
Date Sampled	3/23/92	3/23/92	3/23/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic	3.4		0.92
Cadmium	0.069		0.012 U
Chromium	14		7.1
Copper	16		16
Lead	40	5.5 U	840
Mercury	0.09 U		0.088 U
Nickel	19		3.2
Zinc	32		4.5

Area	26	26	26
Sample ID	26-TP-502-S-2-DAVG	26-TP-502-S-3	26-TP-503-S-1
Date Sampled	3/23/92	3/23/92	3/23/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic	1.7		
Cadmium	0.012 U		
Chromium	8.6		
Copper	4.1		
Lead	480	160	64
Mercury	0.088 U		
Nickel	4.8		
Zinc	7		

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-503-S-2	26-TP-503-S-3	26-TP-504-S-1
Date Sampled	3/23/92	3/23/92	3/23/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic			15
Cadmium			0.39
Chromium			17
Copper			16
Lead	5.3 U	8.3	10
Mercury			0.1 U
Nickel			23
Zinc			42

Area	26	26	26
Sample ID	26-TP-504-S-2	26-TP-504-S-3	26-TP-505-S-1
Date Sampled	3/23/92	3/23/92	3/23/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic	1.5		
Cadmium	0.029		
Chromium	24		
Copper	22		
Lead	6 U	6.4	43
Mercury	0.074 U		
Nickel	24		
Zinc	39		

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-505-S-2	26-TP-505-S-3	26-TP-506-S-1
Date Sampled	3/23/92	3/23/92	3/24/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	9	5.1 U	6.5 U
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-TP-506-S-2	26-TP-506-S-3	26-TP-507-S-1
Date Sampled	3/24/92	3/24/92	3/24/92
Depth	3 to 6	8 to 10	0 to 1
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	5.4 U	5.2 U	150
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-507-S-2	26-TP-507-S-3	26-TP-508-S-2
Date Sampled	3/24/92	3/24/92	3/24/92
Depth	3 to 6	8 to 10	3 to 6
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	5.3 U	5.4 U	9.44
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-TP-508-S-3	26-TP-509-S-2	26-TP-509-S-3
Date Sampled	3/24/92	3/24/92	3/24/92
Depth	8 to 10	3 to 6	8 to 10
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	230	5.5 U	22
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-510-S-1-DAVG	26-TP-510-S-2	26-TP-510-S-3
Date Sampled	3/24/92	3/24/92	3/24/92
Depth	0 to 1	3 to 6	8 to 10
Metals			
Antimony			
Arsenic		1.6	
Cadmium		0.03	
Chromium		6.5	
Copper		12	
Lead	240	9.2	54
Mercury		0.075 U	
Nickel		11	
Zinc		16	

Area	26	26	26
Sample ID	26-TP-511-S-2A	26-TP-511-S-3	26-TP-512-S-2
Date Sampled	3/25/92	3/25/92	3/25/92
Depth	4 to 6	8 to 10	3 to 6
Metals			
Antimony			
Arsenic	2.8		
Cadmium	0.068		
Chromium	12		
Copper	9.2		
Lead	830	160	5 U
Mercury	0.078 U		
Nickel	9.1		
Zinc	20		

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-512-S-23	26-TP-513-S-2	26-TP-513-S-3
Date Sampled	3/25/92	3/25/92	3/25/92
Depth	8 to 10	3 to 6	8 to 10
Metals			
Antimony			
Arsenic		3.8	
Cadmium		0.037	
Chromium		4.8	
Copper		6.5	
Lead	10 U	5.1 U	4.7 U
Mercury		0.089 U	
Nickel		6.3	
Zinc		17	

Area	26	26	26
Sample ID	26-TP-519-S-1	26-TP-519-S-2	26-TP-520-S-1
Date Sampled	6/30/92	6/30/92	6/30/92
Depth	0 to 1	1 to 2	0 to 1
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	48	5.5 U	29
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-TP-520-S-2	26-TP-521-S-1	26-TP-521-S-2
Date Sampled	6/30/92	6/30/92	6/30/92
Depth	1 to 2	0 to 1	1 to 2
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	7.2	710	11
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-TP-522-S-1-DAVG	26-TP-522-S-2	26-VS-10
Date Sampled	6/30/92	6/30/92	9/15/99
Depth	0 to 1	1 to 2	0 to 0.5
Metals			
Antimony			
Arsenic			12
Cadmium			
Chromium			
Copper			
Lead	21	5.3 U	1700 J
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-VS-11	26-VS-12	26-VS-13
Date Sampled	9/15/99	9/15/99	9/15/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic	13	15	22
Cadmium			
Chromium			
Copper			
Lead	2400 J	430 J	510 J
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-VS-14	26-VS-15	26-VS-16
Date Sampled	9/15/99	9/15/99	9/15/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic	8.6	25	12
Cadmium			
Chromium			
Copper			
Lead	78 J	57 J	2400 J
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-VS-17	26-VS-18	26-VS-19
Date Sampled	9/15/99	9/15/99	9/15/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5
Metals			
Antimony			
Arsenic	9.8	4.6	3.6
Cadmium			
Chromium			
Copper			
Lead	3500	1300	3400
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-VS-2	26-VS-20	26-VS-21
Date Sampled	9/15/99	9/15/99	9/15/99
Depth	0 to 0.5	1 to 2.5	1 to 2.5
Metals			
Antimony			
Arsenic	22	11	3.1
Cadmium			
Chromium			
Copper			
Lead	1100 J	2700	160
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-VS-22	26-VS-24	26-VS-25
Date Sampled	9/15/99	9/15/99	9/15/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5
Metals			
Antimony			
Arsenic	2.9	8.5	3.6
Cadmium			
Chromium			
Copper			
Lead	59	380	1200
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-VS-27A	26-VS-28A	26-VS-29A
Date Sampled	9/30/99	9/30/99	9/30/99
Depth	3 to 4.5	3 to 4.5	1 to 2.5
Metals			
Antimony			
Arsenic	4.1	11	24
Cadmium			
Chromium			
Copper			
Lead	15	3300	2000
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-VS-3	26-VS-31A	26-VS-4
Date Sampled	9/15/99	9/30/99	9/15/99
Depth	0 to 0.5	1 to 2.5	0 to 0.5
Metals			
Antimony			
Arsenic	13	4.7	26
Cadmium			
Chromium			
Copper			
Lead	660 J	110	810 J
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-VS-50	26-VS-51	26-VS-54
Date Sampled	4/19/00	4/19/00	4/19/00
Depth	0 to 0.5	0 to 0.5	2 to 4.5
Metals			
Antimony			
Arsenic	22	16	2.5 U
Cadmium			
Chromium			
Copper			
Lead	430	2400	2600
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	26-VS-55	26-VS-56-DAVG	26-VS-58
Date Sampled	4/19/00	4/19/00	5/24/00
Depth	2 to 4.5	2 to 4.5	6 to 8.5
Metals			
Antimony			
Arsenic	18	2.95	6.5
Cadmium			
Chromium			
Copper			
Lead	3800	525	470
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	26-VS-9A	APD-TP-501-S-1	APD-TP-501-S-2
Date Sampled	9/30/99	5/27/92	5/27/92
Depth	3 to 4.5	0 to 1	3 to 5
Metals			
Antimony			
Arsenic	3.8	12.4	3.38
Cadmium		0.18	0.09
Chromium		13	13.8
Copper		16	21.9
Lead	100	900	6.5
Mercury		0.11 U	0.1 U
Nickel		16.9	21.8
Zinc		60.9	52.2

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26	26	26
Sample ID	APH-SS-501	APH-SS-502	APH-SS-503-DAVG
Date Sampled	11/12/92	11/12/92	11/12/92
Depth	0 to 3.5	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	190	37	810
Mercury			
Nickel			
Zinc			

Area	26	26	26
Sample ID	APH-SS-504	APH-SS-507	APH-SS-508
Date Sampled	11/12/92	11/12/92	11/12/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5
Metals			
Antimony			
Arsenic			
Cadmium			
Chromium			
Copper			
Lead	7 U	83	26
Mercury			
Nickel			
Zinc			

Table B.9-1
Area 26 - Waste Acid Recovery Area and Kettle Soil Metals Results

Area	26
Sample ID	APH-SS-509
Date Sampled	11/12/92
Depth	0 to 0.5
Metals	
Antimony	
Arsenic	
Cadmium	
Chromium	
Copper	
Lead	38
Mercury	
Nickel	
Zinc	

Table B.9-2
Area 26 - Waste Acid Recovery and Kettle Soil Explosives Results

Area	26	26	26	26	26	26
Sample ID	26-B-1,S-2	26-B-2,S-1	26-B-2,S-10	26-B-2,S-4-DAVG	26-B-2,S-8	26-B-3,S-1
Date Sampled	11/26/86	4/21/87	4/21/87	4/21/87	4/21/87	4/23/87
Depth	5 to 6.5	2.5 to 4	25 to 26.5	10 to 11.5	20 to 21	2.5 to 4
Explosives						
Dinitrobenzene, 1,3-						
Dinitrotoluene, 2,4-	0.1233 J	0.19 U	0.39 U	0.07 U	0.08 U	0.22
Dinitrotoluene, 2,6-	0.4253 U	0.19 U	0.39 U	0.07 U	0.08 U	0.14
DNT - Total	0.33595	0.38 U	0.78 U	0.14 U	0.16 U	0.36
Nitrobenzene	0.4253 U					
Nitroglycerine		0.47 U	0.97 U	0.18 U	0.21 U	0.21 U
Trinitrobenzene, 1,3,5-						
Trinitrotoluene, 2,4,6-						

Area	26	26	26	26	26	26
Sample ID	26-B-3,S-4	26-B-4,S-1	26-B-4,S-4	26-B-4,S-5-DAVG	26-B-5,S-1	26-B-5,S-4
Date Sampled	4/24/87	4/22/87	4/23/87	4/23/87	4/22/87	4/22/87
Depth	10 to 11.5	2.5 to 4	10 to 11	12.5 to 13.5	2.5 to 4	10 to 11.5
Explosives						
Dinitrobenzene, 1,3-						
Dinitrotoluene, 2,4-	0.08 U	0.08 U	0.07 U	0.07 U	0.09 U	0.08 U
Dinitrotoluene, 2,6-	0.08 U	0.08 U	0.07 U	0.07 U	0.09 U	0.08 U
DNT - Total	0.16 U	0.16 U	0.14 U	0.14 U	0.18 U	0.16 U
Nitrobenzene						
Nitroglycerine	0.19 U	0.2 U	0.18 U	0.18 U	0.21 U	0.21 U
Trinitrobenzene, 1,3,5-						
Trinitrotoluene, 2,4,6-						

Table B.9-2
Area 26 - Waste Acid Recovery and Kettle Soil Explosives Results

Area	26	26	26	26	26	26
Sample ID	26-B-501-S-2-DAVG	26-B-501-S-4A	26-B-501-S-7	26-B-502-S-2	26-B-502-S-4A	26-B-502-S-7
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	2/26/92	2/26/92
Depth	5 to 8	18 to 19.5	30 to 31.5	5 to 8	18 to 19.5	30 to 33
Explosives						
Dinitrobenzene, 1,3-	0.049 U	0.043 U	0.042 U	0.044 U	0.044 U	0.044 U
Dinitrotoluene, 2,4-	0.0073 U	0.0064 U	0.0063 U	0.0066 U	0.0065 U	0.0066 U
Dinitrotoluene, 2,6-	0.0073 U	0.0064 U	0.0063 U	0.0066 U	0.0065 U	0.0066 U
DNT - Total	0.0146 U	0.0128 U	0.0126 U	0.0132 U	0.013 U	0.0132 U
Nitrobenzene	0.072 U	0.063 U	0.062 U	0.065 U	0.065 U	0.065 U
Nitroglycerine	0.24 U	0.21 U	0.21 U	0.22 U	0.22 U	0.22 U
Trinitrobenzene, 1,3,5-	0.037 U	0.032 U	0.032 U	0.033 U	0.033 U	0.033 U
Trinitrotoluene, 2,4,6-	0.0037 U	0.0032 U	0.0032 U	0.0033 U	0.0033 U	0.0033 U

Area	26	26	26	26	26	26
Sample ID	26-B-503-S-11	26-B-503-S-16	26-B-503-S-1-DAVG	26-B-503-S-4	26-B-503-S-6A	26-B-6,S-1
Date Sampled	7/10/92	7/13/92	7/10/92	7/10/92	7/10/92	4/21/87
Depth	50 to 51.5	75 to 76.5	0 to 1	15 to 16.5	27.5 to 29	2.5 to 4
Explosives						
Dinitrobenzene, 1,3-	0.044 U	0.043 U	6.8 U	0.042 U	0.042 U	
Dinitrotoluene, 2,4-	0.0066 U	0.0064 U	1 U	0.016	0.0063 U	0.08 U
Dinitrotoluene, 2,6-	0.0066 U	0.0064 U	1 U	0.0063 U	0.0063 U	0.08 U
DNT - Total	0.0132 U	0.0128 U	2 U	0.01915	0.0126 U	0.16 U
Nitrobenzene	0.065 U	0.064 U	10 U	0.062 U	0.063 U	
Nitroglycerine	0.22 U	0.21 U	0.34 UJ	0.21 U	0.21 U	0.21 U
Trinitrobenzene, 1,3,5-	0.033 U	0.032 U	5.1 U	0.031 U	0.032 U	
Trinitrotoluene, 2,4,6-	0.0033 U	0.0032 U	0.51 U	0.0031 U	0.0032 U	

Table B.9-2
Area 26 - Waste Acid Recovery and Kettle Soil Explosives Results

Area	26	26	26	26	26
Sample ID	26-B-6,S-4	26-B-6,S-7	26-TP-501-S-2-DAVG	26-TP-501-S-3	26-TP-502-S-2-DAVG
Date Sampled	4/21/87	4/21/87	3/23/92	3/23/92	3/23/92
Depth	10 to 11	17.5 to 19	3 to 6	8 to 10	3 to 6
Explosives					
Dinitrobenzene, 1,3-			0.042 U	0.042 U	0.048 U
Dinitrotoluene, 2,4-	0.08 U	0.07 U	0.0063 U	0.0063 U	0.0072 U
Dinitrotoluene, 2,6-	0.08 U	0.07 U	0.0063 U	0.0063 U	0.0072 U
DNT - Total	0.16 U	0.14 U	0.0126 U	0.0126 U	0.0144 U
Nitrobenzene			0.062 U	0.062 U	0.072 U
Nitroglycerine	0.19 U	0.18 U	0.21 U	0.21 U	0.24 U
Trinitrobenzene, 1,3,5-			0.031 U	0.032 U	0.036 U
Trinitrotoluene, 2,4,6-			0.0031 U	0.0032 U	0.0036 U

Area	26	26	26	26	26
Sample ID	26-TP-502-S-3	26-TP-503-S-3	26-TP-504-S-2	26-TP-504-S-3	26-TP-505-S-2
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92
Depth	8 to 10	8 to 10	3 to 6	8 to 10	3 to 6
Explosives					
Dinitrobenzene, 1,3-	0.053 U	0.042 U	0.042 U	0.043 U	
Dinitrotoluene, 2,4-	0.0079 U	0.0063 U	0.0063 U	0.0065 U	0.18 U
Dinitrotoluene, 2,6-	0.0079 U	0.0063 U	0.0063 U	0.0065 U	0.18 U
DNT - Total	0.0158 U	0.0126 U	0.0126 U	0.013 U	0.36 U
Nitrobenzene	0.078 U	0.063 U	0.063 U	0.064 U	0.18 U
Nitroglycerine	0.26 U	0.21 U	0.21 U	0.22 U	
Trinitrobenzene, 1,3,5-	0.04 U	0.032 U	0.032 U	0.032 U	
Trinitrotoluene, 2,4,6-	0.004 U	0.0032 U	0.0032 U	0.0032 U	

Table B.9-2
Area 26 - Waste Acid Recovery and Kettle Soil Explosives Results

Area	26	26	26	26	26	26
Sample ID	26-TP-505-S-3	26-TP-506-S-2	26-TP-506-S-3	26-TP-507-S-3	26-TP-508-S-2	26-TP-508-S-3
Date Sampled	3/23/92	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92
Depth	8 to 10	3 to 6	8 to 10	8 to 10	3 to 6	8 to 10
Explosives						
Dinitrobenzene, 1,3-	0.042 U	0.042 U	0.042 U	0.042 U	0.045 U	0.043 U
Dinitrotoluene, 2,4-	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0068 U	0.0064 U
Dinitrotoluene, 2,6-	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0068 U	0.0064 U
DNT - Total	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0136 U	0.0128 U
Nitrobenzene	0.063 U	0.063 U	0.062 U	0.063 U	0.067 U	0.063 U
Nitroglycerine	0.21 U	0.21 U	0.21 U	0.21 U	0.23 U	0.21 U
Trinitrobenzene, 1,3,5-	0.032 U	0.032 U	0.031 U	0.032 U	0.034 U	0.032 U
Trinitrotoluene, 2,4,6-	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0034 U	0.0032 U

Area	26	26	26	26	26	26
Sample ID	26-TP-509-S-2	26-TP-509-S-3	26-TP-510-S-1-DAVG	26-TP-510-S-2	26-TP-510-S-3	26-TP-511-S-2A
Date Sampled	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92	3/25/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	4 to 6
Explosives						
Dinitrobenzene, 1,3-	0.044 U	0.042 U	0.048 U	0.042 U	0.043 U	0.043 U
Dinitrotoluene, 2,4-	0.0067 U	0.0062 U	0.0071 U	0.0063 U	0.0064 U	0.0064 U
Dinitrotoluene, 2,6-	0.0067 U	0.0062 U	0.0071 U	0.0063 U	0.0064 U	0.0064 U
DNT - Total	0.0134 U	0.0124 U	0.0142 U	0.0126 U	0.0128 U	0.0128 U
Nitrobenzene	0.066 U	0.062 U	0.071 U	0.062 U	0.063 U	0.064 U
Nitroglycerine	0.22 U	0.21 U	0.24 U	0.21 U	0.21 U	0.22 U
Trinitrobenzene, 1,3,5-	0.033 U	0.031 U	0.036 U	0.031 U	0.032 U	0.032 U
Trinitrotoluene, 2,4,6-	0.0033 U	0.0031 U	0.0036 U	0.0031 U	0.0032 U	0.0032 U

Table B.9-2
Area 26 - Waste Acid Recovery and Kettle Soil Explosives Results

Area	26	26	26	26	26	26
Sample ID	26-TP-511-S-3	26-TP-512-S-2	26-TP-512-S-3	26-TP-513-S-2	26-TP-513-S-3	26-TP-514-S-2
Date Sampled	3/25/92	3/25/92	3/25/92	3/25/92	3/25/92	3/25/92
Depth	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6
Explosives						
Dinitrobenzene, 1,3-	0.043 U	0.043 U	0.042 U	0.042 U	0.042 U	0.047 U
Dinitrotoluene, 2,4-	0.0065 U	0.0064 U	0.0063 U	0.0063 U	0.0064 U	0.007 U
Dinitrotoluene, 2,6-	0.0065 U	0.0064 U	0.0063 U	0.0063 U	0.0064 U	0.007 U
DNT - Total	0.013 U	0.0128 U	0.0126 U	0.0126 U	0.0128 U	0.014 U
Nitrobenzene	0.064 U	0.064 U	0.062 U	0.063 U	0.063 U	0.069 U
Nitroglycerine	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.23 U
Trinitrobenzene, 1,3,5-	0.032 U	0.032 U	0.031 U	0.032 U	0.032 U	0.035 U
Trinitrotoluene, 2,4,6-	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0032 U	0.0035 U

Area	26	26	26	26	26
Sample ID	26-TP-514-S-3	26-TP-515-S-2	26-TP-515-S-3	APD-TP-501-S-1	APD-TP-501-S-2
Date Sampled	3/25/92	3/25/92	3/25/92	5/27/92	5/27/92
Depth	6 to 7	3 to 6	8 to 10	0 to 1	3 to 5
Explosives					
Dinitrobenzene, 1,3-	0.045 U	0.042 U	0.044 U		
Dinitrotoluene, 2,4-	0.0067 U	0.0064 U	0.0065 U	0.18 U	0.17 U
Dinitrotoluene, 2,6-	0.0067 U	0.0064 U	0.0065 U	0.18 U	0.17 U
DNT - Total	0.0134 U	0.0128 U	0.013 U	0.36 U	0.34 U
Nitrobenzene	0.066 U	0.063 U	0.065 U	0.18 U	0.17 U
Nitroglycerine	0.22 U	0.21 U	0.22 U		
Trinitrobenzene, 1,3,5-	0.034 U	0.032 U	0.033 U		
Trinitrotoluene, 2,4,6-	0.0034 U	0.0032 U	0.0033 U		

B.9-3

Area 26 - Waste Acid Recovery Area and Kettle Soil SVOC Results

Area	26	26	26
Sample ID	26-B-1,S-2	26-TP-501-S-2-DAVG	26-TP-505-S-2
Date Sampled	11/26/86	3/23/92	3/23/92
Depth	5 to 6.5	3 to 6	3 to 6
Semivolatiles			
Aniline	0.4253 U	0.18 U	0.18 U
Benzidine	2.126 U		1.8 UJ
Benzoic Acid	0.4253 U	0.88 U	0.9 U
Benzyl Alcohol	0.4253 U	0.18 U	0.18 U
Bis(2-Chloroethoxy)methane	0.4253 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl)ether	0.4253 U	0.18 U	0.18 U
Bis(2-ethylhexyl)Phthalate (DEHP)	6.209	0.18 U	0.18 U
Bis(Chloroethyl)ether		0.18 U	0.18 U
Bromodiphenyl ether, 4-	0.4253 U	0.18 U	0.18 U
Butyl Benzyl Phthalate, N-	0.4253 U	0.18 U	0.18 U
Chloroaniline, 4-	0.4253 U	0.18 U	0.18 U
Chloronaphthalene, 2-	0.4253 U	0.18 U	0.18 U
Chlorophenol, 2-	0.4253 U	0.18 U	0.18 U
Chlorophenyl-phenyl ether, 4-	0.4253 U	0.18 U	0.18 U
Dibenzofuran	0.4253 U	0.18 U	0.18 U
Dibutyl Phthalate	0.4253 U	0.19 U	0.18 U
Dichlorobenzene, 1,2-	0.4253 U	0.18 U	0.18 U
Dichlorobenzene, 1,3-	0.4253 U	0.18 U	0.18 U
Dichlorobenzene, 1,4-	0.4253 U	0.18 U	0.18 U
Dichlorobenzidine, 3,3'	0.8505 U	0.35 U	0.36 U
Dichlorophenol, 2,4-	0.4253 U	0.18 U	0.18 U
Diethyl Phthalate	0.4253 U	0.18 U	0.18 U
Dimethyl Phthalate	0.4253 U	0.18 U	0.18 U
Dimethylphenol, 2,4-	0.4253 U	0.18 U	0.18 U
Dinitro-o-Cresol, 4,6-	2.126 U	0.88 U	0.9 U
Dinitrophenol, 2,4-	2.126 U	0.88 U	0.9 U
Di-N-Octylphthalate	0.6251 U	0.18 U	0.18 U
Hexachlorobenzene	0.4253 U	0.18 U	0.18 U
Hexachlorobutadiene	0.4253 U	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.4253 U	0.18 U	0.18 U
Hexachloroethane	0.4253 U	0.18 U	0.18 U
Isophorone	0.4253 U	0.18 U	0.18 U
Methylphenol, 2-	0.4253 U	0.18 U	0.18 U
Methylphenol, 4-	0.4253 U	0.18 U	0.18 U
Nitroaniline, 2-	0.4253 U	0.88 U	0.9 U
Nitroaniline, 3-	0.4253 U	0.88 U	0.9 U
Nitroaniline, 4-	0.4253 U	0.88 U	0.9 U
Nitrophenol, 2-	0.4253 U	0.18 U	0.18 U
Nitrophenol, 4-	2.126 U	0.88 U	0.9 U
Nitrosodimethylamine, N-	0.4253 U	0.18 U	0.18 U
Nitrosodi-N-propylamine, N-	0.4253 U	0.18 U	0.18 U
Nitrosodiphenylamine, N-	0.4253 U	0.18 U	0.18 U
Pentachlorophenol	2.126 U	0.18 U	0.18 U
Phenol	0.4253 U	0.18 U	0.18 U
Trichlorobenzene, 1,2,4-	0.4253 U	0.18 U	0.18 U
Trichlorophenol, 2,4,5-	0.4253 U	0.88 U	0.9 U
Trichlorophenol, 2,4,6-	0.4253 U	0.18 U	0.18 U

B.9-3
Area 26 - Waste Acid Recovery Area and Kettle Soil SVOC Results

Area	26
Sample ID	APD-TP-501-S-2
Date Sampled	5/27/92
Depth	3 to 5
Semivolatiles	
Aniline	0.17 U
Benzidine	1.7 U
Benzoic Acid	0.87 U
Benzyl Alcohol	0.17 U
Bis(2-Chloroethoxy)methane	0.17 U
Bis(2-Chloroisopropyl)ether	0.17 U
Bis(2-ethylhexyl)Phthalate (DEHP)	0.17 U
Bis(Chloroethyl)ether	0.17 U
Bromodiphenyl ether, 4-	0.17 U
Butyl Benzyl Phthalate, N-	0.17 U
Chloroaniline, 4-	0.17 U
Chloronaphthalene, 2-	0.17 U
Chlorophenol, 2-	0.17 U
Chlorophenyl-phenyl ether, 4-	0.17 U
Dibenzofuran	0.17 U
Dibutyl Phthalate	0.17 U
Dichlorobenzene, 1,2-	0.17 U
Dichlorobenzene, 1,3-	0.17 U
Dichlorobenzene, 1,4-	0.17 U
Dichlorobenzidine, 3,3'	0.35 U
Dichlorophenol, 2,4-	0.17 U
Diethyl Phthalate	0.17 U
Dimethyl Phthalate	0.17 U
Dimethylphenol, 2,4-	0.17 U
Dinitro-o-Cresol, 4,6-	0.87 U
Dinitrophenol, 2,4-	0.87 U
Di-N-Octylphthalate	0.17 U
Hexachlorobenzene	0.17 U
Hexachlorobutadiene	0.17 U
Hexachlorocyclopentadiene	0.17 U
Hexachloroethane	0.17 U
Isophorone	0.17 U
Methylphenol, 2-	0.17 U
Methylphenol, 4-	0.17 U
Nitroaniline, 2-	0.87 U
Nitroaniline, 3-	0.87 U
Nitroaniline, 4-	0.87 U
Nitrophenol, 2-	0.17 U
Nitrophenol, 4-	0.87 U
Nitrosodimethylamine, N-	0.17 U
Nitrosodi-N-propylamine, N-	0.17 U
Nitrosodiphenylamine, N-	0.17 U
Pentachlorophenol	0.17 U
Phenol	0.17 U
Trichlorobenzene, 1,2,4-	0.17 U
Trichlorophenol, 2,4,5-	0.87 U
Trichlorophenol, 2,4,6-	0.17 U

B.9-4
Area 26 - Waste Acid Recovery Area and Kettle Soil PAH Results

Area	26	26	26	26
Sample ID	26-B-1,S-2	26-B-501-S-1-DAVG	26-B-502-S-1	26-B-503-S-1-DAVG
Date Sampled	11/26/86	2/26/92	2/26/92	7/10/92
Depth	5 to 6.5	0 to 1	0 to 1	0 to 1
PAHs				
Acenaphthene	0.4253 U	2 UJ	0.26 UJ	2.7 U
Acenaphthylene	0.4253 U	2 UJ	0.26 UJ	2.7 U
Anthracene	0.4253 U	1.1 J	0.013 J	0.14 U
Benzo(a)Anthracene	0.4253 U	8.6 J	0.032 J	0.27 U
Benzo(a)Pyrene	0.4253 U	5.6 J	0.026 UJ	0.27 U
Benzo(b)Fluoranthene	0.4253 U	7 J	0.15 J	0.33
Benzo(g,h,i)Perylene	0.4253 U	4.4 J	0.6 J	2.6
Benzo(k)Fluoranthene	0.4253 U	2.6 J	0.026 UJ	0.27 U
Chrysene	0.4253 U	14 J	0.14 J	0.66
Dibenz(a,h)anthracene	0.4253 U	0.42 UJ	0.054 UJ	0.56 U
Fluoranthene	0.4253 U	29 J	0.16 J	0.74
Fluorene	0.4253 U	0.2 UJ	0.026 UJ	0.27 U
Indeno(1,2,3-cd)pyrene	0.4253 U	0.2 UJ	0.026 UJ	0.27 U
Methylnaphthalene, 2-	0.4253 U			
Naphthalene	0.4253 U	1 UJ	0.13 UJ	1.4 U
PAH (Non-Carc) - Total	4.253 U	53.3	1.354	7.435
Phenanthrene	0.4253 U	7.1 J	0.053 J	0.16
Pyrene	0.4253 U	9.1 J	0.19 J	0.33
Total Carcinogenic PAHS (BaP TEQs)	0.9828683 U	7.42	0.05977	0.47701

B.9-4

Area 26 - Waste Acid Recovery Area and Kettle Soil PAH Results

Area	26	26	26	26
Sample ID	26-SS-502-DAVG	26-SS-506	26-SS-507	26-SS-509
Date Sampled	3/23/92	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
PAHs				
Acenaphthene	0.2 UJ	1.8 U	0.2 U	1.8 U
Acenaphthylene	0.2 UJ	1.8 U	0.2 U	1.8 U
Anthracene	0.01 UJ	0.092 U	0.0098 U	0.09 U
Benzo(a)Anthracene	0.02 UJ	0.18 U	0.021	0.89
Benzo(a)Pyrene	0.028 J	0.18 U	0.02 U	0.18 U
Benzo(b)Fluoranthene	0.022 J	0.18 U	0.023	0.64
Benzo(g,h,i)Perylene	0.17 J	0.18 U	0.02 U	0.67
Benzo(k)Fluoranthene	0.02 UJ	0.18 U	0.02 U	0.2
Chrysene	0.02 J	0.18 U	0.056	1.7
Dibenz(a,h)anthracene	0.053 J	0.38 U	0.04 U	0.31
Fluoranthene	0.045 J	0.19	0.042	2.1
Fluorene	0.02 UJ	0.18 U	0.02 U	0.18 U
Indeno(1,2,3-cd)pyrene	0.24 J	0.18 U	0.027	0.38
Methylnaphthalene, 2-				
Naphthalene	0.1 UJ	0.92 U	0.098 U	0.9 U
PAH (Non-Carc) - Total	0.52	2.812	0.3438	6.345
Phenanthrene	0.014 J	0.092 U	0.0098 U	1.1
Pyrene	0.026 J	0.18 U	0.023	0.18 U
Total Carcinogenic PAHS (BaP TEQs)	0.10832	0.61598 U	0.037256	0.5947

B.9-4

Area 26 - Waste Acid Recovery Area and Kettle Soil PAH Results

Area	26	26	26	26
Sample ID	26-SS-510-DAVG	26-TP-501-S-1-DAVG	26-TP-501-S-2-DAVG	26-TP-505-S-1
Date Sampled	10/20/93	3/23/92	3/23/92	3/23/92
Depth	0 to 0.5	0 to 1	3 to 6	0 to 1
PAHs				
Acenaphthene	0.19 U	0.21 UJ	0.18 U	0.22 UJ
Acenaphthylene	0.19 U	0.21 UJ	0.18 U	0.22 UJ
Anthracene	0.0095 U	0.01 UJ	0.18 U	0.011 UJ
Benzo(a)Anthracene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Benzo(a)Pyrene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Benzo(b)Fluoranthene	0.019	0.021 UJ	0.18 U	0.022 UJ
Benzo(g,h,i)Perylene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Benzo(k)Fluoranthene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Chrysene	0.022	0.09 J	0.18 U	0.022 UJ
Dibenz(a,h)anthracene	0.039 U	0.043 UJ	0.18 U	0.045 UJ
Fluoranthene	0.049	0.021 UJ	0.18 U	0.022 UJ
Fluorene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Indeno(1,2,3-cd)pyrene	0.019 U	0.021 UJ	0.18 U	0.022 UJ
Methylnaphthalene, 2-			0.18 U	
Naphthalene	0.095 U	0.1 UJ	0.18 U	0.11 UJ
PAH (Non-Carc) - Total	0.34	0.624 U	1.8 U	0.3395
Phenanthrene	0.0095 U	0.01 UJ	0.18 U	0.015 J
Pyrene	0.025	0.021 UJ	0.18 U	0.022 UJ
Total Carcinogenic PAHS (BaP TEQs)	0.032917	0.035345	0.41598 U	0.073842 U

B.9-4
Area 26 - Waste Acid Recovery Area and Kettle Soil PAH Results

Area	26	26	26	26
Sample ID	**26-TP-505-S-2**	**26-TP-516-S-1**	**APD-TP-501-S-1**	**APD-TP-501-S-2**
Date Sampled	**3/23/92**	**6/30/92**	**5/27/92**	**5/27/92**
Depth	**3 to 6**	**0 to 1**	**0 to 1**	**3 to 5**
PAHs				
Acenaphthene	0.18 U	0.2 U	0.18 U	0.17 U
Acenaphthylene	0.18 U	0.2 U	0.18 U	0.17 U
Anthracene	0.18 U	0.018	0.18 U	0.17 U
Benzo(a)Anthracene	0.18 U	0.02 U	0.18 U	0.17 U
Benzo(a)Pyrene	0.18 U	0.14	0.1 J	0.17 U
Benzo(b)Fluoranthene	0.18 U	0.08	0.14 J	0.17 U
Benzo(g,h,i)Perylene	0.18 U	0.47	0.088 J	0.17 U
Benzo(k)Fluoranthene	0.18 U	0.02 U	0.044 J	0.17 U
Chrysene	0.18 U	0.11	0.12 J	0.17 U
Dibenz(a,h)anthracene	0.18 U	0.041 U	0.18 U	0.17 U
Fluoranthene	0.18 U	0.25	0.16 J	0.17 U
Fluorene	0.18 U	0.02 U	0.18 U	0.17 U
Indeno(1,2,3-cd)pyrene	0.18 U	0.02 U	0.069 J	0.17 U
Methylnaphthalene, 2-	0.18 U		0.18 U	0.17 U
Naphthalene	0.18 U	0.1 U	0.18 U	0.17 U
PAH (Non-Carc) - Total	1.8 U	1.37	1.026	1.7 U
Phenanthrene	0.18 U	0.072	0.088 J	0.17 U
Pyrene	0.18 U	0.3	0.15 J	0.17 U
Total Carcinogenic PAHS (BaP TEQs)	0.41598 U	0.17071	0.22046	0.39287 U

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-B-1,S-2	26-B-2,S-1	26-B-2,S-10	26-B-2,S-4-DAVG	26-B-2,S-8
Date Sampled	11/26/86	4/21/87	4/21/87	4/21/87	4/21/87
Depth	5 to 6.5	2.5 to 4	25 to 26.5	10 to 11.5	20 to 21
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease	63	64 X	2200 X	20 UX	25 X
Stoddard Solvent					
TPH (418.1)					
TPH-8015					

Area	26	26	26	26	26
Sample ID	26-B-3,S-1	26-B-3,S-4	26-B-4,S-1	26-B-4,S-4	26-B-4,S-5-DAVG
Date Sampled	4/23/87	4/24/87	4/22/87	4/23/87	4/23/87
Depth	2.5 to 4	10 to 11.5	2.5 to 4	10 to 11	12.5 to 13.5
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease	94 X	35 X	51 X	20 UX	20 UX
Stoddard Solvent					
TPH (418.1)					
TPH-8015					

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-B-5,S-1	26-B-5,S-4	26-B-501-S-1-DAVG	26-B-501-S-2-DAVG	26-B-501-S-3
Date Sampled	4/22/87	4/22/87	2/26/92	2/26/92	2/26/92
Depth	2.5 to 4	10 to 11.5	0 to 1	5 to 8	10 to 11.5
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease	20 UX	20 UX			
Stoddard Solvent					
TPH (418.1)			2000 J	20 U	20 U
TPH-8015					

Area	26	26	26	26	26
Sample ID	26-B-501-S-4A	26-B-501-S-6	26-B-501-S-7	26-B-502-S-1	26-B-502-S-2
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	2/26/92
Depth	18 to 19.5	26.5 to 28	30 to 31.5	0 to 1	5 to 8
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	20 U	2200 J	51 J
TPH-8015					

B.9-5
Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-B-502-S-3	26-B-502-S-4A	26-B-502-S-6	26-B-502-S-7A	26-B-503-S-11
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	7/10/92
Depth	11.5 to 13	18 to 19.5	25 to 28	33 to 34.5	50 to 51.5
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	20 U	20 U	21 U
TPH-8015					

Area	26	26	26	26	26
Sample ID	26-B-503-S-13	26-B-503-S-16	26-B-503-S-1-DAVG	26-B-503-S-2A	26-B-503-S-3
Date Sampled	7/10/92	7/13/92	7/10/92	7/10/92	7/10/92
Depth	60 to 61.5	75 to 76.5	0 to 1	5 to 5.75	10 to 11.5
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	21 U	21 U	5600	520	22 U
TPH-8015					

B.9-5
Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area Sample ID Date Sampled Depth	26 26-B-503-S-4 7/10/92 15 to 16.5	26 26-B-503-S-5-DAVG 7/10/92 20 to 21.5	26 26-B-503-S-6A 7/10/92 27.5 to 29	26 26-B-503-S-9 7/10/92 40 to 41.5	26 26-B-6,S-1 4/21/87 2.5 to 4
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					20 UX
Stoddard Solvent					
TPH (418.1)	36	21 U	21 U	21 U	
TPH-8015					

Area Sample ID Date Sampled Depth	26 26-B-6,S-4 4/21/87 10 to 11	26 26-B-6,S-7 4/21/87 17.5 to 19	26 26-SS-501 3/23/92 0 to 0.5	26 26-SS-502-DAVG 3/23/92 0 to 0.5	26 26-SS-503 3/23/92 0 to 0.5
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease	20 UX	20			
Stoddard Solvent					
TPH (418.1)			20 U	220	20 U
TPH-8015					

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-SS-504	26-SS-506	26-SS-507	26-SS-509	26-SS-510-DAVG
Date Sampled	3/23/92	10/20/93	10/20/93	10/20/93	10/20/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH					
#2 Diesel		20 U	20 U		
Bunker C		50 U	50 U		
Gasoline		10 U	10 U		
Kensol		10 U	10 U		
Kerosene		10 U	10 U		
Oil And Grease		250	240		
Stoddard Solvent		10 U	10 U		
TPH (418.1)	20 U	590	600	1000	730
TPH-8015		10 U	10 U		

Area	26	26	26	26	26
Sample ID	26-TP-501-S-1-DAVG	26-TP-501-S-2-DAVG	26-TP-501-S-3	26-TP-502-S-1	26-TP-502-S-2-DAVG
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	58	20 U	20 U	20 U	20 U
TPH-8015					

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-TP-502-S-3	26-TP-503-S-1	26-TP-503-S-2	26-TP-503-S-3	26-TP-504-S-1
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92
Depth	8 to1	0 to 1	3 to 6	8 to 10	0 to 1
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	20 U	20 U	20 U
TPH-8015					

Area	26	26	26	26	26
Sample ID	26-TP-504-S-2	26-TP-504-S-3	26-TP-505-S-1	26-TP-505-S-2	26-TP-505-S-3
Date Sampled	3/23/92	3/23/92	3/23/92	3/23/92	3/23/92
Depth	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	35	20 U	20 U
TPH-8015					

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area	26	26	26	26	26
Sample ID	26-TP-506-S-1	26-TP-506-S-2	26-TP-506-S-3	26-TP-507-S-1	26-TP-507-S-2
Date Sampled	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92
Depth	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	20 U	20 U	20 U
TPH-8015					

Area	26	26	26	26	26
Sample ID	26-TP-507-S-3	26-TP-508-S-2	26-TP-508-S-3	26-TP-509-S-2	26-TP-509-S-3
Date Sampled	3/24/92	3/24/92	3/24/92	3/24/92	3/24/92
Depth	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10
TPH					
#2 Diesel					
Bunker C					
Gasoline					
Kensol					
Kerosene					
Oil And Grease					
Stoddard Solvent					
TPH (418.1)	20 U	20 U	20 U	20 U	20 U
TPH-8015					

B.9-5

Area 26 - Waste Acid Recovery Area and Kettle Soil TPH Results

Area Sample ID Date Sampled Depth	26 26-TP-513-S-2 3/25/92 3 to 6	26 26-TP-516-S-1 6/30/92 0 to 1	26 APD-TP-501-S-1 5/27/92 0 to 1	26 APD-TP-501-S-2 5/27/92 3 to 5
TPH				
#2 Diesel				
Bunker C				
Gasoline				
Kensol				
Kerosene				
Oil And Grease				
Stoddard Solvent				
TPH (418.1)	20 U	3500	450	21 U
TPH-8015				

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31
Sample ID	02-OS02-SS_LR-68-1275E-02_C02-1_5	31-VS-18
Date Sampled	8/1/01	7/29/93
Depth	1.5 to 2	2.5 to 3
Total Metals (mg/kg dry)		
Aluminum		2.9
Antimony		24
Arsenic	29	
Cadmium		0.12
Chromium		
Copper		
Lead	22	
Mercury		0.1 U
Nickel		
Zinc		

Area	31	31	31	31	31	31	31	31
Sample ID	31-B-1,S-7	31-B-1,S-9	31-B-501-S-2	31-B-501-S-3	31-B-501-S-5	31-B-501-S-5A	31-B-502-S-2	31-B-502-S-3
Date Sampled	4/20/87	4/20/87	2/18/92	2/18/92	2/18/92	2/18/92	2/19/92	2/19/92
Depth	17.5 to 19	22 to 22.5	5 to 8	10 to 14.5	20 to 23	23 to 24.5	5 to 8	10 to 13
Total Metals (mg/kg dry)								
Aluminum							10000	12000
Antimony							2.7 UJ	2.7 UJ
Arsenic			3.2	3.1			2.4	2.8
Cadmium			0.22	0.17			0.14	0.12
Chromium			12	12			13	15
Copper			15	18			28	19
Lead	160	1600	110	51	68 J	170 J	330	120
Mercury			0.083 U	0.09 U			0.082 U	0.09 U
Nickel			16	13			14	15
Zinc			40	27			63	38

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31	31
Sample ID	31-SS-600	31-SS-601	31-SS-602	31-SS-603	31-SS-606	31-SS-608	31-SS-609	31-SS-610
Date Sampled	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	26	88	71	87	63	46	52	12
Lead	28	2000	170	36	180	200	250	40

Area	31	31	31	31	31	31	31	31
Sample ID	31-SS-614	31-SS-621	31-SS-624	31-SS-626	31-SS-627	31-SS-628	31-SS-629	31-SS-631
Date Sampled	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	120	96	63	9.4	4.6 U	33	64	120
Lead	250	220	78	77	4.1	1100	1300	240

Area	31	31	31	31	31	31	31	31
Sample ID	31-SS-632	31-SS-635	31-SS-639	31-SS-640	31-SS-644	31-SS-645	31-SS-646	31-SS-649
Date Sampled	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	11/3/99	12/23/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	43	25	15	10	68	66	20	34
Lead	160	97	47	15	200	110	3.1	520

Area	31	31	31
Sample ID	31-SS-650	31-SS-651	31-SS-658
Date Sampled	12/23/99	12/23/99	12/23/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)			
Arsenic	76	96	96
Lead	200	590	230

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31	31
Sample ID	31-TP-10,S-2	31-TP-11,S-2	31-TP-12,S-2	31-TP-13,S-2	31-TP-14,S-2	31-TP-15,S-2	31-TP-16,S-2	31-TP-501-S-2-DAVG
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	2/26/92
Depth	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Total Metals (mg/kg dry)								
Arsenic								2.9
Cadmium								0.14
Chromium								22
Copper								16
Lead	12	9 J	10	60	8 J	24	88	11
Mercury								0.09
Nickel								20
Zinc								42

Area	31	31	31	31	31	31	31
Sample ID	31-TP-501-S-3	31-TP-502-S-2	31-TP-502-S-3	31-TP-504-S-2	31-TP-504-S-3	31-TP-8,S-2	31-TP-9,S-2
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	2/26/92	4/28/87	4/28/87
Depth	8 to 10	3 to 6	8 to 10	3 to 6	8 to 10	3 to 6	3 to 6
Total Metals (mg/kg dry)							
Arsenic	2.5	2	1.7	1.7	1.8		
Cadmium	0.099	0.11	0.12	0.053	0.064		
Chromium	20	25	15	13	17		
Copper	16	19	17	14	14		
Lead	10	5.4 U	5.3 U	5.4 U	5.7	12	23
Mercury	0.08 U	0.085 U	0.081 U	0.16	0.1		
Nickel	24	23	17	16	15		
Zinc	36	29	32	23	29		

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-116	31-VS-117	31-VS-118	31-VS-122	31-VS-123	31-VS-124	31-VS-125	31-VS-127
Date Sampled	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	4.5	4.9	5.7	7 5	6 4	4 8	9	5.9
Lead	100	10	230	640	170	53	300	300

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-129	31-VS-131	31-VS-134	31-VS-136	31-VS-138	31-VS-139	31-VS-140	31-VS-141
Date Sampled	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	55	5.5	3.8	12	5.1	4.6	8.7	5.3
Lead	400	100	11	49	29	28	200	87

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-142	31-VS-144	31-VS-145	31-VS-147	31-VS-148	31-VS-149	31-VS-150	31-VS-151
Date Sampled	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99
Depth	2 to 4.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	6.4	23	8.2	15	4.3	8.2	3.7	4.4
Lead	180	230	440	570	54	180	43	41

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-154	31-VS-155	31-VS-158	31-VS-159	31-VS-161	31-VS-163-DAVG	31-VS-164	31-VS-165
Date Sampled	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5	2 to 4.5	17 to 30.5	4 to 30
Total Metals (mg/kg dry)								
Arsenic	6.5	11	9.4	4.2	33	7.6	5.5	9.2
Lead	69	280	450	190	450	170	9.1	59

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-166	31-VS-167	31-VS-168	31-VS-169	31-VS-170	31-VS-172	31-VS-173	31-VS-174
Date Sampled	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99	9/29/99
Depth	4 to 30	4 to 30	5 to 6.5	5 to 6.5	5 to 6.5	5 to 6.5	5 to 6.5	5 to 6.5
Total Metals (mg/kg dry)								
Arsenic	3.3	4.7	4	3.1	3.9	3.4	5.1	5.2
Lead	15	67	74	31	24	5.2	17	18

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31
Sample ID	31-VS-175-DAVG	31-VS-177	31-VS-178	31-VS-179	31-VS-180	31-VS-181	31-VS-182
Date Sampled	9/29/99	10/18/99	10/18/99	10/19/99	10/18/99	10/19/99	10/18/99
Depth	5 to 6.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)							
Arsenic	6.5	6.3	1.8 U	3.6	3.1	2.7	3.5
Lead	270	33	1.5	3.6	4.8	6.1 U	6.1

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-183	31-VS-186	31-VS-188	31-VS-190	31-VS-192	31-VS-194	31-VS-195	31-VS-197
Date Sampled	10/18/99	10/18/99	10/19/99	10/19/99	10/19/99	10/19/99	10/19/99	10/19/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	2.3	2.5	3.1	2.8	2.1	2.6	3.5	3.1
Lead	3	4.8	5.8 U	5.6 U	5.8 U	6.1 U	240	6.6 U

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-198	31-VS-200	31-VS-201	31-VS-202	31-VS-203	31-VS-205	31-VS-206	31-VS-208
Date Sampled	10/19/99	10/21/99	10/19/99	10/19/99	10/19/99	10/19/99	10/19/99	10/19/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	3.1	3.8	4.4	2.6	2.9	2.1	2	1.8 U
Lead	17	77	500	5.8 U	6 U	6.2 U	5.4 U	5.5 U

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-209	31-VS-210	31-VS-211	31-VS-212	31-VS-216-DAVG	31-VS-26	31-VS-27	31-VS-28
Date Sampled	10/19/99	10/19/99	10/19/99	10/19/99	10/19/99	9/10/99	9/10/99	9/10/99
Depth	2 to 4.5	2 to 4.5	0 to 0.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	2.3	2.7	9.5	45	2.3	18	14	8.7
Lead	90	5.5 U	93	200	6.1 U	94	140	140

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-29	31-VS-34	31-VS-38	31-VS-39	31-VS-40	31-VS-401	31-VS-402	31-VS-403
Date Sampled	9/10/99	9/10/99	9/13/99	9/13/99	9/13/99	1/25/00	1/25/00	1/25/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	21	17	8.8	5.8	5.8	2.1 U	3.1	2.1 U
Lead	360	230	210	550	730	10	250	8.8

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-404	31-VS-405	31-VS-406	31-VS-407	31-VS-408	31-VS-409	31-VS-41	31-VS-410
Date Sampled	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	9/13/99	1/25/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	2.2 U	2 U	2.3 U	2 U	1.8 U	2.5	4.4	1.8 U
Lead	2.3	42	3.2	2 U	1.8 U	2 U	33	5.9

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-411	31-VS-412	31-VS-413	31-VS-414	31-VS-415	31-VS-416	31-VS-417	31-VS-418
Date Sampled	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	2 U	2.1 U	2.2 U	2 U	2.1 U	2.1 U	2.1 U	2.9
Lead	2 U	2.1 U	9.8	2.1	5.3	2.1 U	2.1 U	4

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-419	31-VS-42	31-VS-420	31-VS-421	31-VS-422	31-VS-424	31-VS-43	31-VS-434
Date Sampled	1/25/00	9/13/99	1/25/00	1/25/00	1/25/00	1/25/00	9/13/99	1/25/00
Depth	0 to 0.5	2 to 4.5	0 to 0.5	2 to 4.5	0 to 0.5	0 to 0.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	23	5.3	52	31	13	46	3.8	2.6 U
Lead	9.6	200	45	25	360	17	220	2.6 U

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-435	31-VS-436	31-VS-437	31-VS-438	31-VS-439	31-VS-440	31-VS-441	31-VS-442
Date Sampled	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	130	2.1 U	2.7	2.6	5.6	25	30	8.1
Lead	3.7	2.1 U	2.5	2.6	2.8 U	20	12	9.5

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-443	31-VS-444	31-VS-446	31-VS-45	31-VS-46	31-VS-501	31-VS-502	31-VS-503-DAVG
Date Sampled	1/28/00	1/28/00	1/28/00	9/13/99	9/13/99	3/7/00	3/7/00	3/7/00
Depth	2 to 4.5	2 to 4.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	4 to 30
Total Metals (mg/kg dry)								
Arsenic	4.4	2.6	17	3.2	4.1	6.3 U	6.2 U	6.1 U
Lead	2.5	3	9.7	940	1000	38	9.4	19

Table B.10-1
Area 31 - Burning Ground Soil Metals Results

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-506	31-VS-509	31-VS-510	31-VS-511	31-VS-512	31-VS-513	31-VS-514	31-VS-515
Date Sampled	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00
Depth	2 to 4.5	0 to 0.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	4.2	4.9	6.8	4.2	4	4.1	2	3.8
Lead	3.4	7.3	9.4	4.2	3.5	3.3	2.1	2.4

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-516	31-VS-517	31-VS-518-DAVG	31-VS-520	31-VS-521	31-VS-522	31-VS-523	31-VS-524
Date Sampled	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	3.9	3.4	4.8	3.3	5.4	5	27	33
Lead	2.9	2.8	5.5	3.7	5.7	4	25	5.9

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-57	31-VS-58	31-VS-584	31-VS-585	31-VS-59	31-VS-60	31-VS-606	31-VS-61
Date Sampled	9/13/99	9/13/99	5/9/00	5/9/00	9/13/99	9/13/99	5/24/00	9/13/99
Depth	2 to 4.5	2 to 4.5	0 to 0.5	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	4	9	57	150	5.3	3.3	6.7	5.8
Lead	280	770	79	150	500	30	4.9	670

Area	31	31	31	31	31	31	31	31
Sample ID	31-VS-63	31-VS-64	31-VS-65	31-VS-66	31-VS-69	31-VS-70	31-VS-71	31-VS-72
Date Sampled	9/13/99	9/13/99	9/13/99	9/13/99	9/13/99	9/13/99	9/13/99	9/13/99
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)								
Arsenic	4.8	4.9	6.2	11	14	4.9	2 U	4.9
Lead	83	120	350	640	450	190	7.8	31

Area	31	31	31	31	31	31
Sample ID	31-VS-73	31-VS-76	31-VS-77	31-VS-7-DAVG	31-VS-8	31-VS-83-DAVG
Date Sampled	9/13/99	9/13/99	9/13/99	5/10/93	5/10/93	9/13/99
Depth	2 to 4.5	0 to 0.5	0 to 0.5	5 to 5.5	5 to 5.5	2 to 4.5
Total Metals (mg/kg dry)						
Arsenic	3	14	27			13.5
Lead	33	180	180	5.2 U	7.6	1050

Table B.10-2
Area 31 - Burning Ground Soil Explosives Results

Area	31	31	31	31	31	31
Sample ID	31-B-1,S-7	31-B-1,S-9	31-B-501-S-2	31-B-501-S-3	31-B-501-S-4	31-B-502-S-2
Date Sampled	4/20/87	4/20/87	2/18/92	2/18/92	2/18/92	2/19/92
Depth (ft bgs)	17.5 to 19	22 to 22.5	5 to 8	10 to 14.5	15 to 19.5	5 to 8
Explosive (mg/kg)						
1,3,5-Trinitrobenzene			0.032 U	0.032 U	0.034 U	0.032 U
1,3-Dinitrobenzene			0.043 U	0.043 U	0.045 U	0.043 U
2,4,6-Trinitrotoluene	0.08 U	0.08 U	0.0032 U	0.0032 U	0.0034 U	0.0032 U
2,4-Dinitrotoluene	0.08 U	0.08 U	0.0065 U	0.0065 U	0.0067 U	0.0065 U
2,6-Dinitrotoluene	0.08 U	0.08 U	0.0065 U	0.0065 U	0.0067 U	0.0065 U
DNT (Total)	0.16 U	0.16 U	0.013 U	0.013 U	0.0134 U	0.013 U
Monomethylamine Nitrate			5.4 UJ	5.4 U		5.4 U
Nitrobenzene			0.17	0.064 U	0.067 U	0.064 U
Nitroglycerine	0.19 U	0.21 U	0.22 U	0.22 U		0.22 U

Area	31	31-REF	31-REF	31-REF	31-REF	31
Sample ID	31-B-502-S-3	31-B-503-S-2	31-B-503-S-3	31-B-504-S-2	31-B-504-S-3	31-TP-10,S-2
Date Sampled	2/19/92	2/19/92	2/19/92	2/20/92	2/20/92	4/28/87
Depth (ft bgs)	10 to 13	5 to 6.5	10 to 13	5 to 6.5	10 to 11.9	3 to 6
Explosive (mg/kg)						
1,3,5-Trinitrobenzene	0.032 U	0.033 U	0.037 U	0.032 U	0.032 U	
1,3-Dinitrobenzene	0.043 U	0.043 U	0.049 U	0.043 U	0.043 U	
2,4,6-Trinitrotoluene	0.0032 U	0.0033 U	0.0037 U	0.0032 U	0.0032 U	0.07 U
2,4-Dinitrotoluene	0.0064 U	0.0065 U	0.0074 U	0.0065 U	0.0064 U	0.07 U
2,6-Dinitrotoluene	0.0064 U	0.0065 U	0.0074 U	0.0065 U	0.0064 U	0.07 U
DNT (Total)	0.0128 U	0.013 U	0.0148 U	0.013 U	0.0128 U	0.14 U
Monomethylamine Nitrate	5.4 UJ					
Nitrobenzene	0.064 U	0.14	0.073 U	0.064 U	0.064 U	
Nitroglycerine	0.21 U					0.18 U

Table B.10-2
Area 31 - Burning Ground Soil Explosives Results

Area	31	31	31	31	31	31
Sample ID	31-TP-11,S-2	31-TP-12,S-2	31-TP-13,S-2	31-TP-14,S-2	31-TP-15,S-2	31-TP-16,S-2
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87
Depth (ft bgs)	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Explosive (mg/kg)						
1,3,5-Trinitrobenzene						
1,3-Dinitrobenzene						
2,4,6-Trinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
2,4-Dinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U	0.7	0.07 U
2,6-Dinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U	1.1	0.07 U
DNT (Total)	0.14 U	0.14 U	0.14 U	0.14 U	1.8	0.14 U
Monomethylamine Nitrate						
Nitrobenzene						
Nitroglycerine	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-TP-17,S-2	31-TP-18,S-2	31-TP-19,S-1	31-TP-19,S-2	31-TP-21,S-1-DAVG	31-TP-21,S-2
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87
Depth (ft bgs)	3 to 6	3 to 6	0 to 3	3 to 6	0 to 3	3 to 6
Explosive (mg/kg)						
1,3,5-Trinitrobenzene						
1,3-Dinitrobenzene						
2,4,6-Trinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U		
2,4-Dinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U	0.08 U	0.07 U
2,6-Dinitrotoluene	0.07 U	0.07 U	0.07 U	0.07 U	0.08 U	0.07 U
DNT (Total)	0.14 U	0.14 U	0.14 U	0.14 U	0.16 U	0.14 U
Monomethylamine Nitrate						
Nitrobenzene						
Nitroglycerine	0.18 U	0.18 U	0.19 U	0.18 U	0.19 U	0.18 U

Table B.10-2
Area 31 - Burning Ground Soil Explosives Results

Area	31	31	31	31	31-REF	31-REF
Sample ID	31-TP-501-S-2-DAVG	31-TP-501-S-3	31-TP-502-S-2	31-TP-502-S-3	31-TP-503-S-1	31-TP-503-S-2
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	2/27/92	2/27/92
Depth (ft bgs)	3 to 6	8 to 10	3 to 6	8 to 10	0 to 1	3 to 6
Explosive (mg/kg)						
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.032 U	0.032 U	0.038 U	0.032 U
1,3-Dinitrobenzene	0.043 U	0.042 U	0.043 U	0.042 U	0.051 U	0.043 U
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0038 U	0.0032 U
2,4-Dinitrotoluene	0.0064 U	0.0064 U	0.0064 U	0.0064 U	0.0077 U	0.0064 U
2,6-Dinitrotoluene	0.0064 U	0.0064 U	0.0064 U	0.0064 U	0.0077 U	0.0064 U
DNT (Total)	0.0128 U	0.0128 U	0.0128 U	0.0128 U	0.0154 U	0.0128 U
Monomethylamine Nitrate						
Nitrobenzene	0.064 U	0.063 U	0.064 U	0.063 U	0.076 U	0.064 U
Nitroglycerine	0.21 U	0.21 U	0.22 U	0.21 U		

Area	31	31	31-REF	31-REF	31-REF	31-REF
Sample ID	31-TP-504-S-2	31-TP-504-S-3	31-TP-505-S-1-DAVG	31-TP-505-S-2	31-TP-506-S-1	31-TP-506-S-2
Date Sampled	2/26/92	2/26/92	2/27/92	2/27/92	2/27/92	2/27/92
Depth (ft bgs)	3 to 6	8 to 10	0 to 1	3 to 6	0 to 1	3 to 6
Trinitrobenzene, 1,3,5-	0.032 UJ	0.032 U	0.04 U	0.032 U	0.036 U	0.033 U
Dinitrobenzene, 1,3-	0.043 U	0.042 U	0.054 U	0.042 U	0.048 U	0.044 U
Trinitrotoluene, 2,4,6-	0.0032 U	0.0032 U	0.004 U	0.0032 U	0.0036 U	0.0033 U
Dinitrotoluene, 2,4-	0.0065 U	0.0063 U	0.0081 U	0.0063 U	0.0072 U	0.0066 U
Dinitrotoluene, 2,6-	0.0065 U	0.0063 U	0.0081 U	0.0063 U	0.0072 U	0.0066 U
DNT - Total	0.013 U	0.0126 U	0.0162 U	0.0126 U	0.0144 U	0.0132 U
Nitrobenzene	0.064 U	0.063 U	0.08 U	0.063 U	0.071 U	0.065 U
Nitroglycerine	0.22 U	0.21 U				

Table B.10-2
Area 31 - Burning Ground Soil Explosives Results

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-TP-507-S-1	31-TP-507-S-2	31-TP-507-S-3	31-TP-508-S-2	31-TP-508-S-3	31-TP-7,S-2
Date Sampled	2/27/92	2/27/92	2/27/92	2/27/92	2/27/92	4/28/87
Depth (ft bgs)	0 to 1	3 to 6	8 to 10	1 to 4	6 to 8	3 to 6
Trinitrobenzene, 1,3,5-	0.041 U	0.033 U	0.032 U	0.038 U	0.032 U	
Dinitrobenzene, 1,3-	0.054 U	0.043 U	0.042 U	0.051 U	0.043 U	
Trinitrotoluene, 2,4,6-	0.0041 U	0.0033 U	0.0032 U	0.0038 U	0.0032 U	0.07 U
Dinitrotoluene, 2,4-	0.0081 U	0.0065 U	0.0063 U	0.0076 U	0.0064 U	0.07 U
Dinitrotoluene, 2,6-	0.0081 U	0.0065 U	0.0063 U	0.0076 U	0.0064 U	0.07 U
DNT - Total	0.0162 U	0.013 U	0.0126 U	0.0152 U	0.0128 U	0.14 U
Nitrobenzene	0.08 U	0.065 U	0.063 U	0.076 U	0.064 U	
Nitroglycerine						0.18 U

Area	31	31	31	31	31
Sample ID	31-TP-8,S-2	31-TP-9,S-2	31-VS-18	31-VS-7-DAVG	31-VS-8
Date Sampled	4/28/87	4/28/87	7/29/93	5/10/93	5/10/93
Depth (ft bgs)	3 to 6	3 to 6	2.5 to 3	5 to 5.5	5 to 5.5
Trinitrobenzene, 1,3,5-			0.033 U	0.031 U	0.032 U
Dinitrobenzene, 1,3-			0.043 U	0.042 U	0.042 U
Trinitrotoluene, 2,4,6-	0.07 U	0.07 U	0.0033 U	0.0031 U	0.006
Dinitrotoluene, 2,4-	0.07 U	0.07 U	0.007 U	0.006 U	0.006 U
Dinitrotoluene, 2,6-	0.07 U	0.07 U	0.007 U	0.006 U	0.006 U
DNT - Total	0.14 U	0.14 U	0.014 U	0.012 U	0.012 U
Nitrobenzene			0.065 U	0.062 U	0.063 U
Nitroglycerine	0.18 U	0.18 U			

Table B.10-3
Area 31 - Burning Ground Soil SVOC Results

Area	31-BURN	31-BURN	31-BURN	31-BURN	31-BURN
Sample ID	31-B-501-S-2	31-B-501-S-3	31-B-502-S-2	31-B-502-S-3	31-TP-501-S-2-DAVG
Date Sampled	2/18/92	2/18/92	2/19/92	2/19/92	2/26/92
Depth	5 to 8	10 to 14.5	5 to 8	10 to 13	3 to 6
Semivolatiles (mg/kg dry)					
1,2,4-Trichlorobenzene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
1,2-Dichlorobenzene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
1,3-Dichlorobenzene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
1,4-Dichlorobenzene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2,4,5-Trichlorophenol	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
2,4,6-Trichlorophenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2,4-Dichlorophenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2,4-Dimethylphenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2,4-Dinitrophenol	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
2-Chloronaphthalene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2-Chlorophenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2-Methylphenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
2-Nitroaniline	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
2-Nitrophenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
3,3'-Dichlorobenzidine	0.37 U	0.37 U	0.36 U	0.36 U	0.37 U
3-Nitroaniline	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
4,6-Dinitro-2-Methylphenol	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
4-Bromophenyl Phenyl Ether	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
4-Chloroaniline	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
4-Chlorophenyl-Phenylether	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
4-Methylphenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
4-Nitroaniline	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
4-Nitrophenol	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
Aniline	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Benzidine	1.8 U	1.8 U	1.7 U	1.8 U	1.8 U
Benzoic Acid	0.91 U	0.92 U	0.89 U	0.91 U	0.92 U
Benzyl Alcohol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Bis(2-Chloroethyl) Ether	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.098 J	0.13 J	0.17 U	0.072 J	0.18 U
Butylbenzylphthalate	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Di-N-Butylphthalate	0.18 U	0.18 U	0.17 U	0.41 U	0.18 U
Di-N-Octylphthalate	0.18 U	0.041 U	0.17 U	0.18 U	0.18 U
Dibenzofuran	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Diethylphthalate	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Dimethylphthalate	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Hexachlorobenzene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Hexachlorobutadiene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Hexachloroethane	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Isophorone	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
N-Nitroso-Di-Phenylamine	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
N-Nitroso-Di-Propylamine	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
N-Nitroso-Dimethylamine	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Pentachlorophenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U
Phenol	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U

Table B.10-3
Area 31 - Burning Ground Soil SVOC Results

Area	31-BURN	31-BURN	31-REF	31-REF
Sample ID	31-TP-502-S-2	31-TP-504-S-2	31-TP-508-S-2	31-TP-508-S-3
Date Sampled	2/26/92	2/26/92	2/27/92	2/27/92
Depth	3 to 6	3 to 6	1 to 4	6 to 8
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	0.18 U	0.18 U	0.23 U	0.18 U
1,2-Dichlorobenzene	0.18 U	0.18 U	0.23 U	0.18 U
1,3-Dichlorobenzene	0.18 U	0.18 U	0.23 U	0.18 U
1,4-Dichlorobenzene	0.18 U	0.18 U	0.23 U	0.18 U
2,4,5-Trichlorophenol	0.91 U	0.92 U	1.1 U	0.91 U
2,4,6-Trichlorophenol	0.18 U	0.18 U	0.23 U	0.18 U
2,4-Dichlorophenol	0.18 U	0.18 U	0.23 U	0.18 U
2,4-Dimethylphenol	0.18 U	0.18 U	0.23 U	0.18 U
2,4-Dinitrophenol	0.91 U	0.92 U	1.1 U	0.91 U
2-Chloronaphthalene	0.18 U	0.18 U	0.23 U	0.18 U
2-Chlorophenol	0.18 U	0.18 U	0.23 U	0.18 U
2-Methylphenol	0.18 U	0.18 U	0.23 U	0.18 U
2-Nitroaniline	0.91 U	0.92 U	1.1 U	0.91 U
2-Nitrophenol	0.18 U	0.18 U	0.23 U	0.18 U
3,3'-Dichlorobenzidine	0.36 U	0.37 U	0.46 U	0.36 U
3-Nitroaniline	0.91 U	0.92 U	1.1 U	0.91 U
4,6-Dinitro-2-Methylphenol	0.91 U	0.92 U	1.1 U	0.91 U
4-Bromophenyl Phenyl Ether	0.18 U	0.18 U	0.23 U	0.18 U
4-Chloroaniline	0.18 U	0.18 U	0.23 U	0.18 U
4-Chlorophenyl-Phenylether	0.18 U	0.18 U	0.23 U	0.18 U
4-Methylphenol	0.18 U	0.18 U	0.23 U	0.18 U
4-Nitroaniline	0.91 U	0.92 U	1.1 U	0.91 U
4-Nitrophenol	0.91 U	0.92 U	1.1 U	0.91 U
Aniline	0.18 U	0.18 U	0.23 U	0.18 U
Benzidine	1.8 U	1.8 U	2.3 U	1.8 U
Benzoic Acid	0.91 U	0.92 U	1.1 U	0.91 U
Benzyl Alcohol	0.18 U	0.18 U	0.23 U	0.18 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.18 U	0.23 U	0.18 U
Bis(2-Chloroethyl) Ether	0.18 U	0.18 U	0.23 U	0.18 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.18 U	0.23 U	0.18 U
Bis(2-Ethylhexyl)Phthalate	0.18 U	0.18 U	0.23 U	0.18 U
Butylbenzylphthalate	0.18 U	0.18 U	0.23 U	0.18 U
Di-N-Butylphthalate	0.18 U	0.18 U	0.23 U	0.18 U
Di-N-Octylphthalate	0.18 U	0.18 U	0.23 U	0.18 U
Dibenzofuran	0.18 U	0.18 U	0.23 U	0.18 U
Diethylphthalate	0.18 U	0.18 U	0.23 U	0.18 U
Dimethylphthalate	0.18 U	0.18 U	0.23 U	0.18 U
Hexachlorobenzene	0.18 U	0.18 U	0.23 U	0.18 U
Hexachlorobutadiene	0.18 U	0.18 U	0.23 U	0.18 U
Hexachlorocyclopentadiene	0.18 U	0.18 U	0.23 U	0.18 U
Hexachloroethane	0.18 U	0.18 U	0.23 U	0.18 U
Isophorone	0.18 U	0.18 U	0.23 U	0.18 U
N-Nitroso-Di-Phenylamine	0.18 U	0.18 U	0.23 U	0.18 U
N-Nitroso-Di-Propylamine	0.18 U	0.18 U	0.23 U	0.18 U
N-Nitroso-Dimethylamine	0.18 U	0.18 U	0.23 U	0.18 U
Pentachlorophenol	0.18 U	0.18 U	0.23 U	0.18 U
Phenol	0.18 U	0.18 U	0.23 U	0.18 U

Table B.10-4
Area 31 - Burning Ground Soil PAH Results

Area	31	31	31	31	31	31
Sample ID	31-B-501-S-2	31-B-501-S-3	31-B-502-S-2	31-B-502-S-3	31-TP-501-S-2-DAVG	31-TP-501-S-3
Date Sampled	2/18/92	2/18/92	2/19/92	2/19/92	2/26/92	2/26/92
Depth	5 to 8	10 to 14.5	5 to 8	10 to 13	3 to 6	8 to 10
PAH (mg/kg dry)						
Benzo(a)Anthracene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Benzo(a)Pyrene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Benzo(b)Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Benzo(k)Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Chrysene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Dibenzo(a,h)Anthracene	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
Indeno(1,2,3-c,d)Pyrene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Total Carcinogenic PAHs (BaP TEQs)	*0.060598 U*	*0.060598 U*	*0.060598 U*	*0.060598 U*	*0.060598 U*	*0.059598 U*
2-Methylnaphthalene	0.18 U	0.18 U	0.17 U	0.18 U	0.18 U	
Acenaphthene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Acenaphthylene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Anthracene	0.0091 U	0.009 U	0.0089 U	0.036	0.009 U	0.0089 U
Benzo(g,h,i)Perylene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Fluorene	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Naphthalene	0.091 U	0.09 U	0.089 U	0.089 U	0.09 U	0.089 U
Phenanthrene	0.0091	0.009 U	0.0089 U	0.0089 U	0.009 U	0.0089 U
Pyrene	0.018	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Total Non-carcinogenic PAHs	*0.37415*	*0.72 U*	*0.7088 U*	*0.39095*	*0.72 U*	*0.5388 U*

Area	31	31	31	31	31-REF	31-REF
Sample ID	31-TP-502-S-2	31-TP-502-S-3	31-TP-504-S-2	31-TP-504-S-3	31-TP-508-S-2	31-TP-508-S-3
Date Sampled	2/26/92	2/26/92	2/26/92	2/26/92	2/27/92	2/27/92
Depth	3 to 6	8 to 10	3 to 6	8 to 10	1 to 4	6 to 8
PAH (mg/kg dry)						
Benzo(a)Anthracene	0.018 U	0.018 U	0.018 U	0.018 U	0.23	0.18 U
Benzo(a)Pyrene	0.018 U	0.018 U	0.018 U	0.018 U	0.22	0.17 U
Benzo(b)Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.15	0.12 U
Benzo(k)Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.17	0.13 U
Chrysene	0.018 U	0.018 U	0.018 U	0.018 U	0.36	0.28 U
Dibenzo(a,h)Anthracene	0.037 U	0.036 U	0.037 U	0.036 U	0.048	0.038 U
Indeno(1,2,3-c,d)Pyrene	0.018 U	0.018 U	0.018 U	0.018 U	0.14	0.011 U
Total Carcinogenic PAHs (BaP TEQs)	*0.060598 U*	*0.059598 U*	*0.060598 U*	*0.059598 U*	*0.32206*	*0.24068 U*
2-Methylnaphthalene	0.18 U		0.18 U		0.23 U	0.18 U
Acenaphthene	0.18 U	0.18 U	0.18 U	0.18 U	0.23 U	0.18 U
Acenaphthylene	0.18 U	0.18 U	0.18 U	0.18 U	0.23 U	0.18 U
Anthracene	0.0089 U	0.0088 U	0.0089 U	0.0088 U	0.068	0.054 U
Benzo(g,h,i)Perylene	0.018 U	0.018 U	0.018 U	0.018 U	0.1	0.076 U
Fluoranthene	0.018 U	0.018 U	0.018 U	0.018 U	0.054 J	0.018 U
Fluorene	0.018 U	0.018 U	0.018 U	0.018 U	0.023 U	0.018 U
Naphthalene	0.089 U	0.088 U	0.089 U	0.088 U	0.11 U	0.09 U
Phenanthrene	0.0089 U	0.0088 U	0.0089 U	0.0088 U	0.2	0.16 U
Pyrene	0.018 U	0.018 U	0.018 U	0.018 U	0.54	0.42 U
Total Non-carcinogenic PAHs	*0.7188 U*	*0.5376 U*	*0.7188 U*	*0.5376 U*	*1.3735*	*1.376 U*

Table B.10-5
Area 31 - Burning Ground Soil PCB Results

Area	31	31	31	31-REF
Sample ID	31-TP-501-S-2-DAVG	31-TP-502-S-2	31-TP-504-S-2	31-TP-508-S-2
Date Sampled	2/26/92	2/26/92	2/26/92	2/27/92
Depth	3 to 6	3 to 6	3 to 6	1 to 4
PCBs (mg/kg dry)				
PCB-1016	0.036 U	0.036 U		0.045 U
PCB-1221	0.036 U	0.036 U		0.045 U
PCB-1232	0.036 U	0.036 U		0.045 U
PCB-1242	0.036 U	0.036 U	0.036 U	0.045 U
PCB-1248	0.036 U	0.036 U	0.036 U	0.045 U
PCB-1254	0.036 U	0.036 U	0.036 U	0.045 U
PCB-1260	0.036 U	0.036 U	0.036 U	0.045 U

Table B.10-6
Area 31 - Burning Ground Soil TPH Results

Area	31	31	31	31	31	31	31	31
Sampled ID	31-B-1,S-7	31-B-1,S-9	31-B-501-S-2	31-B-501-S-3	31-B-501-S-4	31-B-502-S-2	31-B-502-S-3	31-TP-10,S-2
Date Sampled	4/20/87	4/20/87	2/18/92	2/18/92	2/18/92	2/19/92	2/19/92	4/28/87
Depth	17.5 to 19	22 to 22.5	5 to 8	10 to 14.5	15 to 19.5	5 to 8	10 to 13	3 to 6
TPH (mg/kg dry)								
TPH Scan			20 U	20 U	20 U	20 U	20 U	
Oil And Grease	180 X	20 UX						20 UX

Area	31	31	31	31	31	31	31-REF	31-REF
Sampled ID	31-TP-11,S-2	31-TP-12,S-2	31-TP-13,S-2	31-TP-14,S-2	31-TP-15,S-2	31-TP-16,S-2	31-TP-17,S-2	31-TP-18,S-2
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87	4/28/87
Depth	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
TPH (mg/kg dry)								
TPH Scan								
Oil And Grease	20 UX	20 UX	20 UX	20 UX	20 UX	20 UX	20 UX	20 UX

Area	31-REF	31-REF	31-REF	31-REF	31	31	31	31
Sampled ID	31-TP-19,S-1	31-TP-19,S-2	31-TP-21,S-1-DAVG	31-TP-21,S-2	31-TP-501-S-2-DAVG	31-TP-501-S-3	31-TP-502-S-2	31-TP-502-S-3
Date Sampled	4/28/87	4/28/87	4/28/87	4/28/87	2/26/92	2/26/92	2/26/92	2/26/92
Depth	0 to 3	3 to 6	0 to 3	3 to 6	3 to 6	8 to 10	3 to 6	8 to 10
TPH (mg/kg dry)								
TPH Scan					20 U	20 U	20 U	20 U
Oil And Grease	20 UX	20 UX	20 UX	20 UX				

Area	31	31	31-REF	31-REF	31-REF	31	31
Sampled ID	31-TP-504-S-2	31-TP-504-S-3	31-TP-508-S-2	31-TP-508-S-3	31-TP-7,S-2	31-TP-8,S-2	31-TP-9,S-2
Date Sampled	2/26/92	2/26/92	2/27/92	2/27/92	4/28/87	4/28/87	4/28/87
Depth	3 to 6	8 to 10	1 to 4	6 to 8	3 to 6	3 to 6	3 to 6
TPH (mg/kg dry)							
TPH Scan	20 U	20 U	200 J	20 U			
Oil And Grease					20 UX	20 UX	20 UX

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area	38	38	38	38	38	38	38	38
Sample ID	**01-C004-SS[38-VS-152]C2-2.00**	**38-B-501-S-3**	**38-B-501-S-5**	**38-B-501-S-7**	**38-HA-502-S-1**	**38-HA-502-S-2**	**38-HA-503-S-1**	**38-HA-503-S-2**
Date Sampled	**8/1/01**	**3/25/92**	**3/25/92**	**3/25/92**	**10/30/92**	**10/30/92**	**10/30/92**	**10/30/92**
Depth	**0 to 0.5**	**11.5 to 13**	**15 to 16.5**	**20 to 23**	**0 to 1**	**2 to 3**	**0 to 1**	**2 to 3**
Total Metals (mg/kg dry)								
Aluminum		6100	9000	6000				
Antimony		0.35 J						
Arsenic	330	2.6	1.6	1.5	32 J	4.1 J	31 J	4.9 J
Beryllium		0.12	0.14	0.1 U				
Cadmium		0.26 J	0.14 J	0.072 J	0.38	0.19	1.1	0.1
Chromium		7	12 J	7.6				
Copper		330	22	14				
Lead	44	31	8.2	6.2	25 J	6.2 UJ	39 J	6.2 UJ
Mercury		0.87 J	0.14 J	0.1 UJ	0.3	0.11 U	0.28	0.11 U
Nickel		9.5	13	9.5				
Selenium		0.27 UJ	0.27 UJ	0.26 UJ				
Silver		0.19 J	0.047 J	0.025 J				
Thallium		0.27 UJ	0.27 UJ	0.26 UJ				
Zinc		54	63	34				

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area	38	38	38	38	38	38	38	38
Sample ID	38-SS-401	38-SS-501	38-SS-505	38-SS-507	38-SS-508	38-SS-509	38-SS-510	38-SS-511
Date Sampled	11/10/93	4/20/92	4/20/92	4/20/92	4/20/92	4/20/92	4/20/92	4/21/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum		18000	9200	13000	13000	15000	14000	14000
Antimony		3.2 U	3 U	3.3	3.3	3.2 U	3.1 U	2.7 U
Arsenic	13 J	220	50	60	270	59	110	25
Beryllium		0.42	0.2	0.25	0.28	0.44	0.4	0.32
Cadmium		1.9	0.13	0.32	0.68	1.6	0.79	0.14
Chromium		14	10	12	20	11	10	14
Copper		38	23	19	35	55	51	17
Lead		120	38	84	340	120	200	38
Mercury		0.19	0.21	0.13	0.17	0.23	11	7.2
Nickel		17	15	18	18	17	15	20
Selenium		0.65	0.3 U	0.29 U	0.31 U	0.49	0.3 U	0.29 U
Silver		0.58	0.46	0.28 U	0.46	0.51	0.43	0.28 U
Thallium		0.34 U	0.3 U	0.29 U	0.31 U	0.32 U	0.3 U	0.29 U
Zinc		76	45	69	200	130	120	47

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area Sample ID Date Sampled Depth	38 38-SS-512 4/21/92 0 to 0.5	38 38-SS-514 10/30/92 0 to 0.5	38 38-SS-515 10/30/92 0 to 0.5	38 38-SS-516-DAVG 10/30/92 0 to 0.5	38 38-SS-517 10/30/92 0 to 0.5	38 38-SS-518 10/30/92 0 to 0.5	38 38-SS-519 10/30/92 0 to 0.5	38 38-SS-520 10/30/92 0 to 0.5
Total Metals (mg/kg dry)								
Aluminum	23000							
Antimony	4.2 U							
Arsenic	180	475 J	35 J	135 J	62 J	47 J	59 J	61 J
Beryllium	0.6							
Cadmium	1.9	0.16	0.2	1	2	2.1	0.25	0.38
Chromium	22							
Copper	72							
Lead	420	36 J	32 J	500	120 J	1200 J	110 J	18 J
Mercury	6	0.66	0.19	0.97	0.28	1.2	1.2	0.13 U
Nickel	23							
Selenium	0.76							
Silver	0.77							
Thallium	0.41 U							
Zinc	470							

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area	38	38	38	38	38	38	38	38
Sample ID	38-VS-101	38-VS-102	38-VS-57	38-VS-58	38-VS-59	38-VS-60	38-VS-61	38-VS-62
Date Sampled	10/10/95	10/10/95	9/28/99	9/28/99	9/28/99	9/28/99	9/28/99	9/28/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	6.2	3.2	45	19	35	39	84	8.9
Beryllium								
Cadmium	0.55	0.51						
Chromium								
Copper								
Lead	13	15	44	18	19	25	150	11
Mercury	4.2	2.7						
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area	38	38	38	38	38	38	38	38
Sample ID	38-VS-63	38-VS-66	38-VS-67	38-VS-69	38-VS-70	38-VS-71	38-VS-72	38-VS-7-S-1
Date Sampled	9/28/99	9/28/99	9/28/99	9/28/99	9/28/99	9/28/99	9/28/99	7/15/92
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 1
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	21	280	15	120	13	110	77	35
Beryllium								
Cadmium								0.28
Chromium								11
Copper								31
Lead	12	39	11	100	9.6	15	150	68
Mercury								0.93
Nickel								14
Selenium								
Silver								
Thallium								
Zinc								94

Table B.11-1
Area 38 - Carton Production Area and Drywell Soil Metals Results

Area	38	38
Sample ID	38-VS-7-S-2	RR-557
Date Sampled	7/15/92	12/2/93
Depth	3 to 6	0 to 0.5
Total Metals (mg/kg dry)		
Aluminum		
Antimony		
Arsenic	6.2	55
Beryllium		
Cadmium	0.17	
Chromium	18	
Copper	9.6	
Lead	130	160 J
Mercury	0.15	
Nickel	19	
Selenium		
Silver		
Thallium		
Zinc	68	

Table B.11-2
Area 38 - Carton Production Area and Drywell Soil Explosives Results

Area	38	38	38	38
Sample ID	38-B-501-S-2	38-B-501-S-6	38-B-501-S-7	38-SS-512
Date Sampled	3/25/92	3/25/92	3/25/92	4/21/92
Depth	10 to 11.5	16.5 to 19.5	20 to 23	0 to 0.5
Explosives (mg/kg dry)				
2,4-Dinitrotoluene	1.9 U	0.18 U	0.18 U	0.28 U
2,6-Dinitrotoluene	1.9 U	0.18 U	0.18 U	0.28 U
Nitrobenzene	1.9 U	0.18 U	0.18 U	0.28 U

Table B.11-3
Area 38 - Carton Production Area and Drywell Soil VOC Results

Area	38	38	38
Sample ID	38-B-501-S-3	38-B-501-S-7	38-VS-2
Date Sampled	3/25/92	3/25/92	6/30/92
Depth	11.5 to 13	20 to 23	6 to 6.5
Volatiles (mg/kg dry)			
1,1,1-Trichloroethane	0.055 U	0.054 U	
1,1,2,2-Tetrachloroethane	0.055 U	0.054 U	
1,1,2-Trichloroethane	0.055 U	0.054 U	
1,1-Dichloroethane	0.055 U	0.054 U	
1,1-Dichloroethene	0.055 U	0.054 U	
1,2-Dichloroethane	0.055 U	0.054 U	
1,2-Dichloroethene(Total)	0.055 U	0.054 U	
1,2-Dichloropropane	0.055 U	0.054 U	
1,3(cis)-Dichloropropene	0.055 U	0.054 U	
1,3(trans)-Dichloropropene	0.055 U	0.054 U	
2-Butanone	0.55 U	0.54 U	
2-Hexanone	0.55 U	0.54 U	
4-Methyl-2-Pentanone	0.55 U	0.54 U	
Acetone	1.1 U	1.4 U	
Benzene	0.055 U	0.054 U	0.027 U
Bromodichloromethane	0.055 U	0.054 U	
Bromoform	0.27 U	0.27 U	
Bromomethane	0.55 U	0.54 U	
Carbon Disulfide	0.055 U	0.054 U	
Carbon Tetrachloride	0.055 U	0.054 U	
Chlorobenzene	0.055 U	0.054 U	
Chloroethane	0.055 U	0.054 U	
Chloroform	0.055 U	0.054 U	
Chloromethane	0.55 U	0.54 U	
Dibromochloromethane	0.055 U	0.054 U	
Ethylbenzene	0.055 U	0.054 U	0.027 U
Methylene Chloride	0.27 U	0.27 U	
Styrene	0.055 U	0.054 U	
Tetrachloroethene	0.055 U	0.054 U	
Toluene	0.055 U	0.054 U	0.027 U
Trichloroethene	0.055 U	0.054 U	
Vinyl Acetate	0.55 U	0.54 U	
Vinyl Chloride	0.055 U	0.054 U	
Xylene(Total)	0.055 U	0.054 U	0.027 U

Table B.11-3
Area 38 - Carton Production Area and Drywell Soil VOC Results

Area Sample ID Date Sampled Depth	38 38-VS-3 6/30/92 3 to 3.5	38 38-VS-4 6/30/92 3 to 3.5	38 38-VS-5 6/30/92 3 to 3.5	38 38-VS-6 6/30/92 3 to 3.5
Volatiles (mg/kg dry)				
1,1,1-Trichloroethane				
1,1,2,2-Tetrachloroethane				
1,1,2-Trichloroethane				
1,1-Dichloroethane				
1,1-Dichloroethene				
1,2-Dichloroethane				
1,2-Dichloroethene(Total)				
1,2-Dichloropropane				
1,3(cis)-Dichloropropene				
1,3(trans)-Dichloropropene				
2-Butanone				
2-Hexanone				
4-Methyl-2-Pentanone				
Acetone				
Benzene	0.026 U	0.027 U	0.027 U	0.026 U
Bromodichloromethane				
Bromoform				
Bromomethane				
Carbon Disulfide				
Carbon Tetrachloride				
Chlorobenzene				
Chloroethane				
Chloroform				
Chloromethane				
Dibromochloromethane				
Ethylbenzene	0.026 U	0.027 U	0.027 U	0.026 U
Methylene Chloride				
Styrene				
Tetrachloroethene				
Toluene	0.026 U	0.027 U	0.027 U	0.026 U
Trichloroethene				
Vinyl Acetate				
Vinyl Chloride				
Xylene(Total)	0.026 U	0.027 U	0.027 U	0.026 U

Table B.11-4
Area 38 - Carton Production Area and Drywell Soil SVOC Results

Area Sample ID Date Sampled Depth	38 38-B-501-S-2 3/25/92 10 to 11.5	38 38-B-501-S-6 3/25/92 16.5 to 19.5	38 38-B-501-S-7 3/25/92 20 to 23	38 38-SS-512 4/21/92 0 to 0.5
Semivolatiles (mg/kg dry)				
1,2,4-Trichlorobenzene	1.9 U	0.18 U	0.18 U	0.28 U
1,2-Dichlorobenzene	1.9 U	0.18 U	0.18 U	0.28 U
1,3-Dichlorobenzene	1.9 U	0.18 U	0.18 U	0.28 U
1,4-Dichlorobenzene	1.9 U	0.18 U	0.18 U	0.28 U
2,4,5-Trichlorophenol	9.6 U	0.91 U	0.9 U	1.4 U
2,4,6-Trichlorophenol	1.9 U	0.18 U	0.18 U	0.28 U
2,4-Dichlorophenol	1.9 U	0.18 U	0.18 U	0.28 U
2,4-Dimethylphenol	1.9 U	0.18 U	0.18 U	0.28 U
2,4-Dinitrophenol	9.6 U	0.91 U	0.9 U	1.4 U
2-Chloronaphthalene	1.9 U	0.18 U	0.18 U	0.28 U
2-Chlorophenol	1.9 U	0.18 U	0.18 U	0.28 U
2-Methylphenol	1.9 U	0.18 U	0.18 U	0.28 U
2-Nitroaniline	9.6 U	0.91 U	0.9 U	1.4 U
2-Nitrophenol	1.9 U	0.18 U	0.18 U	0.28 U
3,3'-Dichlorobenzidine	3.8 U	0.36 U	0.36 U	0.56 U
3-Nitroaniline	9.6 U	0.91 U	0.9 U	1.4 U
4,6-Dinitro-2-Methylphenol	9.6 U	0.91 U	0.9 U	1.4 U
4-Bromophenyl Phenyl Ether	1.9 U	0.18 U	0.18 U	0.28 U
4-Chloroaniline	1.9 U	0.18 U	0.18 U	0.28 U
4-Chlorophenyl-Phenylether	1.9 U	0.18 U	0.18 U	0.28 U
4-Methylphenol	1.9 U	0.18 U	0.18 U	0.28 U
4-Nitroaniline	9.6 U	0.91 U	0.9 U	1.4 U
4-Nitrophenol	9.6 U	0.91 U	0.9 U	1.4 U
Aniline	1.9 U	0.18 U	0.18 U	0.28 U
Benzidine	19 UJ			2.8 U
Benzoic Acid	9.6 U	0.91 U	0.9 U	1.4 U
Benzyl Alcohol	1.9 U	0.18 U	0.18 U	0.28 U
Bis(2-Chloroethoxy) Methane	1.9 U	0.18 U	0.18 U	0.28 U
Bis(2-Chloroethyl) Ether	1.9 U	0.18 U	0.18 U	0.28 U
Bis(2-Chloroisopropyl) Ether	1.9 U	0.18 U	0.18 U	0.28 U
Bis(2-Ethylhexyl)Phthalate	1.9 U	0.18 U	0.18 U	0.33 U
Butylbenzylphthalate	1.9 U	0.18 U	0.18 U	0.28 U
Di-N-Butylphthalate	1.9 U	0.18 U	0.18 U	0.47 U
Di-N-Octylphthalate	1.9 U	0.053 J	0.042 J	0.28 U
Dibenzofuran	1.9 U	0.18 U	0.18 U	0.28 U
Diethylphthalate	1.9 U	0.18 U	0.18 U	0.28 U
Dimethylphthalate	1.9 U	0.18 U	0.18 U	0.28 U
Hexachlorobenzene	1.9 U	0.18 U	0.18 U	0.28 U
Hexachlorobutadiene	1.9 U	0.18 U	0.18 U	0.28 U
Hexachlorocyclopentadiene	1.9 U	0.18 U	0.18 U	0.28 U
Hexachloroethane	1.9 U	0.18 U	0.18 U	0.28 U
Isophorone	1.9 U	0.18 U	0.18 U	0.28 U
N-Nitroso-Di-Phenylamine	1.9 U	0.18 U	0.18 U	0.28 U
N-Nitroso-Di-Propylamine	1.9 U	0.18 U	0.18 U	0.28 U
N-Nitroso-Dimethylamine	1.9 U	0.18 U	0.18 U	0.28 U
Pentachlorophenol	1.9 U	0.18 U	0.18 U	0.28 U
Phenol	1.9 U	0.18 U	0.18 U	0.28 U

Table B.11-5
Area 38 - Carton Production Area and Drywell Soil PAH Results

Area Sample ID Date Sampled Depth	38 38-B-501-S-2 3/25/92 10 to 11.5	38 38-B-501-S-6 3/25/92 16.5 to 19.5	38 38-B-501-S-7 3/25/92 20 to 23	38 38-SS-512 4/21/92 0 to 0.5
PAHs (mg/kg dry)				
Benzo(a)Anthracene	1.9 U	0.18 U	0.18 U	0.074 J
Benzo(a)Pyrene	1.9 U	0.18 U	0.18 U	0.092 J
Benzo(b)Fluoranthene	1.9 U	0.18 U	0.18 U	0.13 J
Benzo(k)Fluoranthene	1.9 U	0.18 U	0.18 U	0.083 J
Chrysene	1.9 U	0.18 U	0.18 U	0.14 J
Dibenzo(a,h)Anthracene	1.9 U	0.18 U	0.18 U	0.28 U
Indeno(1,2,3-c,d)Pyrene	1.9 U	0.18 U	0.18 U	0.069 J
Total Carcinogenic PAHS (BaP TEQs)	*4.3909 U*	*0.416 U*	*0.416 U*	*0.2603*
2-Methylnaphthalene	1.9 U	0.18 U	0.18 U	0.28 U
Acenaphthene	1.9 U	0.18 U	0.18 U	0.28 U
Acenaphthylene	1.9 U	0.18 U	0.18 U	0.28 U
Anthracene	1.9 U	0.18 U	0.18 U	0.28 U
Benzo(g,h,i)Perylene	1.9 U	0.18 U	0.18 U	0.079 J
Fluoranthene	1.9 U	0.18 U	0.18 U	0.2 J
Fluorene	1.9 U	0.18 U	0.18 U	0.28 U
Naphthalene	1.9 U	0.18 U	0.18 U	0.28 U
Phenanthrene	1.9 U	0.18 U	0.18 U	0.081 J
Pyrene	1.9 U	0.18 U	0.18 U	0.18 J
Total Non-carcinogenic PAHs	*19 U*	*1.8 U*	*1.8 U*	*1.38*

Table B.11-6

Area 38 - Carton Production Area and Drywell Soil Pesticides Results

Area	38
Sample ID	38-HA-501-DAVG
Date Sampled	4/24/92
Depth	0 to 0.5
Pesticides (mg/kg dry)	
4,4'-DDD	0.13 U
4,4'-DDE	0.13 U
4,4'-DDT	0.13 U
Aldrin	0.067 U
Alpha-BHC	0.067 U
Beta-BHC	0.067 U
Chlordane	0.67 U
Delta-BHC	0.067 U
Dieldrin	0.13 U
Endosulfan I	0.067 U
Endosulfan II	0.13 U
Endosulfan Sulfate	0.13 U
Endrin	0.13 U
Endrin Ketone	0.13 U
Gamma-BHC	0.067 U
Heptachlor	0.067 U
Heptachlor Epoxide	0.067 U
Methoxychlor	0.67 U
Toxaphene	1.3 U

Table B.11-7
Area 38 - Carton Production Area and Drywell Soil TPH Results

Area	38	38	38	38	38	38	38	38
Sample ID	**38-B-501-S-2**	**38-B-501-S-6**	**38-B-501-S-7**	**38-SS-501**	**38-SS-505**	**38-SS-507**	**38-SS-508**	**38-SS-509**
Date Sampled	**3/25/92**	**3/25/92**	**3/25/92**	**4/20/92**	**4/20/92**	**4/20/92**	**4/20/92**	**4/20/92**
Depth	**10 to 11.5**	**16.5 to 19.5**	**20 to 23**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
TPH (mg/kg dry)								
TPH (418.1)	44	20 U	20 U	26 U	54	22 U	79	86
Diesel								
Gasoline								

Area	38	38	38	38	38	38	38	38
Sample ID	**38-SS-510**	**38-SS-511**	**38-SS-512**	**38-VS-2**	**38-VS-3**	**38-VS-4**	**38-VS-5**	**38-VS-6**
Date Sampled	**4/20/92**	**4/21/92**	**4/21/92**	**6/30/92**	**6/30/92**	**6/30/92**	**6/30/92**	**6/30/92**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**6 to 6.5**	**3 to 3.5**	**3 to 3.5**	**3 to 3.5**	**3 to 3.5**
TPH (mg/kg dry)								
TPH (418.1)	29	23 U	89					
Diesel				25 U	25 U	25 U	25 U	25 U
Gasoline				5 U	5 U	5 U	5 U	5 U

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area Sample ID Date Sampled Depth	AP-C 01-F08-SS_F-01_ C2-005-DAVG 6/6/01 2 to 2.5	AP-C 01-F08-SS_F-03_ C2-005 6/6/01 2 to 2.5	AP-C 01-F08-SS_F-04_ C2-005 6/6/01 2 to 2.5	AP-C 01-F08-SS_F-05_ C2-005 6/6/01 2 to 2.5
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	3.9	3.3	2.5	3.1
Cadmium				
Chromium				
Copper				
Lead	3.5	3.9	2.2	2.7
Mercury				
Nickel				
Zinc				

Area Sample ID Date Sampled Depth	AP-C 01-F08-SS_F-15_ C2-005 6/6/01 2 to 2.5	AP-C 01-F08-SS_F-16_ C2-005 6/6/01 2 to 2.5	AP-C 01-N01-SS_NGRR-01_C2-005 6/7/01 1.5 to 2	AP-B 01-N01-SS_NGRR-245_C2-005-DAVG 8/13/01 1.5 to 2
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	3.2	3.1	4.1	8.95
Cadmium				
Chromium				
Copper				
Lead	7	3.5	6.4	9.5
Mercury				
Nickel				
Zinc				

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	AP-C	AP-C	AP-C	AP-C
Sample ID	01-F08-SS_F-07_ C2-005	01-F08-SS_F-09_ C2-005	01-F08-SS_F-10_ C2-005	01-F08-SS_F-14_ C2-005
Date Sampled	6/6/01	6/6/01	6/6/01	6/6/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	5	3.5	3.9	3.6
Cadmium				
Chromium				
Copper				
Lead	75	3.3	4.4	13
Mercury				
Nickel				
Zinc				

Area	AP-B	AP-B	AP-B	AP-B
Sample ID	01-N01-SS_NGRR-247_C2-005	01-N01-SS_NGRR-248_C2-005	01-N01-SS_NGRR-249_C2-005	01-N01-SS_NGRR-261_C2-005-DAVG
Date Sampled	8/13/01	8/13/01	8/13/01	8/13/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	9.8	7.8	12	7.05
Cadmium				
Chromium				
Copper				
Lead	8.2	11	16	5.95
Mercury				
Nickel				
Zinc				

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	AP-B	AP-B	AP-B	AP-B
Sample ID	01-N01-SS_NGRR-263_C2-005	01-N01-SS_NGRR-264_C2-005	01-N01-SS_NGRR-283_C2-005-DAVG	01-N01-SS_NGRR-285_C2-005
Date Sampled	8/13/01	8/13/01	8/15/01	8/15/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	7.5	9.5	11.5	7.3
Cadmium				
Chromium				
Copper				
Lead	4.5	6.2	19	8.8
Mercury				
Nickel				
Zinc				

Area	AP-C	AP-C	AP-C	AP-C
Sample ID	APC-SS-510	APC-SS-511	APC-SS-512	APC-SS-513
Date Sampled	6/30/92	10/30/92	10/30/92	10/30/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic				
Cadmium				
Chromium				
Copper				
Lead	7.4	160	260	180
Mercury				
Nickel				
Zinc				

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	AP-B	AP-C	AP-C	AP-C
Sample ID	01-N01-SS_NGRR-286_C2-005	01-N01-SS_NGRR-382_C2-005	02-F08-SS_F-08-2_C2-030	APC-SS-401
Date Sampled	8/15/01	8/22/01	8/30/01	11/12/93
Depth	1.5 to 2	1.5 to 2	3 to 3.5	0 to 0.5
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic	7.1	3.5	2.6	22
Cadmium				
Chromium				
Copper				
Lead	6.7	2.7	90 J	
Mercury				
Nickel				
Zinc				

Area	AP-C	AP-C	APE	APE
Sample ID	APC-SS-514	APC-TP-502-S-3	APE-SS-501-DAVG	APE-SS-502-DAVG
Date Sampled	10/30/92	11/3/92	5/26/92	5/26/92
Depth	0 to 0.5	3 to 6	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)				
Lead				
Total Metals (mg/kg dry)				
Arsenic		3.1 J	278	29.8
Cadmium		0.052 J	1.39	0.12
Chromium			11.2	11.9
Copper			98.3	20
Lead	1100	5.1 UJ	100	10
Mercury		0.097 U	0.3	0.11 U
Nickel			17.3	16.7
Zinc			152	33.8

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	APE	APE	APE	APE	APE	APE	APE	APE
Sample ID	APE-SS-503	APE-SS-504-DAVG	APE-SS-505	APE-SS-506	APE-SS-507	APE-SS-509	APE-SS-510	APE-SS-511
Date Sampled	10/30/92	10/30/92	10/30/92	10/30/92	6/28/93	6/28/93	6/28/93	6/28/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Arsenic	197	16	28	26	38	23	14	6
Cadmium	0.56	0.13	0.94	0.31				
Chromium								
Copper								
Lead	79	26	410	43				
Mercury	0.18	0.25	0.24	0.27				
Nickel								
Zinc								

Area	APE	APE	APE	APE	APE	APF	APF	APF
Sample ID	APE-SS-512	APE-TP-501-S-1-DAVG	APE-TP-501-S-2	APE-TP-502-S-1-DAVG	APE-TP-502-S-3	APF-HA-501-S-1	APF-HA-501-S-3	APF-SS-501
Date Sampled	6/28/93	5/26/92	5/26/92	11/3/92	11/3/92	10/30/92	10/30/92	5/27/92
Depth	0 to 0.5	0 to 1	3 to 5	0 to 1	3 to 5	0 to 1	2 to 3	0 to 0.5
TCLP Metals (mg/L)								
Lead								14
Total Metals (mg/kg dry)								
Arsenic	77	490	2.73	490	41	110	44	54
Cadmium		9.13	0.05	0.21 J		5.2	0.58	20
Chromium		14.1	13.7					
Copper		70.3	16					
Lead		160	5.2 U	200	6.2 J	1200	64	3800
Mercury		0.5	0.1 U	0.1 U	0.096 U	0.53 J		13 U
Nickel		17.6	20.1					
Zinc		230	25.4					

Table B.12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	APF	APF	APF	APF	APF	APF	APF	APF
Sample ID	APF-SS-502	APF-SS-503	APF-SS-504	APF-SS-505	APF-SS-506	APF-SS-507	APF-SS-508	APF-SS-509
Date Sampled	5/27/92	5/27/92	10/30/92	10/30/92	10/30/92	10/30/92	10/30/92	10/30/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Arsenic		12 J	76 J	76 J		87 J	69	
Cadmium								
Chromium								
Copper								
Lead	2200	24	23	130	38	99	45	200
Mercury								
Nickel								
Zinc								

Area	APF	APF	APF	APF	APF	APF	APF	APF
Sample ID	APF-SS-510-DAVG	APF-SS-511	APF-SS-512	APF-SS-513	APF-SS-514	APF-SS-515	APF-SS-516	APF-SS-517
Date Sampled	6/28/93	6/28/93	6/28/93	6/28/93	6/28/93	6/28/93	6/28/93	6/28/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Arsenic	19	43	17	300	210	150	150	220
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B 12-1
Areas of Potential (APs) Concern Soil Metals Results

Area	APF	APF	APF	APF	APF	APF	APF	APF
Sample ID	APF-SS-518	APF-SS-520-DAVG	APF-SS-521	APF-SS-522	APF-SS-523	APF-TP-501-S-1	APF-TP-501-S-2	APF-VS-10
Date Sampled	6/28/93					5/27/92	5/27/92	9/22/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 1	3 to 5	0 to 0.5
TCLP Metals (mg/L)								
Lead								
Total Metals (mg/kg dry)								
Arsenic	220	68	46	81	56			180
Cadmium								
Chromium								
Copper								
Lead						56	5 U	24
Mercury								
Nickel								
Zinc								

Table B.12-2
Areas of Potential Concern (APs) Soil Explosives Results

Area Sample ID Date Sampled Depth	APF APF-SS-503 5/27/92 0 to 0.5	APF APF-TP-501-S-1 5/27/92 0 to 1	APF APF-TP-501-S-2 5/27/92 3 to 5
Explosives (mg/kg dry)			
1,3,5-Trinitrobenzene	0.16 U	0.071 U	0.032 U
1,3-Dinitrobenzene	0.22 U	0.094 U	0.043 U
2,4,6-Trinitrotoluene	0.016 U	0.0071 U	0.0032 U
2,4-Dinitrotoluene	0.033 U	0.014 U	0.0064 U
2,6-Dinitrotoluene	0.033 U	0.014 U	0.0064 U
Total DNT	*0.066 U*	*0.028 U*	*0.028 U*
Nitrobenzene	0.32 U	0.14 U	0.064 U
Nitroglycerine	0.22 U	0.24 U	0.21 U

Table B.12-3
Areas of Potential Concern (APs) Soil SVOC Results

Area	26	26
Sample ID	APD-TP-501-S-1	APD-TP-501-S-2
Date Sampled	5/27/92	5/27/92
Depth	0 to 1	3 to 5
Semivolatiles (mg/kg dry)		
1,2,4-Trichlorobenzene	0.18 U	0.17 U
1,2-Dichlorobenzene	0.18 U	0.17 U
1,3-Dichlorobenzene	0.18 U	0.17 U
1,4-Dichlorobenzene	0.18 U	0.17 U
2,4,5-Trichlorophenol	0.92 U	0.87 U
2,4,6-Trichlorophenol	0.18 U	0.17 U
2,4-Dichlorophenol	0.18 U	0.17 U
2,4-Dimethylphenol	0.18 U	0.17 U
2,4-Dinitrophenol	0.92 U	0.87 U
2-Chloronaphthalene	0.18 U	0.17 U
2-Chlorophenol	0.18 U	0.17 U
2-Methylphenol	0.18 U	0.17 U
2-Nitroaniline	0.92 U	0.87 U
2-Nitrophenol	0.18 U	0.17 U
3,3'-Dichlorobenzidine	0.37 U	0.35 U
3-Nitroaniline	0.92 U	0.87 U
4,6-Dinitro-2-Methylphenol	0.92 U	0.87 U
4-Bromophenyl Phenyl Ether	0.18 U	0.17 U
4-Chloroaniline	0.18 U	0.17 U
4-Chlorophenyl-Phenylether	0.18 U	0.17 U
4-Methylphenol	0.18 U	0.17 U
4-Nitroaniline	0.92 U	0.87 U
4-Nitrophenol	0.92 U	0.87 U
Aniline	0.18 U	0.17 U
Benzidine	1.8 U	1.7 U
Benzoic Acid	0.92 U	0.87 U
Benzyl Alcohol	0.18 U	0.17 U
Bis(2-Chloroethoxy) Methane	0.18 U	0.17 U
Bis(2-Chloroethyl) Ether	0.18 U	0.17 U
Bis(2-Chloroisopropyl) Ether	0.18 U	0.17 U
Bis(2-Ethylhexyl)Phthalate	0.18 U	0.17 U
Butylbenzylphthalate	0.18 U	0.17 U
Di-N-Butylphthalate	0.18 U	0.17 U
Di-N-Octylphthalate	0.18 U	0.17 U
Dibenzofuran	0.18 U	0.17 U
Diethylphthalate	0.18 U	0.17 U
Dimethylphthalate	0.18 U	0.17 U
Hexachlorobenzene	0.18 U	0.17 U
Hexachlorobutadiene	0.18 U	0.17 U
Hexachlorocyclopentadiene	0.18 U	0.17 U
Hexachloroethane	0.18 U	0.17 U
Isophorone	0.18 U	0.17 U
N-Nitroso-Di-Phenylamine	0.18 U	0.17 U
N-Nitroso-Di-Propylamine	0.18 U	0.17 U
N-Nitroso-Dimethylamine	0.18 U	0.17 U
Pentachlorophenol	0.18 U	0.17 U
Phenol	0.18 U	0.17 U

Table B.12-4
Areas of Potential Concern (APs) Soil PAH Results

Area Sample ID Date Sampled Depth	26 APD-TP-501-S-1 5/27/92 0 to 1	26 APD-TP-501-S-2 5/27/92 3 to 5
PAHs (mg/kg dry)		
Benzo(a)Anthracene	0.18 U	0.17 U
Benzo(a)Pyrene	0.1 J	0.17 U
Benzo(b)Fluoranthene	0.14 J	0.17 U
Benzo(k)Fluoranthene	0.044 J	0.17 U
Chrysene	0.12 J	0.17 U
Dibenzo(a,h)Anthracene	0.18 U	0.17 U
Indeno(1,2,3-c,d)Pyrene	0.069 J	0.17 U
2-Methylnaphthalene	0.18 U	0.17 U
Acenaphthene	0.18 U	0.17 U
Acenaphthylene	0.18 U	0.17 U
Anthracene	0.18 U	0.17 U
Benzo(g,h,i)Perylene	0.088 J	0.17 U
Fluoranthene	0.16 J	0.17 U
Fluorene	0.18 U	0.17 U
Naphthalene	0.18 U	0.17 U
Phenanthrene	0.088 J	0.17 U
Pyrene	0.15 J	0.17 U

Table B.12-5
Areas of Potential Concern (APs) Soil PCB Results

Area Sample ID Date Sampled Depth	APE APE-SS-501-DAVG 5/26/92 0 to 0.5	APE APE-SS-502-DAVG 5/26/92 0 to 0.5	APE APE-TP-501-S-1-DAVG 5/26/92 0 to 1	APE APE-TP-501-S-2 5/26/92 3 to 5
PCBs (mg/kg dry)				
PCB-1016	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1221	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1232	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1242	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1248	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1254	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U
PCB-1260	0.036 UJ	0.037 UJ	0.037 UJ	0.035 U

Table B.12-6
Areas of Potential Concern (APs) Soil TPH Results

Area	APE	APE	APE	APE
Sample ID	APE-SS-501-DAVG	APE-SS-502-DAVG	APE-TP-501-S-1-DAVG	APE-TP-501-S-2
Date Sampled	5/26/92	5/26/92	5/26/92	5/26/92
Depth	0 to 0.5	0 to 0.5	0 to 1	3 to 5
TPH (mg/kg dry)				
TPH Scan	67	22 U	22 U	21 U

Table B.12-7
Areas of Potential Concern (APs) Soil Nitrate Results

Area	APC	APF	APF	APF	APF	APF
Sample ID	APC-SS-501	APF-SS-501	APF-SS-502	APF-SS-503	APF-TP-501-S-1	APF-TP-501-S-2
Date Sampled	5/26/92	5/27/92	5/27/92	5/27/92	5/27/92	5/27/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 1	3 to 5
General Chem (mg/kg dry)						
Nitrate as Nitrogen	2.4	4.3	2.4	2.7	2.5	1.9

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-01-DAVG	18R-02	18R-03	18R-04	18R-05	18R-06	18R-07	18R-08
Date Sampled	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	24 J	3.5 J	6.4 J	12 J	36 J	23	12 J	23 J

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-10	18R-101	18R-102	18R-103	18R-104	18R-105-DAVG	18R-106	18R-107-100S
Date Sampled	3/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	12/7/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	91	19	35	7.4	67	16	14	38

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-107-100W	18R-107-125W	18R-107-25E	18R-107-25S	18R-107-50E	18R-107-50N-DAVG	18R-107-50S	18R-107-50W
Date Sampled	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	28	14	50	140	66	150	25	140

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-107-75E	18R-107-75S	18R-107-75W	18R-107-S-3	18R-108	18R-109	18R-11	18R-110
Date Sampled	12/7/93	12/7/93	12/7/93	12/14/93	6/30/93	6/30/93	3/30/93	6/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	59	47	37	15 J	81	10	83	81

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-111	18R-112	18R-112-100E	18R-112-100N	18R-112-10E-DAVG	18R-112-10N	18R-112-125N	18R-112-25E
Date Sampled	6/30/93	6/30/93	12/8/93	12/8/93	12/8/93	12/8/93	12/8/93	12/8/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	140	230	18	81	58	290	130	55

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-112-25N	18R-112-50E	18R-112-50N	18R-112-75E	18R-112-75N	18R-112-S-2	18R-112-S-3	18R-113
Date Sampled	12/8/93	12/8/93	12/8/93	12/8/93	12/8/93	12/13/93	12/13/93	6/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	60	46	18	21	18	42 J	10 J	82

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-114	18R-115	18R-119	18R-12	18R-120-DAVG	18R-121	18R-121-100N	18R-121-100W-DAVG
Date Sampled	6/30/93	6/30/93	6/30/93	3/30/93	6/30/93	6/30/93	12/10/93	12/9/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	91	20	89 J	46	5.1 J	130 J	51	15

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-121-10N	18R-121-10W	18R-121-25N	18R-121-25W	18R-121-50N	18R-121-50W	18R-121-75N	18R-121-75W
Date Sampled	12/10/93	12/10/93	12/10/93	12/10/93	12/10/93	12/10/93	12/10/93	12/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	50	22	22	9.4	30	20	20	59

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-122	18R-123	18R-124	18R-125	18R-126	18R-127	18R-13-DAVG	18R-14
Date Sampled	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	3/30/93	3/30/93
Depth (ft bgs)	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	21 J	9.3 J	43 J	66 J	32 J	66 J	34	19

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-15	18R-15 1'-2'-DAVG	18R-15 6"-12"	18R-15-100N-DAVG	18R-15-10N	18R-15-10W	18R-15-25N	18R-15-50N
Date Sampled	3/30/93			12/7/93	12/7/93	12/7/93	12/7/93	12/7/93
Depth (ft bgs)	0 to 0.5	1 to 2	0.5 to 1	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic	0.05 U							
Total Metals (mg/kg)								
Arsenic	210	3.2	4.9	63	45	35	25	16

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-15-75N	18R-16	18R-17	18R-18	18R-19	18R-20	18R-21	18R-22
Date Sampled	12/7/93	3/30/93	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93	3/29/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	3.6	48	34	23	73	16	13	38

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-23	18R-24	18R-401	18R-402	18R-403	18R-404	18R-404A-DAVG	18R-405
Date Sampled	3/29/93	3/29/93	11/15/93	11/30/93	11/30/93	11/30/93	12/6/93	11/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	66 J	22 J	40	4.2	6.7	6.3	30	8.1

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-406	18R-406-S-2	18R-406-S-3	18R-407	18R-408	18R-409	18R-410	18R-411
Date Sampled	11/12/93	12/14/93	12/14/93	11/15/93	11/30/93	11/30/93	11/12/93	11/12/93
Depth (ft bgs)	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	160	21 J	4.5 J	11	12	17	64	16

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-412	18R-413	18R-414	18R-415	18R-416	18R-417	18R-419	18R-420
Date Sampled	11/15/93	11/30/93	11/30/93	11/30/93	11/30/93	11/15/93	11/30/93	11/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	20	15	7.5	7.8	2.5	39	4.7	4.2

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-421	18R-426	18R-428-DAVG	18R-429	18R-430	18R-431	18R-432	18R-433
Date Sampled	11/15/93	11/30/93	11/30/93	11/15/93	11/15/93	11/29/93	11/30/93	11/15/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	57	74	13	88	25	6.1 J	42	9.6

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-434	18R-435	18R-436	18R-437	18R-438	18R-439	18R-440	18R-441
Date Sampled	11/15/93	11/15/93	11/16/93	11/16/93	11/29/93	11/29/93	11/16/93	11/16/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	44	24	30	19	11	58	62	2.6

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-442	18R-443	18R-444-DAVG	18R-445	18R-445-S-2	18R-445-S-3	18R-446	18R-447
Date Sampled	11/29/93	11/29/93	11/16/93	11/16/93	12/14/93	12/14/93	11/16/93	11/16/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	9.5	25	46	100	8.6 J	8.4 J	69	31

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-448	18R-449	18R-451	18R-452	18R-452-S-2	18R-452-S-3	18R-453	18R-454
Date Sampled	11/16/93	11/29/93	11/29/93	11/19/93	12/10/93	12/10/93	11/29/93	11/29/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	68	39	69	100	3	11	37	42

Table B.13-1
Area 18-REF Soil Metals Results

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-455	18R-456	18R-457	18R-458	18R-459	18R-460	18R-461	18R-461-S-2
Date Sampled	11/16/93	11/16/93	11/16/93	11/29/93	11/29/93	11/29/93	11/16/93	12/13/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	17	29	25	15	47	16	100 J	21 J

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-461-S-3	18R-462	18R-463	18R-464	18R-464E	18R-465	18R-466	18R-467
Date Sampled	12/13/93	11/16/93	11/16/93	11/16/93	11/17/93	11/17/93	11/17/93	11/17/93
Depth (ft bgs)	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)								
Arsenic								
Total Metals (mg/kg)								
Arsenic	4.9 J	26	50	120	31 J	18	51 J	14 J

Area	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF	18-REF
Sample ID	18R-468	18R-469	18R-471	18R-472	18R-474-DAVG	18R-474-S-2	18R-474-S-3
Date Sampled	11/17/93	11/29/93	11/17/93	11/17/93	11/17/93	12/16/93	12/16/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2
TCLP Metals (mg/L)							
Arsenic							
Total Metals (mg/kg)							
Arsenic	110 J	22	9.1 J	23	89 J	11	7.1

Table B.13-2
Area 31-REF Soil Metals Results

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-B-503-S-2	31-B-503-S-3	31-B-503-S-4-DAVG	31-B-503-S-5	31-B-504-S-2	31-B-504-S-3	31-B-504-S-4	31-HA-501-S-3
Date Sampled	2/19/92	2/19/92	2/19/92	2/19/92	2/20/92	2/20/92	2/20/92	11/3/92
Depth (ft bgs)	5 to 6.5	10 to 13	15 to 16.5	20 to 21.5	5 to 6.5	10 to 11.9	15 to 16.5	2 to 3
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	8.2 J	9.3 J	9.1 J	9.2 J	7.7	6.6	7	5.5 UJ
Mercury								
Nickel								
Zinc								

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-HA-502-S-3	31-SS-403	31-SS-404	31-SS-501-DAVG	31-SS-503	31-SS-504	31-SS-505	31-SS-506
Date Sampled	11/20/92	11/8/93	11/8/93	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92
Depth (ft bgs)	2 to 3	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic		60	110 J					
Cadmium								
Chromium								
Copper								
Lead	7.9			26	73	130	43	110
Mercury								
Nickel								
Zinc								

Table B.13-2
Area 31-REF Soil Metals Results

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-SS-507	31-SS-509	31-SS-511	31-SS-512	31-SS-513	31-SS-518	31-SS-519	31-SS-520
Date Sampled	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	5 U	38	89	18	9.1	13	26	18
Mercury								
Nickel								
Zinc								

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-SS-521	31-SS-522	31-SS-523	31-SS-524	31-SS-525	31-SS-526	31-SS-527-DAVG	31-SS-528
Date Sampled	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92	2/14/92
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	44	114	51	38	69	22	29	86
Mercury								
Nickel								
Zinc								

Table B.13-2
Area 31-REF Soil Metals Results

Area Sample ID Date Sampled Depth (ft bgs)	31-REF 31-SS-529 2/14/92 0 to 0.5	31-REF 31-SS-530 2/14/92 0 to 0.5	31-REF 31-SS-533 11/20/92 0 to 0.5	31-REF 31-SS-535-DAVG 11/20/92 0 to 0.5	31-REF 31-SS-536 11/20/92 0 to 0.5	31-REF 31-TP-17,S-2 4/28/87 3 to 6	31-REF 31-TP-18,S-2 4/28/87 3 to 6	31-REF 31-TP-19,S-1 4/28/87 0 to 3
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	59	52	51	90	250	10	9 J	11
Mercury								
Nickel								
Zinc								

Area Sample ID Date Sampled Depth (ft bgs)	31-REF 31-TP-19,S-2 4/28/87 3 to 6	31-REF 31-TP-21,S-1-DAVG 4/28/87 0 to 3	31-REF 31-TP-21,S-2 4/28/87 3 to 6	31-REF 31-TP-503-S-1 2/27/92 0 to 1	31-REF 31-TP-503-S-2 2/27/92 3 to 6	31-REF 31-TP-503-S-3 2/27/92 8 to 10	31-REF 31-TP-505-S-1-DAVG 2/27/92 0 to 1	31-REF 31-TP-505-S-2 2/27/92 3 to 6
Total Metals (mg/kg dry)								
Arsenic								
Cadmium								
Chromium								
Copper								
Lead	6 J	9 J	12	160	5.2 U	5.2 U	12	4.9 U
Mercury								
Nickel								
Zinc								

Table B.13-2
Area 31-REF Soil Metals Results

Area	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF	31-REF
Sample ID	31-TP-505-S-3	31-TP-506-S-1	31-TP-506-S-2	31-TP-506-S-3	31-TP-507-S-1	31-TP-507-S-2	31-TP-507-S-3	31-TP-508-S-2
Date Sampled	2/27/92	2/27/92	2/27/92	2/27/92	2/27/92	2/27/92	2/27/92	2/27/92
Depth (ft bgs)	8 to 10	0 to 1	3 to 6	8 to 10	0 to 1	3 to 6	8 to 10	1 to 4
Total Metals (mg/kg dry)								
Arsenic								71
Cadmium								0.72
Chromium								22
Copper								220
Lead	5.8 U	27	5.3 U	5.1 U	6.8 U	5.1 U	5.3 U	1500
Mercury								0.24
Nickel								100
Zinc								400

Area	31-REF	31-REF	31-REF	31-REF
Sample ID	31-TP-508-S-3	31-TP-7,S-2	LR-070S	LR-071S
Date Sampled	2/27/92	4/28/87	3/29/93	3/29/93
Depth (ft bgs)	6 to 8	3 to 6	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	7.1		18 J	55 J
Cadmium	0.21			
Chromium	23			
Copper	30			
Lead	140	19		
Mercury	0.085 U			
Nickel	17			
Zinc	170			

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	APA-SS-401-DAVG	APG-SS-401	BG-SS-4	LR-001	LR-002	LR-003	LR-003W	LR-004
Date Sampled	11/12/93	11/11/93	11/11/93	11/1/93	3/23/93	11/2/93	11/1/93	11/2/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	45 J	23		35	17	8.7	15	8.7
Aluminum			15000					
Antimony			3					
Cadmium								
Chromium			17					
Copper								
Lead			14 U		190			
Mercury								
Nickel								
Zinc			62					

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-005	LR-006	LR-007	LR-008W	LR-009-1	LR-009-2	LR-010-DAVG	LR-011-1
Date Sampled	11/2/93	11/2/93	11/1/93	11/1/93	5/19/92	3/23/93	11/2/93	5/19/92
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	24	37	9.9	11		29	46	
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead					453			246
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-011-2	LR-012	LR-013	LR-014	LR-015	LR-016	LR-017-1	LR-017-2
Date Sampled	3/23/93	11/2/93	11/4/93	11/4/93	11/4/93	11/12/93	5/18/92	3/23/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	31	43	8.4	22	42	46		120
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead							120	
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-017-S-2	LR-017-S-3	LR-018	LR-019	LR-019E	LR-019N	LR-019S	LR-019W
Date Sampled	12/14/93	12/14/93	11/11/93	3/23/93	11/4/92	11/4/92	11/4/92	11/4/92
Depth (ft bgs)	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	18 J	8.8 J	31	28				
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead				620	6 2 UJ	9.4 J	54	51
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-020 1'-2'	LR-020 6"-12"	LR-020-1	LR-020-2	LR-020-S-2	LR-020-S-3	LR-021	LR-022-1
Date Sampled			5/19/92	3/23/93			11/4/93	5/19/92
Depth (ft bgs)	1 to 2	0.5 to 1	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	3	6		160	6	3	29	
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead			345					232
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-022-2	LR-023	LR-024	LR-025	LR-025-S-2	LR-025-S-3	LR-028	LR-029
Date Sampled	3/23/93	11/4/93	11/11/93	11/11/93		12/10/93	11/11/93	11/4/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	28	15	32	95	26	21	59	7.8
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-030	LR-031	LR-032	LR-034	LR-035-1	LR-035-2	LR-036-DAVG	LR-036E
Date Sampled	11/4/93	11/4/93	11/15/93	11/12/93	5/19/92	3/23/93	11/11/93	11/15/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	37	17	84	4.8		30	60	29
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead					345			
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-036E2	LR-037	LR-038-DAVG	LR-038E-DAVG	LR-038S	LR-038W	LR-039-1	LR-039-2
Date Sampled	11/11/93	11/11/93	5/19/92	11/4/92	11/4/92	11/4/92	5/18/92	3/23/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	15	48						33
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead			750	92	630	150	120	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-040-DAVG	LR-041	LR-042	LR-043	LR-044	LR-045A	LR-046	LR-047
Date Sampled	11/4/93	3/23/93	11/4/93	11/12/93	11/15/93	12/15/93	11/10/93	11/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	18	17	32	42	12	12 J	18	45
Aluminum								
Antimony								
Cadmium		0.42						
Chromium		9.4						
Copper		42						
Lead		120						
Mercury		0.5						
Nickel		13						
Zinc		34						

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-048	LR-049	LR-050	LR-051	LR-053	LR-054	LR-055	LR-056
Date Sampled	11/10/93	11/4/93	11/4/93	11/4/93	11/8/93	11/8/93	11/8/93	11/8/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	30	10	43	23	23 J	14 J	55 J	14 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-057	LR-058	LR-059-1	LR-059-2	LR-059-S-2	LR-059-S-3	LR-060 1'-2'	LR-060-S-3
Date Sampled	11/8/93	11/8/93	5/19/92	3/29/93	12/10/93	12/10/93		
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	1 to 2	1 to 2
Total Metals (mg/kg dry)								
Arsenic	14 J	64 J		120	39	6	3.3	3
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead			402					
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-060-100E	LR-060-100N	LR-060-100W	LR-060-25E	LR-060-50E	LR-060-50N	LR-060-50W	LR-060-75E
Date Sampled	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	60	11	40	48	37	310	100	32
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-060-75N	LR-060-75W	LR-062E	LR-062N	LR-063	LR-064-1	LR-064-2	LR-065
Date Sampled	12/7/93	12/7/93	11/4/92	11/4/92	11/10/93	5/19/92	3/24/93	11/4/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	18	7			43		10	32
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead			180	110		26		
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-066-1	LR-066-2	LR-069	LR-070-1	LR-070-2	LR-071-1	LR-071-2	LR-072
Date Sampled	5/18/92	3/23/93	11/8/93	5/19/92	11/8/93	5/19/92	11/8/93	11/8/93
Depth (ft bgs)	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*	*0 to 0.5*
Total Metals (mg/kg dry)								
Arsenic		6.8	24 J		62 J		34 J	42 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	14			114		217		
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-073-1	LR-073-2	LR-074	LR-075	LR-078	LR-079	LR-081	LR-082
Date Sampled	5/19/92	3/29/93	11/15/93	11/30/93	11/30/93	11/11/93	11/10/93	11/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic		11 J	61	24	7.5	20	23	42 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	56							
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-083-DAVG	LR-086	LR-087	LR-088	LR-089	LR-090	LR-091-1	LR-091-2
Date Sampled	11/10/93	11/8/93	11/8/93	11/8/93	11/8/93	11/30/93	5/19/92	3/24/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	30 J	20 J	51	6.9 J	7.2 J	12		170
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead							160	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-093-1	LR-093-2	LR-094	LR-095-1	LR-095-2	LR-097-1	LR-097-2	LR-098
Date Sampled	5/18/92	3/24/93	11/30/93	5/19/92	3/24/93	5/19/92	3/24/93	11/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic		9.1	11		31		12	34 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	20			140		55		
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-099-1	LR-099-2	LR-100	LR-102N	LR-102S	LR-102W	LR-104A	LR-105-DAVG
Date Sampled	5/19/92	3/23/93	11/4/93	11/4/92	11/4/92	11/4/92	12/15/93	3/25/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic		16	5.9				100 J	38
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	15			12	59	42		52
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-106	LR-106-S-2	LR-106-S-3	LR-107	LR-108	LR-109	LR-110	LR-111
Date Sampled	11/30/93	12/16/93	12/16/93	11/30/93	11/30/93	11/19/93	11/19/93	11/19/93
Depth (ft bgs)	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	140	22	5.2	24	46 J	64	11	59
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-113	LR-114	LR-115	LR-116A	LR-117	LR-117-S-2	LR-117-S-3	LR-119
Date Sampled	11/10/93	11/10/93	11/10/93	12/14/93	11/8/93	12/16/93	12/16/93	11/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	99 J	8.7 J	44 J	57 J	80 J	4.3 J	3.8 J	15
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-121	LR-122	LR-123	LR-124	LR-125	LR-125E	LR-125E-S-2-DAVG	LR-125E-S-3
Date Sampled	11/9/93	11/9/93	11/9/93	11/30/93	3/24/93	11/19/93	12/13/93	12/13/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2
Total Metals (mg/kg dry)								
Arsenic	54	61	18	6.6	17	110	12 J	3.8 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead					37			
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-126**	**LR-127**	**LR-128**	**LR-129**	**LR-12W**	**LR-131**	**LR-131W**	**LR-132**
Date Sampled	**3/24/93**	**11/19/93**	**3/24/93**	**11/10/93**	**11/2/93**	**11/10/93**	**11/10/93**	**3/25/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	68	51	26	20 J	18	33 J	20 J	43
Aluminum								
Antimony								
Cadmium			1.4					0.23
Chromium			9.1					19
Copper			66					22
Lead	124		100					24
Mercury			0.36					0.12 U
Nickel			12					23
Zinc			79					43

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-133**	**LR-133-S-2**	**LR-133-S-3**	**LR-134**	**LR-135**	**LR-136**	**LR-137**	**LR-138**
Date Sampled	**11/8/93**	**12/10/93**	**12/10/93**	**3/25/93**	**11/9/93**	**3/25/93**	**11/9/93**	**11/29/93**
Depth (ft bgs)	**0 to 0.5**	**0.5 to 1**	**1 to 2**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	390	27	28	61	110	50	33	4.2 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead				54		31		
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-139**	**LR-140**	**LR-141**	**LR-142-DAVG**	**LR-143**	**LR-144**	**LR-145**	**LR-146**
Date Sampled	**11/29/93**	**11/29/93**	**11/29/93**	**11/29/93**	**11/29/93**	**11/10/93**	**11/10/93**	**11/10/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	19	32	10	63	36	54 J	30 J	24 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-147	LR-148-DAVG	LR-149	LR-150	LR-151	LR-152	LR-153	LR-154
Date Sampled	11/10/93	11/9/93	11/9/93	11/9/93	11/9/93	11/9/93	11/9/93	5/18/92
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	2 J	12	33	51 J	39	43	42	55
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								19
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-155	LR-156	LR-157-DAVG	LR-157-S-2	LR-157-S-3	LR-158	LR-159	LR-160
Date Sampled	3/25/93	3/24/93	11/19/93	12/13/93	12/13/93	3/24/93	11/10/93	3/24/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	25	29	120	14 J	6.2 J	56	25 J	6.6
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	84	56				391		120
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-161-DAVG	LR-162-DAVG	LR-163	LR-164	LR-165	LR-166	LR-167	LR-168
Date Sampled	11/10/93	3/24/93	11/9/93	3/25/93	11/9/93	3/25/93	11/9/93	3/25/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	34 J	44	23	16	23	7.6	26	38
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead		51		71		21		70
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-169**	**LR-170**	**LR-171**	**LR-172**	**LR-173-DAVG**	**LR-174**	**LR-175**	**LR-176**
Date Sampled	**11/16/93**	**11/19/93**	**11/19/93**	**11/19/93**	**11/18/93**	**11/18/93**	**11/9/93**	**11/9/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	73	71	19	47	10	16	28	34
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-177**	**LR-178**	**LR-179**	**LR-17N**	**LR-180**	**LR-181-S-3**	**LR-182**	**LR-183**
Date Sampled	**11/9/93**	**11/9/93**	**11/9/93**	**11/1/93**	**11/9/93**	**12/16/93**	**3/25/93**	**11/19/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**1 to 2**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	20	41	14	26	84	6.3 J	40	24
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead							169	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-184**	**LR-185**	**LR-186**	**LR-187**	**LR-188**	**LR-189**	**LR-190**	**LR-191**
Date Sampled	**3/24/93**	**11/19/93**	**3/24/93**	**11/18/93**	**3/25/93**	**11/18/93**	**3/25/93**	**11/9/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	14	16	16	22	16	37	17	24
Aluminum								
Antimony								
Cadmium					0.36			
Chromium					14			
Copper					21			
Lead	86		12		20		87	
Mercury					0.14 U			
Nickel					17			
Zinc					32			

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-192**	**LR-193**	**LR-194**	**LR-195**	**LR-196**	**LR-197**	**LR-198**	**LR-199**
Date Sampled	**3/25/93**	**11/9/93**	**3/25/93**	**11/16/93**	**11/16/93**	**11/19/93**	**11/19/93**	**11/19/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	3	18	41	39	83	35	33	18
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	27		280					
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-200**	**LR-201**	**LR-202**	**LR-203**	**LR-204**	**LR-205**	**LR-206**	**LR-207**
Date Sampled	**11/18/93**	**11/18/93**	**11/18/93**	**11/18/93**	**11/18/93**	**11/18/93**	**11/18/93**	**11/10/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	30	15	19	25	14	46	19	140
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**LR-207-S-2**	**LR-207-S-3**	**LR-208**	**LR-209-DAVG**	**LR-210**	**LR-211**	**LR-212**	**LR-213**
Date Sampled		**12/10/93**	**11/16/93**	**3/25/93**	**11/16/93**	**3/25/93**	**11/16/93**	**3/25/93**
Depth (ft bgs)	**0.5 to 1**	**1 to 2**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	22	13	39	17	15	41	43	38
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead				38		85		105
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-214	LR-215	LR-216	LR-217	LR-218	LR-219	LR-220	LR-221
Date Sampled	11/19/93	3/25/93	11/19/93	3/25/93	11/18/93	3/25/93	11/18/93	3/25/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	59	13	23	21	28	24	49	21
Aluminum								
Antimony								
Cadmium		0.32						
Chromium		14						
Copper		20						
Lead		12		163		173		35
Mercury		0.11 U						
Nickel		14						
Zinc		35						

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-222	LR-223	LR-224	LR-225-DAVG	LR-225A	LR-226	LR-227	LR-228
Date Sampled	11/18/93	3/25/93	11/18/93	11/16/93	12/6/93	11/16/93	11/16/93	11/16/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	6.9	70	31	19	8.1	48	38	25
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead		62						
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-229	LR-230	LR-231	LR-232	LR-233	LR-234	LR-235	LR-236
Date Sampled	11/17/93	11/16/93	11/29/93	11/17/93	11/17/93	11/17/93	11/19/93	11/18/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	21	85	32	9.5	61 J	21 J	26	17
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-237-DAVG	LR-238	LR-239	LR-240	LR-241	LR-242	LR-243	LR-244
Date Sampled	11/18/93	11/18/93	11/18/93	11/18/93	11/16/93	3/25/93	11/16/93	3/25/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	36	13	52	44	8.1	4.5	3.6	24
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead						5 U		38
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-245-DAVG	LR-246	LR-247	LR-248	LR-249	LR-250	LR-251	LR-252
Date Sampled	3/25/93	11/17/93	3/25/93	11/17/93	3/25/93	11/18/93	3/25/93	11/18/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	47	22 J	32	17 J	8.5	17	25	36
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	264		101		308		74	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-253	LR-254	LR-254A	LR-255	LR-256	LR-257	LR-258	LR-259
Date Sampled	3/25/93	11/16/93	12/6/93	11/16/93	11/16/93	11/17/93	11/17/93	11/17/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	39	40	2	69	59	38 J	58 J	15
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead	82							
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-260	LR-261	LR-262	LR-263	LR-264	LR-265	LR-266	LR-267
Date Sampled	11/17/93	11/17/93	11/18/93	11/18/93	3/25/93	11/17/93	3/25/93	11/18/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	38 J	34	32	12	36	34	24	38
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead					287		278	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-301	LR-302	LR-303	LR-304	LR-305	LR-306	LR-307	LR-308
Date Sampled	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93	6/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	33 J	29 J	6.5 J	26 J	23 J	45 J	23 J	62 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-309	LR-310-DAVG	LR-311	LR-311-100E	LR-311-100N	LR-311-100S	LR-311-100W	LR-311-10S
Date Sampled	6/30/93	6/30/93	6/30/93	12/6/93	12/6/93	12/6/93	12/6/93	12/6/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	14 J	18	360	17	13	77	13	78
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-311-10W	LR-311-25S	LR-311-25W	LR-311-50N	LR-311-50S	LR-311-50W-DAVG	LR-311-75E	LR-311-75N
Date Sampled	12/6/93	12/6/93	12/6/93	12/6/93	12/6/93	12/6/93	12/6/93	12/6/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	110	29	13	85	240	68	16	36
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-311-75S	LR-311-75W	LR-311-S-2	LR-311-S-3	LR-312	LR-313	LR-314	LR-315
Date Sampled	12/6/93	12/6/93	12/10/93	12/10/93	6/30/93	6/30/93	6/30/93	6/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	76	28	55	100	25	34	11	20
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-316	LR-317	LR-318	LR-318-100E	LR-318-100N	LR-318-100S	LR-318-100W	LR-318-10E
Date Sampled	6/30/93	6/30/93	6/30/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	55	16	150	45	69	23	95	15
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-318-10N	LR-318-10S	LR-318-10W	LR-318-25E	LR-318-25N	LR-318-25S	LR-318-25W	LR-318-50E
Date Sampled	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	180	22	90	11	97	330	24	25
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-318-50N	LR-318-50S	LR-318-50W	LR-318-75E-DAVG	LR-318-75N	LR-318-75S	LR-318-75W	LR-318-S-2
Date Sampled	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/7/93	12/10/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1
Total Metals (mg/kg dry)								
Arsenic	25	40	51	47	27	55	62	8.7
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	LR-318-S-3	LR-319	LR-320	LR-321	LR-322	LR-38	RR-134-DAVG	RR-135
Date Sampled	12/10/93	6/30/93	6/30/93	6/30/93	6/30/93	3/24/93	12/20/93	12/20/93
Depth (ft bgs)	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	4.5	60	36	35	59	19	45	41
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-136	RR-140-A1	RR-140-B1	RR-142	RR-144	RR-145	RR-146	RR-147
Date Sampled	12/20/93	12/20/93	12/20/93	12/20/93	12/21/93	12/21/93	12/21/93	12/21/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	19	71	20	26	61	24	28	62
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-148	RR-149	RR-150	RR-151	RR-152	RR-153	RR-502	RR-503
Date Sampled	12/21/93	12/21/93	12/21/93	12/21/93	12/21/93	12/21/93	3/30/93	3/30/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	38	42	40	60	37	18	81	27
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-504	RR-506	RR-507	RR-509	RR-511-DAVG	RR-512	RR-513	RR-516
Date Sampled	3/30/93	3/30/93	3/30/93	3/30/93	3/31/93	4/1/93	4/1/93	
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	24	72	54	62	10	31	35	18 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-517-A2	RR-517-B2	RR-518	RR-520-DAVG	RR-521	RR-521-S-2-DAVG	RR-521-S-3	RR-522
Date Sampled	12/21/93	12/21/93				12/14/93	12/14/93	
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	84	110	28 J	23 J	76 J	7 J	3.3 J	10 J
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-524	RR-530-B	RR-530-C	RR-538-B	RR-538-C	RR-542-A1	RR-542-B1	RR-543-A1
Date Sampled						12/20/93	12/20/93	12/20/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	26 J	5.5	61	37	50	16	13	15
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	RR-543-B1	RR-544-B1	RR-544-B2	RR-545-B1	RR-545-B2	RR-546-C	RR-548-B1	RR-548-B2
Date Sampled	12/20/93	12/17/93	12/17/93	12/17/93	12/17/93		12/17/93	12/17/93
Depth (ft bgs)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Arsenic	33	27	6.5	13	15	46	13	61
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**RR-555-A1**	**RR-555-A2**	**RR-555-B1**	**RR-555-B2**	**RR-555-DAVG**	**RR-556**	**RR-558**	**RR-558-A1**
Date Sampled	**12/21/93**	**12/21/93**	**12/[illegible]**	**12/21/93**	**12/2/93**	**12/2/93**	**12/2/93**	**12/20/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	46	42	85	15	53	5.3	36	60
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead					34 J			
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**RR-558-B1**	**RR-567-B1**	**RR-567-B2**	**RR-582**	**RR-591-B1-DAVG**	**RR-591-B2**	**RR-593**	**UC-10**
Date Sampled	**12/20/93**	**12/17/93**	**12/17/93**	**12/3/93**	**12/17/93**	**12/17/93**	**12/2/93**	**7/1/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	59	210	21	36	7.8	11	27	61
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead				50 J			46 J	
Mercury								
Nickel								
Zinc								

Area	LR	LR	LR	LR	LR	LR	LR	LR
Sample ID	**UC-11**	**UC-12**	**UC-13**	**UC-14**	**UC-15**	**UC-16**	**UC-2**	**UC-5**
Date Sampled	**7/1/93**	**7/1/93**					**7/1/93**	**7/1/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)								
Arsenic	59	80	77	57	44	56	19	57
Aluminum								
Antimony								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Zinc								

Table B.14-1
Area LR Soil Metals Results

Area	LR	LR	LR	LR
Sample ID	**UC-6**	**UC-7**	**UC-8**	**UC-9**
Date Sampled	**7/1/93**	**7/1/93**	**7/1/93**	**7/1/93**
Depth (ft bgs)	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)				
Arsenic	33	59	40	87
Aluminum				
Antimony				
Cadmium				
Chromium				
Copper				
Lead				
Mercury				
Nickel				
Zinc				

Table B.14-2
Area LR Soil Explosives Results

Area	LR	LR	LR	LR	LR	LR	LR
Sample ID	**APA-SS-501**	**APA-TP-501-S-1-DAVG**	**APA-TP-501-S-2**	**APB-TP-502-S-1**	**APB-TP-502-S-2**	**APG-SS-501**	**APG-SS-502**
Date Sampled	**5/27/92**	**5/27/92**	**5/27/92**	**5/27/92**	**5/27/92**	**5/26/92**	**5/26/92**
Depth (ft bgs)	**0 to 0.5**	**0 to 1**	**3 to 5**	**0 to 1**	**3 to 5**	**0 to 0.5**	**0 to 0.5**
Explosives (mg/kg)							
1,3,5-Trinitrobenzene	0.18 U	0.067 U	0.031 U	0.034 U	0.031 U	0.16 U	0.17 U
1,3-Dinitrobenzene	0.23 U	0.089 U	0.041 U	0.046 U	0.041 U	0.21 U	0.23 U
2,4,6-Trinitrotoluene	0.018 U	0.0067 U	0.0031 U	0.0034 U	0.0031 U	0.016 U	0.017 U
2,4-Dinitrotoluene	0.035 U	0.013 U	0.0062 U	0.0068 U	0.0062 U	0.032 U	0.034 U
2,6-Dinitrotoluene	0.035 U	0.013 U	0.0062 U	0.0068 U	0.0062 U	0.032 U	0.034 U
DNT - Total	*0.07 U*	*0.026 U*	*0.0124 U*	*0.0136 U*	*0.0124 U*	*0.064 U*	*0.068 U*
Monomethylamine Nitrate	5.9 U	5.6 U	5.2 U				
Nitrobenzene	0.35 U	0.13 U	0.062 U	0.068 U	0.061 U	0.32 U	0.34 U
Nitroglycerine	0.24 U	1.1	0.21 U	0.23 U	0.21 U	0.21 U	0.23 U

Area	LR	LR	LR	LR	LR	LR	LR
Sample ID	**APG-SS-503**	**APG-TP-501-S-1**	**APG-TP-501-S-2**	**APG-TP-503-S-1**	**APG-TP-503-S-2**	**APG-TP-504-S-1**	**APG-TP-504-S-2**
Date Sampled	**5/26/92**	**5/26/92**	**5/26/92**	**5/26/92**	**5/26/92**	**5/27/92**	**5/27/92**
Depth (ft bgs)	**0 to 0.5**	**0 to 1**	**3 to 5**	**0 to 1**	**3 to 5**	**0 to 1**	**3 to 5**
Explosives (mg/kg)							
1,3,5-Trinitrobenzene	0.35 U	0.17 U	0.16 U	0.17 U	0.031 U	0.071 U	0.065 U
1,3-Dinitrobenzene	0.47 U	0.23 U	0.21 U	0.23 U	0.041 U	0.095 U	0.087 U
2,4,6-Trinitrotoluene	0.035 U	0.017 U	0.016 U	0.017 U	0.0031 U	0.0071 U	0.0065 U
2,4-Dinitrotoluene	0.07 U	0.035 U	0.032 U	0.035 U	0.0062 U	0.014 U	0.013 U
2,6-Dinitrotoluene	0.07 U	0.035 U	0.032 U	0.035 U	0.0062 U	0.014 U	0.013 U
DNT - Total	*0.14 U*	*0.07 U*	*0.064 U*	*0.07 U*	*0.0124 U*	*0.028 U*	*0.026 U*
Monomethylamine Nitrate							
Nitrobenzene	0.7 U	0.34 U	0.32 U	0.34 U	0.061 U	0.14 U	0.13 U
Nitroglycerine	0.23 U	0.23 U	0.21 U	0.23 U	0.21 U	0.23 U	0.22 U

Table B.14-3
Area LR Soil Pesticide, PCB, and TPH Results

Area	LR
Sample ID	BG-SS-4
Date Sampled	11/11/86
Depth	0 to 0.5
Pesticides (mg/kg dry)	
4,4'-DDD	20 U
4,4'-DDE	20 U
4,4'-DDT	20 U
Aldrin	0.6 J
Alpha-BHC	10 U
Beta-BHC	10 U
Chlordane	99.9 U
Delta-BHC	10 U
Dieldrin	20 U
Endosulfan I	10 U
Endosulfan II	20 U
Endosulfan Sulfate	20 U
Endrin	20 U
Endrin Ketone	20 U
Gamma-BHC	10 U
Heptachlor	10 U
Heptachlor Epoxide	10 U
Methoxychlor	99.9 U
Toxaphene	200 U
PCBs (mg/kg dry)	
PCB-1016	0.0999 U
PCB-1221	0.0999 U
PCB-1232	0.0999 U
PCB-1242	0.0999 U
PCB-1248	0.0999 U
PCB-1254	0.2 U
PCB-1260	0.2 U
TPH (mg/kg dry)	
Oil And Grease	120

Table B.14-4
Area LR Soil Nitrate Results

Area	LR	LR
Sample ID	APB-TP-502-S-1	APB-TP-502-S-2
Date Sampled	5/27/92	5/27/92
Depth (ft bgs)	0 to 1	3 to 5
General Chem (mg/kg dry)		
Nitrate as Nitrogen	2.7	1.8

Table B.15-1
Historical Railroad Grade Soil Metals Results

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	30-VS-3	30-VS-4	30-VS-5	30-VS-6	30-VS-7	LR-062S	LR-062W	LR-104 1'-2'
Date Sampled	3/30/92	3/30/92	3/30/92	3/30/92	4/7/92	11/4/92	11/4/92	
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2
Total Metals (mg/kg dry)								
Aluminum	18000	17000	14000	13000	3800			
Antimony	0.31 UJ	0.3 UJ	0.79 J	0.32 J	0.86 J			
Arsenic	7.6 J	6 J	12 J	11 J	21			7
Beryllium	0.39	0.4	0.31	0.28	0.14 U			
Cadmium	6.6	11.3	6.5	2	2.9 J			
Chromium	13	11	10	9.3	2.5			
Copper	14	18	19	13	5.1			
Lead	130	130	750	62	130	830	120	
Mercury	0.11 U	0.15	1.4	0.18	0.17			
Nickel	16	15	15	13	2.8			
Selenium	0.3 U	0.34	1.6	0.54	0.43			
Silver	0.037	0.068	0.21	0.037	0.36 U			
Thallium	0.3 U	0.3 U	0.31 U	0.3 U	0.35 U			
Zinc	1700	1400	1300	450	93			

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	LR-116	RR-102	RR-114	RR-115-DAVG	RR-116	RR-117	RR-118	RR-121
Date Sampled	11/10/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	130 J	290	330	340	220	180	230	360
Beryllium								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.15-1
Historical Railroad Grade Soil Metals Results

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	RR-515 1'-2'	RR-528	RR-528-S-2	RR-528-S-3	RR-529	RR-530	RR-530-A	RR-531
Date Sampled			12/13/93	12/13/93				
Depth	1 to 2	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	47	400 J	100 J	40 J	85 J	290 J	68	140 J
Beryllium								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	RR-533	RR-534	RR-535	RR-537	RR-538-A	RR-539	RR-540-DAVG	RR-544-A2
Date Sampled						7/7/93		12/17/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	50 J	140 J	190	210	50	260 J	88	9.1
Beryllium								
Cadmium								
Chromium								
Copper								
Lead								
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.15-1
Historical Railroad Grade Soil Metals Results

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	RR-545-A2	RR-548-A2	RR-559-S-3	RR-560	RR-561	RR-562	RR-563	RR-564
Date Sampled	12/17/93	12/17/93	12/16/93	12/2/93	12/2/93	12/2/93	12/2/93	12/2/93
Depth	0 to 0.5	0 to 0.5	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	40	21	16	110	190	280	150	150
Beryllium								
Cadmium								
Chromium								
Copper								
Lead					5.9 U		24 J	
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Area	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	RR-566	RR-567	RR-567-A1	RR-567-A2	RR-567-S-2	RR-567-S-3	RR-583	RR-588
Date Sampled	12/1/93	12/1/93	12/17/93	12/17/93	12/15/93	12/15/93	12/3/93	12/2/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)								
Aluminum								
Antimony								
Arsenic	520	400	310	56	16 J	6.7 J	15	280
Beryllium								
Cadmium								
Chromium								
Copper								
Lead	43 J							
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								

Table B.15-1
Historical Railroad Grade Soil Metals Results

Area	RR-N	RR-N	RR-N	RR-N
Sample ID	RR-589	RR-594	RR-595-S-3	RR-622
Date Sampled	12/2/93	12/3/93	12/15/93	12/3/93
Depth	0 to 0.5	0 to 0.5	1 to 2	0 to 0.5
Total Metals (mg/kg dry)				
Aluminum				
Antimony				
Arsenic	370	180	23 J	62
Beryllium				
Cadmium				
Chromium				
Copper				
Lead	93 J			
Mercury				
Nickel				
Selenium				
Silver				
Thallium				
Zinc				

Table B.15-2
Historical Railroad Grade Soil TPH Results

Area	RR-N	RR-N	RR-N	RR-N	RR-N
Sample ID	30-VS-3	30-VS-4	30-VS-5	30-VS-6	30-VS-7
Date Sampled	3/30/92	3/30/92	3/30/92	3/30/92	4/7/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg dry)					
TPH Scan	25 U	25 U	24 U	25 U	20 U
Diesel	25 U	25 U	25 U	25 U	25 U
Gasoline	9	5 U	12	7	5 U

Table B.16-1
Creek Area Soil Metals Results

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	01-OS02-SS-[LR-68-1050E]-C1-000	01-OS02-SS-[LR-68-1125E]-C1-000	01-OS02-SS-[LR-68-1200E]-C1-000	01-OS02-SS-[LR-68-1425E]-C1-000	01-OS02-SS-[LR-68-1500E]-C1-000
Date Sampled	1/10/01	1/10/01	1/10/01	1/10/01	1/10/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	230	110	210	410	250
Cadmium					
Chromium					
Copper					
Lead	52	58	94	2400	62
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	01-OS02-SS-[LR-68-150E]-C1-000	01-OS02-SS-[LR-68-150W]-C1-000	01-OS02-SS-[LR-68-1650E]-C1-000	01-OS02-SS-[LR-68-1725E]-C1-000	01-OS02-SS-[LR-68-225E]-C1-000
Date Sampled	1/10/01	1/11/01	1/10/01	1/10/01	1/10/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	370	220	440	120	150
Cadmium					
Chromium					
Copper					
Lead	56	48	220	330	22
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	01-OS02-SS-[LR-68-225W]-C1-000	01-OS02-SS-[LR-68-300E]-C1-000	01-OS02-SS-[LR-68-300W]-C1-000	01-OS02-SS[LR-68-300W-TRANSECT]-C1-000	01-OS02-SS-[LR-68-375E]-C1-000
Date Sampled	1/11/01	1/10/01	1/11/01	8/29/01	1/10/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	95	320	230	20	280
Cadmium					
Chromium					
Copper					
Lead	63	34	26	23	37
Mercury					
Nickel					
Zinc					

Table B.16-1
Creek Area Soil Metals Results

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	01-OS02-SS-[LR-68-375W]-C1-000	01-OS02-SS-[LR-68-450E]-C1-000	01-OS02-SS-[LR-68-450W]-C1-000	01-OS02-SS[LR-68-600E-TRANSECT]-C1-000	01-OS02-SS-[LR-68-675E]-C1-000
Date Sampled	1/11/01	1/10/01	1/11/01	8/29/01	1/10/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	120	30	110	20	140
Cadmium					
Chromium					
Copper					
Lead	22	19	12	1700	21
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	01-OS02-SS-[LR-68-750E]-C1-000	01-OS02-SS-[LR-68-825E]-C1-000	01-OS02-SS-[LR-68-900E]-C1-000	01-OS02-SS-[LR-68-975E]-C1-000	02-OS02-[LR-68-600E-2-TRANSECT]-D1-000
Date Sampled	1/10/01	1/10/01	1/10/01	1/10/01	9/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	320	140	99	27	33
Cadmium					
Chromium					
Copper					
Lead	30	40	62	12	2900
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	02-OS02-[LR-68-600E-3-TRANSECT]-D1-000	02-OS02-[LR-68-600E-4-TRANSECT]-D1-000	02-OS02-[LR-68-600E-5-TRANSECT]-D1-000	02-OS02-[LR-68-600E-6-TRANSECT]-D1-000	02-OS02-SS[LR-68-0-02]C02-1.5
Date Sampled	9/12/01	9/12/01	9/12/01	9/12/01	8/1/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	22	19	16	19	98
Cadmium					
Chromium					
Copper					
Lead	360	260	430	10	210
Mercury					
Nickel					
Zinc					

Table B.16-1
Creek Area Soil Metals Results

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	02-OS02-SS[LR-68-1350E-02]C02-1.5	02-OS02-SS[LR-68-1575E-02]C02-1.5	02-OS02-SS[LR-68-525E-02]C02-1.5	02-OS02-SS[LR-68-600E-02]C02-1.5	02-OS02-SS[LR-68-75-02]C02-1.5
Date Sampled	8/1/01	8/1/01	8/1/01	8/1/01	8/1/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	40	67	65	130	99
Cadmium					
Chromium					
Copper					
Lead	9.1	21	190	20	16
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	31-SS-402	31-SS-502	31-TP-509-S-1	31-TP-509-S-2	31-TP-509-S-3
Date Sampled	11/8/93	2/14/92	2/27/92	2/27/92	2/27/92
Depth	0 to 0.5	0 to 0.5	0 to 1	3 to 6	8 to 10
Total Metals (mg/kg dry)					
Arsenic	14			2.3	2.6
Cadmium				0.053 J	0.047 J
Chromium				12	12
Copper				14	11
Lead		45	5.9 U	5.4 UJ	5.1 UJ
Mercury				0.078 U	0.08 U
Nickel				18	15
Zinc				22	21

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	31-VS-432	31-VS-433	31-VS-528	31-VS-530	31-VS-531
Date Sampled	1/25/00	1/25/00	4/18/00	4/18/00	4/18/00
Depth	2 to 4.5	0 to 0.5	1 to 2.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	2.3	93	5.3	11	16
Cadmium					
Chromium					
Copper					
Lead	6	32	7.1	12	32
Mercury					
Nickel					
Zinc					

Table B.16-1
Creek Area Soil Metals Results

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	LR-052	LR-069W	LR-085	LR-101	LR-102
Date Sampled	11/8/93	12/15/93	11/8/93	3/29/93	3/29/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	6.3 J	18 J	7.9 J	15 J	14 J
Cadmium					
Chromium					
Copper					
Lead				11	521
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	LR-120	LR-68-E125	LR-68-N125-DAVG	LR-68-S125	LR-68-S175
Date Sampled	12/15/93	11/4/92	11/4/92	11/4/92	5/14/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	27 J				12
Cadmium					
Chromium					
Copper					
Lead		10	76	17	11
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	LR-68-S275	LR-68-S375	LR-68-S475-DAVG	LR-68-S575	LR-68-S675
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic					
Cadmium					
Chromium					
Copper					
Lead	18	11	5 U	12000	11
Mercury					
Nickel					
Zinc					

Table B.16-1
Creek Area Soil Metals Results

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	*LR-68-S775*	*LR-68-S875*	*LR-68-W25*	*RR-592*	*RR-596*
Date Sampled	5/14/93	5/14/93	4/6/93	12/2/93	12/3/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic				39	440
Cadmium					
Chromium					
Copper					
Lead	14	1600	150		
Mercury					
Nickel					
Zinc					

Area	Creek	Creek	Creek	Creek	Creek
Sample ID	RR-596-S-2	RR-596-S-3	RR-597	RR-598-DAVG	RR-599
Date Sampled	*12/15/93*	*12/15/93*	*12/3/93*	*12/3/93*	*12/3/93*
Depth	0.5 to 1	1 to 2	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	360 J	120 J	320	260	170
Cadmium					
Chromium					
Copper					
Lead	13		720 J		6.3 J
Mercury					
Nickel					
Zinc					

Table B.16-2
Creek Area Soil Explosives Results

Area	Creek	Creek	Creek
Sample ID	31-TP-509-S-1	31-TP-509-S-2	31-TP-509-S-3
Date Sampled	2/27/92	2/27/92	2/27/92
Depth (ft bgs)	0 to 1	3 to 6	8 to 10
Explosives (mg/kg dry)			
1,3-Dinitrobenzene	0.048 U	0.042 U	
2,4-Dinitrotoluene	0.0072 U	0.0064 U	0.18 U
2,6-Dinitrotoluene	0.0072 U	0.0064 U	0.18 U
DNT - Total	0.0144 U	0.0128 U	0.36 U
Nitrobenzene	0.071 U	0.063 U	0.18 U
1,3,5-Trinitrobenzene	0.036 U	0.032 U	
2,4,6-Trinitrotoluene	0.0036 U	0.0032 U	

Table B.16-3
Creek Area Soil SVOC Results

Area	Creek	Creek
Sample ID	31-TP-509-S-2	31-TP-509-S-3
Date Sampled	2/27/92	2/27/92
Depth (ft bgs)	3 to 6	8 to 10
Semivolatiles (mg/kg dry)		
Aniline	0.18 U	0.18 U
Benzidine	1.8 U	1.8 U
Benzoic Acid	0.92 U	0.91 U
Benzyl Alcohol	0.18 U	0.18 U
Bis(2-Chloroethoxy)methane	0.18 U	0.18 U
Bis(2-Chloroisopropyl)ether	0.18 U	0.18 U
Bis(2-ethylhexyl)Phthalate (DEHP)	0.18 U	0.18 U
Bis(Chloroethyl)ether	0.18 U	0.18 U
Bromodiphenyl ether, 4-	0.18 U	0.18 U
Butyl Benzyl Phthalate, N-	0.18 U	0.18 U
Chloroaniline, 4-	0.18 U	0.18 U
Chloronaphthalene, 2-	0.18 U	0.18 U
Chlorophenol, 2-	0.18 U	0.18 U
Chlorophenyl-phenyl ether, 4-	0.18 U	0.18 U
Dibenzofuran	0.18 U	0.18 U
Dibutyl Phthalate	0.18 U	0.18 U
Dichlorobenzene, 1,2-	0.18 U	0.18 U
Dichlorobenzene, 1,3-	0.18 U	0.18 U
Dichlorobenzene, 1,4-	0.18 U	0.18 U
Dichlorobenzidine, 3,3'	0.37 U	0.36 U
Dichlorophenol, 2,4-	0.18 U	0.18 U
Diethyl Phthalate	0.18 U	0.18 U
Dimethyl Phthalate	0.18 U	0.18 U
Dimethylphenol, 2,4-	0.18 U	0.18 U
Dinitro-o-Cresol, 4,6-	0.92 U	0.91 U
Dinitrophenol, 2,4-	0.92 U	0.91 U
Di-N-Octylphthalate	0.18 U	0.18 U
Hexachlorobenzene	0.18 U	0.18 U
Hexachlorobutadiene	0.18 U	0.18 U
Hexachlorocyclopentadiene	0.18 U	0.18 U
Hexachloroethane	0.18 U	0.18 U
Isophorone	0.18 U	0.18 U
Methylphenol, 2-	0.18 U	0.18 U
Methylphenol, 4-	0.18 U	0.18 U
Nitroaniline, 2-	0.92 U	0.91 U
Nitroaniline, 3-	0.92 U	0.91 U
Nitroaniline, 4-	0.92 U	0.91 U
Nitrophenol, 2-	0.18 U	0.18 U
Nitrophenol, 4-	0.92 U	0.91 U
Nitrosodimethylamine, N-	0.18 U	0.18 U
Nitrosodi-N-propylamine, N-	0.18 U	0.18 U
Nitrosodiphenylamine, N-	0.18 U	0.18 U
Pentachlorophenol	0.18 U	0.18 U
Phenol	0.18 U	0.18 U
Trichlorobenzene, 1,2,4-	0.18 U	0.18 U
Trichlorophenol, 2,4,5-	0.92 U	0.91 U
Trichlorophenol, 2,4,6-	0.18 U	0.18 U

Table B.16-4
Creek Area Soil PAH Results

Area	Creek	Creek
Sample ID	31-TP-509-S-2	31-TP-509-S-3
Date Sampled	2/27/92	2/27/92
Depth (ft bgs)	3 to 6	8 to 10
PAHs (mg/kg dry)		
Acenaphthene	0.18 U	0.18 U
Acenaphthylene	0.18 U	0.18 U
Anthracene	0.0088 U	0.0089 U
Benzo(a)Anthracene	0.018 U	0.018 U
Benzo(a)Pyrene	0.018 U	0.018 U
Benzo(b)Fluoranthene	0.018 U	0.018 U
Benzo(g,h,i)Perylene	0.018 U	0.018 U
Benzo(k)Fluoranthene	0.018 U	0.018 U
Chrysene	0.018 U	0.018 U
Dibenz(a,h)anthracene	0.036 U	0.037 U
Fluoranthene	0.018 U	0.018 U
Fluorene	0.018 U	0.018 U
Indeno(1,2,3-cd)pyrene	0.018 U	0.018 U
Methylnaphthalene, 2-	0.18 U	0.18 U
Naphthalene	0.088 U	0.089 U
Phenanthrene	0.0088 U	0.0089 U
Pyrene	0.018 U	0.018 U
PAH (Non-Carc) - Total	0.7176 U	0.7188 U
Total Carcinogenic PAHS (BaP TEQs)	0.059598 U	0.060598 U

Table B.16-5
Creek Area Soil TPH Results

Area	Creek	Creek
Sample ID	**31-TP-509-S-2**	**31-TP-509-S-3**
Date Sampled	**2/27/92**	**2/27/92**
Depth (ft bgs)	**3 to 6**	**8 to 10**
TPH (mg/kg dry)		
TPH (418.1)	20 U	20 U

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R19C55]-D1-000	01-C011-SS-[R20C55]-D1-000	01-C011-SS-[R20C56]-D1-000	01-C011-SS-[R21C55]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	30	17	2.5 U	35
Lead	29	40	10	95

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R21C56]-D1-000	01-C011-SS-[R21C57]-D1-000	01-C011-SS-[R21C58]-D1-000	01-C011-SS-[R22C55]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	4.7	34	40	45
Lead	11	89	98	77

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R22C56]-D1-000-DAVG	01-C011-SS-[R22C57]-D1-000	01-C011-SS-[R22C58]-D1-000	01-C011-SS-[R22C59]-D1-000
Date Sampled	4/3/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	23	39	63	46
Lead	26	210	84	52

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R23C55]-D1-000	01-C011-SS-[R23C56]-D1-000	01-C011-SS-[R23C57]-D1-000	01-C011-SS-[R23C58]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	19	3.5	28	22
Lead	21	7.8	36	43

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R23C59]-D1-000	01-C011-SS-[R24C55]-D1-000	01-C011-SS-[R24C56]-D1-000	01-C011-SS-[R24C57]-D1-000
Date Sampled	2/22/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	31	43	36	15
Lead	30	230	79	14

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R24C58]-D1-000	01-C011-SS-[R24C59]-D1-000	01-C011-SS-[R24C60]-D1-000	01-C011-SS-[R25C55]-D1-000
Date Sampled	2/20/01	2/22/01	2/22/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	12	53	45	51
Lead	15	61	25	67

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R25C56]-D1-000	01-C011-SS-[R25C57]-D1-000	01-C011-SS-[R25C58]-D1-000	01-C011-SS-[R25C59]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	14	31	59	58
Lead	14	28	160	38

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R25C60]-D1-000	01-C011-SS-[R26C55]-D1-000	01-C011-SS-[R26C56]-D1-000	01-C011-SS-[R26C57]-D1-000
Date Sampled	2/22/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	55	43	39	45
Lead	52	150	64	81

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R26C58]-D1-000	01-C011-SS-[R26C59]-D1-000	01-C011-SS-[R26C60]-D1-000	01-C011-SS-[R26C61]-D1-000
Date Sampled	2/20/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	37	20	71	84
Lead	46 J	26	230	100

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R27C55]-D1-000	01-C011-SS-[R27C56]-D1-000	01-C011-SS-[R27C57]-D1-000	01-C011-SS-[R27C58]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	3.5	47	34	26
Lead	8.7	130	80	34 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R27C59]-D1-000	01-C011-SS-[R27C60]-D1-000	01-C011-SS-[R27C61]-D1-000	01-C011-SS-[R28C55]-D1-000
Date Sampled	2/20/01	2/22/01	2/22/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	48	60	91	12
Lead	75 J	27	77	25

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R28C56]-D1-000	01-C011-SS-[R28C57]-D1-000	01-C011-SS-[R28C58]-D1-000	01-C011-SS-[R28C59]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	42	15	61	38
Lead	21	30	43 J	64 J

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R28C60]-D1-000	01-C011-SS-[R28C61]-D1-000	01-C011-SS-[R28C62]-D1-000	01-C011-SS-[R29C55]-D1-000-DAVG
Date Sampled	2/22/01	2/22/01	2/22/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	34	20	85	12
Lead	80	17	21	18

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R29C56]-D1-000	01-C011-SS-[R29C57]-D1-000	01-C011-SS-[R29C59]-D1-000	01-C011-SS-[R29C60]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	16	8.7	37	21
Lead	25	13	49 J	17

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R29C61]-D1-000-DAVG	01-C011-SS-[R29C62]-D1-000	01-C011-SS-[R30C55]-D1-000-DAVG	01-C011-SS-[R30C56]-D1-000
Date Sampled	2/22/01	2/22/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	22.5	24	28	38
Lead	39	24	66	65

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R30C57]-D1-000	01-C011-SS-[R30C58]-D1-000	01-C011-SS-[R30C59]-D1-000	01-C011-SS-[R30C60]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	16	12	45	26
Lead	28	34 J	60 J	64

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R30C61]-D1-000	01-C011-SS-[R30C62]-D1-000	01-C011-SS-[R31C55]-D1-000-DAVG	01-C011-SS-[R31C56]-D1-000
Date Sampled	2/22/01	2/22/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	57	16	16.5	62
Lead	330	17	40.5	45

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R31C57]-D1-000	01-C011-SS-[R31C58]-D1-000	01-C011-SS-[R31C59]-D1-000	01-C011-SS-[R31C60]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	22	2.4 U	49	29
Lead	71	5.4 J	150 J	20

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R31C61]-D1-000	01-C011-SS-[R31C62]-D1-000	01-C011-SS-[R31C63]-D1-000	01-C011-SS-[R32C56]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	24	35	55	19
Lead	21	48	38	20

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R32C57]-D1-000	01-C011-SS-[R32C58]-D1-000	01-C011-SS-[R32C59]-D1-000	01-C011-SS-[R32C60]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	21	8.2	12	37
Lead	26	13 J	42 J	79

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R32C61]-D1-000	01-C011-SS-[R32C62]-D1-000	01-C011-SS-[R32C63]-D1-000	01-C011-SS-[R32C64]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	30	59	54	76
Lead	36	110	97	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R33C56]-D1-000	01-C011-SS-[R33C57]-D1-000	01-C011-SS-[R33C58]-D1-000	01-C011-SS-[R33C59]-D1-000
Date Sampled	2/20/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	31	36	18	4
Lead	25	54	23 J	9.1 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R33C60]-D1-000	01-C011-SS-[R33C61]-D1-000	01-C011-SS-[R33C62]-D1-000	01-C011-SS-[R33C63]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	39	48	42	33
Lead	79	44	43	59

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R33C64]-D1-000	01-C011-SS-[R34C57]-D1-000	01-C011-SS-[R34C58]-D1-000	01-C011-SS-[R34C59]-D1-000
Date Sampled	2/22/01	2/20/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	39	27	36	6.4
Lead	65	47	54 J	14 J

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R34C60]-D1-000	01-C011-SS-[R34C61]-D1-000	01-C011-SS-[R34C62]-D1-000	01-C011-SS-[R34C63]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	15	18	28	37
Lead	38	33	32	49

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R34C64]-D1-000	01-C011-SS-[R35C58]-D1-000	01-C011-SS-[R35C59]-D1-000	01-C011-SS-[R35C60]-D1-000
Date Sampled	2/22/01	2/20/01	2/20/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	8.6	8.2	15	65
Lead	4.4	11 J	44 J	92

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R35C61]-D1-000	01-C011-SS-[R35C62]-D1-000	01-C011-SS-[R35C63]-D1-000	01-C011-SS-[R35C64]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	19	35	110	18
Lead	13	56	120	7.7

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R35C65]-D1-000	01-C011-SS-[R36C59]-D1-000	01-C011-SS-[R36C60]-D1-000	01-C011-SS-[R36C61]-D1-000
Date Sampled	2/22/01	2/20/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	62	4.7	8.6	83
Lead	100	9.4 J	12	210

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R36C62]-D1-000	01-C011-SS-[R36C63]-D1-000	01-C011-SS-[R36C64]-D1-000	01-C011-SS-[R36C65]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	16	16	42	92
Lead	15	21	59	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R37C60]-D1-000	01-C011-SS-[R37C61]-D1-000	01-C011-SS-[R37C62]-D1-000-DAVG	01-C011-SS-[R37C63]-D1-000-DAVG
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	26	48	39.5	38.5
Lead	97	67	29.5	21

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R37C64]-D1-000	01-C011-SS-[R37C65]-D1-000	01-C011-SS-[R38C62]-D1-000	01-C011-SS-[R38C63]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	21	52	28	31
Lead	28	21	18	29

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R38C64]-D1-000	01-C011-SS-[R38C65]-D1-000	01-C011-SS-[R39C62]-D1-000	01-C011-SS-[R39C63]-D1-000
Date Sampled	2/22/01	2/22/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	32	49	120	43
Lead	37	63	130	29

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R39C64]-D1-000	01-C011-SS-[R39C65]-D1-000	01-C011-SS-[R40C63]-D1-000	01-C011-SS-[R40C64]-D1-000
Date Sampled	2/22/01	2/20/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	35	2 U	39	35
Lead	16	5.1	33	36

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R40C65]-D1-000	01-C011-SS-[R40C66]-D1-000	01-C011-SS-[R41C63]-D1-000	01-C011-SS-[R41C64]-D1-000
Date Sampled	2/20/01	2/20/01	2/22/01	2/22/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	17	18	23	33
Lead	52	44	35	9.9

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R41C65]-D1-000	01-C011-SS-[R41C66]-D1-000	01-C011-SS-[R42C64]-D1-000-DAVG	01-C011-SS-[R42C65]-D1-000
Date Sampled	2/20/01	2/20/01	2/22/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	18	13	8.85	25
Lead	33	22	10.95	110

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R42C66]-D1-000	01-C011-SS-[R43C64]-D1-000	01-C011-SS-[R43C65]-D1-000	01-C011-SS-[R43C66]-D1-000
Date Sampled	2/20/01	2/22/01	2/20/01	2/20/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	19	15	47	15
Lead	51	27	160	27

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R43C67]-D1-000	01-C011-SS-[R44C65]-D1-000	01-C011-SS-[R44C66]-D1-000	01-C011-SS-[R44C67]-D1-000
Date Sampled	2/15/01	2/20/01	2/20/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	18	26	33	30
Lead	59	54	65	60

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R44C68]-D1-000	01-C011-SS-[R45C65]-D1-000	01-C011-SS-[R45C66]-D1-000	01-C011-SS-[R45C67]-D1-000
Date Sampled	2/15/01	2/20/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	12	60	48	30
Lead	35	22	140	26

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R45C68]-D1-000	01-C011-SS-[R45C69]-D1-000	01-C011-SS-[R45C70]-D1-000	01-C011-SS-[R46C66]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	68	54	18	110
Lead	270	120	20	83

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R46C67]-D1-000	01-C011-SS-[R46C68]-D1-000	01-C011-SS-[R46C69]-D1-000	01-C011-SS-[R46C70]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	49	50	67	16
Lead	97	89	450	15

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R46C71]-D1-000	01-C011-SS-[R47C66]-D1-000-DAVG	01-C011-SS-[R47C67]-D1-000	01-C011-SS-[R47C68]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	18	63.5	83	56
Lead	26	88.5	69	320

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R47C69]-D1-000	01-C011-SS-[R47C70]-D1-000	01-C011-SS-[R47C71]-D1-000	01-C011-SS-[R48C66]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	62	4.5	89	46
Lead	86	14	24	35

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C011-SS-[R48C69]-D1-000	01-C011-SS-[R48C70]-D1-000	01-C012-SS-[R61C68]-D1-000-DAVG	01-C012-SS-[R61C69]-D1-000
Date Sampled	2/15/01	2/15/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	3.3	39	45	49
Lead	4.7	68	115	81

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R61C70]-D1-000	01-C012-SS-[R61C71]-D1-000	01-C012-SS-[R61C72]-D1-000	01-C012-SS-[R61C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	79	31	80	60
Lead	110	32	190	130

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R61C7[illegible]-D1-000	01-C012-SS-[R62C67]-D1-000	01-C012-SS-[R62C68]-D1-000	01-C012-SS-[R62C69]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	33	110	39	20
Lead	37	130	200	22

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R62C70]-D1-000	01-C012-SS-[R62C71]-D1-000	01-C012-SS-[R62C72]-D1-000	01-C012-SS-[R62C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	38	38	65	32
Lead	110	53	86	32

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R62C74]-D1-000	01-C012-SS-[R63C67]-D1-000	01-C012-SS-[R63C68]-D1-000	01-C012-SS-[R63C69]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	110	54	76	47
Lead	98	39	140	88

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R63C70]-D1-000	01-C012-SS-[R63C71]-D1-000	01-C012-SS-[R63C72]-D1-000	01-C012-SS-[R63C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/6/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	91	20	25	76
Lead	170	17	22	46

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R63C74]-D1-000-DAVG	01-C012-SS-[R64C67]-D1-000	01-C012-SS-[R64C68]-D1-000	01-C012-SS-[R64C69]-D1-000
Date Sampled	2/2/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	60	19	13	16
Lead	70.5	31	22	28

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R64C70]-D1-000	01-C012-SS-[R64C71]-D1-000	01-C012-SS-[R64C72]-D1-000	01-C012-SS-[R64C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	18	54	16	48
Lead	21	110	13	57

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R64C74]-D1-000	01-C012-SS-[R65C67]-D1-000	01-C012-SS-[R65C68]-D1-000	01-C012-SS-[R65C69]-D1-000
Date Sampled	2/2/01	2/5/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	28	17	51	87
Lead	28	29	39	110

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R65C70]-D1-000	01-C012-SS-[R65C71]-D1-000	01-C012-SS-[R65C72]-D1-000	01-C012-SS-[R65C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	49	36	34	46
Lead	57	42	52	65

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R65C74]-D1-000	01-C012-SS-[R66C67]-D1-000	01-C012-SS-[R66C68]-D1-000	01-C012-SS-[R66C69]-D1-000
Date Sampled	2/2/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	17	30 J	44 J	60 J
Lead	25	38 J	63 J	110 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R66C70]-D1-000	01-C012-SS-[R66C71]-D1-000	01-C012-SS-[R66C72]-D1-000	01-C012-SS-[R66C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	26	39	45	69
Lead	35	70	140	80

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R66C74]-D1-000	01-C012-SS-[R67C67]-D1-000	01-C012-SS-[R67C68]-D1-000	01-C012-SS-[R67C69]-D1-000
Date Sampled	2/2/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	24	61 J	130 J	23 J
Lead	41	93 J	70 J	46 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R67C70]-D1-000	01-C012-SS-[R67C71]-D1-000	01-C012-SS-[R67C72]-D1-000	01-C012-SS-[R67C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	27	34	7.6	47
Lead	28	58	10	29

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R67C74]-D1-000	01-C012-SS-[R68C67]-D1-000	01-C012-SS-[R68C68]-D1-000	01-C012-SS-[R68C69]-D1-000
Date Sampled	2/2/01	1/30/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	15	28 J	46	50
Lead	20	62 J	57	75

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R68C70]-D1-000	01-C012-SS-[R68C71]-D1-000	01-C012-SS-[R68C72]-D1-000	01-C012-SS-[R68C73]-D1-000
Date Sampled	1/30/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	28 J	50	25	69
Lead	61 J	180	51	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R68C74]-D1-000	01-C012-SS-[R69C67]-D1-000	01-C012-SS-[R69C68]-D1-000	01-C012-SS-[R69C69]-D1-000
Date Sampled	2/2/01	1/30/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	47	35 J	23	53
Lead	110	52 J	39	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R69C70]-D1-000	01-C012-SS-[R69C71]-D1-000	01-C012-SS-[R69C72]-D1-000-DAVG	01-C012-SS-[R69C73]-D1-000
Date Sampled	1/30/01	2/5/01	2/5/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	15 J	8.8	59	20
Lead	20 J	9.2	67	20

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R69C74]-D1-000	01-C012-SS-[R70C67]-D1-000	01-C012-SS-[R70C68]-D1-000	01-C012-SS-[R70C69]-D1-000
Date Sampled	2/2/01	1/30/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	27	66 J	58	74
Lead	23	120 J	51	150

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R70C70]-D1-000	01-C012-SS-[R70C71]-D1-000	01-C012-SS-[R70C72]-D1-000	01-C012-SS-[R70C73]-D1-000
Date Sampled	2/5/01	1/30/01	2/2/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	13	50 J	24	68
Lead	15	77 J	55	54

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R70C74]-D1-000	01-C012-SS-[R71C67]-D1-000	01-C012-SS-[R71C68]-D1-000	01-C012-SS-[R71C69]-D1-000
Date Sampled	2/2/01	1/30/01	2/5/01	2/5/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	44	20 J	74	14
Lead	42	39 J	77	20

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R71C70]-D1-000	01-C012-SS-[R71C71]-D1-000	01-C012-SS-[R71C72]-D1-000	01-C012-SS-[R71C73]-D1-000
Date Sampled	2/5/01	2/5/01	2/2/01	2/2/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	23	57	41	44
Lead	26	82	66	81

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R71C74]-D1-000	01-C012-SS-[R72C67]-D1-000	01-C012-SS-[R72C68]-D1-000	01-C012-SS-[R72C69]-D1-000
Date Sampled	2/2/01	1/30/01	2/5/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	43	17 J	22	35
Lead	90	19 J	28	40

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R72C70]-D1-000	01-C012-SS-[R72C71]-D1-000-DAVG	01-C012-SS-[R72C72]-D1-000	01-C012-SS-[R72C73]-D1-000
Date Sampled	2/5/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	54	56.5	120	40
Lead	83	130	170	45

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R72C74]-D1-000-DAVG	01-C012-SS-[R73C67]-D1-000	01-C012-SS-[R73C68]-D1-000	01-C012-SS-[R73C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	45	31	55	69
Lead	62.5	80	39	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R73C70]-D1-000	01-C012-SS-[R73C71]-D1-000	01-C012-SS-[R73C72]-D1-000	01-C012-SS-[R73C73]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	71	130	33	8.1
Lead	66	83	50	11

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R73C74]-D1-000	01-C012-SS-[R74C67]-D1-000-DAVG	01-C012-SS-[R74C68]-D1-000	01-C012-SS-[R74C69]-D1-000-DAVG
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	30	33.5	15	54.5
Lead	53	88	28 J	125

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R74C70]-D1-000	01-C012-SS-[R74C71]-D1-000	01-C012-SS-[R74C72]-D1-000	01-C012-SS-[R74C73]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	35	26	69	59
Lead	59	33	220	84

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R74C74]-D1-000	01-C012-SS-[R75C67]-D1-000	01-C012-SS-[R75C68]-D1-000	01-C012-SS-[R75C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	35	41	23	57
Lead	55	46 J	46 J	110 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R75C70]-D1-000	01-C012-SS-[R75C71]-D1-000	01-C012-SS-[R75C72]-D1-000	01-C012-SS-[R75C73]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	32	45	16	20
Lead	43 J	91	28	27

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R75C74]-D1-000	01-C012-SS-[R76C67]-D1-000	01-C012-SS-[R76C68]-D1-000	01-C012-SS-[R76C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	31	38	48	43
Lead	46	53 J	51	57 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R76C70]-D1-000	01-C012-SS-[R76C71]-D1-000	01-C012-SS-[R76C72]-D1-000	01-C012-SS-[R76C73]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	43	38	30	87
Lead	84	55	82	91

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R76C74]-D1-000	01-C012-SS-[R77C67]-D1-000	01-C012-SS-[R77C68]-D1-000	01-C012-SS-[R77C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	29	37	39	77
Lead	56	40 J	77 J	69 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R77C70]-D1-000	01-C012-SS-[R77C71]-D1-000	01-C012-SS-[R77C72]-D1-000	01-C012-SS-[R77C73]-D1-000-DAVG
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	50	45	30	28
Lead	48 J	41	55	30

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R77C74]-D1-000	01-C012-SS-[R78C67]-D1-000	01-C012-SS-[R78C68]-D1-000	01-C012-SS-[R78C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	37	84	30	21
Lead	67	110 J	24 J	24 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R78C70]-D1-000	01-C012-SS-[R78C71]-D1-000	01-C012-SS-[R78C72]-D1-000	01-C012-SS-[R78C73]-D1-000
Date Sampled	1/30/01	1/30/01	1/30/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	42	12	110	33 J
Lead	51 J	16	150	31 J

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R78C74]-D1-000	01-C012-SS-[R79C67]-D1-000	01-C012-SS-[R79C68]-D1-000	01-C012-SS-[R79C69]-D1-000
Date Sampled	1/30/01	1/30/01	1/29/01	1/29/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	250	42	44	79
Lead	46	50 J	410	71

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R79C70]-D1-000	01-C012-SS-[R79C71]-D1-000	01-C012-SS-[R79C72]-D1-000	01-C012-SS-[R79C73]-D1-000
Date Sampled	1/29/01	1/29/01	1/29/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	36	33	41	370
Lead	67	65	55	59

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R79C74]-D1-000-DAVG	01-C012-SS-[R80C67]-D1-000	01-C012-SS-[R80C68]-D1-000	01-C012-SS-[R80C69]-D1-000
Date Sampled	1/30/01	1/29/01	1/29/01	1/29/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	255	30	15	97
Lead	46.5	30	29	210

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R80C70]-D1-000	01-C012-SS-[R80C71]-D1-000	01-C012-SS-[R80C72]-D1-000	01-C012-SS-[R80C73]-D1-000
Date Sampled	1/29/01	1/29/01	1/29/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	87	58	80	180
Lead	180	110	120	42

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R81C67]-D1-000	01-C012-SS-[R81C68]-D1-000	01-C012-SS-[R81C69]-D1-000	01-C012-SS-[R81C70]-D1-000
Date Sampled	1/29/01	1/29/01	1/29/01	1/29/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	19	63	97	34
Lead	88	48	100	42

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R81C71]-D1-000	01-C012-SS-[R81C72]-D1-000	01-C012-SS-[R82C67]-D1-000	01-C012-SS-[R82C68]-D1-000
Date Sampled	1/29/01	1/29/01	1/29/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	48	120	57	37
Lead	27	230	72	58

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R82C69]-D1-000	01-C012-SS-[R82C70]-D1-000	01-C012-SS-[R83C67]-D1-000	01-C012-SS-[R83C68]-D1-000
Date Sampled	1/29/01	1/29/01	1/29/01	1/30/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	55	48	6.5	48
Lead	270	88	13	52

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C012-SS-[R83C69]-D1-000	01-C012-SS-[R84C67]-D1-000	01-C013-SS-[R61C75]-D1-000	01-C013-SS-[R61C76]-D1-000
Date Sampled	1/29/01	1/29/01	2/7/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	31	75	11	19
Lead	26	130	20	24

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R61C77]-D1-000	01-C013-SS-[R61C79]-D1-000	01-C013-SS-[R61C80]-D1-000	01-C013-SS-[R61C81]-D1-000
Date Sampled	2/8/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	28	10	23
Lead	28	34	17	38

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R61C82]-D1-000	01-C013-SS-[R62C75]-D1-000	01-C013-SS-[R62C76]-D1-000-DAVG	01-C013-SS-[R62C77]-D1-000
Date Sampled	2/12/01	2/7/01	2/7/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	74	24.5	32
Lead	30	150	76	21

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R62C78]-D1-000	01-C013-SS-[R62C79]-D1-000	01-C013-SS-[R62C81]-D1-000	01-C013-SS-[R62C82]-D1-000
Date Sampled	2/8/01	2/8/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	64	26	47	4.9
Lead	98	36	53	12

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R62C83]-D1-000	01-C013-SS-[R62C84]-D1-000	01-C013-SS-[R63C75]-D1-000	01-C013-SS-[R63C76]-D1-000
Date Sampled	2/12/01	2/15/01	2/7/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	43	20	33	63
Lead	52	16	46	120

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R63C77]-D1-000	01-C013-SS-[R63C78]-D1-000	01-C013-SS-[R63C79]-D1-000	01-C013-SS-[R63C80]-D1-000
Date Sampled	2/8/01	2/8/01	2/8/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	46	18	28	21
Lead	80	18	28	20

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R63C81]-D1-000	01-C013-SS-[R63C83]-D1-000	01-C013-SS-[R63C84]-D1-000	01-C013-SS-[R63C85]-D1-000
Date Sampled	2/12/01	2/12/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	66	57	29	44
Lead	86	100	53	62

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R63C86]-D1-000-DAVG	01-C013-SS-[R64C75]-D1-000	01-C013-SS-[R64C76]-D1-000	01-C013-SS-[R64C77]-D1-000
Date Sampled	2/15/01	2/7/01	2/7/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	24	19	16	35
Lead	48	22	31	81

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R64C78]-D1-000	01-C013-SS-[R64C79]-D1-000	01-C013-SS-[R64C80]-D1-000	01-C013-SS-[R64C81]-D1-000
Date Sampled	2/8/01	2/8/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	44	33	9.9
Lead	40	59	42	24

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R64C82]-D1-000	01-C013-SS-[R64C83]-D1-000	01-C013-SS-[R64C84]-D1-000	01-C013-SS-[R64C86]-D1-000
Date Sampled	2/12/01	2/12/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	35	5.7	15	15
Lead	62	11	43	33

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R64C87]-D1-000-DAVG	01-C013-SS-[R64C88]-D1-000	01-C013-SS-[R65C75]-D1-000	01-C013-SS-[R65C76]-D1-000
Date Sampled	2/15/01	2/15/01	2/7/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	11.45	33	62	30
Lead	19.5	59	110	67

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R65C77]-D1-000	01-C013-SS-[R65C78]-D1-000	01-C013-SS-[R65C79]-D1-000	01-C013-SS-[R65C80]-D1-000
Date Sampled	2/8/01	2/8/01	2/8/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	6.5	5.1	24	12
Lead	7.6	9.8	26	14

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R65C81]-D1-000-DAVG	01-C013-SS-[R65C82]-D1-000	01-C013-SS-[R65C83]-D1-000	01-C013-SS-[R65C84]-D1-000
Date Sampled	2/12/01	2/12/01	2/12/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	7	30	15	22
Lead	14.5	53	29	38

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R65C85]-D1-000	01-C013-SS-[R65C86]-D1-000	01-C013-SS-[R65C88]-D1-000	01-C013-SS-[R65C89]-D1-000-DAVG
Date Sampled	2/15/01	2/15/01	2/15/01	4/3/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	7.7	25	24	21
Lead	15	55	55	38.5

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R66C75]-D1-000	01-C013-SS-[R66C76]-D1-000	01-C013-SS-[R66C77]-D1-000	01-C013-SS-[R66C78]-D1-000
Date Sampled	2/7/01	2/7/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	9.1	28	42	14
Lead	14	43	59	29

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	**01-C013-SS-[R66C79]-D1-000**	**01-C013-SS-[R66C80]-D1-000**	**01-C013-SS-[R66C81]-D1-000**	**01-C013-SS-[R66C82]-D1-000**
Date Sampled	**2/8/01**	**2/12/01**	**2/12/01**	**2/12/01**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)				
Arsenic	12	8.8	12	18
Lead	23	9.8	14	40

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	**01-C013-SS-[R66C83]-D1-000**	**01-C013-SS-[R66C84]-D1-000**	**01-C013-SS-[R66C85]-D1-000**	**01-C013-SS-[R66C86]-D1-000**
Date Sampled	**2/12/01**	**2/15/01**	**2/15/01**	**2/15/01**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)				
Arsenic	26	20	18	46
Lead	17	43	38	84

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	**01-C013-SS-[R66C87]-D1-000**	**01-C013-SS-[R66C88]-D1-000**	**01-C013-SS-[R66C89]-D1-000-DAVG**	**01-C013-SS-[R67C75]-D1-000**
Date Sampled	**2/15/01**	**2/15/01**	**4/3/01**	**2/7/01**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)				
Arsenic	15	160	12	55
Lead	38	13	27	84

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	**01-C013-SS-[R67C76]-D1-000**	**01-C013-SS-[R67C77]-D1-000**	**01-C013-SS-[R67C78]-D1-000**	**01-C013-SS-[R67C79]-D1-000**
Date Sampled	**2/8/01**	**2/8/01**	**2/8/01**	**2/8/01**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg dry)				
Arsenic	35	61	17	17
Lead	59	190	36	29

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R67C80]-D1-000	01-C013-SS-[R67C81]-D1-000	01-C013-SS-[R67C82]-D1-000	01-C013-SS-[R67C83]-D1-000
Date Sampled	2/12/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	6.9	18	18	9.1
Lead	14	39	30	25

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R67C84]-D1-000	01-C013-SS-[R67C85]-D1-000	01-C013-SS-[R67C86]-D1-000	01-C013-SS-[R67C87]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	11	15	20	53
Lead	28	31	15	71

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R67C88]-D1-000	01-C013-SS-[R68C75]-D1-000	01-C013-SS-[R68C76]-D1-000	01-C013-SS-[R68C77]-D1-000
Date Sampled	2/15/01	2/7/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	2.4 U	54	35	77
Lead	7.8	80	28	97

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R68C78]-D1-000	01-C013-SS-[R68C79]-D1-000	01-C013-SS-[R68C80]-D1-000	01-C013-SS-[R68C81]-D1-000
Date Sampled	2/8/01	2/8/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	49	11	7.4
Lead	42	88	28	21

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R68C82]-D1-000	01-C013-SS-[R68C83]-D1-000	01-C013-SS-[R68C84]-D1-000	01-C013-SS-[R68C85]-D1-000
Date Sampled	2/12/01	2/12/01	2/12/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	53	37	11	28
Lead	120	80	25	37

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R68C86]-D1-000	01-C013-SS-[R68C87]-D1-000	01-C013-SS-[R68C88]-D1-000-DAVG	01-C013-SS-[R69C75]-D1-000
Date Sampled	2/15/01	2/15/01	2/15/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	35	110	29	14
Lead	66	40	38	21

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R69C76]-D1-000	01-C013-SS-[R69C77]-D1-000	01-C013-SS-[R69C78]-D1-000	01-C013-SS-[R69C79]-D1-000
Date Sampled	2/8/01	2/8/01	2/8/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	61	42	13	13
Lead	110	56	17	29

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R69C80]-D1-000	01-C013-SS-[R69C81]-D1-000	01-C013-SS-[R69C82]-D1-000	01-C013-SS-[R69C83]-D1-000
Date Sampled	2/12/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	19	28	39	17
Lead	39	37	39	31

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R69C84]-D1-000	01-C013-SS-[R69C85]-D1-000	01-C013-SS-[R69C86]-D1-000	01-C013-SS-[R69C87]-D1-000
Date Sampled	2/12/01	2/15/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	26	72	15	29
Lead	42	95	27	53

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R70C75]-D1-000	01-C013-SS-[R70C76]-D1-000	01-C013-SS-[R70C77]-D1-000	01-C013-SS-[R70C78]-D1-000
Date Sampled	2/7/01	2/8/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	30	38	25	11
Lead	75	66	41	15

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R70C79]-D1-000	01-C013-SS-[R70C80]-D1-000	01-C013-SS-[R70C81]-D1-000	01-C013-SS-[R70C82]-D1-000
Date Sampled	2/8/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	11	8.2	26	20
Lead	20	15	54	41

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R70C83]-D1-000	01-C013-SS-[R70C84]-D1-000	01-C013-SS-[R70C85]-D1-000	01-C013-SS-[R70C86]-D1-000
Date Sampled	2/12/01	2/12/01	2/15/01	2/15/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	45	49	8.1
Lead	34	36	44	17

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R71C75]-D1-000	01-C013-SS-[R71C76]-D1-000	01-C013-SS-[R71C77]-D1-000	01-C013-SS-[R71C78]-D1-000
Date Sampled	2/7/01	2/8/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	26	47	15	8.8
Lead	46	85	21	10

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R71C79]-D1-000	01-C013-SS-[R71C80]-D1-000	01-C013-SS-[R71C81]-D1-000	01-C013-SS-[R71C82]-D1-000
Date Sampled	2/8/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	50	29	7.4	33
Lead	28	40	17	38

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R71C83]-D1-000	01-C013-SS-[R71C84]-D1-000	01-C013-SS-[R72C75]-D1-000	01-C013-SS-[R72C76]-D1-000
Date Sampled	2/12/01	2/12/01	2/7/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	53	17	29	96
Lead	69	31	67	69

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R72C77]-D1-000	01-C013-SS-[R72C78]-D1-000	01-C013-SS-[R72C79]-D1-000	01-C013-SS-[R72C80]-D1-000
Date Sampled	2/8/01	2/8/01	2/8/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	17	9.4	13	17
Lead	32	14	16	37

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R72C81]-D1-000	01-C013-SS-[R72C82]-D1-000	01-C013-SS-[R72C83]-D1-000	01-C013-SS-[R72C84]-D1-000-DAVG
Date Sampled	2/12/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	7.7	12	19	4.3
Lead	16	19	31	9.4

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R73C75]-D1-000	01-C013-SS-[R73C76]-D1-000	01-C013-SS-[R73C77]-D1-000	01-C013-SS-[R73C78]-D1-000
Date Sampled	2/7/01	2/7/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	17	25	29	22
Lead	22	39	51	13

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R73C79]-D1-000	01-C013-SS-[R73C80]-D1-000	01-C013-SS-[R73C81]-D1-000	01-C013-SS-[R73C82]-D1-000
Date Sampled	2/8/01	2/12/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	31	27	56
Lead	33	35	38	39

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R73C83]-D1-000-DAVG	01-C013-SS-[R74C75]-D1-000	01-C013-SS-[R74C76]-D1-000	01-C013-SS-[R74C77]-D1-000
Date Sampled	2/12/01	2/7/01	2/7/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	25	27	25	52
Lead	36.5	37	35	49

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R74C78]-D1-000	01-C013-SS-[R74C79]-D1-000	01-C013-SS-[R74C80]-D1-000	01-C013-SS-[R74C81]-D1-000
Date Sampled	2/8/01	2/8/01	2/12/01	2/12/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	31	23	39	23
Lead	24	27	40	41

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R75C75]-D1-000	01-C013-SS-[R75C76]-D1-000	01-C013-SS-[R75C77]-D1-000	01-C013-SS-[R75C78]-D1-000
Date Sampled	2/7/01	2/7/01	2/8/01	2/8/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	20	67	33	21
Lead	38	100	52	29

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R75C79]-D1-000	01-C013-SS-[R75C80]-D1-000	01-C013-SS-[R76C75]-D1-000	01-C013-SS-[R76C76]-D1-000
Date Sampled	2/8/01	2/12/01	2/7/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	74	51	360	52
Lead	140	69	78	75

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R76C77]-D1-000	01-C013-SS-[R76C78]-D1-000	01-C013-SS-[R77C75]-D1-000	01-C013-SS-[R77C76]-D1-000
Date Sampled	2/8/01	2/8/01	2/7/01	2/7/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	8.8	180	21	41
Lead	11	33	30	76

Table B.17-1
Candidate Area Characterization Sample Soil Metals Results

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	01-C013-SS-[R77C77]-D1-000	01-C013-SS-[R78C75]-D1-000	01-C013-SS-[R78C76]-D1-000	02-C013-SS[R71C85-02]C2-1.0
Date Sampled	2/8/01	2/7/01	2/7/01	7/31/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5 to
Total Metals (mg/kg dry)				
Arsenic	24	56	110	19
Lead	49	61	55	4

Area	AFAS	AFAS	AFAS	AFAS
Sample ID	02-C013-SS[R71C85-03]D1-000	02-C013-SS[R71C85-04]D1-000	02-C013-SS[R71C85-05]D1-000	02-C013-SS[R71C85-06]D1-000
Date Sampled	7/31/01	7/31/01	7/31/01	7/31/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)				
Arsenic	46	38	49	55
Lead	90	70	80	99

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-100	31-VS-101	31-VS-102	31-VS-103	31-VS-104	31-VS-107
Date Sampled	9/14/99	9/14/99	9/14/99	9/14/99	9/14/99	9/14/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	20	54	6.9	6.8	27	65
Lead	7.8	35	8.8	7.5	7.4	140

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-110	31-VS-111	31-VS-217	31-VS-423	31-VS-425	31-VS-427
Date Sampled	9/14/99	9/14/99	10/19/99	1/25/00	1/25/00	1/25/00
Depth	1 to 2.5	1 to 2.5	1 to 2.5	2 to 4.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	8.6	16	3.7	8.2	9.6	9.5
Lead	22 J	39 J	6.2 U	5.1	28	6.3

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-428	31-VS-429	31-VS-430	31-VS-431	31-VS-508	31-VS-525
Date Sampled	1/25/00	1/25/00	1/25/00	1/25/00	4/18/00	4/18/00
Depth	0 to 0.5	2 to 4.5	0 to 0.5	0 to 0.5	0 to 0.5	3 to 4.5
Total Metals (mg/kg dry)						
Arsenic	36	44	81	8	15	9
Lead	46	11	27	26	15	7.1

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-526-DAVG	31-VS-529	31-VS-532	31-VS-533	31-VS-534	31-VS-535
Date Sampled	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00	4/18/00
Depth	3 to 4.5	0 to 0.5	1 to 2.5	0 to 0.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)						
Arsenic	15	18	96	38	3.6	5.2
Lead	7.35	320	71	53	3.6	2.9

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-536	31-VS-539	31-VS-540-DAVG	31-VS-542	31-VS-543	31-VS-544
Date Sampled	4/18/00	4/18/00	4/18/00	4/19/00	4/19/00	4/19/00
Depth	0 to 0.5	2 to 4.5	3 to 4.5	3 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)						
Arsenic	19	6.5	3.1	4.4	8.3	49
Lead	140	2.7	2.15 U	6.3	6.7	41

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-545	31-VS-546	31-VS-547	31-VS-548	31-VS-551	31-VS-552
Date Sampled	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)						
Arsenic	39	100	16	47	6.1	5.2
Lead	45	150	23	110	4.9	4.6

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-553	31-VS-554	31-VS-555	31-VS-557-DAVG	31-VS-566	31-VS-567
Date Sampled	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	5.7	11	5.9	10.95	37	9.4
Lead	4.1	20	4.3	21.65	49	16

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-573	31-VS-574	31-VS-575	31-VS-576	31-VS-577-DAVG	31-VS-579
Date Sampled	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00	4/19/00
Depth	3 to 4.5	3 to 4.5	3 to 4.5	3 to 4.5	0 to 0.5	3 to 4.5
Total Metals (mg/kg dry)						
Arsenic	8.2	9.3	7.5	4.6	10.6	17
Lead	5.3	9	4.6	4.5	25.5	4.6

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-580	31-VS-581	31-VS-582	31-VS-583	31-VS-591	31-VS-592
Date Sampled	4/19/00	4/19/00	4/19/00	4/19/00	5/9/00	5/9/00
Depth	0 to 0.5	0 to 0.5	0 to 0.5	2 to 4.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	68	62	59	9.8	75	19
Lead	70	42	46	3.6	570	97

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-595	31-VS-596	31-VS-597-DAVG	31-VS-600	31-VS-601	31-VS-607
Date Sampled	5/9/00	5/9/00	5/9/00	5/9/00	5/9/00	5/24/00
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	22	18	14	20	27	110
Lead	43	25	50.5	53	59	46

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-611	31-VS-612	31-VS-613	31-VS-614	31-VS-615-DAVG	31-VS-616
Date Sampled	5/24/00	5/24/00	5/24/00	5/24/00	5/24/00	5/24/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	33	9.9	26	17	10.5	11
Lead	11	23	13	7.8	13	20

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-617	31-VS-618	31-VS-619-DAVG	31-VS-621	31-VS-622	31-VS-623
Date Sampled	5/24/00	5/24/00	5/24/00	5/24/00	5/24/00	5/24/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	7.9	13	11	19	6.2	7.1
Lead	51	9.4	12	49	4.6	3.7

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-624-DAVG	31-VS-625	31-VS-630	31-VS-631	31-VS-634	31-VS-635
Date Sampled	5/24/00	5/24/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	7	7.1	7.1	11	110	6.8
Lead	5.65	8.3	6	12	16	7.1

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-636	31-VS-637	31-VS-638	31-VS-639-DAVG	31-VS-640	31-VS-641
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	72	18	8.3	31 J	7.8	23
Lead	390	40	7.9	85.5 J	6.2	72

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-642	31-VS-643	31-VS-644	31-VS-650	31-VS-651	31-VS-653
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	58	98	37	63	75	20
Lead	380	160	95	47	27	23

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-654	31-VS-655	31-VS-656	31-VS-657	31-VS-658	31-VS-659-DAVG
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	8.2	9.8	52	4.8	32	4.4
Lead	5.4	7.6	27	7.6	490	9.3

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-660	31-VS-661	31-VS-662	31-VS-663	31-VS-665	31-VS-666
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	4	4.1	18	16	14	41
Lead	4.9	4.4	13	23	13	15

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-668	31-VS-669-DAVG	31-VS-670	31-VS-671	31-VS-672	31-VS-674
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	44	8.45	16	6.8	3.8	37
Lead	22	5.5	7.1	4	4	5.2

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-675	31-VS-677	31-VS-678	31-VS-679-DAVG	31-VS-680	31-VS-681
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00	6/29/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	8.2	20	6.1	8	26	7
Lead	11	80	19	8.25	47	5.2

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-682	31-VS-683	31-VS-684	31-VS-685	31-VS-700	31-VS-701
Date Sampled	6/29/00	6/29/00	6/29/00	6/29/00	7/19/00	7/19/00
Depth	0 to 0.5	1.5 to 3.5	0 to 0.5	1.5 to 3.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	71	11	49	49	14	46
Lead	23	11	38	26	15	52

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-702	31-VS-703	31-VS-704	31-VS-705	31-VS-706	31-VS-707
Date Sampled	7/19/00	7/19/00	7/19/00	7/19/00	7/19/00	7/19/00
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	34	11	8.8	9.3	5.9	22
Lead	27	14	4.6	160	31	95

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-708	31-VS-709	31-VS-710	31-VS-711	31-VS-712	31-VS-714
Date Sampled	7/19/00	7/19/00	7/19/00	7/19/00	7/19/00	7/24/00
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	26	6.1	15	2 U	3.4	3.1
Lead	830	180	36	7.2	6.7	3.5

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-715	31-VS-716	31-VS-717	31-VS-718	31-VS-719	31-VS-720
Date Sampled	7/24/00	7/24/00	7/24/00	7/24/00	7/24/00	7/24/00
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)						
Arsenic	14	4.1	5.5	2.9	5.7	8
Lead	10	3.5	4.7	2.9	7.6	6.4

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	31-VS-721	31-VS-722	31-VS-723	31-VS-725-DAVG	31-VS-726-DAVG	31-VS-88
Date Sampled	7/24/00	7/24/00	7/24/00	7/24/00	7/24/00	9/14/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	0 to 0.5
Total Metals (mg/kg dry)						
Arsenic	17	8.5	15	4	13	81
Lead	93	9.2	90	2.45	23	98

Table B.18-1
Parcel 1 North of Creek Soil Metals Results

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	**31-VS-90**	**31-VS-91**	**31-VS-92**	**31-VS-93**	**31-VS-94**	**31-VS-94A**
Date Sampled	**9/14/99**	**9/14/99**	**9/14/99**	**9/14/99**	**9/14/99**	**9/30/99**
Depth	**1 to 2.5**	**1 to 2.5**	**1 to 2.5**	**1 to 2.5**	**0 to 0.5**	**1 to 2.5**
Total Metals (mg/kg dry)						
Arsenic	5.5	7.6	47	21	59	8.4
Lead	3.5	5.1	13	9.3	56	13

Area	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC	PARC_1_NOC
Sample ID	**31-VS-95**	**31-VS-96**	**31-VS-96A**	**31-VS-98**	**31-VS-99**	**31-VS-99A**
Date Sampled	**9/14/99**	**9/14/99**	**9/30/99**	**9/14/99**	**9/14/99**	**9/30/99**
Depth	**0 to 0.5**	**0 to 0.5**	**1 to 2.5**	**0 to 0.5**	**0 to 0.5**	**1 to 2.5**
Total Metals (mg/kg dry)						
Arsenic	30	89	39	51	47	25
Lead	66	150	12	10	50	12

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-C004-SS[38-VS-150]C2-2.00	01-C004-SS[38-VS-151]C2-2.00	01-C004-SS[38-VS-153]C2-2.00	01-F01-SS[F-50]C2-005	01-F01-SS[F-51]C2-005
Date Sampled	8/1/01	8/1/01	8/1/01	6/14/01	6/14/01
Depth	2 to 2.5	0 to 0.5	0 to 0.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	11	23	8.1	3	6.3
Lead	26	31	13	2.4	9.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F01-SS[F-52]C2-005	01-F01-SS[F-53]C2-005	01-F01-SS[F-54]C2-005	01-F01-SS[F-55]C2-005	01-F01-SS[F-56]C2-005
Date Sampled	6/14/01	6/14/01	6/14/01	6/14/01	6/14/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	9.8	7.4	3.6	4.2	6.5
Lead	23	26	4.9	4.7	29

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F01-SS[F-57]C2-005	01-F01-SS[F-58]C2-005	01-F01-SS[F-59]C2-005	01-F01-SS[F-60]C2-005	01-F01-SS[F-61]C2-005
Date Sampled	6/14/01	6/14/01	6/14/01	6/14/01	6/14/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	6.8	2.6	5.3	4.4	3.9
Lead	6.2	2.7	2.4 U	2.2 U	2.3 U

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F01-SS[F-62]C2-005	01-F06-SS[F-25]C2-005	01-F06-SS[F-26]C2-005	01-F06-SS[F-27]C2-005	01-F06-SS[F-28]C2-005
Date Sampled	6/14/01	6/7/01	6/7/01	6/7/01	6/7/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	3.8	2.5	3.8	4.1	2.4
Lead	2.4	2.3	8.2	3	24

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F07-SS[F-20]C2-005	01-F07-SS[F-21]C2-005	01-F07-SS[F-22]C2-005	01-F07-SS[F-23]C2-005	01-F07-SS[F-24]C2-005
Date Sampled	6/7/01	6/7/01	6/7/01	6/7/01	6/7/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	2.8	2.7	2.5	2 U	3.4
Lead	2.3	2.5	2.3	2.1	2.3

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F08-SS[F-06] C2-005	01-F08-SS[F-11] C2-005	01-F08-SS[F-12] C2-005	01-F08-SS[F-13] C2-005	01-F08-SS[F-17] C2-005-DAVG
Date Sampled	6/6/01	6/6/01	6/6/01	6/6/01	6/6/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	2.6	3.8	2.6	4.6	3.1
Lead	3.9	2.4	4.5	14	2.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F09-SS[F-260]C2-005-DAVG	01-F09-SS[F-262]C2-005	01-F09-SS[F-263]C2-005	01-F09-SS[F-264]C2-005	01-F09-SS[F-265]C2-005
Date Sampled	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.55	3.7	5.9	4	4
Lead	4.35	4.4	7.7	3.6	17

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F09-SS[F-266]C2-005	01-F12-SS[F-127]C2-005	01-F15-SS[F-134]C2-005	01-F15-SS[F-135]C2-005	01-F18-FD-[F-328]-C2-030-DAVG
Date Sampled	8/22/01	6/21/01	6/26/01	6/26/01	9/19/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	6	4.4	2.5	1.9 U	4
Lead	5.7	3.9	27	4.7	3.25

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F18-SS-[F-308]-C2-020	01-F18-SS-[F-309]-C2-020	01-F18-SS-[F-310]-C2-020	01-F18-SS-[F-311]-C2-020	01-F18-SS-[F-312]-C2-020
Date Sampled	9/12/01	9/12/01	9/12/01	9/12/01	9/12/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.8	5.3	5.6	4.7	15
Lead	4.6	3.9	4.3	4.9	2

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F18-SS-[F-313]-C2-020	01-F18-SS-[F-314]-C2-020	01-F18-SS-[F-315]-C2-020	01-F18-SS-[F-316]-C2-020	01-F18-SS-[F-317]-C2-020
Date Sampled	9/12/01	9/12/01	9/12/01	9/12/01	9/12/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4	3.5	5.1	7.5	5.7
Lead	3.5	2.7	4.7	31	17

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F18-SS-[F-318]-C2-020	01-F18-SS-[F-320]-C2-020	01-F18-SS-[F-321]-C2-020	01-F18-SS-[F-322]-C2-020	01-F18-SS-[F-323]-C2-020
Date Sampled	9/12/01	9/12/01	9/12/01	9/12/01	9/12/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.8	4.7	5.4	53	5.1
Lead	13	32	29	7.1	92

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F18-SS-[F-325]C2-015	01-F19-SS[F-136]C2-005	01-F19-SS[F-137]C2-005	01-F20-SS[F-138]C2-005	01-F20-SS[F-139]C2-005
Date Sampled	9/17/01	6/26/01	6/26/01	6/27/01	6/27/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.8	3.3	2	5.2	3.6
Lead	2.8	6.1	39	9.3	2.2 U

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F20-SS[F-140]C2-005	01-F20-SS[F-141]C2-005	01-F20-SS[F-142]C2-005	01-F20-SS[F-143]C2-005	01-F20-SS[F-283]-C2-005
Date Sampled	6/27/01	6/27/01	6/27/01	6/27/01	9/4/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	3.5	4.7	3.9	6.6	4.1
Lead	3.7	4.9	4.2	10	5.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F20-SS[F-284]-C2-005-DAVG	01-F20-SS[F-286]-C2-005	01-F20-SS[F-287]-C2-005	01-F20-SS[F-290]-C2-005	01-F20-SS[F-291]-C2-005
Date Sampled	9/4/01	9/4/01	9/4/01	9/4/01	9/4/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	5.7	4.1	3.7	9.6	5.9
Lead	5.8	4.3	4.3	14	18

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F20-SS[F-292]-C2-005	01-F20-SS-[F-295]-C3-005-DAVG	01-F20-SS-[F-297]-C2-005	01-F20-SS-[F-298]-C2-005	01-F20-SS-[F-299]-C2-005
Date Sampled	9/4/01	9/5/01	9/5/01	9/5/01	9/5/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	13	7.15	5	6.9	25
Lead	27	28.5	34	21	29

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F20-SS-[F-300]-C2-005	01-F21-SS-[F-304]-C2-005	01-F21-SS-[F-305]-C2-005	01-F22-SS[F-145]C2-005	01-F22-SS[F-146]C2-005
Date Sampled	9/5/01	9/5/01	9/5/01	7/2/01	7/2/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	15	9.1	5.8	4.8	4.5
Lead	11	70	30	2.7	2.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F22-SS[F-147]C2-005	01-F22-SS[F-148]C2-005	01-F22-SS[F-149]C2-005	01-F22-SS[F-150]C2-005	01-F22-SS[F-151]C2-005
Date Sampled	7/2/01	7/2/01	7/2/01	7/2/01	7/2/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	3.7	4.8	3.9	3.7	3.2
Lead	3.2	3.6	6.2	2	1.8 U

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F22-SS[F-152]C2-005	01-F22-SS[F-153]C2-005	01-F22-SS[F-154]C2-005	01-F22-SS[F-155]C2-005	01-F22-SS[F-156]C2-005
Date Sampled	7/2/01	7/2/01	7/2/01	7/2/01	7/2/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	13	3.4	2.7	5.9	3.7
Lead	6.8	3	2.8	5	7.2

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F22-SS[F-157]C2-005	01-F22-SS[F-158]C2-005	01-F22-SS[F-159]C2-005	01-F23-SS[F-163]C2-005	01-F23-SS[F-164]C2-005
Date Sampled	7/2/01	7/2/01	7/2/01	7/8/01	7/8/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	3.6	26	4.9	5.9	8.6
Lead	2.6	35	2.3	9.1	6.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F23-SS[F-165]C2-005	01-F23-SS[F-166]C2-005	01-F23-SS[F-167]C2-005	01-F23-SS[F-168]C2-005	01-F23-SS[F-169]C2-005
Date Sampled	7/8/01	7/8/01	7/8/01	7/8/01	7/8/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	6.7	18	60	5.5	14
Lead	5	15	5.6	4.4	6.6

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F24-SS[F-172]C2-005	01-F24-SS[F-173]C2-005	01-F24-SS[F-174]C2-005	01-F24-SS[F-176]C2-005	01-F33-SS[F-273]C2-005-DAVG
Date Sampled	7/18/01	7/18/01	7/18/01	7/18/01	8/28/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	3.6	3.3	4.4	3.7	14.5
Lead	2	2.5	3.6	4	80

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F33-SS[F-275]C2-005	01-F33-SS[F-276]C2-005	01-F33-SS[F-277]C2-005	01-F33-SS[F-278]C2-005	01-F33-SS[F-279]C2-005
Date Sampled	8/28/01	8/28/01	8/28/01	8/28/01	8/28/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	5.8	20	4.7	6.5	8.6
Lead	7.8	45	3	4	12

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F33-SS[F-280]C2-005	01-F34-SS[F-170]C2-005	01-F34-SS[F-171]C2-005	01-F34-SS-[F-301]-C2-005	01-F34-SS-[F-302]-C2-005
Date Sampled	8/28/01	7/17/01	7/17/01	9/5/01	9/5/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.9	3.1	3	5.8	6.2
Lead	5.1	5.5 J	29 J	5	14

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F34-SS-[F-303]-C2-005	01-F36-SS[F-193]C2-005	01-F36-SS[F-194]C2-005	01-F36-SS[F-195]C2-005	01-F36-SS[F-196]C2-005
Date Sampled	9/5/01	8/1/01	8/1/01	8/1/01	8/1/01
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5
Total Metals (mg/kg dry)					
Arsenic	6.6	25	5	5.1	4
Lead	14	16	8.5	7.3	5.7

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-F36-SS[F-197]C2-005	01-H404-SS[1]D1-005	01-H404-SS[10]D1-005	01-H404-SS[11]D1-005-DAVG	01-H404-SS[2]D1-005
Date Sampled	8/1/01	7/3/01	7/3/01	7/3/01	7/3/01
Depth	2 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	4.8	14	7.5	6.15	24
Lead	6	37	22	31	450

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-H404-SS[3]D1-005	01-H404-SS[4]D1-005	01-H404-SS[5]D1-005	01-H404-SS[6]D1-005	01-H404-SS[7]D1-005
Date Sampled	7/3/01	7/3/01	7/3/01	7/3/01	7/3/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	17	60	13	21	8.1
Lead	88	46	160	790	18

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-H404-SS[8]D1-005	01-H404-SS[9]D1-005	01-N01-SS[NGRR-02]C2-005	01-N01-SS[NGRR-03]C2-005	01-N01-SS[NGRR-04]C2-005
Date Sampled	7/3/01	7/3/01	6/7/01	6/7/01	6/7/01
Depth	0 to 0.5	0 to 0.5	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	13	150	2.4	3.3	5.4
Lead	170	280	3.1	3.1	5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-05]C2-005	01-N01-SS[NGRR-06]C2-005	01-N01-SS[NGRR-09]C2-005	01-N01-SS[NGRR-103]C2-005-DAVG	01-N01-SS[NGRR-105]C2-005
Date Sampled	6/7/01	6/7/01	6/7/01	7/23/01	7/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	6.1	2.9	33	6.4	4.3
Lead	3.2	2.9	11	8.65	4.4

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-106]C2-005	01-N01-SS[NGRR-107]C2-005	01-N01-SS[NGRR-108]C2-005	01-N01-SS[NGRR-109]C2-005	01-N01-SS[NGRR-110]C2-005
Date Sampled	7/23/01	7/23/01	7/23/01	7/23/01	7/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.3	5	5.3	9.3	10
Lead	3.6	14	6.1	18	24

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-111]C2-005	01-N01-SS[NGRR-112]C2-005	01-N01-SS[NGRR-113]C2-005	01-N01-SS[NGRR-114]C2-005	01-N01-SS[NGRR-115]C2-005
Date Sampled	7/23/01	7/23/01	7/23/01	7/23/01	7/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	5.7	6.9	55	13	12
Lead	3.7	5.8	26	29	5.2

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-116]C2-005	01-N01-SS[NGRR-117]C2-005	01-N01-SS[NGRR-118]C2-005	01-N01-SS[NGRR-123]C2-005	01-N01-SS[NGRR-124]C2-005
Date Sampled	7/23/01	7/23/01	7/23/01	7/23/01	7/23/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	19	7.6	6.9	3.8	10
Lead	9	3.7	4.1	3.4	6.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-127]C2-005	01-N01-SS[NGRR-128]C2-005	01-N01-SS[NGRR-129]C2-005	01-N01-SS[NGRR-130]C2-005	01-N01-SS[NGRR-131]C2-005
Date Sampled	7/24/01	7/24/01	7/24/01	7/24/01	7/24/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)	10	12	7.7	7	7.3
Arsenic	6.3	4.8	3.5	4.3	6.5
Lead					

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-133]C2-005	01-N01-SS[NGRR-134]C2-005	01-N01-SS[NGRR-135]C2-005	01-N01-SS[NGRR-136]C2-005	01-N01-SS[NGRR-138]C2-005
Date Sampled	7/24/01	7/24/01	7/24/01	7/24/01	7/30/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.4	21	3.9	24	4.8
Lead	10	19	3.3	14	9.4

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-14]C2-005-DAVG	01-N01-SS[NGRR-143]C2-005	01-N01-SS[NGRR-16]C2-005	01-N01-SS[NGRR-17]C2-005	01-N01-SS[NGRR-182]C2-005
Date Sampled	6/26/01	7/30/01	6/26/01	6/26/01	8/6/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.5	16	3.5	2.9	23
Lead	6.95	5.1	4.9	31	11

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-183]C2-005	01-N01-SS[NGRR-184]C2-005	01-N01-SS[NGRR-185]C2-005	01-N01-SS[NGRR-186]C2-005	01-N01-SS[NGRR-187]C2-005-DAVG
Date Sampled	8/6/01	8/6/01	8/6/01	8/6/01	8/6/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	10	5.2	4.7	6.2	37.5
Lead	13	13	5.7	8	11.5

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-189]C2-005	01-N01-SS[NGRR-19]C2-005-DAVG	01-N01-SS[NGRR-190]C2-005	01-N01-SS[NGRR-191]C2-005	01-N01-SS[NGRR-192]C2-005
Date Sampled	8/6/01	7/2/01	8/6/01	8/6/01	8/6/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	26	5.1	13	15	31
Lead	21	3.05	9.2	8.8	17

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-195]C2-005	01-N01-SS[NGRR-21]C2-005	01-N01-SS[NGRR-22]C2-005	01-N01-SS[NGRR-23]C2-005	01-N01-SS[NGRR-24]C2-005
Date Sampled	8/7/01	7/2/01	7/2/01	7/2/01	7/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	18	4.2	6.5	4.1	4.9
Lead	53	3.5	4.3	5.1	7.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-25]C2-005	01-N01-SS[NGRR-250]C2-005	01-N01-SS[NGRR-251]C2-005	01-N01-SS[NGRR-252]C2-005	01-N01-SS[NGRR-253]C2-005
Date Sampled	7/8/01	8/13/01	8/13/01	8/13/01	8/13/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	5.8	7.9	6.8	9	7.8
Lead	10	6.6	4.8	6.1	4.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-254]C2-005	01-N01-SS[NGRR-255]C2-005	01-N01-SS[NGRR-256]C2-005	01-N01-SS[NGRR-258]C2-005	01-N01-SS[NGRR-259]C2-005
Date Sampled	8/13/01	8/13/01	8/13/01	8/13/01	8/13/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	6.3	17	9.6	6.8	10
Lead	5	4.8	4.8	5.7	5.2

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-26]C2-005	01-N01-SS[NGRR-260]C2-005	01-N01-SS[NGRR-265]C2-005	01-N01-SS[NGRR-266]C2-005	01-N01-SS[NGRR-267]C2-005
Date Sampled	7/8/01	8/13/01	8/13/01	8/13/01	8/13/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	19	6.8	4	6.7	8.9
Lead	6.4	6.6	4.1	5.8	8

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-268]C2-005	01-N01-SS[NGRR-269]C2-005	01-N01-SS[NGRR-270]C2-005	01-N01-SS[NGRR-271]C2-005	01-N01-SS[NGRR-272]C2-005
Date Sampled	8/13/01	8/13/01	8/13/01	8/13/01	8/13/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	9.5	6.7	8.2	10	11
Lead	6.8	7	9.1	7.8	6.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-273]C2-005	01-N01-SS[NGRR-274]C2-005	01-N01-SS[NGRR-287]C2-005	01-N01-SS[NGRR-288]C2-005	01-N01-SS[NGRR-289]C2-005
Date Sampled	8/13/01	8/13/01	8/15/01	8/15/01	8/15/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	8.9	8.5	6	7.4	6.2
Lead	7.9	7.9	5.1	5.9	4.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-290]C2-005	01-N01-SS[NGRR-291]C2-005	01-N01-SS[NGRR-292]C2-005	01-N01-SS[NGRR-293]C2-005	01-N01-SS[NGRR-294]C2-005
Date Sampled	8/15/01	8/15/01	8/15/01	8/15/01	8/15/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	8.2	8.4	12	6.6	6.8
Lead	5.1	8.2	12	5.5	7.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-295]C2-005	01-N01-SS[NGRR-303]C2-005	01-N01-SS[NGRR-304]C2-005	01-N01-SS[NGRR-305]C2-005	01-N01-SS[NGRR-306]C2-005
Date Sampled	8/15/01	8/16/01	8/16/01	8/16/01	8/16/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	7.1	46	13	13	4.6
Lead	4.9	20	7.2	10	2.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-307]C2-005	01-N01-SS[NGRR-308]C2-005	01-N01-SS[NGRR-309]C2-005	01-N01-SS[NGRR-31]C2-005	01-N01-SS[NGRR-310]C2-005
Date Sampled	8/16/01	8/16/01	8/16/01	7/8/01	8/16/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	17	19	34	24	34
Lead	5.5	7.1	11	6.7	37

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-312]C2-005	01-N01-SS[NGRR-313]C2-005	01-N01-SS[NGRR-314]C2-005	01-N01-SS[NGRR-315]C2-005	01-N01-SS[NGRR-316]C2-005
Date Sampled	8/16/01	8/16/01	8/16/01	8/16/01	8/16/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	8	12	14	5.5	5.9
Lead	10	13	20	5.7	15

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-317]C2-005	01-N01-SS[NGRR-318]C2-005	01-N01-SS[NGRR-32]C2-005	01-N01-SS[NGRR-320]C2-005	01-N01-SS[NGRR-33]C2-005
Date Sampled	8/16/01	8/16/01	7/8/01	8/16/01	7/8/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.9	24	5.1	6.1	3.4
Lead	8.2	16	4.1	9.5	3.2

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-34]C2-005	01-N01-SS[NGRR-35]C2-005	01-N01-SS[NGRR-351]C2-005	01-N01-SS[NGRR-352]C2-005-DAVG	01-N01-SS[NGRR-354]C2-005
Date Sampled	7/11/01	7/11/01	8/20/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.5	17	42 U	43 U	43 U
Lead	7.9	9.4	21 UJ	21 UJ	21 UJ

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-355]C2-005	01-N01-SS[NGRR-356]C2-005	01-N01-SS[NGRR-357]C2-005	01-N01-SS[NGRR-358]C2-005	01-N01-SS[NGRR-359]C2-005
Date Sampled	8/21/01	8/21/01	8/21/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	45 U	42 U	40 U	37 U	43
Lead	22 UJ	21 UJ	20 UJ	18 UJ	22 UJ

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-36]C2-005-DAVG	01-N01-SS[NGRR-360]C2-005	01-N01-SS[NGRR-361]C2-005	01-N01-SS[NGRR-366]C2-005	01-N01-SS[NGRR-367]C2-005
Date Sampled	7/11/01	8/21/01	8/21/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	6	44 U	40 U	10	6
Lead	24.5	22 UJ	20 UJ	5.9	7.2

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-369]C2-005	01-N01-SS[NGRR-370]C2-005	01-N01-SS[NGRR-371]C2-005	01-N01-SS[NGRR-372]C2-005	01-N01-SS[NGRR-373]C2-005
Date Sampled	8/21/01	8/21/01	8/21/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	11	12	4.5	4.2	6.2
Lead	6.4	15	5.6	4.9	5.1

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-374]C2-005	01-N01-SS[NGRR-375]C2-005	01-N01-SS[NGRR-376]C2-005	01-N01-SS[NGRR-377]C2-005	01-N01-SS[NGRR-378]C2-005
Date Sampled	8/21/01	8/21/01	8/21/01	8/21/01	8/21/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	5.5	4.2	4.2	7.2	5.5
Lead	4	3.6	3.8	7.1	6.4

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-379]C2-005	01-N01-SS[NGRR-38]C2-005	01-N01-SS[NGRR-380]C2-005	01-N01-SS[NGRR-381]C2-005	01-N01-SS[NGRR-39]C2-005
Date Sampled	8/21/01	7/11/01	8/22/01	8/22/01	7/11/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	5.8	3.3	3.1	2.5	4.7
Lead	5.1	4.1	3.4	2.7	5.4

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-40]C2-005	01-N01-SS[NGRR-41]C2-005	01-N01-SS[NGRR-42]C2-005	01-N01-SS[NGRR-422]C2-005	01-N01-SS[NGRR-423]C2-005
Date Sampled	7/11/01	7/11/01	7/11/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	7.3	4.4	5.5	52	19
Lead	6.8	3.9	4	8.6	2.4

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-424]C2-005	01-N01-SS[NGRR-425]C2-005	01-N01-SS[NGRR-426]C2-005	01-N01-SS[NGRR-428]C2-005	01-N01-SS[NGRR-429]C2-005
Date Sampled	8/27/01	8/27/01	8/27/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.8	4.4	6.7	6.8	14
Lead	2.1	3	3.8	2.7	8.2

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-43]C2-005	01-N01-SS[NGRR-430]C2-005	01-N01-SS[NGRR-431]C2-005	01-N01-SS[NGRR-433]C2-005	01-N01-SS[NGRR-434]C2-005
Date Sampled	7/11/01	8/27/01	8/27/01	8/27/01	8/27/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	5.3	35	25	30	21
Lead	4.4	7.4	13	62	9.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS-[NGRR-436]-C2-020	01-N01-SS-[NGRR-437]-C2-020	01-N01-SS-[NGRR-439]C2-015	01-N01-SS[NGRR-44]C2-005	01-N01-SS-[NGRR-440]C2-015
Date Sampled	9/12/01	9/12/01	9/17/01	7/11/01	9/17/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	3.5	2.8	5.4	4.2	13
Lead	2.6	2.2	3.7	4.6	5.8

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-45]C2-005	01-N01-SS[NGRR-46]C2-005	01-N01-SS[NGRR-47]C2-005	01-N01-SS[NGRR-48]C2-005	01-N01-SS[NGRR-49]C2-005
Date Sampled	7/11/01	7/11/01	7/11/01	7/11/01	7/11/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	4.5	3.3	5	5	7.7
Lead	4.1	3.2	4.3	3.4	4.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-50]C2-005	01-N01-SS[NGRR-52]C2-005	01-N01-SS[NGRR-53]C2-005	01-N01-SS[NGRR-54]C2-005-DAVG	01-N01-SS[NGRR-56]C2-005
Date Sampled	7/11/01	7/12/01	7/12/01	7/12/01	7/12/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	2.6	13	6.6	5.85	4.3
Lead	2.6	40	7.6	6.65	3.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-57]C2-005	01-N01-SS[NGRR-58]C2-005	01-N01-SS[NGRR-59]C2-005	01-N01-SS[NGRR-60]C2-005	01-N01-SS[NGRR-62]C2-005
Date Sampled	7/12/01	7/12/01	7/12/01	7/12/01	7/17/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	16	2.9	3.6	2.4	21
Lead	3.7	2.6	3.5	2	6 J

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-63]C2-005	01-N01-SS[NGRR-64]C2-005	01-N01-SS[NGRR-65]C2-005	01-N01-SS[NGRR-66]C2-005	01-N01-SS[NGRR-67]C2-005
Date Sampled	7/17/01	7/17/01	7/17/01	7/17/01	7/17/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	7.6	2.8	3.8	12	3.9
Lead	3.1 J	1.8 UJ	2.1 UJ	5.3 J	7.3 J

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-70]C2-005	01-N01-SS[NGRR-71]C2-005	01-N01-SS[NGRR-72]C2-005	01-N01-SS[NGRR-73]C2-005	01-N01-SS[NGRR-74]C2-005-DAVG
Date Sampled	7/17/01	7/17/01	7/17/01	7/17/01	7/18/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	6.5	9.9	11	3.7	6.4
Lead	2.8 J	2 UJ	2.6 J	1.8 UJ	3.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-76]C2-005	01-N01-SS[NGRR-77]C2-005	01-N01-SS[NGRR-78]C2-005	01-N01-SS[NGRR-79]C2-005	01-N01-SS[NGRR-80]C2-005
Date Sampled	7/18/01	7/18/01	7/18/01	7/18/01	7/18/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	3.6	4.3	15	15	27
Lead	3.3	3.1	3.5	3.7	6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-82]C2-005	01-N01-SS[NGRR-83]C2-005	01-N01-SS[NGRR-84]C2-005	01-N01-SS[NGRR-85]C2-005	01-N01-SS[NGRR-95]C2-005-DAVG
Date Sampled	7/18/01	7/18/01	7/18/01	7/18/01	7/19/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2	1.5 to 2
Total Metals (mg/kg dry)					
Arsenic	9.7	3	12	4.2	3.05
Lead	6.5	3.1	4.5	3.2	5.15

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-N01-SS[NGRR-97]C2-005	01-N01-SS[NGRR-98]C2-005	01-N01-SS[NGRR-99]C2-005	01-SM-SS-[R67C2]-D1-005	01-SM-SS-[R67C3]-D1-005
Date Sampled	7/19/01	7/19/01	7/19/01	9/17/01	9/17/01
Depth	1.5 to 2	1.5 to 2	1.5 to 2	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	3.4	5.3	2.9	52	52
Lead	5	36	4.9	22	150

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	01-SM-SS-[R67C4]-D1-005	01-SM-SS-[R68C2]-D1-005	01-SM-SS-[R68C3]-D1-005	01-SM-SS-[R68C4]-D1-005	01-SM-SS-[R69C4]-D1-005
Date Sampled	9/17/01	9/17/01	9/17/01	9/17/01	9/17/01
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	47	73	6	62	28
Lead	35	280	4.7	83	36

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	02-F15-SS[F-133-2]C2-030	02-F20-SS-[F-296-2]C2-030	02-F21-SS-[F-306-2]C2-030	02-F23-SS[F-162-2]C2-030	02-F38-SS[F-259-2]C2-030
Date Sampled	8/30/01	9/17/01	9/17/01	8/29/01	8/30/01
Depth	3 to 3.5	3 to 3.5	3 to 3.5	3 to 3.5	3 to 3.5
Total Metals (mg/kg dry)					
Arsenic	4.1	7.9	5.1	12 J	5.2
Lead	55 J	7.6	2.8	31	57 J

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	02-N01-SS[NGRR-07-2]C2-025-DAVG	02-N01-SS[NGRR-11-2]C2-025	02-N01-SS[NGRR-12-2]C2-025	02-N01-SS[NGRR-125-2]C2-025-DAVG	02-N01-SS[NGRR-13-2]C2-025
Date Sampled	8/30/01	8/28/01	8/28/01	8/30/01	8/28/01
Depth	2 to 3	2 to 3	2 to 3	2.5 to 3	2.5 to 3
Total Metals (mg/kg dry)					
Arsenic	4.55	2.8	5.1	5.3	4.6
Lead	21.5	2.7	3.2	14.5	3.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	02-N01-SS[NGRR-132-2]C2-025	02-N01-SS[NGRR-27-2]C2-025	02-N01-SS[NGRR-282-2]C2-025	02-N01-SS[NGRR-29-2]C2-025	02-N01-SS[NGRR-301-2]C2-025-DAVG
Date Sampled	8/30/01	8/29/01	8/30/01	8/29/01	8/30/01
Depth	2.5 to 3	2.5 to 3	2.5 to 3	2.5 to 3	2.5 to 3
Total Metals (mg/kg dry)					
Arsenic	3.9	31 J	7.3	17 J	5.65
Lead	9.9 J	14	29 J	16	11.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	02-N01-SS[NGRR-30-2]C2-025	02-N01-SS-[NGRR-432-2]-C2-030	02-N01-SS[NGRR-69-2]C2-025	02-N01-SS[NGRR-81-2]C2-025	02-N01-SS[NGRR-81-2]C2-025
Date Sampled	8/29/01	9/13/01	8/30/01	8/30/01	8/30/01
Depth	2.5 to 3	2.5 to 3	2.5 to 3	2.5 to 3	2.5 to 3
Total Metals (mg/kg dry)					
Arsenic	6 J	4.1	14	6.9	6.9
Lead	4.8	29	5.4	3.5	3.5

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	03-F15-SS-[F-128-3]-C2-050	03-F23-SS-[F-161-3]-C2-050	03-N01-SS-[NGRR-145-3]-C2-050	12-VS-1	12-VS-10
Date Sampled	9/13/01	9/10/01	9/13/01	9/23/99	9/23/99
Depth	4 to 4.5	4 to 4.5	3.5 to 4	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	4.4	4	6	12	29
Lead	2.8	10	5.5	14	13

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	12-VS-3	12-VS-4	12-VS-5	12-VS-6	12-VS-7-DAVG
Date Sampled	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99
Depth	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	15	20	4.2	3.8	54.5
Lead	13	36	6.6	6.1	63.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	12-VS-8	19-VS-21	19-VS-25	19-VS-26	19-VS-27
Date Sampled	9/23/99	9/14/99	9/14/99	9/14/99	9/14/99
Depth	1 to 2.5	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5
Total Metals (mg/kg dry)					
Arsenic	2.5	34	7.9	4.8	6.1
Lead	5	1500 J	200 J	11 J	1100 J

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	19-VS-34	19-VS-36	19-VS-38	19-VS-39	19-VS-40
Date Sampled	9/14/99	9/14/99	9/14/99	9/14/99	9/14/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	2 to 4.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	15	21	5.4	20	18
Lead	3800 J	180	13	53	82

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	19-VS-41	19-VS-44-DAVG	19-VS-45-DAVG	19-VS-47	19-VS-48
Date Sampled	9/14/99	9/14/99	9/14/99	9/30/99	9/30/99
Depth	0 to 0.5	2 to 4.5	2 to 4.5	2 to 4.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	170	5.8	3.85	6.5	8.7
Lead	850	24	18.5	240	360

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	19-VS-49	19-VS-53	19-VS-54	19-VS-57	26-VS-27
Date Sampled	9/30/99	9/30/99	9/30/99	10/19/99	9/21/99
Depth	2 to 4.5	2 to 4.5	0 to 0.5	2 to 4.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	6.1	6.5	140	2 U	6.9
Lead	250	310	160	6.1 U	14

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	26-VS-28	26-VS-29	26-VS-30	26-VS-31	26-VS-33
Date Sampled	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	52	34	45	5.3	28
Lead	43	73	19	5.1	4.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	26-VS-34	26-VS-35-DAVG	26-VS-36	26-VS-37	26-VS-38
Date Sampled	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99
Depth	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	15	6	220	3	17
Lead	5.3	3.7	84	6.9	29

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	26-VS-40	26-VS-41	26-VS-42	26-VS-43	26-VS-44-DAVG
Date Sampled	9/21/99	9/21/99	9/21/99	9/21/99	9/21/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	4.8	11	15	6.3	180
Lead	19	8.2	16	4	24

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	26-VS-5	26-VS-6	38-VS-118	38-VS-119	38-VS-12
Date Sampled	9/15/99	9/15/99	10/11/99	10/11/99	9/27/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	3.7	4.1	20	51	29
Lead	37 J	200 J	13	52	38

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-120	38-VS-121	38-VS-126	38-VS-127	38-VS-128
Date Sampled	10/11/99	10/11/99	10/11/99	10/11/99	10/11/99
Depth	1 to 2.5	1 to 2.5	3 to 4.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	76	35	37	21	3.8
Lead	77	87	13	13	4.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-129	38-VS-130	38-VS-133	38-VS-134	38-VS-135
Date Sampled	10/11/99	10/11/99	5/24/00	5/24/00	5/24/00
Depth	1 to 2.5	0 to 0.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	6.3	20	8.1	74	15
Lead	6.5	35	26	22	590

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-136	38-VS-16	38-VS-18	38-VS-24	38-VS-26
Date Sampled	5/24/00	9/27/99	9/27/99	9/27/99	9/27/99
Depth	1.5 to 3.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	150	23	13	76	100
Lead	11	35	20	48	8.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-27	38-VS-28	38-VS-31	38-VS-32	38-VS-33
Date Sampled	9/27/99	9/27/99	9/27/99	9/27/99	9/27/99
Depth	0 to 0.5	1 to 2.5	1 to 2.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	50	8	7.2	49	4.3
Lead	100	6.1	4.4	64	5.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-34	38-VS-35	38-VS-36	38-VS-38	38-VS-39
Date Sampled	9/27/99	9/27/99	9/27/99	9/27/99	9/27/99
Depth	1 to 2.5	0 to 0.5	0 to 0.5	1 to 2.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	51	12	210	21	84
Lead	20	39	47	24	20

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-40	38-VS-41	38-VS-42	38-VS-43	38-VS-44
Date Sampled	9/27/99	9/27/99	9/27/99	9/27/99	9/27/99
Depth	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	260	10	14	5.7	20
Lead	110	8	4.9	3.2	4.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-45	38-VS-47-DAVG	38-VS-48-DAVG	38-VS-50	38-VS-51
Date Sampled	9/27/99	9/27/99	9/27/99	9/27/99	9/27/99
Depth	0 to 0.5	1 to 2.5	0 to 0.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	340	70	185	30	25
Lead	56	23.5	35.5	23	12

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-52	38-VS-53	38-VS-54	38-VS-55	38-VS-56
Date Sampled	9/27/99	9/27/99	9/27/99	9/27/99	9/27/99
Depth	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	38	140	37	120	970
Lead	64	170	20	39	100

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-65	38-VS-73	38-VS-8	38-VS-86	38-VS-88
Date Sampled	9/28/99	9/28/99	9/27/99	9/28/99	9/28/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	170	69	8.7	11	16
Lead	63	100	22	35	21

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	38-VS-91	38-VS-94	APC-PS-VS-04-01	APC-PS-VS-04-02	APC-PS-VS-04-03
Date Sampled	9/28/99	9/28/99	12/11/98	12/11/98	12/11/98
Depth	1 to 2.5	1 to 2.5	1 to 1.7	1 to 2.9	1 to 2.6
Total Metals (mg/kg dry)					
Arsenic	26	75	6.6	3.4	4.2
Lead	24	21	18	3.8	7.6

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	APC-PS-VS-04-04	APC-PS-VS-04-05	APC-PS-VS-04-06	APC-PS-VS-04-07	APC-PS-VS-04-08
Date Sampled	12/11/98	12/11/98	12/11/98	12/11/98	12/11/98
Depth	1 to 2.9	1 to 2.1	1 to 2	1 to 2.3	1 to 2.3
Total Metals (mg/kg dry)					
Arsenic	9.2	22	3.1	4.5	5.5
Lead	17	150	8	48	250

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	APC-PS-VS-04-09	APC-PS-VS-04-10	APF-VS-11	APF-VS-12	APF-VS-13
Date Sampled	12/11/98	12/11/98	9/22/99	9/22/99	9/22/99
Depth	1 to 2	1 to 2.2	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	4.2	3.8	26	300	29
Lead	6.2	3.1	25	24	9.1

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	APF-VS-14	APF-VS-15	APF-VS-16	APF-VS-2	APF-VS-4
Date Sampled	9/22/99	9/22/99	9/22/99	9/22/99	9/22/99
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	6.4	2.2	3.7	30	350
Lead	2.2	2.8	3.6	32	59

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	APF-VS-9	LR181-VS-2	LR181-VS-3	LR181-VS-4	LR181-VS-5
Date Sampled	9/22/99	9/23/99	9/23/99	9/23/99	9/23/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5
Total Metals (mg/kg dry)					
Arsenic	100	67	29	28	10
Lead	66	36	38	42	8.3

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	LR181-VS-6	LR181-VS-7	LR181-VS-8	LR181-VS-9-DAVG	LR-68-W125
Date Sampled	9/23/99	9/23/99	9/23/99	9/23/99	11/4/92
Depth	1 to 2.5	1 to 2.5	1 to 2.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg dry)					
Arsenic	10	5.8	9.8	54	
Lead	6.1	5.8	9.2	65	29

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-38-71	SA2-39-70	SA2-39-71	SA2-40-69	SA2-40-70
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5
Total Metals (mg/kg dry)					
Arsenic	2 U	2.1 U	1.8 U	2.6	3.5
Lead	1.5	2.5	1.6	4.5	1.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-40-71	SA2-40-72	SA2-41-68	SA2-41-69	SA2-41-70
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5
Total Metals (mg/kg dry)					
Arsenic	2 U	2 U	2.4	2.1 U	2.1 U
Lead	1.6	1	5.8	4.9	1.9

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-41-71	SA2-41-72	SA2-42-67	SA2-42-68	SA2-42-69
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5
Total Metals (mg/kg dry)					
Arsenic	2 U	1.9 U	21	2.2 U	3.1
Lead	2.2	1.6	160	3.9	5.6

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-42-70	SA2-42-71	SA2-42-72	SA2-43-67	SA2-43-68
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5
Total Metals (mg/kg dry)					
Arsenic	2 U	2 U	2.2 U	3.4	2.9
Lead	2.9	2.2	1.2	12	14

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-43-69	SA2-43-70	SA2-43-71	SA2-43-72	SA2-44-67
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5	2.5 to 5.5
Total Metals (mg/kg dry)					
Arsenic	3.7	4.2	2.5	2.1 U	3.5
Lead	4	8.7	3.7	1.7	8.8

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA2-44-68	SA2-44-69	SA3-77-120	SA3-77-121	SA3-77-122
Date Sampled	10/14/99	10/14/99	10/13/99	10/13/99	10/13/99
Depth	2.5 to 5.5	2.5 to 5.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	5.7	2.4	3.3	6.3	2 U
Lead	13	0.91 U	5.5	17	8.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA3-77-123	SA3-77-124	SA3-77-125	SA3-77-126	SA3-77-127
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	9.8	54	17	30	9.9
Lead	9.8	47	11	33	15

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA3-78-120	SA3-78-121	SA3-78-122	SA3-78-123	SA3-78-124
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	16	31	2.3	3.3	4.7
Lead	5.6	39	4.8	5.1	5.5

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA3-78-125	SA3-78-126	SA3-78-127	SA3-78-128	SA3-78-129
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	3.6	3.1	7.6	3.1	13
Lead	6.2	5.2	14	6.1	25

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA3-78-130	SA3-78-131	SA3-79-119	SA3-79-120	SA3-79-121
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	7.8	9.2	25	17	50
Lead	6.3	13	41	21	120

Table B.19-1
Miscellaneous Sample Soil Metals Results

Area	MIS[illegible]	MISC	MISC	MISC	MISC
Sample ID	SA3-79 [illegible]	SA3-79-123	SA3-79-124	SA3-79-125	SA3-79-126
Date Sampled	10/13/99	10/13/99	10/13/99	10/13/99	10/13/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	11	28	15	3.3	6.8
Lead	17	51	30	4.5	15

Area	MISC	MISC	MISC	MISC	MISC
Sample ID	SA3-79-127	SA3-79-128	SA3-79-129	SA3-79-130	SA3-79-131
Date Sampled	10/14/99	10/14/99	10/14/99	10/14/99	10/14/99
Depth	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)					
Arsenic	8.5	8.9	8.5	19	12
Lead	14	16	7.6	25	5.3

Area	MISC	MISC
Sample ID	SA3-79-132	SA3-79-133
Date Sampled	10/14/99	10/14/99
Depth	1.5 to 3.5	1.5 to 3.5
Total Metals (mg/kg dry)		
Arsenic	4	4.9
Lead	4.9	13

Table B.20-1
Area 5 - DNT Waste Drum Area Soil Metals Results

Area	5	5	5	5	5	5	5
Sample ID	01-N01-SS[NGRR-193]C2-005-DAVG	5D-VS-69	5-HA-513-S-1	5-HA-513-S-2	5-HA-514-S-1	5-HA-514-S-2	5-HA-515-S-1
Date Sampled	8/7/01	8/10/93	3/12/92	3/12/92	3/12/92	3/12/92	3/12/92
Depth	1.5 to 2	0 to 0.5	0 to 1	2 to 3	0 to 1	2 to 3	0 to 1
Total Metals (mg/kg)							
Arsenic	11	2.6					
Cadmium		0.16 J					
Chromium							
Copper							
Lead	59	5.4 U	73	51	51	21	24
Mercury (inorganic)		0.08 U					
Nickel (soluble salts)							
Zinc and Compounds							

Area	5	5	5	5	5	5	5
Sample ID	5-HA-515-S-2	5-HA-516-S-1	5-HA-516-S-2	5-HA-517-S-1	5-HA-517-S-2	5-SS-401	5-SS-402
Date Sampled	3/12/92	3/12/92	3/12/92	3/12/92	3/12/92	11/2/93	11/2/93
Depth	2 to 3	0 to 1	2 to 3	0 to 1	2 to 3	0 to 0.5	0 to 0.5
Total Metals (mg/kg)							
Arsenic						7.3	37
Cadmium							
Chromium							
Copper							
Lead	13	13	5.5 U	5.4 U	5 U		
Mercury (inorganic)							
Nickel (soluble salts)							
Zinc and Compounds							

Table B.20-1
Area 5 - DNT Waste Drum Area Soil Metals Results

Area	5	5	5	5	5	5	5	5	5	5	5	5	5
Sample ID	5-SS-403	5-SS-404	5-TP-511-S-3	5-TP-512-S-3	5-TP-513-S-3	5-VS-1	5-VS-100	5-VS-101	5-VS-102	5-VS-103	5-VS-104	5-VS-105	5-VS-106
Date Sampled	11/11/93	11/11/93	8/18/92	8/18/92	8/18/92	2/12/93	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99
Depth	0 to 0.5	0 to 0.5	4 to 4.5	4 to 4.5	4 to 4.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5
Total Metals (mg/kg)													
Arsenic	16	9.6	3.7	9.6	4.6	18	63	1.9	21	230	320	30	140
Cadmium			0.12	0.31	0.31								
Chromium			11 J	16 J	13 J								
Copper			17	69	12								
Lead			78	41	99	110	300	25	280	49	100	230	160
Mercury (inorganic)			0.087 U	0.084 U	0.38	3.3 J							
Nickel (soluble salts)			19 J	23 J	18 J								
Zinc and Compounds			49	74	170								

Area	5	5	5	5	5	5	5	5	5	5	5	5	5
Sample ID	5-VS-107	5-VS-108	5-VS-109	5-VS-11	5-VS-110	5-VS-111	5-VS-112	5-VS-113	5-VS-114	5-VS-115	5-VS-118	5-VS-120	5-VS-122
Date Sampled	9/16/99	9/16/99	9/16/99	2/12/93	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/16/99	9/30/99
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2_5
Total Metals (mg/kg)													
Arsenic	21	90	60	11	130	18	81	370	190	220	94	120	490
Cadmium													
Chromium													
Copper													
Lead	71	170	130	43	1200	23	86	51	18	190	18	120	28
Mercury (inorganic)				0.35 J									
Nickel (soluble salts)													
Zinc and Compounds													

Table B.20-1
Area 5 - DNT Waste Drum Area Soil Metals Results

Area	5	5	5	5	5	5	5	5	5	5	5	5	5
Sample ID	**5-VS-125**	**5-VS-126**	**5-VS-15**	**5-VS-17**	**5-VS-18**	**5-VS-19**	**5-VS-20-DAVG**	**5-VS-21**	**5-VS-22**	**5-VS-24**	**5-VS-25**	**5-VS-26**	**5-VS-28**
Date Sampled	**10/18/99**	**10/18/99**	**2/12/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**	**8/10/93**
Depth	**1 to 2.5**	**1 to 2.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg)													
Arsenic	1,500	1,500	28	29	5.1	5.1	5	11	34	190	8.1	4.2	3.3
Cadmium				0.35	0.15	0.14	0.19	0.82	0.49	0.27	0.45	0.15	0.89
Chromium													
Copper													
Lead	4.7	22	210 J	330	19	31	24	36	580	680	110	7	5.3 U
Mercury (inorganic)			1.2 J	3.1 J	0.11 UJ	0.17 J	0.14 J	0.15 J	0.48 J	12 J	1 J	0.11 UJ	0.39 J
Nickel (soluble salts)													
Zinc and Compounds													

Area	5	5	5
Sample ID	**5-VS-5**	**5-VS-9**	**5-VS-99**
Date Sampled	**2/12/93**	**2/12/93**	**9/16/99**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg)			
Arsenic	10	21	78
Cadmium	0.27 J		
Chromium			
Copper			
Lead	120	41	260
Mercury (inorganic)	0.36 J	0.14 J	
Nickel (soluble salts)			
Zinc and Compounds			

Table B.20-2
Area 5D - DNT Waste Drum Area Soil Metals Results

Area Sample ID Date Sampled Depth	5D 5D-TPS-13-S-3 9/29/92 2 to 3.5	5D 5D-TPS-15-S-2 10/1/92 0 to 1	5D 5D-TPS-16-S-3 10/1/92 2 to 4	5D 5D-TPS-17-S-3 10/1/92 0 to 1.5	5D 5D-TPS-19-S-2 10/7/92 0 to 1	5D 5D-TPS-19-S-3 10/7/92 6 to 9	5D 5D-TPS-6-S-3 9/18/92 0 to 1
Total Metals (mg/kg)							
Aluminum					7700		
Antimony (metallic)					2.6 U		
Arsenic (inorganic)	1.6	2.2	2	2	5.5	3.7	3.6
Beryllium					0.1 U		
Cadmium	1.5	0.69 J	0.64 J	0.7 J	2.8	1.7	
Chromium					21		
Copper					24		
Lead (inorganic)	5 U	5.7 U	5.3 U	6.6	5.2 U	5.1 U	27
Mercury (inorganic)	0.083 U	0.11 U	0.097 U	0.1 U	0.11 U	0.1 U	0.42
Nickel (soluble salts)					12		
Selenium					0.27 U		
Silver					0.26 U		
Thallium					0.27 U		
Zinc and Compounds					24		

Area Sample ID Date Sampled Depth	5D 5D-TPS-7-S-3 9/18/92 0 to 1	5D 5D-TPS-8-S-3 9/18/92 0 to 1.5	5D 5D-TPS-9-S-3 9/18/92 0 to 1	5D 5D-VS-10 4/13/93 0 to 0.5	5D 5D-VS-11 4/13/93 0 to 0.5	5D 5D-VS-15 4/13/93 0 to 0.5	5D 5D-VS-17 4/13/93 0 to 0.5
Total Metals (mg/kg)							
Aluminum			18000				
Antimony (metallic)							
Arsenic (inorganic)	2.2	2	4.5	24	5.4	4.4	15
Beryllium							
Cadmium				0.091	0.24	0.14	0.29
Chromium							
Copper							
Lead (inorganic)	5.4 U	5.4 U	5.9 U	5.6 UJ	6.8 UJ	5.8 UJ	140 J
Mercury (inorganic)	0.095 U	0.076 U	0.082 U	0.1 U	0.12 U	0.1 U	0.34 J
Nickel (soluble salts)							
Selenium							
Silver							
Thallium							
Zinc and Compounds							

Table B.20-2
Area 5D - DNT Waste Drum Area Soil Metals Results

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-18	5D-VS-2	5D-VS-21	5D-VS-23	5D-VS-26	5D-VS-27	5D-VS-32	5D-VS-35	5D-VS-36	5D-VS-4
Date Sampled	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	2/17/93	4/13/93	4/13/93	4/13/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg)										
Aluminum										
Antimony (metallic)										
Arsenic (inorganic)	3.5	3.2	28	8.8	3.7	5.6 J	18 J	2.9	17 J	3.7
Beryllium										
Cadmium	0.21	0.16	0.64	0.67	1.2	1.2	0.31 J	1.3	1.1	0.15
Chromium										
Copper										
Lead (inorganic)	5.8 UJ	11 J	260 J	89 J	5.6 U	68	52	5.3 U	100	7.7 J
Mercury (inorganic)	0.11 U	0.23 J	0.47 J	0.21 J	0.11 UJ	0.11 UJ	1.3 J	0.11 UJ	1.5 J	0.11 U
Nickel (soluble salts)										
Selenium										
Silver										
Thallium										
Zinc and Compounds										

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-53	5D-VS-55	5D-VS-56	5D-VS-57	5D-VS-59-DAVG	5D-VS-6	5D-VS-60-DAVG	5D-VS-68	5D-VS-70-DAVG	5D-VS-71-DAVG
Date Sampled	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	8/10/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg)										
Aluminum										
Antimony (metallic)										
Arsenic (inorganic)	5.8	12	4.2	4.4	15	14	6.3	95	3.4	2.5
Beryllium										
Cadmium	0.078	0.31	0.12	0.089	1.5	0.63	0.24	0.79	0.11	0.095
Chromium										
Copper										
Lead (inorganic)	5.9	200	5.4	5.5 U	450	300 J	5.3 U	170	9.4	5.3 U
Mercury (inorganic)	0.11 U	0.82	0.11 U	0.11 U	0.43	3.6 J	0.11	2.1	0.11 U	0.1 U
Nickel (soluble salts)										
Selenium										
Silver										
Thallium										
Zinc and Compounds										

Table B.20-2
Area 5D - DNT Waste Drum Area Soil Metals Results

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-72	5D-VS-73	5D-VS-74	5D-VS-75	5D-VS-76	5D-VS-77	5D-VS-78	5D-VS-79	5D-VS-80-DAVG
Date Sampled	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg)									
Aluminum									
Antimony (metallic)									
Arsenic (inorganic)	3.3	11	6.3	95	1.4	5.5	6.6	2.4	5.6
Beryllium									
Cadmium	0.25	0.21	0.2	1	5.3	2	0.28	0.24	0.39
Chromium									
Copper									
Lead (inorganic)	46	38	9.9	5.3 U	5.8 U	12	5 U	5.4 U	5.2 U
Mercury (inorganic)	1.4	0.49	0.11 U	0.1 U	0.11 U	0.07	0.08 U	0.16	0.25
Nickel (soluble salts)									
Selenium									
Silver									
Thallium									
Zinc and Compounds									

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-81	5D-VS-82	5D-VS-83	5D-VS-84	5D-VS-85	5D-VS-86	5D-VS-87	5D-VS-88	5D-VS-89-DAVG
Date Sampled	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Total Metals (mg/kg)									
Aluminum									
Antimony (metallic)									
Arsenic (inorganic)	6.3	26	35	9.8	33	17	12	12	17
Beryllium									
Cadmium	0.19	1.4	0.83	1.5	0.16	0.19	0.17	0.25	6.6
Chromium									
Copper									
Lead (inorganic)	5.3 U	110	150	18	120	110	70	290	49
Mercury (inorganic)	0.11 U	0.16	1.7	0.09 U	0.88	3.7	4.4	3.5	0.5
Nickel (soluble salts)									
Selenium									
Silver									
Thallium									
Zinc and Compounds									

Table B.20-2
Area 5D - DNT Waste Drum Area Soil Metals Results

Area	5D	5D	5D	5D	5D
Sample ID	**5D-VS-90-DAVG**	**5D-VS-91**	**5D-VS-92**	**5D-VS-93**	**5D-VS-94**
Date Sampled	**9/7/93**	**9/7/93**	**9/7/93**	**9/7/93**	**9/7/93**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg)					
Aluminum					
Antimony (metallic)					
Arsenic (inorganic)	12	25	50	5 2	8 6
Beryllium					
Cadmium	1.5	0 8	0 74	0 12 J	0 053 J
Chromium					
Copper					
Lead (inorganic)	60	210	310	54	54
Mercury (inorganic)	2.8 J	3.3 J	4.3 J	0.11 U	1.6 J
Nickel (soluble salts)					
Selenium					
Silver					
Thallium					
Zinc and Compounds					

Area	5D	5D	5D	5D
Sample ID	**5D-VS-95**	**5D-VS-96**	**5D-VS-97**	**5D-VS-98**
Date Sampled	**9/7/93**	**9/7/93**	**9/7/93**	**9/7/93**
Depth	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**	**0 to 0.5**
Total Metals (mg/kg)				
Aluminum				
Antimony (metallic)				
Arsenic (inorganic)	140	9.4	10	31
Beryllium				
Cadmium	1.2	0.12 J	0.99	0.14 J
Chromium				
Copper				
Lead (inorganic)	2300	140	120	110
Mercury (inorganic)	130 J	1.3 J	2.8 J	3.9 J
Nickel (soluble salts)				
Selenium				
Silver				
Thallium				
Zinc and Compounds				

Table B.20-3
Area 5 / 5D - DNT Waste Drum Area Soil Explosives Results

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-11-S-3	5D-TPS-12-S-3	5D-TPS-13-S-3	5D-TPS-15-S-3	5D-TPS-16-S-3	5D-TPS-17-S-3
Date Sampled	9/29/92	9/29/92	9/29/92	10/1/92	10/1/92	10/1/92
Depth	0 to 1	0 to 1	2 to 3.5	4.5 to 5.5	2 to 4	0 to 1.5
Explosives (mg/kg)						
1,3-Dinitrobenzene	0.043 U	0.043 U	0.042 U	0.042 U	0.042 U	0.042 U
2,4-Dinitrotoluene	0.0064 U	0.0065 U	0.0063 U	0.0063 U	0.0063 U	0.02
2,6-Dinitrotoluene	0.0064 U	0.0065 U	0.0063 U	0.0063 U	0.0063 U	0.081
DNT - Total	0.0128 U	0.013 U	0.0126 U	0.0126 U	0.0126 U	0.101
Monomethylamine Nitrate						
Nitrobenzene	0.064 U	0.064 U	0.062 U	0.062 U	0.062 U	0.063 U
Nitroglycerine						
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.031 U	0.031 U	0.031 U	0.032 U
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U	0.0031 U	0.0031 U	0.0031 U	0.0032 U

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-18-S-4	5D-TPS-19-S-2	5D-TPS-19-S-3	5D-TPS-21-S-2-DAVG	5D-TPS-21-S-3	5D-TPS-6-S-3
Date Sampled	10/7/92	10/7/92	10/7/92	10/7/92	10/7/92	9/18/92
Depth	0 to 1	0 to 1	6 to 9	0.5 to 1.5	3 to 4	0 to 1
Explosives (mg/kg)						
1,3-Dinitrobenzene	0.043 U	0.042 U	0.042 U	0.045 U	0.044 U	0.23 U
2,4-Dinitrotoluene	0.0064 U	0.0063 U	0.019	0.0067 U	0.0066 U	0.3
2,6-Dinitrotoluene	0.0064 U	0.0063 U	0.0063 U	0.0067 U	0.0066 U	0.08
DNT - Total	0.0128 U	0.0126 U	0.02215	0.0134 U	0.0132 U	0.38
Monomethylamine Nitrate						
Nitrobenzene	0.064 U	0.063 U	0.063 U	0.067 U	0.066 U	0.34 U
Nitroglycerine						
1,3,5-Trinitrobenzene	0.032 U	0.032 U	0.032 U	0.034 U	0.033 U	0.17 U
2,4,6-Trinitrotoluene	0.0032 U	0.0032 U	0.0032 U	0.0034 U	0.0033 U	0.017 U

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-7-S-3	5D-VS-14	5D-VS-32	5D-VS-90-DAVG	5D-VS-91	5D-VS-92
Date Sampled	9/18/92	2/17/93	2/17/93	9/7/93	9/7/93	9/7/93
Depth	0 to 1	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosives (mg/kg)						
1,3-Dinitrobenzene	0.089 U	0.43 U	0.082 U	0.044 U	0.087 U	0.043 U
2,4-Dinitrotoluene	0.013 U	0.16	0.03	0.046	0.013 U	0.011
2,6-Dinitrotoluene	0.013 U	0.11	0.0051 J	0.015	0.013 U	0.007 U
DNT - Total	0.026 U	0.27	0.0351	0.061	0.026 U	0.0145
Monomethylamine Nitrate						
Nitrobenzene	0.13 U	0.63 U	0.12 U	0.066 U	0.13 U	0.065 U
Nitroglycerine						
1,3,5-Trinitrobenzene	0.067 U	0.32 U	0.062 U	0.033 U	0.066 U	0.033 U
2,4,6-Trinitrotoluene	0.0067 U	0.082	0.0062 U	0.0033 U	0.0066 U	0.0033 U

Table B.20-3
Area 5 / 5D - DNT Waste Drum Area Soil Explosives Results

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-93	5D-VS-94	5D-VS-95	5D-VS-96	5D-VS-97	5D-VS-98
Date Sampled	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Explosives (mg/kg)						
1,3-Dinitrobenzene	0.042 U	0.083 UJ	0.084 UJ	0.044 UJ	0.44 U	0.042 U
2,4-Dinitrotoluene	0.041	0.012 UJ	0.013 UJ	0.007 UJ	0.066 U	0.006 U
2,6-Dinitrotoluene	0.006 U	0.012 UJ	0.013 UJ	0.007 UJ	0.066 U	0.011
DNT - Total	0.044	0.024 U	0.026 U	0.014 U	0.132 U	0.014
Monomethylamine Nitrate						
Nitrobenzene	0.063 U	0.12 UJ	0.13 UJ	0.066 UJ	0.65 U	0.062 U
Nitroglycerine						
1,3,5-Trinitrobenzene	0.032 U	0.062 UJ	0.063 UJ	0.033 UJ	0.33 U	0.031 U
2,4,6-Trinitrotoluene	0.0032 U	0.0062 UJ	0.0063 UJ	0.0033 UJ	0.033 U	0.0031 U

Area	5	5	5	5	5	5
Sample ID	5-HA-513-S-1	5-HA-513-S-2	5-HA-514-S-1	5-HA-514-S-2	5-HA-515-S-1	5-HA-515-S-2
Date Sampled	3/12/92	3/12/92	3/12/92	3/12/92	3/12/92	3/12/92
Depth	0 to 1	2 to 3	0 to 1	2 to 3	0 to 1	2 to 3
Explosives (mg/kg)						
1,3-Dinitrobenzene						
2,4-Dinitrotoluene						
2,6-Dinitrotoluene						
DNT - Total						
Monomethylamine Nitrate	6.3 U	6 U	5.7 U	5.6 U	5.8 U	5.8 U
Nitrobenzene						
Nitroglycerine						
1,3,5-Trinitrobenzene						
2,4,6-Trinitrotoluene						

Area	5	5	5	5
Sample ID	5-HA-516-S-1	5-HA-516-S-2	5-HA-517-S-1	5-HA-517-S-2
Date Sampled	3/12/92	3/12/92	3/12/92	3/12/92
Depth	0 to 1	2 to 3	0 to 1	2 to 3
Explosives (mg/kg)				
1,3-Dinitrobenzene				
2,4-Dinitrotoluene				
2,6-Dinitrotoluene				
DNT - Total				
Monomethylamine Nitrate	5.9 U	5.6 U	5.4 U	5.2 U
Nitrobenzene				
Nitroglycerine				
1,3,5-Trinitrobenzene				
2,4,6-Trinitrotoluene				

Table B.20-4
Area 5 - DNT Waste Drum Area Soil VOC Results

Area	5D
Sample ID	5D-VS-10
Date Sampled	4/13/93
Depth	0 to 0.5
VOCs (mg/kg)	
Bromodichloromethane	0.011 U
Bromoform	0.011 U
Bromomethane	0.054 U
Carbon Tetrachloride	0.011 U
Chlorobenzene	0.027 U
Chloroform	0.011 U
Chloromethane	0.11 U
Dibromochloromethane	0.011 U
1,1-Dichloroethane	0.011 U
1,2-Dichloroethane	0.011 U
1,1-Dichloroethene	0.011 U
Dichloromethane	0.11 U
1,2-Dichloropropane	0.011 U
Cis-1,3-Dichloropropene	0.011 U
Trans-1,3-Dichloropropene	0.011 U
Ethyl Chloride	0.054 U
1,1,2,2-Tetrachloroethane	0.011 U
Tetrachloroethene	0.011 U
1,1,1-Trichloroethane	0.011 U
1,1,2-Trichloroethane	0.011 U
Trichloroethylene	0.011 U
Vinyl Chloride	0.054 U
Halogenated VOCs (mg/kg)	
1,2 - Dibromoethane	0.027 U
cis-Dichloroethene	0.011 U
trans-Dichloroethene	0.011 U
Trichlorofluoromethane	0.027 U

Table B.20-5
Area 5 /5D- DNT Waste Drum Area Soil SVOC Results

Area	5D	5D
Sample ID	**5D-TPS-6-S-3**	**5D-VS-10**
Date Sampled	**9/18/92**	**4/13/93**
Depth	**0 to 1**	**0 to 0.5**
SVOCs (mg/kg)		
Aniline	0.19 U	
Benzidine	1.9 U	
Benzoic Acid	0.97 U	
Benzyl Alcohol	0.19 U	
Bis(2-Chloroethoxy)methane	0.19 U	
Bis(2-Chloroisopropyl)ether	0.19 U	
Bis(2-ethylhexyl)Phthalate (DEHP)	0.19 U	
Bis(Chloroethyl)ether	0.19 U	
4-Bromodiphenyl ether	0.19 U	
N-Butyl Benzyl Phthalate	0.19 U	
4-Chloroaniline	0.19 U	
2-Chloronaphthalene	0.19 U	
2-Chlorophenol	0.19 U	
4-Chlorophenyl-phenyl ether	0.19 U	
Dibenzofuran	0.19 U	
Dibutyl Phthalate	0.19 U	
1,2-Dichlorobenzene	0.19 U	0.027 U
1,3-Dichlorobenzene,	0.19 U	0.027 U
1,4-Dichlorobenzene	0.19 U	0.027 U
3,3-Dichlorobenzidine	0.39 U	
2,4-Dichlorophenol	0.19 U	
Diethyl Phthalate	0.19 U	
Dimethyl Phthalate	0.19 U	
2,4-Dimethylphenol	0.19 U	
4,6-Dinitro-o-Cresol	0.97 U	
2,4-Dinitrophenol	0.97 U	
Di-N-Octylphthalate	0.19 U	
Hexachlorobenzene	0.19 U	
Hexachlorobutadiene	0.19 U	
Hexachlorocyclopentadiene	0.19 U	
Hexachloroethane	0.19 U	
Isophorone	0.19 U	
2-Methylphenol	0.19 U	
4-Methylphenol	0.19 U	
2-Nitroaniline	0.97 U	
3-Nitroaniline	0.97 U	
4-Nitroaniline	0.97 U	
2-Nitrophenol	0.19 U	
4-Nitrophenol	0.97 U	
N-Nitrosodimethylamine	0.19 U	
N-Nitrosodi-N-propylamine	0.19 U	
N-Nitrosodiphenylamine	0.19 U	
Pentachlorophenol	0.19 U	
Phenol	0.19 U	
1,2,4-Trichlorobenzene	0.19 U	
2,4,5-Trichlorophenol	0.97 U	
2,4,6-Trichlorophenol	0.19 U	

Table B.20-6
Area 5 - DNT Waste Drum Area Soil PAH Results

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-6-S-3	5D-VS-82	5D-VS-83	5D-VS-86	5D-VS-87	5D-VS-88	5D-VS-91	5D-VS-95	5D-VS-96
Date Sampled	9/18/92	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	9/7/93	9/7/93	9/7/93
Depth	0 to 1	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
PAH (mg/kg)									
Benzo(a)Anthracene	0.19 U	0.018 U	0.42	0.39	0.7	0.22	0.056	0.45	0.084
Benzo(a)Pyrene	0.19 U	0.17	0.35	0.43	0.18	0.34	0.096 U	0.018 U	0.076
Benzo(b)Fluoranthene	0.19 U	0.19	0.18 U	0.44	0.28	0.18 U	0.12	0.48	0.099
Benzo(k)Fluoranthene	0.19 U	0.068	0.18 U	0.22	0.21	0.18	0.047	0.2	0.046
Chrysene	0.049 J	0.054	0.18 U	0.44	0.69	0.18 U	0.045	0.42	0.09
Dibenz(a,h)anthracene	0.19 U	0.036 U	0.37 U	0.35 U	0.039	0.36 U	0.029 U	0.036 U	0.009 U
Indeno(1,2,3-cd)pyrene	0.19 U	0.11	0.18 U	0.26	0.17	0.19	0.062	0.28	0.057
Total Carcinogenic PAHS (BaP TEQs)	0.219499	0.219634	0.59599	0.71664	0.33679	0.57189	0.086815	0.15042	0.10505
Methylnaphthalene, 2-	0.19 U								
Acenaphthene	0.19 U	0.18 U	1.8 U	1.7 U	0.17 U	1.8 U	0.18 U	0.18 U	0.19 U
Acenaphthylene	0.19 U	0.18 U	1.8 U	1.7 U	0.17 U	1.8 U	0.18 U	0.18 U	0.19 U
Anthracene	0.19 U	0.056	0.091 U	0.084 U	0.16	0.088 U	0.0034 U	0.047	0.0053 U
Benzo(g,h,i)Perylene	0.04 J	0.12	0.3	0.19	0.26	0.18 U	0.047	0.26	0.025
Fluoranthene	0.19 U	0.39	0.18 U	0.17 U	1.3	0.18 U	0.14	1.1	0.22
Fluorene	0.19 U	0.023	0.18 U	0.17 U	0.017 U	0.18 U	0.018 U	0.018 U	0.019 U
Naphthalene	0.19 U	0.088 U	0.91 U	0.84 U	0.085 U	0.88 U	0.091 U	0.088 U	0.093 U
Phenanthrene	0.067 J	0.29	0.091 U	0.084 U	0.23	0.088 U	0.027	0.38	0.039
Pyrene	0.065 J	0.24	0.18 U	0.17 U	0.34	0.18 U	0.059	0.51	0.094
PAH (Non-Carc) - Total	0.837	1.343	2.916	2.649	2.511	5.376 U	0.5092	2.53	0.62665

Table B.20-7
Area 5 - DNT Waste Drum Area Soil Pesticide Results

Area	5D		5D	
Sample ID	**5D-TPS-19-S-2**		**5D-TPS-6-S-3**	
Date Sampled	**10/7/92**		**9/18/92**	
Depth	**0 to 1**		**0 to 1**	
Pesticides (mg/kg)				
Aldrin	0.0053	U	0.0058	U
Chlordane	0.053	U	0.058	U
DDD (p,p'-Dichlorodiphenyldichloroethane)	0.011	U	0.012	U
DDE (p,p'-Dichlorodiphenyldichloroethyle)	0.011	U	0.012	U
DDT (p,p'-Dichorodiphenyltrichloroethane)	0.011	U	0.012	U
Dieldrin	0.011	U	0.012	U
Endosulfan I	0.0053	U	0.0058	U
Endosulfan II	0.011	U	0.012	U
Endosulfan Sulfate	0.011	U	0.012	U
Endrin	0.011	U	0.012	U
Endrin Ketone	0.011	U	0.012	U
Heptachlor	0.0053	U	0.0058	U
Heptachlor Epoxide	0.0053	U	0.0058	U
alpha-Hexachlorocyclohexane	0.0053	U	0.0058	U
beta-Hexachlorocyclohexane	0.0053	U	0.0058	U
delta-Hexachlorocyclohexane	0.0053	U	0.0058	U
gamma-Hexachlorocyclohexane	0.0053	U	0.0058	U
Methoxychlor	0.053	U	0.058	U
Toxaphene	0.11	U	0.12	U

Table B.20-8
Area 5 - DNT Waste Drum Area Soil PCB Results

Area	5D		5D	
Sample ID	5D-TPS-19-S-2		5D-TPS-6-S-3	
Date Sampled	10/7/92		9/18/92	
Depth	0 to 1		0 to 1	
PCBs (mg/kg)				
Aroclor 1016	0.11	U	0.12	U
Aroclor 1221	0.11	U	0.12	U
Aroclor 1232	0.11	U	0.12	U
Aroclor 1242	0.11	U	0.12	U
Aroclor 1248	0.11	U	0.12	U
Aroclor 1254	0.11	U	0.12	U
Aroclor 1260	0.11	U	0.12	U

Table B.20-9
Area 5 - DNT Waste Drum Area Soil TPH Results

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-12-S-3	5D-TPS-15-S-2	5D-TPS-16-S-3	5D-TPS-17-S-3	5D-TPS-18-S-4	5D-TPS-21-S-2-DAVG
Date Sampled	9/29/92	10/1/92	10/1/92	10/1/92	10/7/92	10/7/92
Depth	0 to 1	0 to 1	2 to 4	0 to 1.5	0 to 1	0.5 to 1.5
TPH (mg/kg)						
TPH	25 U	38	42	14	25 U	25 U

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-TPS-6-S-3	5D-TPS-7-S-3	5D-VS-10	5D-VS-11	5D-VS-15	5D-VS-17
Date Sampled	9/18/92	9/18/92	4/13/93	4/13/93	4/13/93	4/13/93
Depth	0 to 1	0 to 1	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)						
TPH	31	25 U	21 U	24 U	35	140

Area	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-18	5D-VS-2	5D-VS-21	5D-VS-23	5D-VS-26	5D-VS-27
Date Sampled	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)						
TPH	22 U	22 U	160	110	23 U	140

Table B.20-9
Area 5 - DNT Waste Drum Area Soil TPH Results

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-32	5D-VS-35	5D-VS-36	5D-VS-4	5D-VS-53	5D-VS-55	5D-VS-56	5D-VS-57	5D-VS-59-DAVG	5D-VS-6
Date Sampled	2/17/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93	4/13/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	36	21 U	90	22 U	27	140	42	22 U	86 J	190

Area	5D	5	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-68	5D-VS-69	5D-VS-70-DAVG	5D-VS-71-DAVG	5D-VS-72	5D-VS-73	5D-VS-74	5D-VS-75	5D-VS-76	5D-VS-77
Date Sampled	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	45	21 U	22 U	20 U	110	21 U	22 U	22 U	22 U	33

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-79	5D-VS-80-DAVG	5D-VS-81	5D-VS-82	5D-VS-83	5D-VS-84	5D-VS-85	5D-VS-86	5D-VS-87	5D-VS-88
Date Sampled	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	21 U	21 U	21 U	380	520	21 U	60	1900	1500	750

Table B.20-9
Area 5 - DNT Waste Drum Area Soil TPH Results

Area	5D	5D	5D	5D	5D	5D	5D	5D	5D	5D
Sample ID	5D-VS-89-DAVG	5D-VS-90-DAVG	5D-VS-91	5D-VS-92	5D-VS-93	5D-VS-94	5D-VS-95	5D-VS-96	5D-VS-97	5D-VS-98
Date Sampled	8/10/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93	9/7/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	24 U	190	320	140	22	270	740	630	280	160

Area	5D	5	5	5	5	5	5	5	5	5
Sample ID	5D-VS-78	5-TP-511-S-3	5-TP-512-S-3	5-TP-513-S-3	5-VS-1	5-VS-11	5-VS-15	5-VS-17	5-VS-18	5-VS-19
Date Sampled	8/10/93	8/18/92	8/18/92	8/18/92	2/12/93	2/12/93	2/12/93	8/10/93	8/10/93	8/10/93
Depth	0 to 0.5	4 to 4.5	4 to 4.5	4 to 4.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	21 U	25 U	29	40	57	53	430	21 U	21 U	20 U

Area	5D	5	5	5	5	5	5	5	5	5
Sample ID	5D-VS-60-DAVG	5-VS-20-DAVG	5-VS-21	5-VS-22	5-VS-24	5-VS-25	5-VS-26	5-VS-28	5-VS-5	5-VS-9
Date Sampled	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	2/12/93	2/12/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)										
TPH	21 U	21 U	21 U	38	27	21 U	21 U	21 U	170	93

Table B.21-1
Area 8 - Bunker C Pipeline Soil Metals Results

Area	8	8	8
Sample ID	SA1-29-48	SA1-30-48	01-N01-SS[NGRR-275]C2-005
Date Sampled	10/14/99	10/14/99	8/13/01
Depth	3 to 6.5	3 to 6.5	1.5 to 2
Arsenic (mg/kg)			
Arsenic	2.2	4.2	19
Lead (mg/kg)			
Lead	12	46	22

Table B.21-2
Area 8 - Bunker C Pipeline Soil Explosives Results

Area	**8**
Sample ID	**8-BS-1-S-7**
Date Sampled	**6/9/92**
Depth	**32.5 to 34**
Explosives (mg/kg)	
2,4-Dinitrotoluene	1.7 U
2,6-Dinitrotoluene	1.7 U
DNT - Total	3.4 U
Nitrobenzene	1.7 U

Table B.21-3
Area 8 - Bunker C Pipeline Soil VOC Results

Area	8	8
Sample ID	**8-TPS-04-S-1**	**8-TPS-04-S-2**
Date Sampled	**1/31/92**	**1/31/92**
Depth	**14.5 to 15**	**16.5 to 17**
VOCs (mg/kg)		
Acetone	1 U	1 U
Benzene	0.05 U	0.05 U
Bromodichloromethane	0.05 U	0.05 U
Bromoform	0.25 U	0.25 U
Bromomethane	0.5 U	0.5 U
Carbon Disulfide	0.05 U	0.05 U
Carbon Tetrachloride	0.05 U	0.05 U
Chlorobenzene	0.05 U	0.05 U
Chloroform	0.05 U	0.05 U
Chloromethane	0.5 U	0.5 U
Dibromochloromethane	0.05 U	0.05 U
1,1-Dichloroethane	0.05 U	0.05 U
1,2-Dichloroethane	0.05 U	0.05 U
1,1-Dichloroethene	0.05 U	0.05 U
1,2-Dichloroethylene (Mixed Isomers)	0.05 U	0.05 U
Dichloromethane	0.25 U	0.25 U
1,2-Dichloropropane	0.05 U	0.05 U
Cis-1,3-Dichloropropene	0.05 U	0.05 U
Trans-1,3-Dichloropropene	0.05 U	0.05 U
Ethyl Benzene	0.05 U	0.05 U
Ethyl Chloride	0.05 U	0.05 U
2-Hexanone	0.5 U	0.5 U
Methyl Ethyl Ketone	0.5 U	0.5 U
Methyl Isobutyl Ketone	0.5 U	0.5 U
Styrene	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U
Tetrachloroethene	0.05 U	0.05 U
Toluene	0.05 U	0.05 U
1,1,1-Trichloroethane	0.05 U	0.05 U
1,1,2-Trichloroethane	0.05 U	0.05 U
Trichloroethylene	0.05 U	0.05 U
Vinyl Acetate	0.5 U	0.5 U
Vinyl Chloride	0.05 U	0.05 U
Xylenes	0.05 U	0.05 U

Table B.21-4
Area 8 - Bunker C Pipeline Soil SVOC Results

Area	**8**
Sample ID	**8-BS-1-S-7**
Date Sampled	**6/9/92**
Depth	**32.5 to 34**
SVOCs (mg/kg)	
Aniline	1.7 U
Benzidine	17 U
Benzoic Acid	8.3 U
Benzyl Alcohol	1.7 U
Bis(2-Chloroethoxy)methane	1.7 U
Bis(2-Chloroisopropyl)ether	1.7 U
Bis(2-ethylhexyl)Phthalate (DEHP)	1.7 U
Bis(Chloroethyl)ether	1.7 U
4-Bromodiphenyl ether	1.7 U
N-Butyl Benzyl Phthalate	1.7 U
4-Chloroaniline	1.7 U
2-Chloronaphthalene	1.7 U
2-Chlorophenol	1.7 U
4-Chlorophenyl-phenyl ether	1.7 U
Dibenzofuran	1.7 U
Dibutyl Phthalate	1.7 U
1,2-Dichlorobenzene	1.7 U
1,3-Dichlorobenzene,	1.7 U
Dichlorobenzene, 1,4-	1.7 U
3,3-Dichlorobenzidine	3.3 U
2,4-Dichlorophenol	1.7 U
Diethyl Phthalate	1.7 U
Dimethyl Phthalate	1.7 U
2,4-Dimethylphenol	1.7 U
4,6-Dinitro-o-Cresol	8.3 U
2,4-Dinitrophenol	8.3 U
Di-N-Octylphthalate	1.7 U
Hexachlorobenzene	1.7 U
Hexachlorobutadiene	1.7 U
Hexachlorocyclopentadiene	1.7 U
Hexachloroethane	1.7 U
Isophorone	1.7 U
2-Methylphenol	1.7 U
4-Methylphenol	1.7 U
2-Nitroaniline	8.3 U
3-Nitroaniline	8.3 U
4-Nitroaniline	8.3 U
2-Nitrophenol	1.7 U
4-Nitrophenol	8.3 U
N-Nitrosodimethylamine	1.7 U
N-Nitrosodi-N-propylamine	1.7 U
N-Nitrosodiphenylamine	1.7 U
Pentachlorophenol	1.7 U
Phenol	1.7 U
1,2,4-Trichlorobenzene	1.7 U
2,4,5-Trichlorophenol	8.3 U
2,4,6-Trichlorophenol	1.7 U

Table B.21-5
Area 8 - Bunker C Pipeline Soil PAH Results

Area	8	8	8	8	8	8	8
Sample ID	8-BS-1-S-4	8-BS-1-S-7	8-TP-7-S-4	8-VS-41	8-VS-42	8-VS-43	8-VS-44
Date Sampled	6/9/92	6/9/92	5/27/92	6/23/93	6/23/93	6/23/93	6/23/93
Depth	17.5 to 19	32.5 to 34	19 to 20	15 to 15.5	15 to 15.5	15 to 15.5	12 to 13
PAH (mg/kg)							
Benzo(a)Anthracene	0.019 U	0.018 U	0.018	0.018 U	0.018 U	0.019 U	0.018 U
Benzo(a)Pyrene	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U
Benzo(b)Fluoranthene	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U
Benzo(k)Fluoranthene	0.019 U	0.018 U	0.018 U	0.018 UJ	0.018 UJ	0.019 UJ	0.018 UJ
Chrysene	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U
Dibenz(a,h)anthracene	0.039 U	0.037 U	0.036 U	0.036 UJ	0.037 UJ	0.039 UJ	0.037 UJ
Indeno(1,2,3-cd)pyrene	0.019 U	0.018 U	0.018 U	0.018 UJ	0.018 UJ	0.019 UJ	0.018 UJ
Total Carcinogenic PAHS (BaP TEQs)	0.063909 U	0.060598 U	0.030699	0.059598 U	0.060598 U	0.063909 U	0.060598 U
2-Methylnaphthalene		1.7 U					
Acenaphthene	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U
Acenaphthylene	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U
Anthracene	0.0095 U	0.0091 U	0.0088 U	0.0089 U	0.009 U	0.0095 U	0.0089 U
Benzo(g,h,i)Perylene	0.18	0.21	0.14	0.018 U	0.018 U	0.019 U	0.018 U
Fluoranthene	0.019 U	0.36 J	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U
Fluorene	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U
Naphthalene	0.095 U	0.091 U	0.088 U	0.089 U	0.09 U	0.095 U	0.089 U
Phenanthrene	0.0095 U	0.54 J	0.0088 U	0.0089 U	0.009 U	0.0095 U	0.0089 U
Pyrene	0.019 U	0.018 U	0.018 U	0.018 UJ	0.018 UJ	0.019 UJ	0.018 UJ
PAH (Non-Carc) - Total	0.4555	2.20805	0.3998	0.5388 U	0.54 U	0.57 U	0.5388 U

Table B.21-5
Area 8 - Bunker C Pipeline Soil PAH Results

Area	8	8	8	8	8
Sample ID	8-VS-45	8-VS-46	8-VS-47	8-VS-48	8-VS-49
Date Sampled	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93
Depth	9 to 10	13 to 14	15 to 15.5	12 to 13	12 to 13
PAH (mg/kg)					
Benzo(a)Anthracene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Benzo(a)Pyrene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Benzo(b)Fluoranthene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Benzo(k)Fluoranthene	0.017 UJ	0.017 UJ	0.017 UJ	0.018 UJ	0.018 UJ
Chrysene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Dibenz(a,h)anthracene	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.037 UJ
Indeno(1,2,3-cd)pyrene	0.017 UJ	0.017 UJ	0.017 UJ	0.018 UJ	0.018 UJ
Total Carcinogenic PAHS (BaP TEQs)	0.058287 U	0.058287 U	0.058287 U	0.059598 U	0.060598 U
2-Methylnaphthalene					
Acenaphthene	0.17 U	0.17 U	0.17 U	0.18 U	0.18 U
Acenaphthylene	0.17 U	0.17 U	0.17 U	0.18 U	0.18 U
Anthracene	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U
Benzo(g,h,i)Perylene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Fluoranthene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Fluorene	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U
Naphthalene	0.087 U	0.087 U	0.087 U	0.088 U	0.089 U
Phenanthrene	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U
Pyrene	0.017 UJ	0.017 UJ	0.017 UJ	0.018 UJ	0.018 UJ
PAH (Non-Carc) - Total	0.5124 U	0.5124 U	0.5124 U	0.5376 U	0.5388 U

Table B.21-5
Area 8 - Bunker C Pipeline Soil PAH Results

Area	8	8	8	8	8
Sample ID	8-VS-50	8-VS-51	8-VS-59	8-VS-61	S-10
Date Sampled	6/23/93	6/23/93	7/12/93	7/12/93	1/28/92
Depth	15 to 15.5	15 to 15.5	15 to 15.5	37 to 38	15.5 to 16
PAH (mg/kg)					
Benzo(a)Anthracene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Benzo(a)Pyrene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Benzo(b)Fluoranthene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Benzo(k)Fluoranthene	0.018 UJ	0.017 UJ	0.93 U	0.082	0.0036 U
Chrysene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Dibenz(a,h)anthracene	0.036 UJ	0.035 UJ	1.9 U	0.19	0.0071 U
Indeno(1,2,3-cd)pyrene	0.018 UJ	0.017 UJ	1.1	0.1	0.0036 U
Total Carcinogenic PAHS (BaP TEQs)	0.059598 U	0.057287 U	1.623115	0.2122295	0.0118196 U
2-Methylnaphthalene					
Acenaphthene	0.18 U	0.17 U	9.3 U	0.19 U	0.036 U
Acenaphthylene	0.18 U	0.17 U	9.3 U	0.19 U	0.036 U
Anthracene	0.0088 U	0.0086 U	0.46 U	0.0094 U	0.0018 U
Benzo(g,h,i)Perylene	0.018 U	0.017 U	0.93 U	0.03	0.0036 U
Fluoranthene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Fluorene	0.018 U	0.017 U	0.93 U	0.019 U	0.0036 U
Naphthalene	0.088 U	0.086 U	4.6 U	0.094 U	0.018 U
Phenanthrene	0.0088 U	0.0086 U	0.46 U	0.0094 U	0.0018 U
Pyrene	0.018 UJ	0.017 UJ	0.93 U	0.019 U	0.0036 U
PAH (Non-Carc) - Total	0.5376 U	0.5112 U	27.84 U	0.3049	0.108 U

Table B.21-6
Area 8 - Bunker C Pipeline Soil TPH Results

Area	8	8	8	8	8	8	8	8	8	8
Sample ID	8-BS-1-S-4	8-BS-1-S-7	8-BS-2-S-4	8-BS-3-S-3	8-BS-3-S-5	8-LD-VS-1	8-LD-VS-10	8-LD-VS-14	8-LD-VS-15	8-LD-VS-19
Date Sampled	6/9/92	6/9/92	6/9/92	6/10/92	6/10/92	1/12/96	1/12/96	1/12/96	1/12/96	1/12/96
Depth	17.5 to 19	32.5 to 34	22.5 to 24	17.5 to 19	27_5 to 29	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP TPH (mg/L)										
TPH										
TPH (mg/kg)										
#2 Diesel		240								
Motor Oil		880								
TPH 418.1										
TPH	2800	2400	25 U	150	25 U	73	1100	250	160	940
TPH 8015										
Bunker C		10 U								
Bunker C (Aged)										
Gasoline		10 U								
Kensol		10 U								
Kerosene		10 U								
Stoddard Solvent		10 U								
TPH-8015		10 U								

Area	8	8	8	8	8	8	8	8	8	8
Sample ID	8-LD-VS-2	8-LD-VS-20	8-LD-VS-24	8-LD-VS-25	8-TP-10-S-4	8-TP-7-S-4	8-TPS-02-S-1	8-TPS-04-S-1	8-TPS-04-S-2	8-VS-41
Date Sampled	1/12/96	1/12/96	1/12/96	1/12/96	5/27/92	5/27/92	1/30/92	1/31/92	1/31/92	6/23/93
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	15 to 16	19 to 20	17 to 17.5	14.5 to 15	16.5 to 17	15 to 15.5
TCLP TPH (mg/L)										
TPH										
TPH (mg/kg)										
#2 Diesel							10 U	1000	660	
Motor Oil							10 U	3000	2100	
TPH 418.1										
TPH	75	870	120	190	94	1400				160 J
TPH 8015										
Bunker C							10 U	10 U	10 U	
Bunker C (Aged)										
Gasoline							10 U	10 U	10 U	
Kensol							10 U	10 U	10 U	
Kerosene							10 U	10 U	10 U	
Stoddard Solvent							10 U	10 U	10 U	
TPH-8015							10 U	10 U	10 U	

Table B.21-6
Area 8 - Bunker C Pipeline Soil TPH Results

Area	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Sample ID	8-VS-42	8-VS-43	8-VS-44	8-VS-45	8-VS-46	8-VS-47	8-VS-48	8-VS-49	8-VS-50	8-VS-51	8-VS-52	8-VS-53	8-VS-55	8-VS-56
Date Sampled	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	6/23/93	7/12/93	7/12/93	7/12/93	7/12/93
Depth	15 to 15.5	15 to 15.5	12 to 13	9 to 10	13 to 14	15 to 15.5	12 to 13	12 to 13	15 to 15.5	15 to 15.5	15 to 15.5	15 to 15.5	15 to 15.5	10 to 10.5
TCLP TPH (mg/L)														
TPH														
TPH (mg/kg)														
#2 Diesel														
Motor Oil														
TPH 418.1														
TPH	210 J	4000 J	21 U	21 U	24 J	77 J	22 U	30 J	21 U	55 J	45 J	50 U	260	200
TPH 8015														
Bunker C														
Bunker C (Aged)														
Gasoline														
Kensol														
Kerosene														
Stoddard Solvent														
TPH-8015														

Area	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Sample ID	8-VS-57	8-VS-58	8-VS-59	8-VS-60	8-VS-61	8-VS-62	8-VS-63	8-VS-64	8-VS-65	8-VS-66	8-VS-67	8-VS-68	8-VS-69	8-VS-70
Date Sampled	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93	7/12/93
Depth	10 to 10.5	15 to 15.5	15 to 15.5	20 to 20.5	37 to 38	6 to 7	9 to 10	4 to 5	3 to 4	12 to 13	7 to 8	15 to 15.5	10 to 11	5 to 7
TCLP TPH (mg/L)														
TPH			1 U											
TPH (mg/kg)														
#2 Diesel														
Motor Oil														
TPH 418.1														
TPH	81	110	7200	50 U	2500	50 U	48 J	61	50 U	50 U	50 U	540	50 U	50 U
TPH 8015														
Bunker C														
Bunker C (Aged)														
Gasoline														
Kensol														
Kerosene														
Stoddard Solvent														
TPH-8015														

Table B.21-6
Area 8 - Bunker C Pipeline Soil TPH Results

Area	8	8	8	8	8	8	8	8	8	8	8
Sample ID	8-VS-72	8-VS-73	8-VS-74	8-VS-75	8-VS-76	8-VS-77	8-VS-78	8-VS-80	8-VS-81	8-VS-82	8-VS-83
Date Sampled	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93
Depth	20 to 20.5	20 to 20.5	18 to 18.5	20 to 20.5	20 to 20.5	20 to 20.5	18 to 18.5	20 to 20.5	20 to 20.5	18 to 18.5	20 to 20.5
TCLP TPH (mg/L)											
TPH									1 U		
TPH (mg/kg)											
#2 Diesel											
Motor Oil											
TPH 418.1											
TPH	6300	96	1300	5100	7500	64	1100	6100	11000	50 U	340
TPH 8015											
Bunker C											
Bunker C (Aged)											
Gasoline											
Kensol											
Kerosene											
Stoddard Solvent											
TPH-8015											

Area	8	8
Sample ID	8-VS-84	S-10
Date Sampled	7/28/93	1/28/92
Depth	18 to 18.5	15.5 to 16
TCLP TPH (mg/L)		
TPH		
TPH (mg/kg)		
#2 Diesel		10 U
Motor Oil		
TPH 418.1		
TPH	50 U	
TPH 8015		
Bunker C		10 U
Bunker C (Aged)		10 U
Gasoline		10 U
Kensol		10 U
Kerosene		10 U
Stoddard Solvent		10 U
TPH-8015		10 U

Table B.22-1
Area 19 - Maintenance Areas Soil Metals Results

Area	19A	19A	19A	19A	19A	19A	19B
Sample ID	01-F15-SS[F-129]C2-005	01-F15-SS[F-130]C2-005	01-F15-SS[F-131]C2-005	01-F15-SS[F-132]C2-005	19A-TP-1-S-1	19A-TP-1-S-2	19B-OI-TP-1 (S-1)
Date Sampled	6/26/01	6/26/01	6/26/01	6/26/01	7/31/92	7/31/92	7/31/92
Depth	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	5 to 6	7 to 8	2 to 2.5
Total Metals (mg/kg)							
Aluminum							12000
Antimony (metallic)							0.25 UJ
Arsenic (inorganic)	2.5	3.2	1.9 U	2.3	2.5 J	5.5 J	2.6 J
Beryllium							0.31
Cadmium (food)							0.077
Chromium							13
Copper							11
Lead (and compounds) (inorganic)	8.4	4.2	23	2.5	86	960	11
Mercury (inorganic)							0.081 U
Nickel (soluble salts)							19
Selenium (and compounds)							0.23 U
Silver							0.25 U
Thallium							0.23 U
Zinc and Compounds							49

Area	19B	19B	19B	19B	19B	19B	19A
Sample ID	19B-OI-TP-1 (S-2)	19B-VS-15	19B-VS-16	19B-VS-17	19B-VS-18	19B-VS-19-DAVG	19-VS-20
Date Sampled	7/31/92	10/19/92	10/19/92	10/19/92	10/19/92	10/19/92	9/14/99
Depth	4 to 4.5	5 to 6	5 to 6	5 to 6	5 to 6	0 to 0.5	2 to 4.5
Total Metals (mg/kg)							
Aluminum	13000						
Antimony (metallic)	0.26 UJ						
Arsenic (inorganic)	2 J						3.3
Beryllium	0.32						
Cadmium (food)	0.041						
Chromium	18						
Copper	4.8						
Lead (and compounds) (inorganic)	5.1 U	5 U	7.1	5.9	10	6.7	17 J
Mercury (inorganic)	0.081 U						
Nickel (soluble salts)	24						
Selenium (and compounds)	0.24 U						
Silver	0.25 U						
Thallium	0.24 U						
Zinc and Compounds	29						

Table B.22-1
Area 19 - Maintenance Areas Soil Metals Results

Area	19A	19A	19A	19A	19A	19C
Sample ID	19-VS-28	19-VS-29	19-VS-46-DAVG	19-VS-60	19-VS-61	19-VS-62
Date Sampled	9/14/99	9/14/99	9/14/99	10/19/99	10/19/99	10/19/99
Depth	0 to 0.5	2 to 4.5	0 to 0.5	2 to 4.5	2 to 4.5	0 to 0.5
Total Metals (mg/kg)						
Aluminum						
Antimony (metallic)						
Arsenic (inorganic)	17	9.8	69	2 U	1.9 U	19
Beryllium						
Cadmium (food)						
Chromium						
Copper						
Lead (and compounds) (inorganic)	240 J	270 J	140	6.1 U	5.8 U	110
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc and Compounds						

Table B.22-2
Area 19 - Maintenance Areas Soil TPH Results

Area	19B	19B	19B	19B
Sample ID	19B-OI-TP-1 (S-1)	19B-OI-TP-1 (S-2)	19B-VS-10-DAVG	19B-VS-11
Date Sampled	7/31/92	7/31/92	10/19/92	10/19/92
Depth	2 to 2.5	4 to 4.5	0 to 0.5	4 to 5
TPH (mg/kg)				
TPH	42	21 U	25 U	25 U

Area	19B	19B	19B	19B
Sample ID	19B-VS-12	19B-VS-13	19B-VS-14	19B-VS-15
Date Sampled	10/19/92	10/19/92	10/19/92	10/19/92
Depth	4 to 5	4 to 5	4 to 5	5 to 6
TPH (mg/kg)				
TPH	25 U	25 U	25 U	25 U

Area	19B	19B	19B	19B
Sample ID	19B-VS-16	19B-VS-17	19B-VS-18	19B-VS-19-DAVG
Date Sampled	10/19/92	10/19/92	10/19/92	10/19/92
Depth	5 to 6	5 to 6	5 to 6	0 to 0.5
TPH (mg/kg)				
TPH	25 U	25 U	25 U	25 U

Table B.23-1
Area 24/24A - Upper Power House Soil Metals Results

Area Sample ID Date Sampled Depth	24A 24-VS-104 10/10/95 0 to 0.5	24A 24-VS-105 10/10/95 0 to 0.5	24A 24-VS-106 10/10/95 0 to 0.5	24A 24-VS-107 10/10/95 0 to 0.5	24A 24-VS-108 10/10/95 0 to 0.5
Total Metals (mg/kg dry)					
Arsenic (inorganic)	18	18	11	14	12
Cadmium (food)	2	1.6	0.48	0.65	2.5
Lead (and compounds) (inorganic)	280	1100	2400	560	390
Mercury (inorganic)	0.81	10	2.3	31	1.3

Area Sample ID Date Sampled Depth	24A 24-VS-109 10/10/95 0 to 0.5	24A 24-VS-110 10/10/95 0 to 0.5	24A 24-VS-111-DAVG 10/10/95 0 to 0.5	24A 24-VS-112 10/10/95 0 to 0.5	24A 24-VS-113 10/10/95 0 to 0.5
Total Metals (mg/kg dry)					
Arsenic (inorganic)	6.4	6.1	6.1	17	10
Cadmium (food)	0.56	0.22	0.28	1.4	0.69
Lead (and compounds) (inorganic)	49	230	270	450	230
Mercury (inorganic)	0.13	0.24	1.9	0.86	0.43

Table B.23-1
Area 24/24A - Upper Power House Soil Metals Results

Area	24A	24A	24A	24A	24
Sample ID	24-VS-114	24-VS-115	24-VS-116	24-VS-117	24-VS-120
Date Sampled	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	3 to 6
Total Metals (mg/kg dry)					
Arsenic (inorganic)	6.7	7.8	15	12	2.8
Cadmium (food)	0.28	0.2	0.42	0.24	0.19
Lead (and compounds) (inorganic)	120	66	73	46	59
Mercury (inorganic)	4.2	1	0.21	0.29	0.24

Area	24	24	24
Sample ID	24-VS-121	24-VS-122-DAVG	24-VS-123
Date Sampled	10/10/95	10/10/95	10/10/95
Depth	6 to 7	3 to 6	7 to 8
Total Metals (mg/kg dry)			
Arsenic (inorganic)	3.6	6.2	3.4
Cadmium (food)	0.13	0.48	0.27
Lead (and compounds) (inorganic)	20	150	74
Mercury (inorganic)	0.11 U	8.9	7.7

Table B.23-2
Area 24/24A - Upper Power House Soil PAH Results

Area	24A	24A	24A
Sample ID	24-VS-125	24-VS-126	24-VS-127
Date Sampled	3/27/96	3/27/96	3/27/96
Depth	15 to 15.5	15 to 15.5	3 to 4
PAH (mg/kg)			
Benzo(a)Anthracene	0.097	0.2	0.06
Benzo(a)Pyrene	0.15	0.23	0.067
Benzo(b)Fluoranthene	0.12	0.16	0.039
Benzo(k)Fluoranthene	0.069	0.1	0.026
Chrysene	0.14	0.28	0.11
Dibenz(a,h)anthracene	0.0082	0.0035 U	0.0037 U
Indeno(1,2,3-cd)pyrene	0.14	0.17	0.062
Total Carcinogenic PAHS	0.19473	0.28603	0.08532
2-Methylnaphthalene	0.019 U	0.037	0.019 U
Acenaphthene	0.019 U	0.036	0.019 U
Acenaphthylene	0.037 U	0.035 U	0.037 U
Anthracene	0.02	0.073	0.026
Benzo(g,h,i)Perylene	0.16	0.21	0.046
Fluoranthene	0.27	0.7 U	0.25 U
Fluorene	0.0074	0.038	0.013
Naphthalene	0.019 U	0.018 U	0.019 U
Phenanthrene	0.15	0.51	0.16
Pyrene	0.28	0.63	0.26
PAH (Non-Carc) - Total	0.9344	1.9105	0.677

Table B.23-3
Area 24/24A - Upper Power House Soil TPH Results

Area	24A	24A	24A	24A	24A	24A
Sample ID	24-VS-104	24-VS-105	24-VS-106	24-VS-107	24-VS-108	24-VS-109
Date Sampled	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)						
TPH	100.00	2500.00	330.00	210.00	260.00	190.00

Area	24A	24A	24A	24A	24A	24A
Sample ID	24-VS-110	24-VS-111-DAVG	24-VS-112	24-VS-113	24-VS-114	24-VS-115
Date Sampled	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TPH (mg/kg)						
TPH	760	210	58	280	970	62

Area	24A	24A	24	24	24	24
Sample ID	24-VS-116	24-VS-117	24-VS-120	24-VS-121	24-VS-122-DAVG	24-VS-123
Date Sampled	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95	10/10/95
Depth	0 to 0.5	0 to 0.5	3 to 6	6 to 7	3 to 6	7 to 8
TPH (mg/kg)						
TPH	50 U	50 U	1,400	50 U	720	350

Area	24A	24A	24A	24A	24A
Sample ID	24-VS-124	24-VS-125	24-VS-126	24-VS-127	24-VS-128
Date Sampled	3/27/96	3/27/96	3/27/96	3/27/96	3/27/96
Depth	7 to 7.5	15 to 15.5	15 to 15.5	3 to 4	5.5 to 6
TPH (Mg/kg)					
TPH	170	360	460	750	2,600

Table B.24-1
Area 20 - Railroad Debris Area Soil Metals Results

Area	20	20	20	20	20	20	20
Sample ID	31-VS-549	31-VS-550	31-VS-558	31-VS-559	31-VS-626	31-VS-632	31-VS-633
Date Sampled	4/19/00	4/19/00	4/19/00	4/19/00	5/24/00	6/29/00	6/29/00
Depth	2 to 4.5	2 to 4.5	2 to 4.5	2 to 4.5	1.5 to 3.5	1.5 to 3.5	1.5 to 3.5
Arsenic (mg/kg)							
Arsenic	3.3	13	11	14	8.2	6.5	6.3
Lead (mg/kg)							
Lead	5.3	8.9	14	9.9	9.4	5.5	15

Table B.25-1
Area 36 - Lead Melt House Area Soil Metals Results

Area	36	36	36	36	36	36	36	36	36	36	36	36	36
Sample ID	36-SS-07	36-SS-10	36-SS-18	36-SS-20	36-SS-21	36-SS-24	36-SS-25	36-SS-26	36-SS-27	36-SS-29	36-SS-30	36-SS-31	36-SS-32
Date Sampled	1/10/92	1/10/92	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92	4/30/92	4/30/92	4/30/92	4/27/92	4/27/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
Arsenic (mg/kg)													
Arsenic													
Lead (mg/kg)													
Lead	92	140	23	5 U	120	5 U	29	1300	130	320	150	1000	74

Area	36	36	36	36	36	36	36	36	36	36	36	36	36
Sample ID	36-TP-1-S-3	36-TP-2-S-3	36-TP-4-S-3	36-TP-5-S-3	36-TP-6-S-1	36-TP-6-S-2	36-TP-6-S-3	36-VS-10	36-VS-11	36-VS-12	36-VS-21	36-VS-6	36-VS-8
Date Sampled	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92	4/27/92	9/20/99	9/20/99	9/20/99	10/1/99	9/20/99	9/20/99
Depth	3 to 5	3 to 5	3 to 5	3 to 5	0 to 1	1 to 2	3 to 5	1 to 2.5	1 to 2.5	1 to 2.5	3 to 4.5	0-0.5	1 to 2.5
Arsenic (mg/kg)													
Arsenic								9	4	2.4	4.1 U	2.7	3
Lead (mg/kg)													
Lead	240	10	5 U	5 U	75	5 U	5 U	1800	100	44	6.9	9.4	37

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39	39	39	39	39	39	39
Sample ID	39-B-1-S-6	39-B-1-S-7	39-SS-01	39-SS-03	39-SS-04	39-SS-05	39-SS-06	39-SS-08	39-SS-12	39-SS-16
Date Sampled	1/8/92	1/8/92	1/7/92	1/7/92	1/7/92	1/7/92	1/7/92	1/7/92	1/7/92	1/7/92
Depth	0.5 to 2	2 to 3.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)										
Lead										
Mercury (inorganic)										
Total Metals (mg/kg)										
Aluminum										
Antimony (metallic)										
Arsenic										
Beryllium										
Cadmium										
Chromium										
Copper										
Lead										
Mercury (inorganic)	0.52	0.4	0.54	1.9	0.81	0.51	0.84	1.4	0.17	0.43
Nickel (soluble salts)										
Selenium (and compounds)										
Silver										
Thallium										
Zinc and Compounds										

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-11	39-VS-12	39-VS-13	39-VS-14	39-VS-15	39-VS-16	39-VS-17-DAVG	39-VS-18
Date Sampled	4/21/92	4/20/92	4/20/92	4/17/92	6/1/92	6/1/92	6/1/92	6/1/92	4/17/92
Depth	2 to 9	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)									
Lead									
Mercury (inorganic)		0.0002 U	0.00035						0.0002 U
Total Metals (mg/kg)									
Aluminum	10000				20400	18000	19200	21000	
Antimony (metallic)					2.9 UJ	2.8 UJ	2.9 UJ	2.9 UJ	
Arsenic	1.3				11.2	9.34	6.66	7.29	
Beryllium	0.11 U				0.51	0.41	0.53	0.52	
Cadmium	0.073 J				0.34	0.17	0.17	0.14	
Chromium	13				15.5	13.9	15.8	18	
Copper	13				21	18	16.3	15.4	
Lead	26	110	180	47	28	55	69	37	68
Mercury (inorganic)	2.6 J	13 J	72 J	2.4 J	7.45	7.02	22.5	1.52	7.9 J
Nickel (soluble salts)	17				21.1	20	20	21.2	
Selenium (and compounds)	0.27 U				0.31	0.28 U	0.29 U	0.29 U	
Silver	0.34				0.29 U	0.28 U	0.48	0.29 U	
Thallium	0.27 U				0.29 U	0.28 U	0.29 U	0.29 U	
Zinc and Compounds	25				61.2	47.8	39.9	42.6	

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39	39	39	39	39	39
Sample ID	39-VS-19	39-VS-1-DAVG	39-VS-2	39-VS-20	39-VS-21	39-VS-22	39-VS-23	39-VS-24	39-VS-25
Date Sampled	4/17/92	4/16/92	4/16/92	4/21/92	4/21/92	4/21/92	4/20/92	4/21/92	4/21/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	2 to 12	2 to 12	2 to 12	9 to 12
TCLP Metals (mg/L)									
Lead									
Mercury (inorganic)									
Total Metals (mg/kg)									
Aluminum		16000	17000			16000	13000	16000	10000
Antimony (metallic)		3 J	3 UJ				0.64 J		0.31 J
Arsenic		120	27 J			1.7	2.8	1.6	1.6
Beryllium		0.38	0.36			0.11 U	0.11 U	0.11 U	0.11 U
Cadmium		0.18	0.24 J			0.27 J	0.54 J	0.25 J	0.14 J
Chromium		14	13			20	20	18	18
Copper		25	17			12	15	12	23
Lead	210	170	80	140	230	60	140	23	100
Mercury (inorganic)	5.7 J	1.6 J	9.2 J	7 J	7.4 J	3.3 J	13 J	4.7 J	11 J
Nickel (soluble salts)		18	16			22	20	21	20
Selenium (and compounds)		0.33 J	0.3 UJ			0.29 U	0.28 U	0.29 U	0.27 U
Silver		0.49	0.55			0.93	1.3	0.86	0.28
Thallium		0.31 U	0.3 U			0.29 U	0.28 U	0.29 U	0.27 U
Zinc and Compounds		36	54			39	270	42	33

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39	39	39	39	39	39	39
Sample ID	39-VS-26	39-VS-27	39-VS-28	39-VS-29	39-VS-3	39-VS-30	39-VS-31	39-VS-32	39-VS-33	39-VS-34
Date Sampled	4/21/92	4/12/92	4/20/92	4/21/92	4/16/92	5/7/92	5/7/92	5/7/92	5/7/92	6/3/92
Depth	12 to 12.5	2 to 12	2 to 12	0 to 0.5	0 to 0.5	21 to 21.5	2 to 6	2 to 6	6 to 6.5	0 to 0.5
TCLP Metals (mg/L)										
Lead										
Mercury (inorganic)										
Total Metals (mg/kg)										
Aluminum	12000	14000	11000		19000	11400	15300	20200	26200	19300
Antimony (metallic)			0.31 J		3.2 UJ					2.6 UJ
Arsenic	5	2.2	1.8		9.5	3.88 J	3.43 J	2.11 J	3.18 J	26.9
Beryllium	0.11 U	0.11 U	0.11 U		0.41	0.2	0.3	0.7	0.5	0.78
Cadmium	0.2 J	0.43 J	0.11 J		0.52 J	0.05	0.09	0.04	0.05	1.31
Chromium	15	21	17		13	13.5	18	45.4	30.9	25.6
Copper	16	9.8	14		13	17.8	16.1	22.6	15.5	80.4
Lead	46	29	21	19	21	5.3 U	5.4 U	5.3 U	5.7 U	560
Mercury (inorganic)	4.9 J	4.3 J	4.7 J	3.7 J	1.6	0.11 U	0.11 U	0.11 U	0.12 U	4.45
Nickel (soluble salts)	18	16	16		17	17	19.4	35.7	32.6	25.5
Selenium (and compounds)	0.27 U	0.16	0.27 U		0.32 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.27 J	2.3
Silver	0.67	1.5	0.57		0.58	0.3	0.27 U	0.27 U	0.3 U	0.26 U
Thallium	0.27 U	0.28 U	0.27 U		0.32 U	0.27 U	0.27 U	0.27 U	0.3 U	1.7
Zinc and Compounds	38	51	32		160	26.2	25.4	46.4	37.6	276

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39	39	39	39	39	39	39
Sample ID	**39-VS-35**	**39-VS-36**	**39-VS-37**	**39-VS-38**	**39-VS-39**	**39-VS-4**	**39-VS-40**	**39-VS-41**	**39-VS-42**	**39-VS-5**
Date Sampled	**6/27/92**	**6/27/92**	**6/27/92**	**6/27/92**	**8/14/92**	**4/16/92**	**6/27/92**	**8/14/92**	**8/14/92**	**4/16/92**
Depth	**0 to 5**	**0 to 5**	**0 to 5**	**0 to 5**	**4 to 5**	**0 to 0.5**	**4 to 5**	**4 to 5**	**4 to 5**	**0 to 0.5**
TCLP Metals (mg/L)										
Lead										
Mercury (inorganic)										
Total Metals (mg/kg)										
Aluminum						19000				18000
Antimony (metallic)						3 UJ				3 UJ
Arsenic					2.3	3.7		1.3	5.8	12
Beryllium						0.39				0.39
Cadmium						0.37 J				0.36 J
Chromium						13				12
Copper						12				19
Lead	10	5.6 U	5.1 U	17		7.7	22			220
Mercury (inorganic)					0.1	0.5 J		0.08 U	0.92	6.7 J
Nickel (soluble salts)						16				15
Selenium (and compounds)						0.31 J				0.31 UJ
Silver						0.44				0.5
Thallium						0.31 U				0.31 U
Zinc and Compounds						47				89

Table B.26-1
Area 39 - Laboratory Area Soil Metals Results

Area	39	39	39	39
Sample ID	39-VS-6	39-VS-7	39-VS-8	39-VS-9
Date Sampled	4/16/92	4/16/92	4/17/92	4/20/92
Depth	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5
TCLP Metals (mg/L)				
Lead				
Mercury (inorganic)				0.0002 U
Total Metals (mg/kg)				
Aluminum	18000	19000		
Antimony (metallic)	3.2 J	3.1 UJ		
Arsenic	29 J	23		
Beryllium	0.4	0.41		
Cadmium	0.31 J	0.24 J		
Chromium	13	13		
Copper	31	48		
Lead	160	54	160	220
Mercury (inorganic)	14 J	6.8 J	15 J	44 J
Nickel (soluble salts)	17	17		
Selenium (and compounds)	0.3 UJ	0.38 J		
Silver	0.49	0.45		
Thallium	0.3 U	0.32 U		
Zinc and Compounds	82	43		

Table B.26-2
Area 39 - Laboratory Area Soil Explosives Results

Area	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-26	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	4/21/92	4/21/92	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	2 to 9	12 to 12.5	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
Explosives (mg/kg)							
2,4-Dinitrotoluene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2,6-Dinitrotoluene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
DNT - Total	0.36 U	0.38 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Nitrobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Table B.26-3
Area 39 - Laboratory Area Soil VOC Results

Area	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-26	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	4/21/92	4/21/92	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	2 to 9	12 to 12.5	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
VOCs (mg/kg)							
Acetone	1.1 U	1.1 U	11 U	11 U	11 U	11 U	11 U
Benzene	0.053 U	0.056 U	0 027 U	0.027 U	0.027 U	0.026 U	0.027 U
Bromodichloromethane	0.053 U	0.056 U					
Bromoform	0.27 U	0.28 U					
Bromomethane	0.53 U	0.56 U					
Carbon Disulfide	0.053 U	0.056 U					
Carbon Tetrachloride	0.053 U	0.056 U					
Chlorobenzene	0.053 U	0.056 U	0.027 U	0.027 U	0.027 U	0.026 U	0.027 U
Chloroform	0.053 U	0.056 U					
Chloromethane	0.53 U	0.56 U					
Dibromochloromethane	0.053 U	0.056 U					
1,1-Dichloroethane	0.053 U	0.056 U					
1,2-Dichloroethane	0.053 U	0.056 U					
1,1-Dichloroethene	0.053 U	0.056 U					
1,2-Dichloroethylene (Mixed Isomers)	0.053 U	0.056 U					
Dichloromethane	0.53 U	0.53 U					
1,2-Dichloropropane	0.053 U	0.056 U					
Cis-1,3-Dichloropropene	0.053 U	0.056 U					
Trans-1,3-Dichloropropene	0.053 U	0.056 U					
Ethyl Benzene	0.053 U	0.056 U	0.027 U	0.027 U	0.027 U	0.026 U	1.5
Ethyl Chloride	0.053 U	0.056 U					
2-Hexanone	0.53 U	0.56 U					
Methyl Ethyl Ketone	0.53 U	0.56 U					
Methyl Isobutyl Ketone	0.53 U	0.56 U					
Styrene	0.053 U	0.056 U					
1,1,2,2-Tetrachloroethane	0.053 U	0.056 U					
Tetrachloroethene	0.053 U	0.056 U					
Toluene	0.053 U	0.056 U	0.027 U	0.027 U	0.027 U	0.026 U	0.027 U
1,1,1-Trichloroethane	0.053 U	0.056 U					
1,1,2-Trichloroethane	0.053 U	0.056 U					
Trichloroethylene	0.053 U	0.056 U					
Vinyl Acetate	0.53 U	0.56 U					
Vinyl Chloride	0.053 U	0.056 U					
Xylenes	0.053 U	0.056 U	0.027 U	0.027 U	0.027 U	0.026 U	2.8

Table B.26-4
Area 39 - Laboratory Area Soil SVOC Results

Area	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-26	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	4/21/92	4/21/92	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	2 to 9	12 to 12.5	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
SVOCs (mg/kg)							
Aniline	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzidine	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Benzoic Acid	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
Benzyl Alcohol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Chloroethoxy)methane	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl)ether	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-ethylhexyl)Phthalate (DEHP)	0.044 J	0.19 U	0.18 U	0.18 U	0.18 U	0.046 J	0.18 U
Bis(Chloroethyl)ether	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Bromodiphenyl ether	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Butyl Benzyl Phthalate	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Chloroaniline	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Chloronaphthalene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Chlorophenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Chlorophenyl-phenyl ether	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Dibenzofuran	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Dibutyl Phthalate	0.18 U	0.19 U	0.18 U	0.25	0.18 U	0.18 U	0.18 U
1,2-Dichlorobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,4-Dichlorobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
3,3-Dichlorobenzidine	0.36 U	0.38 U	0.36 U	0.36 U	0.36 U	0.35 U	0.36 U
2,4-Dichlorophenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Diethyl Phthalate	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Dimethyl Phthalate	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4-Dimethylphenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4,6-Dinitro-o-Cresol	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
2,4-Dinitrophenol	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
Di-N-Octylphthalate	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorobutadiene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Table B.26-4
Area 39 - Laboratory Area Soil SVOC Results

Area	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-26	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	4/21/92	4/21/92	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	2 to 9	12 to 12.5	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
SVOCs (mg/kg)							
Hexachlorocyclopentadiene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Hexachloroethane	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Isophorone	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Methylphenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Methylphenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-Nitroaniline	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
3-Nitroaniline	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
4-Nitroaniline	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
2-Nitrophenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
4-Nitrophenol	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
N-Nitrosodimethylamine	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Nitrosodi-N-propylamine	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
N-Nitrosodiphenylamine	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Pentachlorophenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Phenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2,4-Trichlorobenzene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4,5-Trichlorophenol	0.91 U	0.96 U	0.91 U	0.91 U	0.9 U	0.88 U	0.9 U
2,4,6-Trichlorophenol	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Table B.26-5
Area 39 - Laboratory Area Soil PAH Results

Area	39	39	39	39	39	39	39
Sample ID	39-VS-10	39-VS-26	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	4/21/92	4/21/92	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	2 to 9	12 to 12.5	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
PAH (mg/kg)							
Benzo(a)Anthracene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.038 J
Benzo(a)Pyrene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzo(b)Fluoranthene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzo(k)Fluoranthene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Chrysene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.039 J
Dibenz(a,h)anthracene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Indeno(1,2,3-cd)pyrene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Total Carcinogenic PAHS (BaP TEQs)	0.41598 U	0.43909 U	0.41598 U	0.41598 U	0.41598 U	0.41598 U	0.202739
2-Methylnaphthalene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.038 J
Acenaphthene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Acenaphthylene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Anthracene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzo(g,h,i)Perylene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Fluoranthene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.076 J
Fluorene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Naphthalene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Phenanthrene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.047 J
Pyrene	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.077 J
PAH (Non-Carc) - Total	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	0.778

Table B.26-6
Area 39 - Laboratory Area Soil TPH Results

Area	39	39	39	39	39
Sample ID	39-VS-35	39-VS-36	39-VS-37	39-VS-38	39-VS-40
Date Sampled	6/27/92	6/27/92	6/27/92	6/27/92	6/27/92
Depth	0 to 5	0 to 5	0 to 5	0 to 5	4 to 5
TPH (mg/kg)					
#2 Diesel	25 U	25 U	25 U	25 U	61
Gasoline	5 U	5 U	5 U	5 U	87

Appendix C

Groundwater, Surface Water, and Freshwater Sediment Quality Data

Appendix C provides groundwater, surface water, and freshwater sediment quality data for the Site. Specific notes for the tables are as follows:

1. Blanks indicate no analysis for a specific constituent.
2. Data qualifiers include the following:

   U Not detected at associated detection limit
   J Estimated concentration
   UJ Not detected; associated detection limit is an estimate
   R Rejected data, as determined during data validation
   S Sum of individual constituent concentrations (e.g., total cPAH and total PCBs)
3. Surface water sample ID suffixes include the month and year of sample collection (e.g., -3-88 sample ID suffix indicates sample collection in March 1988).
4. Field duplicate samples are designated with sample ID suffixes of D or DUP (these suffixes have identical meanings).

Groundwater Quality Data

Table C-1 - Summary of Total DNT Data for Groundwater

	TOTAL DINITROTOLUENE CONCENTRATION IN µg/L																												
	PRE-RI								RI																				
LOCATION	Oct-88		Jan-89		Nov-89		Aug-90		Mar-92		Jun-92		Sep-92		Oct-92	Dec-92		Jan-93	Apr-93		Jul-93	Oct-93		Jan-94		Apr-94	Jul-94	Oct-94	
MW-1	0.05	U	0.05	U	0.05	U	0.05	U	0.02	U	0.02	U	0.02	U		0.02	U												
MW-2	0.08	J	0.05	J					0.02	U	0.05		0.05			0.05													
MW-3	0.32		0.12				0.32		0.16		0.16		0.23			0.14			0.13		0.10	0.31		0.56		0.22	0.09	0.21	
MW-4	0.04	J	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
MW-5	0.10		0.07	J					0.02	U	0.02	U	0.04			0.03													
MW-6	0.37		0.05	U			0.26	J	0.02	U	0.23		0.41			0.15			0.16		0.11	0.27		0.28		0.39	0.17	0.22	J
MW-7	0.05	U	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
MW-8	0.07	J	0.21				0.19		0.17		0.10		0.17			0.04	J		0.09	J	0.06	0.08		0.02	U	0.11	0.08	0.04	
MW-9	0.05	U	0.05	U					0.02	U	0.11		0.02	U		0.03													
MW-11	0.05	U	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
MW-12	0.05	U	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
MW-13	0.05	U	0.05	U			0.05	U	0.02	U	0.02	U	0.02	U		0.03	J												
MW-14	0.05	U	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
MW-15			0.09	J	0.05	U	0.10	J	0.02	U	0.08					0.16		0.07	0.05	J	0.04	0.09		0.02	U	0.11	Dry	Dry	
MW-16	0.04	J	0.05	U	0.05	U			0.02	U	0.02	U	0.02	U		0.02	U												
MW-17			0.05	U	0.06	U	0.05	U	0.02	U	0.02	U	0.02	U		0.02	U												
MW-18					0.05	U	0.05	U	0.02	U	0.02	J	0.02	U		0.02	U												
MW-19					0.40		0.41		0.25	J	0.19		0.41		0.52	0.22			0.17		0.14	0.10		0.29		0.63	0.27	0.20	J
MW-20									0.02	U	0.02	U	0.02	U		0.02	U												
MW-21									0.02	U	0.02	U	0.02	U		0.02	J												
MW-22									0.78		0.31		0.36		0.49	0.27			0.21		0.18	0.12		0.15		0.49	0.21	0.26	
MW-24									0.02	U	0.05	J	0.05			0.04	J												
MW-27									0.39		0.22		Dry			0.23		0.19	0.14		0.11	Dry		0.56		0.27	Dry	Dry	
7-B-503											0.04	UJ																	
Seep-1					0.18		0.10		0.02	U	0.02	U	0.13			0.08			0.15		0.07	0.14		0.07		0.18	0.09	0.10	
Seep-2					0.05	U	0.05	U	0.02	U	0.02	U	0.02	U		0.02	U												
SPR-4	0.05	U	0.05	U					0.02	U	0.02	U	0.02	U		0.02	U												
W-1																													
W-2																													
W-3																						0.02	U						

Notes:

Blanks indicate no analysis

U: not detected at associated reporting limit concentration

J: estimated concentration

NS: Not sampled in accordance with Ecology agreement for interim sampling dated March 6, 1998

Analyses performed by MultiChem Analytical Services Inc., except for March 2000 data which were performed by Sound Analytical Inc.

Total DNT equals sum of 2,4-DNT and 2,6-DNT concentrations with 1/2 detection limits used for nondetects.

Table C-1 - Summary of Total DNT Data for Groundwater

	TOTAL DINITROTOLUENE CONCENTRATION IN µg/L															
	RI															
LOCATION	Jan-95	Apr-95	Jul-95	Oct-95	Jan-96	Apr-96	Jul-96	Oct-96	Jan-97	Apr-97	Jul-97	Oct-97	Mar-98	Mar-99	Mar-00	Mar-01
MW-1																
MW-2																
MW-3	0.13	0.16	0.19	0.25	0.14	0.09	0.04	0.11	0.14	0.56	0.16	0.15	0.16 J	0.07	Dry	0.06 U
MW-4																
MW-5																
MW-6	0.44	0.26	0.50	0.31	0.38	0.27	0.35	0.27	0.43	0.39	0.33	0.23	0.33	0.08	0.38	0.06 U
MW-7																
MW-8	0.21	0.12	0.19	0.13	0.18	0.17	0.07	0.08	0.12	0.13	0.12	0.11	NS	NS	NS	NS
MW-9																
MW-11																
MW-12																
MW-13																
MW-14																
MW-15	0.16	0.16	Dry	Dry	0.10	0.09	Dry	Dry	0.03	0.08	Dry	Dry	NS	NS	NS	NS
MW-16																
MW-17																
MW-18																
MW-19	0.43	0.42	0.29	0.46	0.50	0.40	0.16	0.22	0.32	0.90	0.43	0.36	0.37	0.07	0.44	0.06 U
MW-20																
MW-21																
MW-22	0.52	0.35	0.46	0.27	0.42	0.87	0.23	0.11	0.52	0.53	0.24	0.17	0.39	0.05	0.30	0.06 U
MW-24																
MW-27	3.8	0.68	Dry	Dry	0.41	Dry	Dry	Dry	1.7	Dry	Dry	Dry	NS	NS	NS	NS
7-B-503																
Seep-1	0.20	0.22	0.20	0.08	0.14	0.12	0.08	0.14	0.25	0.27	0.02 U	0.03 U	NS	NS	NS	NS
Seep-2																
SPR-4																
W-1		0.19			0.24	0.21	0.11	0.13	0.18	0.65	0.18	0.13	NS	NS	NS	NS
W-2		0.27			0.27	0.20	0.15	0.18	0.23	0.60	0.25	0.17	0.22	0.07	0.24	0.06 U
W-3					0.02 U											

Notes:

Blanks indicate no analysis

U: not detected at associated reporting limit concentration

J: estimated concentration

NS: Not sampled in accordance with Ecology agreement for interim sampling dated March 6, 1998

Analyses performed by MultiChem Analytical Services Inc.

Total DNT equals sum of 2,4-DNT and 2,6-DNT concentrations with 1/2 detection limits used for nondetects.

Table C-2 - Summary of NAX Results for Filtered and Unfiltered Groundwater Samples

	Concentration in µg/L*			Concentration in µg/L*		
Analyte	MW-19 (Unfiltered)	MW-19F (Filtered)	MW-19 Filtrate (Particulate)	MW-22 (Unfiltered)	MW-22F (Filtered)	MW-22 Filtrate (Particulate)
2,4-DNT	0.19	0.32	0.031 U	0.12	0.13	0.031 U
2,6-DNT	0.33	0.25	0.013 U	0.37	0.38	0.013 U
2,4,6-TNT	0.14	0.13	0.13 U	0.13 U	0.13 U	0.13 U
NB	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
1,3-DNB	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,3,5-TNB	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U

Notes:
1) * Particulate concentrations are per liter of water filtered (1 liter per sample).
2) Samples collected in October 1992.
3) U Not detected at indicated concentration.

Table C-3 - Summary of Nitrate Data for Groundwater

Sample Number	Nitrate as Nitrogen Concentration in mg/L												
	Pre-RI								RI				
	Dec-86	Mar-88	Apr-88	Jun-88	Oct-88	Jan-89	Nov-89	Aug-90	Mar-92	Jun/Jul-92	Sep-92	Dec-92	Jan-93
MW-1		4.2		4.8	4.2	5.4	3.7	4.2	3.4	3.4	0.73	8.2	
MW-2		1.4		1.4	1.5	1.4			1.2	1.43 J	1.2	1.2	
MW-3		1.2		1.4	1.4	1.3		2.1	1.3	1.72 J	1.9	1.7	
MW-4		1.6		1.6	1.6	1.5			1.2	1.35	1.56	1.3	
MW-5		2.3		2.7	6.0	7.5			1.5	1.58	1.73	2.1	
MW-6		13.0	14.0	8.2	9.8	9.5		7.5	7.1	6.0	8.5	6.1	
MW-7		0.5		0.23	0.21	0.44			0.62	0.27 J	0.17	0.3	
MW-8		0.7		0.62	0.38	0.94		0.28	0.54	0.65	0.56	0.34	
MW-9		0.2 U		0.044	0.041	0.029			0.41	0.27	0.09	0.19	
MW-11		1.0	1.1	1.1	0.92	2.3			1.1	1.29 J	0.96	1.0	
MW-12		1.0	1.1	1.6	1.1	1.1			1.4	1.39 J	1.2	1.1	
MW-13		13.0	9.6	6.4	8.5	10.0		4.6	4.2	1.75 J	4.2	3.1	
MW-14		1.4		0.68	9.2	3.4			1.2	0.67	2.8	2.8	
MW-15		0.3		1.4		1.5	1.7	1.7	2.1	1.4		1.4	1.4
MW-16		1.2		0.89	1.6	1.1	1.1		1.1	1.26	1.1	1.0	
MW-17						0.36			0.37	0.59	0.26	0.43	
MW-18							1.3	0.23	0.1 U	0.25	0.32	0.19	
MW-19							5.9	5.4	4.0	4.9	4.2	4.0	
MW-20									1.0	0.9	1.1	1.2	
MW-21									0.7	1.03	1.0	1.1	
MW-22									0.1 U	9.9	10.3	9.5	
MW-24									0.27	0.35 J	0.33	0.32	
MW-27									0.41	0.22	DRY		
7-B-503													
SEEP1							1.2	1.4	0.9	1.07	1.1	1.1	
SEEP2							0.31	0.3	0.31	0.29	0.33	0.36	
SPR-4	0.28	0.3		0.22	0.51	0.79			0.27	0.14	0.08	0.13	

Notes:
1) U: not detected at associated concentration
   J: estimated concentration
2) Blanks indicate no analysis.
3) Pre-RI analyses performed by Laucks Testing Labs; RI analyses performed by Analytical Technologies Inc

Surface Water and Freshwater Sediment Quality Data

The following appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

Table [illegible]-1 - Total Metal Results for Surface Water Samples

Sample ID:	Sampling Date	Concentration in mg/L Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead
SW-1-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-1-1-89	01/04/89								0.003 U
SW-1-3-92	03/13/92	0.038	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-1-6-92	06/25/92	0.036	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-1D-6-92	06/25/92	0.046	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-1-12-92	12/08/92	2.3	0.005 UJ	0.0073	0.002 U	0.0008 UJ	0.01 U	0.014	0.039
SW-1D-12-92	12/08/92	1.4	0.005 UJ	0.025 UJ	0.002 U	0.0008 UJ	0.01 U	0.0096	0.02
SW#2,SW#2	12/02/86		0.005 U				0.005 U		0.01 U
SW-2-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-2-1-89	01/04/89								0.003 U
SW-2-3-92	03/13/92	0.041	0.005 U	0.005 U	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-2-6-92	06/25/92	0.035	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-2-9-92	09/23/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.0055	0.003 U
SW-2-12-92	12/08/92	0.03 U	0.005 UJ	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW#3,SW#3	12/02/86		0.005 U				0.005 U		0.01 U
SW-3-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-3-1-89	01/04/89								0.003 U
SW-3-3-92	03/13/92	0.036	0.005 U	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-3-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-3-9-92	09/23/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-3-12-92	12/08/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW#4,SW#4	12/02/86		0.005 U				0.005 U		0.01 U
SW-4-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-4-1-89	01/04/89								0.003 U
SW-4-3-92	03/13/92	0.051	0.005 U	0.005 U	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-4-6-92	06/25/92	0.086	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW#5,SW#5	12/03/86		0.005 U				0.005 U		0.01 U
SW-5-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-5-1-89	01/04/89								0.003
SW-5-3-92	03/16/92	0.036	0.005 U	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-5D-3-92	03/16/92	0.05	0.005 U	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-5-6-92	06/25/92	0.14	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-5-9-92	09/23/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-5-12-92	12/07/92	0.063	0.005 UJ	0.005 U	0.002 U	0.0002 U	0.01 U	0.0075	0.003 U
SW#6,SW#6	12/03/86		0.005 U				0.005 U		0.01 U
SW-6-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-6-1-89	01/04/89								0.003 U
SW-6-3-92	03/16/92	0.06	0.005 U	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-6-6-92	06/25/92	0.051	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.006	0.003 U
SW-6-9-92	09/23/92	0.15	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.0088	0.0063
SW-6-12-92	12/07/92	0.39	0.005 UJ	0.005 U	0.002 U	0.0002 U	0.01 U	0.005	0.013
SW-7-3-88	02/23/88		0.005 U				0.001 U		0.005 U
SW-7-1-89	01/04/89								0.003 U
SW-7-3-92	03/13/92	0.058	0.005 U	0.005 U	0.002 U	0.0002 U	0.013	0.0074	0.0031
SW-7-6-92	06/25/92	0.043	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-7-9-92	09/23/92	0.047	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.0058	0.003
SW-7D-9-92	09/23/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.0055	0.003 U
SW-7-12-92	12/07/92	0.039	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U

Sample ID:	Sampling Date	Concentration in mg/L Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Iron	Manganese
SW-1-3-88	02/23/88						0.002 B	0.12 B	0.004
SW-1-1-89	01/04/89								
SW-1-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.015		
SW-1-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.02		
SW-1D-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.017		
SW-1-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.025 UJ	0.042		
SW-1D-12-92	12/08/92	0.0002 U	0.01 U	0.025 UJ	0.0002 U	0.025 UJ	0.03		
SW#2,SW#2	12/02/86								
SW-2-3-88	02/23/88						0.002 B	0.11 B	0.002
SW-2-1-89	01/04/89								
SW-2-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.00032	0.005 UJ	0.025		
SW-2-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.014		
SW-2-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW-2-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW#3,SW#3	12/02/86								
SW-3-3-88	02/23/88						0.005 B	0.14 B	0.002
SW-3-1-89	01/04/89								
SW-3-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.018		
SW-3-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.015		
SW-3-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW-3-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW#4,SW#4	12/02/86								
SW-4-3-88	02/23/88						0.003 B	0.8 B	0.016
SW-4-1-89	01/04/89								
SW-4-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.014		
SW-4-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.016		
SW#5,SW#5	12/03/86								
SW-5-3-88	02/23/88						0.001 B	0.04 B	0.001 U
SW-5-1-89	01/04/89								
SW-5-3-92	03/16/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.032		
SW-5D-3-92	03/16/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.026		
SW-5-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.022		
SW-5-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.011		
SW-5-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW#6,SW#6	12/03/86								
SW-6-3-88	02/23/88						0.002 B	0.01 B	0.001 U
SW-6-1-89	01/04/89								
SW-6-3-92	03/16/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.012		
SW-6-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.016		
SW-6-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.038		
SW-6-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW-7-3-88	02/23/88						0.011 B	0.02 B	0.001
SW-7-1-89	01/04/89								
SW-7-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.024		
SW-7-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.015		
SW-7-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.016		
SW-7D-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		
SW-7-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U		

Sample ID:	Sampling Date	Concentration in mg/L Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead
SW-1-6-88	06/29/88								0.003 U
SW-1-10-88	10/04/88								0.003 U
SW-1-11-89	11/01/89								0.003 U
SW-1D-11-89	11/01/89								0.003 U
SW-1-3-92	03/13/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.0098
SW-1-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.013	0.003 U
SW-1D-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.01	0.003 U
SW-1-12-92	12/08/92	0.06 UJ	0.0056 U	0.005 U	0.002 U	0.0008 UJ	0.01 U	0.0077	0.015 UJ
SW-1D-12-92	12/08/92	0.03 U	0.0065 U	0.025 UJ	0.002 U	0.0008 UJ	0.01 U	0.005	0.003 U
SW-2-6-88	06/29/88								0.003 U
SW-2-10-88	10/04/88								0.003 U
SW-2-3-92	03/13/92	0.03	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-2-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.013	0.003 U
SW-2-9-92	09/23/92	0.03 U	0.0051	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-2-12-92	12/08/92	0.03 U	0.0088 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-3-6-88	06/29/88								0.003 U
SW-3-10-88	10/04/88								0.003 U
SW-3-3-92	03/13/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 UJ	0.01 U	0.14	0.003 U
SW-3-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.009	0.003 U
SW-3-9-92	09/23/92	0.03 U	0.0053	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-3-12-92	12/08/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-4-6-88	06/29/88								0.003 U
SW-4-3-92	03/13/92	0.042	0.005 U	0.005 U	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.0043
SW-4-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.01	0.003 U
SW-5-6-88	06/29/88								0.003 U
SW-5-10-88	10/04/88								0.003 U
SW-5-3-92	03/16/92	0.03 U	0.005 U	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 UJ
SW-5D-3-92	03/16/92	0.03 U	0.0065	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-5-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.009	0.003 U
SW-5-9-92	09/23/92	0.03 U	0.0082	0.005 U	0.002 U	0.0002 U	0.01 U	0.0052	0.003 U
SW-5-12-92	12/07/92	0.03 U	0.0071	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-6-6-88	06/29/88								0.006
SW-6-10-88	10/04/88								0.003 U
SW-6-3-92	03/16/92	0.03 U	0.006	0.005 UJ	0.002 U	0.0002 UJ	0.01 U	0.005 U	0.003 U
SW-6-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.009	0.003 U
SW-6-9-92	09/23/92	0.03 U	0.018	0.005 U	0.002 U	0.0002 U	0.01 U	0.0067	0.003 U
SW-6-12-92	12/07/92	0.03 U	0.0084	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U
SW-7-6-88	06/29/88								0.003 U
SW-7-10-88	10/04/88								0.003 U
SW-7-3-92	03/13/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.0048
SW-7-6-92	06/25/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.01	0.003 U
SW-7-9-92	09/23/92	0.03 U	0.0098	0.005 U	0.002 U	0.0002 U	0.01 U	0.0073	0.003 U
SW-7D-9-92	09/23/92	0.03 U	0.01	0.005 U	0.002 U	0.0002 U	0.01 U	0.0083	0.003 U
SW-7-12-92	12/07/92	0.03 U	0.005 U	0.005 U	0.002 U	0.0002 U	0.01 U	0.005 U	0.003 U

Sample ID:	Sampling Date	Concentration in mg/L Mercury	Nickel	Selenium	Silver	Thallium	Zinc
SW-1-6-88	06/29/88						
SW-1-10-88	10/04/88						
SW-1-11-89	11/01/89						
SW-1D-11-89	11/01/89						
SW-1-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.011
SW-1-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.02
SW-1D-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.015
SW-1-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.025 UJ	0.01 U
SW-1D-12-92	12/08/92	0.0002 U	0.01 U	0.025 UJ	0.0002 U	0.025 UJ	0.01 U
SW-2-6-88	06/29/88						
SW-2-10-88	10/04/88						
SW-2-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.015
SW-2-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.027
SW-2-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-2-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-3-6-88	06/29/88						
SW-3-10-88	10/04/88						
SW-3-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 UJ	0.01 U
SW-3-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.018
SW-3-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-3-12-92	12/08/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-4-6-88	06/29/88						
SW-4-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-4-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.013
SW-5-6-88	06/29/88						
SW-5-10-88	10/04/88						
SW-5-3-92	03/16/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.031
SW-5D-3-92	03/16/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.023
SW-5-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.016
SW-5-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-5-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-6-6-88	06/29/88						
SW-6-10-88	10/04/88						
SW-6-3-92	03/16/92	0.0002 U	0.01 U	0.005 UJ	0.0002 U	0.005 U	0.027
SW-6-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.012
SW-6-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.011
SW-6-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-7-6-88	06/29/88						
SW-7-10-88	10/04/88						
SW-7-3-92	03/13/92	0.0002 U	0.01 U	0.005 U	0.0004 U	0.005 UJ	0.02
SW-7-6-92	06/25/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.02
SW-7-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U
SW-7D-9-92	09/23/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.011
SW-7-12-92	12/07/92	0.0002 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.01 U

Sample ID:	Sampling Date	Concentration in µg/L Nitro-benzene	1,3-Dinitro-benzene	1,3,5-Trinitro-benzene	2,4-Dinitro-toluene	2,6-Dinitro toluene	2,4,6-Trinitro-toluene	Total DNT
SW-1-10-88	10/04/88				0.01 U	0.01 U	0.01 U	0.010 U
SW-1-1-89	01/04/89				0.05 U	0.01 J	0.05 U	0.035 J
SW-1-11-89	11/01/89				0.05 U	0.05 U	0.05 U	0.050 U
SW-1-3-92	03/13/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-1-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-1D-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-1-12-92	12/08/92	8.5 U	2.2 U	0.8 U	0.16 U	0.065 U	0.65 U	0.113 U
SW-1D-12-92	12/08/92	8.5 U	2.2 U	0.8 U	0.16 U	0.065 U	0.65 U	0.113 U
SW-2-10-88	10/04/88				0.01 U	0.01 U	0.01 U	0.010 U
SW-2-1-89	01/04/89				0.01 J	0.02 J	0.05 U	0.030 J
SW-2-3-92	03/13/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-2-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-2-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-2-12-92	12/08/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-3-10-88	10/04/88				0.01 U	0.01 U	0.01 U	0.010 U
SW-3-1-89	01/04/89				0.05 U	0.03 J	0.05 U	0.055 J
SW-3-3-92	03/13/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-3-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-3-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-3-12-92	12/08/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-4-1-89	01/04/89				0.05 U	0.05 U	0.05 U	0.050 U
SW-4-3-92	03/13/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-4-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-5-10-88	10/04/88				0.01	0.01 U	0.01 U	0.015 S
SW-5-1-89	01/04/89				0.05 U	0.05 U	0.05 U	0.050 U
SW-5-3-92	03/16/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-5D-3-92	03/16/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-5-6-92	06/25/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-5-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-5-12-92	12/07/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-6-10-88	10/04/88				0.01	0.01 U	0.01 U	0.015 S
SW-6-1-89	01/04/89				0.05 U	0.05 U	0.05 U	0.050 U
SW-6-3-92	03/16/92	1.9 U	0.49 U	0.18 U	0.034 U	0.014 U	0.14 U	0.024 U
SW-6-6-92	06/25/92	8.5 U	2.2 U	0.8 U	0.16 U	0.065 U	0.65 U	0.113 U
SW-6-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-6-12-92	12/07/92	3.4 U	0.88 U	0.32 U	0.062 U	0.026 U	0.26 U	0.044 U
SW-7-10-88	10/04/88				0.01	0.01 U	0.01 U	0.015 S
SW-7-1-89	01/04/89				0.05 U	0.05 U	0.05 U	0.050 U
SW-7-3-92	03/13/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-7-6-92	06/25/92	3.4 U	0.88 U	0.32 U	0.062 U	0.026 U	0.26 U	0.044 U
SW-7-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-7D-9-92	09/23/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U
SW-7-12-92	12/07/92	1.7 U	0.44 U	0.16 U	0.031 U	0.013 U	0.13 U	0.022 U

Table C-SW-4 - Monomethylamine Nitroglycerin Results for Surface Water Samples

Sample ID:	Sampling Date	Concentration in µg/L Monomethyl-amine	Nitrogly-cerine
SW-1-3-88	02/23/88	1 U	
SW-1-10-88	10/04/88	1 U	0.05 U
SW-1-1-89	01/04/89	1 U	0.05 U
SW-1-11-89	11/01/89	1 U	0.05 U
SW-1-3-92	03/13/92	38 U	2.5 UJ
SW-1-6-92	06/25/92	38 U	2.5 U
SW-1D-6-92	06/25/92	38 U	2.5 U
SW-2-3-88	02/23/88	1 U	
SW-2-10-88	10/04/88	1 U	0.05 U
SW-2-1-89	01/04/89	1 U	0.05 U
SW-2-3-92	03/13/92	38 U	2.5 UJ
SW-2-6-92	06/25/92	38 U	2.5 U
SW-3-3-88	02/23/88	1 U	
SW-3-10-88	10/04/88	1 U	0.05 U
SW-3-1-89	01/04/89	1 U	0.05 U
SW-3-3-92	03/13/92	38 U	2.5 UJ
SW-3-6-92	06/25/92	38 U	2.5 U
SW-4-3-88	02/23/88	1 U	
SW-4-1-89	01/04/89	1 U	0.05 U
SW-4-3-92	03/13/92	38 U	2.5 UJ
SW-4-6-92	06/25/92	38 U	2.5 U
SW-5-3-88	02/23/88	1 U	
SW-5-10-88	10/04/88	1 U	0.05 U
SW-5-1-89	01/04/89	1 U	0.05 U
SW-5-3-92	03/16/92	38 U	2.5 UJ
SW-5D-3-92	03/16/92	38 U	2.5 UJ
SW-5-6-92	06/25/92	38 U	2.5 U
SW-6-3-88	02/23/88	1 U	
SW-6-10-88	10/04/88	1 U	0.05 U
SW-6-1-89	01/04/89	1 U	0.05 U
SW-6-3-92	03/16/92	38 U	2.5 UJ
SW-6-6-92	06/25/92	38 U	2.5 U
SW-7-3-88	02/23/88	1 U	
SW-7-10-88	10/04/88	1 U	0.05 U
SW-7-1-89	01/04/89	1 U	0.05 U
SW-7-3-92	03/13/92	38 U	2.5 UJ
SW-7-6-92	06/25/92	38 U	2.5 U

Table C-SW-5 - Total Petroleum Hydrocarbon (Method 418.1) Results for Surface Water Samples

Sample ID:	Sampling Date	Concentration in mg/L Total Petroleum Hydrocarbons (418.1)
SW-1-3-92	03/13/92	1 U
SW-1-6-92	06/25/92	1 U
SW-1D-6-92	06/25/92	1 U
SW-1-12-92	12/08/92	1 U
SW-2-3-92	03/13/92	1 U
SW-2-6-92	06/25/92	1 U
SW-2-9-92	09/23/92	1 U
SW-2-12-92	12/08/92	1 U
SW-3-3-92	03/13/92	1 U
SW-3-6-92	06/25/92	1 U
SW-3-9-92	09/23/92	1 U
SW-3-12-92	12/08/92	1 U
SW-4-3-92	03/13/92	1 U
SW-4-6-92	06/25/92	1 U
SW-5-3-92	03/16/92	1 U
SW-5D-3-92	03/16/92	1 U
SW-5-6-92	06/25/92	1 U
SW-5-9-92	09/23/92	1 U
SW-5-12-92	12/07/92	1 U
SW-6-3-92	03/16/92	1 U
SW-6-6-92	06/25/92	1 U
SW-6-9-92	09/23/92	1 U
SW-6-12-92	12/07/92	1 U
SW-7-3-92	03/13/92	1 U
SW-7-6-92	06/25/92	1 U
SW-7-9-92	09/23/92	1 U
SW-7D-9-92	09/23/92	1 U
SW-7-12-92	12/07/92	1 U

Sample ID:	Sampling Date	Concentration in µg/L										
		Acetone	Benzene	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon Disulfide	Carbon Tetra-chloride	Chloro-benzene	Chloro-ethane	Chloro-form	Chloro-methane
SW-1-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-1-11-89	11/01/89	5 U	1 U	1 U	1 U	1 U	1 U	1 U	3 U	3 U	1 U	1 U
SW-2-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-3-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-4-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-5-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-6-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U
SW-7-3-88	02/23/88		1 U	1 U	5 U	10 U		1 U	1 U	10 U	1 U	10 U

Sample ID:	Concentration in µg/L											
	Dibromo-chloro-methane	Ethyl-benzene	Methylene Chloride	Styrene	Tetra-chloro-ethene	Toluene	Trichloro-ethene	Vinyl Acetate	Vinyl Chloride	Xylene (Total)	2-Butanone	2-Hexanone
SW-1-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-1-11-89	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 U	3 U
SW-2-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-3-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-4-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-5-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-6-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			
SW-7-3-88	1 U	1 U	5 U		1 U	1 U	1 U		10 U			

Sample ID:	Concentration in µg/L										
	4-Methyl-2-Pentanone	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethene(Total)	1,2-Dichloropropane	1,3(cis)-Dichloropropene	1,3(trans)-Dichloropropene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1,2,2-Tetrachloroethane
SW-1-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-1-11-89	3 U	1 U	1 U	1 U	1 U	1 U	3 U	3 U	1 U	1 U	3 U
SW-2-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-3-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-4-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-5-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-6-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U
SW-7-3-88		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U

Sample ID:	Sampling Date	Explosives Concentration in µg/L Nitro-benzene	2,4-Dinitro-toluene	2,6-Dinitro-toluene
SW-1-3-92	03/13/92	10 U	10 U	10 U
SW-2-3-92	03/13/92	10 U	10 U	10 U
SW-3-3-92	03/13/92	10 U	10 U	10 U
SW-4-3-92	03/13/92	10 U	10 U	10 U
SW-5-3-92	03/16/92	10 U	10 U	10 U
SW-5D-3-92	03/16/92	10 U	10 U	10 U
SW-6-3-92	03/16/92	10 U	10 U	10 U
SW-7-3-92	03/13/92	10 U	10 U	10 U

Sample ID:	Non-carcinogenic PAHs Concentration in µg/L Acenaph-thene	Acenaph-thylene	Anthracene	Benzo(g,h,i) Perylene	Fluoran-thene	Fluorene	Naph-thalene	Phenan-threne	Pyrene	2-Methyl-naphthalene
SW-1-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-2-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-3-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-4-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5D-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-6-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-7-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID:	Carcinogenic PAHs Concentration in µg/L							
	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Indeno (1,2,3-c,d) Pyrene	Total cPAHs
SW-1-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-2-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-3-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-4-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-5-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-5D-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-6-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US
SW-7-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	35 US

Sample ID:	Phenols Concentration in µg/L									
	Phenol	2-Chloro-phenol	2-Methyl-phenol	4-Methyl-phenol	2-Nitro-phenol	4-Nitro-phenol	2,4-Dichloro-phenol	2,4-Dimethyl-phenol	2,4-Dinitro-phenol	4-Chloro-3-Methyl-phenol
SW-1-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-2-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-3-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-4-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-5-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-5D-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-6-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U
SW-7-3-92	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	10 U

Sample ID:	Phenols Concentration in µg/L				Phthalates Concentration in µg/L					
	2,4,5-Trichloro-phenol	2,4,6-Trichloro-phenol	4,6-Dinitro-2-Methyl-phenol	Penta-chloro-phenol	Bis(2-Ethylhexyl) Phthalate	Butyl-benzyl-Phthalate	Di-N-Butyl-phthalate	Di-N-Octyl-phthalate	Diethyl-phthalate	Dimethyl-phthalate
SW-1-3-92	50 U	10 U	50 U	10 U	14	10 U	10 U	10 U	10 U	10 U
SW-2-3-92	50 U	10 U	50 U	10 U	3 J	10 U	10 U	10 U	10 U	10 U
SW-3-3-92	50 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-4-3-92	50 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5-3-92	50 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5D-3-92	50 U	10 U	50 U	10 U	1.3 J	10 U	10 U	10 U	10 U	10 U
SW-6-3-92	50 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-7-3-92	50 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID:	Other Semivolatiles Concentration in µg/L									
	Aniline	Benzidine	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloro-ethoxy) Methane	Bis(2-Chloro-ethyl) Ether	Bis(2-Chloro-isopropyl) Ether	Dibenzo-furan	Hexachloro-benzene	Hexachloro-butadiene
SW-1-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-2-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-3-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-4-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-5D-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-6-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SW-7-3-92	10 U	100 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID:	Other Semivolatiles Concentration in µg/L									
	Hexachloro-cyclo-pentadiene	Hexachloro-ethane	Isophorone	N-Nitroso-Di-Phenyl-amine	N-Nitroso-Di-Propyl-amine	N-Nitroso-Di-methyl amine	2-Chloro-naphthalene	4-Chloro-aniline	2-Nitro-aniline	3-Nitro-aniline
SW-1-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-2-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 R
SW-3-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-4-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-5-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-5D-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-6-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
SW-7-3-92	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U

Sample ID:	Other Semivolatiles Concentration in µg/L							
	4-Nitro-aniline	4-Bromophenyl Phenyl Ether	4-Chlorophenyl-Phenyl Ether	1,2-Dichloro-benzene	1,3-Dichloro-benzene	1,4-Dichloro-benzene	3,3'-Dichloro-benzidine	1,2,4-Trichloro-benzene
SW-1-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-2-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-3-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-4-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-5-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-5D-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-6-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U
SW-7-3-92	50 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U

Sample ID:	Sampling Date	Concentration in µg/L Acenaph-thene	Acenaph-thylene	Anthracene	Benzo(g,h,i) Perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
SW-1-3-92	03/13/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-1-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.04	0.01 U
SW-1D-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.02	0.01 U
SW-1-12-92	12/08/92	0.05 U	0.2 U	0.03	0.14	0.38	0.02 U	0.05 U	0.13 U	0.16 J
SW-1D-12-92	12/08/92	0.05 U	0.2 U	0.03	0.18	0.41	0.02 U	0.05 U	0.15 U	0.24 J
SW-2-3-92	03/13/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-2-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U
SW-2-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-2-12-92	12/08/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.03 U	0.01 U
SW-3-3-92	03/13/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-3-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U
SW-3-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-3-12-92	12/08/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.03 U	0.01 U
SW-4-3-92	03/13/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-4-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U
SW-5-3-92	03/16/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.02	0.01 U
SW-5D-3-92	03/16/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.025	0.01 U
SW-5-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.04	0.01 U
SW-5-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-5-12-92	12/07/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.05	0.01 U
SW-6-3-92	03/16/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.025	0.01 U
SW-6-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.02	0.01 U
SW-6-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-6-12-92	12/07/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.05	0.01 U
SW-7-3-92	03/13/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.02	0.01 U
SW-7-6-92	06/25/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U
SW-7-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-7D-9-92	09/23/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U
SW-7-12-92	12/07/92	0.05 U	0.2 U	0.01 U	0.02 U	0.01 U	0.02 U	0.05 U	0.03	0.01 U

Sample ID:	Sampling Date	Concentration in µg/L Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Indeno(1,2,3-c,d)Pyrene	Total cPAHs
SW-1-3-92	03/13/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-1-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-1D-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-1-12-92	12/08/92	0.09	0.09	0.17	0.06 J	0.23	0.01 U	0.07	0.71 JS
SW-1D-12-92	12/08/92	0.08	0.09	0.17	0.09 J	0.25	0.01 U	0.08	0.76 JS
SW-2-3-92	03/13/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-2-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-2-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-2-12-92	12/08/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-3-3-92	03/13/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-3-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-3-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-3-12-92	12/08/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-4-3-92	03/13/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-4-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-5-3-92	03/16/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-5D-3-92	03/16/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-5-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-5-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-5-12-92	12/07/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-6-3-92	03/16/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-6-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-6-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-6-12-92	12/07/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-7-3-92	03/13/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-7-6-92	06/25/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-7-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-7D-9-92	09/23/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US
SW-7-12-92	12/07/92	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.005 US

Table ⌣ ⌣W-9 - PCB Results for Surface Water Samples

Sample ID:	Sampling Date	Concentration in µg/L PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total PCBs
SW#2,SW#2	12/02/86	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.00225 US
SW#3,SW#3	12/02/86	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.00225 US
SW#4,SW#4	12/02/86	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.00225 US

Table C-SW-10 - OCPesticide Results for Surface Water Samples

Sample ID:	Sampling Date	Aldrin	Alpha-BHC	Beta-BHC	Gamma-BHC	Delta-BHC	Chlordane	Dieldrin	Endosulfan I	Endosulfan II
		Concentration in µg/L								
SW#2,SW#2	12/02/86	0.002 J	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.1 U	0.05 U	0.1 U
SW#3,SW#3	12/02/86	0.002 J	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.1 U	0.05 U	0.1 U
SW#4,SW#4	12/02/86	0.003 J	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.1 U	0.05 U	0.1 U

Sample ID:	Endosulfan Sulfate	Endrin	Endrin Ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene	4,4'-DDD	4,4'-DDE	4,4'-DDT
SW#2,SW#2	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.5 U	1 U	0.1 U	0.1 U	0.1 U
SW#3,SW#3	0.1 U	0.1 U	0.003 J	0.05 U	0.05 U	0.5 U	1 U	0.1 U	0.1 U	0.1 U
SW#4,SW#4	0.1 U	0.004 J	0.004 J	0.05 U	0.05 U	0.5 U	1 U	0.1 U	0.1 U	0.1 U

Sample ID:	Sampling Date	Total Dissolved Solids in mg/L	Total Suspended Solids in mg/L	Total Organic Carbon in Percent	Nitrite + Nitrate in mg/L	Temperature in C	Dissolved Oxygen in mg/L	pH	Conductivity in umhos/cm
SW-1-3-88	02/23/88	84			0.6	6		7.2	113
SW-1-6-88	06/29/88	80			0.55	12		7.3	7.3
SW-1-10-88	10/04/88	96			0.6	8.9		6.9	128
SW-1-1-89	01/04/89	72 E			0.86			6.8	50
SW-1-11-89	11/01/89	86	1 U		0.58 J			7.9	110
SW-1D-11-89	11/01/89	88	1 U		0.54 J			7.9	110
SW-1-3-92	03/13/92	130 J	16 J		0.5	9	11.5	6.4	60
SW-1-6-92	06/25/92	80	10 U	1.8	0.94	13.6	10.3	7	90
SW-1D-6-92	06/25/92	93	10 U	1.7	1				
SW-1-12-92	12/08/92	28000	160	1.3	0.38	7.3	10.4	5.3	20000
SW#2,SW#2	12/02/86				0.33				
SW-2-3-88	02/23/88	78			0.4	5		65	110
SW-2-6-88	06/29/88	80			0.28	12		7	7
SW-2-10-88	10/04/88	94			0.47	8.9		7.3	123
SW-2-1-89	01/04/89	72 E			0.71			6.9	50
SW-2-3-92	03/13/92	130 J	10 UJ		0.39	10	10.7	6.1	80
SW-2-6-92	06/25/92	90	10 U	1.4	0.52	13.3	10.1	7.2	100
SW-2-9-92	09/23/92	100	10 UJ	0.5 U	0.52	12.9	10.5	7.2	120
SW-2-12-92	12/08/92	82	10 U	0.5 U	0.67	5.8	12	6.7	300
SW#3,SW#3	12/02/86				0.32				
SW-3-3-88	02/23/88	84			0.4	6		7.1	110
SW-3-6-88	06/29/88	82			0.28	12		6.9	6.9
SW-3-10-88	10/04/88	99			0.4	8.9		7.25	127
SW-3-1-89	01/04/89	72 E			0.67	9.4		7	60
SW-3-3-92	03/13/92	140 J	10 UJ		0.36	10	10.7	5.9	70
SW-3-6-92	06/25/92	91	10 U	1	0.4	12.6	9.7	7.4	110
SW-3-9-92	09/23/92	110	10 UJ	0.7	0.45	12.1	10.8	7.9	120
SW-3-12-92	12/08/92	88	10 U	0.5 U	0.68	6.9	11.4	5.2	120
SW#4,SW#4	12/02/86				0.05 U				
SW-4-3-88	02/23/88	90			0.2 U	8		7.1	117
SW-4-6-88	06/29/88	78			0.025 U	12			
SW-4-1-89	01/04/89	83 E			0.046			6.3	50
SW-4-3-92	03/13/92	120 J	10 UJ		0.06	9	11.7	6.1	80
SW-4-6-92	06/25/92	84	10 U	3.5	0.08	21.6	7.4	7.8	110
SW#5,SW#5	12/03/86				0.05 U				
SW-5-3-88	02/23/88	42			0.2 U	4		7.7	
SW-5-6-88	06/29/88	56			0.025 U	18		6.5	6.5
SW-5-10-88	10/04/88	91			0.045	10.6		7.2	70
SW-5-1-89	01/04/89	58 E			0.028	6.9		6.7	70
SW-5-3-92	03/16/92	11 J	10 UJ		0.26	11	10.7	6.7	90
SW-5D-3-92	03/16/92	48 J	10 UJ		0.33				
SW-5-6-92	06/25/92	67	30	5.8	0.05	26.6	10.9	8.8	100
SW-5-9-92	09/23/92	110	20 UJ	11.8	0.05	18.8	8.2		170
SW-5-12-92	12/07/92	85 J	10 UJ	5.1	0.07	4	8.9	7.6	90
SW-6-10-92									
SW#6,SW#6	12/03/86				0.05 U				
SW-6-3-88	02/23/88	40			0.2 U	5		7.8	
SW-6-6-88	06/29/88	65			0.025 U	18		6.5	6.5
SW-6-10-88	10/04/88	89			0.032	11.1		7.2	70
SW-6-1-89	01/04/89	58 E			0.039	7.1		6.7	70
SW-6-3-92	03/16/92	32 J	10 UJ		0.46	12	11	8.5	80
SW-6-6-92	06/25/92	72	10 U	4.7	0.25	25.2	10.8	8.5	100
SW-6-9-92	09/23/92	250	26 J	11.9	0.05 U	18.5	5.8		150
SW-6-12-92	12/07/92	110 J	10 UJ	5.1	0.08	4.3	8.5	7.2	110
SW-7-3-88	02/23/88	38			0.2 U	5		7.6	84
SW-7-6-88	06/29/88	68			0.04	19		6.5	6.5
SW-7-10-88	10/04/88	85			0.067	11.1		7.1	80
SW-7-1-89	01/04/89	51 E			0.026	7.3		6.6	80
SW-7-3-92	03/13/92	120 J	10 J		0.31	14	13.7	6.3	70
SW-7-6-92	06/25/92	95	10 U	5.3	0.1	24.7	9.6	8.4	100
SW-7-9-92	09/23/92	110	64 J	10.1	0.05 U	19.7	9.2	7.2	160
SW-7D-9-92	09/23/92	110	72 J	11.3	0.05 U				
SW-7-12-92	12/07/92	98 J	10 UJ	7.7	0.05 U	4.2	8.5	8.3	100

Table C-SD-1 - Total Metal Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead
		Concentration in mg/kg							
SPR#4SED,SPR#4	12/02/86		3 U				26		14
SW#1SED,SW#1	12/02/86		3 U				25		18
SW#2SED,SW#2	12/02/86		3 U				30		26
SW#3SED,SW#3	12/02/86		3 U				27		18
SW#4SED,SW#4	12/02/86		3 U				25		24
SW#5,SW#5SED	12/03/86		3 U				24		26
SW#6SED,SW#6	12/03/86		3 U				39		35
SD-1-3-92	03/13/92	7300	0.29 UJ	2.3	0.14 U	0.065	11	9.7	5.8
SD-2-3-92	03/13/92	7300	0.28 UJ	2.4	0.13 U	0.069	10	8.7	6
SD-3-3-92	03/13/92	6100	0.28 UJ	2.5	0.11 U	0.044	12	9.9	5.5 U
SD-4-3-92	03/13/92	12000	0.55 UJ	7.6	0.22 U	0.17	18	33	18
SD-5-3-92	03/16/92	7600	2.7	7.4	0.36 U	1.4	22	60	180
SD-5D-3-92	03/16/92	8300	2.4	9.7	0.43 U	1.2	23	64	180
SD-6-3-92	03/16/92	10000	0.7 U	4.2	0.28 U	0.58	26	28	68
SD-7-3-92	03/13/92	7600	0.96 UJ	2.9	0.16 U	0.25	12	11	35
FW-SD-501A	08/19/93								170
FW-SD-501B	08/19/93								26
FW-SD-502A	08/19/93								130
FW-SD-502AD	08/19/93								140
FW-SD-502B	08/19/93								29
FW-SD-503A	08/19/93								69
FW-SD-503B	08/19/93								19 U
FW-SD-504A	08/19/93								98
FW-SD-504B	08/19/93								34
FW-SD-505A	08/19/93								110
FW-SD-505B	08/19/93								9.4
FW-SD-506A	08/19/93								90
FW-SD-506B	08/19/93								43

Table C-SD-1 - Total Metal Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Mercury	Nickel	Selenium	Silver	Thallium	Zinc
SPR#4SED,SPR#4	12/02/86						
SW#1SED,SW#1	12/02/86						
SW#2SED,SW#2	12/02/86						
SW#3SED,SW#3	12/02/86						
SW#4SED,SW#4	12/02/86						
SW#5,SW#5SED	12/03/86						
SW#6SED,SW#6	12/03/86						
SD-1-3-92	03/13/92	0.086 U	13	0.29 U	0.013 U	0.29 U	32
SD-2-3-92	03/13/92	0.078 U	12	0.28 U	0.012 U	0.28 U	31
SD-3-3-92	03/13/92	0.084 U	12	0.28 U	0.012 U	0.28 U	29
SD-4-3-92	03/13/92	0.16 U	14	0.55 U	0.026	0.55 U	66
SD-5-3-92	03/16/92	0.26 U	10	0.92 UJ	0.65	0.92 U	89
SD-5D-3-92	03/16/92	0.32 U	11	1.2 UJ	0.75	1.2 U	98
SD-6-3-92	03/16/92	0.21 U	14	0.72 UJ	0.36	0.72 U	45
SD-7-3-92	03/13/92	0.12 U	8.1	0.41 U	0.069	0.41 U	47
FW-SD-501A	08/19/93						
FW-SD-501B	08/19/93						
FW-SD-502A	08/19/93						
FW-SD-502AD	08/19/93						
FW-SD-502B	08/19/93						
FW-SD-503A	08/19/93						
FW-SD-503B	08/19/93						
FW-SD-504A	08/19/93						
FW-SD-504B	08/19/93						
FW-SD-505A	08/19/93						
FW-SD-505B	08/19/93						
FW-SD-506A	08/19/93						
FW-SD-506B	08/19/93						

Table C-SD-2 - Nitroaromatic Explosive Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Nitro-benzene	1,3-Dinitro-benzene	1,3,5-Trinitro-benzene	2,4-Dinitro-toluene	2,6-Dinitro toluene	2,4,6-Trinitro-toluene	Total DNT
SD-1-3-92	03/13/92	0.07 U	0.047 U	0.036 U	0.0071 U	0.0071 U	0.0036 U	0.0071 U
SD-2-3-92	03/13/92	0.068 U	0.046 U	0.034 U	0.0068 U	0.0068 U	0.0034 U	0.0068 U
SD-3-3-92	03/13/92	0.068 U	0.046 U	0.035 U	0.0069 U	0.0069 U	0.0035 U	0.0069 U
SD-4-3-92	03/13/92	0.14 U	0.096 U	0.072 U	0.014 U	0.014 U	0.0072 U	0.014 U
SD-5-3-92	03/16/92	0.2 U	0.13 U	0.099 U	0.02 U	0.02 U	0.0099 U	0.02 U
SD-5D-3-92	03/16/92	0.23 U	0.15 U	0.12 U	0.023 U	0.023 U	0.012 U	0.023 U
SD-6-3-92	03/16/92	0.13 U	0.089 U	0.067 U	0.013 U	0.013 U	0.0067 U	0.013 U
SD-7-3-92	03/13/92	0.14 U	0.095 U	0.071 U	0.014 U	0.014 U	0.0071 U	0.014 U

Table C-SD-3 - Monomethylamine Nitroglycerin Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Monomethyl-amine
SD-1-3-92	03/13/92	5.9 UJ
SD-2-3-92	03/13/92	5.7 UJ
SD-3-3-92	03/13/92	5.8 UJ
SD-4-3-92	03/13/92	12 UJ
SD-5-3-92	03/16/92	17 UJ
SD-5D-3-92	03/16/92	19 UJ
SD-6-3-92	03/16/92	11 UJ
SD-7-3-92	03/13/92	12 UJ

Table C-SD-4 - Total Petroleum Hydrocarbon (Method 418.1) Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Total Petroleum Hydrocarbons (418.1)
SD-1-3-92	03/13/92	20 U
SD-2-3-92	03/13/92	20 U
SD-3-3-92	03/13/92	20 U
SD-4-3-92	03/13/92	20 U
SD-5-3-92	03/16/92	20 U
SD-5D-3-92	03/16/92	20 U
SD-6-3-92	03/16/92	20 U
SD-7-3-92	03/13/92	20 U

Table C-SD-5 - Semivolatile Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Explosives Concentration in mg/kg		
		Nitro-benzene	2,4-Dinitro-toluene	2,6-Dinitro-toluene
SD-1-3-92	03/13/92	0.19 U	0.19 U	0.19 U
SD-2-3-92	03/13/92	0.19 U	0.19 U	0.19 U
SD-3-3-92	03/13/92	0.19 U	0.19 U	0.19 U
SD-4-3-92	03/13/92	0.35 U	0.35 U	0.35 U
SD-5-3-92	03/16/92	0.62 U	0.62 U	0.62 U
SD-5D-3-92	03/16/92	0.76 U	0.76 U	0.76 U
SD-6-3-92	03/16/92	0.49 U	0.49 U	0.49 U
SD-7-3-92	03/13/92	0.26 U	0.26 U	0.26 U

Sample ID:	Non-carcinogenic PAHs Concentration in mg/kg									
	Acenaph-thene	Acenaph-thylene	Anthracene	Benzo(g,h,i) Perylene	Fluoran-thene	Fluorene	Naph-thalene	Phenan-threne	Pyrene	2-Methyl-naphthalene
SD-1-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-2-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-3-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-4-3-92	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
SD-5-3-92	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
SD-5D-3-92	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
SD-6-3-92	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
SD-7-3-92	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U

Table C-SD-5 - Semivolatile Results for Freshwater Sediment Samples

Sample ID:	Carcinogenic PAHs Concentration in mg/kg							
	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Indeno (1,2,3-c,d) Pyrene	Total cPAHs
SD-1-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.665 US
SD-2-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.665 US
SD-3-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.665 US
SD-4-3-92	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	1.225 US
SD-5-3-92	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	2.17 US
SD-5D-3-92	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	2.66 US
SD-6-3-92	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	1.715 US
SD-7-3-92	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.91 US

Sample ID:	Phenols Concentration in mg/kg									
	Phenol	2-Chloro-phenol	2-Methyl-phenol	4-Methyl-phenol	2-Nitro-phenol	4-Nitro-phenol	2,4-Dichloro-phenol	2,4-Dimethyl-phenol	2,4-Dinitro-phenol	4-Chloro-3-Methyl-phenol
SD-1-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.96 U	0.19 U	0.19 U	0.96 U	0.19 U
SD-2-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.97 U	0.19 U	0.19 U	0.97 U	0.19 U
SD-3-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.96 U	0.19 U	0.19 U	0.96 U	0.19 U
SD-4-3-92	0.35 U	0.35 U	0.35 U	0.081 J	0.35 U	1.8 U	0.35 U	0.35 U	1.8 U	0.35 U
SD-5-3-92	0.62 U	0.62 U	0.62 U	0.19 J	0.62 U	3.1 U	0.62 U	0.62 U	3.1 U	0.62 U
SD-5D-3-92	0.76 U	0.76 U	0.76 U	0.19 J	0.76 U	3.8 U	0.76 U	0.76 U	3.8 U	0.76 U
SD-6-3-92	0.49 U	0.49 U	0.49 U	0.11 J	0.49 U	2.5 U	0.49 U	0.49 U	2.5 U	0.49 U
SD-7-3-92	0.26 U	0.26 U	0.26 U	0.055 J	0.26 U	1.3 U	0.26 U	0.26 U	1.3 U	0.26 U

Table C-SD-5 - Semivolatile Results for Freshwater Sediment Samples

Sample ID:	Phenols Concentration in mg/kg				Phthalates Concentration in mg/kg					
	2,4,5-Trichloro-phenol	2,4,6-Trichloro-phenol	4,6-Dinitro-2-Methyl-phenol	Penta-chloro-phenol	Bis(2-Ethylhexyl) Phthalate	Butyl-benzyl-Phthalate	Di-N-Butyl-phthalate	Di-N-Octyl-phthalate	Diethyl-phthalate	Dimethyl-phthalate
SD-1-3-92	0.96 U	0.19 U	0.96 U	0.19 U	0.19 U	0.19 U	0.27 U	0.19 U	0.19 U	0.19 U
SD-2-3-92	0.97 U	0.19 U	0.97 U	0.19 U	0.19 U	0.19 U	0.2 U	0.19 U	0.19 U	0.19 U
SD-3-3-92	0.96 U	0.19 U	0.96 U	0.19 U	0.2 U	0.19 U	0.31 U	0.19 U	0.19 U	0.19 U
SD-4-3-92	1.8 U	0.35 U	1.8 U	0.35 U	0.35 U	0.35 U	0.81 U	0.35 U	0.35 U	0.35 U
SD-5-3-92	3.1 U	0.62 U	3.1 U	0.62 U	1.9 U	0.62 U	3.1 U	0.62 U	0.62 U	0.62 U
SD-5D-3-92	3.8 U	0.76 U	3.8 U	0.76 U	0.76 U	0.76 U	2 U	0.76 U	0.76 U	0.76 U
SD-6-3-92	2.5 U	0.49 U	2.5 U	0.49 U	0.49 U	0.49 U	0.67 U	0.49 U	0.49 U	0.49 U
SD-7-3-92	1.3 U	0.26 U	1.3 U	0.26 U	0.26 U	0.26 U	0.34 U	0.26 U	0.26 U	0.26 U

Sample ID:	Other Semivolatiles Concentration in mg/kg									
	Aniline	Benzidine	Benzoic Acid	Benzyl Alcohol	Bis(2-Chloro-ethoxy) Methane	Bis(2-Chloro-ethyl) Ether	Bis(2-Chloro-isopropyl) Ether	Dibenzo-furan	Hexachloro-benzene	Hexachloro-butadiene
SD-1-3-92	0.19 U	1.9 U	0.96 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-2-3-92	0.19 U	1.9 U	0.97 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-3-3-92	0.19 U	1.9 U	0.96 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
SD-4-3-92	0.35 U	3.5 U	1.8 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
SD-5-3-92	0.62 U	6.2 U	0.25 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
SD-5D-3-92	0.76 U	7.6 U	0.3 J	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
SD-6-3-92	0.49 U	4.9 U	0.23 J	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
SD-7-3-92	0.26 U	2.6 U	1.3 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U

Table C-SD-5 - Semivolatile Results for Freshwater Sediment Samples

Sample ID:	Other Semivolatiles Concentration in mg/kg									
	Hexachloro-cyclo-pentadiene	Hexachloro-ethane	Isophorone	N-Nitroso-Di-Phenyl-amine	N-Nitroso-Di-Propyl-amine	N-Nitroso-Di-methyl amine	2-Chloro-naphthalene	4-Chloro-aniline	2-Nitro-aniline	3-Nitro-aniline
SD-1-3-92	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.96 U	0.96 U
SD-2-3-92	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.97 U	0.97 U
SD-3-3-92	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.96 U	0.96 U
SD-4-3-92	0.35 UJ	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	1.8 U	1.8 U
SD-5-3-92	0.62 UJ	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	3.1 U	3.1 U
SD-5D-3-92	0.76 UJ	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	3.8 U	3.8 U
SD-6-3-92	0.49 UJ	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	2.5 U	2.5 U
SD-7-3-92	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	1.3 U	1.3 U

Sample ID:	Other Semivolatiles Concentration in mg/kg							
	4-Nitro-aniline	4-Bromophenyl Phenyl Ether	4-Chlorophenyl-Phenyl Ether	1,2-Dichloro-benzene	1,3-Dichloro-benzene	1,4-Dichloro-benzene	3,3'-Dichloro-benzidine	1,2,4-Trichloro-benzene
SD-1-3-92	0.96 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.38 U	0.19 U
SD-2-3-92	0.97 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.39 U	0.19 U
SD-3-3-92	0.96 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.38 U	0.19 U
SD-4-3-92	1.8 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.71 U	0.35 U
SD-5-3-92	3.1 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	1.2 U	0.62 U
SD-5D-3-92	3.8 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	1.5 U	0.76 U
SD-6-3-92	2.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.98 U	0.49 U
SD-7-3-92	1.3 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.53 U	0.26 U

Table C-SD-6 - PAH Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Acenaph-thene	Acenaph-thylene	Anthracene	Benzo(g,h,i) Perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
SD-1-3-92	03/13/92	0.2 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.1 U	0.01 U	0.02 U
SD-2-3-92	03/13/92	0.19 U	0.19 U	0.0095 U	0.019 U	0.019 U	0.019 U	0.095 U	0.0095 U	0.019 U
SD-3-3-92	03/13/92	0.19 U	0.19 U	0.0095 U	0.019 U	0.019 U	0.019 U	0.095 U	0.0095 U	0.019 U
SD-4-3-92	03/13/92	0.4 U	0.4 U	0.02 U	0.04 U	0.04 U	0.04 U	0.2 U	0.02 U	0.04 U
SD-5-3-92	03/16/92	0.55 U	0.55 U	0.027 U	0.12	0.055 U	0.055 U	0.27 U	0.077	0.082
SD-5D-3-92	03/16/92	0.65 U	0.65 U	0.032 U	0.065 U	0.065 U	0.065 U	0.32 U	0.12	0.065 U
SD-6-3-92	03/16/92	0.37 U	0.37 U	0.019 U	0.037 U	0.037 U	0.037 U	0.19 U	0.056	0.037 U
SD-7-3-92	03/13/92	0.4 U	0.4 U	0.02 U	0.04 U	0.04 U	0.04 U	0.2 U	0.02 U	0.04 U

Sample ID:	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Indeno(1,2,3-c,d)Pyrene	Total cPAHs
SD-1-3-92	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.08 US
SD-2-3-92	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.039 U	0.019 U	0.0765 US
SD-3-3-92	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.039 U	0.019 U	0.0765 US
SD-4-3-92	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.082 U	0.04 U	0.161 US
SD-5-3-92	0.055 U	0.055 U	0.066	0.055 U	0.099	0.19	0.055 U	0.465 S
SD-5D-3-92	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.13 U	0.065 U	0.26 US
SD-6-3-92	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.074 U	0.037 U	0.148 US
SD-7-3-92	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.082 U	0.04 U	0.161 US

Table C-SD-7 - PCB Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total PCBs
SPR#4SED,SPR#4	12/02/86	0.0261 U	0.0261 U	0.0261 U	0.0261 U	0.0261 U	0.0522 U	0.0522 U	0.11745 US
SW#1SED,SW#1	12/02/86	0.101 U	0.101 U	0.101 U	0.101 U	0.101 U	0.202 U	0.202 U	0.4545 US
SW#2SED,SW#2	12/02/86	0.0202 U	0.0202 U	0.0202 U	0.0202 U	0.0202 U	0.0405 U	0.0405 U	0.091 US
SW#3SED,SW#3	12/02/86	0.0269 U	0.0269 U	0.0269 U	0.0269 U	0.0269 U	0.0537 U	0.0537 U	0.12095 US
SW#4SED,SW#4	12/02/86	0.0246 U	0.0246 U	0.0246 U	0.0246 U	0.0246 U	0.0492 U	0.0492 U	0.1107 US
SW#5,SW#5SED	12/03/86	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0361 U	0.0361 U	0.08135 US
SW#6SED,SW#6	12/03/86	0.0215 U	0.0215 U	0.0215 U	0.0215 U	0.0215 U	0.043 U	0.043 U	0.09675 US
SD-1-3-92	03/13/92	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.385 US
SD-2-3-92	03/13/92	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.42 US
SD-3-3-92	03/13/92	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.385 US
SD-4-3-92	03/13/92	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.735 US
SD-5-3-92	03/16/92	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	1.295 US
SD-5D-3-92	03/16/92	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	1.575 US
SD-6-3-92	03/16/92	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.015 US
SD-7-3-92	03/13/92	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.56 US

Table C-SD-8 - OC Pesticide Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Aldrin	Alpha-BHC	Beta-BHC	Gamma-BHC	Delta-BHC	Chlordane	Dieldrin	Endosulfan I	Endosulfan II
SPR#4SED,SPR#4	12/02/86	2.61 U	2.61 U	2.61 U	0.0715 J	2.61 U	26.1 U	5.22 U	2.61 U	5.22 U
SW#1SED,SW#1	12/02/86	10.1 U	10.1 U	10.1 U	10.1 U	10.1 U	101 U	20.2 U	10.1 U	20.2 U
SW#2SED,SW#2	12/02/86	2.02 U	2.02 U	2.02 U	2.02 U	2.02 U	20.2 U	0.289 J	2.02 U	4.05 U
SW#3SED,SW#3	12/02/86	2.69 U	2.69 U	2.69 U	2.69 U	2.69 U	26.9 U	5.37 U	2.69 U	5.37 U
SW#4SED,SW#4	12/02/86	2.46 U	2.46 U	2.46 U	2.46 U	2.46 U	24.6 U	1.35 J	2.46 U	4.92 U
SW#5,SW#5SED	12/03/86	1.81 U	1.81 U	1.81 U	1.81 U	1.81 U	18.1 U	3.61 U	1.81 U	3.61 U
SW#6SED,SW#6	12/03/86	2.15 U	2.15 U	2.15 U	2.15 U	2.15 U	21.5 U	4.3 U	2.15 U	4.3 U
SD-1-3-92	03/13/92	0.0057 U	0.0057 UJ	0.0057 U	0.0057 U	0.0057 U	0.057 U	0.011 U	0.0057 U	0.011 U
SD-2-3-92	03/13/92	0.0058 U	0.0058 UJ	0.0058 U	0.0058 U	0.0058 U	0.058 U	0.012 U	0.0058 U	0.012 U
SD-3-3-92	03/13/92	0.0057 U	0.0057 UJ	0.0057 U	0.0057 U	0.0057 U	0.057 U	0.011 U	0.0057 U	0.011 U
SD-4-3-92	03/13/92	0.011 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.11 U	0.021 U	0.011 U	0.021 U
SD-5-3-92	03/16/92	0.019 U	0.019 UJ	0.019 U	0.019 U	0.019 U	0.19 U	0.037 U	0.019 U	0.037 U
SD-5D-3-92	03/16/92	0.023 U	0.023 UJ	0.023 U	0.023 U	0.023 U	0.23 U	0.045 U	0.023 U	0.045 U
SD-6-3-92	03/16/92	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.15 U	0.029 U	0.015 U	0.029 U
SD-7-3-92	03/13/92	0.0079 U	0.0079 UJ	0.0079 U	0.0079 U	0.0079 U	0.079 U	0.016 U	0.0079 U	0.016 U

Table C-SD-8 - OC Pesticide Results for Freshwater Sediment Samples

Sample ID:	Sampling Date	Concentration in mg/kg Endosulfan Sulfate	Endrin	Endrin Ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene	4,4'-DDD	4,4'-DDE	4,4'-DDT
SPR#4SED,SPR#4	12/02/86	5.22 U	0.619 J	5.22 U	2.61 U	2.61 U	26.1 U	52.2 U	0.267 J	5.22 U	5.22 U
SW#1SED,SW#1	12/02/86	20.2 U	20.2 U	20.2 U	10.1 U	10.1 U	101 U	202 U	0.4 J	20.2 U	20.2 U
SW#2SED,SW#2	12/02/86	4.05 U	0.494 J	4.05 U	2.02 U	2.02 U	20.2 U	40.5 U	0.664 J	0.812 J	0.419 J
SW#3SED,SW#3	12/02/86	5.37 U	5.37 U	5.37 U	2.69 U	2.69 U	26.9 U	53.7 U	0.491 J	5.37 U	5.37 U
SW#4SED,SW#4	12/02/86	4.92 U	4.92 U	4.92 U	2.46 U	2.46 U	24.6 U	49.2 U	2.23 J	4.92 U	4.92 U
SW#5,SW#5SED	12/03/86	3.61 U	0.16 J	3.61 U	1.81 U	1.81 U	18.1 U	36.1 U	3.61 U	3.61 U	3.61 U
SW#6SED,SW#6	12/03/86	4.3 U	4.3 U	4.3 U	2.15 U	2.15 U	21.5 U	43 U	4.3 U	4.3 U	4.3 U
SD-1-3-92	03/13/92	0.011 U	0.011 U	0.011 U	0.0057 U	0.0057 U	0.057 UJ	0.11 U	0.011 UJ	0.011 U	0.011 U
SD-2-3-92	03/13/92	0.012 U	0.012 U	0.012 U	0.0058 U	0.0058 U	0.058 UJ	0.12 U	0.012 UJ	0.012 U	0.012 U
SD-3-3-92	03/13/92	0.011 U	0.011 U	0.011 U	0.0057 U	0.0057 U	0.057 UJ	0.11 U	0.011 UJ	0.011 U	0.011 U
SD-4-3-92	03/13/92	0.021 U	0.021 U	0.021 U	0.011 U	0.011 U	0.11 U	0.21 U	0.021 U	0.021 U	0.021 U
SD-5-3-92	03/16/92	0.037 U	0.037 U	0.037 U	0.019 U	0.019 U	0.19 U	0.37 U	0.037 U	0.037 U	0.037 U
SD-5D-3-92	03/16/92	0.045 U	0.045 U	0.045 U	0.023 U	0.023 U	0.23 U	0.45 U	0.045 U	0.045 U	0.045 U
SD-6-3-92	03/16/92	0.029 U	0.029 U	0.029 U	0.015 U	0.015 U	0.15 U	0.29 U	0.029 U	0.029 U	0.029 U
SD-7-3-92	03/13/92	0.016 U	0.016 U	0.016 U	0.0079 U	0.0079 U	0.079 UJ	0.16 U	0.016 UJ	0.016 U	0.016 UJ

Table C-SD-9 - General Chemistry for Freshwater Sediment Samples

Sample ID:	Sampling Date	Total Organic Carbon in Percent	Nitrite + Nitrate in mg/L
SD-1-3-92	03/13/92	0.53	1.4
SD-2-3-92	03/13/92	0.58	3.1
SD-3-3-92	03/13/92	0.4	0.5 U
SD-4-3-92	03/13/92	10.6	2.7
SD-5-3-92	03/16/92	25.9	8.9
SD-5D-3-92	03/16/92	25.2	5.2
SD-6-3-92	03/16/92	8.1	2.7
SD-7-3-92	03/13/92	16.5	2.4
SPR#4SED,SPR#4	12/02/86		2
SW#1SED,SW#1	12/02/86		3.2
SW#2SED,SW#2	12/02/86		1.7
SW#3SED,SW#3	12/02/86		1.1
SW#4SED,SW#4	12/02/86		1.5
SW#5,SW#5SED	12/03/86		1
SW#6SED,SW#6	12/03/86		1.5

Appendix D

Laboratory Physical Soils Testing

This appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

The Hart Crowser soils laboratory conducted mechanical (sieve) and hydrometer analyses to provide grain size distributions for aquifer and aquitard materials, respectively. In addition, flexible-wall permeability tests were conducted to estimate vertical hydraulic conductivity of the aquitard material.

Mechanical Analyses. The Hart Crowser soils laboratory conducted mechanical grain size analyses using standard sieve sizes in accordance with ASTM D 422. The wet sieve analyses were performed to determine the size distribution greater than the No. 200 mesh sieve. Figure 1 presents the classification system used for the grain size analyses. The results of the tests are presented as curves in Figures 2 through 12, plotting percent finer against grain size.

Hydrometer Analyses. Samples of the Kitsap Aquitard material were analyzed using the hydrometer method, or a combined analysis (mechanical plus hydrometer), to determine the size distribution smaller than the No. 200 mesh sieve (i.e., determine percent silt and percent clay). The hydrometer testing was conducted in accordance with ASTM D 422. The results of the tests are presented as curves in Figures 2 and 4.

Laboratory Vertical Hydraulic Conductivity Testing. Testing of vertical hydraulic conductivity was conducted on two undisturbed samples of the Kitsap Aquitard material.

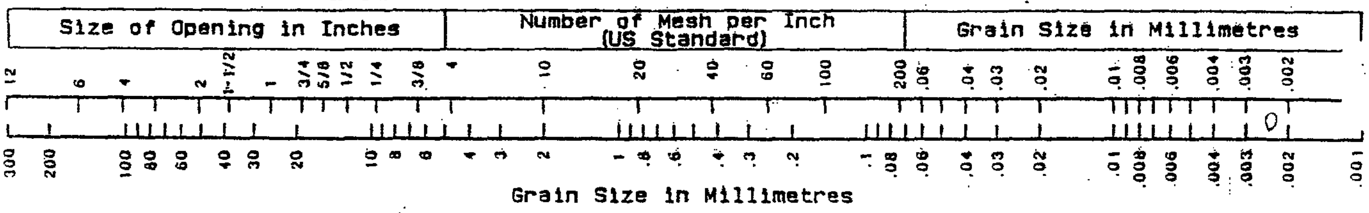
The tests were performed in a triaxial cell using "flexible wall" permeameter techniques, which allowed application of confining stresses approximately equal to the in situ effective overburden stresses. The sample was oriented in its stratigraphically correct position (up versus down) and flow was directed vertically downward through the sample using falling head techniques. The tests were run until steady state conditions were established. The results of the vertical hydraulic conductivity testing are presented in Table 1.

Table 1
Summary of Laboratory Vertical Hydraulic Conductivity (K) Results for Kitsap Aquitard Samples

Sample No.	Sample Description	Estimated Vertical K in cm/sec
MW-20, S-24E	Slightly clayey, sandy SILT	8×10^{-7}
MW-23, S-25A	Very sandy SILT with trace peat and sand partings	1×10^{-7}
	Geometric Mean:	3×10^{-7} cm/sec

Unified Soil Classification (USC) System

Soil Grain Size



COBBLES	GRAVEL	SAND	SILT and CLAY
Coarse-Grained Soils			Fine-Grained Soils

Coarse-Grained Soils

G W	G P	G M	G C	S W	S P	S M	S C
Clean GRAVEL <5% fines		* GRAVEL with >12% fines		Clean SAND <5% fines		* SAND with >12% fines	
GRAVEL >50% coarse fraction larger than No. 4				SAND >50% coarse fraction smaller than No. 4			
Coarse-Grained Soils >50% larger than No. 200 sieve							

G W and S W $\left(\frac{D_{60}}{D_{10}}\right)$ >4 for G W, >6 for S W & $1 \leq \left(\frac{(D_{30})^2}{D_{10} \times D_{60}}\right) \leq 3$

G P and S P Clean GRAVEL or SAND not meeting requirements for G W and S W

G M and S M Atterberg limits below A Line with PI <4

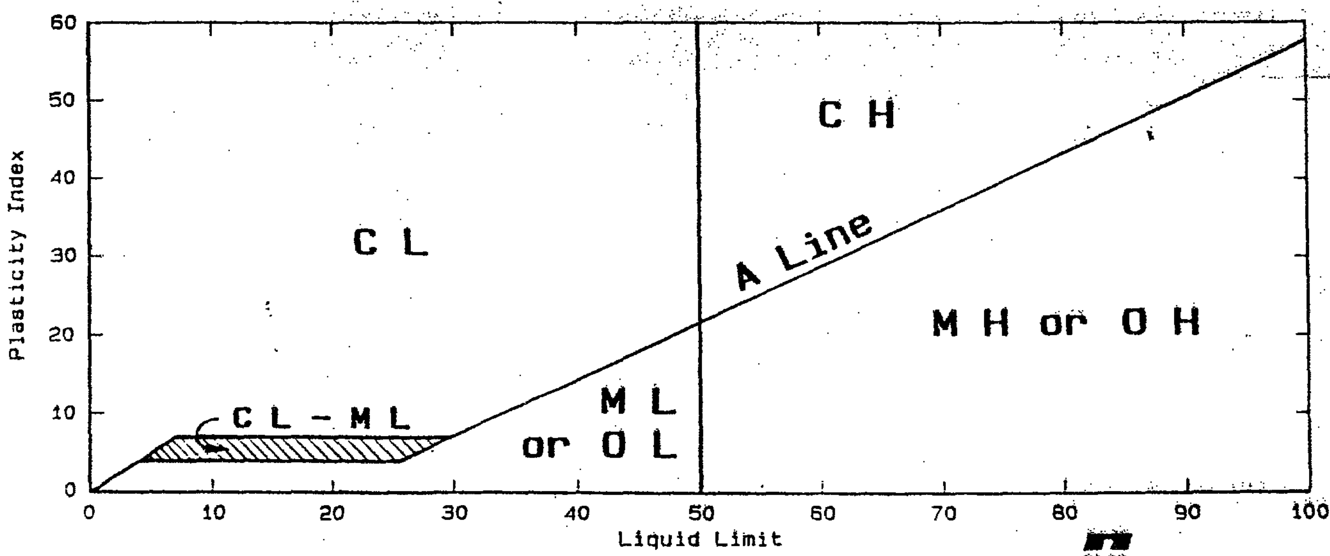
G C and S C Atterberg limits above A Line with PI >7

* Coarse-grained soils with percentage of fines between 5 and 12 are considered borderline cases requiring use of dual symbols.

D_{10}, D_{30}, and D_{60} are the particle diameter of which 10, 30, and 60 percent, respectively, of the soil weight are finer.

Fine-Grained Soils

M L	C L	O L	M H	C H	O H	Pt
SILT	CLAY	Organic	SILT	CLAY	Organic	Highly Organic Soils
Soils with Liquid Limit <50%			Soils with Liquid Limit >50%			
Fine-Grained Soils >50% smaller than No. 200 sieve						



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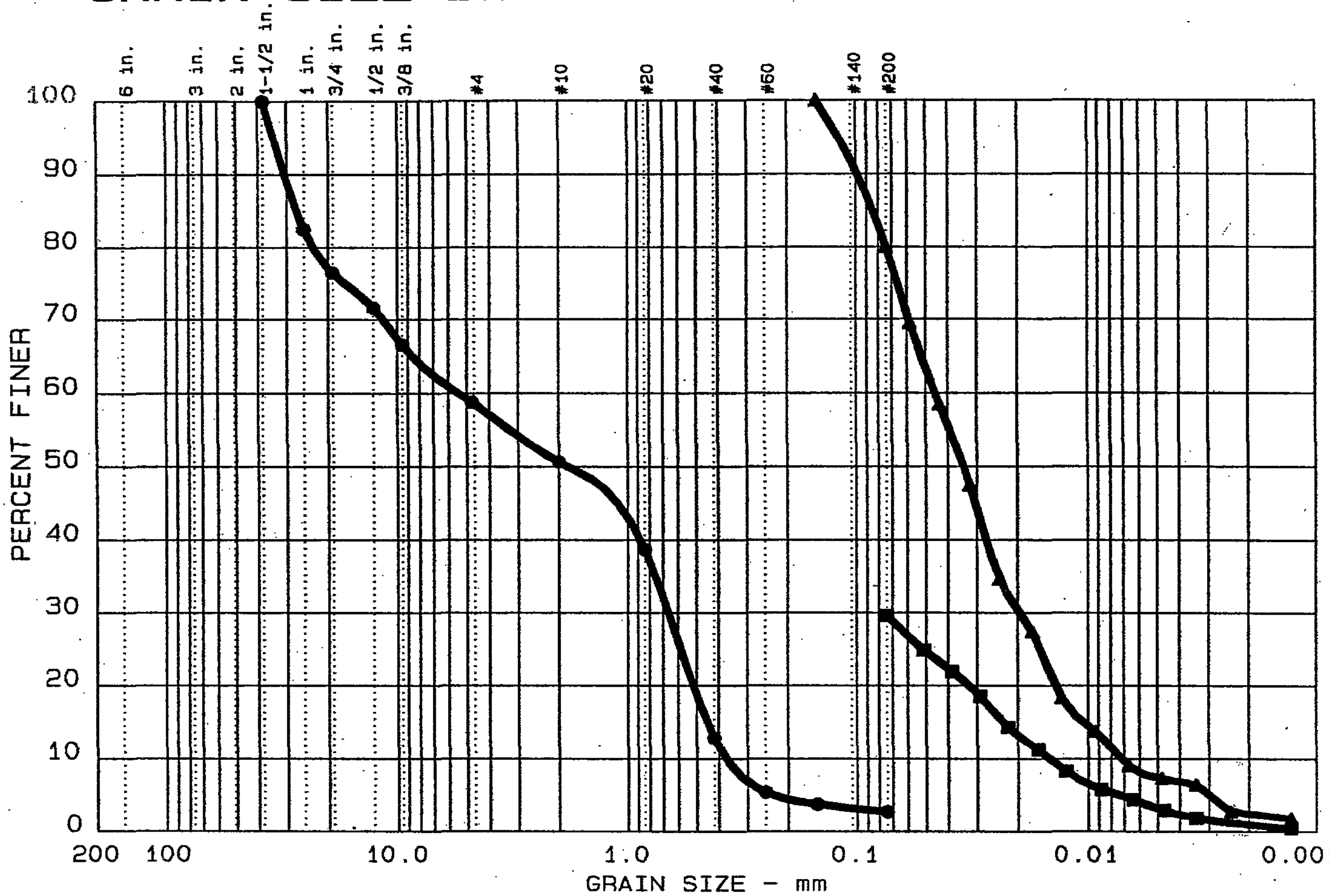
J-3534-07 4/92
Figure 1

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	41.2	56.1	2.7	
▲	0.0	0.0	20.0	72.6	7.4
■	0.0	0.0	70.4	26.4	3.2

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			27.23	5.43	1.78	0.661	0.4513	0.3711	0.22	14.6
▲			0.08		0.03	0.019	0.0104	0.0071	1.17	6.3
■					0.07	0.074	0.0231	0.0146	5.07	5.1

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Very gravelly SAND	SP	10%
▲ Slightly clayey, sandy SILT (Kitsap Aquitard)	ML	42%
■ Very silty SAND (Kitsap Aquitard)	SM	26%

Remarks:

Project: Weyco Dupont
● Location: MW-20, S-17, Depth: 85.0' - 86.5'
▲ Location: MW-20, S-24E, Depth: 135.0'-135.5'
■ Location: MW-20, S-24D, Depth: 135.5'-136.0'

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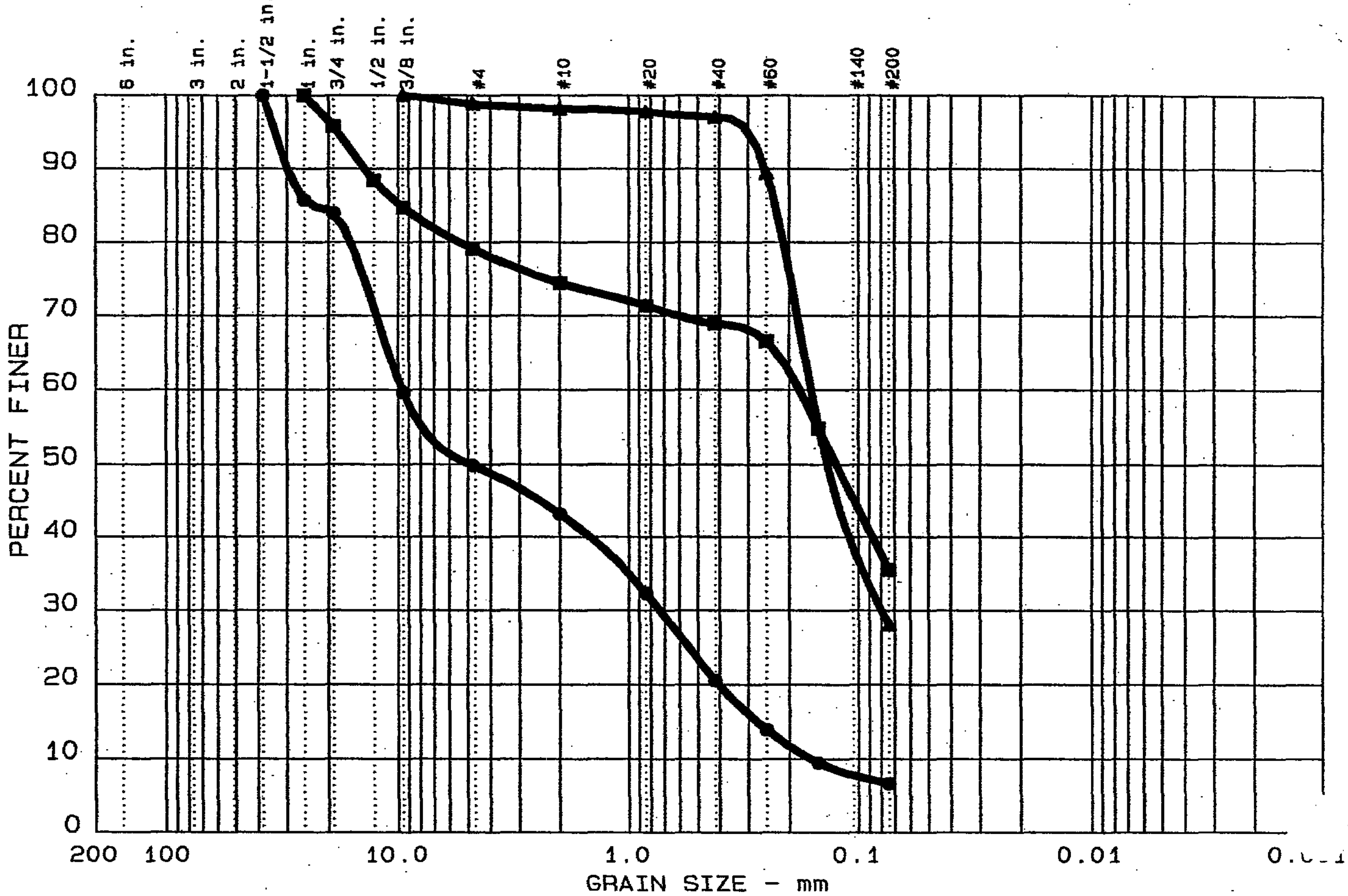
J-3534-07 4/92

Figure 2

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	50.2	43.2	6.6	
▲	0.0	1.2	70.7	28.1	
■	0.0	20.9	43.6	35.5	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			23.71	9.63	4.77	0.730	0.2745	0.1616	0.34	59.6
▲			0.23	0.16	0.14	0.079				
■			9.77	0.18	0.12					

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, very sandy GRAVEL	GP-GM	9%
▲ Silty, fine SAND	SM	29%
■ Gravelly, very silty, medium to fine SAND	SM	22%

Remarks:

Project: Weyco DuPont
● Location: MW-21, S-17, Depth: 85.0' - 86.0'
▲ Location: MW-21, S-23, Depth: 148.0'- 149.0'
■ Location: MW-21, S-26, Depth: 165.0'- 165.5'

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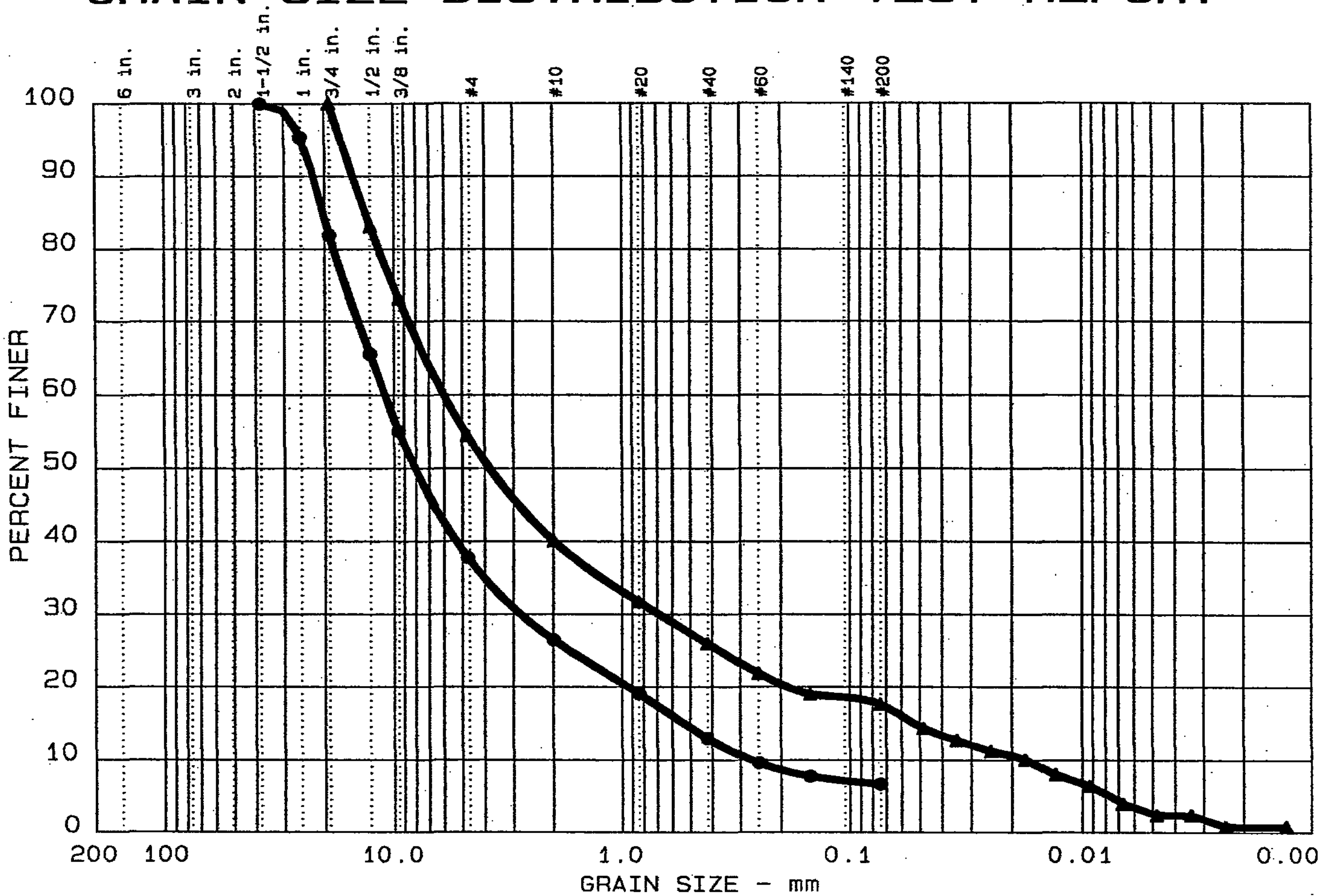
J-3534-07 4/92

Figure 3

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	62.2	31.2	6.6	
▲	0.0	45.5	36.9	15.0	2.6

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			20.28	10.89	8.07	2.767	0.5272	0.2642	2.66	41.2
▲			13.34	6.01	3.79	0.682	0.0524	0.0175	4.42	342.8

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, very sandy GRAVEL	GW-GM	9%
▲ Silty, sandy GRAVEL (Kitsap Aquitard)	GM	8%

Remarks:

Project: Weyco DuPont

● Location: MW-22, S-20, Depth: 109.5'- 111.0'

▲ Location: MW-22, S-21B, Depth: 121.0'-122.0'

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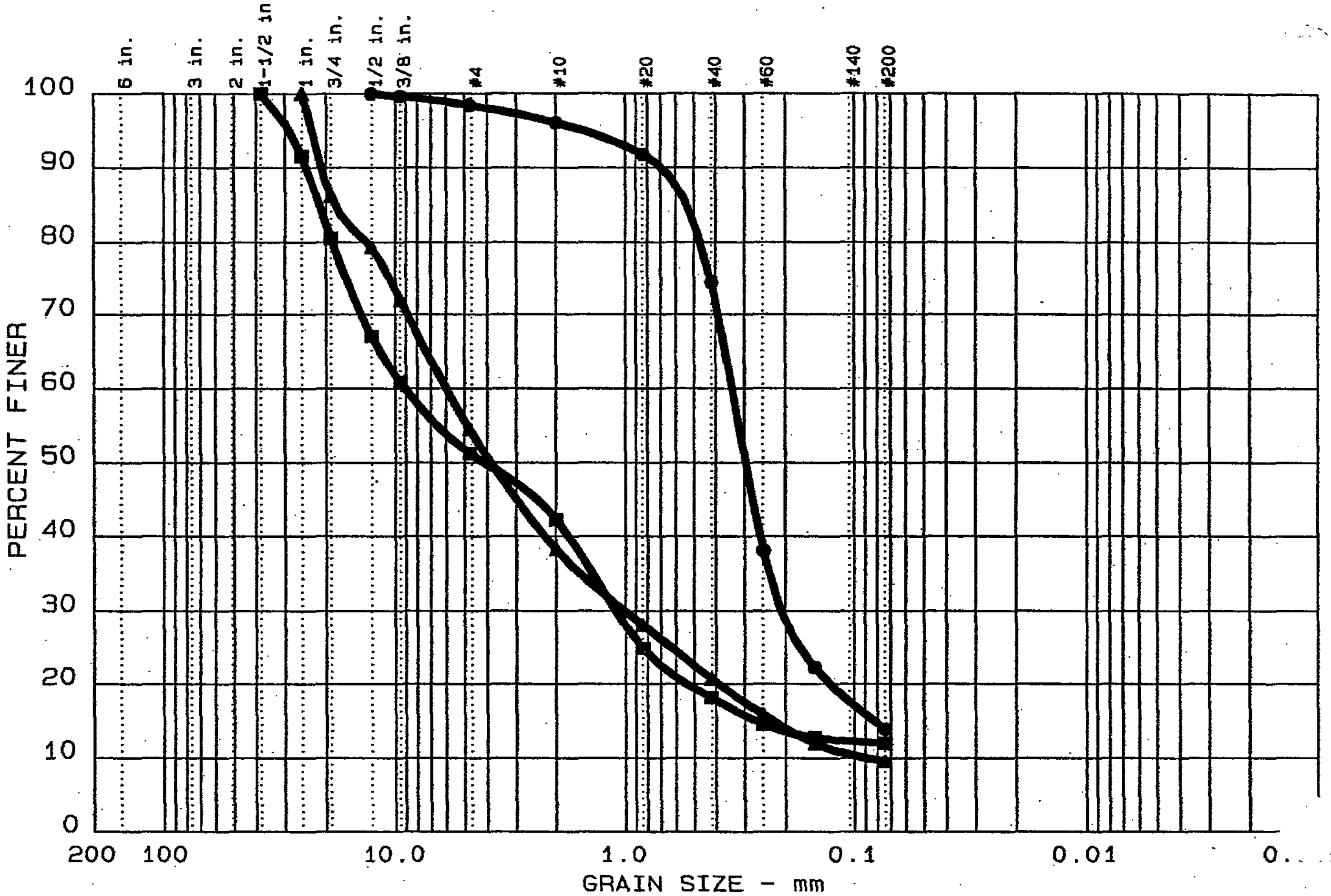
J-3534-07 4/92

Figure 4

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	1.6	84.6	13.8	
▲	0.0	45.5	45.0	9.5	
■	0.0	48.8	39.3	11.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.54	0.34	0.30	0.209	0.0821			
▲			18.34	6.00	3.83	0.997	0.2257	0.0888	1.86	67.6
■			21.28	9.08	4.15	1.102	0.2642			

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Silty, medium to fine SAND	SM	25%
▲ Slightly silty, very sandy GRAVEL	GW-GM	9%
■ Slightly silty, very sandy GRAVEL	GP-GM	7%

Remarks:

Project: Weyco DuPont
● Location: MW-23, S-23, Depth: 119.0'- 120.5'
▲ Location: MW-24, S-11, Depth: 25.0' - 26.5'
■ Location: MW-27, S-08, Depth: 39.0' - 40.5'

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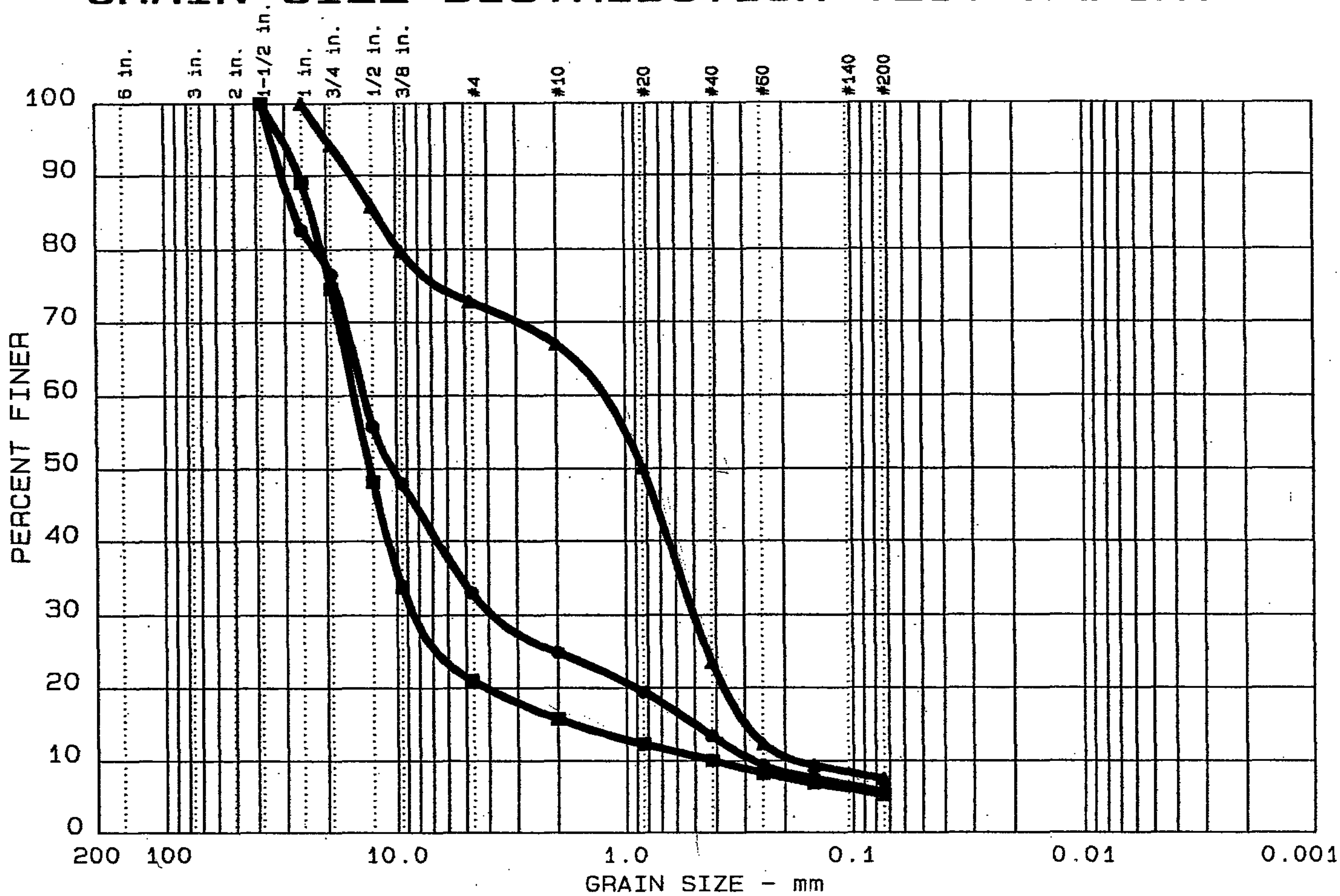
J-3534-07 4/92

Figure 5

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75 mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	66.9	27.4	5.7	
▲	0.0	27.2	65.4	7.4	
■	0.0	78.9	15.8	5.3	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			27.54	13.80	10.47	3.846	0.4955	0.2786	3.85	49.5
▲			12.27	1.21	0.84	0.502	0.2992	0.1762	1.18	6.9
■			23.12	15.22	13.08	8.521	1.7002	0.4126	11.56	36.9

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, sandy, GRAVEL	GP-GM	16.5%
▲ Slightly silty, gravelly, SAND	SW-SM	14.7%
■ Slightly silty, sandy, GRAVEL	GP-GM	27.2%

Remarks:

Project: Weyco/DuPont
● Location: LR-17, Depth 0"-6"
▲ Location: LR-20, Depth 0"-6"
■ Location: LR-59, Depth 0"-6"

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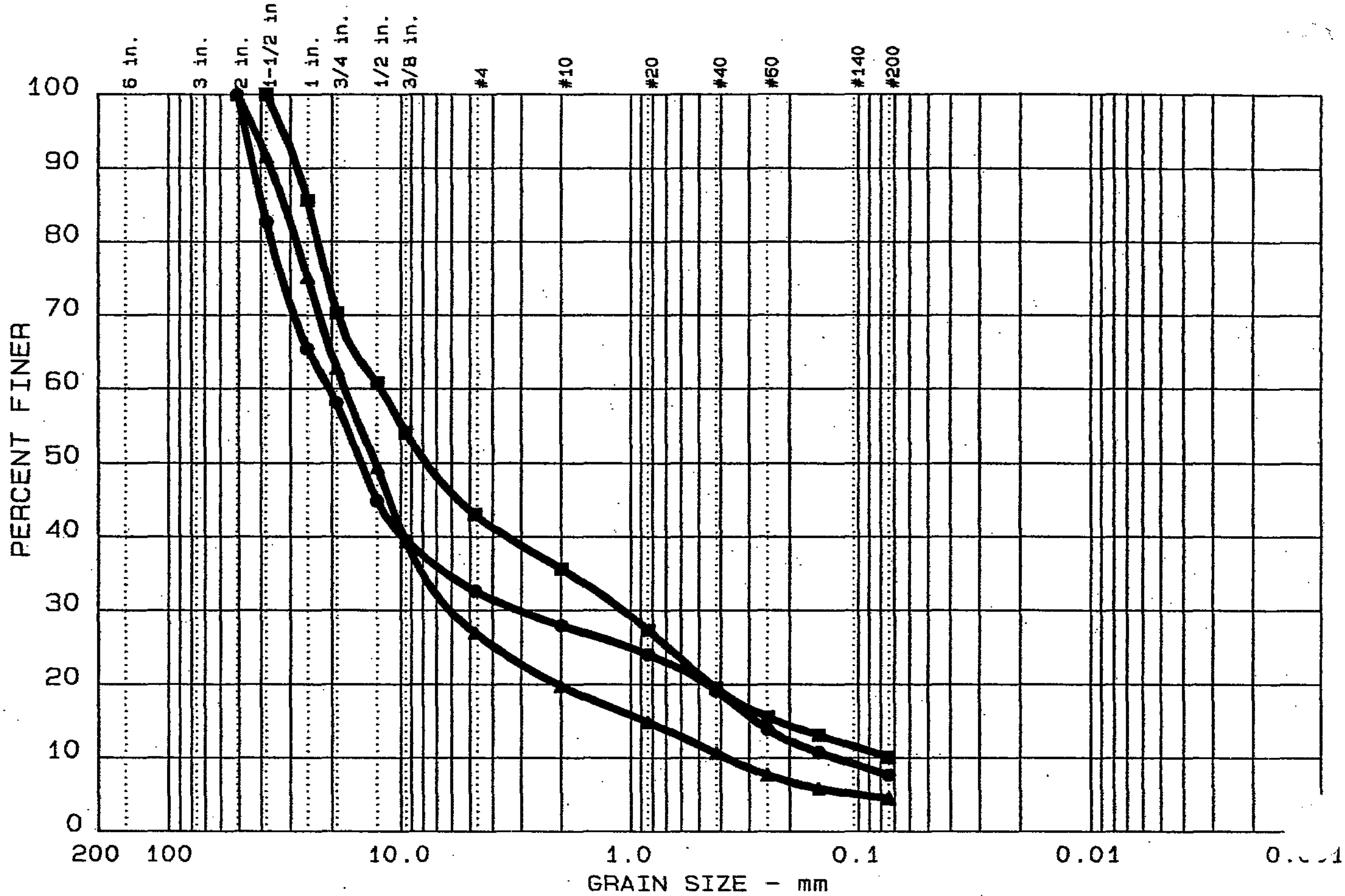
J-3534-07 4/94

Figure 6

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	67.4	25.0	7.6	
▲	0.0	73.0	22.5	4.5	
■	0.0	56.9	33.0	10.1	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			39.67	20.35	14.91	2.975	0.2809	0.1269	3.43	160.3
▲			31.88	17.68	12.91	6.109	0.8630	0.3724	5.67	47.5
■			25.09	12.15	7.75	1.070	0.2211			

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, sandy GRAVEL	GP-GM	17%
▲ Sandy, GRAVEL	GP	15%
■ Slightly silty, very sandy, GRAVEL	GP-GM	18%

Remarks:

Project: Weyco/DuPont
● Location: LR-60, Depth 0"-6"
▲ Location: LR-68, Depth 0"-6"
■ Location: LR-91, Depth 0"-6"

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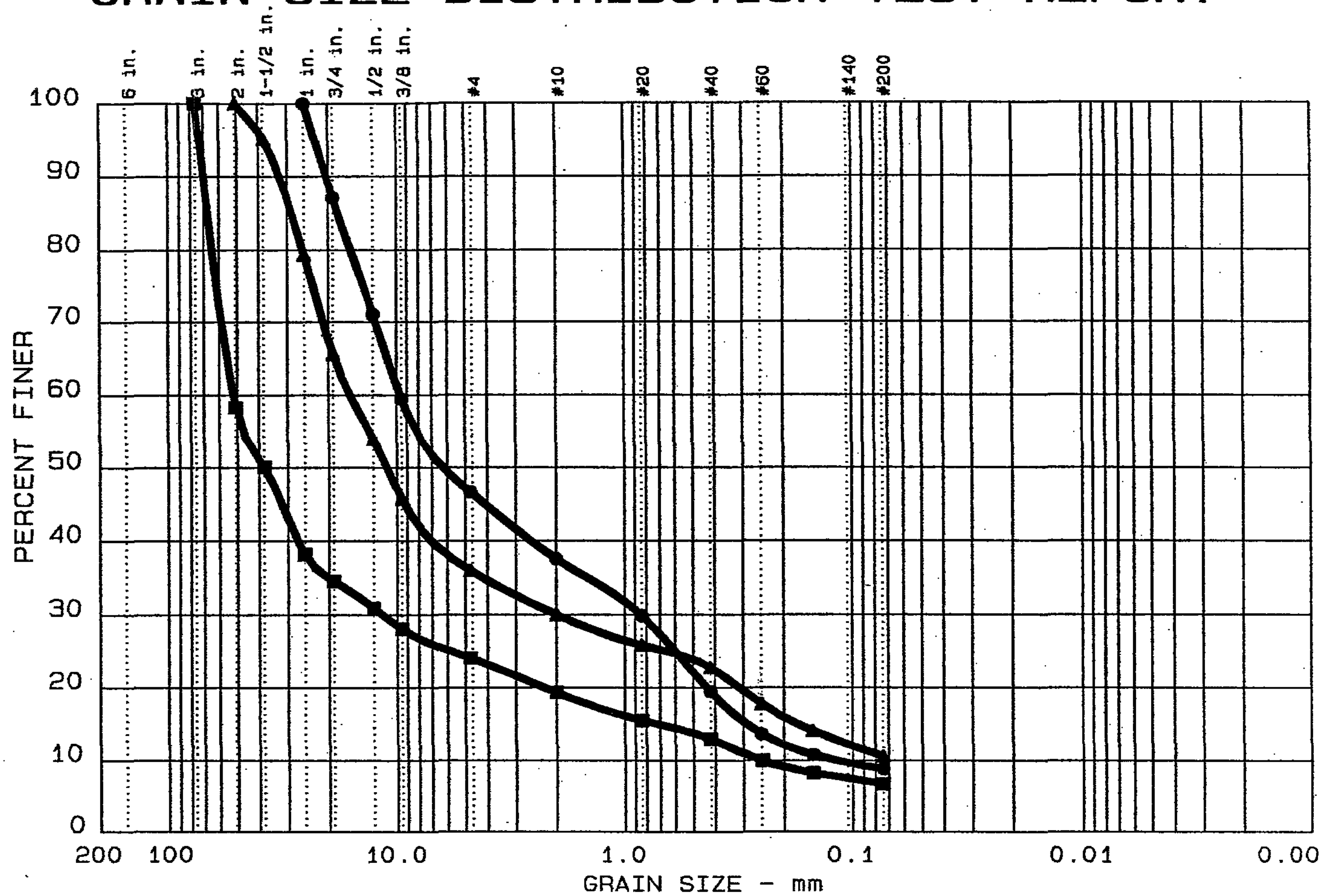
J-3534-07 4/94

Figure 7

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75 mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	53.3	37.9	8.8	
▲	0.0	63.9	25.5	10.6	
■	0.0	75.9	17.3	6.8	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			18.07	9.67	6.24	0.842	0.2887	0.1176	0.62	82.2
▲			28.67	16.07	11.08	1.970	0.1736			
■			67.45	52.18	37.80	11.548	0.7203	0.2526	10.12	206.5

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● slightly silty, very sandy, GRAVEL	GP-GM	11.1%
▲ Slightly silty, sandy, GRAVEL	GP-GM	19.1%
■ Slightly silty, sandy, GRAVEL	GP-GM	13.2%

Remarks:

Project: Weyco/DuPont

● Location: LR-104, Depth 0"-6"

▲ Location: LR-126, Depth 0"-6"

■ Location: LR-130, Depth 0"-6"

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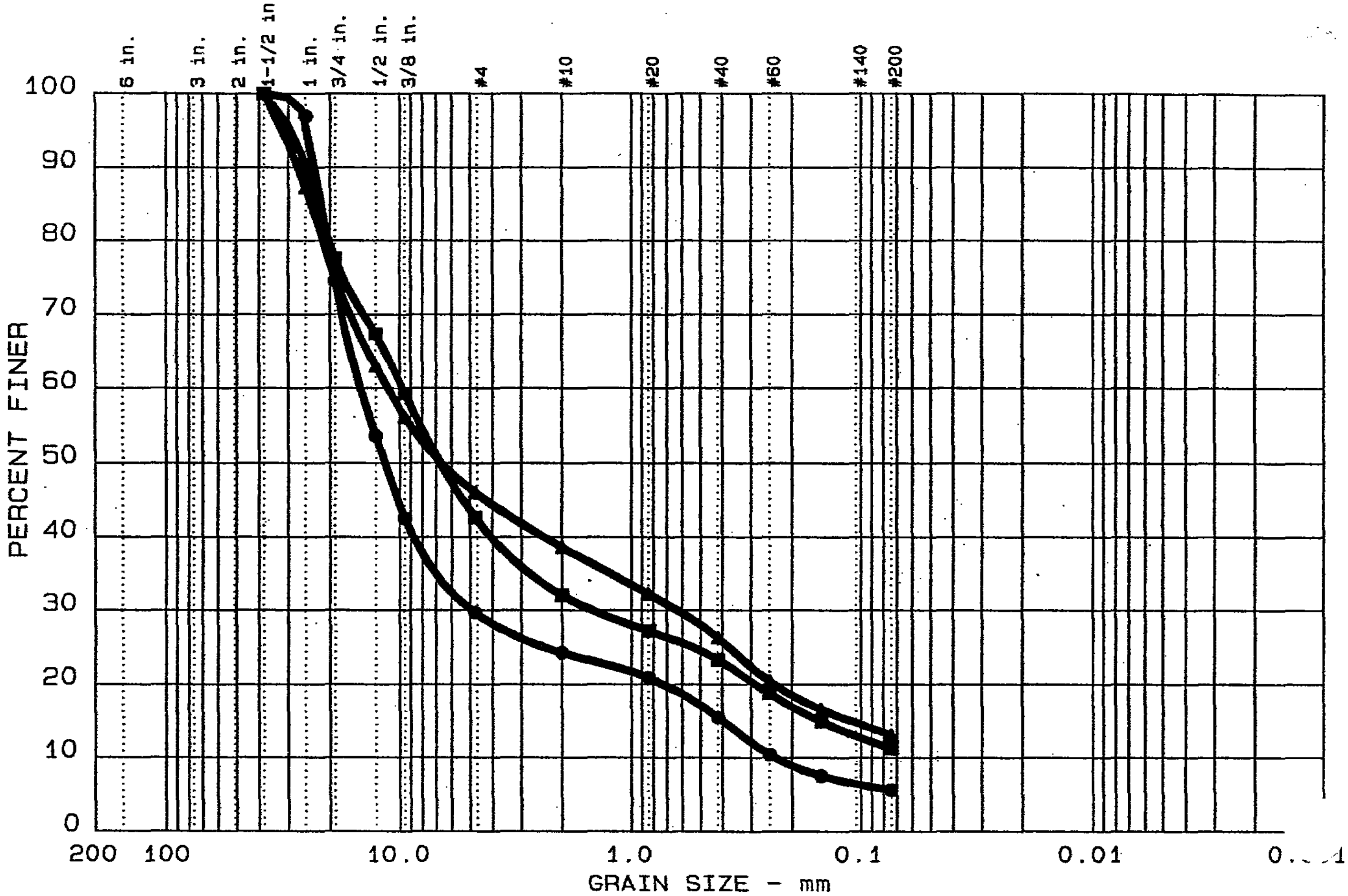
J-3534-07 4/94

Figure 8

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	70.3	24.1	5.6	
▲	0.0	53.9	33.0	13.1	
■	0.0	57.3	31.5	11.2	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			21.88	14.79	11.61	4.898	0.3981	0.2371	6.84	62.4
▲			23.99	11.22	6.68	0.624	0.1109			
■			22.49	9.77	6.74	1.457	0.1508			

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● slightly silty, sandy, GRAVEL	GP-GM	13.7%
▲ Slightly silty, very sandy, GRAVEL	GM	22.9%
■ Slightly silty, very sandy, GRAVEL	GP-GM	23.3%

Remarks:

Project: Weyco/DuPont
● Location: LR-154, Depth 0"-6"
▲ Location: LR-158, Depth 0"-6"
■ Location: LR-223, Depth 0"-6"

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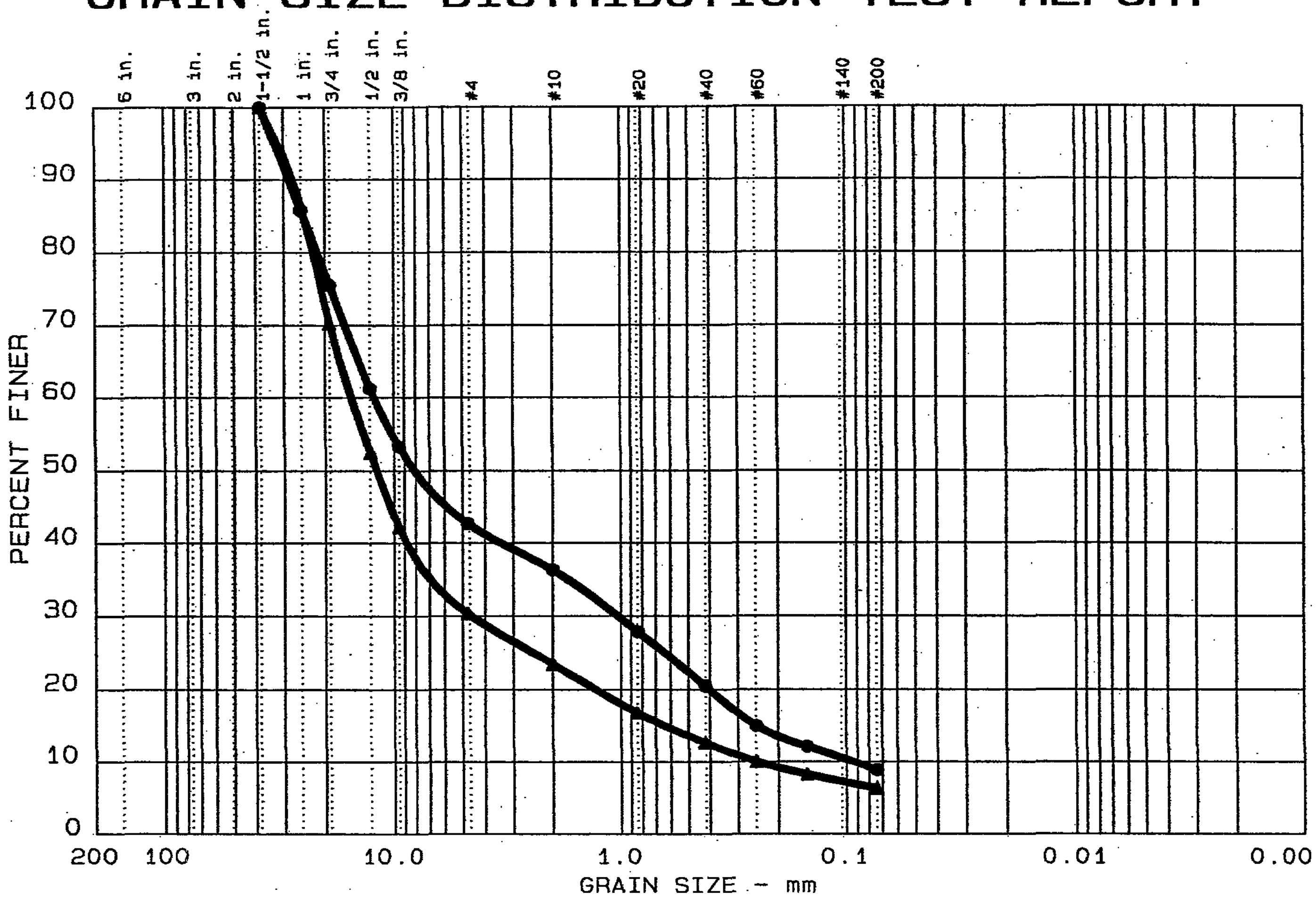
J-3534-07 4/94

Figure 9

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	57.3	33.9	8.8	
▲	0.0	69.7	24.1	6.2	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			24.83	12.16	8.13	1.023	0.2483	0.0933	0.92	130.3
▲			24.72	15.35	11.91	4.581	0.6324	0.2518	5.43	61.0

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, very sandy GRAVEL	GP-GM	26%
▲ Slightly silty, sandy GRAVEL	GP-GM	16%

Remarks:

Project: Weyco DuPont
● Location: LR-245, Depth 0"-6"
▲ Location: LR-715, Depth 0"-6"

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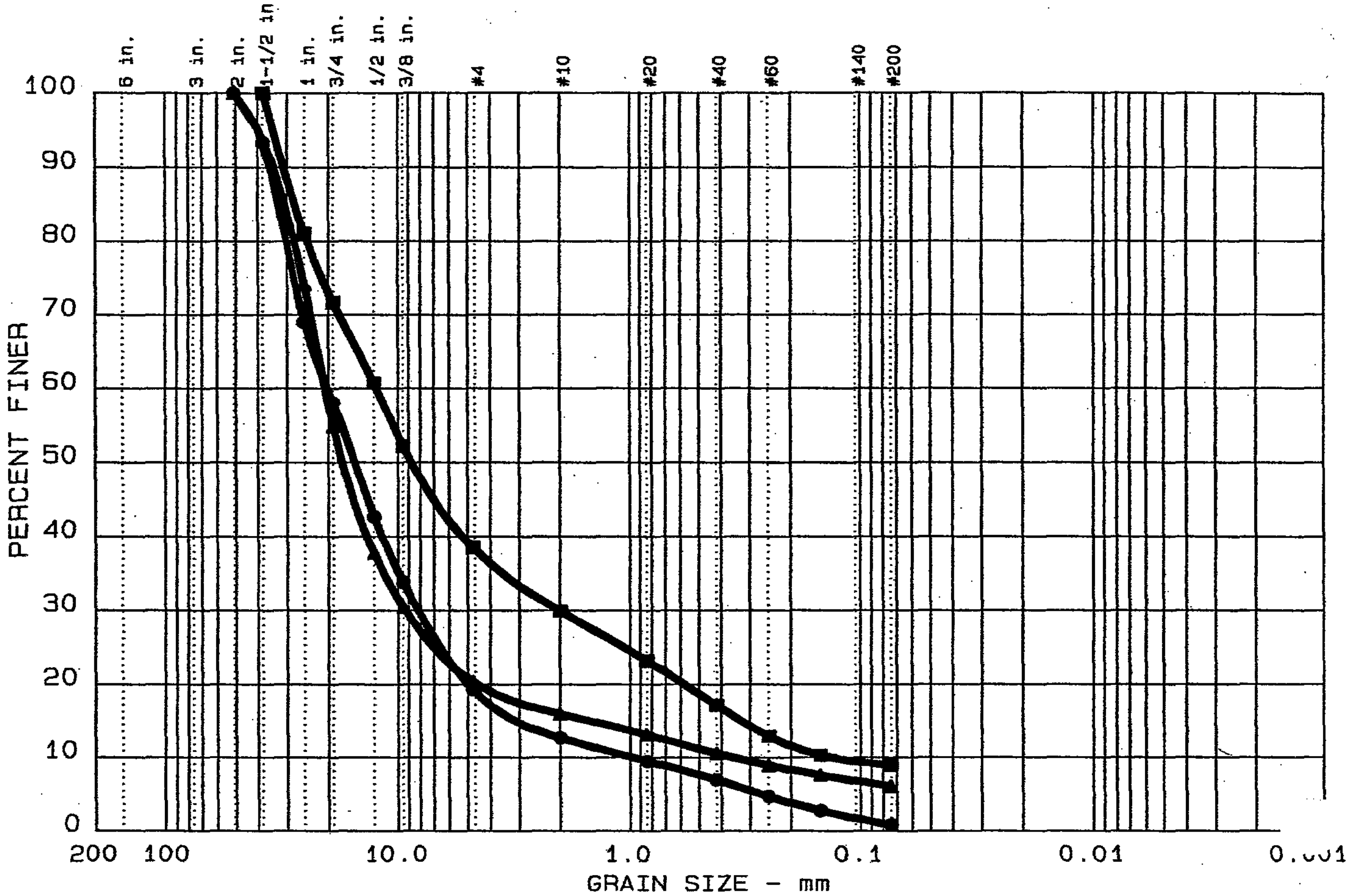
J-3534-07 4/94
Figure 10

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	80.8	18.4	0.8	
▲	0.0	79.7	14.3	6.0	
■	0.0	61.4	29.7	8.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			32.70	20.16	15.38	8.166	3.1405	0.9817	3.37	20.5
▲			30.55	20.65	17.46	9.268	1.4028	0.3565	11.67	57.9
■			27.86	12.39	8.77	2.009	0.3258	0.1327	2.45	93.3

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Sandy, GRAVEL	GP	18.7%
▲ Slightly silty, sandy, GRAVEL	GP-GM	10.5%
■ Slightly silty, sandy, GRAVEL	GW-GM	20.9%

Remarks:

Project: Weyco/DuPont
● Location: 18R-10, Depth 0"-6"
▲ Location: 18R-15, Depth 0"-6"
■ Location: 18R-19 Depth 0"-6"

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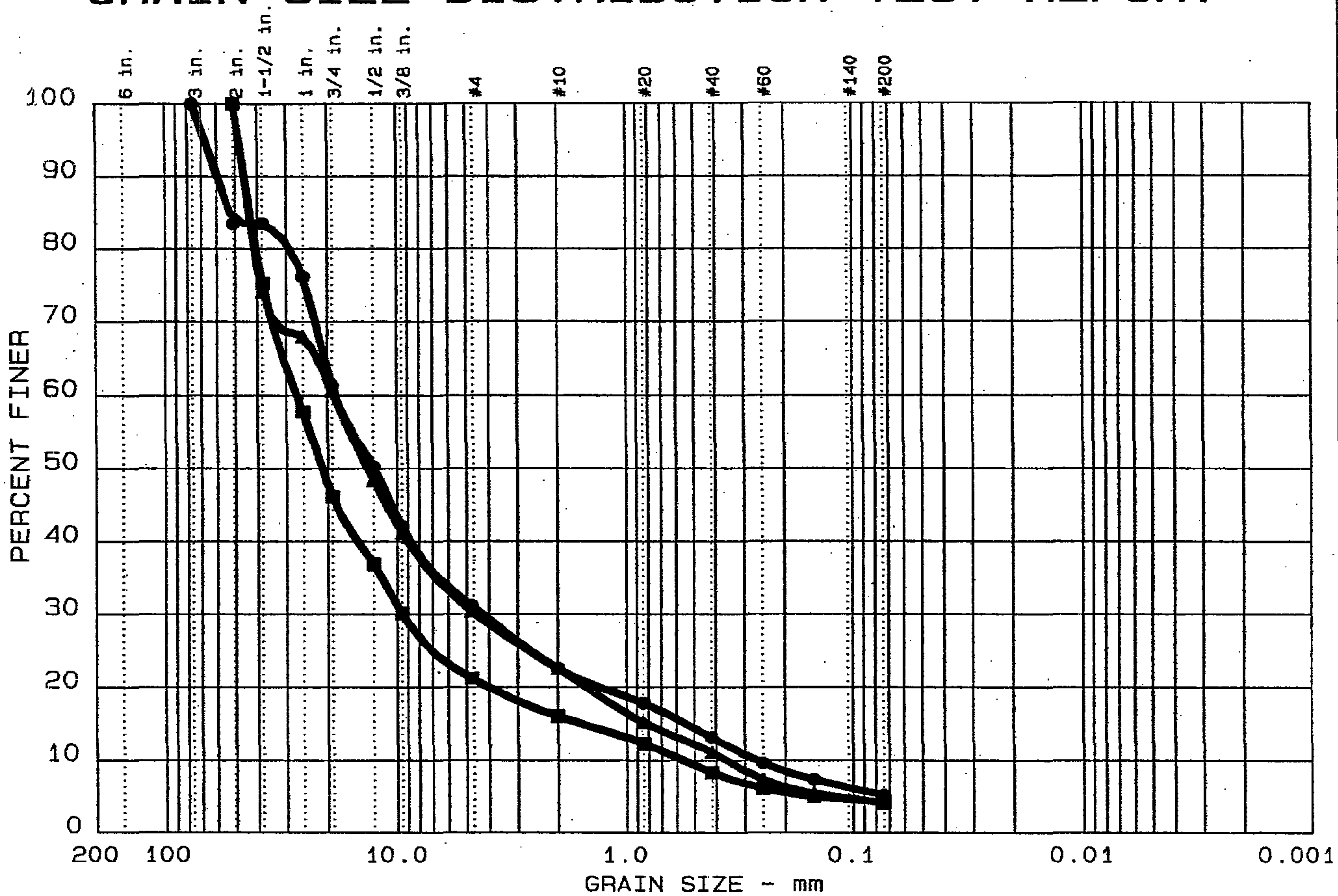
J-3534-07 4/94

Figure 11

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	68.8	26.0	5.2	
▲	0.0	69.6	26.3	4.1	
■	0.0	78.8	16.9	4.3	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			52.48	18.41	12.59	4.217	0.5370	0.2630	3.67	70.0
▲			43.90	18.69	13.38	4.534	0.8063	0.3602	3.05	51.9
■			43.15	26.92	21.09	9.419	1.5631	0.5546	5.94	48.5

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
● Slightly silty, sandy, GRAVEL	GP-GM	6.2%
▲ Sandy, GRAVEL	GP	8.8%
■ Sandy, GRAVEL	GP	8.3%

Remarks:

Project: Weyco/DuPont
● Location: RR-502, Depth 0"-6"
▲ Location: RR-509, Depth 0"-6"
■ Location: RR-515, Depth 0"-6"

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J-3534-07 4/94
Figure 12

Appendix E
Data Quality Assessments

Recent Data Quality Assessment

Laboratory Analytical Data Validation Results

1 Summary

The soil sample analytical data reviewed for the 2001 Interim Corrective Actions at the Former DuPont Works Site in DuPont, Washington are acceptable for use based on a majority of acceptable quality control data. The data meet criteria specified in the 1992 Hart Crowser Management Plan.[1] The data may be used to assess analyte concentrations with the stated qualifications.

2 Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of samples for the 2001 Interim Corrective Actions at the former DuPont Works Site in Dupont, Washington, from May 7, 2001 through September 19, 2001. Samples were submitted to Sound Analytical Services, Inc. (SAS) located in Tacoma, Washington for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Surrogate recoveries
- Matrix spike / blank spike (MS / BS) recoveries
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992. (Management Plan)
- Work Plan, Interim Source Removal Actions: Impacted Foundations and Narrow Gauge Railroad Beds at the Former DuPont Works Site, Dupont, Washington, Pioneer Technologies Corporation, West Shore Corporation, NW, December 6, 2000.
- National Functional Guidelines for Inorganic Data Review, EPA, February 1994.
- National Functional Guidelines for Organic Data Review, EPA, February 1994.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data were compared to criteria referenced in the Management Plan. The samples were analyzed for one or more of the following chemicals by the analytical methods shown:

- Metals (Arsenic, Lead and/or 23 metal target analyte list) — EPA 6000/7000 series
- Explosives (2,4-Dinitrotoluene, 2,6-Dinitrotoluene and 2,4,6-Trinitrotoluene) — EPA 8330
- Diesel-range and motor oil-range total petroleum hydrocarbons (TPH) — NWTPH-Dx

[1] Hart Crowser. January 17, 1992. Management Plan. Remedial Investigation/Feasibility Study, Former DuPont Works Site, DuPont, WA.

3 Sample Case

The sample data groups (SDGs) identified in Table . ·1 were included in this data review.

Table 1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled
97962 *	5/7/01
98654	6/6/01
98684	6/7/01
98762	6/12/01
98830	6/14/01
98881	6/18/01
98938	6/19/01
98976	6/20/01
99001	6/21/01
99002	6/21/01
99100	6/26/01
99114	6/27/01
99246	7/2/01
99277	7/3/01
99382	7/9/01
99452	7/11/01
99474	7/12/01
99583	7/17/01
99620	7/18/01
99660	7/19/01
99700	7/23/01
99729	7/24/01
99847	7/30/01
99881	7/31/01
99905	8/1/01

* This data review includes only a subset of the samples included with this SDG.

Sound Analytical Services Data Group Number	Date Sampled
99931	8/2/01
99996	8/6/01
100020	8/7/01
100052	8/8/01
100088	8/9/01
100144	8/13/01
100171	8/14/01
100198	8/15/01
100234	8/16/01
100280	8/20/01
100308	8/21/01
100330	8/22/01
100375	8/23/01
100443	8/27/01
100481	8/28/01
100529	8/29/01
100558	8/30/01
100606	9/4/01
100759	9/4/01
100645	9/5/01
100780	9/10/01–9/12/01
100804	9/13/01
100855	9/17/01
100856	9/17/01
100921	9/19/01

.4 Laboratory Report and Reporting of Required Analyses

The laboratory reports included method blanks, surrogate recoveries (if appropriate), sample results, sample preparation logs, matrix spike results and matrix duplicate results. Blank spike data were reported for all organic analyses and were reported for metals only when matrix spike recovery data were outside of the control limits. Generally, the reports were adequate to evaluate the data quality given that blank spikes are not consistently reported. All sample analyses were reported as requested.

5 Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. With the exception of the samples collected on September 10, 2001 (SAS # 100780), samples were submitted to the laboratory on the day of sample collection. All sample bottles were received in good condition. All samples were digested or extracted and analyzed within the method-required holding times.

6 Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met.

Field blanks (rinse blanks) were collected to assess potential cross-contamination in the field. Forty-five (45) field blanks were collected and analyzed for arsenic and lead. Arsenic was detected in 2 of the field blanks at concentrations of 0.02 mg/L and 0.01 mg/L. These field blanks are associated with the analytical groups 98830 and 100052, respectively. Lead was detected in 15 field blanks at concentrations ranging from 0.01 mg/L to 0.11 mg/L. These field blanks are associated with the analytical groups 98976, 99001, 99474, 99620, 99660, 99700, 99729, 99996, 100020, 100052, 100171, 100198, 100330, 100606 and 100645. Concentrations of arsenic and lead detected in the soil samples associated with these field blanks typically were reported with significantly higher concentrations of the metals (i.e. greater than 10X the concentration in the field blank). Data qualifiers were not assigned to associated soil analytical data based on method or field blank results.

7 Surrogate Recoveries

Laboratory performance on individual samples analyzed for explosives and TPH was assessed by reviewing the recoveries of system monitoring compounds (surrogates). Surrogate recoveries for samples analyzed for explosives and TPH were acceptable and data qualifiers were not assigned.

8 Matrix Spikes/Blank Spikes

Matrix spike (MS) analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS per analytical batch or one MS per 20 samples was met. In some cases, the MS was performed on samples unrelated to this site. Thirty (30) SDGs contained MS analyses on samples unrelated to this site. These SDGs are listed in the Laboratory Duplicates section of this report. Data qualifiers were not assigned based on results from MS analyses performed on samples unrelated to this site. Blank spike (BS) analyses were used to assess the overall performance of the analytical system when matrix spike recoveries were not acceptable.

Arsenic and Lead by EPA 6010

The MS results were compared to the method control limits of 75 to 125%. The lead recovery (376%) and the arsenic recovery (51%) for the MS performed on sample 01-OS02-SS[LR-68-600E-TRANSECT]-C1-000 (SDG 100529) were outside of the control limits. Per data validation guidelines, when the concentration of the analyte in the parent sample is greater than 4X the spike level, data are not qualified based on the MS recovery. Lead results were not qualified due to the MS recovery in sample 01-OS02-SS[LR-68-600E-TRANSECT]-C1-000 based on the 4X rule. Results for arsenic in the samples in the same analytical batch as 01-OS02-SS[LR-68-600E-TRANSECT]-C1-000 (SDG 100529) were qualified as estimated and flagged "J" or "UJ" based on MS results.

The recovery of lead (44%) in the MS performed on sample 02-N01-SS[NGRR-145-2]C2-025 (SDG 100558) was below the control limits due to sample matrix interference. Results for lead for samples in the same analytical batch as sample 02-N01-SS[NGRR-145-2]C2-025 (SDG100558) were qualified as estimated and flagged "J" based on the MS results. The results for arsenic in SDG 100558 were not qualified.

Based on review of the sample preparation log sheets, blank spikes were prepared at the appropriate frequency although the results were reported only when MS recoveries were outside of control limits. The blank spike recoveries provided were all within the control limits of 80 to 120%. Data provided included sets of blank spike/blank spike duplicates for lead associated with samples from SDGs 100529 and 100558 and arsenic associated with samples from SDG 100529. Blank spike/blank spike duplicate data were also provided for chromium and nickel associated with samples from SDG 99002 and lead associated with samples from SDG 100375, where the MS was performed on a non-project sample. Data qualifiers were not assigned to associated samples based on blank spike/blank spike duplicate results.

Explosives by EPA 8330

The recovery of 2,4,6-trinitrotoluene (2,4,6-TNT) in the MS (1,900 %) and the recoveries of 2,4-dinitrotoluene (2,4-DNT, 465%), 2,6-dinitrotoluene (2,6-DNT, 132%) and 2,4,6-TNT (200,000%) in the MSD performed on sample 03-IN01-SS[10-VS-5]D2-7.0 (SDG 99905) were outside of the laboratory control limits of 69–110% for 2,4,6-TNT, 78-105% for 2,4-DNT, and 68-108% for 2,6-DNT. The relative percent differences (RPDs) for 2,4,6-TNT (200%), 2,4-DNT (130%) and 2,6-DNT (21%) were greater than the RPD control limits of 9%, 13%, and 10% for 2,4,6-TNT, 2,4-DNT and 2,6-DNT, respectively. Recoveries of explosives in the blank spike/blank spike duplicate were acceptable. Results for 2,4,6-TNT, 2,4-DNT and 2,6-TNT for sample 03-IN01-SS[10-VS-5]D2-7.0 were qualified as estimated and assigned "J" or "UJ" flags based on MS/MSD results.

Diesel-Range and Motor Oil-Range TPH by NWTPH-Dx

A MS/MSD was not performed on any of the samples submitted for diesel-range and motor oil-range TPH analysis. Data were assessed based on the BS/BSD results that were acceptable.

9 Laboratory Duplicates

Laboratory duplicate results were used to assess the precision of laboratory measurements. The laboratory duplicate results were compared to the project control limit for relative percent difference (RPD) of 35% when sample results were greater than or equal to five times the reporting limit. A control limit of plus or minus the reporting limit was used for evaluation of duplicate samples where one or both of the results are less than five times the reporting limit. The QC frequency requirement of one duplicate per analytical batch or one duplicate per 20 samples was met. In some cases, the duplicate was performed on samples unrelated to this site. Thirty (30) SDGs include samples or subsets of samples that are associated with duplicate analyses performed on samples unrelated to this site (summarized below). Data qualifiers were not assigned to sample data based on duplicate analyses of non-project samples.

SDGs with MS and Laboratory Duplicate Analysis performed on non-project samples

98654*	99100*	99474	100052	100308	100558
98684	99114*	99905	100088	100330	100606
98938*	99246*	99660*	100171	100375	100645*
99001	99382*	99931	100198	100481*	100780*
99002	99452*	99996	100280*	100529	100804*

* Associated with water samples only

Arsenic and Lead by EPA 6010

A total of sixty-two samples were qualified as estimated based on the results of laboratory duplicate analyses. All qualified results for metals analysis are summarized in Table A-2. Of the samples qualified based on laboratory duplicates, 20 samples were qualified due to an RPD that is greater than 35% and 42 sample results were qualified due to a difference of greater than the reporting limit between a sample and its duplicate. Qualified data were assigned "J" flags if the sample result was reported as detected and "UJ" flags if reported as not detected.

Explosives by EPA 8330

Second column confirmation for detected compounds was performed on samples analyzed for explosives by EPA Method 8330. The RPDs of the results were evaluated by the laboratory and found to be greater than 40% for 2,4,6-TNT in samples 03-IN01-SS[10-VS-8]D2-5.0, 03-IN01-SS[10-VS-9]D2-5.0 and 03-IN01-SS[10-VS-10]D3-5.0, and for 2,4-DNT in sample 03-IN01-SS[10-VS-5]D2-7.0 (SDG 99905). Sample results were qualified as estimated and flagged with a "J" for 2,4,6-TNT in samples 03-IN01-SS[10-VS-8]D2-5.0, 03-IN01-SS[10-VS-9]D2-5.0 and 03-IN01-SS[10-VS-10]D3-5.0 and for 2,4-DNT in sample 03-IN01-SS[10-VS-5]D2-7.0.

10 Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples collected was met for metals and explosives analyses. Forty-nine (49) sets of field duplicate samples for metals analysis were collected and one set of duplicate samples were collected for explosives. A field duplicate was not collected for diesel-range and motor oil-range TPH analysis. Table A-3 presents the RPDs of detected compounds that were calculated for the duplicate pairs of soil samples analyzed for metals and explosives.

11 Reporting Limits

Reporting limits were reviewed to ensure that results reported meet project goals. The reporting limits are acceptable for the project needs. The data are summarized in Tables A-4 through A-12:

Analytical Results for Sampling, May - September 2001

Table A-4	Foundations
Table A-5	NGRR
Table A-6	Industrial
Table A-7	Sequalitchew Creek
Table A-8	Hot Spot
Table A-9	Historical Areas
Table A-10	Core Drilling
Table A-11	Topsoil Laydown Areas
Table A-12	Production Well
Table A-13	Hoffman Reservoir

Arsenic and Lead by EPA 6010

The samples analyzed on August 23, 2001 were reported with elevated PQLs. This affects the samples collected on August 20, 2001 (SDG 100280) and a subset of samples collected August 21, 2001 (SDG 100308). The typical PQLs for lead and arsenic analyses performed on soil samples for this project were approximately 2 mg/kg for both metals. Samples analyzed on August 23, 2001 were reported with PQLs of approximately 20 mg/kg for lead and 40 mg/kg for arsenic. The soil screening levels for lead and arsenic (118 mg/kg and 64 mg/kg, respectively) are greater than the elevated PQLs reported for the August 23 analyses, therefore the elevated PQLs do not affect the use of these data for project objectives.

Explosives by EPA 8330

The result for 2,4-DNT reported by the laboratory for sample 18-TR-18N,S-1 (0.023 mg/kg) was below the reported PQL for 2,4-DNT (0.045 mg/kg). The laboratory assigned a "J" flag to the sample result, as they typically do when reporting below the PQL. The Corps of Engineers requires SAS to report all confirmed detections of explosives even if compounds are detected below the PQL.

Diesel-Range and Motor Oil-Range TPH by NWTPH-Dx

The result for diesel-range TPH reported by the laboratory for sample WEY-GEO-4 (18 mg/kg) was below the reported PQL for diesel-range TPH (30 mg/kg). The laboratory assigned a "J" flag to the sample result, as they typically do when reporting below the PQL.

Table A-2

Summary of Qualified Results for Lead and Arsenic
Interim Source Removal Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date	As (mg/kg)	Flag	Pb (mg/kg)	Flag	Reason
01-F03-ER[F-114]C4-000	20-Jun-01	0.01	U	0.041	J	Dup (1)
01-N01-ER[NGRR-61]C4-000	12-Jul-01	0.01	U	0.053	J	Dup (2)
01-F34-SS[F-170]C2-005	17-Jul-01	3.1		5.5	J	Dup (1)
01-F34-SS[F-171]C2-005	17-Jul-01	3		29	J	Dup (1)
01-N01-SS[NGRR-62]C2-005	17-Jul-01	21		6	J	Dup (1)
01-N01-SS[NGRR-63]C2-005	17-Jul-01	7.6		3.1	J	Dup (1)
01-N01-SS[NGRR-64]C2-005	17-Jul-01	2.8		1.8	UJ	Dup (1)
01-N01-SS[NGRR-65]C2-005	17-Jul-01	3.8		2.1	UJ	Dup (1)
01-N01-SS[NGRR-66]C2-005	17-Jul-01	12		5.3	J	Dup (1)
01-N01-SS[NGRR-67]C2-005	17-Jul-01	3.9		7.3	J	Dup (1)
01-N01-SS[NGRR-69]C2-005	17-Jul-01	210		18	J	Dup (1)
01-N01-SS[NGRR-70]C2-005	17-Jul-01	6.5		2.8	J	Dup (1)
01-N01-SS[NGRR-71]C2-005	17-Jul-01	9.9		2	UJ	Dup (1)
01-N01-SS[NGRR-72]C2-005	17-Jul-01	11		2.6	J	Dup (1)
01-N01-SS[NGRR-73]C2-005	17-Jul-01	3.7		1.8	UJ	Dup (1)
01-N01-ER[NGRR-86]C4-000	18-Jul-01	0.01	U	0.032	J	Dup (1)
01-N01-ER[NGRR-119]C4-000	23-Jul-01	0.01	U	0.011	J	Dup (1)
01-N01-ER[NGRR-137]C4-000	24-Jul-01	0.01	U	0.011	J	Dup (1)
01-N01-ER[NGRR-257]C4-000	13-Aug-01	0.01	U	0.01	UJ	Dup (1)
01-F35-ER[F-258]C4-000	14-Aug-01	0.01	U	0.017	J	Dup (1)
01-N01-ER[NGRR-296]C4-000	15-Aug-01	0.01	U	0.011	J	Dup (1)
01-N01-ER[NGRR-311]C4-000	16-Aug-01	0.01	U	0.01	UJ	Dup (1)
01-N01-SS[NGRR-342]C2-005	20-Aug-01	42	U	46	J	Dup (1)
01-N01-SS[NGRR-343]C3-005	20-Aug-01	42	U	21	UJ	Dup (1)
01-N01-SS[NGRR-344]C2-005	20-Aug-01	43	U	21	UJ	Dup (1)
01-N01-SS[NGRR-345]C2-005	20-Aug-01	39	U	20	UJ	Dup (1)
01-N01-SS[NGRR-346]C2-005	20-Aug-01	41	U	21	UJ	Dup (1)
01-N01-SS[NGRR-347]C2-005	20-Aug-01	38	U	19	UJ	Dup (1)
01-N01-SS[NGRR-348]C2-005	20-Aug-01	41	U	20	UJ	Dup (1)
01-N01-SS[NGRR-349]C2-005	20-Aug-01	38	U	19	UJ	Dup (1)
01-N01-SS[NGRR-350]C2-005	20-Aug-01	40	U	20	UJ	Dup (1)
01-N01-SS[NGRR-351]C2-005	20-Aug-01	42	U	21	UJ	Dup (1)
01-N01-SS[NGRR-352]C2-005	21-Aug-01	40	U	20	UJ	Dup (1)
01-N01-SS[NGRR-353]C3-005	21-Aug-01	43	U	21	UJ	Dup (1)
01-N01-SS[NGRR-354]C2-005	21-Aug-01	43	U	21	UJ	Dup (1)
01-N01-SS[NGRR-355]C2-005	21-Aug-01	45	U	22	UJ	Dup (1)
01-N01-SS[NGRR-356]C2-005	21-Aug-01	42	U	21	UJ	Dup (1)
01-N01-SS[NGRR-357]C2-005	21-Aug-01	40	U	20	UJ	Dup (1)
01-N01-SS[NGRR-358]C2-005	21-Aug-01	37	U	18	UJ	Dup (1)
01-N01-SS[NGRR-359]C2-005	21-Aug-01	43	U	22	UJ	Dup (1)
01-N01-SS[NGRR-360]C2-005	21-Aug-01	44	U	22	UJ	Dup (1)
01-N01-SS[NGRR-361]C2-005	21-Aug-01	40	U	20	UJ	Dup (1)
01-OS02-SS[LR-68-600E-TRANSECT]-C1-000	29-Aug-01	20	J	1700		MS
01-OS02-SS[LR-68-300W-TRANSECT]-C1-000	29-Aug-01	20	J	23		MS
01-OS02-SS-[LR-68-1500W-TRANSECT]-C1-000	29-Aug-01	10	J	22		MS
01-OS02-SS-[LR-68-3600W-TRANSECT]-C1-000	29-Aug-01	27	J	38		MS
02-N01-SS[NGRR-27-2]C2-025	29-Aug-01	31	J	14		MS
02-N01-SS[NGRR-29-2]C2-025	29-Aug-01	17	J	16		MS
02-N01-SS[NGRR-30-2]C2-025	29-Aug-01	6	J	4.8		MS
02-F23-SS[F-161-2]C2-030	29-Aug-01	6.7	J	180		MS
02-F23-SS[F-162-2]C2-030	29-Aug-01	12	J	31		MS

Table A-2

Summary of Qualified Results for Lead and Arsenic
Interim Source Removal Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date	As (mg/kg)	Flag	Pb (mg/kg)	Flag	Reason
02-F11-SS[F-244-2]C2-030	29-Aug-01	16	J	720		MS
02-F11-SS[F-245-2]C2-030	29-Aug-01	11	J	2100		MS
02-F11-SS[F-246-2]C2-030	29-Aug-01	6.4	J	38		MS
02-F11-SS[F-248-2]C2-030	29-Aug-01	4.8	J	96		MS
02-F11-SS[F-249-2]C2-030	29-Aug-01	9.2	J	4900		MS
02-F11-SS[F-250-2]C3-030	29-Aug-01	10	J	710		MS
02-F11-SS[F-251-2]C2-030	29-Aug-01	8.5	J	150		MS
02-F11-SS[F-252-2]C2-030	29-Aug-01	5.4	J	140		MS
02-F11-SS[F-253-2]C2-030	29-Aug-01	24	J	65		MS
02-F11-SS[F-254-2]C2-030	29-Aug-01	20	J	280		MS
02-F11-SS[F-255-2]C2-030	29-Aug-01	11	J	47		MS
02-N01-SS[NGRR-07-2]C2-025	30-Aug-01	4.6		22	J	Dup (2), MS
02-N01-SS[NGRR-08-2]C3-025	30-Aug-01	4.5		21	J	Dup (2), MS
02-N01-SS[NGRR-125-2]C2-025	30-Aug-01	4.9		15	J	Dup (2), MS
02-N01-SS[NGRR-126-2]C3-025	30-Aug-01	5.7		14	J	Dup (2), MS
02-N01-SS[NGRR-132-2]C2-025	30-Aug-01	3.9		9.9	J	Dup (2), MS
02-N01-SS[NGRR-145-2]C2-025	30-Aug-01	7.2		250	J	Dup (2), MS
02-N01-SS[NGRR-179-2]C2-025	30-Aug-01	52		140	J	Dup (2), MS
02-N01-SS[NGRR-279-2]C2-025	30-Aug-01	14		34	J	Dup (2), MS
02-N01-SS[NGRR-280-2]C3-025	30-Aug-01	11		19	J	Dup (2), MS
02-N01-SS[NGRR-281-2]C2-025	30-Aug-01	35		40	J	Dup (2), MS
02-N01-SS[NGRR-282-2]C2-025	30-Aug-01	7.3		29	J	Dup (2), MS
02-N01-SS[NGRR-301-2]C2-025	30-Aug-01	6		14	J	Dup (2), MS
02-N01-SS[NGRR-302-2]C2-025	30-Aug-01	5.3		8.6	J	Dup (2), MS
02-F30-SS[F-227-2]C2-030	30-Aug-01	5.6		35	J	Dup (2), MS
02-F31-SS[F-233-2]C2-030	30-Aug-01	5.7		54	J	Dup (2), MS
02-F08-SS[F-08-2]C2-030	30-Aug-01	2.6		90	J	Dup (2), MS
02-F15-SS[F-128-2]C2-030	30-Aug-01	6		200	J	Dup (2), MS
02-F15-SS[F-133-2]C2-030	30-Aug-01	4.1		55	J	Dup (2), MS
02-F38-SS[F-259-2]C2-030	30-Aug-01	5.2		57	J	Dup (2), MS
01-F18-ER[F-329]C4-000	19-Sep-01	0.01	U	0.01	UJ	Dup (1)

* Equipment (field) blank sample. Result is given as mg/L.

U The analyte was analyzed for, but was not detected above the reporting limit shown.

J Estimated Value, qualifier assigned during data review

UJ Analyte was analyzed for, but was not detected above the reporting limit shown. The reporting limit is estimated.

Dup (1) Both the sample and duplicate results were less than 5X the PQL. Data were evaluated by comparing the difference between values and qualifying data that were outside of +/- the reporting limit.

Dup (2) Both the sample and duplicate results were greater than or equal to 5X the PQL. Data were evaluated based on their relative percent difference (RPD).

MS - Data was qualified based on the matrix or matrix spike duplicate.

Table A-3

Summary of Duplicate Samples

Interim Source Removal Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Metals Analysis					
Sample ID	Date	As Result (mg/kg)	RPD (As) %	Pb Result (mg/kg)	RPD (Pb) %
01-F08-SS[F-01] C2-005 01-F08-SS[F-02] C3-005	6-Jun-01	4.1 3.7	10.3	3.5 3.5	0.0
01-F08-SS[F-17] C2-005 01-F08-SS[F-18] C3-005	6-Jun-01	2.9 3.3	12.9	2.8 2.4	15.4
01-N01-SS[NGRR-07]C2-005 01-N01-SS[NGRR-08]C3-005	7-Jun-01	130 140	7.4	16 22	31.6
01-F01-SS[F-48]C2-005 01-F01-SS[F-49]C3-005	14-Jun-01	4.4 5.1	14.7	14 22	44.4
01-F01-SS[F-83]C2-005 01-F01-SS[F-84]C3-005	18-Jun-01	4.3 5.1	17.0	120 120	0.0
01-F03-SS[F-102]C2-005 01-F03-SS[F-103]C3-005	20-Jun-01	8.3 5.4	42.3	30 53	55.4
01-F04-SS[F-116]C2-005 01-F04-SS[F-117]C3-005	20-Jun-01	8.7 7	21.7	16 16	0.0
01-N01-SS[NGRR-14]C2-005 01-N01-SS[NGRR-15]C3-005	26-Jun-01	4.6 4.4	4.4	6.9 7	1.4
01-N01-SS[NGRR-19]C2-005 01-N01-SS[NGRR-20]C3-005	2-Jul-01	3.8 6.4	51.0	3.2 2.9	9.8
01-H404-SS[11]D1-005 01-H404-SS[12]D2-005	3-Jul-01	6.1 6.2	1.6	33 29	12.9
01-N01-SS[NGRR-36]C2-005 01-N01-SS[NGRR-37]C3-005	11-Jul-01	6 6	0.0	25 24	4.1
01-N01-SS[NGRR-54]C2-005 01-N01-SS[NGRR-55]C3-005	12-Jul-01	6.2 5.5	12.0	7.3 6	19.5
01-N01-SS[NGRR-74]C2-005 01-N01-SS[NGRR-75]C3-005	18-Jul-01	7.5 5.3	34.4	4.1 3.1	27.8
01-N01-SS[NGRR-95]C2-005 01-N01-SS[NGRR-96]C3-005	19-Jul-01	3.7 2.4	42.6	5 5.3	5.8
01-N01-SS[NGRR-103]C2-005 01-N01-SS[NGRR-104]C3-005	23-Jul-01	6.1 6.7	9.4	9.8 7.5	26.6
01-N01-SS[NGRR-125]C2-005 01-N01-SS[NGRR-126]C3-005	24-Jul-01	97 86	12.0	23 22	4.4
01-F37-SS[F-189]C2-005 01-F37-SS[F-190]C3-005	30-Jul-01	4.9 4.1	17.8	3.5 2.4	37.3
01-N01-SS[NGRR-153]C2-005 01-N01-SS[NGRR-154]C3-005	31-Jul-01	3.5 3.5	0.0	2.3 2.2	4.4
01-N01-SS[NGRR-164]C2-005 01-N01-SS[NGRR-165]C3-005	2-Aug-01	11 10	9.5	63 46	31.2
01-N01-SS[NGRR-187]C2-005 01-N01-SS[NGRR-188]C3-005	6-Aug-01	35 40	13.3	11 12	8.7
01-N01-SS[NGRR-193]C2-005 01-N01-SS[NGRR-194]C3-005	7-Aug-01	11 11	0.0	57 61	6.8
01-N01-SS[NGRR-223]C2-005 01-N01-SS[NGRR-224]C3-005	8-Aug-01	6.6 6	9.5	5.6 6	6.9
01-N01-SS[NGRR-235]C2-005 01-N01-SS[NGRR-236]C3-005	9-Aug-01	6.5 6.5	0.0	7.4 6.6	11.4
01-N01-SS[NGRR-245]C2-005 01-N01-SS[NGRR-246]C3-005	13-Aug-01	8.6 9.3	7.8	10 9	10.5
01-N01-SS[NGRR-261]C2-005 01-N01-SS[NGRR-262]C3-005	13-Aug-01	6.7 7.4	9.9	5.6 6.3	11.8
01-N01-SS[NGRR-279]C2-005 01-N01-SS[NGRR-280]C3-005	14-Aug-01	140 170	19.4	79 97	20.5
01-F11-SS[F-249]C2-005 01-F11-SS[F-250]C3-005	14-Aug-01	20 21	4.9	2500 2500	0.0
01-N01-SS[NGRR-283]C2-005 01-N01-SS[NGRR-284]C3-005	15-Aug-01	12 11	8.7	20 18	10.5
01-N01-SS[NGRR-301]C2-005	16-Aug-01	81 99	20.0	37 46	21.7

Table A-3

Summary of Duplicate Samples
Interim Source Removal Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Metals Analysis					
Sample ID	**Date**	**As Result (mg/kg)**	**RPD (As) %**	**Pb Result (mg/kg)**	**RPD (Pb) %**
01-N01-SS[NGRR-321]C2-005 01-N01-SS[NGRR-322]C3-005	20-Aug-01	42 U 41 U	NC	21 U 21 U	NC
01-N01-SS[NGRR-342]C2-005 01-N01-SS[NGRR-343]C3-005	20-Aug-01	42 U 42 U	NC	46 J 21 U	NC
01-N01-SS[NGRR-352]C2-005 01-N01-SS[NGRR-353]C3-005	21-Aug-01	40 U 43 U	NC	20 UJ 21 UJ	NC
01-F09-SS[F-260]C2-005 01-F09-SS[F-261]C3-005	22-Aug-01	4.4 4.7	6.6	5.2 3.5	39.1
01-N01-SS[NGRR-383]C2-005 01-N01-SS[NGRR-384]C3-005	23-Aug-01	5.2 4.9	5.9	5.5 5.2	5.6
01-N01-SS[NGRR-411]C2-005 01-N01-SS[NGRR-412]C3-005	27-Aug-01	9.7 8.9	8.6	8.8 7.4	17.3
01-F33-SS[F-273]C2-005 01-F33-SS[F-274]C3-005	28-Aug-01	15 14	6.9	98 62	45.0
02-F02-SS[F-83-2]C2-030 02-F02-SS[F-84-2]C3-030	28-Aug-01	4.8 3.6	28.6	89 76	15.8
02-F11-SS[F-249-2]C2-030 02-F11-SS[F-250-2]C3-030	29-Aug-01	9.2 J 10 J	8.3	4900 710	149.4
02-N01-SS[NGRR-07-2]C2-025 02-N01-SS[NGRR-08-2]C3-025	30-Aug-01	4.6 4.5	2.2	22 J 21 J	4.7
02-N01-SS[NGRR-279-2]C2-025 02-N01-SS[NGRR-280-2]C3-025	30-Aug-01	14 11	24.0	34 J 19 J	56.6
02-N01-SS[NGRR-125-2]C2-025 02-N01-SS[NGRR-126-2]C3-025	30-Aug-01	4.9 5.7	15.1	15 J 14 J	6.9
02-N01-SS[NGRR-301-2]C2-025 02-N01-SS[NGRR-302-2]C3-025	30-Aug-01	6 5.3	12.4	14 J 8.6 J	47.8
01-F20-SS[F-284]-C2-005 01-F20-SS[F-285]-C3-005	4-Sep-01	4.9 6.5	28.1	5.8 5.8	0.0
01-F20-SS-[F-294]-C2-005 01-F20-SS-[F-295]-C3-005	5-Sep-01	6.8 7.5	9.8	25 32	24.6
03-F02-SS-[F-76-3]-C2-050 03-F02-FD-[F-84-3]-C3-050	13-Sep-01	4.7 7.6	47.2	19 30	44.9
03-F02-SS-[F-77-3]-C2-050 03-F02-FD-[F-49-3]-C3-050	13-Sep-01	10 75	152.9	20 12	50.0
04-F02-SS-[F-89-4]-C2-060 01-F02-FD-[F-326]-C3-000	19-Sep-01	7.6 6.5	15.6	86 87	1.2
04-F02-SS-[F-90-4]-C2-060 01-F02-FD-[F-327]-C3-000	19-Sep-01	6.7 7.1	5.8	270 440	47.9
02-F18-SS-[F-319-2]-C2-030 01-F18-FD-[F-328]-C3-030	19-Sep-01	4.2 3.8	10.0	2.9 3.6	21.5

Explosives Analysis			
Sample ID	**Date**	**2,4,6-Trinitrotoluene Result (mg/kg)**	**RPD (Pb) %**
03-IN01-SS[10-VS-9]D2-5.0 03-IN01-SS[10-VS-10]D3-5.0	1-Aug-01	0.12 J 0.14 J	15.4

NC = Not Calculable

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F08-SS[F-01] C2-005	6-Jun-01	4.1		3.5		01-F08-SS[F-02] C3-005
01-F08-SS[F-02] C3-005	6-Jun-01	3.7		3.5		
01-F08-SS[F-03] C2-005	6-Jun-01	3.3		3.9		
01-F08-SS[F-04] C2-005	6-Jun-01	2.5		2.2		
01-F08-SS[F-05] C2-005	6-Jun-01	3.1		2.7		
01-F08-SS[F-06] C2-005	6-Jun-01	2.6		3.9		
01-F08-SS[F-07] C2-005	6-Jun-01	5		75		
01-F08-SS[F-08] C2-005	6-Jun-01	2	U	190		
01-F08-SS[F-09] C2-005	6-Jun-01	3.5		3.3		
01-F08-SS[F-10] C2-005	6-Jun-01	3.9		4.4		
01-F08-SS[F-11] C2-005	6-Jun-01	3.8		2.4		
01-F08-SS[F-12] C2-005	6-Jun-01	2.6		4.5		
01-F08-SS[F-13] C2-005	6-Jun-01	4.6		14		
01-F08-SS[F-14] C2-005	6-Jun-01	3.6		13		
01-F08-SS[F-15] C2-005	6-Jun-01	3.2		7		
01-F08-SS[F-16] C2-005	6-Jun-01	3.1		3.5		
01-F08-SS[F-17] C2-005	6-Jun-01	2.9		2.8		01-F08-SS[F-18] C3-005
01-F08-SS[F-18] C3-005	6-Jun-01	3.3		2.4		
01-F08-ER[F-19] C4-000	6-Jun-01	0.01	U	0.01	U	
01-F07-SS[F-20]C2-005	7-Jun-01	2.8		2.3		
01-F07-SS[F-21]C2-005	7-Jun-01	2.7		2.5		
01-F07-SS[F-22]C2-005	7-Jun-01	2.5		2.3		
01-F07-SS[F-23]C2-005	7-Jun-01	2	U	2.1		
01-F07-SS[F-24]C2-005	7-Jun-01	3.4		2.3		
01-F06-SS[F-25]C2-005	7-Jun-01	2.5		2.3		
01-F06-SS[F-26]C2-005	7-Jun-01	3.8		8.2		
01-F06-SS[F-27]C2-005	7-Jun-01	4.1		3		
01-F06-SS[F-28]C2-005	7-Jun-01	2.4		24		
01-F01-SS[F-29]C2-005	12-Jun-01	5.6		8.5		
01-F01-SS[F-30]C2-005	12-Jun-01	4.1		28		
01-F01-SS[F-31]C2-005	12-Jun-01	12		37		
01-F01-SS[F-32]C2-005	12-Jun-01	13		70		
01-F01-SS[F-33]C2-005	12-Jun-01	3.5		3.6		
01-F01-SS[F-34]C2-005	12-Jun-01	4.2		15		
01-F01-SS[F-35]C2-005	12-Jun-01	7		18		
01-F01-SS[F-36]C2-005	12-Jun-01	5.4		41		
01-F01-SS[F-37]C2-005	12-Jun-01	13		43		
01-F01-SS[F-38]C2-005	12-Jun-01	13		93		
01-F01-SS[F-39]C2-005	12-Jun-01	12		19		
01-F01-SS[F-40]C2-005	12-Jun-01	5.5		40		
01-F01-ER[F41]C4-000	12-Jun-01	0.01	U	0.01	U	
01-F01-SS[F-42]C2-005	12-Jun-01	9.8		150		
01-F01-SS[F-43]C2-005	12-Jun-01	7.7		53		
01-F01-SS[F-44]C2-005	12-Jun-01	7.9		41		
01-F01-SS[F-45]C2-005	12-Jun-01	9.1		67		
01-F01-SS[F-46]C2-005	14-Jun-01	7.8		37		
01-F01-SS[F-47]C2-005	14-Jun-01	3.2		120		
01-F01-SS[F-48]C2-005	14-Jun-01	4.4		14		01-F01-SS[F-49]C3-005
01-F01-SS[F-49]C3-005	14-Jun-01	5.1		22		
01-F01-SS[F-50]C2-005	14-Jun-01	3		2.4		
01-F01-SS[F-51]C2-005	14-Jun-01	6.3		9.3		
01-F01-SS[F-52]C2-005	14-Jun-01	9.8		23		
01-F01-SS[F-53]C2-005	14-Jun-01	7.4		26		
01-F01-SS[F-54]C2-005	14-Jun-01	3.6		4.9		
01-F01-SS[F-55]C2-005	14-Jun-01	4.2		4.7		
01-F01-SS[F-56]C2-005	14-Jun-01	6.5		29		
01-F01-SS[F-57]C2-005	14-Jun-01	6.8		6.2		
01-F01-SS[F-58]C2-005	14-Jun-01	2.6		2.7		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F01-SS[F-59]C2-005	14-Jun-01	5.3		2.4	U	
01-F01-SS[F-60]C2-005	14-Jun-01	4.4		2.2	U	

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F01-SS[F-61]C2-005	14-Jun-01	3.9		2.3	U	
01-F01-SS[F-62]C2-005	14-Jun-01	3.8		2.4		
01-F01-SS[F-63]C2-005	14-Jun-01	4.7		88		
01-F01-SS[F-64]C2-005	14-Jun-01	11		430		
01-F01-ER[F-65]C4-000	14-Jun-01	0.02		0.01	U	
01-F01-SS[F-66]C2-005	18-Jun-01	6.3		59		
01-F01-SS[F-67]C2-005	18-Jun-01	5.4		340		
01-F01-SS[F-68]C2-005	18-Jun-01	4.1		10		
01-F01-SS[F-69]C2-005	18-Jun-01	4.5		4.8		
01-F01-SS[F-70]C2-005	18-Jun-01	2.9		49		
01-F01-ER[F-71]C4-000	18-Jun-01	0.01	U	0.01	U	
01-F02-SS[F-72]C2-005	18-Jun-01	4.7		170		
01-F02-SS[F-73]C2-005	18-Jun-01	3.7		10		
01-F02-SS[F-74]C2-005	18-Jun-01	7.6		10		
01-F02-SS[F-75]C2-005	18-Jun-01	3.7		5.9		
01-F02-SS[F-76]C2-005	18-Jun-01	5.5		140		
01-F02-SS[F-77]C2-005	18-Jun-01	5.9		130		
01-F02-SS[F-78]C2-005	18-Jun-01	9		320		
01-F02-SS[F-79]C2-005	18-Jun-01	7.5		780		
01-F02-SS[F-80]C2-005	18-Jun-01	4.2		410		
01-F02-SS[F-81]C2-005	18-Jun-01	7.4		210		
01-F02-SS[F-82]C2-005	18-Jun-01	3.5		3		
01-F02-SS[F-83]C2-005	18-Jun-01	4.3		120		01-F01-SS[F-84]C3-005
01-F02-SS[F-84]C3-005	18-Jun-01	5.1		120		
01-F02-SS[F-85]C2-005	19-Jun-01	8.3		270		
01-F02-SS[F-86]C2-005	19-Jun-01	8.5		100		
01-F02-SS[F-87]C2-005	19-Jun-01	5		6.8		
01-F02-SS[F-88]C2-005	19-Jun-01	9.3		500		
01-F02-SS[F-89]C2-005	19-Jun-01	4.7		250		
01-F02-SS[F-90]C2-005	19-Jun-01	3.2		670		
01-F02-SS[F-91]C2-005	19-Jun-01	8.6		350		
01-F02-SS[F-92]C2-005	19-Jun-01	5.1		400		
01-F02-ER[F93]C4-000	19-Jun-01	0.01	U	0.01	U	
01-F03-SS[F-94]C2-005	19-Jun-01	3.9		7.7		
01-F03-SS[F-95]C2-005	19-Jun-01	10		89		
01-F03-SS[F-96]C2-005	19-Jun-01	2.8		5		
01-F03-SS[F-97]C2-005	19-Jun-01	5.5		83		
01-F03-SS[F-98]C2-005	19-Jun-01	5.2		3.5		
01-F03-SS[F-99]C2-005	19-Jun-01	4.9		3.2		
01-F03-SS[F-100]C2-005	19-Jun-01	7.8		23		
01-F03-SS[F-101]C2-005	19-Jun-01	5.3		150		
01-F03-SS[F-102]C2-005	20-Jun-01	8.3		30		01-F03-SS[F-103]C3-005
01-F03-SS[F-103]C3-005	20-Jun-01	5.4		53		
01-F03-SS[F-104]C2-005	20-Jun-01	5.8		30		
01-F03-SS[F-105]C2-005	20-Jun-01	8.5		95		
01-F03-SS[F-106]C2-005	20-Jun-01	2.9		38		
01-F03-SS[F-107]C2-005	20-Jun-01	14		9.9		
01-F03-SS[F-108]C2-005	20-Jun-01	9.7		18		
01-F03-SS[F-109]C2-005	20-Jun-01	7.3		22		
01-F03-SS[F-110]C2-005	20-Jun-01	7.1		75		
01-F03-SS[F-111]C2-005	20-Jun-01	11		4.8		
01-F03-SS[F-112]C2-005	20-Jun-01	8.2		82		
01-F03-SS[F-113]C2-005	20-Jun-01	12		26		
01-F03-ER[F-114]C4-000	20-Jun-01	0.01	U	0.041	J	
01-F04-SS[F-115]C2-005	20-Jun-01	7.1		5.2		
01-F04-SS[F-116]C2-005	20-Jun-01	8.7		16		01-F04-SS[F-117]C3-005
01-F04-SS[F-117]C3-005	20-Jun-01	7		16		
01-F04-SS[F-118]C2-005	20-Jun-01	100		10		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F04-SS[F-119]C2-005	20-Jun-01	150		270		
01-F04-SS[F-120]C2-005	20-Jun-01	11		2.6		

Table A-4
Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F04-SS[F-121]C2-005	21-Jun-01	130		8.1		
01-F04-SS[F-122]C2-005	21-Jun-01	7.8		3.1		
01-F04-SS[F-123]C2-005	21-Jun-01	39		22		
01-F04-SS[F-124]C2-005	21-Jun-01	21		150		
01-F04-SS[F-125]C2-005	21-Jun-01	6.4		43		
01-F04-ER[F-126]C4-000	21-Jun-01	0.01	U	0.023		
01-F12-SS[F-127]C2-005	21-Jun-01	4.4		3.9		
01-F15-SS[F-128]C2-005	26-Jun-01	2.8		1100		
01-F15-SS[F-129]C2-005	26-Jun-01	2.5		8.4		
01-F15-SS[F-130]C2-005	26-Jun-01	3.2		4.2		
01-F15-SS[F-131]C2-005	26-Jun-01	1.9	U	23		
01-F15-SS[F-132]C2-005	26-Jun-01	2.3		2.5		
01-F15-SS[F-133]C2-005	26-Jun-01	2.7		160		
01-F15-SS[F-134]C2-005	26-Jun-01	2.5		27		
01-F15-SS[F-135]C2-005	26-Jun-01	1.9	U	4.7		
01-F19-SS[F-136]C2-005	26-Jun-01	3.3		6.1		
01-F19-SS[F-137]C2-005	26-Jun-01	2		39		
01-F20-SS[F-138]C2-005	27-Jun-01	5.2		9.3		
01-F20-SS[F-139]C2-005	27-Jun-01	3.6		2.2	U	
01-F20-SS[F-140]C2-005	27-Jun-01	3.5		3.7		
01-F20-SS[F-141]C2-005	27-Jun-01	4.7		4.9		
01-F20-SS[F-142]C2-005	27-Jun-01	3.9		4.2		
01-F20-SS[F-143]C2-005	27-Jun-01	6.6		10		
01-F20-ER[F-144]C4-000	27-Jun-01	0.01	U	0.01	U	
01-F22-SS[F-145]C2-005	2-Jul-01	4.8		2.7		
01-F22-SS[F-146]C2-005	2-Jul-01	4.5		2.5		
01-F22-SS[F-147]C2-005	2-Jul-01	3.7		3.2		
01-F22-SS[F-148]C2-005	2-Jul-01	4.8		3.6		
01-F22-SS[F-149]C2-005	2-Jul-01	3.9		6.2		
01-F22-SS[F-150]C2-005	2-Jul-01	3.7		2		
01-F22-SS[F-151]C2-005	2-Jul-01	3.2		1.8	U	
01-F22-SS[F-152]C2-005	2-Jul-01	13		6.8		
01-F22-SS[F-153]C2-005	2-Jul-01	3.4		3		
01-F22-SS[F-154]C2-005	2-Jul-01	2.7		2.8		
01-F22-SS[F-155]C2-005	2-Jul-01	5.9		5		
01-F22-SS[F-156]C2-005	2-Jul-01	3.7		7.2		
01-F22-SS[F-157]C2-005	2-Jul-01	3.6		2.6		
01-F22-SS[F-158]C2-005	2-Jul-01	26		35		
01-F22-SS[F-159]C2-005	2-Jul-01	4.9		2.3		
01-F22-ER[F-160]C4-000	2-Jul-01	0.01	U	0.01	U	
01-F23-SS[F-161]C2-005	9-Jul-01	46		270		
01-F23-SS[F-162]C2-005	9-Jul-01	37		200		
01-F23-SS[F-163]C2-005	9-Jul-01	5.9		9.1		
01-F23-SS[F-164]C2-005	9-Jul-01	8.6		6.9		
01-F23-SS[F-165]C2-005	9-Jul-01	6.7		5		
01-F23-SS[F-166]C2-005	9-Jul-01	18		15		
01-F23-SS[F-167]C2-005	9-Jul-01	60		5.6		
01-F23-SS[F-168]C2-005	9-Jul-01	5.5		4.4		
01-F23-SS[F-169]C2-005	9-Jul-01	14		6.6		
01-F34-SS[F-170]C2-005	17-Jul-01	3.1		5.5	J	
01-F34-SS[F-171]C2-005	17-Jul-01	3		29	J	
01-F24-SS[F-172]C2-005	18-Jul-01	3.6		2		
01-F24-SS[F-173]C2-005	18-Jul-01	3.3		2.5		
01-F24-SS[F-174]C2-005	18-Jul-01	4.4		3.6		
01-F24-SS[F-175]C2-005	18-Jul-01	2.5		1.9	U	
01-F24-SS[F-176]C2-005	18-Jul-01	3.7		4		
01-F10-SS[F-177]C2-005	19-Jul-01	2.4		4.5		
01-F10-SS[F-178]C2-005	19-Jul-01	11		98		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F10-SS[F-179]C2-005	19-Jul-01	5.5		89		
01-F10-SS[F-180]C2-005	19-Jul-01	10		60		

Table A-4
Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F10-SS[F-181]C2-005	19-Jul-01	12		16		
01-F10-SS[F-182]C2-005	19-Jul-01	4.6		18		
01-F37-SS[F-183]C2-005	30-Jul-01	8.6		9		
01-F37-SS[F-184]C2-005	30-Jul-01	13		10		
01-F37-SS[F-185]C2-005	30-Jul-01	26		9.9		
01-F37-SS[F-186]C2-005	30-Jul-01	8.6		14		
01-F37-SS[F-187]C2-005	30-Jul-01	3.6		3.9		
01-F37-SS[F-188]C2-005	30-Jul-01	13		62		
01-F37-SS[F-189]C2-005	30-Jul-01	4.9		3.5		01-F37-SS[F-190]C3-005
01-F37-SS[F-190]C3-005	30-Jul-01	4.1		2.4		
01-F37-SS[F-191]C2-005	30-Jul-01	4.7		5.5		
01-F37-SS[F-192]C2-005	30-Jul-01	6.9		5.2		
01-F36-SS[F-193]C2-005	1-Aug-01	25		16		
01-F36-SS[F-194]C2-005	1-Aug-01	5		8.5		
01-F36-SS[F-195]C2-005	1-Aug-01	5.1		7.3		
01-F36-SS[F-196]C2-005	1-Aug-01	4		5.7		
01-F36-SS[F-197]C2-005	1-Aug-01	4.8		6		
01-F36-ER[F-198]C4-000	1-Aug-01	0.01	U	0.01	U	
01-F29-SS[F-199]C2-005	2-Aug-01	6		10		
01-F29-SS[F-200]C2-005	2-Aug-01	9.2		20		
01-F29-SS[F-201]C2-005	2-Aug-01	4.3		74		
01-F29-SS[F-202]C2-005	2-Aug-01	3.9		12		
01-F29-SS[F-203C2-005	2-Aug-01	4.1		11		
01-F29-SS[F-204]C2-005	2-Aug-01	4.7		25		
01-F29-SS[F-205]C2-005	2-Aug-01	5.3		440		
01-F29-SS[F-206]C2-005	2-Aug-01	3.8		6.7		
01-F29-SS[F-207]C2-005	2-Aug-01	17		53		
01-F29-SS[F-208]C2-005	2-Aug-01	5.2		24		
01-F29-SS[F-209]C2-005	2-Aug-01	8.1		33		
01-F29-SS[F-210]C2-005	2-Aug-01	9.5		51		
01-F16-SS[F-211]C2-005	6-Aug-01	3.8		20		
01-F16-SS[F-212]C2-005	6-Aug-01	5		40		
01-F16-SS[F-213]C2-005	6-Aug-01	4.7		35		
01-F16-SS[F-214]C2-005	6-Aug-01	3.5		20		
01-F16-SS[F-215]C2-005	6-Aug-01	4.2		45		
01-F16-SS[F-216]C2-005	6-Aug-01	25		69		
01-F16-SS[F-217]C2-005	6-Aug-01	33		60		
01-F16-SS[F-218]C2-005	6-Aug-01	7.9		49		
01-F16-ER[F-219]C4-000	6-Aug-01	0.01	U	0.034		
01-F30-SS[F-220]C2-005	8-Aug-01	7.2		7.8		
01-F30-SS[F-221]C2-005	8-Aug-01	8.7		23		
01-F30-SS[F-222]C2-005	8-Aug-01	8.7		12		
01-F30-SS[F-223]C2-005	8-Aug-01	6.9		15		
01-F30-SS[F-224]C2-005	8-Aug-01	6		7.9		
01-F30-SS[F-225]C2-005	8-Aug-01	4.6		5.7		
01-F30-SS[F-226]C2-005	8-Aug-01	5		11		
01-F30-SS[F-227]C2-005	8-Aug-01	25		380		
01-F30-SS[F-228]C2-005	8-Aug-01	4.8		12		
01-F30-SS[F-229]C2-005	8-Aug-01	7.4		9.3		
01-F30-ER[F-230]C4-000	8-Aug-01	0.01		0.028		
01-F31-SS[F-231]C2-005	9-Aug-01	8.4		7		
01-F31-SS[F-232]C2-005	9-Aug-01	5.4		6		
01-F31-SS[F-233]C2-005	9-Aug-01	15		240		
01-F31-SS[F-234]C2-005	9-Aug-01	5.1		4.5		
01-F31-SS[F-235]C2-005	9-Aug-01	6.1		14		
01-F31-SS[F-236]C2-005	9-Aug-01	6.9		16		
01-F31-SS[F-237]C2-005	9-Aug-01	3.6		14		
01-F31-SS[F-238]C2-005	9-Aug-01	5.2		29		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F31-SS[F-239]C2-005	9-Aug-01	4.9		5.1		
01-F31-SS[F-240]C2-005	9-Aug-01	6.5		6.1		

Table A-4
Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F35-SS[F-241]C2-005	14-Aug-01	6		12		
01-F35-SS[F-242]C2-005	14-Aug-01	8.3		25		
01-F35-SS[F-243]C2-005	14-Aug-01	24		68		
01-F11-SS[F-244]C2-005	14-Aug-01	30		270		
01-F11-SS[F-245]C2-005	14-Aug-01	25		720		
01-F11-SS[F-246]C2-005	14-Aug-01	8.9		1200		
01-F11-SS[F-247]C2-005	14-Aug-01	15		93		
01-F11-SS[F-248]C2-005	14-Aug-01	13		830		
01-F11-SS[F-249]C2-005	14-Aug-01	20		2500		01-F11-SS[F-250]C3-005
01-F11-SS[F-250]C3-005	14-Aug-01	21		2500		
01-F11-SS[F-251]C2-005	14-Aug-01	10		1400		
01-F11-SS[F-252]C2-005	14-Aug-01	15		1800		
01-F11-SS[F-253]C2-005	14-Aug-01	34		120		
01-F11-SS[F-254]C2-005	14-Aug-01	24		1300		
01-F11-SS[F-255]C2-005	14-Aug-01	22		1500		
01-F11-SS[F-256]C2-005	14-Aug-01	8.3		520		
01-F11-SS[F-257]C2-005	14-Aug-01	9.1		4400		
01-F35-ER[F-258]C4-000	14-Aug-01	0.01	U	0.017	J	
01-F38-SS[F-259]C2-005	16-Aug-01	8.2		360		
01-F09-SS[F-260]C2-005	22-Aug-01	4.4		5.2		01-F09-SS[F-261]C3-005
01-F09-SS[F-261]C3-005	22-Aug-01	4.7		3.5		
01-F09-SS[F-262]C2-005	22-Aug-01	3.7		4.4		
01-F09-SS[F-263]C2-005	22-Aug-01	5.9		7.7		
01-F09-SS[F-264]C2-005	22-Aug-01	4		3.6		
01-F09-SS[F-265]C2-005	22-Aug-01	4		17		
01-F09-SS[F-266]C2-005	22-Aug-01	6		5.7		
01-F09-ER[F-267]C4-000	22-Aug-01	0.01	U	0.024		
01-F32-SS[F-268]C2-005	22-Aug-01	3.6		3.9		
01-F32-SS[F-269]C2-005	22-Aug-01	26		32		
01-F32-SS[F-270]C2-005	22-Aug-01	4.5		4.3		
01-F32-SS[F-271]C2-005	22-Aug-01	2.8		2.5		
01-F32-SS[F-272]C2-005	22-Aug-01	4.4		5.6		
01-F33-SS[F-273]C2-005	28-Aug-01	15		98		01-F33-SS[F-274]C3-005
01-F33-SS[F-274]C3-005	28-Aug-01	14		62		
01-F33-SS[F-275]C2-005	28-Aug-01	5.8		7.8		
01-F33-SS[F-276]C2-005	28-Aug-01	20		45		
01-F33-SS[F-277]C2-005	28-Aug-01	4.7		3		
01-F33-SS[F-278]C2-005	28-Aug-01	6.5		4		
01-F33-SS[F-279]C2-005	28-Aug-01	8.6		12		
01-F33-SS[F-280]C2-005	28-Aug-01	4.9		5.1		
02-F01-SS[F-42-2]C2-030	28-Aug-01	7.4		22		
02-F01-SS[F-47-2]C2-030	28-Aug-01	6		160		
02-F01-SS[F-64-2]C2-030	28-Aug-01	6		200		
02-F01-SS[F-67-2]C2-030	28-Aug-01	3.4		22		
02-F02-SS[F-72-2]C2-030	28-Aug-01	4.6		160		
02-F02-SS[F-76-2]C2-030	28-Aug-01	6		190		
02-F02-SS[F-77-2]C2-030	28-Aug-01	6.2		260		
02-F02-SS[F-78-2]C2-030	28-Aug-01	4.5		100		
02-F02-SS[F-79-2]C2-030	28-Aug-01	11		470		
02-F02-SS[F-80-2]C2-030	28-Aug-01	5.9		480		
02-F02-SS[F-81-2]C2-030	28-Aug-01	7.6		120		
02-F02-SS[F-83-2]C2-030	28-Aug-01	4.8		89		02-F02-SS[F-84-2]C3-030
02-F02-SS[F-84-2]C3-030	28-Aug-01	3.6		76		
02-F02-SS[F-85-2]C2-030	28-Aug-01	6.9		80		
02-F02-SS[F-88-2]C2-030	28-Aug-01	5		130		
02-F02-SS[F-89-2]C2-030	28-Aug-01	5.7		140		
02-F02-SS[F-90-2]C2-030	28-Aug-01	2.8		130		
02-F02-SS[F-91-2]C2-030	28-Aug-01	6.2		62		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
02-F02-SS[F-92-2]C2-030	28-Aug-01	3.9		49		
02-F03-SS[F-101-2]C2-030	28-Aug-01	3.7		7.5		

Table A-4

Soil Analytical Results for Lead and Arsenic

Foundation Sampling, May - September 2001

Weyerhaeuser DuPont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
02-F04-SS[F-118-2]C2-030	28-Aug-01	14		3.9		
02-F04-SS[F-119-2]C2-030	28-Aug-01	31		25		
02-F04-SS[F-121-2]C2-030	28-Aug-01	34		21		
02-F04-SS[F-124-2]C2-030	28-Aug-01	12		45		
02-F23-SS[F-161-2]C2-030	29-Aug-01	6.7	J	180		
02-F23-SS[F-162-2]C2-030	29-Aug-01	12	J	31		
02-F11-SS[F-244-2]C2-030	29-Aug-01	16	J	720		
02-F11-SS[F-245-2]C2-030	29-Aug-01	11	J	2100		
02-F11-SS[F-246-2]C2-030	29-Aug-01	6.4	J	38		
02-F11-SS[F-248-2]C2-030	29-Aug-01	4.8	J	96		
02-F11-SS[F-249-2]C2-030	29-Aug-01	9.2	J	4900		02-F11-SS[F-250-2]C3-030
02-F11-SS[F-250-2]C3-030	29-Aug-01	10	J	710		
02-F11-SS[F-251-2]C2-030	29-Aug-01	8.5	J	150		
02-F11-SS[F-252-2]C2-030	29-Aug-01	5.4	J	140		
02-F11-SS[F-253-2]C2-030	29-Aug-01	24	J	65		
02-F11-SS[F-254-2]C2-030	29-Aug-01	20	J	280		
02-F11-SS[F-255-2]C2-030	29-Aug-01	11	J	47		
02-F11-SS[F-256-2]C2-030	29-Aug-01	4.9		9.5		
02-F11-SS[F-257-2]C2-030	29-Aug-01	4.3		60		
01-F11-ER[F-281]C4-000	29-Aug-01	0.01	U	0.01	U	
02-F29-SS[F-205-2]C2-030	30-Aug-01	3.9		13		
02-F30-SS[F-227-2]C2-030	30-Aug-01	5.6		35	J	
02-F31-SS[F-233-2]C2-030	30-Aug-01	5.7		54	J	
02-F08-SS[F-08-2]C2-030	30-Aug-01	2.6		90	J	
02-F15-SS[F-128-2]C2-030	30-Aug-01	6		200	J	
02-F15-SS[F-133-2]C2-030	30-Aug-01	4.1		55	J	
02-F38-SS[F-259-2]C2-030	30-Aug-01	5.2		57	J	
01-F38-ER[F-282]C4-000	30-Aug-01	0.01	U	0.01	U	
01-F20-SS[F-283]-C2-005	4-Sep-01	4.1		5.3		
01-F20-SS[F-284]-C2-005	4-Sep-01	4.9		5.8		01-F20-SS[F-285]-C3-005
01-F20-SS[F-285]-C3-005	4-Sep-01	6.5		5.8		
01-F20-SS[F-286]-C2-005	4-Sep-01	4.1		4.3		
01-F20-SS[F-287]-C2-005	4-Sep-01	3.7		4.3		
01-F20-SS[F-288]-C2-005	4-Sep-01	4.8		7.3		
01-F20-SS[F-289]-C2-005	4-Sep-01	4.4		5.2		
01-F20-SS[F-290]-C2-005	4-Sep-01	9.6		14		
01-F20-SS[F-291]-C2-005	4-Sep-01	5.9		18		
01-F20-SS[F-292]-C2-005	4-Sep-01	13		27		
01-F20-ER[F-293]-C4-000	4-Sep-01	0.01	U	0.11		
01-F20-SS-[F-294]-C2-005	5-Sep-01	6.8		25		01-F20-SS-[F-295]-C3-005
01-F20-SS-[F-295]-C3-005	5-Sep-01	7.5		32		
01-F20-SS-[F-296]-C2-005	5-Sep-01	17		130		
01-F20-SS-[F-297]-C2-005	5-Sep-01	5		34		
01-F20-SS-[F-298]-C2-005	5-Sep-01	6.9		21		
01-F20-SS-[F-299]-C2-005	5-Sep-01	25		29		
01-F20-SS-[F-300]-C2-005	5-Sep-01	15		11		
01-F34-SS-[F-301]-C2-005	5-Sep-01	5.8		5		
01-F34-SS-[F-302]-C2-005	5-Sep-01	6.2		14		
01-F34-SS-[F-303]-C2-005	5-Sep-01	6.6		14		
01-F21-SS-[F-304]-C2-005	5-Sep-01	9.1		70		
01-F21-SS-[F-305]-C2-005	5-Sep-01	5.8		30		
01-F21-SS-[F-306]-C2-005	5-Sep-01	8.5		240		
01-F21-ER-[F-307]-C4-000	5-Sep-01	0.01	U	0.034		
03-F11-SS-[F-252-3]-C2-050	10-Sep-01	7		360		
03-F11-SS-[F-251-3]-C2-050	10-Sep-01	3.9		51		
03-F11-SS-[F-245-3]-C2-050	10-Sep-01	5.6		8.5		
03-F11-SS-[F-249-3]-C2-050	10-Sep-01	39		190		
03-F11-SS-[F-244-3]-C2-050	10-Sep-01	5.1		120		

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
03-F11-SS-[F-254-3]-C2-050	10-Sep-01	19		170		
03-F23-SS-[F-161-3]-C2-050	10-Sep-01	4		10		

Table A-4
Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-F18-SS-[F-308]-C2-020	12-Sep-01	4.8		4.6		
01-F18-SS-[F-309]-C2-020	12-Sep-01	5.3		3.9		
01-F18-SS-[F-310]-C2-020	12-Sep-01	5.6		4.3		
01-F18-SS-[F-311]-C2-020	12-Sep-01	4.7		4.9		
01-F18-SS-[F-312]-C2-020	12-Sep-01	15		2		
01-F18-SS-[F-313]-C2-020	12-Sep-01	4		3.5		
01-F18-SS-[F-314]-C2-020	12-Sep-01	3.5		2.7		
01-F18-SS-[F-315]-C2-020	12-Sep-01	5.1		4.7		
01-F18-SS-[F-316]-C2-020	12-Sep-01	7.5		31		
01-F18-SS-[F-317]-C2-020	12-Sep-01	5.7		17		
01-F18-SS-[F-318]-C2-020	12-Sep-01	4.8		13		
01-F18-SS-[F-319]-C2-020	12-Sep-01	16		230		
01-F18-SS-[F-320]-C2-020	12-Sep-01	4.7		32		
01-F18-SS-[F-321]-C2-020	12-Sep-01	5.4		29		
01-F18-SS-[F-322]-C2-020	12-Sep-01	53		7.1		
01-F18-SS-[F-323]-C2-020	12-Sep-01	5.1		92		
01-F18-ER-[F-324]-C4-000	12-Sep-01	0.01	U	0.01	U	
03-F01-SS-[F-47-3]-C2-050	13-Sep-01	7.7		6.1		
03-F01-SS-[F-64-3]-C2-050	13-Sep-01	10		470		
03-F02-SS-[F-72-3]-C2-050	13-Sep-01	5.4		270		
03-F02-SS-[F-76-3]-C2-050	13-Sep-01	4.7		19		03-F02-FD-[F-84-3]-C3-050
03-F02-SS-[F-77-3]-C2-050	13-Sep-01	10		20		03-F02-FD-[F-49-3]-C3-050
03-F02-SS-[F-79-3]-C2-050	13-Sep-01	13		230		
03-F02-SS-[F-80-3]-C2-050	13-Sep-01	11		310		
03-F02-SS-[F-81-3]-C2-050	13-Sep-01	11		170		
03-F02-SS-[F-88-3]-C2-050	13-Sep-01	5.6		62		
03-F02-SS-[F-89-3]-C2-050	13-Sep-01	6.6		120		
03-F02-SS-[F-90-3]-C2-050	13-Sep-01	2.7		150		
03-F02-FD-[F-84-3]-C3-050	13-Sep-01	7.6		30		
03-F02-FD-[F-49-3]-C3-050	13-Sep-01	75		12		
03-F15-SS-[F-128-3]-C2-050	13-Sep-01	4.4		2.8		
02-F20-SS-[F-296-2]C2-030	17-Sep-01	7.9		7.6		
02-F21-SS-[F-306-2]C2-030	17-Sep-01	5.1		2.8		
01-F18-SS-[F-325]C2-015	17-Sep-01	4.8		2.8		
04-F01-SS-[F-64-4]-C2-060	19-Sep-01	4.9		66		
04-F02-SS-[F-72-4]-C2-060	19-Sep-01	3.3		23		
04-F02-SS-[F-77-4]-C2-060	19-Sep-01	2.7		40		
04-F02-SS-[F-79-4]-C2-060	19-Sep-01	9.6		290		
04-F02-SS-[F-80-4]-C2-060	19-Sep-01	12		520		
04-F02-SS-[F-81-4]-C2-060	19-Sep-01	8		65		
04-F02-SS-[F-89-4]-C2-060	19-Sep-01	7.6		86		01-F02-FD-[F-326]-C3-000
04-F02-SS-[F-90-4]-C2-060	19-Sep-01	6.7		270		01-F02-FD-[F-327]-C3-000
01-F02-FD-[F-326]-C2-060	19-Sep-01	6.5		87		
01-F02-FD-[F-327]-C2-060	19-Sep-01	7.1		440		
02-F18-SS-[F-319-2]-C2-030	19-Sep-01	4.2		2.9		01-F18-FD-[F-328]-C3-030
01-F18-FD-[F-328]-C3-030	19-Sep-01	3.8		3.6		
01-F18-ER-[F-329]-C4-000	19-Sep-01	0.01	U	0.01	UJ	

* Reported as mg/kg unless otherwise specified
. Rinsate blank sample. Results are reported as mg/L
U The analyte was analyzed for, but was not detected above the reporting limit shown.
J Estimated value, qualifier assigned during data review
UJ Analyte was analyzed for, but was not detected above the reporting limit shown. The reporting limit is estimated.

Table A-4

Soil Analytical Results for Lead and Arsenic
Foundations Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *	Lead (mg/kg) *	Duplicate Sample ID

Table A-5
Soil Analytical Results for Lead and Arsenic
NGRR Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-01]C2-005	7-Jun-01	4.1		6.4		
01-N01-SS[NGRR-02]C2-005	7-Jun-01	2.4		3.1		
01-N01-SS[NGRR-03]C2-005	7-Jun-01	3.3		3.1		
01-N01-SS[NGRR-04]C2-005	7-Jun-01	5.4		5		
01-N01-SS[NGRR-05]C2-005	7-Jun-01	6.1		3.2		
01-N01-SS[NGRR-06]C2-005	7-Jun-01	2.9		2.9		
01-N01-SS[NGRR-07]C2-005	7-Jun-01	130		16		01-N01-SS[NGRR-08]C3-005
01-N01-SS[NGRR-08]C3-005	7-Jun-01	140		22		
01-N01-SS[NGRR-09]C2-005	7-Jun-01	33		11		
01-N01-ER[NGRR-10]C4-000	7-Jun-01	0.01	U	0.01	U	
01-N01-SS[NGRR-11]C2-005	21-Jun-01	110		21		
01-N01-SS[NGRR-12]C2-005	21-Jun-01	84		13		
01-N01-SS[NGRR-13]C2-005	21-Jun-01	72		14		
01-N01-SS[NGRR-14]C2-005	26-Jun-01	4.6		6.9		01-N01-SS[NGRR-15]C3-005
01-N01-SS[NGRR-15]C3-005	26-Jun-01	4.4		7		
01-N01-SS[NGRR-16]C2-005	26-Jun-01	3.5		4.9		
01-N01-SS[NGRR-17]C2-005	26-Jun-01	2.9		31		
01-N01-ER[NGRR-18]C4-000	26-Jun-01	0.01	U	0.01	U	
01-N01-SS[NGRR-19]C2-005	2-Jul-01	3.8		3.2		01-N01-SS[NGRR-20]C3-005
01-N01-SS[NGRR-20]C3-005	2-Jul-01	6.4		2.9		
01-N01-SS[NGRR-21]C2-005	2-Jul-01	4.2		3.5		
01-N01-SS[NGRR-22]C2-005	2-Jul-01	6.5		4.3		
01-N01-SS[NGRR-23]C2-005	2-Jul-01	4.1		5.1		
01-N01-SS[NGRR-24]C2-005	9-Jul-01	4.9		7.5		
01-N01-SS[NGRR-25]C2-005	9-Jul-01	5.8		10		
01-N01-SS[NGRR-26]C2-005	9-Jul-01	19		6.4		
01-N01-SS[NGRR-27]C2-005	9-Jul-01	110		42		
01-N01-ER[NGRR-28]C4-000	9-Jul-01	0.015	U	0.005	U	
01-N01-SS[NGRR-29]C2-005	9-Jul-01	390		130		
01-N01-SS[NGRR-30]C2-005	9-Jul-01	320		100		
01-N01-SS[NGRR-31]C2-005	9-Jul-01	24		6.7		
01-N01-SS[NGRR-32]C2-005	9-Jul-01	5.1		4.1		
01-N01-SS[NGRR-33]C2-005	9-Jul-01	3.4		3.2		
01-N01-SS[NGRR-34]C2-005	11-Jul-01	4.5		7.9		
01-N01-SS[NGRR-35]C2-005	11-Jul-01	17		9.4		
01-N01-SS[NGRR-36]C2-005	11-Jul-01	6		25		01-N01-SS[NGRR-37]C3-005
01-N01-SS[NGRR-37]C3-005	11-Jul-01	6		24		
01-N01-SS[NGRR-38]C2-005	11-Jul-01	3.3		4.1		
01-N01-SS[NGRR-39]C2-005	11-Jul-01	4.7		5.4		
01-N01-SS[NGRR-40]C2-005	11-Jul-01	7.3		6.8		
01-N01-SS[NGRR-41]C2-005	11-Jul-01	4.4		3.9		
01-N01-SS[NGRR-42]C2-005	11-Jul-01	5.5		4		
01-N01-SS[NGRR-43]C2-005	11-Jul-01	5.3		4.4		
01-N01-SS[NGRR-44]C2-005	11-Jul-01	4.2		4.6		
01-N01-SS[NGRR-45]C2-005	11-Jul-01	4.5		4.1		
01-N01-SS[NGRR-46]C2-005	11-Jul-01	3.3		3.2		
01-N01-SS[NGRR-47]C2-005	11-Jul-01	5		4.3		
01-N01-SS[NGRR-48]C2-005	11-Jul-01	5		3.4		
01-N01-SS[NGRR-49]C2-005	11-Jul-01	7.7		4.3		
01-N01-SS[NGRR-50]C2-005	11-Jul-01	2.6		2.6		
01-N01-ER[NGRR-51]C4-000	11-Jul-01	0.01	U	0.01	U	
01-N01-SS[NGRR-52]C2-005	12-Jul-01	13		40		
01-N01-SS[NGRR-53]C2-005	12-Jul-01	6.6		7.6		
01-N01-SS[NGRR-54]C2-005	12-Jul-01	6.2		7.3		01-N01-SS[NGRR-55]C3-005
01-N01-SS[NGRR-55]C3-005	12-Jul-01	5.5		6		
01-N01-SS[NGRR-56]C2-005	12-Jul-01	4.3		3.5		
01-N01-SS[NGRR-57]C2-005	12-Jul-01	16		3.7		
01-N01-SS[NGRR-58]C2-005	12-Jul-01	2.9		2.6		
01-N01-SS[NGRR-59]C2-005	12-Jul-01	3.6		3.5		
01-N01-SS[NGRR-60]C2-005	12-Jul-01	2.4		2		
01-N01-ER[NGRR-61]C4-000	12-Jul-01	0.01	U	0.053	J	
01-N01-SS[NGRR-62]C2-005	17-Jul-01	21		6	J	
01-N01-SS[NGRR-63]C2-005	17-Jul-01	7.6		3.1	J	
01-N01-SS[NGRR-64]C2-005	17-Jul-01	2.8		1.8	UJ	
01-N01-SS[NGRR-65]C2-005	17-Jul-01	3.8		2.1	UJ	

Table A-5

Soil Analytical Results for Lead and Arsenic
NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-66]C2-005	17-Jul-01	12		5.3	J	
01-N01-SS[NGRR-67]C2-005	17-Jul-01	3.9		7.3	J	
01-N01-ER[NGRR-68]C4-000	17-Jul-01	0.01	U	0.01	U	
01-N01-SS[NGRR-69]C2-005	17-Jul-01	210		18	J	
01-N01-SS[NGRR-70]C2-005	17-Jul-01	6.5		2.8	J	
01-N01-SS[NGRR-71]C2-005	17-Jul-01	9.9		2	UJ	
01-N01-SS[NGRR-72]C2-005	17-Jul-01	11		2.6	J	
01-N01-SS[NGRR-73]C2-005	17-Jul-01	3.7		1.8	UJ	
01-N01-SS[NGRR-74]C2-005	18-Jul-01	7.5		4.1		01-N01-SS[NGRR-75]C3-005
01-N01-SS[NGRR-75]C3-005	18-Jul-01	5.3		3.1		
01-N01-SS[NGRR-76]C2-005	18-Jul-01	3.6		3.3		
01-N01-SS[NGRR-77]C2-005	18-Jul-01	4.3		3.1		
01-N01-SS[NGRR-78]C2-005	18-Jul-01	15		3.5		
01-N01-SS[NGRR-79]C2-005	18-Jul-01	15		3.7		
01-N01-SS[NGRR-80]C2-005	18-Jul-01	27		6		
01-N01-SS[NGRR-81]C2-005	18-Jul-01	120		11		
01-N01-SS[NGRR-82]C2-005	18-Jul-01	9.7		6.5		
01-N01-SS[NGRR-83]C2-005	18-Jul-01	3		3.1		
01-N01-SS[NGRR-84]C2-005	18-Jul-01	12		4.5		
01-N01-SS[NGRR-85]C2-005	18-Jul-01	4.2		3.2		
01-N01-ER[NGRR-86]C4-000	18-Jul-01	0.01	U	0.032	J	
01-N01-SS[NGRR-87]C2-005	19-Jul-01	3.4		5.1		
01-N01-SS[NGRR-88]C2-005	19-Jul-01	3.9		7.5		
01-N01-SS[NGRR-89]C2-005	19-Jul-01	37		25		
01-N01-SS[NGRR-90]C2-005	19-Jul-01	7.2		45		
01-N01-SS[NGRR-91]C2-005	19-Jul-01	3.1		3.8		
01-N01-SS[NGRR-92]C2-005	19-Jul-01	11		22		
01-N01-SS[NGRR-93]C2-005	19-Jul-01	11		7.5		
01-N01-SS[NGRR-94]C2-005	19-Jul-01	14		6.5		
01-N01-SS[NGRR-95]C2-005	19-Jul-01	3.7		5		01-N01-SS[NGRR-96]C3-005
01-N01-SS[NGRR-96]C3-005	19-Jul-01	2.4		5.3		
01-N01-SS[NGRR-97]C2-005	19-Jul-01	3.4		5		
01-N01-SS[NGRR-98]C2-005	19-Jul-01	5.3		36		
01-N01-SS[NGRR-99]C2-005	19-Jul-01	2.9		4.9		
01-N01-ER[NGRR-100]C4-000	19-Jul-01	0.01	U	0.011		
01-N01-SS[NGRR-101]C2-005	19-Jul-01	6.5		5.8		
01-N01-SS[NGRR-102]C2-005	19-Jul-01	3.1		76		
01-N01-SS[NGRR-103]C2-005	23-Jul-01	6.1		9.8		01-N01-SS[NGRR-104]C3-005
01-N01-SS[NGRR-104]C3-005	23-Jul-01	6.7		7.5		
01-N01-SS[NGRR-105]C2-005	23-Jul-01	4.3		4.4		
01-N01-SS[NGRR-106]C2-005	23-Jul-01	4.3		3.6		
01-N01-SS[NGRR-107]C2-005	23-Jul-01	5		14		
01-N01-SS[NGRR-108]C2-005	23-Jul-01	5.3		6.1		
01-N01-SS[NGRR-109]C2-005	23-Jul-01	9.3		18		
01-N01-SS[NGRR-110]C2-005	23-Jul-01	10		24		
01-N01-SS[NGRR-111]C2-005	23-Jul-01	5.7		3.7		
01-N01-SS[NGRR-112]C2-005	23-Jul-01	6.9		5.8		
01-N01-SS[NGRR-113]C2-005	23-Jul-01	55		26		
01-N01-SS[NGRR-114]C2-005	23-Jul-01	13		29		
01-N01-SS[NGRR-115]C2-005	23-Jul-01	12		5.2		
01-N01-SS[NGRR-116]C2-005	23-Jul-01	19		9		
01-N01-SS[NGRR-117]C2-005	23-Jul-01	7.6		3.7		
01-N01-SS[NGRR-118]C2-005	23-Jul-01	6.9		4.1		
01-N01-ER[NGRR-119]C4-000	23-Jul-01	0.01	U	0.011	J	
01-N01-SS[NGRR-120]C2-005	23-Jul-01	13		19		
01-N01-SS[NGRR-121]C2-005	23-Jul-01	4.3		3.9		
01-N01-SS[NGRR-122]C2-005	23-Jul-01	5.7		8.1		
01-N01-SS[NGRR-123]C2-005	23-Jul-01	3.8		3.4		
01-N01-SS[NGRR-124]C2-005	23-Jul-01	10		6.6		
01-N01-SS[NGRR-125]C2-005	24-Jul-01	97		23		01-N01-SS[NGRR-126]C3-005
01-N01-SS[NGRR-126]C3-005	24-Jul-01	86		22		
01-N01-SS[NGRR-127]C2-005	24-Jul-01	10		6.3		
01-N01-SS[NGRR-128]C2-005	24-Jul-01	12		4.8		
01-N01-SS[NGRR-129]C2-005	24-Jul-01	7.7		3.5		
01-N01-SS[NGRR-130]C2-005	24-Jul-01	7		4.3		

Table A-5
Soil Analytical Results for Lead and Arsenic
NGRR Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-131]C2-005	24-Jul-01	7.3		6.5		
01-N01-SS[NGRR-132]C2-005	24-Jul-01	35		490		
01-N01-SS[NGRR-133]C2-005	24-Jul-01	4.4		10		
01-N01-SS[NGRR-134]C2-005	24-Jul-01	21		19		
01-N01-SS[NGRR-135]C2-005	24-Jul-01	3.9		3.3		
01-N01-SS[NGRR-136]C2-005	24-Jul-01	24		14		
01-N01-ER[NGRR-137]C4-000	24-Jul-01	0.01	U	0.011	J	
01-N01-SS[NGRR-138]C2-005	30-Jul-01	4.8		9.4		
01-N01-SS[NGRR-139]C2-005	30-Jul-01	5.4		5.3		
01-N01-SS[NGRR-140]C2-005	30-Jul-01	18		16		
01-N01-SS[NGRR-141]C2-005	30-Jul-01	24		28		
01-N01-SS[NGRR-142]C2-005	30-Jul-01	13		15		
01-N01-SS[NGRR-143]C2-005	30-Jul-01	16		5.1		
01-N01-SS[NGRR-144]C2-005	30-Jul-01	11		8.8		
01-N01-SS[NGRR-145]C2-005	30-Jul-01	63		28		
01-N01-SS[NGRR-146]C2-005	30-Jul-01	28		12		
01-N01-ER[NGRR-147]C4-000	30-Jul-01	0.01	U	0.01	U	
01-N01-SS[NGRR-148]C2-005	31-Jul-01	13		8.2		
01-N01-SS[NGRR-149]C2-005	31-Jul-01	7.3		4.6		
01-N01-SS[NGRR-150]C2-005	31-Jul-01	5.8		3.4		
01-N01-SS[NGRR-151]C2-005	31-Jul-01	5.1		2.8		
01-N01-SS[NGRR-152]C2-005	31-Jul-01	3.6		2.1	U	
01-N01-SS[NGRR-153]C2-005	31-Jul-01	3.5		2.3		01-N01-SS[NGRR-154]C3-005
01-N01-SS[NGRR-154]C3-005	31-Jul-01	3.5		2.2		
01-N01-ER[NGRR-155]C4-000	31-Jul-01	0.01	U	0.01	U	
01-N01-SS[NGRR-156]C2-005	31-Jul-01	72		26		
01-N01-SS[NGRR-157]C2-005	31-Jul-01	6.4		6.8		
01-N01-SS[NGRR-158]C2-005	31-Jul-01	16		17		
01-N01-SS[NGRR-159]C2-005	31-Jul-01	10		3.9		
01-N01-SS[NGRR-160]C2-005	31-Jul-01	4.3		5		
01-N01-SS[NGRR-161]C2-005	31-Jul-01	4.7		5.5		
01-N01-SS[NGRR-162]C2-005	31-Jul-01	4.3		4.1		
01-N01-SS[NGRR-163]C2-005	31-Jul-01	10		9		
01-N01-SS[NGRR-164]C2-005	2-Aug-01	11		63		01-N01-SS[NGRR-165]C3-005
01-N01-SS[NGRR-165]C3-005	2-Aug-01	10		46		
01-N01-SS[NGRR-166]C2-005	2-Aug-01	5.7		8.5		
01-N01-SS[NGRR-167]C2-005	2-Aug-01	17		17		
01-N01-SS[NGRR-168]C2-005	2-Aug-01	7.7		13		
01-N01-SS[NGRR-169]C2-005	2-Aug-01	4.5		6.1		
01-N01-SS[NGRR-170]C2-005	2-Aug-01	5		6.1		
01-N01-SS[NGRR-171]C2-005	2-Aug-01	21		6.1		
01-N01-SS[NGRR-172]C2-005	2-Aug-01	6.4		7.6		
01-N01-SS[NGRR-173]C2-005	2-Aug-01	5.6		3.1		
01-N01-SS[NGRR-174]C2-005	2-Aug-01	3.5		2.2	U	
01-N01-SS[NGRR-175]C2-005	2-Aug-01	15		3.2		
01-N01-SS[NGRR-176]C2-005	2-Aug-01	4.6		2.7		
01-N01-ER[NGRR-177]C4-000	2-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-178]C2-005	6-Aug-01	3.5		37		
01-N01-SS[NGRR-179]C2-005	6-Aug-01	84		75		
01-N01-SS[NGRR-180]C2-005	6-Aug-01	18		9.9		
01-N01-SS[NGRR-181]C2-005	6-Aug-01	10		7.6		
01-N01-SS[NGRR-182]C2-005	6-Aug-01	23		11		
01-N01-SS[NGRR-183]C2-005	6-Aug-01	10		13		
01-N01-SS[NGRR-184]C2-005	6-Aug-01	5.2		13		
01-N01-SS[NGRR-185]C2-005	6-Aug-01	4.7		5.7		
01-N01-SS[NGRR-186]C2-005	6-Aug-01	6.2		8		
01-N01-SS[NGRR-187]C2-005	6-Aug-01	35		11		01-N01-SS[NGRR-188]C3-005
01-N01-SS[NGRR-188]C3-005	6-Aug-01	40		12		
01-N01-SS[NGRR-189]C2-005	6-Aug-01	26		21		
01-N01-SS[NGRR-190]C2-005	6-Aug-01	13		9.2		
01-N01-SS[NGRR-191]C2-005	6-Aug-01	15		8.8		
01-N01-SS[NGRR-192]C2-005	6-Aug-01	31		17		
01-N01-SS[NGRR-193]C2-005	7-Aug-01	11		57		01-N01-SS[NGRR-194]C3-005
01-N01-SS[NGRR-194]C3-005	7-Aug-01	11		61		
01-N01-SS[NGRR-195]C2-005	7-Aug-01	18		53		

Table A-5
Soil Analytical Results for Lead and Arsenic
NGRR Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-196]C2-005	7-Aug-01	50		180		
01-N01-SS[NGRR-197]C2-005	7-Aug-01	76		30		
01-N01-SS[NGRR-198]C2-005	7-Aug-01	13		30		
01-N01-SS[NGRR-199]C2-005	7-Aug-01	4.6		7.3		
01-N01-SS[NGRR-200]C2-005	7-Aug-01	5.2		55		
01-N01-SS[NGRR-201]C2-005	7-Aug-01	5.3		14		
01-N01-SS[NGRR-202]C2-005	7-Aug-01	6.3		24		
01-N01-SS[NGRR-203]C2-005	7-Aug-01	46		120		
01-N01-SS[NGRR-204]C2-005	7-Aug-01	11		55		
01-N01-SS[NGRR-205]C2-005	7-Aug-01	5.6		36		
01-N01-SS[NGRR-206]C2-005	7-Aug-01	4.6		9.2		
01-N01-SS[NGRR-207]C2-005	7-Aug-01	6		51		
01-N01-ER[NGRR-208]C4-000	7-Aug-01	0.01	U	0.027		
01-N01-SS[NGRR-209]C2-005	8-Aug-01	8		7.5		
01-N01-SS[NGRR-210]C2-005	8-Aug-01	11		9.4		
01-N01-SS[NGRR-211]C2-005	8-Aug-01	7.7		4.1		
01-N01-SS[NGRR-212]C2-005	8-Aug-01	5		3.6		
01-N01-SS[NGRR-213]C2-005	8-Aug-01	4.9		3.3		
01-N01-SS[NGRR-214]C2-005	8-Aug-01	38		11		
01-N01-SS[NGRR-215]C2-005	8-Aug-01	55		4.2		
01-N01-SS[NGRR-216]C2-005	8-Aug-01	7.2		4.8		
01-N01-SS[NGRR-217]C2-005	8-Aug-01	5.2		4.8		
01-N01-SS[NGRR-218]C2-005	8-Aug-01	50		66		
01-N01-SS[NGRR-219]C2-005	8-Aug-01	7.4		6.2		
01-N01-SS[NGRR-220]C2-005	8-Aug-01	9.8		6.7		
01-N01-SS[NGRR-221]C2-005	8-Aug-01	9.1		5.4		
01-N01-SS[NGRR-222]C2-005	8-Aug-01	14		5.3		
01-N01-SS[NGRR-223]C2-005	8-Aug-01	6.6		5.6		01-N01-SS[NGRR-224]C3-005
01-N01-SS[NGRR-224]C3-005	8-Aug-01	6		6		
01-N01-SS[NGRR-225]C2-005	8-Aug-01	5.6		5.5		
01-N01-SS[NGRR-226]C2-005	8-Aug-01	18		25		
01-N01-SS[NGRR-227]C2-005	8-Aug-01	4.9		6.2		
01-N01-SS[NGRR-228]C2-005	8-Aug-01	5		4.2		
01-N01-SS[NGRR-229]C2-005	8-Aug-01	4.9		4.4		
01-N01-SS[NGRR-230]C2-005	8-Aug-01	16		9.4		
01-N01-SS[NGRR-231]C2-005	9-Aug-01	6.5		25		
01-N01-SS[NGRR-232]C2-005	9-Aug-01	6		4.9		
01-N01-SS[NGRR-233]C2-005	9-Aug-01	6.4		6		
01-N01-SS[NGRR-234]C2-005	9-Aug-01	5.1		4.8		
01-N01-SS[NGRR-235]C2-005	9-Aug-01	6.5		7.4		01-N01-SS[NGRR-236]C3-005
01-N01-SS[NGRR-236]C3-005	9-Aug-01	6.5		6.6		
01-N01-SS[NGRR-237]C2-005	9-Aug-01	4.8		6.1		
01-N01-SS[NGRR-238]C2-005	9-Aug-01	6		7.8		
01-N01-SS[NGRR-239]C2-005	9-Aug-01	4.6		5.4		
01-N01-SS[NGRR-240]C2-005	9-Aug-01	11		13		
01-N01-SS[NGRR-241]C2-005	9-Aug-01	13		8.3		
01-N01-SS[NGRR-242]C2-005	9-Aug-01	3.9		5.2		
01-N01-SS[NGRR-243]C2-005	9-Aug-01	5.9		4.8		
01-N01-ER[NGRR-244]C4-000	9-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-245]C2-005	13-Aug-01	8.6		10		01-N01-SS[NGRR-246]C3-005
01-N01-SS[NGRR-246]C3-005	13-Aug-01	9.3		9		
01-N01-SS[NGRR-247]C2-005	13-Aug-01	9.8		8.2		
01-N01-SS[NGRR-248]C2-005	13-Aug-01	7.8		11		
01-N01-SS[NGRR-249]C2-005	13-Aug-01	12		16		
01-N01-SS[NGRR-250]C2-005	13-Aug-01	7.9		6.6		
01-N01-SS[NGRR-251]C2-005	13-Aug-01	6.8		4.8		
01-N01-SS[NGRR-252]C2-005	13-Aug-01	9		6.1		
01-N01-SS[NGRR-253]C2-005	13-Aug-01	7.8		4.3		
01-N01-SS[NGRR-254]C2-005	13-Aug-01	6.3		5		
01-N01-SS[NGRR-255]C2-005	13-Aug-01	17		4.8		
01-N01-SS[NGRR-256]C2-005	13-Aug-01	9.6		4.8		
01-N01-ER[NGRR-257]C4-000	13-Aug-01	0.01	U	0.01	UJ	
01-N01-SS[NGRR-258]C2-005	13-Aug-01	6.8		5.7		
01-N01-SS[NGRR-259]C2-005	13-Aug-01	10		5.2		
01-N01-SS[NGRR-260]C2-005	13-Aug-01	6.8		6.6		

Table A-5

Soil Analytical Results for Lead and Arsenic

NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-261]C2-005	13-Aug-01	6.7		5.6		01-N01-SS[NGRR-262]C3-005
01-N01-SS[NGRR-262]C3-005	13-Aug-01	7.4		6.3		
01-N01-SS[NGRR-263]C2-005	13-Aug-01	7.5		4.5		
01-N01-SS[NGRR-264]C2-005	13-Aug-01	9.5		6.2		
01-N01-SS[NGRR-265]C2-005	13-Aug-01	4		4.1		
01-N01-SS[NGRR-266]C2-005	13-Aug-01	6.7		5.8		
01-N01-SS[NGRR-267]C2-005	13-Aug-01	8.9		8		
01-N01-SS[NGRR-268]C2-005	13-Aug-01	9.5		6.8		
01-N01-SS[NGRR-269]C2-005	13-Aug-01	6.7		7		
01-N01-SS[NGRR-270]C2-005	13-Aug-01	8.2		9.1		
01-N01-SS[NGRR-271]C2-005	13-Aug-01	10		7.8		
01-N01-SS[NGRR-272]C2-005	13-Aug-01	11		6.6		
01-N01-SS[NGRR-273]C2-005	13-Aug-01	8.9		7.9		
01-N01-SS[NGRR-274]C2-005	13-Aug-01	8.5		7.9		
01-N01-SS[NGRR-275]C2-005	13-Aug-01	19		22		
01-N01-SS[NGRR-276]C2-005	13-Aug-01	25		360		
01-N01-SS[NGRR-277]C2-005	14-Aug-01	20		15		
01-N01-SS[NGRR-278]C2-005	14-Aug-01	34		110		
01-N01-SS[NGRR-279]C2-005	14-Aug-01	140		79		01-N01-SS[NGRR-280]C3-005
01-N01-SS[NGRR-280]C3-005	14-Aug-01	170		97		
01-N01-SS[NGRR-281]C2-005	14-Aug-01	47		230		
01-N01-SS[NGRR-282]C2-005	14-Aug-01	520		110		
01-N01-SS[NGRR-283]C2-005	15-Aug-01	12		20		01-N01-SS[NGRR-284]C3-005
01-N01-SS[NGRR-284]C3-005	15-Aug-01	11		18		
01-N01-SS[NGRR-285]C2-005	15-Aug-01	7.3		8.8		
01-N01-SS[NGRR-286]C2-005	15-Aug-01	7.1		6.7		
01-N01-SS[NGRR-287]C2-005	15-Aug-01	6		5.1		
01-N01-SS[NGRR-288]C2-005	15-Aug-01	7.4		5.9		
01-N01-SS[NGRR-289]C2-005	15-Aug-01	6.2		4.3		
01-N01-SS[NGRR-290]C2-005	15-Aug-01	8.2		5.1		
01-N01-SS[NGRR-291]C2-005	15-Aug-01	8.4		8.2		
01-N01-SS[NGRR-292]C2-005	15-Aug-01	12		12		
01-N01-SS[NGRR-293]C2-005	15-Aug-01	6.6		5.5		
01-N01-SS[NGRR-294]C2-005	15-Aug-01	6.8		7.3		
01-N01-SS[NGRR-295]C2-005	15-Aug-01	7.1		4.9		
01-N01-ER[NGRR-296]C4-000	15-Aug-01	0.01	U	0.011	J	
01-N01-SS[NGRR-297]C2-005	15-Aug-01	8.4		7.7		
01-N01-SS[NGRR-298]C2-005	15-Aug-01	7.8		9.6		
01-N01-SS[NGRR-299]C2-005	15-Aug-01	18		26		
01-N01-SS[NGRR-300]C2-005	15-Aug-01	5.9		55		
01-N01-SS[NGRR-301]C2-005	16-Aug-01	81		37		01-N01-SS[NGRR-302]C3-005
01-N01-SS[NGRR-302]C3-005	16-Aug-01	99		46		
01-N01-SS[NGRR-303]C2-005	16-Aug-01	46		20		
01-N01-SS[NGRR-304]C2-005	16-Aug-01	13		7.2		
01-N01-SS[NGRR-305]C2-005	16-Aug-01	13		10		
01-N01-SS[NGRR-306]C2-005	16-Aug-01	4.6		2.6		
01-N01-SS[NGRR-307]C2-005	16-Aug-01	17		5.5		
01-N01-SS[NGRR-308]C2-005	16-Aug-01	19		7.1		
01-N01-SS[NGRR-309]C2-005	16-Aug-01	34		11		
01-N01-SS[NGRR-310]C2-005	16-Aug-01	34		37		
01-N01-ER[NGRR-311]C4-000	16-Aug-01	0.01	U	0.01	UJ	
01-N01-SS[NGRR-312]C2-005	16-Aug-01	8		10		
01-N01-SS[NGRR-313]C2-005	16-Aug-01	12		13		
01-N01-SS[NGRR-314]C2-005	16-Aug-01	14		20		
01-N01-SS[NGRR-315]C2-005	16-Aug-01	5.5		5.7		
01-N01-SS[NGRR-316]C2-005	16-Aug-01	5.9		15		
01-N01-SS[NGRR-317]C2-005	16-Aug-01	4.9		8.2		
01-N01-SS[NGRR-318]C2-005	16-Aug-01	24		16		
01-N01-SS[NGRR-319]C2-005	16-Aug-01	8.9		76		
01-N01-SS[NGRR-320]C2-005	16-Aug-01	6.1		9.5		
01-N01-SS[NGRR-321]C2-005	20-Aug-01	42	U	21	U	01-N01-SS[NGRR-322]C3-005
01-N01-SS[NGRR-322]C3-005	20-Aug-01	41	U	21	U	
01-N01-SS[NGRR-323]C2-005	20-Aug-01	40	U	41		
01-N01-SS[NGRR-324]C2-005	20-Aug-01	37	U	18	U	
01-N01-SS[NGRR-325]C2-005	20-Aug-01	36	U	18	U	

Table A-5
Soil Analytical Results for Lead and Arsenic
NGRR Sampling, May - September 2001
Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-326]C2-005	20-Aug-01	37	U	18	U	
01-N01-SS[NGRR-327]C2-005	20-Aug-01	36	U	18	U	
01-N01-SS[NGRR-328]C2-005	20-Aug-01	39	U	19	U	
01-N01-SS[NGRR-329]C2-005	20-Aug-01	37	U	19	U	
01-N01-SS[NGRR-330]C2-005	20-Aug-01	39	U	19	U	
01-N01-SS[NGRR-331]C2-005	20-Aug-01	35	U	18	U	
01-N01-ER[NGRR-332]C4-000	20-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-333]C2-005	20-Aug-01	46	U	23	U	
01-N01-SS[NGRR-334]C2-005	20-Aug-01	42	U	21	U	
01-N01-SS[NGRR-335]C2-005	20-Aug-01	43	U	22	U	
01-N01-SS[NGRR-336]C2-005	20-Aug-01	38	U	19	U	
01-N01-SS[NGRR-337]C2-005	20-Aug-01	39	U	19	U	
01-N01-SS[NGRR-338]C2-005	20-Aug-01	41	U	20	U	
01-N01-SS[NGRR-339]C2-005	20-Aug-01	38	U	19	U	
01-N01-SS[NGRR-340]C2-005	20-Aug-01	39	U	19	U	
01-N01-SS[NGRR-341]C2-005	20-Aug-01	41	U	21	U	
01-N01-SS[NGRR-342]C2-005	20-Aug-01	42	U	46	J	01-N01-SS[NGRR-343]C3-005
01-N01-SS[NGRR-343]C3-005	20-Aug-01	42	U	21	UJ	
01-N01-SS[NGRR-344]C2-005	20-Aug-01	43	U	21	UJ	
01-N01-SS[NGRR-345]C2-005	20-Aug-01	39	U	20	UJ	
01-N01-SS[NGRR-346]C2-005	20-Aug-01	41	U	21	UJ	
01-N01-SS[NGRR-347]C2-005	20-Aug-01	38	U	19	UJ	
01-N01-SS[NGRR-348]C2-005	20-Aug-01	41	U	20	UJ	
01-N01-SS[NGRR-349]C2-005	20-Aug-01	38	U	19	UJ	
01-N01-SS[NGRR-350]C2-005	20-Aug-01	40	U	20	UJ	
01-N01-SS[NGRR-351]C2-005	20-Aug-01	42	U	21	UJ	
01-N01-SS[NGRR-352]C2-005	21-Aug-01	40	U	20	UJ	01-N01-SS[NGRR-353]C3-005
01-N01-SS[NGRR-353]C3-005	21-Aug-01	43	U	21	UJ	
01-N01-SS[NGRR-354]C2-005	21-Aug-01	43	U	21	UJ	
01-N01-SS[NGRR-355]C2-005	21-Aug-01	45	U	22	UJ	
01-N01-SS[NGRR-356]C2-005	21-Aug-01	42	U	21	UJ	
01-N01-SS[NGRR-357]C2-005	21-Aug-01	40	U	20	UJ	
01-N01-SS[NGRR-358]C2-005	21-Aug-01	37	U	18	UJ	
01-N01-SS[NGRR-359]C2-005	21-Aug-01	43	U	22	UJ	
01-N01-SS[NGRR-360]C2-005	21-Aug-01	44	U	22	UJ	
01-N01-SS[NGRR-361]C2-005	21-Aug-01	40	U	20	UJ	
01-N01-SS[NGRR-362]C2-005	21-Aug-01	5.5		13		
01-N01-SS[NGRR-363]C2-005	21-Aug-01	6.7		8.3		
01-N01-SS[NGRR-364]C2-005	21-Aug-01	6		5.3		
01-N01-SS[NGRR-365]C2-005	21-Aug-01	3.6		3.4		
01-N01-SS[NGRR-366]C2-005	21-Aug-01	10		5.9		
01-N01-SS[NGRR-367]C2-005	21-Aug-01	6		7.2		
01-N01-ER[NGRR-368]C4-000	21-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-369]C2-005	21-Aug-01	11		6.4		
01-N01-SS[NGRR-370]C2-005	21-Aug-01	12		15		
01-N01-SS[NGRR-371]C2-005	21-Aug-01	4.5		5.6		
01-N01-SS[NGRR-372]C2-005	21-Aug-01	4.2		4.9		
01-N01-SS[NGRR-373]C2-005	21-Aug-01	6.2		5.1		
01-N01-SS[NGRR-374]C2-005	21-Aug-01	5.5		4		
01-N01-SS[NGRR-375]C2-005	21-Aug-01	4.2		3.6		
01-N01-SS[NGRR-376]C2-005	21-Aug-01	4.2		3.8		
01-N01-SS[NGRR-377]C2-005	21-Aug-01	7.2		7.1		
01-N01-SS[NGRR-378]C2-005	21-Aug-01	5.5		6.4		
01-N01-SS[NGRR-379]C2-005	21-Aug-01	5.8		5.1		
01-N01-SS[NGRR-380]C2-005	22-Aug-01	3.1		3.4		
01-N01-SS[NGRR-381]C2-005	22-Aug-01	2.5		2.7		
01-N01-SS[NGRR-382]C2-005	22-Aug-01	3.5		2.7		
01-N01-SS[NGRR-383]C2-005	23-Aug-01	5.2		5.5		01-N01-SS[NGRR-384]C3-005
01-N01-SS[NGRR-384]C3-005	23-Aug-01	4.9		5.2		
01-N01-SS[NGRR-385]C2-005	23-Aug-01	5.7		6.8		
01-N01-SS[NGRR-386]C2-005	23-Aug-01	6		3.8		
01-N01-SS[NGRR-387]C2-005	23-Aug-01	3.5		2.2	U	
01-N01-SS[NGRR-388]C2-005	23-Aug-01	6.6		6.2		
01-N01-SS[NGRR-389]C2-005	23-Aug-01	8.6		7		
01-N01-SS[NGRR-390]C2-005	23-Aug-01	5.9		3.7		

Table A-5

Soil Analytical Results for Lead and Arsenic

NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-391]C2-005	23-Aug-01	7.1		3.4		
01-N01-SS[NGRR-392]C2-005	23-Aug-01	7.9		4.3		
01-N01-SS[NGRR-393]C2-005	23-Aug-01	3.6		62		
01-N01-ER[NGRR-394]C4-000	23-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-395]C2-005	23-Aug-01	4		4		
01-N01-SS[NGRR-396]C2-005	23-Aug-01	3.4		3.6		
01-N01-SS[NGRR-397]C2-005	23-Aug-01	7.8		17		
01-N01-SS[NGRR-398]C2-005	23-Aug-01	3.3		3.1		
01-N01-SS[NGRR-399]C2-005	23-Aug-01	13		15		
01-N01-SS[NGRR-400]C2-005	23-Aug-01	3.3		4.5		
01-N01-SS[NGRR-401]C2-005	23-Aug-01	4.5		2.7		
01-N01-SS[NGRR-402]C2-005	23-Aug-01	10		8.3		
01-N01-SS[NGRR-403]C2-005	23-Aug-01	8.4		9.3		
01-N01-SS[NGRR-404]C2-005	23-Aug-01	8.7		6.8		
01-N01-SS[NGRR-405]C2-005	23-Aug-01	7		6.1		
01-N01-SS[NGRR-406]C2-005	23-Aug-01	6.5		9		
01-N01-SS[NGRR-407]C2-005	23-Aug-01	9.8		16		
01-N01-SS[NGRR-408]C2-005	23-Aug-01	13		15		

Table A-5

Soil Analytical Results for Lead and Arsenic

NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-N01-SS[NGRR-409]C2-005	23-Aug-01	10		11		
01-N01-SS[NGRR-410]C2-005	23-Aug-01	14		18		
01-N01-SS[NGRR-411]C2-005	27-Aug-01	9.7		8.8		01-N01-SS[NGRR-412]C3-005
01-N01-SS[NGRR-412]C3-005	27-Aug-01	8.9		7.4		
01-N01-SS[NGRR-413]C2-005	27-Aug-01	3		2	U	
01-N01-SS[NGRR-414]C2-005	27-Aug-01	10		8.2		
01-N01-SS[NGRR-415]C2-005	27-Aug-01	6.6		3.9		
01-N01-SS[NGRR-416]C2-005	27-Aug-01	7.7		7.7		
01-N01-SS[NGRR-417]C2-005	27-Aug-01	11		11		
01-N01-SS[NGRR-418]C2-005	27-Aug-01	8.3		5.4		
01-N01-SS[NGRR-419]C2-005	27-Aug-01	11		8.6		
01-N01-SS[NGRR-420]C2-005	27-Aug-01	6.3		4		
01-N01-SS[NGRR-421]C2-005	27-Aug-01	6.4		5		
01-N01-SS[NGRR-422]C2-005	27-Aug-01	52		8.6		
01-N01-SS[NGRR-423]C2-005	27-Aug-01	19		2.4		
01-N01-SS[NGRR-424]C2-005	27-Aug-01	4.8		2.1		
01-N01-SS[NGRR-425]C2-005	27-Aug-01	4.4		3		
01-N01-SS[NGRR-426]C2-005	27-Aug-01	6.7		3.8		
01-N01-ER[NGRR-427]C4-000	27-Aug-01	0.01	U	0.01	U	
01-N01-SS[NGRR-428]C2-005	27-Aug-01	6.8		2.7		
01-N01-SS[NGRR-429]C2-005	27-Aug-01	14		8.2		
01-N01-SS[NGRR-430]C2-005	27-Aug-01	35		7.4		
01-N01-SS[NGRR-431]C2-005	27-Aug-01	25		13		
01-N01-SS[NGRR-432]C2-005	27-Aug-01	65		39		
01-N01-SS[NGRR-433]C2-005	27-Aug-01	30		62		
01-N01-SS[NGRR-434]C2-005	27-Aug-01	21		9.9		
02-N01-SS[NGRR-203-2]C2-025	28-Aug-01	16		37		
02-N01-SS[NGRR-196-2]C2-025	28-Aug-01	16		81		
02-N01-SS[NGRR-197-2]C2-025	28-Aug-01	5.1		10		
02-N01-SS[NGRR-11-2]C2-025	28-Aug-01	2.8		2.7		
02-N01-SS[NGRR-12-2]C2-025	28-Aug-01	5.1		3.2		
02-N01-SS[NGRR-13-2]C2-025	28-Aug-01	4.6		3.6		
02-N01-SS[NGRR-276-2]C2-025	28-Aug-01	7.2		97		
01-N01-ER[NGRR-435]C4-000	28-Aug-01	0.01	U	0.01	U	
02-N01-SS[NGRR-27-2]C2-025	29-Aug-01	31	J	14		
02-N01-SS[NGRR-29-2]C2-025	29-Aug-01	17	J	16		
02-N01-SS[NGRR-30-2]C2-025	29-Aug-01	6	J	4.8		
02-N01-SS[NGRR-69-2]C2-025	30-Aug-01	14		5.4		
02-N01-SS[NGRR-81-2]C2-025	30-Aug-01	6.9		3.5		
02-N01-SS[NGRR-156-2]C2-025	30-Aug-01	5.3		2		
02-N01-SS[NGRR-145-2]C2-025	30-Aug-01	7.2		250	J	
02-N01-SS[NGRR-07-2]C2-025	30-Aug-01	4.6		22	J	02-N01-SS[NGRR-08-2]C3-025
02-N01-SS[NGRR-08-2]C3-025	30-Aug-01	4.5		21	J	
02-N01-SS[NGRR-279-2]C2-025	30-Aug-01	14		34	J	02-N01-SS[NGRR-280-2]C3-025
02-N01-SS[NGRR-280-2]C3-025	30-Aug-01	11		19	J	
02-N01-SS[NGRR-281-2]C2-025	30-Aug-01	35		40	J	
02-N01-SS[NGRR-282-2]C2-025	30-Aug-01	7.3		29	J	
02-N01-SS[NGRR-179-2]C2-025	30-Aug-01	52		140	J	
02-N01-SS[NGRR-125-2]C2-025	30-Aug-01	4.9		15	J	02-N01-SS[NGRR-126-2]C3-025
02-N01-SS[NGRR-126-2]C3-025	30-Aug-01	5.7		14	J	
02-N01-SS[NGRR-301-2]C2-025	30-Aug-01	6		14	J	02-N01-SS[NGRR-302-2]C3-025
02-N01-SS[NGRR-302-2]C3-025	30-Aug-01	5.3		8.6	J	
02-N01-SS[NGRR-132-2]C2-025	30-Aug-01	3.9		9.9	J	
01-N01-SS-[NGRR-436]-C2-020	12-Sep-01	3.5		2.6		
01-N01-SS-[NGRR-437]-C2-020	12-Sep-01	2.8		2.2		
02-N01-SS-[NGRR-432-2]-C2-030	13-Sep-01	4.1		29		
03-N01-SS-[NGRR-179-3]-C2-050	13-Sep-01	4.8		87		
03-N01-SS-[NGRR-145-3]-C2-050	13-Sep-01	6		5.5		
02-N01-ER-[NGRR-432-2]-C4-000	13-Sep-01	0.01	U	0.01	U	
01-N01-SS-[NGRR-439]C2-015	17-Sep-01	5.4		3.7		
01-N01-SS-[NGRR-440]C2-015	17-Sep-01	13		5.8		

* Reported as mg/kg unless otherwise specified

Rinsate blank sample. Results are reported as mg/L

Table A-5

Soil Analytical Results for Lead and Arsenic

NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *	Lead (mg/kg) *	Duplicate Sample ID

U The analyte was analyzed for, but was not detected above the reporting limit shown.

J Estimated value, qualifier assigned during data review

UJ Analyte was analyzed for, but was not detected above the reporting limit shown. The reporting limit is estimated.

Table A-6

Soil Analytical Results for Lead, Arsenic and Explosives
Industrial Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Metals				Explosives						Field Duplicate Sample ID
		Arsenic (mg/kg)		Lead (mg/kg)		2,4,6-Trinitrotoluene (mg/kg)		2,4-Dinitrotoluene (mg/kg)		2,6-Dinitrotoluene (mg/kg)		
03-IN01-SS[10-VS-5]D2-7.0	1-Aug-01	NA		NA		38	J	0.19	J	0.05	UJ	
03-IN01-SS[10-VS-6]D2-5.0	1-Aug-01	NA		NA		1		0.046	U	0.046	U	
03-IN01-SS[10-VS-7]D2-5.0	1-Aug-01	NA		NA		25		0.049	U	0.049	U	
03-IN01-SS[10-VS-8]D2-5.0	1-Aug-01	NA		NA		0.073	J	0.044	U	0.044	U	
03-IN01-SS[10-VS-9]D2-5.0	1-Aug-01	NA		NA		0.12	J	0.044	U	0.044	U	03-IN01-SS[10-VS-10]D3-5.0
03-IN01-SS[10-VS-10]D3-5.0	1-Aug-01	NA		NA		0.14	J	0.043	U	0.043	U	
18-TR-18N,S-1	15-Aug-01	NA		NA		0.045	U	0.023	J	0.045	U	
03-IN01-SS-[10-VS-11]-C2-100	4-Sep-01	4.3		9.4	U	0.2		0.047	U	0.047	U	
03-IN01-SS-[10-VS-12]-C2-050	4-Sep-01	3.9		10	U	0.048	U	0.048	U	0.048	U	

NA Not Analyzed
U The analyte was analyzed for, but was not detected above the reporting limit shown.
J Estimated value, qualifier assigned during data review
UJ Analyte was analyzed for, but was not detected above the reporting limit shown. The reporting limit is estimated.

Table A-7

Soil Analytical Results for Lead and Arsenic
Sequalitchew Creek NGRR Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg)		Lead (mg/kg)		Duplicate Sample ID
02-OS02-SS[LR-68-0-02]C02-1.5	1-Aug-01	98		210		
02-OS02-SS[LR-68-75-02]C02-1.5	1-Aug-01	99		16		
02-OS02-SS[LR-68-525E-02]C02-1.5	1-Aug-01	85		190		
02-OS02-SS[LR-68-600E-02]C02-1.5	1-Aug-01	130		20		
02-OS02-SS[LR-68-1275E-02]C02-1.5	1-Aug-01	29		22		
02-OS02-SS[LR-68-1350E-02]C02-1.5	1-Aug-01	40		9.1		
02-OS02-SS[LR-68-1575E-02]C02-1.5	1-Aug-01	67		21		
01-OS02-SS[LR-68-600E-TRANSECT]-C1-000	29-Aug-01	20	J	1700		
01-OS02-SS[LR-68-300W-TRANSECT]-C1-000	29-Aug-01	20	J	23		
01-OS02-SS-[LR-68-1500W-TRANSECT]-C1-000	29-Aug-01	10	J	22		
01-OS02-SS-[LR-68-3600W-TRANSECT]-C1-000	29-Aug-01	27	J	38		
02-OS02-[LR-68-600E-2-TRANSECT]-D1-000	12-Sep-01	33		2900		
02-OS02-[LR-68-600E-3-TRANSECT]-D1-000	12-Sep-01	22		360		
02-OS02-[LR-68-600E-4-TRANSECT]-D1-000	12-Sep-01	19		260		
02-OS02-[LR-68-600E-5-TRANSECT]-D1-000	12-Sep-01	16		430		
02-OS02-[LR-68-600E-6-TRANSECT]-D1-000	12-Sep-01	19		10		

J Estimated value, qualifier assigned during data validation.

Table A-8

Soil Analytical Results for Lead and Arsenic

Hot Spot Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg)		Lead (mg/kg)		Duplicate Sample ID
01-C004-SS[38-VS-150]C2-2.00	1-Aug-01	11		26		
01-C004-SS[38-VS-151]D1-000	1-Aug-01	23		31		
01-C004-SS[38-VS-152]D1-000	1-Aug-01	330		44		
01-C004-SS[38-VS-153]D1-000	1-Aug-01	8.1		13		
02-C013-SS[R71C85-02]C2-1.0	31-Jul-01	19		4		
02-C013-SS[R71C85-03]D1-000	31-Jul-01	46		90		
02-C013-SS[R71C85-04]D1-000	31-Jul-01	38		70		
02-C013-SS[R71C85-05]D1-000	31-Jul-01	49		80		
02-C013-SS[R71C85-06]D1-000	31-Jul-01	55		99		

Table A-9

Soil Analytical Results for Lead and Arsenic
Historical Areas Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg) *		Lead (mg/kg) *		Duplicate Sample ID
01-H404-SS[1]D1-005	3-Jul-01	14		37		
01-H404-SS[2]D1-005	3-Jul-01	24		450		
01-H404-SS[3]D1-005	3-Jul-01	17		88		
01-H404-SS[4]D1-005	3-Jul-01	60		46		
01-H404-SS[5]D1-005	3-Jul-01	13		160		
01-H404-SS[6]D1-005	3-Jul-01	21		790		
01-H404-SS[7]D1-005	3-Jul-01	8.1		18		
01-H404-SS[8]D1-005	3-Jul-01	13		170		
01-H404-SS[9]D1-005	3-Jul-01	150		280		
01-H404-SS[10]D1-005	3-Jul-01	7.5		22		
01-H404-SS[11]D1-005	3-Jul-01	6.1		33		01-H404-SS[12]D2-005
01-H404-SS[12]D2-005	3-Jul-01	6.2		29		
01-H404-ER[13]D3-000	3-Jul-01	0.01	U	0.01	U	
01-SM-SS-[R69C4]-D1-005	17-Sep-01	28		36		
01-SM-SS-[R68C4]-D1-005	17-Sep-01	62		83		
01-SM-SS-[R67C4]-D1-005	17-Sep-01	47		35		
01-SM-SS-[R67C3]-D1-005	17-Sep-01	52		150		
01-SM-SS-[R68C3]-D1-005	17-Sep-01	6		4.7		
01-SM-SS-[R68C2]-D1-005	17-Sep-01	73		280		
01-SM-SS-[R67C2]-D1-005	17-Sep-01	52		22		

* Reported as mg/kg unless otherwise specified

Rinsate blank sample. Results are reported as mg/L

U Analyte was analyzed for, but was not detected above the reporting limit shown.

Table A-10

Soil Analytical Results for Metals and Petroleum Hydrocarbons, mg/kg
Core Drilling Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Wey-Geo-1		Wey-Geo-2		Wey-Geo-3		Wey-Geo-4		Wey-Geo-5	
Sample Date	6/21/01		6/21/01		6/21/01		6/21/01		6/21/01	
Arsenic	13		NA		NA		NA		NA	
Aluminum	530		NA		NA		NA		NA	
Antimony	9.3	U	NA		NA		NA		NA	
Barium	5		NA		NA		NA		NA	
Beryllium	0.37	U	NA		NA		NA		NA	
Cadmium	0.93	U	NA		NA		NA		NA	
Calcium	190	U	NA		NA		NA		NA	
Chromium	2		NA		NA		NA		NA	
Cobalt	0.93	U	NA		NA		NA		NA	
Copper	8.3		NA		NA		NA		NA	
Iron	2600		NA		NA		NA		NA	
Lead	5.1		NA		NA		NA		NA	
Magnesium	190	U	NA		NA		NA		NA	
Manganese	4		NA		NA		NA		NA	
Mercury	0.019	U	NA		NA		NA		NA	
Nickel	1.9	U	NA		NA		NA		NA	
Potassium	370	U	NA		NA		NA		NA	
Selenium	9.3	U	NA		NA		NA		NA	
Silver	1.9	U	NA		NA		NA		NA	
Sodium	190	U	NA		NA		NA		NA	
Thallium	3.7	U	NA		NA		NA		NA	
Vanadium	1.2		NA		NA		NA		NA	
Zinc	1.9	U	NA		NA		NA		NA	
#2 Diesel	NA		32	U	28	U	18	J	31	U
Motor Oil	NA		64	U	57	U	61	U	61	U

U The analyte was analyzed for, but was not detected above the reporting limit shown.
J Estimated Value, qualifier assigned during data review
NA Not Analyzed

Table A-11

Soil Analytical Results for Lead and Arsenic

Topsoil Laydown Areas Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg)		Lead (mg/kg)		Duplicate Sample ID
01-TS03-SS-[R23C09]-D1-015	4-Sep-01	7		17		
01-TS03-SS-[R24C09]-D1-015	4-Sep-01	10		9.2		
01-TS03-SS-[R24C08]-D1-015	4-Sep-01	5.8		8.8		
01-TS03-SS-[R25C08]-D1-015	4-Sep-01	9.5		21		
01-TS03-SS-[R25C09]-D1-015	4-Sep-01	8.9		96		
01-TS03-SS-[R24C10]-D1-015	4-Sep-01	10		28		
01-TS03-SS-[R25C10]-D1-015	4-Sep-01	4.8		12		
01-TS04-SS[R35C16]-D1-015	4-Sep-01	8.1		15		
01-TS04-SS[R34C15]-D1-015	4-Sep-01	31		120		
01-TS04-SS[R35C14]-D1-015	4-Sep-01	33		19		
01-TS04-SS[R36C16]-D1-015	4-Sep-01	19		31		
01-TS04-SS[R35C15]-D1-015	4-Sep-01	10		9.5		
01-TS04-SS[R37C17]-D1-015	4-Sep-01	16		22		
02-TS04-SS-[R34C15-2]-D2-030	19-Sep-01	8.2		5.8		

Table A-12

Soil Analytical Results for Lead and Arsenic
Production Well Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action
Dupont, Washington
URS Project # 53-02000093.01

Sample ID	Date Sampled	Arsenic (mg/kg)		Lead (mg/kg)		Duplicate Sample ID
01-C-SS[PW-1]C2-005	11-Jul-01	6.4		8.6		

Table A-13

Soil Analytical Results for Explosives

Hoffman Reservoir Sampling, May - September 2001

Weyerhaeuser-Dupont Interim Source Removal Action

Dupont, Washington

URS Project # 53-02000093.01

Sample ID	Date Sampled	2,4,6-Trinitrotoluene (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	Field Duplicate Sample ID
HOFRES	7-May-01	0.05 U	0.05 U	0.05 U	

U - The analyte was analyzed for, but was not detected above the reporting limit shown.

Laboratory Analytical Data Validation Results

1 Summary

The soil sample analytical data reviewed from the Stockpile Interim Action Program are acceptable for use based on a majority of acceptable quality control data. The data meet criteria specified in the 1992 Hart Crowser Management Plan.[1] The data may be used to assess analyte concentrations with the stated qualifications.

2 Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of soil stockpile samples from the former DuPont Works Site in Dupont, Washington, from March 19, 2001 through May 7, 2001. Samples were submitted to Sound Analytical Services, Inc. (SAS) located in Tacoma, Washington for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Surrogate recoveries
- Matrix spike / blank spike (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992. (Management Plan)
- Work Plan, Interim Source Removal Actions: On-site Stockpiles, Pioneer Technologies Corporation, West Shore Corporation, NW, March 9, 2001.
- National Functional Guidelines for Inorganic Data Review, EPA, February 1994.
- National Functional Guidelines for Organic Data Review, EPA, February 1994.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data have been compared to criteria referenced in the Management Plan. The samples were analyzed for one or more of the following chemicals by the analytical methods shown.

- Metals (Arsenic and Lead) — EPA 6010
- Explosives (2,4-Dinitrotoluene, 2,6-Dinitrotoluene and 2,4,6-Trinitrotoluene) — EPA 8330
- Diesel range and motor oil range total petroleum hydrocarbons — NWTPH-Dx

[1] Hart Crowser. January 17, 1992. Management Plan. Remedial Investigation/Feasibility Study, Former DuPont Works Site, DuPont, WA.

3 Sample Case

The sample data groups (SDGs) identified in Table A-1 were included in this data review.

Table A-1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled
96864	March 19, 2001
96890	March 20, 2001
96924	March 21, 2001
96959	March 22, 2001
97027	March 27, 2001
97185	April 3, 2001
97281	April 5, 2001
97962	May 7, 2001

.4 Laboratory Report and Reporting of Required Analyses

The laboratory reports included method blanks, surrogate recoveries, sample results, sample preparation logs, matrix spike results and matrix duplicate results. Blank spike data were reported only when matrix spike recovery data were outside of the control limits. Generally, the reports were adequate to evaluate the data quality given that blank spikes are not consistently reported. All sample analyses were reported as requested.

.5 Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were submitted to the laboratory on the day of sample collection. All sample bottles were received in good condition. The samples were digested and analyzed within the method-required holding times. Holding times were within specifications of the Management Plan.

.6 Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met.

Field blanks (rinse blanks) were collected to assess potential cross-contamination in the field. Two rinse blanks were collected and analyzed for arsenic and lead. The field blanks were free of contamination. Data qualifiers were not assigned to associated data based on method or field blank results.

7 Surrogate Recoveries

Laboratory performance on individual samples was assessed by reviewing the recoveries of system monitoring compounds (surrogates).

<u>Explosives by EPA 8330</u>
Recoveries of the surrogate 3,4-dinitrotoluene were above the laboratory control limits of 63-119% due to sample matrix interference in seven samples in SDG 97281: (01-S648-SO- [DS-648-A-2]-C-000 (356%), 01-S648-SO- [DS-648-B-2]-C-000 (622%), 01-S648-SO- [DS-648-C-2]-C-000 (136%), 01-S648-SO-

[DS-648-D-2]-C-000 (175%), 01-S648-SO- [DS-648-F-2]-C-000 (646%), 01-S648-SO- [DS-648-G-2]-C-000 (265%) and 01-S648-SO- [DS-648-H-2]-C-000 (520%)) and in seven samples in SDG 97027: (01-C648-SO- [648-DS-A]-C1-000 (287%), 01-C648-SO-[648-DS-B]-C1-000 (243%), 01-C648-SO-[648-DS-C]-C1-000 (588%), 01-C648-SO-[648-DS-D]-C1-000 (193%), 01-C648-SO-[648-DS-E]-C1-000 (129%), 01-C648-SO-[648-DS-F]-C1-000 (124%) and 01-C648-SO-[648-DS-G]-C1-000 (130%)). Sample results for 2,4,6-trinitrotoluene (2,4,6-TNT), 2,4-dinitrotoluene (2,4-DNT), and 2,6-dinitrotoluene (2,6-DNT) reported above the reporting limits for these samples have been qualified as estimated and flagged "J". Sample results reported as not detected were not qualified based on surrogate recoveries.

8 Matrix Spikes/Blank Spikes

Matrix spike (MS) analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS per analytical batch or one MS per 20 samples was met. In some cases, the MS was performed on samples unrelated to this site. Samples included in SAS sample delivery groups (SDGs) 97185 and 97962 and a subset of samples included in SDGs 96890 and 96924 are associated with MS analyses performed on samples unrelated to this site. Data qualifiers were not assigned to sample data based on MS recoveries from non-project samples. Blank spike (BS) analyses were used to assess the overall performance of the analytical system when matrix spike recoveries were not acceptable.

Arsenic and Lead by EPA 6010
The MS results were compared to the method control limits of 75 to 125%. For matrix spikes performed on site samples, spike recoveries ranged from 93 to 122 percent for arsenic and 4 to 106 percent for lead. The lead recovery (4%) for the MS performed on sample 01-C625-SO- [625-A-DS]-C6-000 (SDG 96864) was outside of the control limits due to high concentrations of lead in the parent sample. Per data validation guidelines, when the concentration of the analyte in the parent sample is greater than 4X the spike level, data are not qualified based on the matrix spike recovery. Data qualifiers were not assigned to associated data based on matrix spike results.

Based on review of the sample preparation log sheets, blank spikes were prepared at the appropriate frequency although the results were reported only when MS recoveries were outside of control limits. The blank spike recoveries provided were all within the control limits of 80 to 120%. Data provided included sets of blank spike/blank spike duplicates for lead associated with samples from SDG 96864 and one set for lead associated with samples from SDG 96924 where the MS was performed on a non-project sample. Data qualifiers were not assigned to associated samples based on blank spike/blank spike duplicate results.

Explosives by EPA 8330
The recoveries of 2,4,6-trinitrotoluene 2,4,6-TNT (72.8%) in the MS and 2,6-DNT (149%) in the MSD performed on sample 01-S648-SO- [DS-648-A-2]-C-000 (SDG 97281) were outside of the laboratory control limits of 73-108% for 2,4,6-TNT and 79-103% for 2,6-DNT. The relative percent differences (RPDs) for 2,4,6-TNT (36%) and 2,6-DNT (47%) were greater than the RPD control limits of 18% for 2,4,6-TNT and 10% for 2,6-DNT. The recoveries of 2,4,6-TNT in the MS (69.2%) and the MSD (72.3%) performed on sample 01-S648-SO- [648-DS-J]-C1-000 (SDG 97027) were outside the control limits of 73-108% for 2,4,6-TNT. Sample results for samples 01-S648-SO- [DS-648-A-2]-C-000 and 01-S648-SO- [648-DS-J]-C1-000 were previously qualified based on surrogate recovery.

Diesel Range and Motor Oil Range TPH by NWTPH-Dx
An MS/MSD was not performed on the sample submitted for diesel range and motor oil range TPH analysis. Data were assessed based on the BS/BSD results that were acceptable.

9 Laboratory Duplicates

Laboratory duplicate results were used to assess the precision of laboratory measurements. The laboratory duplicate results were compared to the project control limit for relative percent difference (RPD) of 35%. The QC frequency requirement of one duplicate per analytical batch or one duplicate per 20 samples was met. In some cases, the duplicate was performed on samples unrelated to this site. Samples included in SAS SDG 97185 and a subset of samples included in SDGs 96890, 96924 and 97962 are associated with duplicate analyses performed on samples unrelated to this site. Data qualifiers were not assigned to associated sample data based on duplicate results from non-project samples.

10 Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples collected was met for metals and explosives analyses. Eight sets of field duplicate samples (seven for metals analysis, one for explosives analysis) were collected. Table A-2 presents the RPDs of detected compounds that were calculated for the duplicate pairs. Because only one sample was analyzed for diesel-range and motor oil-range petroleum hydrocarbons, a field duplicate was not collected for this analysis.

Table A-2 – RPD of Detected Compounds

Sample ID	Duplicate ID	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD %
01-C620-SO-[620-DS-C]-C1-000	01-C620-SO-[620-DS-G]-C1-000	Arsenic	61	90	38
		Lead	430	420	2
01-C629-SO-[629-DS-E]-C1-000	01-C629-SO-[629-DS-F]-C1-000	Arsenic	230	260	12
		Lead	3,600	5,000	33
01-C530-SO-[530-DS-F]-C1-000	01-C530-SO-[530-DS-G]-C1-000	Arsenic	11	8.7	23
		Lead	96	150	44
01-C543-SO-[543-DS-H]-C1-000	01-C543-SO-[543-DS-I]-C1-000	Arsenic	5.4	7.5	33
		Lead	170	170	NC
01-C558-SO-[558-DS-E]-C1-000	01-C558-SO-[558-DS-F]-C1-000	Arsenic	4.6	4.3	7
		Lead	32	31	3.2
01-S536-SO-[536-DS-E]-C1-000	01-S536-SO-[536-DS-F]-C1-000	Arsenic	190	180	5.4
		Lead	1,500	1,800	18
01-C632-SO-[632-DS-C]-C1-000	01-C632-SO-[632-DS-D]-C1-000	Arsenic	19	15	24
		Lead	36	29	22
01-C648-SO-[648-DS-I]-C1-000	01-C648-SO-[648-DS-J]-C1-000	2,4,6-TNT	0.11	0.12	9
		2,4-DNT	0.16	0.098	48
		2,6-DNT	0.076	0.057	29

11 Reporting Limits

Reporting limits were reviewed to ensure that results reported meet project goals. The reporting limits are acceptable for the project needs. The data are summarized in Tables A-3, A-4, and A-5 for metals, explosives and petroleum hydrocarbons, respectively.

Table A-3
Soil Analytical Results for Arsenic and Lead
Stockpile Interim Action Program

Sample ID	Date Sampled	Arsenic (mg/kg)	Lead (mg/kg)	Field Duplicate Sample ID
01-C625-SO-[625-A-DS]-C6-000	19-Mar-01	160	1200	
01-C625-SO-[625-B-DS]-C6-000	19-Mar-01	78	1200	
01-C625-SO-[625-C-DS]-C6-000	19-Mar-01	48	300	
01-C650-SO-[650-A-DS]-C6-000	19-Mar-01	110	440	
01-C650-SO-[650-B-DS]-C6-000	19-Mar-01	66	950	
01-C621-SO-[621-A-DS]-C6-000	19-Mar-01	200	480	
01-C621-SO-[621-B-DS]-C6-000	19-Mar-01	510	270	
01-C624-SO-[624-A-DS]-C6-000	19-Mar-01	4.8	210	
01-C802-SO-[802-A-DS]-C6-000	19-Mar-01	42	600	
01-C510-SO-[510-A-DS]-C6-000	19-Mar-01	27	1900	
01-C510-SO-[510-B-DS]-C6-000	19-Mar-01	25	1100	
01-C803-SO-[803-A-DS]-C6-000	19-Mar-01	77	13	
01-C800-SO-[800-A-DS]-C6-000	19-Mar-01	140	1000	
01-C801-SO-[801-A-DS]-C6-000	19-Mar-01	83	940	
01-C620-SO-[620-DS-A]-C1-000	20-Mar-01	480	140	
01-C620-SO-[620-DS-B]-C1-000	20-Mar-01	78	620	
01-C620-SO-[620-DS-C]-C1-000	20-Mar-01	61	430	01-C620-SO-[620-DS-G]-C1-000
01-C620-SO-[620-DS-G]-C1-000	20-Mar-01	90	420	
01-C620-SO-[620-DS-D]-C1-000	20-Mar-01	81	270	
01-C620-SO-[620-DS-E]-C1-000	20-Mar-01	31	320	
01-C620-SO-[620-DS-F]-C1-000	20-Mar-01	61	360	
01-C629-SO-[629-DS-A]-C1-000	20-Mar-01	270	4100	
01-C629-SO-[629-DS-B]-C1-000	20-Mar-01	260	3800	
01-C629-SO-[629-DS-C]-C1-000	20-Mar-01	320	4500	
01-C629-SO-[629-DS-D]-C1-000	20-Mar-01	200	4600	
01-C629-SO-[629-DS-E]-C1-000	20-Mar-01	230	3600	01-C629-SO-[629-DS-F]-C1-000
01-C629-SO-[629-DS-F]-C1-000	20-Mar-01	260	5000	
01-C651-SO-[651-DS-A]-C1-000	20-Mar-01	3	12	
01-C804-SO-[804-DS-A]-C1-000	20-Mar-01	23	23	
01-C530-SO-[530-DS-A]-C1-000	20-Mar-01	7.3	270	
01-C530-SO-[530-DS-B]-C1-000	20-Mar-01	8.7	190	
01-C530-SO-[530-DS-C]-C1-000	20-Mar-01	11	100	
01-C530-SO-[530-DS-E]-C1-000	20-Mar-01	12	100	
01-C530-SO-[530-DS-D]-C1-000	20-Mar-01	6.1	68	
01-C530-SO-[530-DS-F]-C1-000	20-Mar-01	11	96	01-C530-SO-[530-DS-G]-C1-000
01-C530-SO-[530-DS-G]-C1-000	20-Mar-01	8.7	150	
01-C543-SO-[543-DS-A]-C1-000	21-Mar-01	6.2	180	
01-C543-SO-[543-DS-B]-C1-000	21-Mar-01	5.4	220	
01-C543-SO-[543-DS-C]-C1-000	21-Mar-01	6.3	850	
01-C543-SO-[543-DS-D]-C1-000	21-Mar-01	7.6	160	
01-C543-SO-[543-DS-E]-C1-000	21-Mar-01	5	220	
01-C543-SO-[543-DS-F]-C1-000	21-Mar-01	5.7	170	
01-C543-SO-[543-DS-G]-C1-000	21-Mar-01	4.8	160	
01-C543-SO-[543-DS-H]-C1-000	21-Mar-01	5.4	170	01-C543-SO-[543-DS-I]-C1-000
01-C543-SO-[543-DS-I]-C1-000	21-Mar-01	7.5	170	
01-C545-SO-[545-DS-A]-C1-000	21-Mar-01	5.8	250	
01-C556-SO-[556-DS-A]-C1-000	21-Mar-01	7.8	160	
01-C556-SO-[556-DS-B]-C1-000	21-Mar-01	5.5	140	
01-C555-SO-[555-DS-A]-C1-000	21-Mar-01	3.9	190	
01-C555-SO-[555-DS-B]-C1-000	21-Mar-01	5.3	350	
01-C558-SO-[558-DS-A]-C1-000	21-Mar-01	3.9	37	
01-C558-SO-[558-DS-B]-C1-000	21-Mar-01	6	89	
01-C558-SO-[558-DS-C]-C1-000	21-Mar-01	4.9	35	

Table A-3
Soil Analytical Results for Arsenic and Lead
Stockpile Interim Action Program

Sample ID	Date Sampled	Arsenic (mg/kg)	Lead (mg/kg)	Field Duplicate Sample ID
01-C558-SO-[558-DS-D]-C1-000	21-Mar-01	6	39	
01-C558-SO-[558-DS-E]-C1-000	21-Mar-01	4.6	32	01-C558-SO-[558-DS-F]-C1-000
01-C558-SO-[558-DS-F]-C1-000	21-Mar-01	4.3	31	
01-C544-SO-[544-DS-A]-C1-000	21-Mar-01	3.7	390	
01-C544-SO-[544-DS-B]-C1-000	21-Mar-01	4.1	460	
01-C544-SO-[544-DS-C]-C1-000	21-Mar-01	2.8	320	
01-C544-SO-[544-DS-D]-C1-000	21-Mar-01	4.1	350	
01-C552-SO-[552-DS-A]-C1-000	22-Mar-01	7.9	550	
01-C631-SO-[631-DS-A]-C1-000	22-Mar-01	18	46	
01-C631-SO-[631-DS-B]-C1-000	22-Mar-01	16	46	
01-C631-CO-[631-DS-C]-C1-000	22-Mar-01	12	38	
01-C631-SO-[631-DS-D]-C1-000	22-Mar-01	14	56	
01-C631-SO-[631-DS-E]-C1-000	22-Mar-01	12	44	
01-C631-SO-[631-DS-F]-C1-000	22-Mar-01	23	100	
01-C631-SO-[631-DS-G]-C1-000	22-Mar-01	17	140	
01-C632-SO-[632-DS-A]-C1-000	22-Mar-01	25	33	
01-C632-SO-[632-DS-B]-C1-000	22-Mar-01	11	23	
01-C632-SO-[632-DS-C]-C1-000	22-Mar-01	19	36	01-C632-SO-[632-DS-D]-C1-000
01-C632-SO-[632-DS-D]-C1-000	22-Mar-01	15	29	
01-C805-SO-[805-DS-A]-C1-000	22-Mar-01	20	45	
01-C806-SO-[806-DS-A]-C1-000	22-Mar-01	7.9	15	
01-C647-SO-[647-DS-A]-C1-000	22-Mar-01	34	300	
01-C647-SO-[647-DS-B]-C1-000	22-Mar-01	34	200	
01-C647-SO-[647-DS-C]-C1-000	22-Mar-01	27	100	
01-C647-SO-[647-DS-D]-C1-000	22-Mar-01	17	81	
01-C645-SO-[645-DS-A]-C1-000	22-Mar-01	22	100	
01-C645-SO-[645-DS-B]-C1-000	22-Mar-01	22	91	
01-S536-SO-[536-DS-A]-C1-000	3-Apr-01	240	3100	
01-S536-SO-[536-DS-B]-C1-000	3-Apr-01	37	1700	
01-S536-SO-[536-DS-C]-C1-000	3-Apr-01	300	1900	
01-S536-SO-[536-DS-D]-C1-000	3-Apr-01	68	1400	
01-S536-SO-[536-DS-E]-C1-000	3-Apr-01	190	1500	01-S536-SO-[536-DS-F]-C1-000
01-S536-SO-[536-DS-F]-C1-000	3-Apr-01	180	1800	
R62C73	7-May-01	31	43	

J - Estimated Value, Qualifier assigned during data review

Note: Two rinsate blanks were collected on March 19, 2001 (RIN-031901) and April 3, 2001 (RIN-040301).
Arsenic and lead were not detected in either rinsate blank and results were reported as not detected for both elements (< 0.01 mg/L).

Table A-4
Soil Analytical Results for Explosives
Stockpile Interim Action Program

Sample ID	Date Sampled	2,4,6-Trinitrotoluene (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	Field Duplicate Sample ID
01-C648-SO-[648-DS-A]-C1-000	27-Mar-01	0.54 J	1.1 J	2.2 J	
01-C648-SO-[648-DS-B]-C1-000	27-Mar-01	0.42 J	0.76 J	0.047 U	
01-C648-SO-[648-DS-C]-C1-000	27-Mar-01	0.7 J	0.48 J	52 J	
01-C648-SO-[648-DS-D]-C1-000	27-Mar-01	0.34 J	0.16 J	0.046 U	
01-C648-SO-[648-DS-E]-C1-000	27-Mar-01	0.29 J	0.37 J	0.14 J	
01-C648-SO-[648-DS-F]-C1-000	27-Mar-01	0.17 J	2.6 J	0.047 U	
01-C648-SO-[648-DS-G]-C1-000	27-Mar-01	0.19 J	0.29 J	0.095 J	
01-C648-SO-[648-DS-H]-C1-000	27-Mar-01	0.067	0.068	0.047 U	
01-C648-SO-[648-DS-I]-C1-000	27-Mar-01	0.11	0.16	0.076	01-C648-SO-[648-DS-J]-C1-000
01-C648-SO-[648-DS-J]-C1-000	27-Mar-01	0.12	0.098	0.057	
01-S648-SO-[DS-648-A-2]-C-000	5-Apr-01	0.9 J	0.13 J	0.4 J	
01-S648-SO-[DS-648-B-2]-C-000	5-Apr-01	9 J	2.7 J	2.2 J	
01-S648-SO-[DS-648-C-2]-C-000	5-Apr-01	0.38 J	0.093 J	0.074 J	
01-S648-SO-[DS-648-D-2]-C-000	5-Apr-01	0.48 J	10 J	0.047 U	
01-S648-SO-[DS-648-E-2]-C-000	5-Apr-01	0.078	0.14	0.11	
01-S648-SO-[DS-648-F-2]-C-000	5-Apr-01	1.3 J	0.21 J	1.1 J	
01-S648-SO-[DS-648-G-2]-C-000	5-Apr-01	0.57 J	0.23 J	0.45 J	
01-S648-SO-[DS-648-H-2]-C-000	5-Apr-01	3 J	0.65 J	1.4 J	
01-S648-SO-[DS-648-I-2]-C-000	5-Apr-01	0.097	0.11	0.071	
01-S648-SO-[DS-648-J-2]-C-000	5-Apr-01	0.12	0.13	0.075	
HOFRES	7-May-01	0.05 U	0.05 U	0.05 U	

J - Estimated Value, qualifier assigned during data review

J - The analyte was analyzed for, but was not detected above the reporting limit shown.

Table A-5
Soil Analytical Results for Petroleum Hydrocarbons
Stockpile Interim Action Program

Sample ID	Date Sampled	Total Petroleum Hydrocarbons Diesel-range (mg/kg)	Total Petroleum Hydrocarbons Motor Oil-range (mg/kg)
807	7-May-01	260*	250**

* The chromatogram suggests this may be aged or degraded diesel.
** The chromatogram does not match a typical motor oil pattern.

Laboratory Analytical Data Validation Results

1 Summary

The soil analytical data reviewed from the background samples are acceptable for use based on a majority of acceptable quality control data. The data meet criteria specified in the 1992 Hart Crowser Management Plan.[1] The data may be used to assess analyte concentrations with the stated qualifications.

2 Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of soil samples from the former DuPont Works Site in Dupont, Washington, from January 29 through April 3, 2001. Samples were submitted to Sound Analytical Services, Inc. for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Matrix spike / blank spikes (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits. The samples were analyzed for the following chemicals, using the noted analytical methods.

- Arsenic EPA 6010
- Lead EPA 6010

3 Sample Case

The sample data groups identified in Table A-1 were included in this data review.

Table A-1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled
95757	1/29/2001
95881	1/30, 1/31, and 2/1/2001
95897	2/2/2001

[1] Hart Crowser. January 17, 1992. Management Plan. Remedial Investigation/Feasibility Study, Former DuPont Works Site, DuPont, WA.

Table A-1 – Sample Data Groups Included in the Data Review

95980	2/5/2001
96014	2/7/2001
96084	2/8 – 2/9/2001
96171	2/12 – 2/14/2001
96257	2/14 – 2/15/2001
96322	2/20 – 2/21/2001
96362	2/22 – 2/23/2001
97186	4/3/2001
97187	4/3/2001

.4 Laboratory Report and Reporting of Required Analyses

The laboratory report was complete; all QC results were included. The project scope of work stated that URS Inc., (URS) would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody. The reports provide all necessary information to complete this review. All analytical methods were reported as requested.

5 Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled until arrival at the laboratory. Sample bottles were in good condition. The samples were extracted and analyzed within the 6 month holding time. Holding times were within specifications of the Management Plan.

.6 Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met. One rinse blank was collected. The field rinse blank was free of contamination. No data require qualification based on field rinse blank contamination.

7 Matrix Spikes/Blank Spikes

Matrix spike (MS) analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS and one blank spike (BS) per analytical batch or one MS and one BS per 20 samples, was met. In instances where the concentration of the sample is at least 4 times greater than the spike added, the MS percent recoveries are not used to validate the associated sample data. The laboratory included BS reports only if the MS data were non-compliant.

The MS results were compared to evaluate the accuracy of laboratory procedures. The spike recoveries ranged from 81 to 107 percent and were within the laboratory-established control limits of 75-125, with the exception listed below. One blank spike was reported and was within the laboratory-established control limits of 80-120.

- MS 95881-01 (2/9/01): the lead percent recovery was below the control limit at 69%. Associated sample lead results were qualified as estimated and flagged with a "J".

8 Laboratory Duplicates

The relative percent differences (RPDs) ranged from 0 to 29 percent and were within the laboratory-established control limits of 35%, with two exceptions. The lead RPD for laboratory duplicate 96322-61 (3/5/01) was above the control limit at 39% due to matrix interference. Associated sample lead results were qualified as estimated and were flagged with a "J". The arsenic and lead RPDs for laboratory duplicate 95881-61 (2/13/01) were greater than the control limit at 45%. Associated sample arsenic and lead results were qualified as estimated and flagged with a "J".

9 Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, or one field duplicate per day at a minimum, specified in the Management Plan, was met. Twenty-seven sets of field duplicate samples were collected. Table A-2 presents the RPD of detected compounds that were calculated for the duplicate pairs. The RPD is calculated only for sample results that are 5 times greater than the detection limit. The RPDs were acceptable (i.e., less than 35%) with the exception of twelve duplicate pairs with RPD greater than 35%. Arsenic and lead results for the sample and duplicate pairs were qualified as estimated and flagged with a "J" if the RPD was greater than 35%. The average RPD for all field duplicates collected was 30%, which is acceptable for this project.

Table A-2 – RPD of Detected Compounds

Sample ID & Duplicate ID	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD %
R74C67/R74C66	Arsenic	47	20	**81**
	Lead	120	56	**73**
R74C69/R74C65	Arsenic	66	43	**42**
	Lead	130	120	8
R79C74/R79C66	Arsenic	160	350	**75**
	Lead	39	54	32
R77C73/R77C66	Arsenic	25	31	21
	Lead	25	35	33
R72C74/R72C66	Arsenic	39	51	27
	Lead	46	79	**53**
R72C71/R72C65	Arsenic	51	62	19
	Lead	120	140	15
R63C74/R63C66	Arsenic	64	56	13
	Lead	57	84	**38**
R61C68/R61C66	Arsenic	42	48	13
	Lead	110	120	9
R69C72/R69C66	Arsenic	66	52	24
	Lead	85	49	**54**
R62C76/R60C76	Arsenic	19	30	**45**
	Lead	64	88	32
R65C81/R60C81	Arsenic	4.7	9.3	NC
	Lead	10	19	**62**
R73C83/R74C83	Arsenic	21	29	32
	Lead	33	40	19
R72C84/R73C84	Arsenic	4	4.6	NC
	Lead	7.8	11	NC
R63C86/R62C86	Arsenic	22	26	17
	Lead	46	50	8
R64C87/R63C87	Arsenic	9.9	13	27
	Lead	20	19	5
R68C88/R69C88	Arsenic	27	31	14
	Lead	37	39	5

Table A-2 – RPD of Detected Compounds

Sample ID & Duplicate ID	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD %
R47C66/R49C66	Arsenic	58	69	17
	Lead	96	81	17
R31C55/R31C54	Arsenic	17	16	6
	Lead	38	43	12
R30C55/R30C54	Arsenic	24	32	29
	Lead	53	79	**39**
R29C55/R29C54	Arsenic	12	12	0
	Lead	11	25	**78**
R29C61/R25C61	Arsenic	25	20	22
	Lead	41	37	10
R42C64/R44C64	Arsenic	7.7	10	NC
	Lead	8.9	13	NC
R37C62/R40C62	Arsenic	42	37	13
	Lead	30	29	3
R37C63/R42C63	Arsenic	31	46	**39**
	Lead	19	23	19
R22C56/R22C54	Arsenic	29	17	**52**
	Lead	31	21	**38**
R66C89/R66C90	Arsenic	10	14	**33**
	Lead	27	27	**0**
R65C89/R65C90	Arsenic	22	20	**10**
	Lead	40	37	**8**

10 Reporting Limits

To ensure the level of analytical reporting sensitivity meets project goals, reporting limits were reviewed. The reporting limits are acceptable for the project needs. No data require qualification based on reporting limits.

Laboratory Analytical Data Validation Results

1 Summary

The soil analytical data reviewed from the Sequalitchew Creek Canyon NGRR are acceptable for use based on a majority of acceptable quality control data. The data meet criteria specified in the 1992 Hart Crowser Management Plan.[1] The data may be used to assess analyte concentrations with the stated qualifications.

2 Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of soil samples from the former DuPont Works Site in Dupont, Washington, from January 10, through 16, 2001. Samples were submitted to Sound Analytical Services, Inc. for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Matrix spike / blank spikes (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits. The samples were analyzed for the following chemicals, using the noted analytical methods.

- Arsenic EPA 6010
- Lead EPA 6010

3 Sample Case

The sample data groups identified in Table A-1 were included in this data review.

Table A-1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled	Sample ID
95386	11 Jan 01	01-OS02-SS-[LR-68-525W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-600W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-675W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-750W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-825W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-900W]-C1-000

[1] Hart Crowser. January 17, 1992. Management Plan. Remedial Investigation/Feasibility Study, Former DuPont Works Site, DuPont, WA.

Table A-1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled	Sample ID
95386	11 Jan 01	01-OS02-SS-[LR-68-975W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1050W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1125W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1200W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1275W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1350W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1425W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1500W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1575W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1600W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1650W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1725W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1800W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1875W]-C1-000
95386	11 Jan 01	01-OS02-SS-[LR-68-1950W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-0]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2025W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2100W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2175W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2250W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2325W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2400W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2475W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2550W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2600W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2625W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2700W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2775W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2850W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-2925W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3000W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3075W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3150W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3225W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3300W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3375W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3450W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3525W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3600W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3675W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3750W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3825W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3900W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-3975W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4025W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4050W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4125W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4175W]-C1-000

Table A-1 – Sample Data Groups Included in the Data Review

Sound Analytical Services Data Group Number	Date Sampled	Sample ID
95438	12 Jan 01	01-OS02-SS-[LR-68-4200W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4275W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4325W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4350W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4425W]-C1-000
95438	12 Jan 01	01-OS02-SS-[LR-68-4475W]-C1-000

4 Laboratory Report and Reporting of Required Analyses

The laboratory report was complete; all QC results were included. The project scope of work stated that URS Inc., (URS) would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody. The reports provide all necessary information to complete this review. All analytical methods were reported as requested.

5 Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled until arrival at the laboratory. Sample bottles were in good condition. The samples were extracted and analyzed within the 6 month holding time. Holding times were within specifications of the Management Plan.

6 Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met. Three rinse blanks were analyzed. The field rinse blanks were free of contamination. No data require qualification based on field rinse blank contamination.

7 Matrix Spikes/Blank Spikes

Matrix spike (MS) analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS and one blank spike (BS) per analytical batch or one MS and one BS per 20 samples, was met. In instances where the concentration of the sample is at least 4 times greater than the spike added, the MS percent recoveries are not used to validate the associated sample data. The laboratory included BS reports only if the MS data were non-compliant.

The MS results were compared to evaluate the accuracy of laboratory procedures. The spike recoveries ranged from 88 to 117 percent and were within the laboratory-established control limits of 75-125 with the exceptions listed below. One blank spike was reported and was within the laboratory-established control limits of 80-120. No data require qualification based on MS or BS percent recoveries because the concentration of the spiked sample (matrix spike 95344-20, 1/18/01) was at least 4 times greater than the spike added.

8 Laboratory Duplicates

The relative percent differences (RPDs) ranged from 0 to 26 percent and were within the laboratory-established control limits of less than 35%, with one exception. The lead RPD for laboratory duplicate 95344-20 (1/17/01) was above the control limit at 78% due to matrix interference. Associated sample lead results were qualified as estimated and were qualified with a "J".

9 Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, or one field duplicate per day at a minimum, specified in the Management Plan, was met. Seven sets of field duplicate samples were collected. Table A-2 presents the RPD of detected compounds that were calculated for the duplicate pairs. The RPDs were acceptable (i.e., less than 35%) with the exception of two duplicate pairs LR-68-1575W/1600W and LR-68-4425/4475. The arsenic results for LR-68-1575W and the lead results for LR-68-4425 were qualified as estimated and flagged with a "J" due to the high duplicate RPD.

Table A-2 – RPD of Detected Compounds

Sample ID & Duplicate ID	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD %
LR-68-1575W/LR-68-1600W	Arsenic	180	120	**40**
	Lead	21	17	21
LR-68-3975W/LR-68-4025W	Arsenic	420	380	10
	Lead	28	26	7
LR-68-4125W/LR-68-4175W	Arsenic	350	270	26
	Lead	37	33	11
LR-68-4275W/LR-68-4325W	Arsenic	420	430	2
	Lead	55	60	9
LR-68-4425W/LR-68-4475W	Arsenic	290	370	24
	Lead	39	190	**132**
LR-68-2550W/LR-68-2600W	Arsenic	340	270	23
	Lead	33	26	24

10 Reporting Limits

To ensure the level of analytical reporting sensitivity meets project goals, reporting limits were reviewed. The reporting limits are acceptable for the project needs. No data require qualification based on reporting limits.

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data meet criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations with the stated qualifications.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of soil samples from the Weyerhaeuser-Dupont site in Dupont, Washington, from September 10, 1999 through July 17, 2000. Samples were submitted to Sound Analytical Services, Inc. for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Matrix spike / blank spikes (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Arsenic	EPA 6010
Lead	EPA 6010

Sample Case

The following sample data groups were included in this review.

SOUND ANALYTICAL SERVICES DATA GROUP NUMBER	DATE SAMPLED
84030	10 Sep 99
84055	13 Sep 99
84078	14 Sep 99
84117	15 Sep 99
84151	16 Sep 99
84215	20 Sep 99
84245	21 Sep 99
84297	22 Sep 99
84320	23 Sep 99
84401	27 Sep 99
84426	28 Sep 99
84479	29 Sep 99
84508	30 Sep 99
84520	1 Oct 99
84678	7 Oct 99
84745	11 Oct 99
84778	12 Oct 99
84800	13 Oct 99
84832	14 Oct 99
84863	15 Oct 99
84898	18 Oct 99
84932	19 Oct 99
84973	21 Oct 99
85323	4 Nov 99
86405	3 Jan 2000
87040	25 Jan 2000
87119	28 Jan 2000
87987	7 Mar 2000
89042	18 Apr 2000
89069	19 Apr 2000
89529	9 May 2000
89746	17 May 2000
89910	30 May 2000
90806	29 June 2000
91163	18 July 2000
91278	24 July 2000

Laboratory Report and Reporting of Required Analyses

The laboratory report was complete; all QC results were included. The project scope of work stated that URSGWC would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody. The reports provide all necessary information to complete this review.

Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled. Sample jars were in good condition.

The samples were extracted and analyzed within the 6 month holding time. No data require qualification based on missed holding times.

Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met. Field blanks were used to determine if samples were contaminated through sampling procedures or equipment. The rinse blanks had detections of lead or arsenic. No data require qualification based on these results.

SAMPLE ID	BATCH	ANALYTE	RESULT (mg/L)
Rinse Blank (rinsate)	84078	Lead	0.0032
Rinse Blank (rinsate 2)	84117	Lead	0.026
Rinse Blank (rinsate 3)	84117	Lead	0.016
Rinse Blank (rinsate 4)	84151	Lead	0.088
Rinse Blank (rinsate 5)	84215	Lead	0.031
Rinse Blank (rinsate 6)	84245	Arsenic Lead	0.034 0.026
Rinse Blank (rinsate 7)	84297	Lead	0.0061
Rinse Blank (rinsate 8)	84401	Lead	0.0065

Matrix Spikes / Blank Spikes

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. Blank spike analyses were used to monitor the overall performance of the analysis, including sample preparation. The QC frequency requirement of one matrix spike and one blank spike per analytical batch or one matrix spike and one blank spike per 20 samples, was met.

The spike recoveries ranged from were within the control limits, with the following exceptions.

- Matrix spike 84055-1 (9-15/99): The lead percent recovery was above the control limits. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.
- Matrix spike 84055-21 (9-15/99): The lead percent recovery was above the control limits. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.

- Matrix spike 84078-42 (9/20/99): The lead matrix spike was not recovered. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.
- Matrix spike 84117-1 (9/17/99): The lead matrix spike was not recovered. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.
- Matrix spike 84117-21 (9/20/99): The lead matrix spike was not recovered. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.
- Matrix spike 84151-1 (9/20/99): The arsenic percent recovery was below the control limits at 74%. The associated blank spike was within the control limits; therefore, no data were qualified.
- Matrix spike 84215-2 (9/22/99): The lead percent recovery was above the control limits. The concentration of the spiked sample was at least 10 times greater than the spike added; therefore, no data were qualified.
- Matrix spike 84215-22 (9/22/99): The lead percent recovery was below the control limits at 74%. The associated blank spike was within the control limits; therefore, no data were qualified.
- Matrix spike 84245-2 (9/21/99): The lead percent recovery was below the control limits at 64%. The associated blank spike was within the control limits; therefore, no data were qualified.
- Matrix spike 84245-40 (9/23/99): The percent recoveries were below the control limits for arsenic at 74% and lead at 72%. The associated blank spike percent recoveries were within the control limits; therefore, no data were qualified.
- Matrix spike 84297-22 (9/27/99): The percent recoveries were below the control limits for arsenic at 73% and lead at 72%. Associated quality control data were within the control limits; therefore, no data were qualified.
- Matrix spike 84297-42 (9/27/99): The percent recoveries were below the control limits for arsenic at 71% and lead at 69%. Associated quality control data were within the control limits; therefore, no data were qualified.
- Matrix spike 84320-1 (9/28/99): The percent recoveries were below the control limits for arsenic at 71% and lead at 66%. Associated quality control data were within the control limits; therefore, no data were qualified.
- Matrix spike 84320-21 (9/28/99): The percent recovery was above the control limit for lead at 133%. Associated quality control data were within the control limits; therefore, no data were qualified.
- Matrix spike 59069-21 (4/21/00): The arsenic and lead matrix spike percent recoveries were not recovered. The associated LCS and an additional matrix spike percent recoveries were within the control limits; therefore, no data were qualified.

- Blank spike S382 (9/20/99): The lead percent recovery was greater than the control limits at 133%. Associated data were qualified as estimated (J).
- Blank spike S392 (9/17/99): The lead percent recovery was greater than the control limits at 130%. Associated data were qualified as estimated (J).

Laboratory Duplicates

The laboratory duplicate relative percent differences (RPDs) were within the control limits, with the following exceptions.

- Laboratory duplicate 84030-15 (9/14/99): The lead RPD was above the control limit at 49% due to matrix interference. Associated quality control data were within the control limits; therefore, no data were qualified.
- Laboratory duplicate 84078-42 (9/20/99): The lead RPD was above the control limit at 58% due to matrix interference. Associated quality control data were within the control limits; therefore, no data were qualified.
- Laboratory duplicate 84508-21 (10/4/99): The arsenic RPD was above the control limit at 200%. The sample and duplicate results were not greater than five times the reporting limit; therefore, no data were qualified.
- Laboratory duplicate 85323-41 (11/5/99): The lead RPD was above the control limit at 46% due to matrix interference. Associated quality control data were within the control limits; therefore, no data were qualified.
- Laboratory duplicate 87040-41 (1/27/00): The arsenic RPD was above the control limit at 50% due to matrix interference. Associated quality control data were within the control limits; therefore, no data were qualified.

Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The RPD was calculated only for sample results greater than 5 times the reporting limit. A total of 42 duplicate pairs were collected which meets the QC frequency requirement of one field duplicate for 5 percent of the total samples or one field duplicate for each day of sampling, specified in the Management Plan. The duplicate pairs show good agreement, with the following exceptions:

- Duplicate pair 38-VS-96/117: the arsenic and lead results were qualified as estimated (J) due to the high duplicate RPDs.
- Duplicate pair 31-VS-586/587: the arsenic and lead results were qualified as estimated (J) due to the high duplicate RPDs.
- Duplicate pair 31-VS-639/686: the arsenic and lead results were qualified as estimated (J) due to the high duplicate RPDs.

SAMPLE ID & DUPLICATE ID	ANALYTE	PRIMARY RESULT (µg/L)	DUPLICATE RESULT (µg/L)	RPD %
31-VS-68/31-VS-83	arsenic	12	15	22
	lead	1000	1100	10
31-VS-74/31-VS-84	arsenic	15	13	14
	lead	4300	3500	21
31-VS-80/31-VS-85	arsenic	35	32	9
	lead	4200	4000	5
31-VS-137/31-VS-162	arsenic	35	26	30
	lead	2500	2100	17
31-VS-135/31-VS-163	arsenic	7.7	7.5	3
	lead	170	170	0
31-VS-171/31-VS-175	arsenic	6.1	6.9	12
	lead	260	280	7
31-VS-196/31-VS-216	--	--	--	--
31-VS-503/31-VS-504	lead	13	25	63
31-VS-518/31-VS-519	--	--	--	--
31-VS-526/31-VS-527	arsenic	15	15	0
31-VS-540/31-VS-541	--	--	--	--
31-VS-560/31-VS-561	arsenic	130	92	34
	lead	7700	4400	55
31-VS-570/31-VS-570	arsenic	11	9.7	13
	lead	26	20	26
31-VS-577/31-VS-578	arsenic	8.2	13	45
	lead	19	32	51
31-VS-586/31-VS-587	arsenic	120	30	**120**
	lead	74	47	**45**
31-VS-597/31-VS-598	arsenic	12	16	29
	lead	39	62	51
31-VS-615/31-VS-627	arsenic	11	10	10
	lead	13	13	0
31-VS-619/31-VS-628	arsenic	11	11	0
	lead	11	13	17
31-VS-624/31-VS-629	--	--	--	--
31-VS-639/31-VS-686	arsenic	45	17	**90**
	lead	130	41	**104**
31-VS-649/31-VS-687	arsenic	55	60	9
	lead	52	52	0
31-VS-659/31-VS-688	lead	11	7.6	37
31-VS-669-/31-VS-689	arsenic	11	5.9	60
31-VS-679/31-VS-690	--	--	--	--
31-VS-713/31-VS-725	--	--	--	--
31-VS-724/31-VS-726	arsenic	12	14	15
	lead	21	25	17
19-VS-37/19-VS-44	lead	23	25	8
19-VS-30/19-VS-45	lead	20	17	16
19-VS-42/19-VS-46	arsenic	56	82	38
	lead	140	140	0
19-VS-50/19-VS-55	arsenic	90	86	5
	lead	280	310	10
APC-VS-11/APC-VS-17	arsenic	21	22	5
	lead	2600	2000	26

SAMPLE ID & DUPLICATE ID	ANALYTE	PRIMARY RESULT (µg/L)	DUPLICATE RESULT (µg/L)	RPD %
5-VS-121/5-VS-116	arsenic lead	2100 15	1600 20	27 29
26-VS-32/26-VS-35	--	--	--	
26-VS-39/26-VS-44	arsenic lead	180 23	180 25	0 8
18-VS-219/18-VS-224	--	--	--	--
12-VS-2/12-VS-7	arsenic lead	50 58	59 69	17 17
LR181-VS-1/LR181-VS-9	arsenic lead	51 62	57 68	11 9
38-VS-37/38-VS-47	arsenic lead	75 24	65 23	14 4
38-VS-46/38-VS-48	arsenic lead	190 36	180 35	5 3
38-VS-74/38-VS-80	arsenic lead	380 46	560 62	38 30
38-VS-96/38-VS-117	arsenic lead	17 5.7	38 16	**76** **95**
SA5-8944/SA5-8940	arsenic lead	11 14	12 17	9 19

Reporting Limits

To ensure the level of sensitivity meets project goals, reporting limits were reviewed. Reported results are acceptable.

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data generally meet criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations without qualification.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of two soil samples from the Weyerhaeuser-Dupont site in Dupont, Washington, on February 17, 1999. Two primary samples were submitted to MultiChem Analytical Services for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Matrix spike / blank spikes (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using guidance from the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Arsenic	EPA 6010
Lead	EPA 6010

Sample Case

The following sample data group was included in this review:

MAS#: 902024

Laboratory Report and Reporting of Required Analyses

The laboratory report was complete; all QC results were included. The project scope of work stated that URSGWC would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody. Comprehensive data validation was not requested for this round of sampling. The reports provide all necessary information to complete this review.

All analytical methods were reported as requested.

Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled. Sample jars were in good condition.

The samples were extracted and analyzed within the 6 month holding time. Holding times were within specifications of the Management Plan.

Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met. No data were qualified due to these results.

Matrix Spikes / Blank Spikes

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS and one BS per analytical batch or one MS and one BS per 20 samples, was met.

The spike recoveries ranged from 93 to 99 percent and were within the control limits. No data were qualified due to these results.

Laboratory Duplicates

The laboratory relative percent difference (RPD) was 17 percent and was within the control limits. No data were qualified.

Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was not met. No data were qualified.

Reporting Limits

To ensure the level of sensitivity meets project goals, reporting limits were reviewed. All sample results were detections. Reported results are acceptable.

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data generally meet criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations without qualification.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of soil samples from the Weyerhaeuser-Dupont site in Dupont, Washington, in November and December, 1998. Sixty-eight primary samples and three field duplicates were submitted to MultiChem Analytical Services for analysis. This review includes evaluation of the following:

- Laboratory report and reporting of required analyses
- Chain of custody and holding times
- Method blanks
- Matrix spike / blank spikes (MS / BS)
- Laboratory duplicates
- Field duplicates
- Reporting limits

The data quality review was conducted using the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Arsenic	EPA 6010/7060
Lead	EPA 6010/7421

Sample Case
The following sample data groups were included in this data review:

MAS#: 811052
MAS#: 812020
MAS#: 812021

Laboratory Report and Reporting of Required Analyses

The laboratory report was complete; all QC results were included. The project scope of work stated that Woodward-Clyde would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody. Comprehensive data validation was not requested for this round of sampling. The reports provide all necessary information to complete this review.

All analytical methods were reported as requested.

Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled until arrival at the laboratory. Sample bottles were in good condition.

The samples were extracted and analyzed within the 6 month holding time. Holding times were within specifications of the Management Plan.

Method and Field Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of target analytes. The QC frequency requirement of one laboratory blank per analytical batch was met.

Three rinse blanks were analyzed. The field rinse blanks were free of target analytes. No data were qualified due to these results.

Matrix Spikes / Blank Spikes

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement of one MS and one BS per analytical batch or one MS and one BS per 20 samples, was met.

The matrix spike and blank spike results were compared to evaluate the accuracy of laboratory procedures. The spike recoveries ranged from 67 to 112 percent and were within the control limits with the following exception. Two of the lead MS percent recoveries were not calculated as the sample concentration was greater than four times the spike concentration. No data were qualified due to these results.

Laboratory Duplicates

The relative percent differences (RPDs) ranged from 0 to 26 percent and were within the control limits established by the laboratory. No data were qualified.

Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was met. Three sets of field duplicate samples were collected. The RPD of detected compounds were calculated for the duplicate pairs (shown below). The RPDs were acceptable.

Sample ID	Analyte	Primary (mg/kg)	Duplicate (mg/kg)	Relative Percent Difference (percent)
98SCOM0105 / COM0111	arsenic	4.9	4.4	11
	lead	4.6	5.3	14
98SCHR0302 / CHR0311	arsenic	87	82	5.9
	lead	34000	42000	21
98SCHR0407 / CHR0411	arsenic	26	30	14
	lead	190	230	19

Reporting Limits

To ensure the level of sensitivity meets project goals, reporting limits were reviewed. All sample results were detections. Reported results are acceptable.

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data generally meet criteria specified in the 1992 Management Plan. The data may be used to assess analyte concentrations in the groundwater without qualification.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of groundwater samples from the former DuPont Works site in Dupont, Washington, on October 17, 1997. Eight primary samples and one QC sample (field duplicate) were submitted to MultiChem Analytical Services for analysis. This review includes evaluation of the following:

- Chain of custody and holding times
- Laboratory report and reporting of required analyses
- Laboratory blanks
- Rinsate (field) blanks
- Field duplicates
- Laboratory duplicates
- Matrix spike/matrix spike duplicates (MS/MSD)
- Surrogate recoveries (where applicable)
- Reporting limits

The data quality review was conducted using the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former DuPont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Explosives (NAX): SW846 8090 (modified)

Sample Case

The following samples were included in this data review:

MW-22	MW-6
MW-22-D (Blind field duplicate of MW-22)	MW-8
Seep-1	W-2
MW-3	W-1
MW-19	

Chain of Custody and Holding Times

Samples were maintained under chain of custody until arrival at the laboratory. Samples were preserved and cooled.

The sample holding times were within specifications of the Management Plan.

Laboratory Report and Reporting of Required Analyses

The laboratory report was complete and all QC results were included. The project scope of work stated that Woodward-Clyde would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody.

Section 5.0 of the Management Plan gives the required QC level of effort, including QC measures such as calibration frequency. Some of these QC measures may have been met by the laboratory, but were not confirmed through data evaluation because comprehensive data validation was not requested. The reports provide all necessary information to complete this data assurance review.

All analytical methods were reported as requested.

Method Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of contamination. The QC frequency requirement specified in the Management Plan of one laboratory blank per analytical batch was met.

Rinsate (Field) Blanks

No rinsate blanks were associated with the samples because samples were transferred directly from dedicated bailers into sample jars.

Field Duplicates

Field duplicate samples were used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was met. One set of field duplicate samples was collected at MW-22 and the duplicate was identified as MW-22-D. Only two compounds were detected; all other compounds were non-detect. The relative percent difference (RPD) of detected compounds were calculated for the duplicate pair (shown below). All RPDs were acceptable.

ANALYTE	PRIMARY (µg/L)	DUPLICATE (µg/L)	RELATIVE PERCENT DIFFERENCE (percent)
2,6-dinitrotoluene	0.14	0.14	0%
2,4-dinitrotoluene	0.029	0.027	7%

Laboratory Duplicates

The laboratory analyzed matrix spike/matrix spike duplicates for the explosives method.

Matrix Spike/Matrix Spike Duplicates

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement specified in the Management Plan of one MS and one MSD per analytical batch was met.

The matrix spike and matrix spike duplicate results were compared to identify the laboratory precision. The MS/MSD RPDs were all within the control limits established by the laboratory and found in the Management Plan. No data were qualified.

All blank spike/blank spike duplicate (BS/BSD) recoveries were within the control limits. No data were qualified.

Surrogate Recoveries

Surrogate compounds were used in the analysis of organic compounds (EPA Method 8090 modified) to monitor analyte extraction efficiency/method accuracy on a per sample basis. All surrogate recoveries were within the Management Plan control limits. No data were qualified due to surrogate results.

Reporting Limits

To ensure that the level of sensitivity required for project goals was met, reporting limits were reviewed. The reporting limits requested in the Management Plan were met or exceeded.

ANALYTE	REQUESTED RL (μg/L)	ACTUAL RL (μg/L)
nitrobenzene	1.7	0.40
1,3-dinitrobenzene	0.44	0.040
2,6-dinitrotoluene	0.13	0.010
2,4-dinitrotoluene	0.13	0.020
1,3,5-trinitrobenzene	0.16	0.040
2,4,6-trinitrotoluene	2.9	0.040

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data generally meet criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations in the groundwater with the stated qualifications.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of groundwater samples from the Weyerhaeuser-Dupont site in Dupont, Washington, on March 23, 1999. Five primary samples, and one field duplicate were submitted to MultiChem Analytical Services for analysis. This review includes evaluation of the following:

- Chain of custody and holding times
- Laboratory report and reporting of required analyses
- Laboratory blanks
- Rinsate (field) blanks
- Field duplicates
- Laboratory duplicates
- Matrix spike/matrix spike duplicates (MS/MSD)
- Blank spike review
- Surrogate recoveries
- Reporting limits

The data quality review was conducted using the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- National Functional Guidelines for Inorganic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Explosives (NAX): SW846 8091 (modified)

Sample Case

The following table includes samples associated with this data review, the laboratories sample identification number, any analytes that were qualified, and any qualifiers that were added to the laboratory data.

Sample ID	Laboratory ID	Analyte	Qualified Result
MW-3	903061-1	1,3-dinitrobenzene	0.21 J
MW-6	903061-2	1,3-dinitrobenzene	0.32 J
MW-19	903061-3	1,3-dinitrobenzene	0.39 J
MW-22	903061-4	1,3-dinitrobenzene	0.37 J
MW-29 duplicate of MW-19	903061-5	1,3-dinitrobenzene	0.4 J
W-2	903061-6	1,3-dinitrobenzene	none

Chain of Custody and Holding Times

The chain of custody forms indicate that the samples were maintained under chain of custody, the forms were signed during release and receipt, and the samples were appropriately preserved., with the following exception. The cooler temperature was 9.8 °C, outside of the recommended temperature range of 4±2 °C. No data were qualified due to chain of custody or holding time issues.

The water holding time for NAX is 7 days from collection to extraction, and 40 days from extraction to analysis. Holding times were met.

Laboratory Report and Reporting of Required Analyses

The laboratory reported all requested analyses and the laboratory report is complete. The project scope of work stated that Woodward-Clyde would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody.

Section 5 of the Management Plan gives the required QC level of effort, including QC measures such as calibration frequency. These QC measures may have been met by the laboratory, but were not confirmed through data evaluation because comprehensive data validation was not requested. The reports provide all necessary information to complete this data assurance review.

Method Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The laboratory method blanks were free of contamination. The QC frequency requirement specified in the Management Plan of one laboratory blank per analytical batch was met.

Rinsate (Field) Blanks

No rinsate blanks were associated with the samples.

Field Duplicates

Field duplicate samples are used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was met. One set of field duplicate samples was collected at MW-19 and the duplicate was identified as MW-29. Four compounds were detected; all other compounds were non-detect. The relative percent difference (RPD) of detected compounds were calculated for the duplicate pair (shown below). All RPDs were acceptable.

Analyte	Primary (µg/L)	Duplicate (µg/L)	Relative Percent Difference (percent)
nitrobenzene	1.4	1.1	24%
2,4-dinitrotoluene	0.064	0.074	14%
1,3-dinitrobenzene	0.39	0.40	2.5%
2,4,6-trinitrotoluene	0.21	0.23	9%

Laboratory Duplicates

The laboratory analyzed matrix spike/matrix spike duplicates for the explosives method.

Matrix Spike/Matrix Spike Duplicates

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement specified in the Management Plan of one matrix spike/matrix spike duplicate (MS/MSD) per analytical batch was met.

The matrix spike/matrix spike duplicate results were compared to identify the laboratory precision. The MS/MSD percent recoveries and RPDs were all within the control limits, with the following exceptions.

- The MS/MSD percent recoveries were above the control limits for 1,2-dinitrobenzene at 183% and 192%. Associated data above the reporting limit were qualified as estimated (J).
- The RPD for 2,4,6-trinitrotoluene was above the control limit at 76%. Since both the MS and MSD percent recoveries were within the control limits, no data were qualified due to these results.

Blank Spike Review

All blank spike/blank spike duplicate (BS/BSD) recoveries were within the control limits, with the following exception. The percent recovery for 1,3-dinitrobenzene was above the control limit at 164%. Since the associated matrix spike quality control data were also above the control limits, the associated data above the reporting limit were qualified as estimated (J).

Surrogate Recoveries

Surrogate compounds are used in the analysis of organic compounds to monitor analyte extraction efficiency/method accuracy on a per sample basis. All surrogate recoveries were within the Management Plan control limits. No data were qualified due to surrogate results.

Reporting Limits

To ensure that the level of sensitivity required for project goals was met, reporting limits were reviewed. The reporting limits requested in the Management Plan were met or exceeded.

Analyte	Requested RL (µg/L)	Actual RL (µg/L)
nitrobenzene	1.7	0.40
1,3-dinitrobenzene	0.44	0.040
2,6-dinitrotoluene	--	0.010
2,4-dinitrotoluene	--	0.020
1,3,5-trinitrobenzene	0.16	0.040
2,4,6-trinitrotoluene	--	0.040

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data generally meet criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations in the groundwater with the stated qualifications.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of groundwater samples from the Weyerhaeuser-Dupont site in Dupont, Washington, on March 28, 2000. Four primary samples and one field duplicate were submitted to MultiChem Analytical Services for analysis. This review includes evaluation of the following:

- Chain of custody and holding times
- Laboratory report and reporting of required analyses
- Laboratory blanks
- Rinsate (field) blanks
- Field duplicates
- Laboratory duplicates
- Matrix spike/matrix spike duplicates (MS/MSD)
- Blank spike review
- Surrogate recoveries
- Reporting limits

The data quality review was conducted using the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- National Functional Guidelines for Inorganic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Explosives (NAX): SW846 8091 (modified)

Sample Case

The following table includes samples associated with this data review, the laboratory sample identification number, any analytes that were qualified, and any qualifiers that were added to the laboratory data. Monitoring well MW-3 was not sampled due to an inadequate amount of sample available.

Sample ID	Laboratory ID	Analyte	Qualified Result
MW-3	not sampled		
W-2	89066-1	all NAX results	J or UJ
MW-19	89066-2	all NAX results	J or UJ
MW-29 duplicate of MW-19	89066-5	all NAX results	J or UJ
MW-22	89066-22	all NAX results	J or UJ
MW-6	89066-7	all NAX results	J or UJ

Chain of Custody and Holding Times

The chain of custody forms indicate that the samples were maintained under chain of custody, the forms were signed during release and receipt, and the samples were appropriately preserved. The samples were submitted to Multichem Analytical Services for analysis. Multichem went out of business on March 31, 2000; however, they were able to extract the samples. After confirming that Multichem was closed and would not be able to analyze the extracts, the samples and extracts were retrieved from Multichem on April 18, 2000. The samples and extracts were submitted to Sound Analytical for analysis.

The water holding time for NAX is 7 days from collection to extraction, and 40 days from extraction to analysis. Holding times were met.

Laboratory Report and Reporting of Required Analyses

The laboratory reported all requested analyses and the laboratory report is complete. The project scope of work stated that Woodward-Clyde would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody.

Section 5 of the Management Plan gives the required QC level of effort, including QC measures such as calibration frequency. These QC measures may have been met by the laboratory, but were not confirmed through data evaluation because comprehensive data validation was not requested. The reports provide all necessary information to complete this data assurance review.

Method Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The QC frequency requirement specified in the Management Plan of one laboratory blank per analytical batch was met. Target analytes in the method blank were below detection with the exceptions listed in the following table. Qualified data are summarized in the Sample Case section.

SAMPLE ID	ANALYTE	RESULT (µg/L)
Method Blank 89066-08	RDX	0.15
	1,3,5-Trinitrobenzene	0.083
	Tetryl	0.082
	2,4,6-Trinitrotoluene	0.084
	2-Amino-4,6-dinitrotoluene	0.12
	4-Amino-2,6-dinitrotoluene	0.074

Rinsate (Field) Blanks

No rinsate blanks were associated with the samples.

Field Duplicates

Field duplicate samples are used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was met. One set of field duplicate samples was collected at MW-19 and the duplicate was identified as MW-29. One compound was detected; all other compounds were qualified as non-detect. The relative percent difference (RPD) of the detected compound was calculated for the duplicate pair (shown below). All RPDs were acceptable.

Analyte	Primary (µg/L)	Duplicate (µg/L)	Relative Percent Difference (percent)
2,6-dinitrotoluene	0.42	0.42	0

Laboratory Duplicates

The laboratory analyzed matrix spike/matrix spike duplicates for the explosives method.

Matrix Spike/Matrix Spike Duplicates

Matrix spike analyses were used to assess matrix effects with respect to the analytical data. The QC frequency requirement specified in the Management Plan of one matrix spike/matrix spike duplicate (MS/MSD) per analytical batch was met.

The matrix spike/matrix spike duplicate results were compared to identify the laboratory precision. The MS/MSD percent recoveries and RPDs were all within the control limits, with the following exceptions.

- The MSD percent recovery was above the control limits for nitrobenzene at 174%. The associated MS percent recovery was within the control limits; therefore, no data were qualified.

Blank Spike Review

All blank spike recoveries were within the control limits. No data require qualification based on blank spike percent recoveries.

Surrogate Recoveries

Surrogate compounds are used in the analysis of organic compounds to monitor analyte extraction efficiency/method accuracy on a per sample basis. Surrogate percent recoveries for all samples, except the blank spike, were outside of the control limits. All data were qualified as estimated (J).

Reporting Limits

To ensure that the level of sensitivity required for project goals was met, reporting limits were reviewed. The reporting limits requested in the Management Plan were met or exceeded.

Analyte	Requested RL (µg/L)	Actual RL (µg/L)
nitrobenzene	1.7	0.10
1,3-dinitrobenzene	0.44	0.05
2,6-dinitrotoluene	--	0.05
2,4-dinitrotoluene	--	0.05
1,3,5-trinitrobenzene	0.16	0.05
2,4,6-trinitrotoluene	--	0.05

Summary

The data reviewed are acceptable for use based on a majority of acceptable quality control data. The data meet most criteria specified in the 1992 Hart Crowser Management Plan. The data may be used to assess analyte concentrations in the groundwater without qualification.

Introduction

This section presents a quality control (QC) review of data generated from collection and analysis of groundwater samples from the Weyerhaeuser-Dupont site in Dupont, Washington, on March 28, 2001. Five primary samples and one field duplicate were submitted to Sound Analytical Services for analysis. This review includes evaluation of the following:

- Chain of custody and holding times
- Laboratory report and reporting of required analyses
- Laboratory blanks
- Field duplicates
- Laboratory duplicates
- Matrix spike/matrix spike duplicates (MS/MSD)
- Blank spike review
- Surrogate recoveries
- Reporting limits

The data quality review was conducted using the following documents:

- National Functional Guidelines for Organic Data Review, EPA, February 1994.
- Remedial Investigation/Feasibility Study, Former Dupont Works Site Management Plan, Hart Crowser, January 1992.

Criteria used to assess the data are found in Section 5 of the Management Plan. The analytical data has been compared to the Management Plan limits.

The samples were analyzed for the following chemicals and chemical groups.

Nitroamine & Nitroaromatic Compounds: SW846 8330

Sample Case
The following table includes samples associated with this data review, the laboratory sample identification number, any analytes that were qualified, and any qualifiers that were added to the laboratory data.

Sample ID	Laboratory ID	Analyte	Qualified Result
MW-44 (dup of MW-22)	97075-01	none	
MW-3	97075-02	none	
MW-6	97075-03	none	
MW-19	97075-04	none	
MW-22	97075-05	none	
W-2	97075-06	none	

Chain of Custody and Holding Times

The chain of custody forms indicate that the samples were maintained under chain of custody, the forms were signed during release and receipt, and the samples were appropriately preserved.

The water holding time for NAX is 7 days from collection to extraction, and 40 days from extraction to analysis. Holding times were met for all samples.

Laboratory Report and Reporting of Required Analyses

The laboratory reported all requested analyses and the laboratory report is complete. The project scope of work stated that URS would provide industry-accepted evaluation of data quality and documentation of sample acquisition and custody.

Section 5 of the Management Plan gives the required QC level of effort, including QC measures such as calibration frequency. These QC measures may have been met by the laboratory, but were not confirmed through data evaluation because comprehensive data validation was not requested. The reports provide all necessary information to complete this data assurance review.

Method Blanks

Method blanks were used to determine if samples were contaminated through laboratory procedures or equipment. The QC frequency requirement specified in the Management Plan of one laboratory blank per analytical batch was met. Target analytes in the method blank were below detection. No data require qualification based on method blank contamination.

Field Duplicates

Field duplicate samples are used to assess sampling precision and representativeness. The QC frequency requirement of one field duplicate for 5 percent of the total samples, specified in the Management Plan, was met. One set of field duplicate samples was collected at MW-22 and the duplicate was identified as MW-44. The primary and duplicate samples did not have any detections greater than the reporting limit. No data require qualification based on the field duplicate.

Laboratory Duplicates

The laboratory analyzed matrix spike/matrix spike duplicates for the explosives method.

Matrix Spike/Matrix Spike Duplicates

Matrix spike analyses are used to assess matrix effects with respect to the analytical data. The QC frequency requirement specified in the Management Plan of one matrix spike/matrix spike duplicate (MS/MSD) per analytical batch was not met. The laboratory did not have enough sample volume to perform an MS/MSD. The laboratory did perform a blank spike/blank spike duplicate. No data were qualified.

Blank Spike Review

All blank spike recoveries were within the control limits. No data require qualification based on blank spike percent recoveries.

Surrogate Recoveries

Surrogate compounds are used in the analysis of organic compounds to monitor analyte extraction efficiency/method accuracy on a per sample basis. Surrogate percent recoveries were within the control limits for all samples, with the following exception. The surrogate percent recovery for sample MW-19 was greater than the control limits at 158%. The associated sample results were less than the reporting limit; therefore, no data were qualified.

Reporting Limits

To ensure that the level of sensitivity required for project goals was met, reporting limits were reviewed. The reporting limits requested in the Management Plan were met or exceeded with the exception of the reporting limits for 2,4-dinitrotoluene and 2,5-dinitrotoluene. No data were qualified.

Analyte	Requested RL (µg/L)	Actual RL (µg/L)
nitrobenzene	8	0.4
1,3-dinitrobenzene	1.6	0.5

Analyte	Requested RL (µg/L)	Actual RL (µg/L)
2,6-dinitrotoluene	0.13	0.4
2,4-dinitrotoluene	0.13	0.4
1,3,5-trinitrobenzene	0.8	0.5
2,4,6-trinitrotoluene	2.9	0.4

Pre-1994 Data Quality Assessment

This appendix material was developed in draft form by Hart Crowser for the 1994 Draft RI (Hart Crowser 1994d). For completeness, it is retained here as it was developed. It includes references to all sampling conducted as specified in the RI/FS Management Plan (Hart Crowser 1992a). As a result, it refers to locations sampled outside the Consent Decree Boundary that will be the subject of additional reports.

DATA QUALITY ASSESSMENT

This appendix describes the assessment of data quality of the chemical analyses performed for the remedial investigation (RI) as outlined in the RI/FS Management Plan (Hart Crowser, 1992), including the pre-RI, RI, and interim source removal data. Much of the previous investigation data quality work conducted on the Site is summarized in the data quality sections of the pre-RI reports (Hart Crowser, 1986 and 1987, respectively). If data quality review was not conducted on pre-RI data, we reviewed the data as part of this project, and any data quality considerations are addressed in this appendix. A data quality review was conducted in order to evaluate data usability to determine the distribution of chemicals on the Site in the RI and to evaluate risk to human health and the environment (EPA, 1990).

The data validation and data quality review reports as of April 1994 are for results of approximately 4,800 soil samples, 28 freshwater sediment samples, 11 marine sediment samples, 16 Bunker C samples, 70 surface water samples, and 335 groundwater samples as summarized in this appendix.

This data quality assessment appendix contains the following sections:

- Section F.1 — Summary of analytical methods used for chemical analysis of samples collected for the RI as specified in the Management Plan;
- Section F.2 — Evaluation of Site data for explosives method performance;
- Section F.3 — Summary of specific data quality results; and
- Section F.4 — Evaluation of overall precision, accuracy, representativeness, completeness, and comparability, and RI sample handling, holding times, and reporting limits. The detailed data validation reports are contained in supplemental reports in Hart Crowser's Weyerhaeuser/DuPont Project File.

Table F-1 summarizes the total number of critical data points and the extent of data qualification. Table F-2 presents a list of critical data that have been qualified based on our validation efforts and includes reasons for the qualification. Critical data include sample results that were greater than or within twenty percent of the MTCA screening level as specified in Section 1-1 of the RI. This list was analyzed to identify trends in quality control parameters that may impact specific data sets and overall data quality. Critical data were evaluated in order to assess the level of uncertainty in the data used to define chemical distribution for the RI, evaluate FS cleanup options, and quantify risk. No trends impacting overall critical data quality were identified; therefore, there is a high level of confidence associated with the data.

Analytical Methods

Sampling and analysis of soil, sediment, surface water, and groundwater from the Site used analytical methods and data quality objectives specified in the Quality Assurance Project Plan (QAPP; Section 5.0 of Hart Crowser, 1992a). Analytical methods were based on SW-846 protocols or other Ecology-approved methods in accordance with WAC 173-340-830(4)(a) (see page 5-5 of the Management Plan). Ecology approved the analytical methods for explosives analyses and lead (see Attachment 5-8 of the Management Plan). Appropriate methods were selected to achieve sufficient reporting limits to evaluate results against MTCA screening levels.

Chemical analyses were performed by Analytical Technologies, Incorporated (ATI). Explosives analyses were performed at the ATI Fort Collins laboratory. The other chemical analyses were performed at ATI in Renton, Washington, or San Diego, California. Samples for a given chemical analysis method were performed by the same ATI regional laboratory except for metals. Most soil samples were analyzed for metals by the ATI Renton laboratory. A limited number of soil samples were analyzed for metals at the ATI San Diego laboratory (see discussion in Section F.4.5 on comparability).

In addition, a limited number of soil samples were analyzed by the Hart Crowser *FAST* Laboratory for lead and TPH. These data received a limited review, which is also discussed in this appendix.

Evaluation of Explosives Method Performance

Analysis methods were developed by Hart Crowser and ATI for nitroaromatic explosives, MMAN, and nitroglycerin in order to achieve reporting limits low enough to meet MTCA screening levels. Method performance was evaluated in order to determine if reporting limits were achievable. Results of ATI's Method Detection Limit (MDL) study for nitroaromatic explosives were compared with reporting limits and MTCA screening levels for groundwater and surface water. The MDL study was performed according to EPA guidance (40 CFR 136B). Reporting limits are less than MTCA screening levels; however, in some cases dilution was required prior to analysis and as a result, sample detection limits for selected samples were elevated above the screening levels.

Reporting limits and MTCA screening levels were also compared to ATI instrument calibration ranges. For all analytes, the reporting limit is comparable to the lowest level calibration standard, indicating that accurate quantitation can be achieved at this concentration.

Summary of Specific Data Quality Results

In general, overall data quality for this project was very good. Table F-1 summarizes by matrix the total number of critical data points, the number of estimated (J) and rejected (R) critical data points, and the percent of the critical data not requiring qualification. The percent of critical data not requiring qualification was in most cases greater than 90 percent. This indicates that overall data quality was high and meets data usability requirements as defined by EPA (1990). The limited amount of qualification of critical data indicates that the data are highly reliable for use in the RI/RA/FS.

In two cases, data review resulted in the rejection of data based on EPA guidance (EPA, 1988a and 1988b) (or on professional judgment). Two data sets were identified that were rejected or not used: organophosphate pesticides (OP Pesticides) in freshwater sediments and PAHs in marine sediments.

Freshwater Sediment OP Pesticides. OP pesticide results were rejected for all freshwater sediments analyzed by EPA Method 8140 for several reasons. Initial and continuing calibration was outside of established control limits, surrogate recoveries were high, ranging from 164 to 501 percent (outside the control limits of 50 to 150 percent), and matrix spike recovery was high (outside the control limit of 120 percent). Because of the cumulative effect of multiple qualifiers, all sample results were qualified as rejected (R) based on EPA guidance.

Marine Sediment PAHs. PAH results were not used for all marine sediment samples analyzed by EPA Method 8310 because of data quality issues and the availability of a more reliable data set. PAH results from the semivolatiles analyses (EPA Method 8270) for these samples were used instead. PAHs were determined by two analytical methods in order to meet sediment management standards for all compounds. Method 8310 may be able to achieve lower detection limits than Method 8270 for some PAH compounds; however, the 8310 results may be less qualitatively reliable due to matrix interferences and associated compound resolution problems, and lack of confirmation of compound identities. The 8270 method is a confirmation method and thus more qualitatively reliable; however, detection limits may be higher for some compounds than can be achieved by Method 8310.

Results from the 8310 analyses indicated there were interferences that resulted in poor matrix spike recovery, and the duplicate precision was not as good as those from the 8270 analysis. Method 8270 was also able to achieve sufficiently low sample detection limits for all compounds to evaluate results against sediment management standards, therefore only the PAH results from the Method 8270 analysis for marine sediments were used.

Data Quality Review Results

In general, the data quality objectives of the project as specified in the QAPP were met with the exception of the rejected data. The analytical data, as qualified, are deemed acceptable for use in this RI/RA/FS. All laboratory data were subjected to one of two levels of quality assurance review as described below by either Hart Crowser, or EcoChem, Inc., of Seattle, Washington. The detailed data validation reports and original laboratory data are available in Hart Crowser's project files. The following discussion summarizes the findings detailed in the data validation reports.

To confirm the usability of the data for the RI/RA/FS, approximately twenty percent of all soil data produced by ATI received full validation in accordance with EPA's Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis (EPA, 1988a) and with Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis (EPA, 1988b), including evaluation of raw data sample chromatograms and initial and continuing calibration verifications. In addition, all Round 1 and Round 8 groundwater, surface water, and freshwater and marine sediments received full validation.

The remaining soil and water chemical data used in the risk assessment and any field screening data were reviewed with regard to the following, as appropriate to the particular analysis:

- Holding times;
- Blanks;
- Detection limits;
- Duplicates;
- MS/MSDs;
- Surrogate recoveries;
- Completeness;
- Comparability; and
- Reporting limits.

Chemical analyses of quality control samples such as method blanks, MS/MSD, and laboratory duplicates were performed as specified in the applicable analytical protocols and in the QAPP. Field duplicates were collected to evaluate field and laboratory precision with respect to sample homogeneity, collection, handling, shipping, storage, preparation, and analysis.

Assessment of overall data quality was based upon quantitative (precision, accuracy, completeness) and qualitative (representativeness, comparability) quality assurance objectives. Definitions of these parameters and the applicable quality control procedures are given below in Sections F.4.1 through F.4.5.

Precision

Precision measures the reproducibility of measurements under a specific set of conditions. It is a quantitative measure of the variability of a group of measurements compared to their average values. Analytical precision is measured through matrix spike/matrix spike duplicate (MS/MSD) samples for organics analyses and through laboratory duplicate samples for inorganic analyses. Analytical precision is quantitatively expressed as the relative percent difference (RPD) between the MS/MSD or duplicates. Analytical precision measurements were carried out on site matrices at a minimum frequency of one per laboratory analysis group or one in 20 samples, whichever was more frequent, per matrix analyzed.

The RPD is calculated as follows:

$$RPD = \frac{(C_1 - C_2) \times 100\%}{(C_1 + C_2)/2}$$

Where:
C_1 = Larger of the two observed values
C_2 = Smaller of the two observed values

MS/MSD and laboratory duplicate precision generally met data quality performance criteria and were deemed acceptable. A number of metals including cadmium, chromium, lead, mercury, and nickel, and PAH data were qualified based on poor laboratory duplicate precision (see Table
F-2). The poor PAH precision values were caused by sample dilution that was required due to high concentrations and/or matrix interference. The poor metals precision may be due to the heterogeneous sample matrix.

Field duplicates were used to assess both laboratory and field precision. Field duplicate precision is discussed in Section F.4.4.

Accuracy

Accuracy measures the closeness of the measured value to the true value. The accuracy of chemical test results is assessed by "spiking" samples with known standards (surrogates or matrix spike) and establishing the percent recovery (%R). Accuracy measurements on matrix spike samples were carried out at a minimum frequency of one in 20 samples per matrix analyzed for both organic and inorganic analyses. Surrogate recoveries were determined for every sample analyzed for organics in accordance with SW-846 requirements for organic analysis.

Percent recovery is calculated as follows:

$$\%R = 100\% \times (S-U)/C_{SA}$$

Where:
S = Measured concentration in spiked aliquot
U = Measured concentration in unspiked aliquot
C_{SA} = Actual concentration of spike added

In general, the data accuracy is adequate for the purposes of this RI/RA/FS. Several sample matrix spike and/or surrogate recoveries of organics analyses were outside of control limits and the data were qualified accordingly (see Table F-2). Samples were qualified as rejected (R) when either matrix or analytical spikes were not recovered in a number of metals analysis, including cadmium and antimony, and one nitroglycerin and one sample analyzed for nitroaromatic explosives.

Surrogate recoveries were often out of control limits when sample dilution was required. This occurred primarily with explosives and PAH data.

Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid measurements. Results will be considered valid if all the precision, accuracy, and representativeness objectives are met. The target completeness goal for this RI/RA/FS is 90 percent as defined in the QAPP.

Measurement of completeness (C) is based on overall usefulness of the data and is defined as the ratio of acceptable measurements obtained to the total number of planned measurements for an activity.

$$C = \frac{\text{Total No. of data within target QC limits}}{\text{Total No. of data points}} \times 100$$

Total number of data within target QC limits is calculated by subtracting the total number of rejected (R) data points from the total number of data points. (Note that each analyte counts as one point.)

A total of approximately 64,300 data points were generated as part of the sampling and analysis program outlined in the Management Plan and conducted during the RI.

Overall completeness of the data is 99.5 percent. A number of specific data points were rejected for various quality control reasons. Table F-2 outlines the reasons for rejecting specific data points.

Representativeness

Representativeness is a measure of how closely the measured results reflect the actual concentration or distribution of the chemical compounds in the matrix sampled. The sampling plan design, sampling techniques, and sample handling protocols (e.g., storage, preservation, and transportation) were designed to assure representative samples with respect to the site. Representativeness is evaluated based on the collection and analysis of field duplicates, rinseate blanks, trip blanks, and laboratory method blanks.

- Field duplicates were used to assess field and method variation.

- Rinseate blanks were used as a quality control check on the effectiveness of sampling equipment decontamination procedures and possible contamination carry over during collection of the samples.

- Trip blanks were used to assess the potential contamination of water samples by volatile organic compounds during sample handling, storage, and transport to the laboratory.

- Laboratory method blanks were used to assess laboratory contamination during the performance of the method.

Additionally, elevated dissolved antimony concentrations were found to be derived from filters from the manufacturer and were therefore not representative of Site conditions (see the discussion below and in Section 3.2.3 of the RI).

Field Duplicates. Field duplicates and blind field duplicates were used to assess field and analysis method variation and were obtained at a minimum frequency of 1 per 20 samples, except groundwater field duplicates, which were collected at a frequency of 1 per 28 samples. Blind field duplicates were submitted to the laboratory without identifying them as field duplicates.

Field duplicate precision was evaluated by calculating the relative percent difference (RPD) between the reported results for a sample and its duplicate. Field duplicate precision data quality performance criteria have not been established by EPA (EPA, 1988a and 1988b). A screening level of 50 percent was used to evaluate detected sample results. Non-detected results cannot be reliably evaluated for precision.

Since duplicate analyses measure both field and laboratory precision, results may be quite variable. Poor precision can be a reflection of the difficulties associated with collecting identical field samples and sample heterogeneity. Poor precision can also be attributed to low levels detected near the detection limit as observed with the explosives and PAH analyses. Precision was generally acceptable at higher concentrations of these analyte groups.

The overall precision of the field duplicate analysis was acceptable. For all matrices and analytes combined, 80% of the RPDs calculated were below 50 percent. In addition to field duplicates, approximately 40 blind duplicates were submitted for analysis during the last round of surface soil sampling for arsenic. Blind duplicates were submitted to evaluate potential bias in precision of the non-blind field duplicate samples. No field duplicate bias was found. The average RPD of the field duplicates and blind duplicates were essentially equal, at 20 and 21 percent, respectively.

No data were qualified based on field duplicate or blind duplicate precision.

Rinseate Blanks. Potential contamination of groundwater samples in the field is assessed through analysis of rinseate blanks. Rinseate blanks are collected from the final rinse with de-ionized water of decontaminated sampling equipment. Rinseate blanks contained low concentrations (less than screening levels) of one or more of the following target analytes:

- Total aluminum, cadmium, antimony, copper, chromium, selenium, and zinc were detected in one of five rinseate blank samples;
- Dissolved antimony (detected in four of five samples) and zinc (detected in one of five

samples);

- 2,4,6-TNT and 2,4-DNT were detected in one of five samples;
- PCBs were detected in three of five samples;
- PAHs were detected in four of five samples;
- TOC was detected in four of five samples; and
- TDS was detected in one of five samples.

Detections may be attributed to poor decontamination techniques. However, all detections were less than screening levels and therefore cross-contamination from sampling equipment did not impact reported sample results.

For samples associated with a blank containing a detectable concentration of a target analyte, action was taken by comparing sample detects to 5X (10X for common organic laboratory contaminants) the level detected in the blank (action level). If the sample result was less than the action level, the result was qualified as not detected (U) with an elevated reporting limit.

Trip Blanks. Trip blanks, consisting of organic-free distilled, de-ionized water in sealed VOA bottles, were carried into the field during groundwater sampling operations. Two trip blanks were stored and shipped to ATI with each round of groundwater samples and analyzed for volatile organics to assess outside sources of contamination. Two trip blanks had detectable concentrations of chloroform, a common laboratory contaminant. The chloroform contamination may be due to residual solvent from the laboratory bottle decontamination process.

Laboratory Blanks. Laboratory method blanks were analyzed by the laboratory at a minimum of 5 percent frequency to assess laboratory contamination. Several laboratory method and instrument blanks associated with both soil and water analyses contained analytes at concentrations at or above the reporting limit. Common laboratory contaminants were methylene chloride, acetone, hexane, di-n-butylphthalate, bis(2-ethylhexyl) phthalate, and di-n-octylphthalate.

Dissolved Antimony Related to Sample Filtration. Filters used in the collection of filtered groundwater and surface water samples for dissolved metals analyses contributed antimony to the filtered samples. Antimony was detected consistently in filtered groundwater and surface water samples from the Site, but not in unfiltered samples. This is contrary to the typical situation, where total metals concentrations were substantially higher than dissolved concentrations due to sample turbidity. Strong evidence, including independent data from the manufacturer, exists that the filters contributed antimony to the filtered water samples, and that antimony is not present at detectable concentrations in Site groundwater or surface water. Section 3.2.3 in Volume 1 provides additional details.

Comparability

Comparability is a qualitative parameter expressing the confidence of one data set compared with another. The use of standard techniques for both sample collection and laboratory analysis should make data collected comparable to data generated by different laboratories or by the same laboratory at different times. Comparability can be judged by evaluating the consistency in sampling and analysis methods used, and the differences between results produced by different laboratories.

Field Sampling. Throughout field activities, field sampling procedures were followed as outlined in the RI/FS Management Plan (Hart Crowser, 1992). Field audits were conducted during soil and groundwater sampling activities during the RI to evaluate adherence to sampling protocols. Three audits were conducted during soil sampling events on November 18, 1993, December 10, 1993, and January 7,1994. One audit was conducted during groundwater sampling on January 4, 1993.

Due to the non-homogeneous nature of the soil matrix, it is essential that consistent sampling methods are used to collect representative samples. We noted during our field audits that surface soil samples were consistently collected from 0- to 6-inch depths. Care was taken to collect approximately equal amounts from the entire soil horizon and to mix the sample well prior to placing in the sample jar. We found that the sampling methods were consistent between sampling events and field teams.

Groundwater sampling consistency is maintained by routinely purging three casing volumes of water from each well prior to sampling, monitoring pH, temperature, and conductivity during well purging, and using dedicated bailers to avoid cross contamination. Purging the well and collecting only fresh water from the aquifer assures samples are representative of aquifer conditions.

Based on the results of these audits, samples were collected according to protocols outlined in the RI/FS Management Plan and therefore results for soil and groundwater are considered representative of site conditions.

Ecology Split Data Evaluation. Fifty-two field duplicate samples were collected and submitted to ATI and Manchester for analysis for arsenic in soil. ATI and Manchester prepared the samples according to ATI's SOP which was approved by Ecology as part of the Sampling and Analysis Plan in the Management Plan (Hart Crowser, 1992). RPDs ranged from 0.71 to 49 percent, typical values for the preparation and analysis of soil samples. Four of 52 RPD values were greater than 35 percent, EPA's precision criteria for evaluating soil laboratory duplicates (EPA, 1988b). No EPA or state criteria have been established for evaluating field duplicate precision.
Results for field duplicates analyzed by ATI were confirmed by Manchester, therefore, arsenic results reported by ATI for this project are considered to be representative of conditions on the Site.

Analysis Methods. SW-846 or EPA-approved methods (see page 5-5 and Attachment 5-8 of the Management Plan) were used during all sampling for all parameters. Although our analyses of explosives compounds by GC/ECD, MMAN by GC/FPD, and nitroglycerin by HPLC did not employ a standard SW-846 method, Standard Operating Procedures (SOPs) were used by ATI which produced internally comparable results. All RI data collected for this work were comparable because samples of a given matrix that were analyzed by a specific analytical method were consistently sent to the same ATI laboratory with only one exception.

A small number of soil samples were analyzed in the ATI San Diego laboratory for total metals. SW-846 methods were employed as by the ATI Renton laboratory with only one exception. Matrix spikes from the graphite furnace analyses in Renton were not analytically spiked like the samples analyzed at ATI San Diego. Matrix spike percent recoveries were therefore evaluated based on sample and matrix spike results which were derived from the same calculations and do not account for analytical spike corrections. Because SW-846 methods were followed by both laboratories, data produced by the San Diego laboratory are considered comparable to that produced by the Renton laboratory.

Total lead in soil was also analyzed by the Hart Crowser *FAST* Laboratory using an Ecology-approved method (see Attachment 5-8 of the Management Plan). The *FAST* Laboratory digestion method is different than the SW-846 method. The Hart Crowser mobile laboratory used a microwave digestion technique for determination of total lead by atomic absorption. At the start of this project microwave digestion was not an SW-846 method; however, an approval letter from Ecology for use of Hart Crowser lead analyses as an approved method in accordance with WAC 173-340-830(4)(a)(vii) was included as Attachment 5-8 in the QAPP. Evaluation of the correlation between the *FAST* Laboratory and SW-846 methods indicate comparable results. A total of 16 samples were analyzed by both Hart Crowser's *FAST* Lab and ATI. A regression analysis of the data resulted in a correlation coefficient (r^2) of 0.91. The *FAST* Lab screening results show excellent comparability when compared to ATI's SW-846 method for the analysis of lead.

Sample Handling. Sample handling involved the collection of samples and the transportation of intact samples from field to laboratory. This pathway was monitored through field notes, custody forms, and data tracking sheets completed by Hart Crowser personnel. Samples were collected and handled following appropriate procedures to obtain representative samples (40 CFR Part 136, 1985 and EPA, 1986) (see Section 5-6 of the Management Plan). Appropriate containers and preservatives were used to maintain sample integrity. Samples were received by ATI within 24 hours of collection. Samples were received in good condition with the accompanying chain of custody documentation.

Holding Times. Holding time requirements for compounds are stated in Table 5-2 of the Management Plan (Hart Crowser, 1992). Holding times were calculated according to the date of sample collection. In general, all samples were extracted and analyzed within the recommended holding times. However, a number of PAH and mercury data were qualified as estimated (J) due to extraction or analysis beyond the recommended holding times (see

Table F-2).

Reporting Limits. Required reporting limits were established to meet the MTCA screening levels listed in Table 1-1 of the RI. For most analyses, reporting limits were less than or equal to MTCA screening levels. Reporting limits for non-detected results, which were above screening levels, were elevated due to dilution and were primarily associated with nitroaromatic explosives analyses for soil samples, chlorinated benzene in the marine sediment samples, and indeno(1,2,3-c,d)pyrene in the groundwater samples.

Most elevated nitroaromatic reporting limits were due to dilution of soil samples for quantitation of high positive levels of one or more analyte(s). Chlorinated benzene reporting limits were elevated due to high sample moisture content. The screening level for indeno(1,2,3-c,d)pyrene is between the MDL and reporting limit. ATI identifies compounds that are detected below the reporting limit and qualifies them as estimated because they are below the quantitation limit; however, since none of the sample results were qualified for this reason, it is unlikely that indeno
(1,2,3-c,d)pyrene was present in the samples at concentrations above the screening level. Additionally, semivolatile results were qualified as estimated mainly because target compounds were detected below the reporting limit.

Table F-1 – Qualified Critical Data Results (Greater Than or Within 20% of MTCA Screening Level) Sheet 1 of 2

	Chemistry Group	Compound Name	Total Data Points	Number of Samples Qualified J	Number of Samples Qualified R	Percentage of Unqualified Data
Groundwater						
	Explosive	2,4–Dinitrotoluene	253	2		99.21
	Explosive	2,6–Dinitrotoluene	253	7		97.23
	Explosive	Total DNTs (Not U)	100	8		92.00
	Metal (Diss)	Antimony	163	16	1	89.57
	Metal (Diss)	Arsenic	142	5		96.48
	Metal (Diss)	Lead	247	3		98.79
	Metal (Diss)	Thallium	142	16		88.73
	Metal (Total)	Aluminum	141	19		86.52
	Metal (Total)	Antimony	156	55	1	64.10
	Metal (Total)	Arsenic	142	32		77.46
	Metal (Total)	Lead	155	6		96.13
	Metal (Total)	Nickel	142	1		99.30
	Metal (Total)	Thallium	141	5		96.45
	PAH (Carc)	Benzo(a)Anthracene	142	6		95.77
	PAH (Carc)	Benzo(a)Pyrene	142	6		95.77
	PAH (Carc)	Benzo(b)Fluoranthene	142	6		95.77
	PAH (Carc)	Benzo(k)Fluoranthene	142	6		95.77
	PAH (Carc)	Chrysene	142	7		95.07
	PAH (Carc)	Dibenzo(a,h)Anthracene	142	6		95.77
	PAH (Carc)	Indeno(1,2,3–c,d)Pyrene	142	6		95.77
	Semivolatile	Bis(2–Ethylhexyl)Phthalate	42	3		92.86
	TPH–418	TPH (418.1)	139	17		87.77
Soil						
	Explosive	2,4,6–Trinitrotoluene	919	5		99.46
	Explosive	2,4–Dinitrotoluene	1250	51		95.92
	Explosive	2,6–Dinitrotoluene	1250	57		95.44
	Explosive	Total DNTs (Not U)	318	67		78.93
	Metal (TCLP)	TCLP Lead	67	9		86.57
	Metal (Total)	Antimony	233	2		99.14
	Metal (Total)	Arsenic	1953	142		92.73
	Metal (Total)	Lead	2728	39	1	98.53
	Metal (Total)	Mercury	864	12		98.61
	PAH (Carc)	Benzo(a)Anthracene	228	23		89.91
	PAH (Carc)	Benzo(a)Pyrene	228	25		89.04
	PAH (Carc)	Benzo(b)Fluoranthene	228	26		88.60
	PAH (Carc)	Benzo(k)Fluoranthene	228	20		91.23
	PAH (Carc)	Chrysene	228	27		88.16
	PAH (Carc)	Dibenzo(a,h)Anthracene	228	18		92.11
	PAH (Carc)	Indeno(1,2,3–c,d)Pyrene	228	23		89.91
	PAH (Carc)	Total CPAHs (1/2 U)	227	14		93.83
	PAH (Carc)	Total CPAHs (Not U)	128	2		98.44
	Semivolatile	Benzo(a)Anthracene	149	3		97.99
	Semivolatile	Benzo(a)Pyrene	149	2		98.66
	Semivolatile	Benzo(b)Fluoranthene	149	1		99.33
	Semivolatile	Chrysene	149	4		97.32
	Semivolatile	Total CPAHs (1/2 U)	149	10		93.29
	TPH–418	TPH (418.1)	697	13		98.13

Table F-1 – Qualified Critical Data Results (Greater Than or Within 20% of MTCA Screening Level) **Sheet 2 of 2**

	Chemistry Group	Compound Name	Total Data Points	Number of Samples Qualified J	Number of Samples Qualified R	Percentage of Unqualified Data
Surface Water						
	Metal (Diss)	Cadmium	29	2		93.10
	Metal (Diss)	Lead	44	2		95.45
	Metal (Total)	Arsenic	29	5		82.76
	Metal (Total)	Selenium	29	1		96.55
	Metal (Total)	Thallium	29	7		75.86
	OCPesticide	Aldrin	3	3		0.00
	OCPesticide	Endrin	3	1		66.67
	PAH (Carc)	Benzo(k)Fluoranthene	29	2		93.10
	Semivolatile	Bis(2-Ethylhexyl)Phthalate	8	1		87.50
Marine Sediment						
	Explosive	2,4-Dinitrotoluene	11	2		81.82
	Explosive	2,6-Dinitrotoluene	11	3		72.73
	PAH (Non-Carc)	Phenanthrene	11	1		90.91
	Semivolatile	Acenaphthene	11	1		90.91
	Semivolatile	Benzo(g,h,i)Perylene	11	1		90.91
	Semivolatile	Dibenzo(a,h)Anthracene	11	1		90.91
	Semivolatile	Fluoranthene	11	2		81.82

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	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Groundwater						
Explosives in µg/L						
2,4-Dinitrotoluene	9210-102-2	MW-19F-10-92	0.32	J	0.13	Low surrogate recovery (22%)
2,4-Dinitrotoluene	9008389-08	MW-3-8-90	0.14	J	0.13	Low surrogate recovery, 46% and Matrix spide %R above control
2,6-Dinitrotoluene	9210-102-2	MW-19F-10-92	0.25	J	0.13	Low surrogate recovery (22%)
2,6-Dinitrotoluene	9203-138-1	MW-19-3-92	0.23	J	0.13	1) 1-C-3NB surrogate %R = 43% (50-150%) 2) 1,5-DNN surrogate %R = 34% (50-150%)
2,6-Dinitrotoluene	9008389-07	MW-19-8-90	0.32	J	0.13	Low surrogate recovery, 46% and MS %R above control
2,6-Dinitrotoluene	9008389-08	MW-3-8-90	0.18	J	0.13	Low sample and blank surrogate recovery
2,6-Dinitrotoluene	9008389-06	MW-6-8-90	0.23	J	0.13	Low sample and blank surrogate recovery
2,6-Dinitrotoluene	9008378-02	MW-8-8-90	0.14	J	0.13	Low sample and blank surrogate recovery
2,6-Dinitrotoluene	9211-192-1	NP-7007 (5D)	0.13	J	0.13	Low sample and blank surrogate recovery
Dissolved Metals in mg/L						
Antimony	9207-218-1	7-B-503	0.69	R	0.006	MS %R = 13% (62-152%)
Antimony	9203-158-6	MW-1-3-92	0.0055	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-7	MW-11-3-92	0.0067	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-8	MW-17-3-92	0.0084	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-10	MW-20-3-92	0.0072	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-13	MW-22-3-92	0.0069	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-14	MW-27-3-92	0.013	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-9	MW-6-3-92	0.0065	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-5	SPR-3-3-92	0.0058	J	0.006	Laboratory control sample %R = 48% (62-152%)
Antimony	9203-158-1	83-93-3-92	0.0054	J	0.006	MS = 68-69% below QC Limit of 71%
Antimony	9203-158-2	83-94-3-92	0.007	J	0.006	MS = 68-69% below QC Limit of 71%
Total Metals in mg/L						
Aluminum	9206-207-4	MW-16-6-92	3.7	J	0.2	MS %R = 129% (75-125%)
Aluminum	9209-228-6	MW-17-9-92	19	J	0.2	MS %R = 400% (75-125%)
Aluminum	9206-207-3	MW-18-6-92	1.4	J	0.2	MS %R = 129% (75-125%)
Aluminum	9206-207-7	MW-19-6-92	1.1	J	0.2	MS %R = 129% (75-125%)
Aluminum	9209-228-14	MW-20-9-92	97	J	0.2	MS %R = 400% (75-125%)
Aluminum	9206-207-8	MW-22-6-92	36	J	0.2	MS %R = 129% (75-125%)
Aluminum	9206-207-5	MW-23-6-92	7.8	J	0.2	MS %R = 129% (75-125%)
Aluminum	9209-228-8	MW-23-9-92	50	J	0.2	MS %R = 400% (75-125%)

		Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
	Aluminum	9209-228-7	MW-24-9-92	42	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9209-228-11	MW-4-9-92	7.1	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9209-228-12	MW-5-9-92	0.76	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9209-228-13	MW-6-9-92	0.27	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9209-228-1	MW-7-9-92	57	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9206-207-1	MW-8-6-92	2.2	J	0.2	MS %R = 129% (75-125%)
	Aluminum	9209-228-2	MW-8-9-92	13	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9206-207-2	MW-8D-6-92	2.2	J	0.2	MS %R = 129% (75-125%)
	Aluminum	9209-228-3	MW-8D-9-92	14	J	0.2	MS %R = 400% (75-125%)
	Aluminum	9206-207-6	MW-9-6-92	2.8	J	0.2	MS %R = 129% (75-125%)
	Aluminum	9209-228-4	MW-9-9-92	54	J	0.2	MS %R = 400% (75-125%)
	Antimony	9207-218-1	7-B-503	0.61	R	0.006	MS %R = 13% (62-152%)
	Antimony	9212-037-6	MW-22-12-92	0.005	J	0.006	Dissolved antimony is greater than total
	Arsenic	9207-218-1	7-B-503	0.097	J	0.005	1) Laboratory Duplicate RPD = 160% (≤20%) 2) Matrix spike %R = 986% (71-131%)
	Arsenic	9209-260-1	MW-11-9-92	0.0057	J	0.005	MS %R = 42% (71-131%)
	Arsenic	9209-260-3	MW-13-9-92	0.017	J	0.005	MS %R = 42% (71-131%)
	Arsenic	9209-260-4	MW-14-9-92	0.01	J	0.005	MS %R = 42% (71-131%)
	Arsenic	9203-158-10	MW-20-3-92	0.0149	J	0.005	1) MS %R outside limits (68%) (71-131%) 2) Analytical spike %R outside limits (85-115%)
	Arsenic	9203-158-11	MW-21-3-92	0.0125	J	0.005	MS %R outside limits (68%) (71-131%)
	Arsenic	9203-138-8	MW-24-3-92	0.0143	J	0.005	Analytical spike %R outside limits
	Arsenic	9209-260-7	MW-25-9-92	0.013	J	0.005	MS %R = 42% (71-131%)
	Arsenic	9209-260-8	MW-26-9-92	0.012	J	0.005	MS %R = 42% (71-131%)
	Arsenic	9203-158-1	83-93-3-92	0.0132	J	0.005	MS = 64+24% below QC limit of 62% Average 49%
	Arsenic	9203-158-2	83-94-3-92	0.0207	J	0.005	MS = 64+24% below QC limit of 62% Average 49%
0.015	Lead	9207-218-1	7-B-503	0.233	J		Laboratory duplicate RPD = 188% (≤20%)
	Lead	9203-158-11	MW-21-3-92	0.026	J	0.015	Analytical spike %R outside limits (85-115%)
	Lead	9203-158-14	MW-27-3-92	0.027	J	0.015	Analytical spike %R outside limits (85-115%)
	Lead	9201-190-10	36-SS-04	4100	J	250	Analytical duplicate RPD high (42%).
	Lead	9201-190-8	36-TP-1-S-2	3100	J	250	Analytical duplicate RPD high (42%).
	Nickel	9207-218-1	7-B-503	0.5	J	0.1	MS %R = 69% (73-121%)

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
PAHs (Carc) in µg/L						
Chrysene	9209-228-1	MW-7-9-92	0.01	J	0.012	MS %R = 111 and 117% (18-93%)
Semivolatiles in µg/L						
Bis(2-Ethylhexyl)Phthalate	9206-207-4	MW-16-6-92	7.9	J	6.3	Detected below quantification limit
Bis(2-Ethylhexyl)Phthalate	9209-228-4	MW-9-9-92	34	J	6.3	Detected below quantification limit
Bis(2-Ethylhexyl)Phthalate	9212-027-4	SPR-4-12-92	5.9	J	6.3	Detected below quantification limit
Soil						
Explosives in mg/kg						
2,4,6-Trinitrotoluene	9205-110-6	18-TP-511-S-1	75	J	33	Calibration criteria not met
2,4,6-Trinitrotoluene	9205-110-7	18-TP-511-S-1D	66	J	33	Calibration criteria not met
2,4,6-Trinitrotoluene	9307-121-1	40-VS-SC-142	160	J	33	Surrogate Recoveries Low (8% and 11%);
2,4-Dinitrotoluene	3553-219	11-TP-5,S-1	0.08	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	3553-220	11-TP-5,S-2	0.07	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	3553-222	11-TP-6,S-2	0.09	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	9211-070-8	18-B-502-S-5B	110	J	0.013	Extracted beyond 14-day holding time (13 days)
2,4-Dinitrotoluene	9304-124-1	18-CS-AW-1-10	0.017	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	9304-124-4	18-CS-AW-31-40	0.024	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	18-SS-606	18-SS-606	0.06	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	9211-138-2	18-SS-715	0.046	J	0.013	1-C-3-NB (surrogate) %R = 46% (50-150%)
2,4-Dinitrotoluene	9205-016-1	18-TP-502-S-1	0.65	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,4-Dinitrotoluene	9205-016-4	18-TP-503-S-1	0.12	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,4-Dinitrotoluene	9205-110-1	18-TP-510-S-1	0.16	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-2	18-TP-510-S-1D	0.087	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-3	18-TP-510-S-2	0.013	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-6	18-TP-511-S-1	6900	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-7	18-TP-511-S-1D	7300	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-8	18-TP-511-S-2	23	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-10	18-TP-511-S-3	48	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-11	18-TP-512-S-2	0.21	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-12	18-TP-512-S-3	0.048	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9205-110-15	18-TP-515-S-2	1	J	0.013	Calibration criteria not met

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
2,4-Dinitrotoluene	9205-086-4	18-TP-519-S-3	0.15	J	0.013	IC3NB %R = 48%, 1,5DNN %R = 18% 950-150%)
2,4-Dinitrotoluene	9205-016-8	18-TP-547-S-1D	0.077	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,4-Dinitrotoluene	9205-016-12	18-TP-549-S-1	0.026	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,4-Dinitrotoluene	18-VS-12ADU	18-VS-12ADUP	0.04	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	9310-081-2	18-VS-176	0.035	J	0.013	Concentration was not confirmed quantitatively
2,4-Dinitrotoluene	9304-108-12	18-VS-31	0.13	J	0.013	Detected below quantification limit .
2,4-Dinitrotoluene	18-VS-5A	18-VS-5A	0.04	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	3553-185	31-TP-8,S-1	0.064	J	0.013	Detected below quantification limit
2,4-Dinitrotoluene	9307-121-1	40-VS-SC-142	0.089	J	0.013	Surrogate Recoveries Low (8% and 11%);
2,4-Dinitrotoluene	9204-054-1	DRUM-VS-1	0.51	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9204-054-2	DRUM-VS-2	1.7	J	0.013	Calibration criteria not met
2,4-Dinitrotoluene	9204-054-3	DRUM-VS-3	0.33	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9211-070-8	18-B-502-S-5B	86	J	0.013	Extracted beyond 14-day holding time (13 days)
2,6-Dinitrotoluene	9304-124-1	18-CS-AW-1-10	0.021	J	0.013	Detected below quantification limit
2,6-Dinitrotoluene	9210-258-5	18-SS-604	0.13	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9210-258-6	18-SS-605	40	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9210-258-7	18-SS-605DUP	80	J	0.013	1) Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	18-SS-606	18-SS-606	0.03	J	0.013	Detected below quantification limit
2,6-Dinitrotoluene	9211-006-6	18-SS-632	0.028	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9211-006-13	18-SS-652	0.084	J	0.013	2,6-DNT MS %R = 33%, 41% (50-15-%)
2,6-Dinitrotoluene	9211-138-1	18-SS-714	0.047	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9211-138-2	18-SS-715	0.023	J	0.013	1) Calibration criteria not met (value is less than QL) 2) 1-C-3-NB (surrogate) %R = 83% (50-15-%)
2,6-Dinitrotoluene	9211-138-3	18-SS-716	0.011	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9211-138-5	18-SS-720	0.012	J	0.013	1) Calibration criteria not met (value is less than QL) 2) Matrix spike (2,4-DNT) %R = 153% (50-150%)
2,6-Dinitrotoluene	3553-217	18-TP-23,S-1	0.07	J	0.013	Detected below quantification limit
2,6-Dinitrotoluene	9205-016-1	18-TP-502-S-1	0.49	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,6-Dinitrotoluene	9205-016-4	18-TP-503-S-1	0.16	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
2,6-Dinitrotoluene	9205-110-6	18-TP-511-S-1	7900	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-110-7	18-TP-511-S-1D	9200	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-110-8	18-TP-511-S-2	13	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-110-10	18-TP-511-S-3	16	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-110-11	18-TP-512-S-2	0.028	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-110-12	18-TP-512-S-3	0.013	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9205-086-4	18-TP-519-S-3	0.14	J	0.013	IC3NB %R = 48%, 15DNN %R = 18% (50-150%)
2,6-Dinitrotoluene	9205-016-8	18-TP-547-S-1D	0.1	J	0.013	1) Extracted beyond 14-day holding time (20 days) 2) Calibration criteria not met
2,6-Dinitrotoluene	9304-108-12	18-VS-31	0.089	J	0.013	Detected below quantification limit .
2,6-Dinitrotoluene	9304-109-9	18-VS-55	0.028	J	0.013	Detected below quantification limit .
2,6-Dinitrotoluene	9304-109-10	18-VS-56	0.07	J	0.013	Detected below quantification limit .
2,6-Dinitrotoluene	18-VS-5A	18-VS-5A	0.02	J	0.013	Detected below quantification limit
2,6-Dinitrotoluene	9211-014-14	25-TP-525-S-1	0.13	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9211-014-16	25-TP-525-S-3	6.2	J	0.013	Calibration criteria not met (value is less than QL)
2,6-Dinitrotoluene	9307-121-1	40-VS-SC-142	0.035	J	0.013	Surrogate Recoveries Low (8% and 11%);
2,6-Dinitrotoluene	9302-196-6	5D-VS-52	0.13	J	0.013	Detected below quantification limit.
2,6-Dinitrotoluene	3553-74	5-SS-16	0.099	J	0.013	Detected below quantification limit
2,6-Dinitrotoluene	9204-054-1	DRUM-VS-1	0.44	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9204-054-2	DRUM-VS-2	1.4	J	0.013	Calibration criteria not met
2,6-Dinitrotoluene	9204-054-3	DRUM-VS-3	0.19	J	0.013	Calibration criteria not met
TCLP Metals in mg/L						
TCLP Lead	9205-173-1	5-DH-TP-1-S-1	46.2	J	5	Laboratory duplicate RPD high (24%).
TCLP Lead	9208-160-1	5-TP-511-S-1	4.54	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-160-2	5-TP-511-S-2	35.6	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-160-4	5-TP-512-S-1	11.6	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-160-5	5-TP-512-S-2	10.8	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-160-7	5-TP-513-S-1	62.9	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-160-8	5-TP-513-S-2	234	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-159-1	5-TP-515-S-1	71.1	J	5	Laboratory duplicate RPD high (25%).
TCLP Lead	9208-159-2	5-TP-515-S-2	12.8	J	5	Laboratory duplicate RPD high (25%).
Total Metals in mg/kg						
Antimony	9204-119-28	40-PU-SS-502	28	J	32	Analytical spike outside control limits

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Antimony	9204-121-5	40-PU-TP-501-S	43	J	32	Analyzed beyond 180-day holding time (217 days)
Arsenic	9311-075-15	10-SS-401	48	J	32	1) CCV recoveries were below the control limit (86.7-89.5) 2) Correlation coefficient (r) = 0.994
Arsenic	9203-084-18	16-TP-507-S-3	244	J	32	Analyzed beyond 180-day holding time (≥217 days)
Arsenic	9303-359-14	18R-05	36	J	32	High MS recovery (140%)
Arsenic	9303-359-17	18R-09	39	J	32	High MS recovery (140%)
Arsenic	9312-146-10	18R-112-S-2	42	J	32	MS recovery below 75 percent (55 %).
Arsenic	9306-310-2	18R-119	89	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-5	18R-121	130	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-8	18R-124	43	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-9	18R-125	66	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-10	18R-126	32	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-11	18R-127	66	J	32	MS/MSD recovery high (170%)
Arsenic	9303-359-9	18R-23	66	J	32	High MS recovery (140%)
Arsenic	9311-171-20	18R-461	100	J	32	Analytical spike recovery below control limits at 83.5 percent.
Arsenic	9311-181-15	18R-464E	31	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-11	18R-466	51	J	32	Analytical spike was 82.1 percent.
Arsenic	9311-181-18	18R-468	110	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-14	18R-470	27	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-1	18R-474	89	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-20	18R-474 SSE	71	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9203-249-3	19A-VS-1	92	J	32	MS %R = 129% (56-122%)
Arsenic	9208-010-4	19A-VS-3	92	J	32	MS %R = 129% (56-122%)
Arsenic	9208-010-5	19A-VS-4	230	J	32	MS %R = 129% (56-122%)
Arsenic	9310-208-5	25-SS-527	370	J	32	Analytical spike recovery low (83%)
Arsenic	9310-208-6	25-SS-528	28	J	32	Analytical spike recovery low (83%)
Arsenic	9204-249-9	25-TP-503-S-2	670	J	32	Analytical spike outside of control limits
Arsenic	9204-249-11	25-TP-504-S-1	380	J	32	Analytical spike outside of control limits
Arsenic	9311-075-13	31-SS-404	110	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) Correlation coefficient (r) = 0.994
Arsenic	9210-272-10	38-HA-502-S-1	32	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-12	38-HA-503-S-1	31	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-1	38-SS-514	475	J	32	Laboratory duplicate RPD = 43% (≤35%)

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Arsenic	9210-272-2	38-SS-515	35	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-3	38-SS-516	58	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-4	38-SS-516 DUP	135	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-5	38-SS-517	62	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-6	38-SS-518	47	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-7	38-SS-519	59	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-8	38-SS-520	61	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9210-272-9	38-SS-521	550	J	32	Laboratory duplicate RPD = 43% (≤35%)
Arsenic	9204-157-3	39-VS-2	27	J	32	Analytical spike recovery outside control limits
Arsenic	9204-157-7	39-VS-6	29	J	32	Analytical spike recovery outside control limits
Arsenic	9211-107-6	40-BG-SS04-PL	81	J	32	MS %R = 128% (56-122)
Arsenic	9204-119-28	40-PU-SS-502	110	J	32	Analytical spike %R outside limits (85-115%)
Arsenic	9211-107-1	40-SS-03-PL	70	J	32	MS %R = 48% (56-122%)
Arsenic	9211-107-5	40-SS-149-PL	74	J	32	MS %R = 48% (56-122%)
Arsenic	9211-107-2	40-SS-30-PL	94	J	32	MS %R = 48% (56-122%)
Arsenic	9204-119-31	40-SS-506	62	J	32	Analytical spike %R outside limits (85-115%)
Arsenic	9204-119-33	40-SS-511	110	J	32	Analytical spike %R outside limits (85-115%)
Arsenic	9307-227-9	40-VS-27	100	J	32	CCV %R Outside Control Limits (89%)
Arsenic	9307-227-13	40-VS-31	68	J	32	CCV %R Outside Control Limits (89%)
Arsenic	9307-228-6	40-VS-44	44	J	32	Analytical Spike Outside Control Limits (78%)
Arsenic	9307-228-17	40-VS-54	33	J	32	CCVs %R Outside Control Limits (89% and 88%)
Arsenic	9307-230-10	40-VS-86	46	J	32	CCV %R Outside Control Limits (89%)
Arsenic	9304-121-13	5D-VS-39 DUP	46	J	32	Analytical spike recovery low (80%).
Arsenic	9302-196-1	5D-VS-43	35	J	32	Analytical spike recovery low (76%).
Arsenic	9311-153-1	APA-SS-401	45	J	32	Analytical spike recovery below control limits at 76.1 percent.
Arsenic	9311-153-3	APA-SS-401-SSE	44	J	32	Analytical spike recovery below control limits at 83.2 percent.
Arsenic	9210-270-2	APF-SS-504	76	J	32	1) CCV %R high (112%) 2) Correlation coefficient (r) = 0.992
Arsenic	9210-270-3	APF-SS-505	76	J	32	1) CCV %R high (112%) 2) Correlation coefficient (r) = 0.992
Arsenic	9210-270-5	APF-SS-507	87	J	32	1) CCV %R high (112%) 2) Correlation coefficient (r) = 0.992

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Arsenic	9311-075-4	LR-055	55	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9311-075-17	LR-058	64	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9311-075-20	LR-070	62	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9311-075-10	LR-071	34	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9303-359-3	LR-071S	55	J	32	High MS recovery (140%)
Arsenic	9311-075-9	LR-072	42	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9311-109-2	LR-082	42	J	32	Correlation coefficient (r)= 0.994 and the analytical spike was 81.2 percent.
Arsenic	9311-109-9	LR-083	28	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-10	LR-083 SSE	30	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-3	LR-096	68	J	32	Correlation coefficient (r)= 0.994 and the analytical spike was 83.2 percent.
Arsenic	9311-109-1	LR-098	34	J	32	Correlation coefficient (r) = 0.994 and the analytical spike was 81.5 percent.
Arsenic	9311-075-12	LR-103	40	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9311-075-7	LR-103 SSE	42	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9303-359-6	LR-104	690	J	32	High MS Percent Recovery (140%)
Arsenic	9312-211-11	LR-104A	100	J	32	High MS Percent Recovery (164%)
Arsenic	9311-289-15	LR-108	46	J	32	Analytical spike recovery below control limits at 82.6 percent.
Arsenic	9311-109-7	LR-113	99	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-20	LR-115	44	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-19	LR-116	130	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9312-165-20	LR-116A	57	J	32	MS Not Recovered Due to Matrix Interference
Arsenic	9311-075-8	LR-117	80	J	32	1) CCV recoveries below the control limit (86.7-89.5) 2) (r) = 0.994.
Arsenic	9312-211-12	LR-120	27	J	32	High MS Percent Recovery (164%)
Arsenic	9311-109-12	LR-131	33	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-5	LR-144	54	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-109-4	LR-145	30	J	32	Correlation coefficient (r)= 0.994 and the analytical spike was 83.2 percent.

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Arsenic	9311-095-17	LR-150	51	J	32	Analytical spike recovery below control limits at 82.2 percent.
Arsenic	9311-109-14	LR-161 SSE	34	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-4	LR-233	61	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-2	LR-257	38	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-5	LR-258	58	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9311-181-7	LR-260	38	J	32	Correlation coefficient (r)= 0.994.
Arsenic	9306-310-12	LR-301	33	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-13	LR-302	29	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-15	LR-304	26	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-17	LR-306	45	J	32	MS/MSD recovery high (170%)
Arsenic	9306-310-19	LR-308	62	J	32	MS/MSD recovery high (170%)
Arsenic	9303-359-1	LR-68	170	J	32	High MS recovery (140%)
Arsenic	9303-359-8	LR-68 DUP	190	J	32	High MS recovery (140%)
Arsenic	9307-049-2	RR-517	71	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-3	RR-518	28	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-4	RR-519	31	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-7	RR-521	76	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-10	RR-524	26	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-13	RR-527	42	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-14	RR-528	400	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-146-18	RR-528-S-2	100	J	32	MS recovery below 75 percent, (55 %).
Arsenic	9312-146-19	RR-528-S-3	40	J	32	MS recovery below 75 percent, (55 %).
Arsenic	9307-049-15	RR-529	85	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-16	RR-530	290	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-17	RR-531	140	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-18	RR-532	92	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-19	RR-533	50	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-049-20	RR-534	140	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-146-8	RR-538-S-2	34	J	32	MS recovery below 75 percent, (55 %).
Arsenic	9312-146-9	RR-538-S-3	30	J	32	MS recovery below 75 percent, (55 %).
Arsenic	9307-063-1	RR-539	260	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-063-2	RR-541	580	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-165-4	RR-541-S-2	73	J	32	MS Not Recovered Due to Matrix Interference

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Arsenic	9307-063-3	RR-542	180	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-165-6	RR-542-S-2	29	J	32	MS Not Recovered Due to Matrix Interference
Arsenic	9312-165-7	RR-542-S-3	26	J	32	MS Not Recovered Due to Matrix Interference
Arsenic	9307-063-4	RR-543	45	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-063-5	RR-544	270	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-063-6	RR-545	530	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-146-12	RR-545-S-2	33	J	32	MS recovery below 75 percent, (55 %).
Arsenic	9307-063-7	RR-546	950	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-165-8	RR-546-S-2	45	J	32	MS Not Recovered Due to Matrix Interference
Arsenic	9307-063-8	RR-547	810	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-063-9	RR-548	420	J	32	Calibration coefficient (r) = 0.993
Arsenic	9307-063-10	RR-549	410	J	32	Calibration coefficient (r) = 0.993
Arsenic	9312-165-10	RR-549-S-2	100	J	32	MS Not Recovered Due to Matrix Interference
Arsenic	9312-211-5	RR-595-S-2	150	J	32	High MS Percent Recovery (164%)
Arsenic	9312-211-6	RR-595-S-2 SSE	120	J	32	High MS Percent Recovery (164%)
Arsenic	9312-211-1	RR-596-S-2	360	J	32	High MS Percent Recovery (164%)
Arsenic	9312-211-2	RR-596-S-3	120	J	32	High MS Percent Recovery (164%)
Arsenic	9312-318-1	RR-600	70	J	32	MS recovery above 125 percent, (147 %).
Arsenic	9312-318-3	RR-602	39	J	32	MS recovery above 125 percent, (147 %).
Arsenic	9312-318-4	RR-603	160	J	32	MS recovery above 125 percent, (147 %).
Arsenic	9312-318-5	RR-604	130	J	32	MS recovery above 125 percent, (147 %).
Arsenic	9312-318-6	RR-604 SSE	170	J	32	MS recovery above 125 percent, (147 %).
Lead	9310-189-5	16-SS-508	200	J	250	MS Recovery Low (55%)
Lead	9310-189-9	16-SS-512	1100	J	250	MS Recovery Low (55%)
Lead	9310-189-10	16-SS-513	210	J	250	MS Recovery Low (55%)
Lead	9310-189-13	16-SS-516	1300	J	250	MS Recovery Low (55%)
Lead	9208-209-1	18S-VS-1	360	J	250	Laboratory duplicate RPD high (59%)
Lead	18-SS-883	18-SS-883	220	J	250	MS Recovery Low (69%)
Lead	9203-249-3	19A-VS-1	21000	J	250	Lab duplicate RPD outside control limits (54%)
Lead	9203-249-5	19B-VS-3	1100	J	250	Lab duplicate RPD outside control limits (54%)
Lead	25-VS-SC-120	25-VS-SC-120	6500	J	250	Duplicate RPD Outside Control Limits (37%).
Lead	9307-137-1	31-VS-13	29000	J	250	Lab duplicate RPD outside control limits (37%)
Lead	9307-137-2	31-VS-14	48000	J	250	Lab duplicate RPD outside control limits (37%)

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Lead	9307-137-3	31-VS-14 DUP	56000	J	250	Lab duplicate RPD outside control limits (37%)
Lead	9307-137-4	31-VS-15	66000	J	250	Lab duplicate RPD outside control limits (37%)
Lead	9307-137-5	31-VS-16	75000	J	250	Lab duplicate RPD outside control limits (37%)
Lead	9307-137-6	31-VS-17	73000	J	250	Lab duplicate RPD outside control limits (37%)
Lead	9301-071-7	31-VS-6 DUP	220	J	250	Analytical duplicate RPD high (220%); MS recovery low (0%).
Lead	9201-190-9	36-SS-03	13000	J	250	Analytical duplicate RPD high (42%).
Lead	9201-073-1	39-B-1-S-1	7900	J	250	Analytical duplicate RPD high (42%)
Lead	420 HC*7	39-SS-09	230	J	250	No analytical Dup or MS/MSD
Lead	9201-037-8	39-SS-10	950	J	250	No analytical Dup or MS/MSD
Lead	9201-073-8	39-TP-1-S-1	930	J	250	No analytical Dup or MS/MSD
Lead	9201-073-10	39-TP-2-S-1	6200	J	250	No analytical Dup or MS/MSD
Lead	420 HC*2	39-TP-2-S-2	2052	J	250	No analytical Dup or MS/MSD
Lead	9201-073-14	39-TP-4-S-1	400	J	250	No analytical Dup or MS/MSD
Lead	9307-121-1	40-VS-SC-142	11000	J	250	MS %R <30%
Lead	9304-119-16	5D-VS-21	260	J	250	Laboratory duplicate RPD high (126%).
Lead	9304-119-20	5D-VS-25	1600	J	250	Laboratory duplicate RPD high (126%).
Lead	9304-119-3	5D-VS-6	300	J	250	Laboratory duplicate RPD high (126%).
Lead	3553-75	5-SS-17	380	AR	250	Sample result reported on an as received basis.
Lead	9302-197-15	5-VS-15	210	J	250	MS recovery above control limits (151%).
Lead	LR-68-B	LR-68-B	4700	J	250	Laboratory duplicate RPD high (51%)
Lead	9312-030-6	RR-559	3300	J	250	MS Recovery Low (57%)
Lead	9312-030-19	RR-591	1200	J	250	MS Recovery Low (57%)
Lead	9312-043-11	RR-597	720	J	250	MS Recovery Low (57%)
Mercury	9203-084-13	16-TP-505-S-1	420	J	24	Analyzed after 28-day holding time (140 days)
Mercury	9203-084-16	16-TP-507-S-1	120	J	24	Analyzed after 28-day holding time (115 days)
Mercury	9202-034-1	39-SS-02 RE	100	J	24	Exceeded holding time, LCS %r low (69%), MS %R low (57%)
Mercury	420 HC*7	39-SS-09	116.41	J	24	Analytical duplicate PRD high (76, 67%) and MS % R = (70%)
Mercury	420 HC*1	39-TP-1-S-2	40.36	J	24	Analytical duplicate PRD high (76, 67%) and MS % R = (70%)
Mercury	420 HC*2	39-TP-2-S-2	124.58	J	24	Analytical duplicate PRD high (76, 67%) and MS % R = (70%)
Mercury	9204-215-4	39-VS-12	72	J	24	Analytical duplicate RPD high (53%); MS %R high (454%)
Mercury	9204-215-2	39-VS-9	44	J	24	Analytical duplicate RPD high (53%); MS %R high (454%)
Mercury	9304-121-14	5D-VS-40	25	J	24	MS percent recoveries outside control limits (52,142%).
Mercury	9309-085-7	5D-VS-95	130	J	24	MS percent recoveries outside control limits (141%).

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Mercury	9302-197-2	5-VS-2	22	J	24	MS percent recoveries outside control limits (190%).
Mercury	9302-197-4	5-VS-4	80	J	24	MS percent recoveries outside control limits (190%).
PAHs (Carc) in mg/kg						
Benzo(a)Anthracene	9202-189-11	16-B-502-S-1	0.79	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Anthracene	9203-084-13	16-TP-505-S-1	0.5	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Anthracene	9203-084-19	16-TP-508-S-1	2.3	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Anthracene	9202-228-32	26-B-501-S-1	8.6	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Anthracene	9202-228-33	26-B-501-S-1D	7.2	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Anthracene	9304-119-13	5D-VS-19	8.6	J	0.14	No surrogate recovery due to dilution and RPDs out of control limits.
Benzo(a)Anthracene	9304-121-10	5D-VS-37	1.2	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control.
Benzo(a)Anthracene	9304-121-20	5D-VS-46	0.84	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Benzo(a)Anthracene	9304-120-1	5D-VS-47	0.79	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control limits.
Benzo(a)Anthracene	9304-120-2	5D-VS-48	0.15	J	0.14	Surrogate recovery (147%), MS/MSD results (None - 84%).
Benzo(a)Anthracene	9205-173-1	5-DH-TP-1-S-1	1.1	J	0.14	MS compounds not recovered.
Benzo(a)Anthracene	9203-084-60	5-HA-504-S-1	4.7	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Anthracene	99775-151	5-SS-6	50.92	J	0.14	Detected below quantification limit
Benzo(a)Anthracene	9302-197-16	5-VS-16	0.37	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(a)Anthracene	9302-197-2	5-VS-2	0.98	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(a)Anthracene	9305-234-3	8-VS-SC-7-S-1	3.1	J	0.14	1) Surrogate not recovered due to dilution and MS/MSD RPD above limits (67%) 2) No MS % R
Benzo(a)Pyrene	9202-189-11	16-B-502-S-1	0.86	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Pyrene	9203-084-13	16-TP-505-S-1	1.2	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Pyrene	9203-084-16	16-TP-507-S-1	0.18	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Pyrene	9203-084-19	16-TP-508-S-1	1.8	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Pyrene	9202-228-32	26-B-501-S-1	4.8	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Pyrene	9202-228-33	26-B-501-S-1D	5.6	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Pyrene	9304-119-13	5D-VS-19	7.5	J	0.14	No surrogate recovery due to dilution and RPDs out of control limits.
Benzo(a)Pyrene	9304-121-10	5D-VS-37	1.2	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control.

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Benzo(a)Pyrene	9304-121-20	5D-VS-46	0.76	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Benzo(a)Pyrene	9304-120-1	5D-VS-47	1.2	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control limits.
Benzo(a)Pyrene	9304-120-2	5D-VS-48	0.17	J	0.14	Surrogate recovery (147%), MS/MSD results (0 - 84%).
Benzo(a)Pyrene	9205-173-1	5-DH-TP-1-S-1	1.1	J	0.14	MS compounds not recovered.
Benzo(a)Pyrene	9205-173-7	5-DH-TP-2-S-4	7	J	0.14	No surrogate recovery information available (diluted out).
Benzo(a)Pyrene	9203-084-60	5-HA-504-S-1	4.6	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(a)Pyrene	9203-238-27	5-HA-512-S-2	0.73	J	0.14	Extracted beyond 14-day holding time
Benzo(a)Pyrene	99775-151	5-SS-6	43.28	J	0.14	Detected below quantification limit
Benzo(a)Pyrene	9302-197-16	5-VS-16	0.6	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(a)Pyrene	9302-197-2	5-VS-2	1.07	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(a)Pyrene	9306-052-12	8-VS-SC-130	0.66	J	0.14	Surrogate recovery = 200%
Benzo(b)Fluoranthene	9202-189-11	16-B-502-S-1	0.52	J	0.14	Extracted beyond 14-day holding time
Benzo(b)Fluoranthene	9203-084-13	16-TP-505-S-1	1.7	J	0.14	Extracted beyond 14-day holding time
Benzo(b)Fluoranthene	9203-084-16	16-TP-507-S-1	0.23	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(b)Fluoranthene	9203-084-19	16-TP-508-S-1	1.6	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(b)Fluoranthene	9202-228-32	26-B-501-S-1	7	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(b)Fluoranthene	9202-228-33	26-B-501-S-1D	6.1	J	0.14	Extracted beyond 14-day holding time
Benzo(b)Fluoranthene	9202-228-42	26-B-502-S-1	0.15	J	0.14	Extracted beyond 14-day holding time
Benzo(b)Fluoranthene	9204-121-6	40-PR-HA-501-S	1.4	J	0.14	Surrogate %R = 140% (23-136%)
Benzo(b)Fluoranthene	9304-119-13	5D-VS-19	5.2	J	0.14	No surrogate recovery due to dilution and RPDs out of control limits.
Benzo(b)Fluoranthene	9304-121-10	5D-VS-37	1.6	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control.
Benzo(b)Fluoranthene	9304-121-20	5D-VS-46	1.4	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Benzo(b)Fluoranthene	9304-120-1	5D-VS-47	1.7	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control limits.
Benzo(b)Fluoranthene	9304-120-2	5D-VS-48	0.32	J	0.14	Surrogate recovery (147%), MS/MSD results (None - 84%).
Benzo(b)Fluoranthene	9205-173-1	5-DH-TP-1-S-1	0.91	J	0.14	MS compounds not recovered.
Benzo(b)Fluoranthene	9203-084-60	5-HA-504-S-1	3	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(b)Fluoranthene	9302-197-16	5-VS-16	1.76	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(b)Fluoranthene	9302-197-2	5-VS-2	0.73	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Benzo(b)Fluoranthene	9206-031-5	8-TP-8-S-1	1.3	J	0.14	No surrogate recovery information available (diluted out).
Benzo(b)Fluoranthene	9306-064-1	8-VS-SC-178	0.35	J	0.14	Surrogate recovery high - maybe high bias.
Benzo(b)Fluoranthene	9305-234-3	8-VS-SC-7-S-1	0.46	J	0.14	1) Surrogate not recovered due to dilution and MS/MSD RPD above limits (67%) 2) No MS %R
Benzo(k)Fluoranthene	9202-189-11	16-B-502-S-1	0.23	J	0.14	Extracted beyond 14-day holding time
Benzo(k)Fluoranthene	9203-084-13	16-TP-505-S-1	0.68	J	0.14	Extracted beyond 14-day holding time
Benzo(k)Fluoranthene	9203-084-19	16-TP-508-S-1	1	J	0.14	Extracted beyond 14-day holding time
Benzo(k)Fluoranthene	9202-228-32	26-B-501-S-1	2.3	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(k)Fluoranthene	9202-228-33	26-B-501-S-1D	2.6	J	0.14	Extracted beyond 14-day holding time
Benzo(k)Fluoranthene	9304-121-20	5D-VS-46	0.45	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Benzo(k)Fluoranthene	9304-120-1	5D-VS-47	0.45	J	0.14	No surrogate recovery due to dilution factor of 20 and RPDs out of control limits.
Benzo(k)Fluoranthene	9205-173-1	5-DH-TP-1-S-1	0.45	J	0.14	MS compounds not recovered.
Benzo(k)Fluoranthene	9203-084-60	5-HA-504-S-1	1.7	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Benzo(k)Fluoranthene	9203-238-27	5-HA-512-S-2	0.72	J	0.14	Extracted beyond 14-day holding time
Benzo(k)Fluoranthene	9302-197-16	5-VS-16	0.61	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Benzo(k)Fluoranthene	9302-197-2	5-VS-2	0.27	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Chrysene	9202-189-11	16-B-502-S-1	0.86	J	0.14	Extracted beyond 14-day holding time
Chrysene	9203-084-13	16-TP-505-S-1	0.68	J	0.14	Extracted beyond 14-day holding time
Chrysene	9203-084-16	16-TP-507-S-1	0.14	J	0.14	Extracted beyond 14-day holding time
Chrysene	9203-084-19	16-TP-508-S-1	3.4	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Chrysene	9202-228-32	26-B-501-S-1	14	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Chrysene	9202-228-33	26-B-501-S-1D	11	J	0.14	Extracted beyond 14-day holding time
Chrysene	9202-228-42	26-B-502-S-1	0.14	J	0.14	Extracted beyond 14-day holding time
Chrysene	9204-121-6	40-PR-HA-501-S	9	J	0.14	Surrogate %R = 140% (23-136%)
Chrysene	9304-119-13	5D-VS-19	6	J	0.14	No surrogate recovery due to dilution and RPDs out of control limits.
Chrysene	9304-121-20	5D-VS-46	1.3	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Chrysene	9304-120-2	5D-VS-48	0.2	J	0.14	Surrogate recovery (147%), MS/MSD results (0 - 84%).
Chrysene	9205-173-1	5-DH-TP-1-S-1	1.3	J	0.14	MS compounds not recovered.

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Chrysene	9203-084-60	5-HA-504-S-1	5.7	J	0.14	1) Extracted beyond 14-day holding time 2) Calibration range exceeded
Chrysene	99775-149	5-SS-4	59.9	J	0.14	Detected below quantification limit
Chrysene	99775-151	5-SS-6	87.84	J	0.14	Detected below quantification limit
Chrysene	9302-197-2	5-VS-2	1.44	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Chrysene	9305-234-3	8-VS-SC-7-S-1	5.2	J	0.14	1) Surrogate not recovered due to dilution and MS/MSD RPD above limits (67%) 2) No MS % R
Chrysene	9305-234-4	8-VS-SC-7-S-2	4.2	J	0.14	Surrogate recovery above limits. RPD outside.
Dibenzo(a,h)Anthracene	9202-189-11	16-B-502-S-1	0.54	J	0.14	Extracted beyond 14-day holding time
Dibenzo(a,h)Anthracene	9203-084-19	16-TP-508-S-1	0.52	J	0.14	Extracted beyond 14-day holding time
Dibenzo(a,h)Anthracene	9205-173-1	5-DH-TP-1-S-1	0.62	J	0.14	MS compounds not recovered.
Dibenzo(a,h)Anthracene	9203-084-60	5-HA-504-S-1	2	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9202-189-11	16-B-502-S-1	0.82	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9203-084-19	16-TP-508-S-1	1.4	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9203-219-7	26-SS-502	0.24	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9304-121-20	5D-VS-46	0.57	J	0.14	No surrogate recovery due to dilution factor of 10 and RPDs out of control.
Indeno(1,2,3-c,d)Pyrene	9304-120-2	5D-VS-48	0.19	J	0.14	Surrogate recovery (147%), MS/MSD results (0 - 84%).
Indeno(1,2,3-c,d)Pyrene	9205-173-1	5-DH-TP-1-S-1	0.44	J	0.14	MS compounds not recovered.
Indeno(1,2,3-c,d)Pyrene	9203-084-60	5-HA-504-S-1	3.6	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9203-238-25	5-HA-512-S-1	4.6	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9203-238-26	5-HA-512-S-1D	4.6	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9203-238-27	5-HA-512-S-2	0.33	J	0.14	Extracted beyond 14-day holding time
Indeno(1,2,3-c,d)Pyrene	9302-197-16	5-VS-16	0.93	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Indeno(1,2,3-c,d)Pyrene	9302-197-2	5-VS-2	0.71	J	0.14	MS/MSD RPDs (200%) and surrogate recovery (140%) above control limits.
Indeno(1,2,3-c,d)Pyrene	9305-234-4	8-VS-SC-7-S-2	0.57	J	0.14	Surrogate recovery above limits and MS/MSD RPD out
Indeno(1,2,3-c,d)Pyrene	9201-246-1	S-5	1.6	J	0.14	No surrogate
Indeno(1,2,3-c,d)Pyrene	9201-246-2	S-7	3.1	J	0.14	No surrogate
Semivolatiles in mg/kg						
Benzo(a)Anthracene	9209-314-7	5D-TPS-12-S-2	2	J	1	Detected below quantification limit
Benzo(a)Anthracene	99775-151	5-SS-6	50.92	J	1	Detected below quantification limit
Benzo(a)Pyrene	9209-314-7	5D-TPS-12-S-2	2.3	J	1	Detected below quantification limit
Benzo(a)Pyrene	99775-151	5-SS-6	43.28	J	1	Detected below quantification limit
Chrysene	9209-314-7	5D-TPS-12-S-2	7.4	J	1	Detected below quantification limit

Table F-2 – Qualified Critical Data Results Greater Than or Within 20 Percent of the Screening Level

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Chrysene	99775-149	5-SS-4	59.9	J	1	Detected below quantification limit
Chrysene	99775-151	5-SS-6	87.84	J	1	Detected below quantification limit
Chrysene	9206-031-2	8-TP-6-S-2	1.1	J	1	Detected below quantification limit
Total Petroleum Hydrocarbons (418.1) in mg/kg						
TPH-418	9207-140-1	16-B-501-S-1	1600	J	200	MS/MSD %R = 68%/18% (82-130%)
TPH-418	9202-189-11	16-B-502-S-1	2000	J	200	Blank spike %R = 132% (82-130%)
TPH-418	9202-209-2	16-B-504-S-1D	240	J	200	Blank spike %R = 154% (82-130%)
TPH-418	9202-228-32	26-B-501-S-1	2000	J	200	1) Blank spike %R = 140% (82-130%) 2) MS/MSD %R outside of limits (82-130%)
TPH-418	9202-228-33	26-B-501-S-1D	1700	J	200	1) Blank spike %R = 140% (82-130%) 2) MS/MSD %R outside of limits (82-130%)
TPH-418	9202-228-42	26-B-502-S-1	2200	J	200	1) Blank spike %R = 14% (82-130%) 2) MS/MSD %R outside of limits (82-130%)
TPH-418	9202-209-35	31-TP-508-S-2	200	J	200	1) Blank spike %R = 134-153% (82-130%) 2) MS/MSD %R outside of limits (82-130%)
TPH-418	9202-209-15	5-TP-505-S-1	190	J	200	1) Blank spike %R = 134-153% (82-130%) 2) MS/MSD %R outside of limits (82-130%)
TPH-418	9202-228-11	7-B-502-S-2	240	J	200	Blank spike %R = 140% (82-130%)
TPH-418	9306-234-1	8-VS-41	160	J	200	Laboratory duplicate RPD = 62%
TPH-418	9306-234-2	8-VS-42	210	J	200	Laboratory duplicate RPD = 62%
TPH-418	9306-234-3	8-VS-43	4000	J	200	Laboratory duplicate RPD = 62%
TPH-418	9305-234-7	8-VS-SC-11-S-1	1200	J	200	1) Analyzed past holding time MS/MSD RPD (42-80%) 2) MS/MSD %R outside of limits (82-130%)
Surface Water						
OCPesticides in μg/L						
Aldrin	99775-220	SW#2,SW#2	0.002	J	0.0001	Detected below quantification limit
Aldrin	99775-218	SW#3,SW#3	0.002	J	0.0001	Detected below quantification limit
Aldrin	99775-219	SW#4,SW#4	0.003	J	0.0001	Detected below quantification limit
Endrin	99775-219	SW#4,SW#4	0.004	J	0.0023	Detected below quantification limit
Semivolatiles in μg/L						
Bis(2-Ethylhexyl)Phthalate	9203-118-2	SW-2-3-92	3	J	3.6	Detected below quantification limit

	Lab-ID	Sample-ID	Conc.	Q	Screening Level	Reason for Qualification
Marine Sediments						
Explosives in µg/kg						
2,6-Dinitrotoluene	B142F	SDM-5	24	NJ	12.6	1) Continuing calibration criteria not met for surrogate 1,5-DNN 2) 1,5-DNN surrogate not recovered due to matrix interference
2,6-Dinitrotoluene	B142G	SDM-6	19	NJ	12.6	1) Continuing calibration criteria not met for surrogate 1,5-DNN 2) 1,5-DNN surrogate not recovered due to matrix interference
2,6-Dinitrotoluene	B142H	SDM-7	25	NJ	12.6	1) Continuing calibration criteria not met for surrogate 1,5-DNN 2) 1,5-DNN surrogate not recovered due to matrix interference
PAHs (Non-Carc) in µg/kg						
Phenanthrene	B142I	SDM-8	220	J	100	MS/MSD not recovered
Semivolatiles in µg/kg						
Acenaphthene	B142F	SDM-5	14	J	16	Detected below reporting limit
Benzo(g,h,i)Perylene	B142I	SDM-8	100	J	31	Calibration criteria not met
Dibenzo(a,h)Anthracene	B142I	SDM-8	34	J	12	Calibration criteria not met
Fluoranthene	B142F	SDM-5	390	J	160	Calibration criteria not met (28.4%D)
Fluoranthene	B142G	SDM-6	490	J	160	Calibration criteria not met (28.4%D)

Notes:

J	Estimated value
R	Rejected
NJ	Presumptive evidence of the presence of the material at an estimated quantity.
MS/MSD	Matrix Spike/Matrix Spike Duplicate
%R	Percent Recovery
%D	Percent Difference
RPD	Relative Percent Difference
CCV	Continuing Calibration Verification
QL	Quantification Limit
QC	Quality Control
Dup	Duplicate
Q	Qualifier

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