U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA

FINAL

EXPANDED SITE INSPECTION
THREE MODERATE PRIORITY SWMU's
SEAD 11, 13, AND 57

DECEMBER 1995

EXPANDED SITE INSPECTION REPORT
THREE AREAS OF CONCERN
SENECA ARMY DEPOT
ROMULUS, NEW YORK

Prepared For:

Seneca Army Depot
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720478

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LIST OF ACRONYMS

AET	Actual Evapotranspiration
AMC	U.S. Army Material Command
AOC	Areas of Concern
APCS	Air Pollution Control System
AQCR	Genesee-Finger Air Quality Control Region
ARAR	Applicable or Relevant and Appropriate Requirements
1,2-DCA	1,2-Dichloroethane
1,2-DCE	1,2-Dichloroethylene (total)
AA	Atomic absorption
AB/N's	Acid, base/neutrals
ASTM	American Society for Testing and Materials
B&B	Blasland and Bouck
Ba	Barium
BOD	Biological Oxygen Demand
bp	before present
CEC	Cation exchange capacity
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
Cl	Chloride
CLP	Contract Laboratory Program
cm	Centimeters
cm/sec	Centimeters per second
COD	Chemical Oxygen Demand
Cr	Chromium
Cu	Copper
$CaCO_3$	Calcium Carbonate
Cd	Cadmium
CRT	Cathode ray tube
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DO	Dissolved oxygen
DOT	Department of Transportation
DRMO	Defense, Revitalization and Marketing Office
EM-31	Electromagnetic
EPA	Environmental Protection Agency

LIST OF ACRONYMS
(Cont'd)

ES	Engineering-Science, Inc.
ESE	Environmental Science and Engineering
ESI	Expanded Site Inspections
FS	Feasibility Study
ft	Feet
ft/ft	Feet per foot
ft/sec	Feet per second
ft/yr	Feet per year
GAE	Geophysical anomaly excavations
GC	Gas chromatograph
gpm	Gallons per minute
GPR	Ground penetrating radar
GSSI	Geophysical Survey Systems, Inc.
HSWA	Hazardous and Solid Waste Amendments
HMX	Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine
IAG	Interagency Agreement
ICF	ICF Technology, Incorporated
Koc	Organic carbon coefficient
lb	pound
L/min	Liters per minute
MCPA	2-methyl-4-chlorophenoxyacetic acid
MCPP	2-(2-methyl-4-chlorophenoxy)proprionic acid
mg/l	Milligram per liter
mg/kg	Milligrams per kilogram
MHz	Megahertz
Miniram	Minature Real-Time Aerosol Meter
mL	Milliliter
mmhos/m	Millimhos per meter
MSL	Mean sea level
MTBE	Methyl Tertiary Butyl Ether
MW	Monitoring Well
NA	Not analyzed or not available
NBS	National Bureau of Standards
NGVD	National Geologic Vertical Datum
NO_2/N	Nitrite-Nitrogen
NO_3/N	Nitrate-Nitrogen

LIST OF ACRONYMS
(Cont'd)

NPL	National Priority List
NSF	National Sanitation Foundation
NTU	Nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
OB	Open Burning
OD	Open Detonation
OVM	Organic Vapor Meter
Pb	Lead
PCB	Polychlorinated biphenyls
PID	Photoionization detector
ppm	parts per million
ppmv	parts per million per volume
PSCR	Preliminary Site Characterization Report
PT	Monitoring well
PVC	Polyvinyl chloride
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RAGS	EPA Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	Response factor
RI	Remedial Investigation
ROD	Record of Decision
RQD	Rock Quality Designation
SB	Soil boring
SCS	Soil Conservation Service
SD	Sediment sample
SEAD	Seneca Army Depot (old name)
SEDA	Seneca Army Depot
Sec	Seconds
SIR	Subsurface interface
SO_4	Sulfate
SOW	Statement of Work
ST	Soil moisture
Std.	Test methods

LIST OF ACRONYMS
(Cont'd)

SS	Soil sample
SVO	Semivolatile Organic Compounds
SW	Surface water sample
SWMU	Solid Waste Management Unit
T1,2-DCE	trans-1,2-Dichloroethylene
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target analyte list
TBP	Trial Burn Plan
TCE	Trichloroethylene
TCL	Target compound list
TDS	Total dissolved solids
TES	Target Environmental Services, Inc.
TKN	Total Kjeldah Nitrogen
TNT	Triinitrotoluene
TOC	Total Organic Carbon
TOX	Total Organic Halogens
TPH	Total Petroleum Hydrocarbon
TRPH	Total Recovered Petroleum Hydrocarbons
TS	Total Solids
TP	Test Pit
UCL	Upper Confidence Level
ug/g	Micrograms per gram
ug/wp	Micrograms per wipe
ug/kg	Micrograms per kilogram
ug/mg	Micrograms per milligram
ug/L	Micrograms per liter
USACE	United States Army Corps of Engineers
USAEHA	United States Army Environmental Hygiene Agency
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UXO	Unexploded Ordnance
VC	Vinyl Chloride
VLF-EM	Very Low Frequency Electromagnetic
VOA	Volatile Organic Analysis

LIST OF ACRONYMS
(Cont'd)

VOC	Volatile Organic Compound
Vs	Volt Second
Zn	Zinc
2,4-D	Dichlorophenoxyacetic acid
2,4-DB	Dichlorophenoxyacetic acid, butyl ester
2,4-DNT	Dinitrotoluene
2,4,5-T	2,4,5-Trichlorophenoxyacetic acid
2.4.5-TP	2,4,5-Trichlorophenoxypropionic acid or Silvex

1.0 INTRODUCTION

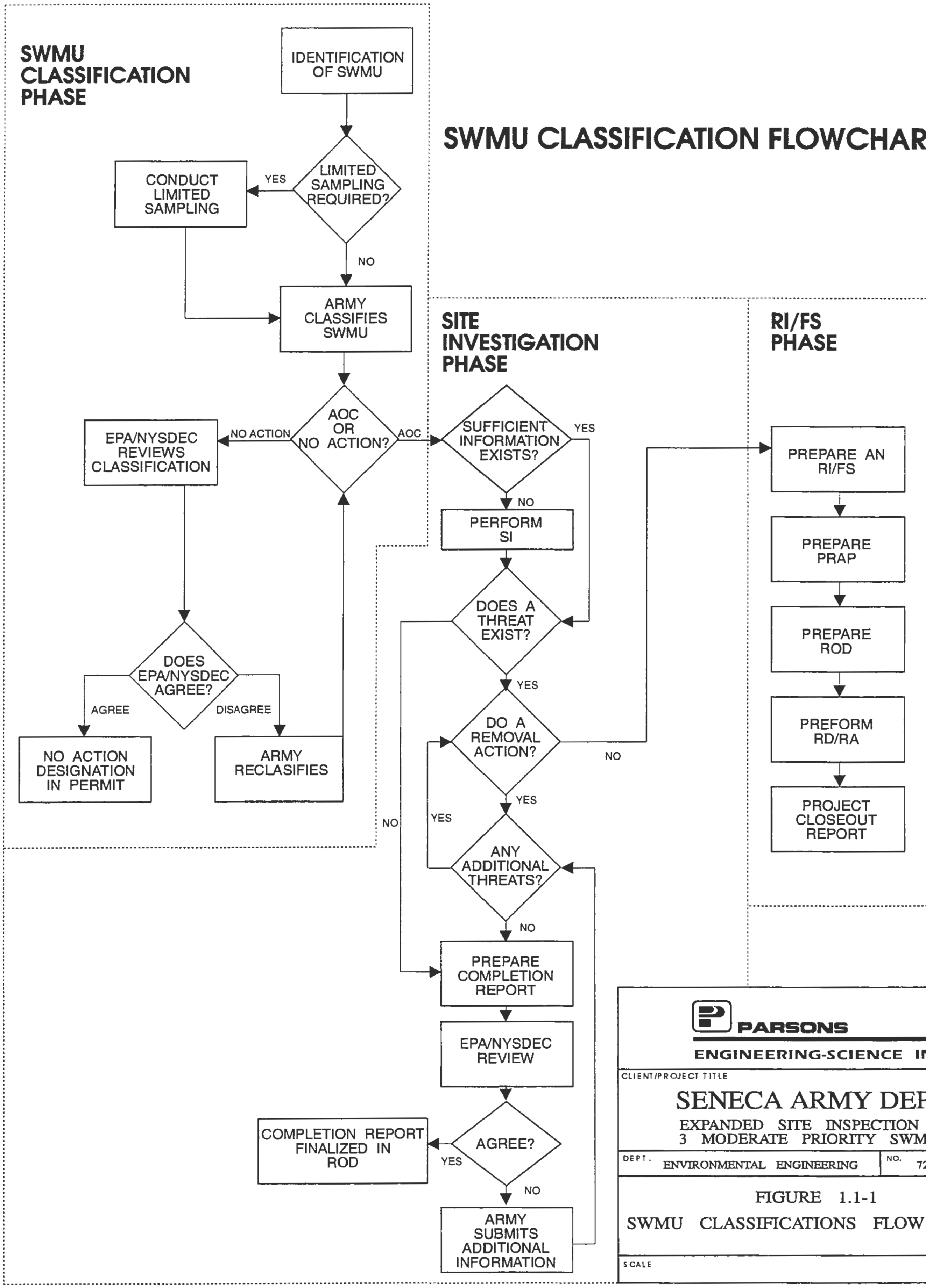
Engineering-Science, Inc. (ES) has been retained by the U.S. Army Corps of Engineers (USACOE) to conduct Expanded Site Inspections (ESI) at Solid Waste Management Units (SWMUs) that have been designated as Areas of Concern (AOC) within the Seneca Army Depot (SEDA). This report describes the ESI activities at the following three moderate priority AOCs:

- SEAD-11 - Old Construction Debris Landfill
- SEAD-13 - Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site
- SEAD-57 - Explosive Ordnance Disposal Area

The purpose of this report is to discuss the physical characteristics of the sites, interpret the analytical results from the investigation programs, and identify any hazardous constituents or wastes that have been released to the environment at each of the seven SWMUs.

In accordance with the decision process outlined in the Interagency Agreement (IAG), ESIs were performed at SWMUs that were classified as AOCs. If the conclusion of this report is that an AOC poses a threat to human health, welfare, or the environment, the Army can perform a removal action to eliminate the threat or can conduct a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Remedial Investigation (RI).

This work has been performed according to the requirements of the New York State Department of Environmental Conservation (NYSDEC), the U.S. Environmental Protection Agency, Region II (EPA), and the IAG. The steps in this agreement are depicted in Figure 1.1-1. The IAG sets forth an incremental agenda which begins with the initial identification of each SWMU and culminates with a Record of Decision (ROD) for each SWMU requiring a remedial action. In some instances, it may be clear that after conducting a preliminary investigation, a SWMU poses little threat to human health and the environment and enough evidence exists to eliminate this SWMU from further consideration by classifying this SWMU as a No-Action SWMU. In other cases, the SWMU will be investigated as an AOC.



PARSONS

ENGINEERING-SCIENCE INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

EXPANDED SITE INSPECTION OF 3 MODERATE PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING	NO. 720477-02000

FIGURE 1.1-1

SWMU CLASSIFICATIONS FLOW CHART

SCALE

Following this, a Remedial Investigation/Feasibility Study (RI/FS) may be required to gain enough data to prepare a ROD.

In accordance with Section 10.6 of the IAG, the Army is required to prepare a completion report for AOCs that pose no threat to public health or welfare or to the environment. The completion report provides certification and documentation that the AOC in question does not constitute a threat to public health, welfare or to the environment. If, following an ESI, an AOC was determined to pose no threat then the ESI report will constitute the completion report.

The determination of whether a threat exists at an AOC will be based upon comparisons with State and Federal standards, guidelines and criteria that are available. Exceedances of an appropriate standard, guideline, or criteria will be used as the indication that a threat may exist. A risk analysis will not be performed to quantify the threat. For these cases, the professional opinions and recommendations contained in the final report will constitute the completion report. For those AOCs that are determined to potentially pose a threat to public health or welfare or to the environment, an RI/FS will be performed if the threat cannot be eliminated via a removal action in accordance with the mandate of the IAG paragraph 10.9.

1.1 SITE BACKGROUND

SEDA is a 10,587-acre facility in Seneca County, Romulus, New York, that has been owned by the United States Government and operated by the Department of the Army since 1941. Figure 1.1-2 identifies the location of SEDA. Since its inception in 1941, SEDA's primary mission has been the receipt, storage, maintenance, and supply of military items. This function includes the safe and efficient demilitarization of military ammunition and explosives by burning and detonation.

In May 1979, the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) began an environmental evaluation of SEDA. This evaluation was undertaken "to assess the environmental quality of SEDA with regard to the use, storage, treatment, and disposal of toxic and hazardous materials" and "define any conditions which may adversely affect the health and welfare or result in environmental degradation" (USATHAMA 1980). The report concluded that geological conditions are such that contaminants, if present, could migrate in surface or subsurface waters.

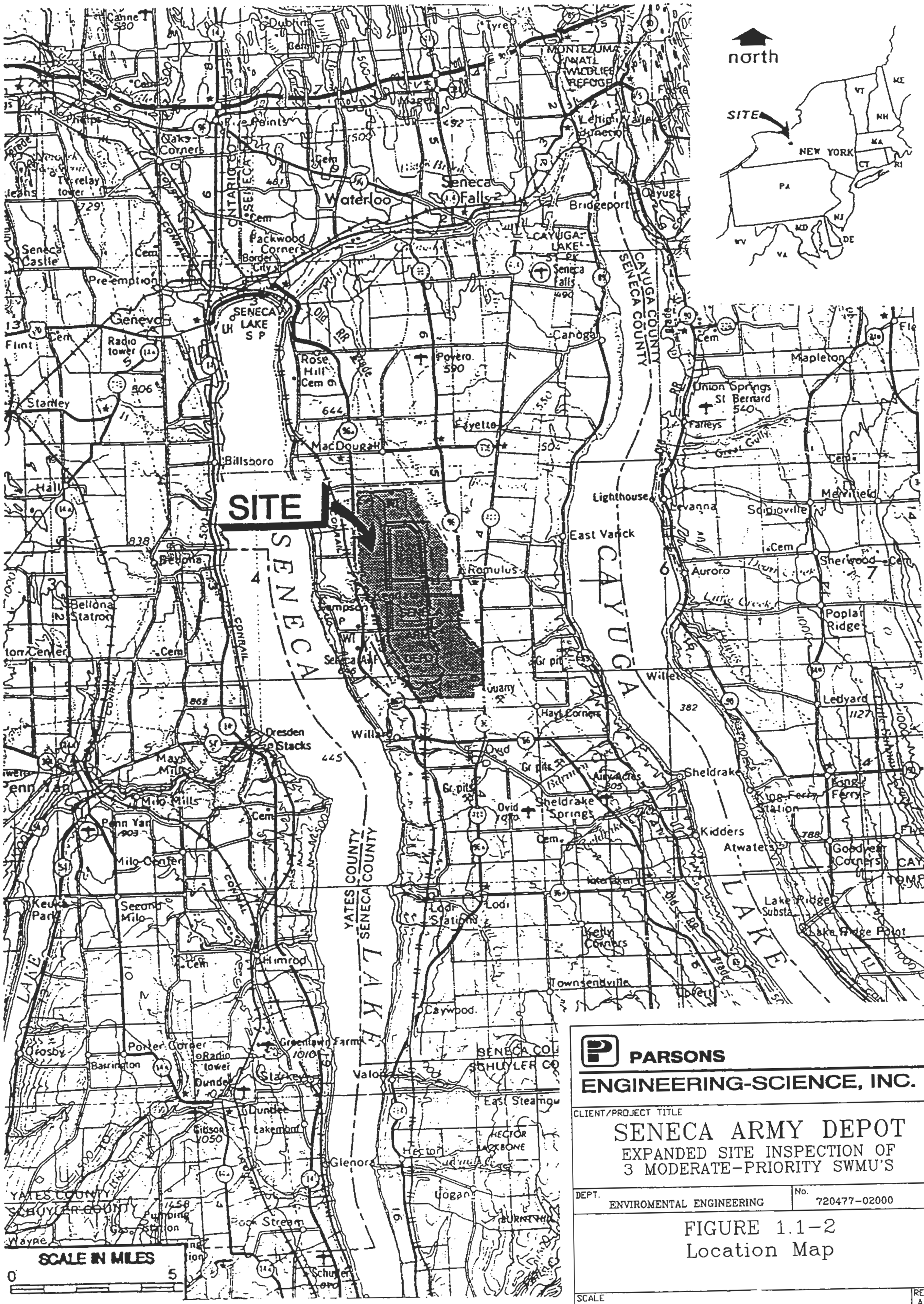


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FIGURE 1.1-2
Location Map

SCALE	REV A

In November 1986, SEDA applied for a Part B Resource Conservation and Recovery Act (RCRA) Permit to operate a hazardous waste storage facility (SWMU designation SEAD-1), a Polychlorinated Biphenyl (PCB) storage facility (SEAD-2) and a deactivation furnace (SEAD-17). The Open Burning (OB) facility and the Open Detonation (OD) facility (SEAD-23 and SEAD-45, respectively) are also currently under interim status. Under the RCRA Hazardous and Solid Waste Amendments of 1984 (HSWA), Part B Permits issued after November 8, 1984, require identification and corrective action at any SWMU located on the installation that is releasing hazardous constituents or hazardous wastes to the environment. This requirement applies to all SWMUs regardless of when the wastes were placed therein.

Closure under RCRA guidelines was deferred when SEDA was proposed for the National Priority List (NPL) in July 1989. In August 1990, SEDA was finalized and listed in Group 14 on the Federal Section of the National Priority List (NPL). Following finalization on the NPL, it was agreed that subsequent remediation of targeted problem sites would become regulated under CERCLA guidelines. The IAG was developed with the EPA Region II and NYSDEC to integrate the Army's RCRA corrective action obligations with CERCLA response obligations in order to facilitate overall coordination of investigations mandated at SEDA. Therefore, any required future investigations will be based on CERCLA guidelines and RCRA shall be considered an Applicable or Relevant and Appropriate Requirement (ARAR) pursuant to Section 121 of CERCLA.

As mandated by the EPA Region II and by NYSDEC, the U.S. Army Corps of Engineers commissioned the "Solid Waste Management Unit Classification Report" at SEDA (ERCE 1991). This report was finalized by ES on June 10, 1994. This work was performed to evaluate the effects of past solid waste management practices at identified SWMUs on the facility and to classify each SWMU as an area where "No Action is Required" or as an "Area of Concern." Areas of Concern include both (a) SWMUs where releases of hazardous substances may have occurred and (b) locations where there has been a threat of a release into the environment of a hazardous substance or constituent (including radionuclides). AOCs may include, but need not be limited to, former spill areas, landfills, surface impoundments, waste piles, land treatment units, transfer stations, wastewater treatment units, incinerators, container storage areas, scrap yards, cesspools and tanks with associated piping that are known to have caused a release into the environment or whose integrity has not been verified.

Of the 69 SWMUs and AOCs originally identified in the ERCE study, the seven highest priority SWMUs and three moderate priority AOCs have been selected by the Army for further investigation. Following completion of the ERCE report, three additional SWMU's have been added by the Army, bringing the total number of SWMUs at SEDA to 72. The three AOCs that were investigated as moderate priority sites are presented on Table 1.1-1. The final number of SWMUs and AOCs to be investigated has been finalized between the Army and NYSDEC/EPA. Twenty-four sites were declared No Action SWMUs and 58 sites were declared AOCs.

In addition to the AOC investigations to be performed, additional investigations have been undertaken and include an RI/FS at the Incinerator Ash Landfill (SEAD-3, 6, 8, 14, and SEAD-15) and an RI/FS at the former Open Burning Facility (SEAD-23). The Army is proceeding with the CERCLA investigations of those AOCs which the Army and the regulatory agencies concur that an RI/FS investigation is needed.

The Army and the regulatory agencies are in agreement with respect to the classification of all three moderate priority AOCs which are the focus of this report. The classification of all remaining SWMUs have been presented in the final SWMU Classification Report. The Army is investigating SWMUs that have been determined to be AOCs which pose the greatest potential risk to human health and the environment as determined by the findings of the SWMU Classification Report (ERCE 1991, ES 1994). The Army is proceeding on a worst first basis. This report presents the findings of the investigations performed at the three SWMUs that have been classified as moderate priority units.

1.1.1 General Description

SEDA is an active military facility constructed in 1941. The site is located approximately 40 miles south of Lake Ontario, near Romulus, New York (Figure 1.1-2). The facility is located in an uplands area, at an elevation of approximately 600 feet Mean Sea Level (MSL), that forms a divide separating two of the New York Finger Lakes, Cayuga Lake on the east

TABLE 1.1-1

THREE AREAS OF CONCERN TO BE INVESTIGATED

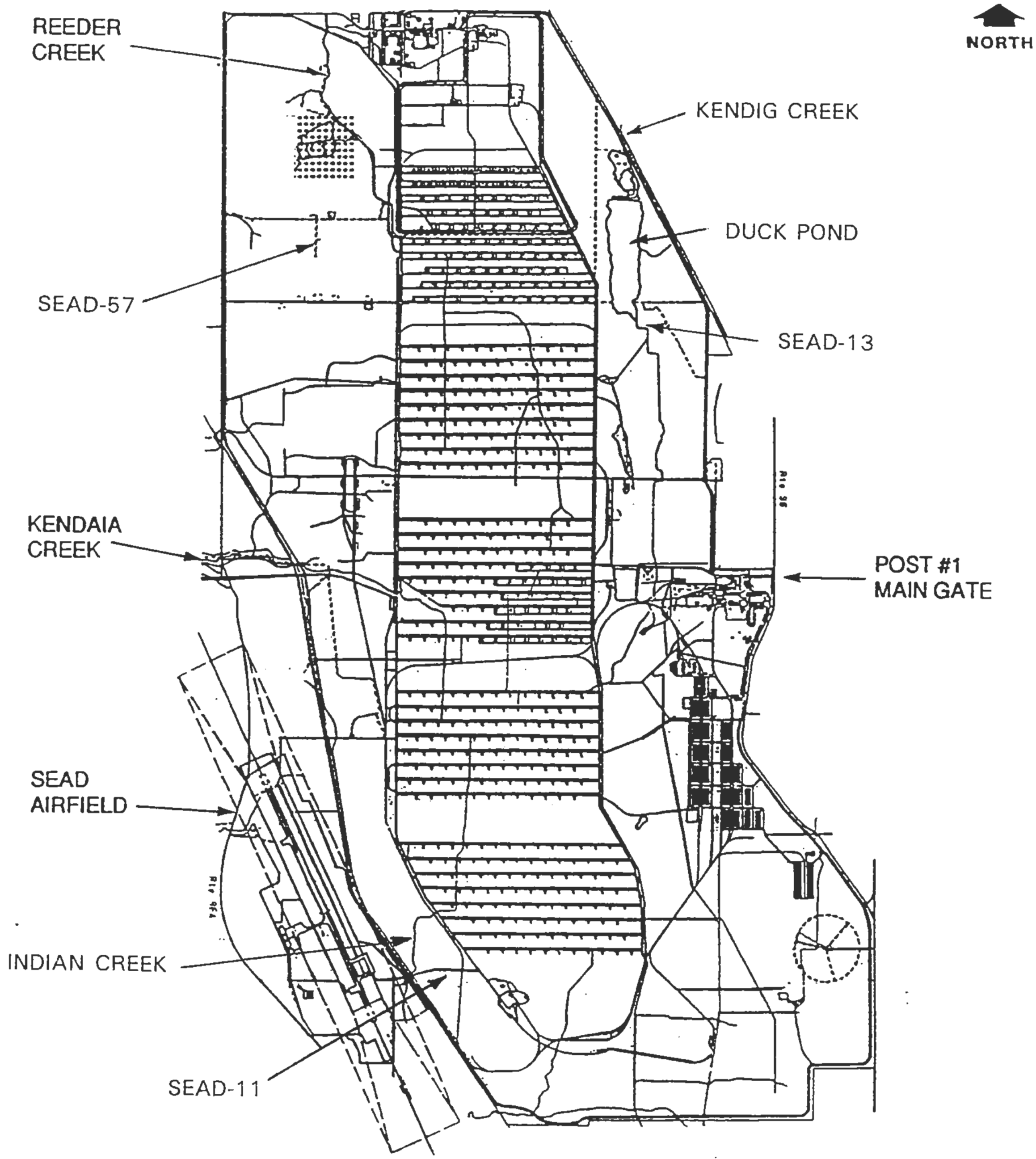
Designation	Description of Site
SEAD-11	Old Construction Debris Landfill
SEAD-13	Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Area
SEAD-57	Explosive Ordnance Disposal Area

and Seneca Lake on the west. Sparsely populated farmland covers most of the surrounding area. New York State Highways 96 and 96A adjoin SEDA on the east and west boundaries, respectively. Since its inception in 1941, SEDA's primary mission has been the receipt, storage, maintenance, and supply of military items. The Army plans to continue using SEDA in this capacity in the forseeable future. Figure 1.1-3 presents a plan view of SEDA.

1.1.1.1 Regional Geologic Setting

The Finger Lakes uplands area is underlain by a broad north-to-south trending series of rock terraces mantled by glacial till. As part of the Appalachian Plateau, the region is underlain by a tectonically undisturbed sequence of Paleozoic rocks consisting of shales, sandstones, conglomerates, limestones and dolostones. Figure 1.1-4 shows the regional geology of Seneca County. In the vicinity of SEDA, Devonian age (385 million years bp) rocks of the Hamilton group are monoclinally folded and dip gently to the south. No evidence of faulting or folding is present. The Hamilton Group is a sequence of limestones, calcareous shales, siltstones, and sandstones. These rocks were deposited in a shallow inland sea at the north end of the Appalachian Basin (Gray, 1991). Terrigenous sediments from topographic highs associated with the Acadian landmass of Western New England, eastern New York and Pennsylvania were transported to the west across a marine shelf (Gray, 1991). These sediments were deposited in a northeast-southwest trending trough whose central axis was near what is now the Finger Lakes (Gray, 1991).

The Hamilton Group, 600 to 1,500 feet thick, is divided into four formations. They are, from oldest to youngest, the Marcellus, Skaneateles, Ludlowville, and Moscow formations. The western portion of SEDA is generally located in the Ludlowville Formation while the eastern portion is located in the younger Moscow Formation. The Ludlowville and Moscow formations are characterized by gray, calcareous shales and mudstones and thin limestones with numerous zones of abundant invertebrate fossils that form geographically widespread encrinites, coral-rich layers, and complex shell beds. The Ludlowville Formation is known to contain brachiopods, bivalves, trilobites, corals and bryozoans (Gray, 1991). In contrast, the lower two formations (Skaneateles and Marcellus) consist largely of black and dark gray sparsely fossiliferous shales (Brett et al., 1991). Locally, the shale is soft, gray, and fissile. Figure 1.1-5 displays the stratigraphic section of Paleozoic rocks of Central New York. The shale is extensively jointed and weathered at the contact with overlying tills. Joint spacings are 1 inch to 4 feet in surface exposures. Prominent joint directions are N 60° E, N 30° W, and N 20° E, with the joints being primarily vertical. Corings performed on the upper 5 to



SOURCE: Seneca Army Depot

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ENVIROMENTAL ENGINEERING	720477-02000

FIGURE 1.1-3
Seneca Army Depot Map

SCALE	REV
1" = 5000'approx.	A

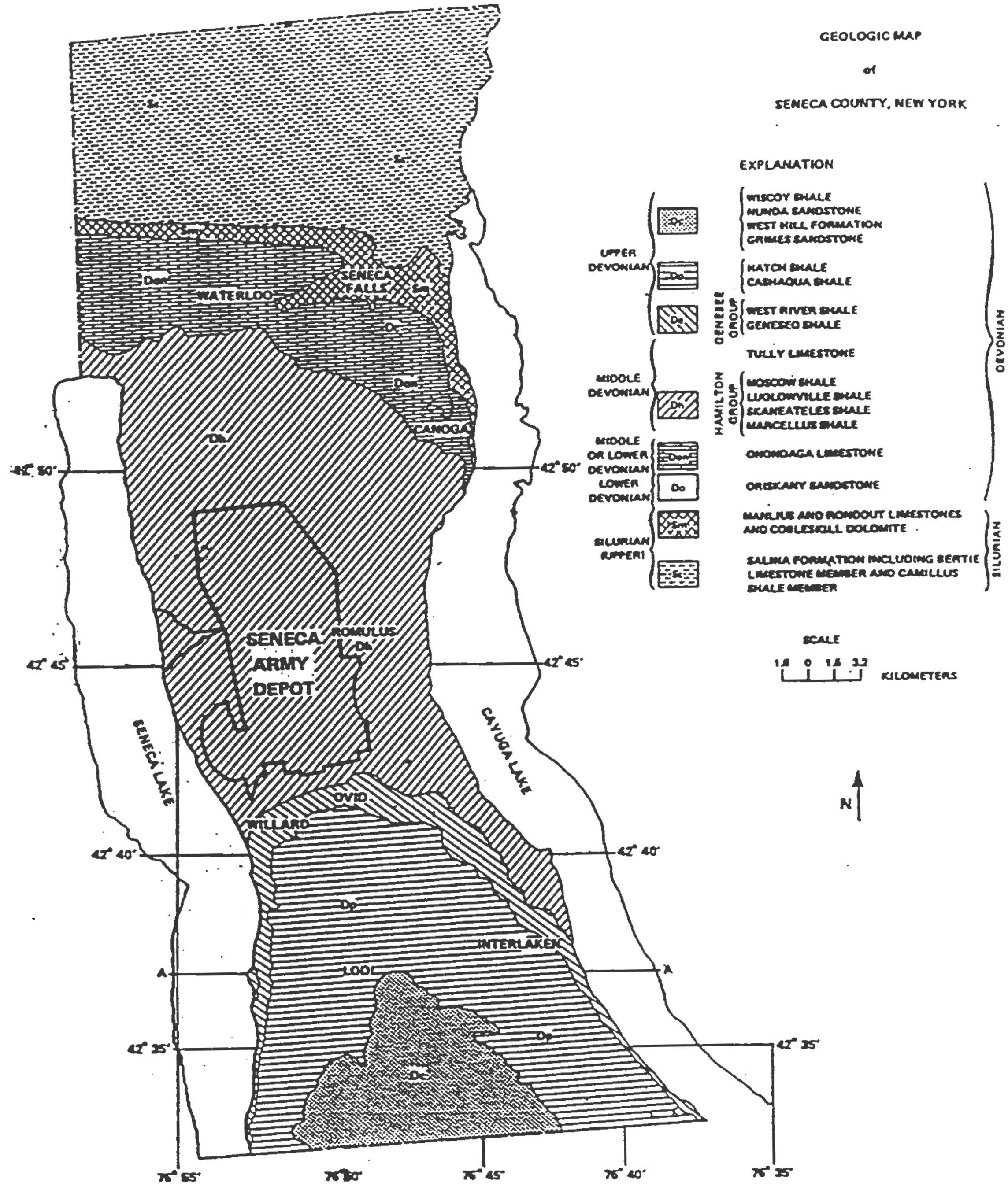

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FIGURE 1.1-4
Geologic Map of Seneca County

SCALE	REV A

MESOZOIC

Lower Cretaceous

MESOZOIC INTRUSIVES

Kimberlite and alnoite dikes and diatremes.

PALEOZOIC

Upper Devonian

CONNEAUT GROUP
600-1000 ft. (180-300 m.)

Germania Formation—shale, sandstone; Whitesville Formation—shale, sandstone; Hinsdale Sandstone; Wellsville Formation—shale, sandstone; Cuba Sandstone.

CANADAWAY GROUP
800-1200 ft. (240-370 m.)

Machias Formation—shale, siltstone; Rushford Sandstone; Caneadea, Canisteo, and Hume Shales; Canaseraga Sandstone; South Wales and Dunkirk Shales; In Pennsylvania: Towanda Formation—shale, sandstone.

JAVA GROUP
300-700 ft. (90-210 m.)

Wiscoy Formation—sandstone, shale; Hanover and Pipe Creek Shales.

WEST FALLS GROUP
1100-1600 ft. (340-490 m.)

Nunda Formation—sandstone, shale.
West Hill and Gardeau Formations—shale, siltstone; Roricks Glen Shale; upper Beers Hill Shale; Grimes Siltstone.
lower Beers Hill Shale; Dunn Hill, Millport, and Moreland Shales.
Nunda Formation—sandstone, shale; West Hill Formation—shale, siltstone; Corning Shale.
"New Milford" Formation—sandstone, shale.
Gardeau Formation—shale, siltstone; Roricks Glen Shale.
Slide Mountain Formation—sandstone, shale, conglomerate.
Beers Hill Shale; Grimes Siltstone; Dunn Hill, Millport, and Moreland Shales

SONYEA GROUP
200-1000 ft. (60-300 m.)

In west: Cashaqua and Middlesex Shales.
In east: Rye Point Shale; Rock Stream ("Enfield") Siltstone; Pulteney, Sawmill Creek, Johns Creek, and Montour Shales.

GENESEE GROUP AND TULLY LIMESTONE
200-1000 ft. (60-300 m.)

West River Shale; Genundewa Limestone; Penn Yan and Geneseo Shales; all except Geneseo replaced eastwardly by Ithaca Formation—shale, siltstone and Sherburne Siltstone.
Oneonta Formation—shale, sandstone.
Unadilla Formation—shale, siltstone.
Tully Limestone.

Middle Devonian

HAMILTON GROUP
600-1500 ft. (180-460 m.)

Moscow Formation—In west: Windom and Kashong Shales, Menteth Limestone Members; In east: Cooperstown Shale Member, Portland Point Limestone Member.
Ludlowville Formation—In west: Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shale Members, Centerfield Limestone Member. In east: King Ferry Shale and other members, Stone Mill Sandstone Member.
Skaneateles Formation—In west: Levanna Shale and Stafford Limestone Members; In east: Butternut, Pompey, and Delphi Station Shale Members, Mottville Sandstone Member.
Marcellus Formation—In west: Oakta Creek Shale Member; In east: Cardiff and Chittenango Shale Members, Cherry Valley Limestone and Union Springs Shale Members.
Panther Mountain Formation—shale, siltstone, sandstone.

ONONDAGA LIMESTONE AND ORISKANY SANDSTONE
75-150 ft. (23-45 m.)

Onondaga Limestone—Seneca, Morehouse (cherty) and Nedrow Limestone Members, Edgecliff cherty Limestone Member, local bioherms.
Oriskany Sandstone.

Lower Devonian

HELDERBERG GROUP
0-200 ft. (0-60 m.)

Coeymans and Manlius Limestones; Rondout Dolostone.

Upper Silurian

AKRON DOLOSTONE, COBLESKILL LIMESTONE, AND SALINA GROUP
700-1000 ft. (210-300 m.)

Akron Dolostone; Bertie Formation—dolostone, shale.
Camillus and Syracuse Formations—shale, dolostone, gypsum, salt.
Cobleskill Limestone; Bertie and Camillus Formations—dolostone, shale.
Syracuse Formation—dolostone, shale, gypsum, salt.
Vernon Formation—shale, dolostone.

LOCKPORT GROUP
80-175 ft. (25-55 m.)

Oak Orchard and Penfield Dolostones, both replaced eastwardly by Sconondoa Formation—limestone, dolostone.

Lower Silurian

CLINTON GROUP
150-325 ft. (40-100 m.)

Decew Dolostone; Rochester Shale.
Irondequoit Limestone; Williamson Shale; Wolcott Furnace Hematite; Wolcott Limestone; Sodus Shale; Bear Creek Shale; Wallington Limestone; Furnaceville Hematite; Maplewood Shale; Kodak Sandstone.
Herkimer Sandstone; Kirkland Hematite; Willowvale Shale; Westmoreland Hematite; Sauquoit Formation—sandstone, shale; Oneida Conglomerate.

MEDINA GROUP AND QUEENSTON FORMATION
0-900 ft. (0-270 m.)

Medina Group: Grimsby Formation—sandstone, shale.
Queenston Formation—shale, siltstone.
Undifferentiated Medina Group and Queenston Formation.

Upper Ordovician

LORRAINE GROUP
700-900 ft. (210-270 m.)

Oswego Sandstone.
Pulaski and Whetstone Gulf Formations—siltstone, shale.

Middle Ordovician

TRENTON GROUP
100-300 ft. (30-90 m.)

Utica Shale.

Hamilton group	Moscow shale	43±	Lower two-thirds of section is a fossiliferous, soft gray calcareous shale; upper third highly friable but less calcareous and fossiliferous. Staining by iron oxide very common. Concretions present in greater abundance in lower beds, but irregular calcareous masses occur throughout section. Joints parallel, tightly sealed, trending N.65°E. and N.25°-30°W.
Hamilton group	Ludlowville shale	43±	Lower beds are thinly laminated, light-colored, fossiliferous, shaly passage beds; overlain by hard calcareous black shales 13 to 30 centimeters thick and rich in corals and brachiopods; hard layers responsible for falls and cascades. Middle beds are less fossiliferous, soft gray arenaceous shales, rich in concretions, calcareous lenses, and occasional thin sandstone layers. Upper beds (Tichenor limestone member) are thin, irregularly bedded gray shales becoming light blue gray upon exposure, calcareous, coarsely textured, and fossiliferous. Joints parallel 5 to 50 centimeters apart, well developed but tight.
	Skaneateles shale	56±	Basal beds composed of dark fissile shale. Upper shale more calcareous, grayish to bluish impure limestone layers. Joint pattern N.75°E. and N.30°W.; diagonal joints N.50°E. Joints sealed, parallel and spaced 15 centimeters to 1.2 meters apart.
	Marcellus shale	15	Black, slatelike, bituminous shale with occasional limestone layers in sequence, and containing zones rich in iron sulfides or calcareous concretions, often with septarian structures; very fissile, iron-stained and gray when weathered. Joint pattern N.25°W., N.65°E., 2.5 centimeters to 1.2 meters apart.

SOURCE: The Groundwater Resources of Seneca County, New York: Mozola, A.J., Bulletin GW-26, Albany, NY, 1951

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FIGURE 1.1-5
Bedrock Stratigraphic Column

SCALE | REV A

8 feet of the bedrock revealed low Rock Quality Designations (RQD's), i.e., less than 5 percent with almost 100 percent recovery (Metcalf & Eddy, 1989), suggesting a high degree of weathering.

Pleistocene age (Wisconsin event, 20,000 bp) glacial till deposits overlie the shales. Figure 1.1-6, the physiography of Seneca County, presents an overview of the subsurface sediments present in the area. The site is shown on Figure 1.1-6 as lying on the western edge of a large glacial till plain between Seneca Lake and Cayuga Lake. The till matrix, the result of glaciation, varies locally but generally consists of horizons of unsorted silt, clay, sand, and gravel. The soils at the site contain varying amounts of inorganic clays, inorganic silts, and silty sands. In the central and eastern portions of SEDA, the till is thin and bedrock is exposed or within 3 feet of the surface in some locations. Thickness of the glacial till deposits at SEDA generally ranges from 1 to 15 feet.

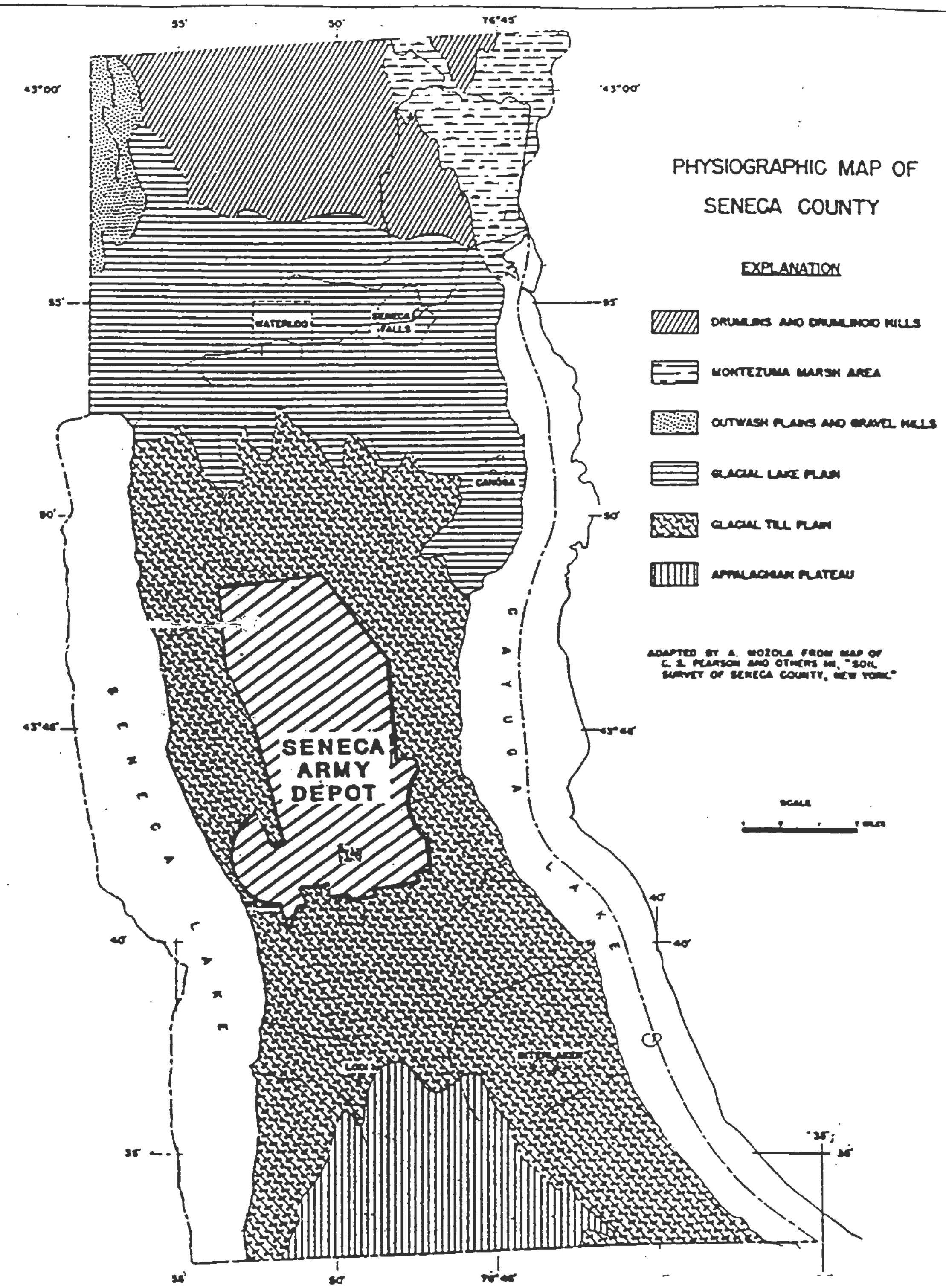
Darien silt-loam soils, 0 to 18 inches thick, have developed over Wisconsonian age glacial tills. These soils are developed on glacial till where they overlie the shale. In general, the topographic relief associated with these soils is 3 to 8 percent. Figure 1.1-7 presents the U.S. Department of Agriculture (USDA) General Soil map for Seneca County.

Regional background elemental concentrations for soils from the Finger Lakes area of New York State are not available. However, elemental concentrations for soils from the eastern United States and in particular, New York State are available. Table 1.1-2 cites data on the eastern United States from a United States Geological Survey (USGS) professional paper (Shacklette and Boerngen, 1984) and data on the New York State soils from a NYSDEC report.

1.1.1.2 Regional Hydrogeologic Setting

Regionally, four distinct hydrologic units have been identified within Seneca County (Mozola A.J., 1951). These include two distinct shale formations, a series of limestone units, and unconsolidated beds of Pleistocene glacial drift. Overall, the groundwater in the county is very hard, and therefore, the quality is minimally acceptable for use as potable water.

Approximately 95 percent of the wells in the county are used for domestic or farm supply and the average daily withdrawal is approximately 500 gallons, an average rate of 0.35 gallons per minute (gpm). About five percent of the wells in the county are used for commercial, industrial, or municipal purposes. Seneca Falls and Waterloo, the two largest communities

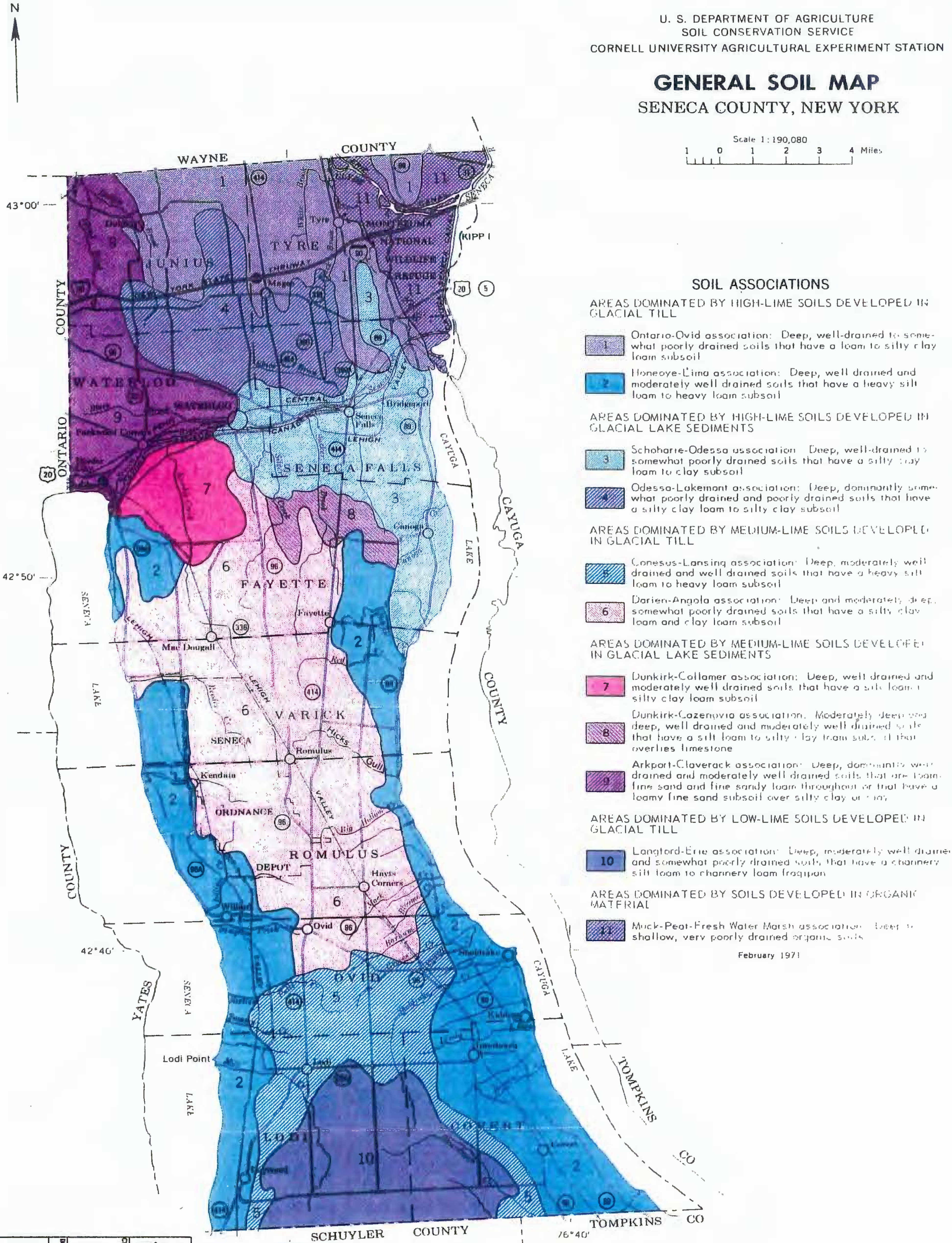


SOURCE: The Groundwater Resources of Seneca County, New York; Mozola, A.J., Bulletin GW-26, Albany, NY, 1951

PARSONS

ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE	
SENECA ARMY DEPOT EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S	
DEPT. ENVIROMENTAL ENGINEERING	No. 720477-02000
FIGURE 1.1-6 Physiographic Map of Seneca County	
SCALE	REV A



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EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIROMENTAL ENGINEERING
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FIGURE 1.1-7
General Soils Map,
Seneca County, New York

SCALE
REV A

TABLE 1.1 – 2

BACKGROUND CONCENTRATIONS OF ELEMENTS IN SOILS OF THE EASTERN UNITED STATES WITH SPECIFIC DATA FOR NEW YORK STATE

SENECA ARMY DEPOT

ELEMENT	CONCENTRATION RANGE (ppm)	GEOGRAPHIC LOCATION
Aluminum	7,000 – 100,000 1,000 – 25,000 5,560–21,200	Eastern U.S. (2) Albany Area (1) SEDA (5)
Arsenic	< 0.1 – 73 3 – 12 < 0.1 – 6.5 2.70–21.5	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Barium	10 – 1,500 15 – 600 250 –350 33.9–159	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Beryllium	1 – 7 0 – 1.75 0 – 0.9 0.32–1.40	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Cadmium	Not Available 0.0001 – 1.0 0.14–2.9	Eastern U.S. (2) No Region Specified (1) SEDA (5)
Calcium	100 – 280,000 130 – 35,000 150 – 5,000 2,900 – 6,500 1,370–293,000	Eastern U.S. (2) New York State (1) Albany Area (1) Albany Area (1) SEDA (5)
Chromium	1 – 1,000 1.5 – 40 1.5 – 25 10.3–35.8	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Cobalt	< 0.3 – 70 2.5 – 60 2.5 – 6 5.9–29.1	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Copper	< 1 – 700 < 1 – 15 9.7–62.8	Eastern U.S. (2) Albany Area (1) SEDA (5)
Iron	100 – 100,000 17,000 – 25,000 8,770–42,500	Eastern U.S. (2) Albany Area (1) SEDA (5)
Lead	> 10 – 300 1 – 12.5 5.4–269	Eastern U.S. (2) Albany Area (1) SEDA (5)
Magnesium	50 – 50,000 2,500 – 6,000 1,700 – 4,000 3,330–34,900	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Manganese	> 2 – 7,000 50 – 5,000 400 – 600 309–2,380	Eastern U.S. (2) New York State (1) Albany Area (1) SEDA (5)
Mercury	0.01 – 3.4 0.042 – 0.066 0.01–0.20	Eastern U.S. (2) Albany Area (1) SEDA (5)

TABLE 1.1 – 2

BACKGROUND CONCENTRATIONS OF ELEMENTS IN SOILS OF THE EASTERN UNITED STATES WITH SPECIFIC DATA FOR NEW YORK STATE

SENECA ARMY DEPOT

ELEMENT	CONCENTRATION RANGE (ppm)	GEOGRAPHIC LOCATION
Nickel	< 5 – 700 19.5 (mean) 16.3–62.3	Eastern U.S. (2) New York State (1) (no range available) SEDA (5)
Potassium	50 – 37,000 47.5 – 117.5 682–2,490	Eastern U.S. (2) New York State (1) SEDA (5)
Selenium	> 0.1 – 3.9 Not Available 0.05–0.97	Eastern U.S. (2) No New York State Data Given (1) SEDA (5)
Sodium	500 – 50,000 Not Available 21.9–269	Eastern U.S. (2) No New York State Data Given (1) SEDA (5)
Vanadium	> 7 – 300 Not Available 12.0–36.9	Eastern U.S. (2) No New York State Data Given (1) SEDA (5)
Zinc	> 5 – 2,900 37 – 60 40.6–219	Eastern U.S. (2) Albany Area (1) SEDA (5)

Notes:

1. (1) Source: McGovern, Carol E., Background Concentrations of 20 Elements in Soils with Special Regard for New York State, Wildlife Resources Center, New York Department of Environmental Conservation, Delmar, New York 12054, No Date.
2. (2) Source: Shacklette, H.T. and Boerngen, J.G., 1984, Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States, U.S.G.S. Prof Paper 1270, Washington.
3. The data are for areas where surficial materials are thought to be uncontaminated, undisturbed, or areas far from pollution sources.
4. ppm = parts per million.
5. Data represents the 95th Upper Confidence Limit (UCL) of the mean from soil data obtained during the Ash Landfill and Open Burning Grounds remedial investigation.

in the county, are in the hydrogeologic region which is most favorable for the development of a groundwater supply. However, because the hardness of the groundwater is objectionable to the industrial and commercial establishments operating within the villages, both villages utilize surface water (Cayuga Lake and Seneca River, respectively) as their municipal supplies. The villages of Ovid and Interlaken, both of which are without substantial industrial establishments, utilize groundwater as their public water supplies. Ovid obtains its supply from two shallow gravel-packed wells, and Interlaken is served by a developed seepage-spring area.

Regionally, the water table aquifer of the unconsolidated surficial glacial deposits of the region would be expected to flow in a direction consistent with the ground surface elevations. Geologic cross-sections from Seneca Lake and Cayuga Lake have been constructed by the State of New York, (Mozola, 1951, and Crain, 1974). This information suggests that a groundwater divide exists approximately half way between the two finger lakes. SEDA is located on the western slope of this divide and therefore regional groundwater flow is expected to be westward toward Seneca Lake.

A substantial amount of information concerning the hydrogeology in the area has been compiled by the State of New York, (Mozola, 1951). No other recent state sponsored hydrogeological report is available for review. This report has been reviewed in order to better understand the hydrogeology of the area surrounding SEDA. The data indicates that within a four (4) mile radius of the site a number of wells exist from which geologic and hydrogeologic information has been obtained. This information includes: 1) the depth; 2) the yield; and 3) the geological strata the wells were drilled through. Although the information was compiled in the 1950s, these data are useful in providing an understanding and characterization of the aquifers present within the area surrounding SEDA. A review of this information suggests that three geologic units have been used to produce water for both domestic and agricultural purposes. These units include: 1) a bedrock aquifer, which in this area is predominantly shale; 2) an overburden aquifer, which includes Pleistocene deposits (glacial till); and 3) a deep aquifer present within beds of limestone in the underlying shale. The occurrence of water derived from limestone is considered to be unusual for this area and is more commonplace to the north of this area. The limestone aquifer in this area is between 100 and 700 feet deep. As of 1957, twenty-five wells utilized water from the shale aquifer, six wells tapped the overburden aquifer, and one used the deep limestone as a source of water.

For the six wells that utilized groundwater extracted from the till, the average yield was approximately 7.5 gpm. The average depth of these wells were 36 feet. The geologic material which comprises this aquifer is generally Pleistocene till, with the exception of one well located northeast of the site. This well penetrates an outwash sand and gravel deposit. The yields from the five till wells ranged from 4 to 15 gpm. The well located in the outwash sand and gravel deposit, drilled to 60 feet, yielded only 5 gpm. A 20-foot hand dug well, located southeasterly of the outwash well, yielded 10 gpm.

The geologic information reviewed indicates that the upper portions of the shale formation would be expected to yield small, yet adequate, supplies of water, for domestic use. For mid-Devonian shales such as those of Hamilton group, the average yields, (which are less than 15 gpm), are consistent with what would be expected for shales (LaSala, 1968). The deeper portions of the bedrock, (at depths greater than 235 feet) have provided yields up to 150 gpm. At these depths the high well yields may be attributed to the effect of solution on the Onondaga limestone, which is at the base of the Hamilton Group. Based on well yield data, the degree of solution is affected by the type and thickness of overlying material (Mozola, 1951). Solution effects on limestones (and on shales which contain gypsum) in the Erie-Niagara have been reported by LaSala (1968). This source of water is considered to comprise a separate source of groundwater for the area. Very few wells in the region adjacent to SEDA utilize the limestone as a source of water, which may be due to the drilling depths required to intercept this water.

1.1.1.3 Local Geology

The site geology is characterized by gray Devonian shale with a thin weathered zone where it contacts the overlying mantle of Pleistocene glacial till. This stratigraphy is consistent over the entire site and in the site vicinity.

The predominant surficial geologic unit present at the site is dense glacial till. The till is distributed across the entire site and ranges in thickness from less than 2 feet to as much as 15 feet although it is generally only a few feet thick. The till is generally characterized by brown to gray-brown silt, clay and fine sand with few fine to coarse gravel-sized inclusions of weathered shale. Larger diameter weathered shale clasts (as large as 6-inches in diameter) are more prevalent in basal portions of the till and are probably ripped-up clasts removed by the active glacier. The general Unified Soil Classification System (USCS) description of the till on-site is as follows: Clay-silt, brown; slightly plastic, small percentage of fine to medium sand, small percentage of fine to coarse gravel-sized gray shale clasts, dense and mostly dry in place, till, (ML). Grain size analyses performed by Metcalf & Eddy (1989) on glacial till samples collected during the installation of monitoring wells on another portion of SEDA show a wide distribution of sediments sizes. These tills have a high percentage of silt and clay with trace amounts of fine gravel. Another study, conducted at the same site by the United States Army Environmental Hygiene Agency (USAEHA) determined the porosities of 5 gray-brown silty clay (i.e., till) samples which ranged from 34.0 percent to 44.2 percent with an average of 37.3 percent (USAEHA Hazardous Waste Study No. 37-26-0479-85).

Darian silt-loam soils, 0 to 18 inches thick, have developed over the till, however, in some locations, the agricultural soils have been eroded away and the till is exposed at the surface. The surficial soils are poorly drained and have a silt clay loam and clay subsoil. In general, the topographic relief associated with these soils is 3 to 8%.

A zone of gray weathered shale of variable thickness was encountered below the till in almost all locations drilled at SEDA. This zone is characterized by fissile shale with a large amount of brown interstitial silt and clay.

The bedrock underlying the site is composed of the Ludlowville Formation of the Devonian age Hamilton Group. Merin (1992) also cites three prominent vertical joint directions of northeast, north-northwest, and east-northeast in outcrops of the Genesse Formation 30 miles southeast of SEDA near Ithaca, New York. Three predominant joint directions, N60°E, N30°W, and N20°E are present within this unit (Mozola, 1952). These joints are primarily vertical. The Hamilton Group is a gray-black, calcareous shale that is fissile and exhibits parting (or separation) along bedding planes.

The minimum, maximum, average, standard deviation and the 95th Upper Confidence Level (UCL) of the mean for background concentrations of selected inorganic constituents in the soil located at the SEDA are shown in Table 1.1-3. In addition to the statistical summary information, the actual data points have also been included in this table. Non-detect values have been adjusted to one-half the detection limit. The soil sample locations and the sample depths are also presented in the table. The data presented has been compiled from the samples collected at the Ash Landfill site, the OB grounds site, and the AOCs investigated during this effort.

TABLE 1.1-3

AVERAGE AND INDIVIDUAL BACKGROUND CONCENTRATIONS
OF METALS IN SOILS AT SEDA

SENECA ARMY DEPOT
3 AOCs

INORGANICS	MINIMUM SOILS	MAXIMUM SOILS	AVERAGE SOILS	STANDARD DEVIATION SOILS	95TH UCL SOILS	B8-91 0-2 SOIL	B8-91 2-4 SOIL	B8-91 2-4 SOIL	B8-91 6-8 SOIL
Metals						(ASH)	(ASH)	(ASH)	(ASH)
Aluminum	5560.00	21200.00	14275.38	4619.49	15522.54	19200	20500	17700	12700
Antimony	1.40	17.10	4.25	2.59	4.95	5.15	4.4	4.1	4.2
Arsenic	2.70	21.50	5.76	3.18	6.65	5.1	6.1	6	4.2
Barium	33.90	159.00	81.98	29.41	89.92	136	98.9	86.7	56.2
Beryllium	0.32	1.40	0.74	0.26	0.81	1.4	1.2	1	0.78
Cadmium	0.14	2.90	0.65	0.84	0.85	2.6	2.9	2.4	1.9
Calcium	1370.00	293000.00	46482.05	55752.67	120725.07	5390	4870	3560	85900
Chromium	10.30	35.80	22.25	6.70	24.06	27.4	30.1	26.9	19.8
Cobalt	5.90	29.10	12.05	4.44	13.25	13.8	18.4	14	14.2
Copper	9.70	62.80	22.51	9.89	25.18	22.3	27.6	26	16.2
Iron	8770.00	42500.00	26865.90	7855.54	28986.71	37200	36100	32500	27400
Lead	5.40	269.00	26.80	58.81	25.98	14.5	11.4	13.6	10.1
Magnesium	3330.00	34900.00	10432.05	6949.55	12308.26	5850	7300	6490	6720
Manganese	309.00	2380.00	655.34	365.17	759.41	1130	956	832	926
Mercury	0.01	0.20	0.05	0.04	0.06	0.09	0.06	0.06	0.05
Nickel	16.30	62.30	33.49	11.20	36.52	42.3	48.7	44.4	30.4
Potassium	628.00	2490.00	1435.82	416.15	1548.17	1910	2110	1760	1430
Selenium	0.05	0.97	0.24	0.24	0.31	0.085	0.105	0.1	0.305
Silver	0.16	0.87	0.48	0.21	0.53	0.8	0.65	0.6	0.65
Sodium	21.90	269.00	98.62	57.09	114.03	39.6	33.75	31.3	75.3
Thallium	0.08	0.80	0.23	0.17	0.28	0.235	0.29	0.285	0.17
Vanadium	12.00	36.90	22.95	7.00	24.84	32.2	25.4	26.4	15.7
Zinc	40.60	219.00	81.33	29.82	89.70	85.1	94.2	85	75
Cyanide	0.24	0.41	0.30	0.04	0.31	0.3	0.315	0.335	0.29

Notes:
1) All soil results are expressed in mg/kg.
All groundwater results are expressed in ug/L.
2) All detects (no qualifier or J qualifier) were taken at full value.
All non-detects (U or UJ qualifier) were taken at half value.
3) 15 Background soil samples colleced from Phase I and II RI/FS investigations at the Ash Landfill (9 samples) and the Open Burning Grounds (6 samples).
4) The "H" statistic was used to calculate the 95th UCL of lognormally distributed data.
5) "R" qualifier indicates datum rejected during data validation.

TABLE 1.1-3

AVERAGE AND INDIVIDUAL BACKGROUND CONCENTRATIONS OF METALS IN SOILS AT SEDA

SENECA ARMY DEPOT
3 AOCs

B9-91 0-2 SOIL	B9-91 2-4 SOIL	B9-91 6-8 SOIL	BK-1 0-2 SOIL	BK-2 0-2 SOIL	MW-34 0-2 SOIL	GB35-1 0-2 SOIL	GB35-2 2-4 SOIL	GB35-6 0-2 SOIL	GB36-1 0-2 SOIL	GB36-2 2-4 SOIL	SB4-1.1 0-2 SOIL
(ASH)	(ASH)	(ASH)	(ASH)	(ASH)	(OB)	(OB)	(OB)	(OB)	(OB)	(OB)	
14800	8880	7160	19400	14400	16100	18000	17600	16200	18100	16200	14800
4.95	4.95	3.5	3.95	3.6	5.7	2.9	6.8	6.3	5.9	2.9	2.4
4.3	3.8	4.4	3	2.7	3.15	6.2	7.7	5.3	4.6	9.7	6.2
101	110	39.9	159	106	67.5	93.6	61.7	61.7	74.8	50.8	72
1.1	0.76	0.52	1.1	0.81	0.86	0.85	0.74	0.77	0.77	0.65	0.73
2.3	1.7	1.5	0.225	0.205	2.3	0.165	0.155	0.175	0.15	0.165	0.235
45600	104000	101000	4590	22500	28600	1590	17700	1370	1660	22900	4280
22.5	13.8	11.2	30	22.3	26.6	23.5	29.3	25.1	24.8	27.4	23.2
13.7	10.7	8.1	14.4	12.3	17	9.4	16.3	10.3	20.4	13.2	11.3
22.6	21.6	19.3	26.9	18.8	32.7	17.5	24.5	17.2	17.7	17.5	14.1
31000	19600	17300	38600	26600	35000	25200	34200	30800	26100	30700	27500
10.8	10.1	7.8	15.8	18.9	11.9	14.4	5.4	19.1	12.7	6.2	17.7
8860	17000	12600	5980	7910	6850	3850	7790	4490	4490	7150	4270
903	532	514	2380	800	803	701	646	775	426	507	R
0.08	0.04	0.05	0.13	0.11	R	0.06	0.015	0.07	0.02	0.02	0.05
38.4	23.8	19	47.7	31	49.3	26.3	48.7	28.3	28.3	42.8	27.8
1320	1080	1050	1720	1210	1290	1110	1110	975	1400	1100	1250
0.105	0.325	0.105	0.73	0.94	0.09	0.115	0.115	0.105	0.1	0.09	0.4
0.75	0.75	0.55	0.235	0.215	0.87	0.17	0.16	0.18	0.155	0.17	0.465
84.2	112	116	49.1	61.1	55.2	35.6	77.5	34.6	46.6	97.6	21.9
0.295	0.18	0.3	0.21	0.19	0.255	0.275	0.27	0.25	0.23	0.215	0.115
19.7	19.5	12.9	28	22.4	22.3	27.1	22.3	26.1	27.8	19.7	28.6
126	84.3	74.8	98.6	63.7	95.7	55	83.4	53.1	59.2	74.1	79.6
0.35	0.315	0.31	0.285	0.305	0.27	0.39	0.355	0.41	0.35	0.34	0.26

TABLE 1.1-3

AVERAGE AND INDIVIDUAL BACKGROUND CONCENTRATIONS OF METALS IN SOILS AT SEDA

SENECA ARMY DEPOT
3 AOCs

SB4-1.1 DUP SOIL	SB4-1.3 4-6 SOIL	SB4-1.6 8-10 SOIL	SB11-3.1 0-2 SOIL	SB11-3.2 4-6 SOIL	SB11-3.6 10-12 SOIL	SB13-1.1 0-2 SOIL	SB13-1.3 6-8 SOIL	SB13-1.4 8-10 SOIL	SB13-4.1 0-2 SOIL	SB13-4.2 2-4 SOIL
21000	15300	19200	17600	6330	10900	18300	8250	11700	21200	15500
1.9	2.5	1.4	5.4	4	3.8	5.1	1.85	1.4	2	4.5
4.2	3.9	21.5	R	R	R	7	6.2	5.7	8.1	6.8
97.7	40.4	81.2	113	57.4	62.7	106	88.1	33.9	129	96.9
0.64	0.74	1	0.85	0.34	0.47	0.92	0.42	0.54	1.1	0.78
0.185	0.245	0.135	0.335	0.25	0	0.225	0.18	0.135	0.19	0.17
2460	30900	14400	4950	91300	48600	3570	87700	50300	28800	68000
27.9	27.6	32.7	24	11.1	18.6	29.4	13.3	19.6	30.2	25.8
5.9	16.5	29.1	11.3	6.5	10.1	12	7.2	11.1	10.6	12.4
15.1	62.8	21.6	20	12.2	21.7	11.6	18.4	17.6	21.6	21.1
19500	34300	37900	27200	13200	28300	32500	17400	24700	31600	30100
9.8	7.5	9.1	27.9	11.4	10.1	R	R	R	13.6	13.6
4460	7130	8040	4160	12900	10100	5890	20800	12600	8780	10600
R	R	R	674	356	434	451	517	404	363	607
0.04	0.04	0.04	0.05	0.02	0.02	0.03	0.07	0.01	0.05	0.01
25.1	47.6	62.3	28.3	16.7	29.5	34.9	24	33.1	38.1	43.2
2490	1300	2030	2110	1110	1230	2190	1390	1270	2130	1570
0.23	0.045	0.07	0.24	0.065	0.105	0.26	0.56	0.51	0.53	0.2
0.37	0.495	0.64	0.7	0.5	0.485	0.45	0.305	0.27	0.385	0.345
39.2	105	91.6	66.3	136	146	80.6	155	134	81.5	183
0.12	0.08	0.12	0.095	0.75	0.115	0.43	0.43	0.64	0.11	0.1
31	22.2	29.3	31.8	13.3	17	32.7	13.3	16.3	35.8	23.1
72.1	102	115	R	R	R	81.9	56.2	45.3	89.4	65.8
0.265	0.265	0.235	0.285	0.235	0.265	0.305	0.25	0.265	0.27	0.255

TABLE 1.1-3

AVERAGE AND INDIVIDUAL BACKGROUND CONCENTRATIONS OF METALS IN SOILS AT SEDA

SENECA ARMY DEPOT
3 AOCs

SB13-4.3 4-6 SOIL	SS16-1 0-0.2 SOIL	SB17-1.1 0-2 SOIL	SB17-1.2 2-4 SOIL	SB17-1.3 4-6 SOIL	SB24-5.1 0-2 SOIL	SB24-5.3 4-6 SOIL	SB24-5.5 8-10 SOIL	SB25-6.1 0-2 SOIL	SB25-6.2 2-4 SOIL	SB26-1.1 0-2 SOIL	SB26-1.2 2-4 SOIL
20400	6550	13700	18100	8700	16200	10100	13700	10600	7070	5560	9040
1.6	17.1	5.85	5.9	4.5	6.25	2.9	5.65	2.1	1.5	3.65	3.35
9.6	4.9	4.3	5.2	3.4	4.2	3.3	5	8.3	4.8	3.2	5.3
79.1	102	107	114	59.4	117	58.3	67.2	59.1	35	73.2	43.7
1	0.32	0.7	0.9	0.42	0.98	0.48	0.65	0.48	0.35	0.35	0.41
0.155	0.22	0.365	0.37	0.28	0.39	0.18	0.35	R	R	0.23	0.21
10200	147000	2870	20900	72800	4540	74200	49000	82500	122000	293000	47300
35.8	12.6	17.6	25.1	13.9	24.5	16.9	23.1	16.9	11.3	10.3	15.7
12.1	6.2	9.9	13.3	8.8	16	8.2	12	11.2	6.6	5.9	9.5
26.5	44	46.4	26.9	20	28.4	20.9	22.2	20.2	12	9.7	14.3
42500	12300	25100	29900	18800	33600	21300	26700	21400	15800	8770	19100
7.1	269	266	11.4	7.5	45.5	8.7	7.9	9.5	13.8	6.33	8.5
9660	34900	3330	8490	18100	5150	12100	11400	19600	22800	29100	9160
398	355	547	487	391	1080	400	450	722	610	309	551
0.02	0.2	0.05	0.06	0.015	R	R	R	0.03	0.02	0.01	0.01
53	23	19.1	42	25.2	37.3	26.4	35.2	26.8	18	16.3	23.9
1810	1290	628	1560	1090	1170	993	1660	1480	1060	1710	901
0.28	0.075	0.125	0.12	0.07	0.075	0.115	0.11	0.97	0.63	0.065	0.26
0.315	0.45	0.75	0.75	0.55	0.8	0.365	0.7	0.41	0.295	0.46	0.425
87.8	213	46.2	74.6	137	50.9	153	139	269	186	192	108
0.09	0.8	0.14	0.13	0.075	0.08	0.125	0.12	0.12	0.105	0.365	0.085
30.7	36.9	23.1	27	13.9	29.9	14.4	19.5	18.5	12	12.7	14.4
93	219	93.4	80.2	57.1	85.7	62.8	63.2	71.6	40.6	56	90.6
0.27	0.32	NA	NA	NA	0.3	0.255	0.285	0.29	0.32	0.24	0.285

1.1.1.4 Local Hydrology/Hydrogeology

Surface drainage from SEDA flows to four creeks as shown in Figure 1.1-8. In the southern portion of the depot, the surface drainage flows through ditches and streams into Indian and Silver Creeks. These creeks then flow into Seneca Lake just south of the SEDA airfield. The central part and administration area of SEDA drain into Kendaia Creek. Kendaia Creek discharges into Seneca Lake near the Lake Housing Area. The majority of the northwestern and north-central portion of SEDA drain into Reeder Creek. The northeastern portion of the depot, which includes a marshy area called the Duck Ponds, drains into Kendig Creek and then flows north into the Cayuga-Seneca Canal and to Cayuga Lake.

Characterization of the local hydrogeology is based upon hydrogeological information obtained from previous site investigations. USATHAMA (1989) conducted single-well aquifer tests (slug tests) in the Ash Landfill area to estimate the hydraulic conductivity of the water-bearing materials underlying the site. The slug tests were performed on five shallow groundwater monitor wells (PT-11, PT-12, PT-15, PT-21 and PT-23) screened in the till and upper (weathered) portion of the bedrock. Slug test data were analyzed according to the method developed by Bouwer and Rice (1976). The hydraulic conductivity values generated from the slug test analysis were used in conjunction with an estimate of soil porosity and the calculated groundwater flow gradient to develop an estimate for the average groundwater flow rate at the Ash Landfill site. Excluding PT-21, which had an unusually low hydraulic conductivity value of 5.87×10^{-11} centimeters per second (cm/sec) (1.66×10^{-7} ft/day), the average hydraulic conductivity, as determined by the slug test analysis, was 2.06×10^{-4} cm/sec (0.587 ft/day). Typical tight clay soils have hydraulic conductivity values that range from 3.53×10^{-5} to 3.53×10^{-8} cm/sec (Davis, 1969).

The effective porosity of the aquifer at the Ash Landfill site was estimated by ICF to be 11 percent. The average linear velocity of groundwater flow, calculated by ICF, Inc. using Darcy's law, between PT-17 and PT-18 is 2.2×10^{-7} ft/sec, 1.19×10^{-2} ft/day or, 6.9 feet per year (ft/yr) based on a hydraulic conductivity of 3.3×10^{-5} cm/sec (9.33×10^{-2} ft/day).

Data from the Ash Landfill site quarterly groundwater monitoring program and previous field investigations indicate that the saturated thickness of the till/weathered shale overburden aquifer is variable, generally ranging between 1 and 8.5 feet. However, the aquifer thickness appears to be influenced by the hydrologic cycle and some monitoring wells dry up completely. From two years of data, the effect on the water table elevations is likely a

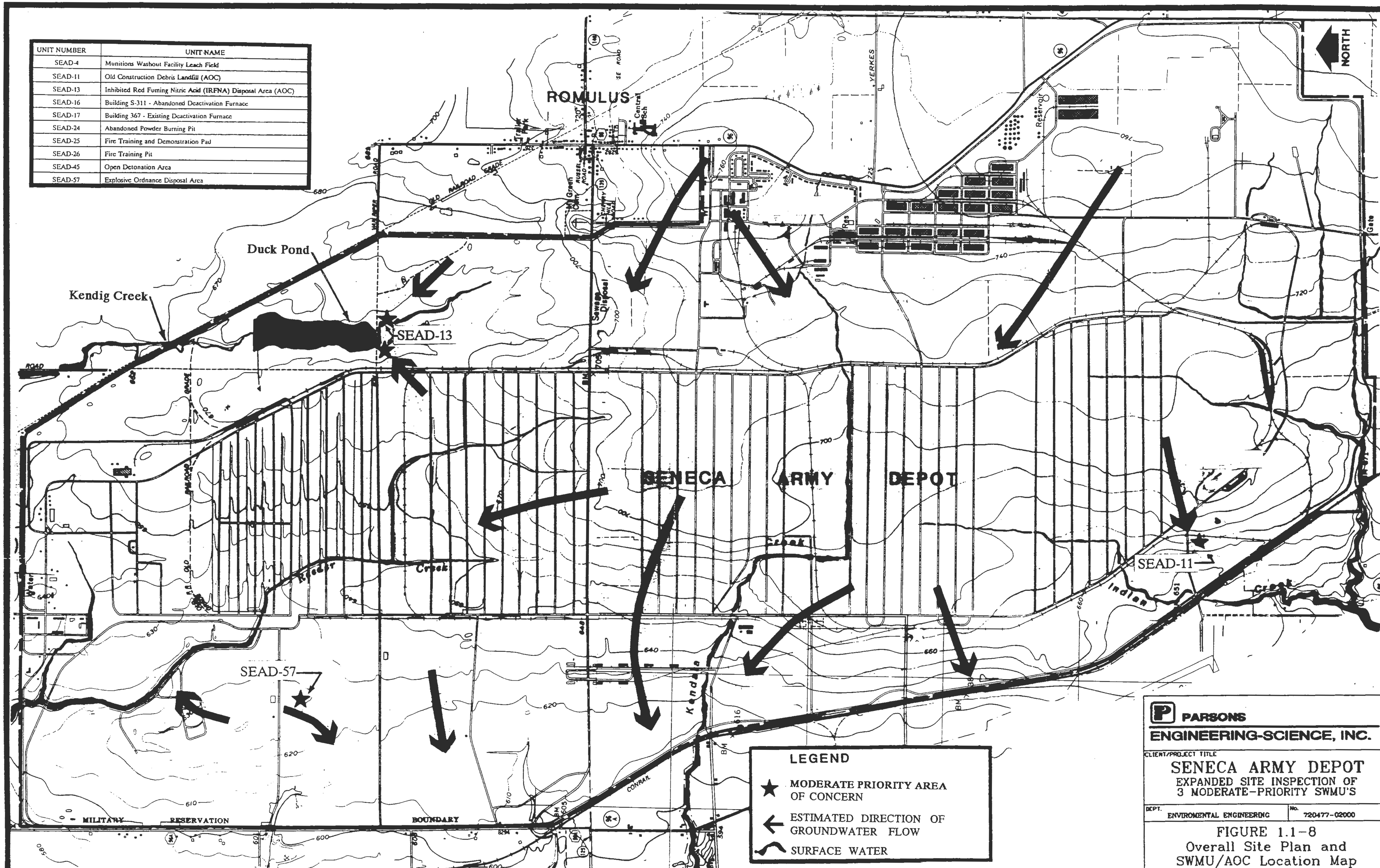


FIGURE 1.1-8
Overall Site Plan and SWMU/AOC Location Map

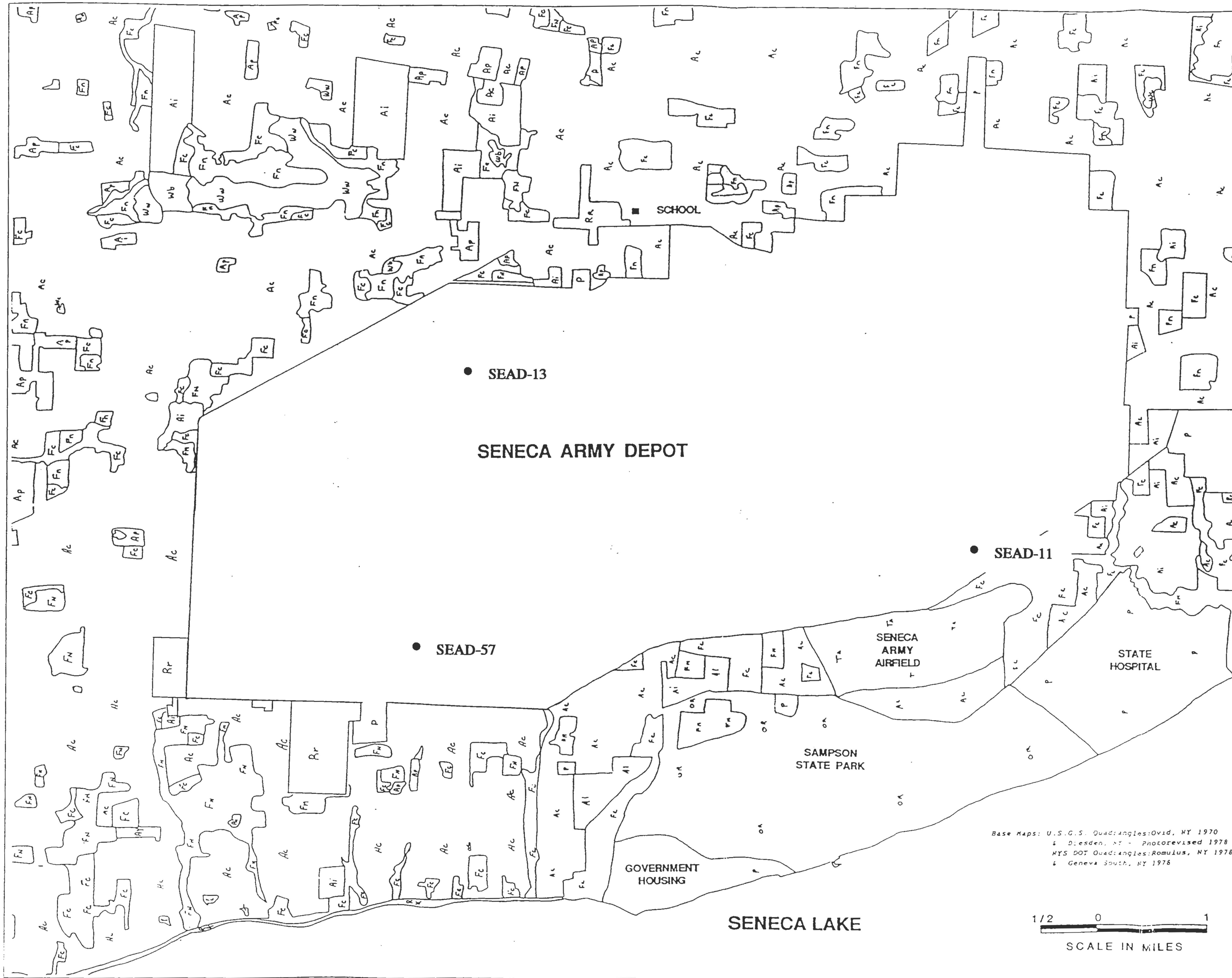
seasonal phenomenon. The overburden aquifer is thickest during the spring recharge months and thinnest during the summer and early fall. During late fall and early winter, the saturated thickness increases. This cycle of aquifer thickness appears to be consistent with what would be expected from an understanding of the hydrologic cycle. Although rainfall is fairly consistent at SEDA, averaging approximately 3 inches per month, evapotranspiration is a likely reason for the large fluctuations observed in the saturated thickness of the over-burden aquifer.

On-site hydraulic conductivity determinations were performed by M&E (1989) on monitoring wells MW-8 through MW-17 at the Open Burning Grounds. These wells are all screened within the glacial till unit. The data were analyzed according to a procedure described by Hvorslev (1951). The average hydraulic conductivity measured for the ten monitoring wells was $5.0x10^{-1}$ ft/day ($1.8x10^{-4}$ cm/sec). The hydraulic conductivities ranged from 2.02×10^{-2} ft/day ($7.06x10^{-6}$ cm/sec) to 1.47 ft/day ($5.19x10^{-4}$ cm/sec). These hydraulic conductivity measurements were within an order of magnitude agreement with previous results reported by O'Brien and Gere (1984). O'Brien and Gere determined the average hydraulic conductivity of the till material to be approximately $2.8x10^{-1}$ ft/day ($9.9x10^{-5}$cm/sec). A comparison of the measured values with the typical range of hydraulic conductivities for glacial tills indicates that the glacial till at the site is at the more permeable end of typical glacial till values.

Soils samples were collected during the 1984 U.S. Army Environmental Hygiene Agency (USAEHA) Phase IV investigation of the burning ground to characterize the permeability of the burning pad soils. Soil permeabilities were measured by recompacting the soil in a mold to 95% standard proctor density. The average permeability for 5 measurements was $1.01x10^{-3}$ ft/day ($3.56x10^{-7}$ cm/sec). The typical range for glacial tills, described by Freeze and Cherry (1979), is between $3x10^{-1}$ ft/day ($1x10^{-4}$ cm/sec) and $3x10^{-7}$ ft/day ($1x10^{-10}$ cm/sec).

1.1.1.5 Land Use

The SEDA is situated between Seneca Lake and Cayuga Lake and encompasses portions of Romulus and Varick Townships. Land use in this region of New York is largely agricultural, with some forestry and public land (school, recreational and state parks). Figure 1.1-9 summarizes the regional and local land use. The most recent land use report is that issued by Cornell University. This report classifies in further detail land uses and environments of this region (Cornell 1967). Agricultural land use is categorized as inactive and active use. Inactive agricultural land consists of land committed to eventual forest regeneration, land



LEGEND

Active

Ao Orchard
Av Vineyard
Ac Cropland/cropland pasture
Ap Permanent pasture

Inactive

Ai Agriculture Inactive

Forestland

Fc Brush cover up to fully stocked poles less than 30 feet
Fn Forest over 30 feet
Fp Plantations, any size

Water

Wn Natural, any size
Wc Artificial, one acre

Wetlands

Wb Bogs, shrub wetlands
Ww Wooded wetlands

Public

P All categories

Residential

Rh High density, 50 feet frontage
Rm Medium density, 50-100 feet frontage
Rs Strip with max of 1/3 intermixture of Cs commercial
Rr Rural hamlet

Shoreline

Rk Shoreline developed

Commercial

Cs Commercial strip with max of 1/3 intermixture of Rs or density housing

Outdoor Recreation

OR All categories

Transportation

Ta Airport

Source: New York State Land Use and Natural Resources Inventory

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FIGURE 1.1-9
Regional/Local Land Use Map

SCALE | REV A

waiting to be developed, or land presently under construction. Active agricultural land surrounding SEDA consists largely of cropland and cropland pasture.

SEDA is a government-owned installation under the jurisdiction of the U.S. Army Material Command (AMC). SEDA lies immediately west of the village of Romulus, NY, 12 miles south of the villages of Waterloo and Seneca Falls, and 2.5 miles north of the village of Ovid, NY (Figure 1.1-9). The nearest major cities are Rochester, NY and Syracuse, NY located 60 miles northwest and northeast, respectively. The total area of SEDA is 10,587 acres, of which 8,382 are designated storage areas for ammunition, storage and warehouse, and open storage and warehouse. On-post family housing is in two parcels, a 54-acre development adjacent to Route 96 and another 69 acres situated along Seneca Lake. Additionally, troop housing is available for 270 enlisted men (Buildings 703, 704, and 708). Bachelor officer quarters are located in Building 702, which is designated for 18 men. Other land uses include Administration, Community Services and an airfield. SEDA has a swimming pool at the north end of the facility, along with tennis courts, a gymnasium, and a sports field complex. Picnic and playground areas are found on the installation at Hancock Park, the Lake Area and the Family Housing Area. There is also a skeet and trap range at the field.

EPA guidance for determining future land uses recommends that, if available, master plans, which include future land uses, Bureau of Census projections and established land use trends in the general area should be utilized to establish future land use trends. The Romulus and Varick Town Clerks were contacted to determine if any master plans exist for this area or if any land use restrictions could apply to the future use of the depot. No zoning maps or master plans were found to exist for the depot or the surrounding areas in the towns of Romulus and Varick. Consequently, the use of this area for light industrial or residential uses is not restricted by local zoning laws and either use could be permitted. The existing land use is generally agricultural with sparse housing. Large tracts of undeveloped land are widely available for future development. The area is not experiencing a high degree of growth nor is it expected to. There is no pressure to develop land in this area, nor will there likely be the need to develop the depot for residential purposes. Section 6.2.2 of the EPA Risk Assessment Guidance for Superfund (RAGS) discusses future land uses and states: "If the site is industrial and is located in a very rural area with a low population density and projected low growth, future residential use would probably be unlikely. In this case, a more likely alternate future land use may be recreational. At some sites, it may be most reasonable to assume that the land use will not change in the future."

The intended future use of the three sites under consideration is as they currently are. The Army has no plans to change the use of this facility or to transfer the ownership. If the property is to change ownership, CERCLA, Section 120 (h)(1),(2), and (3) requires that the prospective owner must be notified that hazardous substances were possibly stored on the parcel. This will include the quantity and type of the substances that were stored. The content of the deed must also include a covenant warranting that all remedial actions necessary to protect human health and the environment with respect to any such hazardous substances remaining on the property have been taken before the date of the transfer. If a property transfer is contemplated by the Army, this information, under penalty of the law, must be supplied to the prospective owner. Should the actual future use of the parcel be residential, then the Army will perform any additional remedial activities to ensure that human health and the environment, under the residential scenario, are protected.

The possibility of human exposure actually occurring is remote since the Army intends to continue using these parcels as currently used. At such time that the property is intended to be transferred in accordance with CERCLA, the Army will notify all appropriate regulatory agencies and will perform any additional investigations and remedial actions to assure that the intended change in use is protective of human health and the environment.

Forest land adjacent to SEDA is primarily under regeneration with sporadic occurrence of mature forestry. Public and semi-public land use surrounding and within the vicinity of SEDA is Sampson State Park, Willard Psychiatric Center, and Central School (at the Town of Romulus). Sampson State Park entails approximately 1,853 acres of land and includes a boat ramp on Seneca Lake. Historically, Varick and Romulus Townships within Seneca County developed as an agricultural center supporting a rural population. However, increased population occurred in 1941 due to the opening of SEDA. Population has progressed since then largely due to the increased emphasis on promoting tourism and recreation in this area.

Figure 1.1-9 provides the location of the AOCs investigated for this report.

The Old Construction Debris Landfill, SEAD-11, is situated in the southwestern corner of SEDA. Land use adjacent to and off-site of the southwestern corner of SEDA is sparse residential areas with some farmlands.

The IRFNA Disposal Site, SEAD-13, is located on the northeastern corner of SEDA near the Duck Ponds. Land use adjacent to and off-site of the northeastern corner of SEDA is principally farmland. The town of Romulus is approximately one mile from SEAD-13.

The Explosive Ordnance Disposal Area, SEAD-57, is located on the northwestern corner of SEDA, adjacent to the OB grounds. Land use adjacent to and off-site of the northwestern corner of SEDA is sparse residential areas with some farmland. Records provided by the town of Varick show approximately 15 residences adjacent to the northwestern border which are within 4,000 feet of SEAD-57. These residences all obtain drinking water from private water wells.

1.1.1.6 Climate

Table 1.1-4 summarizes climatological data for the SEDA area. The nearest source of climatological data is the Aurora Research Farm in Aurora, New York which is approximately ten miles east of SEDA on the east side of Cayuga Lake. This research farm is administered by the Northeast Regional Climate Center located at Cornell University in Ithaca, New York. Only precipitation and temperature measurements are available from this location. The other data reported in Table 1.1-4 were taken either from isopleth drawings from a climatic atlas, or from data collected at Syracuse, New York, which is 40 miles northeast of SEDA. Meteorological data collected from 1965 to 1974 at Hancock International Airport in Syracuse, New York, were used to prepare the wind rose presented in Figure 1.1-10.

A cool climate exists at SEDA with temperatures ranging from an average of 23°F in January to 69°F in July. Marked temperature differences are found between daytime highs and night time lows during the summer and portions of spring and autumn. Precipitation is unusually well-distributed, averaging approximately 3 inches per month. This precipitation is derived principally from cyclonic storms which pass from the interior of the country through the St. Lawrence Valley. Lakes Seneca, Cayuga, and Ontario provide a significant amount of the winter precipitation and moderate the local climate. The annual average snowfall is approximately 100 inches. Wind velocities are moderate, but during the winter months, there are numerous days with sufficient winds to cause blowing and drifting snow. The most frequently occurring wind directions are westerly and west-southwesterly.

Daily precipitation data measured at the Aurora Research Farm in Aurora, New York for the period (1957-1991) were obtained from the Northeast Regional Climate Center at Cornell University. This station is located approximately 10 miles east of the depot. The average monthly precipitation during this 35-year period of record is summarized in Figure 1.1-11. The maximum 24-hour precipitation measured at this station during this period was 3.9 inches on September 26, 1975. Values of 35 inches mean annual pan evaporation and 28 inches for annual lake evaporation were already reported in Table 1.1-4. An independent value of 27 inches for mean annual evaporation from open water surfaces was estimated from an isoplethed figure in "Water Atlas of the United States" (Water Information Center, 1973).

TABLE 1.1-4

CLIMATOLOGICAL DATA FOR SENECA ARMY DEPOT

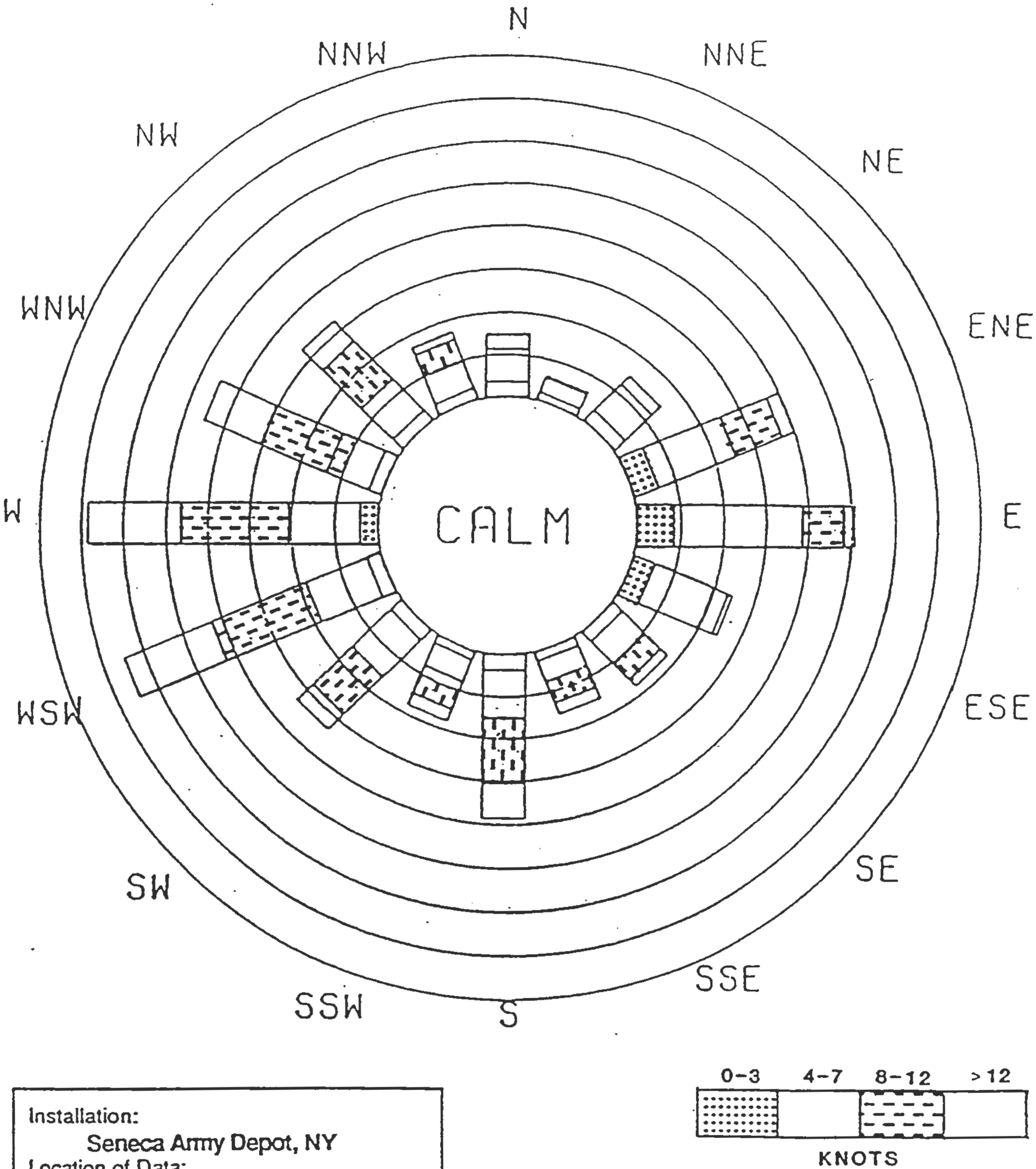
SENECA ARMY DEPOT

MONTH	TEMPERATURE[1] (°F) MAX	TEMPERATURE[1] (°F) MIN	TEMPERATURE[1] (°F) MEAN	PRECIP[1] (in) MEAN	RH[3] (%) MEAN	SUN-SHINE[3] (%)	MEAN NUMBER OF DAYS[4] CLEAR	PTLY. CLDY	CLOUDY
JAN	30.9	14.0	22.5	1.88	70	35	3	7	21
FEB	32.4	14.1	23.3	2.16	70	50	3	6	19
MAR	40.6	23.4	32.0	2.45	70	50	4	7	20
APR	54.9	34.7	44.8	2.86	70	50	6	7	17
MAY	66.1	42.9	54.5	3.17	70	50	6	10	15
JUN	76.1	53.1	64.6	3.70	70	60	8	10	12
JUL	80.7	57.2	69.0	3.46	70	60	8	13	10
AUG	78.8	55.2	67.0	3.18	70	60	8	11	12
SEP	72.1	49.1	60.7	2.95	70	60	7	11	12
OCT	61.2	39.5	50.3	2.80	70	50	7	8	16
NOV	47.1	31.4	39.3	3.15	70	30	2	6	22
DEC	35.1	20.4	27.8	2.57	70	30	2	5	24
ANNUAL	56.3	36.3	46.3	34.33	70	50	64	101	200

PERIOD	MIXING HEIGHT[2] (m)	WIND SPEED[2] (m/s)
Morning (Annual)	650	6
Morning (Winter)	900	8
Morning (Spring)	700	6
Morning (Summer)	500	5
Morning (Autumn)	600	5
Afternoon (Annual)	1400	7
Afternoon (Winter)	900	8
Afternoon (Spring)	1600	8
Afternoon (Summer)	1800	7
Afternoon (Autumn)	1300	7

Mean Annual Pan Evaporation[3] (in) : 35
Mean Annual Lake Evaporation[3] (in) : 28
Number of episodes lasting more than 2 days (No. of episode-days)[2] :
Mixing Height < 500 m, wind speed < 2 m/s : 0 (0)
Mixing Height < 1000 m, wind speed < 2 m/s : 0 (0)
Number of episodes lasting more than 5 days (No. of episode-days)[2] :
Mixing Height < 500 m, wind speed < 4 m/s : 0 (0)

Notes:
[1] Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell University, NY.
[2] Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972.
[3] Climate Atlas of the United States. U.S. Department of Commerce, 1983.
[4] Climate of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.



Installation:
Seneca Army Depot, NY
Location of Data:
Syracuse, NY
Source:
US Army Environmental Hygiene Agency

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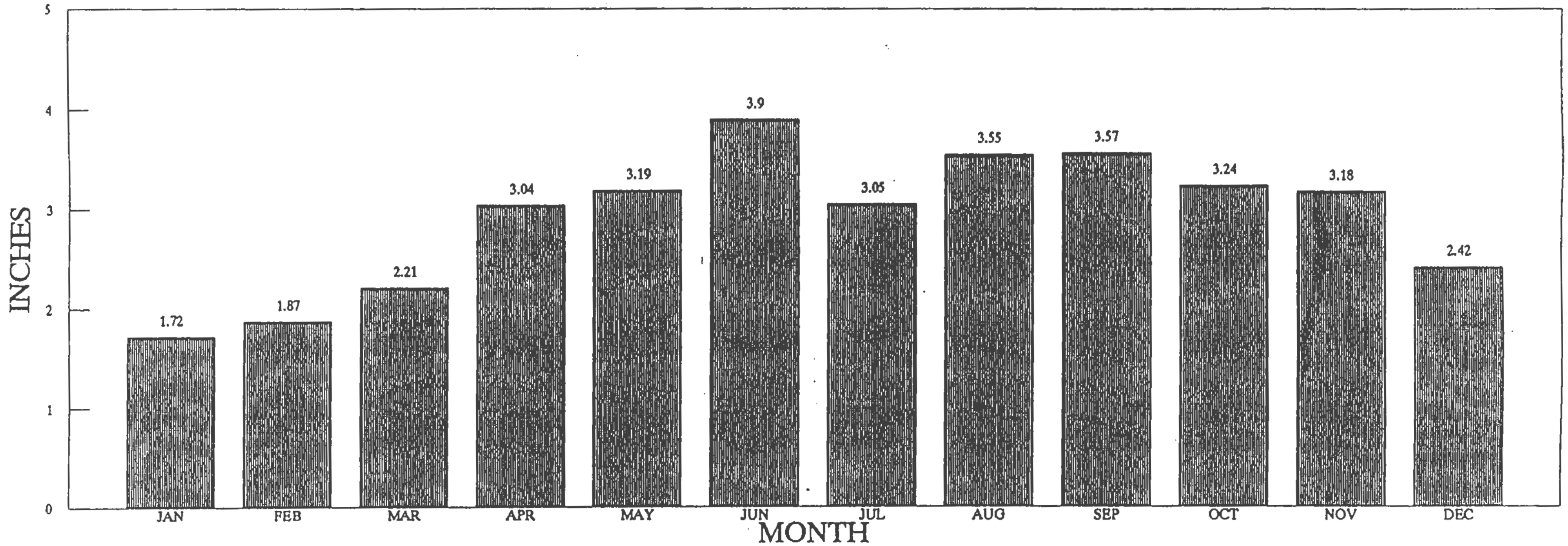
FIGURE 1.1-10
Wind Rose, Syracuse, New York

SCALE | REV A

NOTE : EACH DIVISION IS 2% OF TOTAL TIME .



Note: Average for years from 1958 through 1991.

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FIGURE 1.1-11
Average Monthly Precipitation in Proximity of Seneca Army Depot

SCALE

REV A

Precipitation and relative humidity tend to be rather high throughout the year. The months with the most amount of sunshine are June through September. Mixing heights tend to be lowest in the summer and during the morning hours. Wind speeds also tend to be lower during the morning, which suggests that dispersion will often be reduced at those times, particularly during the summer. However, no episode-days are expected to occur with low mixing heights (less than 500 meters (m)) and light wind speeds (less than or equal to 2 meters per second (m/s)). Information on the frequency of inversion episodes for a number of National Weather Service stations is summarized in "Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States" (George C. Holzworth, US EPA, 1972). The closest stations at which inversion information is available are Albany, New York and Buffalo, New York. The Buffalo station is nearer to SEDA but almost certainly exhibits influences from Lake Erie. These influences would not be expected to be as noticeable at SEDA.

SEDA is located in the Genesee-Finger Lakes Air Quality Control Region (AQCR). The AQCR is designated as "non-attainment" for ozone and "attainment" or "unclassified" for all other criteria pollutants. Data for existing air quality in the immediate area surrounding the SEDA, however, can not be obtained since the nearest state air quality stations are 40 to 50 miles away from the depot (Rochester of Monroe County or Syracuse of Onondaga County). A review of the data for Rochester, which is in the same AQCR as SEDA, indicates that all monitored pollutants (sulfur dioxide, particulates, carbon monoxide, lead, ozone) are below state and federal limits, with the exception of ozone. In 1987, the maximum ozone concentration observed in Rochester was 0.127 parts per million (ppm). However, this value may not be representative of the SEDA area which is in a more rural area.

1.1.2 Physical Site Setting and History

SEDA was constructed in 1941 and has been owned by the United States Government and operated by the Department of the Army since this time. The Army has no plans to change the use of this facility (i.e., storage areas for ammunition, administration, munitions destruction facility) or to transfer ownership. Prior to construction of the depot, the site was used for farming.

1.1.2.1 SEAD-11

1.1.2.1.1 Physical Site Setting

The Old Construction Debris Landfill is located in the southwestern portion of SEDA immediately southwest of the intersection of Indian Creek Road and the SEDA railroad tracks (Figure 1.1-8). It is characterized by an area which exhibits a pronounced topographic high that defines its general kidney shape (Figure 1.1-12). There are no developed portions of the site.

The site is bound to the east by SEDA railroad tracks beyond which is a steep upward scarp and a gently westward sloping field with grass and low brush. South of the site is dense low brush. West of the site is an open grass field that ends at the fenced SEDA boundary located approximately 700 feet west of the "toe" of the landfill. The site is bound to the north by Indian Creek Road beyond which is an open grass field which gives way to trees and low brush several hundred feet from the road.

The relief of the landfill is well defined on the generally west-sloping regional topography in the area. On the landfill surface the topography slopes mostly to the northwest. The apparent thicker fill in the southern and western portions of the landfill results in steep scarps on the south and southwestern sides of the landfill and more gently sloping hills on the north and northwestern sides. While the majority of the landfill surface is grass-covered,the southern perimeter of the landfill is vegetated with deciduous trees. The southern and southwestern scarps of the landfill are characterized by assorted construction debris including metal and wood.

Access to the site is provided via a dirt road which enters the site approximately 50 feet west of the intersection of Indian Creek Road and the SEDA railroad tracks. Within SEDA, pedestrian and vehicular access to the site is restricted since the site is located within the ammunition storage area.

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EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No. 720476-02000

FIGURE 1.1-12
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL
SITE PLAN

SCALE 1" = 100' | DATE JUNE 1995 | REV A

1.1.2.1.2 Site History

The Old Construction Debris Landfill (SEAD-11) was active from 1946 to 1949 although the operating practices are unknown. The landfill, which covers approximately 4 acres (590 feet by 300 feet), is currently abandoned and the surface is vegetated with grasses and weeds.

1.1.2.1.3 Existing Analytical Data

No existing analytical data were discovered for this AOC.

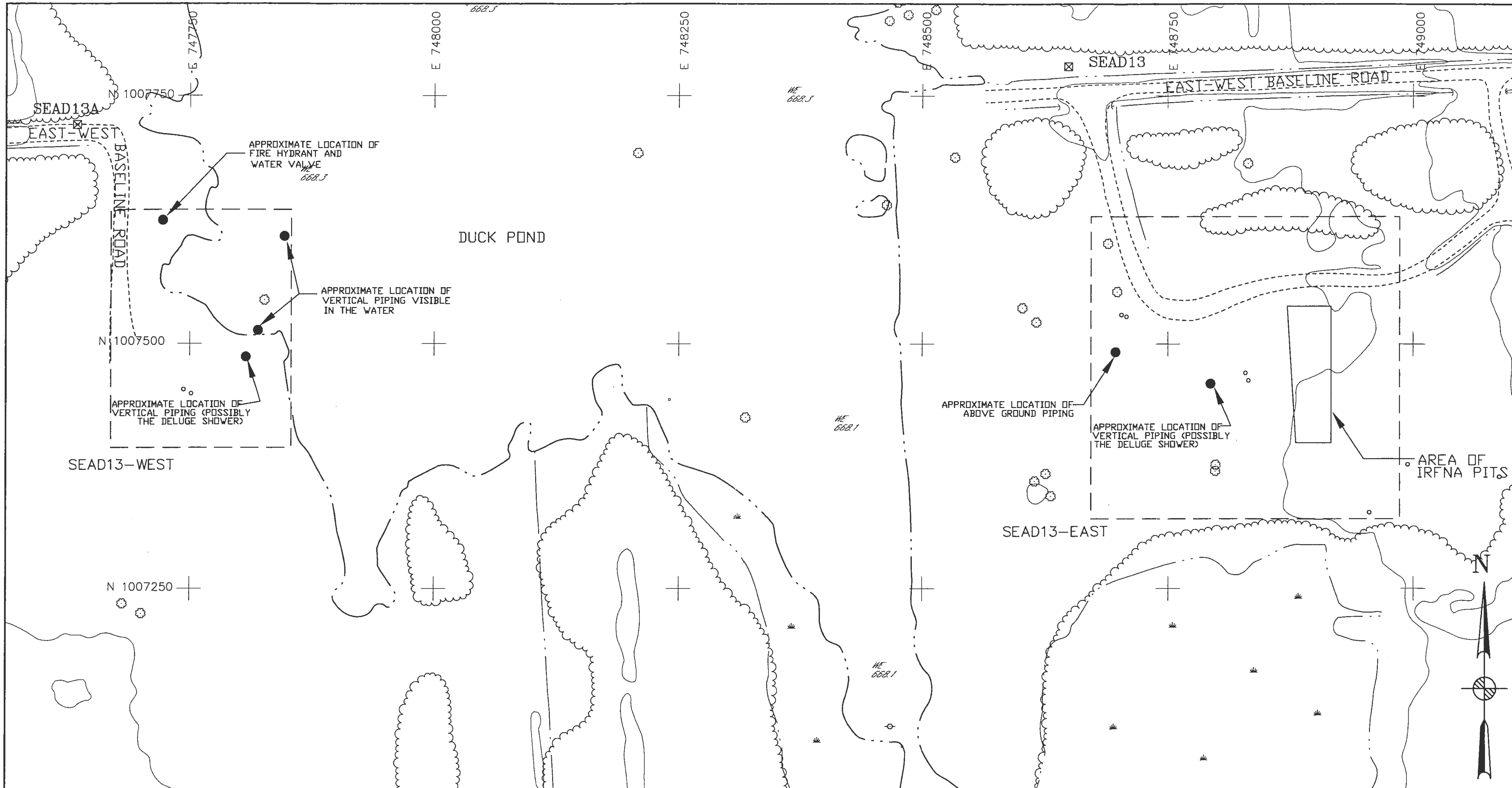
1.1.2.2 SEAD-13

1.1.2.2.1 Physical Site Setting

The Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site is located in the northeastern portion of SEDA (Figure 1.1-8). The site includes two IRFNA disposal areas located on the eastern and western sides of the south end of the Duck Pond near the entrance of its source tributary (Figure 1.1-13). Both areas are located less than two feet above the level of the water in the Duck Pond. The eastern area is bound by mostly deciduous trees and East-West Baseline Road to the north, by deciduous trees and grassland to the east and south and by the Duck Pond to the west. The western area is bound by grassland and low brush to the north, west and south and by the Duck Pond to the east. The extension of East-West Baseline Road is located approximately 100 feet north of the western area.

The eastern area is comprised of six elongated disposal pits (possibly seven) that are visible on the ground surface immediately south of a dirt access road off of East-West Baseline Road. The pits which are each generally 20-30 feet long and whose long axes are oriented east-west, are marked by sparse vegetation, crushed shale and 1-inch limestone pieces at the surface. Vertical water and shower pipes are located west of the pits.

The western area which is located at the end of a dirt road off of East-West Baseline Road is comprised of a broad, low plain which extends to the shoreline of the Duck Pond. The area has no visible evidence of former IRFNA disposal pits at the surface, however, there is an area that is characterized by sparse vegetation and some crushed shale but it does not resemble the pits observed on the eastern side. A vertical shower pipe and head is located in the eastern portion of this area, approximately 50 feet from the Duck Pond.



LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR (760)

SURVEY MONUMENT
ROAD SIGN
DECIDUOUS TREE
FIRE HYDRANT
MANHOLE
GUIDE POST
POLE
UTILITY BOX
COORDINATE GRID (250' GRID)
OVERHEAD POLE
UTILITY
MAILBOX/RR SIGNAL

ACAD\SENECA\3SWMU\SD13SI.DWG

50 0 50 100 (feet)

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Dwg. No. 720476-02000

FIGURE 1.1-13
SEAD-13 IRFNA DISPOSAL SITE
SITE PLAN

SCALE 1" = 100'
DATE JUNE 1995
REV A

Within SEDA, pedestrian and vehicular access to both of the disposal areas is not restricted, although it is more difficult reach the western area.

1.1.2.2.2 Site History

The IRFNA Disposal Site (SEAD-13) was active during the early 1960s. The site consisted of six pits which were 30 feet long, 8 feet wide and 4 feet deep and were located in two separate areas. The pits were constructed by excavation to a shale stratum 4 feet below ground. Following excavation, limestone was placed in the bottom of the pits to a depth of approximately 2.5 feet below ground. The sides of the pits were also lined with limestone. At present, the site is abandoned. If the six (possibly seven) elongated disposal pits and the vertical water and shower piping observed in the eastern area comprised the only IRFNA disposal facility (the 1960 Report of sanitary engineering study No. 364214-60 "Disposla of Inhibited Red Fuming Nitric Acid by Soil Absorption, Seneca Ordnance Depot" only mentioned the existence of six pits, five of which were used for IRFNA disposal), the uses of the piping observed in the western area, though similar in structure to that observed in the eastern area, remains unknown. Surface expressions of abandoned disposal pits were not observed in the western area.

Barrels (18.8-gallon capacity) of unserviceable IRFNA were stored on pallets near the west end of the pits. A stainless steel ejector, operated by water pressure, was fitted into a barrel with water flowing through the ejector. The ejector discharged a mixture of water and IRFNA through a long polyethylene hose under the water surface in the pit being used. During this period the IRFNA was allowed to mix with the limestone in the pit to facilitate the neutralization of the acid. Five minutes were required to empty a barrel. Ten barrels were usually discharged into a single pit during a day's operation.

1.1.2.2.3 Existing Analytical Data

The chemical analysis information for SEAD-13 is presented in the Report of Sanitary Engineering Study No. 364214-60, Disposal of IRFNA by Soil Absorption (August 16, 1960). Three samples were collected at the disposal site including two samples of materials from within the pits and one surface water sample. On June 10, 1960, samples were collected from two of the acid disposal pits (nos. 1 and 4) immediately after barrels of IRFNA were dumped into them. Both of these pits are located on the east side of the Duck Pond although their exact locations are not known. Just prior to the sample collection, ten barrels of IRFNA were dumped into pit no. 1 and, on June 2 and 6, twelve and five barrels, respectively, were dumped into this pit. The second sample was collected from pit no. 4 after a total of 30 barrels of IRFNA had been dumped into it on June 1, 2, and 6. The disposal operation had been suspended for a few day prior to June 10 to permit the placing of additional limestone in the pits along the earth walls because there had been evidence of diluted acid loss by lateral leaching through the walls above the limestone bed. This was confirmed by the analysis results of sample H, which was the surface water sample collected on June 9, 1960 adjacent to the disposal pits on the east side of the Duck Pond.

The results of the chemical analyses for the surface water sample, H, indicated that the water had a pH of 5.4, specific conductivity of 40,400 umhos/cm, nitrate-N concentration of 8,820 mg/L, and fluoride concentration of 23.7 mg/L.

The results of the chemical analyses on the two samples of materials collected from the disposal pits indicated that the pH ranged from 1.5 to 3.4, the specific conductivity ranged from 62,800 umhos/cm to 69,000 umhos/cm, the nitrate-N concentration ranged from 13,000 to 16,100 mg/L, and the fluoride concentration ranged from 23.5 to 392 mg/L.

1.1.2.3 SEAD-57

1.1.2.3.1 Physical Site Setting

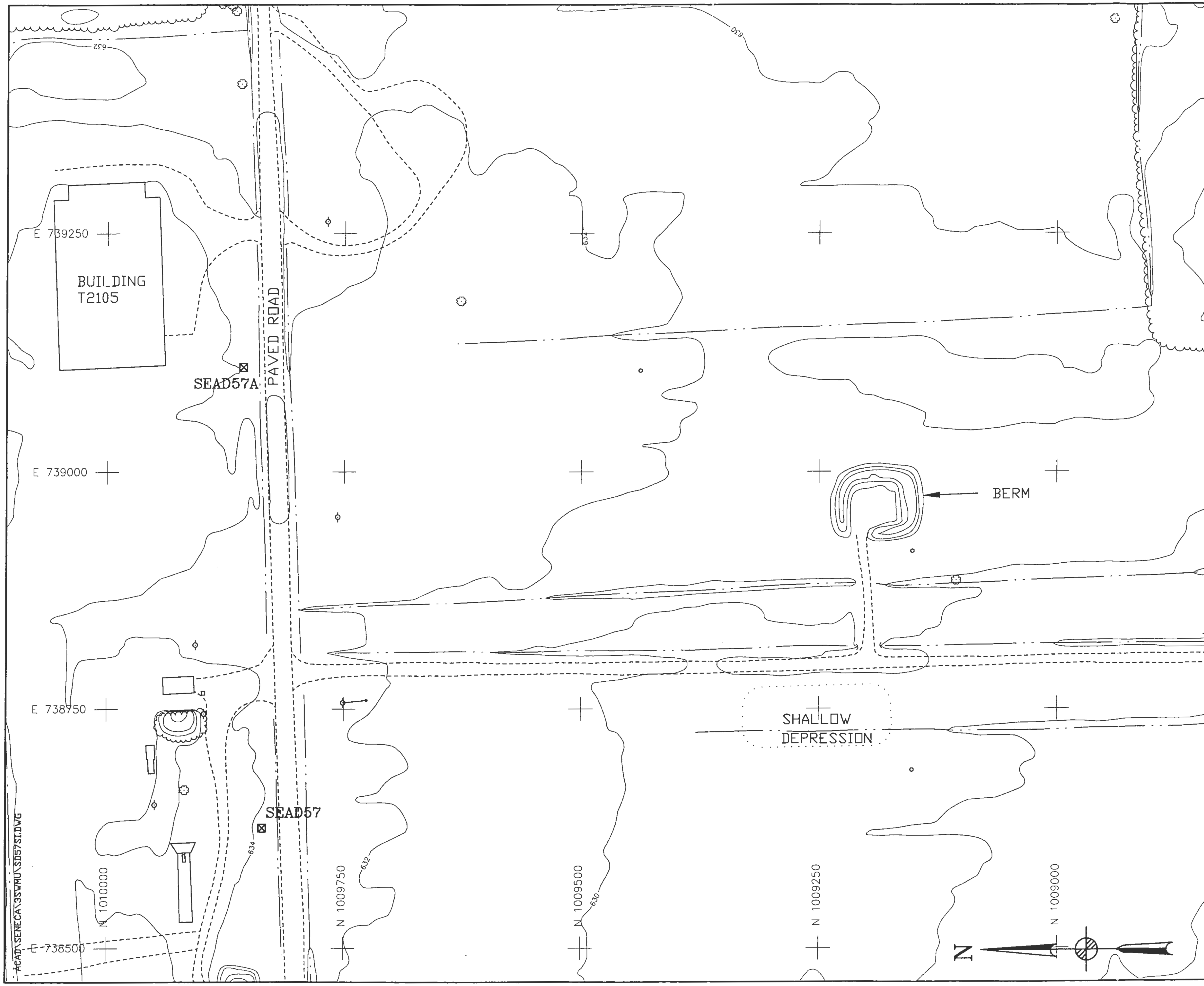
The Explosive Ordnance Disposal Area is located in the northwestern portion of SEDA (Figure 1.1-8). It is characterized by a rectangular berm (approximately 100 feet by 70 feet) that is open on the northwestern side (Figure 1.1-14).

The berm is surrounded on all sides by open grassland for hundreds of feet. A shallow depression located approximately 200 west of the berm and building T2105, are also included in SEAD-57. Building T2105 is a dilapidated wood frame structure located immediately north of an access road north of the berm. Topography in the central and western portions of the site slopes gently to the south and southwest but a subtle topographic high in the central portion of the site also results in a gentle east-southeasterly slope. Reeder Creek is located approximately 1500 feet to the northeast of the site.

The berm and the shallow depression are accessible via a dirt and crushed shale road that extends from a the paved road near Building T2105. Within SEDA, pedestrian and vehicular access to the site is restricted since the site is located within the ammunition storage area.

1.1.2.3.2 Site History

The disposal area has been active from 1941 to the present and is currently used for bomb squad training.



LEGEND

- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENT
- RAILROAD
- 760 — GROUND SURFACE ELEVATION CONTOUR
- ROAD SIGN
- DECIDUOUS TREE
- GUIDE POST
- FIRE HYDRANT
- MANHOLE
- COORDINATE GRID (250' GRID)
- POLE
- UTILITY BOX
- MAILBOX/RR SIGNAL
- OVERHEAD UTILITY POLE
- SURVEY MONUMENT

50 0 50 100
(feet)

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT.	Dwg No.
ENVIRONMENTAL ENGINEERING	720478-02000

FIGURE 1.1-14
SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA
SITE PLAN

SCALE	DATE	REV
1" = 100'	JUNE 1995	A

1.1.2.3.3 Existing Analytical Data

No existing analytical data were discovered for this AOC.

1.2 REPORT ORGANIZATION

The remaining sections of this report are organized to describe the investigation programs, the results of the data collected during the ESI and to identify the magnitude and extent of impacts. Section 2.0 (Study Area Investigation) discusses the investigation programs (i.e., geophysical, surface water and sediment, soils, and groundwater) performed during the ESI. Section 3.0 (Geological, Geophysical, and Hydrologic Setting) discusses the results of the investigation programs, specifically, geophysics, surface water hydrology and sediments, geology and hydrogeology. The nature and extent of impacts, on and off-site, is discussed in Section 4.0 (Nature and Extent of Contamination). Section 5.0 (Health and Environmental Concerns) provides a discussion of the potential receptors and environmental impacts of contaminants. Section 6.0 (Quality Assurance/Quality Control) discusses the results of an evaluation of the data quality and quantities. Recommendations regarding future actions at each AOC are presented in Section 7 (Recommendation for Future Action). The Appendices contain the data on which the text and conclusions are based.

2.0 STUDY AREA INVESTIGATION

2.1 INTRODUCTION

The focus of this investigation was to determine whether hazardous constituents or wastes have been released to the environment at each of the three AOCs and to evaluate potential threats to human health, welfare, and the environment. The potential threats are based on the effects of current use to humans and biota and possible future use by on-site residents. If an AOC is determined to pose a threat to human health, welfare or the environment, a removal action may be performed or a CERCLA RI may be undertaken, otherwise if an AOC is determined to pose little threat, it may be classified as requiring no further action. A completion report is then prepared documenting the end of remedial actions.

Information for each site was acquired through the implementation of numerous focused tasks described in the Ten SWMU Workplan, which was approved by EPA, Region II and NYSDEC, prior to initiation of fieldwork in November 1993. The workplan describes the following tasks:

1. Geophysical Investigations
2. Soil Gas Survey
3. Soil Sampling
4. Groundwater Investigation
5. Surface Water/Sediment Investigations

The following sections of this report describe, in detail, work completed by ES to characterize the environmental setting of each site.

The chemical constituents of concern for this investigation are summarized on Table 2.1-1. Analytical methods utilized at each AOC and the rationale for selection of analytes for each AOC are presented on Table 2.1-2. Table 2.1-3 presents a summary of samples collected and analyses performed. The initial assessment provided data that was used to determine justification for eliminating the AOC from further consideration.

The site survey program consisted of a field reconnaissance of the site and aerial photography. The reconnaissance was performed to locate general site features and confirm the presence of significant features (i.e., incinerator building, cooling pond, filled areas,

TABLE 2.1-1

SUMMARY OF CHEMICAL CONSTITUENTS OF CONCERN

Material Managed at SEAD	Chemical Group	Analytical Method[1]
1. Propellants, Explosives and Pyrotechnics (PEP)	Heavy metals Semi-voltile organic compounds (SVOs) Explosives Nitrates	TAL Metals TCL SVOs 8330, 353.2
2. Solvents	Volatile organic compounds (VOCs) Semi-volatile organic compounds (SVOCs)	TCL VOCs, 524.2 TCL SVOs
3. Oils	Petroleum hydrocarbons (TPH)	418.1
4.IRFNA	Acid	353.2, 340.2, 9040
5. Transformer Oil	Polychlorinated biphenyls (PCBs)	TCL Pest./PCB
6. Herbicides	Herbicides	8150

1 All analytical deliverables followed NYSDEC CLP Methodologies that included Target Analyte List (TAL) metals, Toxic Compounds List (TCL) organics with exception of Method 353.2 (NO_3), Method 418.1 (TRPH), Method 9040 (pH), Method 340.2 (Fluoride), EPA 600/M4-82-020 (Asbestos).

TABLE 2.1-2
SWMU-SPECIFIC EPA ANALYTICAL METHODS AND SELECTION RATIONALE

SWMU/ AOC	8150 Herbicides	8330 Expl.	TCL SVOs	TCL VOCs	TAL Metals	TCL PCB	353.2 NO_3	418.1 TRPH	340.2 F	Selection Rationale
SEAD-11	X	X	X	X	X	X	X	X	-	Landfills have been historically utilized for industrial waste disposal.
SEAD-13	X	-	X	X	X	X	X	-	X	Strong acid neutralized in pits here. Nitrate and fluoride may be indicators of residual salts originating from acid. pH will indicate neutralization.
SEAD-57	X	X	X	X	X	X	X	-	-	PEP materials managed here (Expl., SVOSs and heavy metals) and breakdown products (Nitrate) may be present.

Table 2.1-3

Summary of Laboratory Analyses

		Number of Analyses		
	No. of Samples	Suite[2]	TPH	Fluoride
SEAD-11				
B/TP[1] Soils	15	15	15	NS
Groundwater	4	4	4	NS
SEAD-13				
B Soils	30	30	NS	30
Groundwater	5	5	NS	5
Surface Water	3	3	NS	3
Sediment	3	3	NS	3
SEAD-57				
TP Soils	11	11	NS	NS
Groundwater	3	3	NS	NS
Surface Soil	9	9	NS	NS
Sample Subtotal	83	83	19	41

Notes:

1. B=Borings, TP=Test pits, NS=Not sampled
2. Suite consists of analyzing each sample for TCL VOCs, SVOs, and Pesticide/PCBs and TAL Metals and Cyanide according to the NYSDEC CLP Analytical Services Protocols (ASP), explosive compounds, herbicides, and nitrates. At SEAD-13, explosive compounds were not analyzed.
3. A matrix spike analysis, performed for every 20 samples, actually consisted of 3 analyses: method spike blank, matrix spike, and matrix spike duplicate.

possible solvent dumping areas, debris pits, monitoring wells, access roads) identified in the workplan. Also, sampling locations were identified and marked during this initial survey. The site and surrounding area were photographed from the air on December 14, 1993 for the purpose of constructing a photogrammetric site plan with 2 foot contour intervals.

The groundwater flow directions were estimated in the workplan based primarily on topography and to some extent on proximity to surface water. The actual locations of some borings and monitoring wells were adjusted based on the results of geophysical surveys and more complete field reconnaissance.

2.2 METHODOLOGY

2.2.1 Geophysical Investigation

Seismic Refraction

Seismic refraction surveys were performed at all AOCs to determine the direction of groundwater flow by measuring either the depth to the water table or the depth to bedrock. These data, along with topographic information, were used to more accurately locate the up and downgradient monitoring wells.

Four 115-foot seismic refraction transects were laid out at each site. They were approximately equidistant from the center of the AOC and each other with each transect pointing toward the center of the AOC. The shot point locations were located along each profile and were used to define each individual seismic spread. The seismic data were collected using an industry standard 12 or 24 channel seismograph. When the geophones were placed on asphalt or concrete, small metal base plates replaced the metal spike on each geophone. The geophones placed on asphalt or concrete was weighted down using small 2 to 3 pound sand bags to improve overall coupling with the ground and to help minimize background noise levels. Geophone spacings were held at 5 foot intervals throughout the survey.

Once the seismograph setup was complete and data collection was ready to commence, the background noise level at each geophone location was monitored. The background noise was displayed on the seismograph CRT as a series of moving bars, the amplitude of which is proportional to the background noise level. This review provided information on ambient noise levels, while also highlighting malfunctioning geophones. Geophones that displayed a high level of noise were moved or have their placement adjusted.

An impact or dropped weight was used as the seismic energy source. Due to the shallow nature of the water table (i.e., generally less than 10 feet in depth) a low energy source was sufficient to accurately image the water table surface. Three shots were fired for each geophysical spread located at the spread ends and spread center. A paper copy of each seismic record was made in the field. Each record was reviewed for quality to insure that adequate signal to noise levels were present for the shot. Upon initial acceptance, a preliminary velocity analysis was performed in the field to define the subsurface structure along each spread. This preliminary review focused on determining if the water table surface had been properly resolved. Upon final acceptance of each shot, the seismic record was annotated to identify the transect number, the spread number, the shot point number, and the shot point location. After each record was reviewed, accepted, and annotated, the data collection procedure was repeated for the remainder of the shot points for each spread.

Subsequent to the seismic data collection, a survey was performed to provide X,Y,Z station information for the seismic shot point locations to $\pm$ 1.0 feet horizontally and $\pm$ 0.1 feet vertically. These data were used during seismic data reduction and seismic modeling.

The seismic refraction method relies upon the analysis of the arrival times of the first seismic energy at each geophone location to provide details about the subsurface geology. The time when the seismic energy arrives at each geophone location is referred to as the first break. Each seismic record was reviewed, both using the seismograph CRT and the paper records, to determine the first breaks at each geophone. This analysis was preliminarily performed in the field with the data checked after the completion of the field program. These first break data values were tabulated and used to create time-distance plots as described below.

For each seismic spread, a graph was made of the first break determinations for all of the spread shot points. These graphs display, in an X-Y plot, the first breaks (time) versus the geophone locations (distance). These time-distance plots form the basis of the geophysical interpretation. The time-distance plots were individually analyzed to assign each first break arrival to an assumed layer within the subsurface. It is estimated that up to four distinct seismic layers exist at the site. These include the unsaturated and saturated surficial deposits, the weathered bedrock, and the competent bedrock. In general, these various layers can be grouped into broad ranges of seismic velocities. As an example, unsaturated deposits will generally have a seismic velocity of less than 2,500 feet per second. By comparison, the saturated deposits should have seismic velocities in the range of 4,500 to 5,500 feet per second. The time-distance plots were interpreted to yield the velocity distribution within the subsurface. Each first break arrival was assigned to one of the above mentioned layers. This velocity analysis and layer assignment formed the basis for the data files to be used during the seismic modeling.

Once the first break analysis and layer assignments were complete, input seismic data files were created for use in the seismic modeling software. The input files included all of the information pertaining to the spread geometry, shot point locations and depths, first break arrivals, and layer assignments. The elevation data was also be input into the computer files. The computer program, SIPT (Scott, 1977) was used to model the seismic data. SIPT is an interactive computer program developed by the United States Geological Survey for the inverse modeling of seismic refraction data. This program uses input seismic refraction data to create two-dimensional cross-sectional models of velocity layering within the subsurface. The program uses the delay time method to produce a first approximation of the subsurface velocity layering. This approximation is then refined through the use of iterative ray tracing and model adjustment to minimize the differences between field measured first arrival times and the forward modeled raypath times. The program also provides various levels of velocity analyses that will be reviewed to provide diagnostic information on the model solutions.

The results of the computer modeling were reviewed with the known geology of the site. The subsurface velocity layering was attributed to known or expected geologic units. A detailed analysis was made of the velocity distribution of the upper, unsaturated materials to ensure that, near surface low velocity materials are not adversely affecting the data quality and interpretation. The velocity distribution within the bedrock was also reviewed to provide information on the presence and degree of weathering and to identify any lithologic or fracture related changes within the bedrock.

Based upon the seismic refraction data and the logs from the various monitoring wells, two seismic cross-sections were generated for each AOC. These cross-sections show the land surface elevation and the elevation of the water table and bedrock surfaces. The locations of bedrock piezometers, along with the stratigraphic information derived from them, are shown on these cross-sections.

EM-31 Survey

Electromagnetic (EM-31) surveys were performed at SEADs 11, 13, and 57. The objectives of the EM-31 surveys were to delineate waste boundaries, identify the location of buried metallic objects, and identify the locations of old disposal pits. The EM-31 method was employed in conjunction with Ground Penetrating Radar (GPR) surveys so as to provide significant redundancy during the geophysical investigations.

The electromagnetic data at each AOC was collected using both grid and profile based surveys. In general, the grid based surveys used either a 10 foot by 10 foot or 20 foot by 20 foot grid spacing. Refer to the individual AOC descriptions in the following sections for the grid spacing details. The corners of the geophysical survey grids were established using a registered New York State land surveyor. The individual EM-31 survey lines and station locations were established using both hip chains and hand held compasses.

At all of the AOCs where EM-31 data were collected, a data logger was used to record the individual electromagnetic readings. Both the in-phase and quadrature components of the electromagnetic field were measured and recorded. These data were in turn stored on a computer and printed out at the end of each field day. For each AOC where EM-31 data was collected, a calibration area, free of cultural interference, was established. The EM-31 response was measured at this area at the start of each day. This check was made to insure that no significant meter drift is occurring during each survey.

Upon completion of each electromagnetic survey, the data was presented in both profile and contour form. Both the in-phase and quadrature components were plotted. This multiple presentation format aids in the interpretation of the data. All of these presentation aids were interpreted to identify the locations of buried metallic objects, disposal pits, waste boundaries, and areas of elevated subsurface soil apparent conductivities. These data were compared to the results of the GPR surveys to provide as complete and accurate interpretation of the subsurface conditions at each AOC as possible.

The EM-31 instrument is calibrated by the manufacturer. This calibration can be rechecked in the field but this requires that access to highly resistive rock outcrops are available. A secondary field calibration was performed on a daily basis to insure repeatability of measurements and to check against daily meter drift. This field calibration is the only performance evaluation that is performed on these instruments. The EM-31 data was collected at each AOC to evaluate only relative variations in subsurface conductivities. The absolute terrain conductivity was required since the individual AOC objectives were to identify relative variations in subsurface conditions associated with waste boundaries, buried metallic objects, etc. During the individual AOC surveys, up to five station repeats were performed on a daily basis so as to qualitatively evaluate the overall data repeatability.

GPR Survey

A GPR survey of selected areas within an AOC was conducted to located buried structures (i.e., buried or filled-in pits, trenches, disposal areas) and obtain more information on anomalies detected during the EM-31 surveys. GPR can also identify the original ground surface beneath berms.

The GPR instrument was hand operated. As the equipment was pulled across the site, the reflected radar pulses were transmitted to the receiver unit where they were converted to analog signals. The analog signal was transmitted to the control unit where the signal was electronically processed and sent to the graphic recorder. The graphic recorder produced a continuous chart display on electro-sensitive paper. This real-time display enabled the operator to interpret the data on site.

2.2.2 Soil Gas Survey Investigation

A soil gas sampling and analysis program was performed from December 6 thru December 9, 1993 at SEAD-11 as part of the fieldwork. The objectives of the program were to determine if concentrations of volatile organic compounds were present in the landfill soil gas and to identify source areas of VOCs within the landfill. Areas which were identified as having the highest concentrations of volatile organics were then subjected to test pitting in order to investigate the source of the volatile organics.

The presence of contaminants in the soil gas provides a strong indication that there is a source of volatile organics either in the soil near the probe or in the groundwater below the probe. The soil gas analysis is performed in the field with a portable gas chromatograph so that sample loss does not occur due to shipment off-site. The analytical results are available immediately and can be used to help direct the investigation regarding the location and density of soil gas samples. The analysis of site soil gas is used as a screening tool for rapidly identifying contaminant source soils and, in some cases, can delineate groundwater contamination plumes. In soils above groundwater contamination plumes, the expected soil gas concentrations are much less than those concentrations for source soils. This soil gas program was designed to identify volatile organic concentrations that indicate the presence of source materials (i.e., soils containing solvents or fuels).

Soil Gas Sampling Methods and Materials

The soil gas sampling method involved extracting a small representative sample of soil gas through a hollow steel probe driven into the ground. The extracted gas was then analyzed for the presence of volatile contaminants. A total of 31 soil gas samples were analyzed as part of this investigation. Soil gas samples were collected through a hollow steel drilling rod that was driven approximately 48 inches into the vadose zone using a drilling rig. Soil gas sampling was conducted in a grid pattern on the fill area. The remaining sample locations were chosen based on the analytical results from soil gas sampling along the grid. The intent of the soil gas program was to locate potential source areas for volatile organics. All locations of soil gas samples were marked with a yellow flag.

These locations were surveyed and plotted on a site map by a New York State registered land surveyor.

A 1.75 inch Outside Diameter (OD), steam-cleaned, hardened hollow carbon steel AW drilling rod fitted with a penetrometer point on the tip was driven below the ground surface using a drilling rig equipped with an assembly consisting of a 140-pound weight, a driving head, and a guide permitting a free fall of 30 inches. Blow counts for each 6-inch penetration were recorded for each location. The blow counts provide an indication of the relative density of the material. Rod refusal was defined when more than 100 blows were applied for six inches of penetration.

Once the desired depth of penetration was reached, the drilling rod was withdrawn approximately 6 inches, allowing the penetrometer point to dislodge from the rod, creating a void space through which soil gas was extracted. A metal rod was inserted into the hollow drilling rod to ensure that the penetrometer point had been dislodged. If not, the point was knocked out with the metal rod. Bentonite was packed at the ground surface around the probe to prevent influx of atmospheric air into the sample probe. The hollow drilling rod exposed above the land surface was fitted with a coupling containing evacuation and sampling ports. Teflon tape was used on the threads connecting the coupling to the hollow drilling rod to prevent infiltration of surface gases into the sampling ports. Tubing connected the evacuation port to the intake of a SKC Aircheck Sampler pump (Model 224-PCXR7). The sampling port was fitted with a septum. A new septum was used at each sampling location.

The probe was purged by creating a slight negative pressure with an SKC air sampling pump through the evacuation line for at least 5 minutes to ensure that the gases flowing through the hollow drilling rod were representative of soil gases. The gases were purged at a rate of approximately 3 liters per minute. The effluent gas was monitored continuously with an Organic Vapor Meter (OVM) Model 580B. The soil gas sample was collected from the probe immediately if the effluent monitoring indicated an increase in the concentration of volatiles after 5 minutes of purging. Gas samples were collected to coincide, as much as possible, with the highest concentration of gas measured by the OVM. Approximately 3 ml of soil gas was extracted through the sampling port using a Hamilton gas tight sampling syringe. The syringe was immediately transported to the temporary soil gas laboratory.

Following the collection of soil gas sample, the drilling rod was removed from the ground using the drilling rig or by hand. The probe hole was backfilled with bentonite. Penetrometer points were decontaminated prior to use and drilling rods were steam cleaned after each use. Other sampling equipment (e.g., drill couplings, sampling syringes, tubing, etc) was decontaminated after each use according to the decontamination procedures outlined in the Chemical Data Aquisition Plan (CDAP). All syringes were decontaminated and blanked prior to field use.

Analytical Support

Soil samples were analyzed in the field using a Photovac 10S50 portable gas chromatograph to facilitate real time data acquisition. Various amounts of gas soil samples ranging between 0.25 and 5.0 mls, were injected into the portable gas chromatograph. The amount injected was based on the results of the continuous monitoring with the OVM. High OVM readings, meant that less sample was required to be injected so that the detector response was within the calibration range of the instrument. The temporary soil gas laboratory was established in the on-site field trailer. A simplified explanation of the analytical procedure is provided in the following paragraphs.

The 10S50 gas chromatograph instrument separates compounds in a chromatographic column (selected on a site-specific basis) and detects and quantifies the compounds using a photoionization detector (PID). After a sample is introduced to the chromatograph, it is carried by a carrier gas (zero air) through the column. Different compounds pass through the column at different rates, resulting in a characteristic "retention time" for each compound. By comparison with standards, this retention time can be used to identify compounds. The PID responds to the presence of compounds by producing a difference in current from a reference current. The magnitude of this current difference can be used, when compared to standards, to determine concentrations of compounds present in the sample. The PID is ideal for detecting volatile organic compounds that contain aromatic rings and unsaturated double bonds.

Quantitative analysis of soil gas requires quantitative gas standards. Two gas standards were used for this project. The first, a chlorinated solvent standard, was prepared by Canann Scientific, and contained vinyl chloride, 1,1-dichloroethene, cis-1,2-dichloroethene, and trichloroethene. The second, a standard containing benzene, toluene, ethylbenzene, and xylene (BTEX) was prepared by Scott Specialty Gases. The standards were certified to be traceable to the National Institute of Standards and Technology (NIST). The field calibration standards were prepared from these certified gas standard. Dilutions were made from the standards by injecting a known volume of calibration gas into a clean glass sampling bulb of known volume. The analytical instrument was calibrated each day prior to the analysis of a sample.

Data Interpretation

Data interpretation is an important element of the soil gas analysis. The acquired vapor phase concentrations are evaluated to determine the relationship between soil gas and source soils. The interpretation of the soil gas data involved identification of each organic compound by retention time comparison with gas standards. Quantitation of gas concentrations was obtained as the product of the Response Factor (RF) and the obtained detector response for each compound. RF's were obtained from the calibration curves by taking the average of the integrated area under the curve, expressed in Volt-sec (Vs), for two injections representing different concentrations of 1 mL injections. If the relative percentage difference of the two RFs was greater than 50%, a third standard injection was made and the average of the three RFs was used to quantify the samples. All injections were normalized to 1 mL. If necessary, based upon the OVM readings obtained during sample collection, the volume injected was adjusted to assure that the detector response would not exceed the upper calibration range. The final concentration of the collected sample was determined by applying either a dilution factor or a concentration factor, depending upon the volume injected. For example, if 0.5 mL was injected the obtained concentration was multiplied by 2. The prepared calibration curves and best fit line statistical analyses are presented in Appendix B.

2.2.3 Soil Sampling Programs

The objectives of the soils investigation program were to provide data on the background soil quality, to obtain soil samples, and in particular, to investigate anomalies detected during the geophysical survey at SEADs-11 and -57.

The soils investigation program was completed at SEADs-11, 13, and 57 in accordance with the pre-approved workplan. Sample locations were located in source areas and in hydrologic upgradient locations to establish background conditions. The groundwater flow directions were estimated for the workplan based on topography and to some extent the proximity of surface water. The locations of borings, monitoring wells and test pits were adjusted from those locations in the workplan based on the results of the geophysical investigations, which better defined the groundwater flow directions and detected anomalies. The individual boring logs and test pit logs are included in Appendix B. Empire Soils Investigation, Inc. of Groton, New York performed the drilling and UXB performed test pitting.

Soil Borings

Soil borings were performed using an Acker F-800 drilling rig equipped with 4.25-inch I.D. hollow stem augers. All borings were advanced to refusal on competent bedrock. During drilling, soil samples were collected continuously at 2-foot intervals using a decontaminated 2 foot split spoon sampler according to the method described in ASTM D-1586-84. This technique involved driving a decontaminated split spoon sampler 2 feet into undisturbed soil with a rig-mounted 140 lb hammer. Once the sample was collected, the augers were advanced to the top of the next sample interval. Samples were collected until spoon refusal on competent shale was encountered.

Soil samples were screened for volatile organic compounds using an Organic Vapor Meter (OVM) 580B and for radioactivity with a Dosimeter Mini Con Rad Detector. Three of the samples from each boring were selected for chemical analysis: 1) 0 to 2 feet below grade; 2) immediately above the water table; and 3) midway between samples (1) and (2). The intermediate sample was collected at a depth where one of the following site specific items occurred: (1) a stratigraphic change such as the base of the fill, (2) evidence of perched water table, (3) elevated photoionization detection (PID) readings, or (4) visibly affected soil (e.g., oil stains). If none of these occurred, then the intermediate sample was collected at the halfway point between the samples collected at the surface and at the water table. If intermediate split spoon samples exhibited elevated PID readings, the one with the highest concentration was the one intermediate sample to be analyzed.

Additional monitoring included establishing a designated downwind monitoring station where monitoring for volatile organics with an OVM and dust particulates using a MIE Model PDM-3 Miniature Real-Time Aerosol Meter (Miniram) was performed. A Miniram was also positioned on or near the drilling rig. The OVM was programmed to register real time and maximum readings of volatile organics. These meters were checked before drilling and approximately every 15 minutes during drilling.

Upon completion of sampling, all borings were grouted to the surface or a monitoring well was installed. The soil brought to the surface by the augers was containerized in DOT-approved 55-gallon drums, which were labelled with the date, location, and description of wastes. The drilling rigs, augers and split spoons were steam cleaned between borings at the decontamination pad using potable water from the Depot.

Test Pits (Geophysical Anomaly Excavations)

The objectives of test pitting were to provide a means for visual evaluation of subsurface soils and collection of soil samples, as well as to investigate anomalies discovered during the geophysical surveys.

Test pits were excavated up to 7 feet deep using a backhoe. Upon completion, all excavated material was returned to the pit and covered. Unexploded ordnance (UXO) personnel performed the excavation and obtained the soil samples and ES personnel monitored for VOCs with an OVM 580 and for radiation with a Dosimeter Mini Con Rad. All personnel were outfitted in Level B equipment to avoid possible exposure. Test pit logs are included in Appendix B.

Surface Soils

Grab samples of surface soils were obtained by removing representative sections of soil from 0 to 2 inches below ground surface. Vegetation was removed prior to sample collection.

2.2.4 Monitoring Well Installation

The groundwater investigation program was designed to obtain background water quality data, to determine groundwater flow direction, and to determine if hazardous constituents are migrating in the groundwater from the sites. When required, the locations of monitoring wells were changed from the locations shown in the workplan based on the depth to groundwater and bedrock data obtained from the geophysical surveys.

The wells were installed in borings drilled with a hollow stem auger rig using 4.25-inch hollow stem augers. The borings were advanced to auger refusal, which for the purposes of this investigation defined the contact between weathered shale and competent shale. During drilling, split spoon samples were collected continuously until spoon refusal using the method outlined in ASTM D-1580-84 to observe and characterize the soil conditions and geology at the well location. Monitoring wells were constructed of 2-inch I.D. Schedule 40 polyvinyl chloride (PVC) with a well screen slot size of 0.010. Wells were screened from 3 feet above the water table (if space allowed) to the top of competent bedrock. A sand pack was placed by tremie pipe in the annulus and extended a few feet above the well screen. A bentonite seal was placed on the sand pack. In some instances, the bentonite extended to the surface if there was no vertical space available for a cement/bentonite grout. A 4 inch by 4 inch steel protective casing with a locking cap was installed at the surface and held in place with a 2 foot by 2 foot cement pad. The end of PVC riser was equipped with an expandable well cap. In the instances when bedrock was shallow in depth, i.e,. less than 8 feet, modifications were made. The sand pack was extended to 1 foot above the well screen. Bentonite thickness was decreased to a minimum of 0.5 foot, but preferably at least 1 foot. Table 2.2-1 presents monitoring well construction details. All wastewater used in the drilling process was containerized in 55-gallon drums. Following well installation, the elevations of the well protective casing, PVC riser, and ground surface were surveyed.

The downwind monitoring station continued to be monitored during well installation. Each well location was monitored for volatile organics with an OVM 580B and for particulates using a MIE Model PDM-3 Miniram. A Miniram was also positioned on or near the drilling rig. The OVM 580B was programmed to provide real time and maximum readings of volatile organics.

These meters were calibrated before drilling and checked approximately every 15 minutes during drilling. In addition, all soil samples were screened while in the split spoon with an OVM 580B for volatile organics and a Dosimeter Mini Con Rad for radioactivity.

TABLE 2.2–1

MONITORING WELL CONSTRUCTION DETAILS

SENECA ARMY DEPOT
3 AOCs

Well Number	Depth of Well Relative to Ground Surface (ft)	Depth of Well Relative to Top of PVC (ft)	Well Screen Length (ft)	Screened Interval Relative to Ground Surface (ft)	Thickness of Bentonite Seal (ft)	Height of PVC Well Stickup (ft)	Elevation of Top of PVC Well (MSL) (ft)
MW11–1	14.2	16.58	7	6.1–13.5	1.0	2.38	685.18
MW11–2	8.5	12.08	4	3.4–7.4	0.6	3.58	660.73
MW11–3	9.0	11.60	4	3.9–7.9	2.4	2.60	657.26
MW11–4	10.5	12.82	4	5.4–9.4	0.5	2.32	657.77
MW13–1	12.0	14.80	6	4.3–11.1	1.0	2.80	673.16
MW13–2	16.0	18.40	9	6.3–15.3	1.8	2.40	672.32
MW13–3	24.0	26.45	13	8.9–22.9	2.0	2.45	671.31
MW13–4	8.5	12.50	4	3.5–7.5	1.0	4.00	670.79
MW13–5	16.0	18.8	9	6.3–15.3	1.8	2.80	671.23
MW13–6	10.0	11.30	4	5.0–9.0	1.0	1.30	672.11
MW13–7	8.0	10.44	2	5.0–7.0	1.0	2.44	669.28
MW57–1	6.0	8.52	2	3.1–5.2	0.7	2.52	634.17
MW57–2	7.0	9.40	2	4.1–6.1	1.0	2.40	631.48
MW57–3	7.0	9.46	2	4.1–6.1	1.0	2.46	629.83

Notes:
1. All wells were installed by Empire Soils Investigations, Inc. under the supervision of Enginnering–Science, Inc.
2. Data obtained from Well Development forms and UXB survey summary (3/8/94).
3. All wells were installed in Till/Weathered Shale.
4. All wells were constructed with 2–inch PVC well casing and 0.010–inch PVC well screen.

2.2.5 Monitoring Well Development

Subsequent to the well installations, each monitoring well was developed to insure that a proper hydraulic connection existed between the well and the surrounding aquifer. The well development details are summarized in Table 2.2-2.

The collection of representative groundwater samples is partially dependent upon the turbidity of the sample. Guidance provided by NYSDEC indicates that a valid sample is considered to be one that has a turbidity of less than 50 Nephelometric Turbidity Units (NTUs).

The development procedure which was used for these wells reduced the turbidity of the water in the wells. For development of these wells, only light surging with a bailer for a 2 to 5 minutes was performed and the water in the well was removed using a peristaltic pump at a rate of between 1.5 and 3 liters per minute. The light surging was performed to remove any silt and clay "skin" that may have formed on the borehole wall during drilling. The relatively low flow rate water removal was performed to develop the well and surrounding formation by removing some silt and clay, while not creating an influx of large amounts of silt and clay, which are major components of the till. Final turbidity values for these wells are shown in Table 2.2-2. Turbidity was measured with a Engineered Systems Model 800 portable field analyzer with full scale ranges of 20 and 200 NTUs. Development operations were performed until the following conditions were met:

- The turbidity of the water was less than 50 NTUs.
- The temperature, specific conductivity, and pH of the well water vary by no more than 10 percent.

2.2.6 Groundwater Sampling

Monitoring wells were sampled for this investigation to evaluate the presence and extent of organic chemical constituents present within the groundwater. Groundwater sampling information is presented in Table 2.2-3. The groundwater sampling procedure is described below.

TABLE 2.2-2

MONITORING WELL DEVELOPMENT INFORMATION

SENECA ARMY DEPOT
3 AOCs

MONITORING WELL	INSTALLATION DATE	INDICATORS				GALLONS REMOVED (gal)	WELL VOLUMES REMOVED (gal)
		TEMPERATURE (°C)	pH (standard units)	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTUs)		
MW11-1	11/3/93	5.5/9.5/8.5/9.9	7.34/7.43/7.5/7.36	430/480/400/438	5.5/79/26.6/5/34.2/11.5	30.7	3
MW11-2	11/16/93	11/8.8/9	7.66/7.49/7.54	650/580/640	4.89/7.45/12.7/5.01	19.3	1.1
MW11-3	11/5/93	10.4/11/11.5/12	7.18/7.48/7.38/7.34	700/750/750/750	6.02/4.25/1.1/1.53	5.4	0.8
MW11-4	11/4/93	8.8/10.3/10.6/11.7/11.3	7.10/7.14/7.02/7.53/7.7	550/550/600/650/600	16.7/.05/2.42/2.15/.75	12.5	5
MW13-1	12/8/93	6.5/7.25/7.25/7.25/7.25/5/3.5	7.3/7.33/7.32/7.24/7.23/7.44/7.37	420/425/430/425/425/410/410	1000+/1000+/318/241/80/105/1.1	6.6	7.2
MW13-2	11/9/93	12.7/12.7/12.2	7.23/7.32/7.2	3000/3100/3050	112/20	35.4	3
MW13-3	12/13/93	DRY					
MW13-4	12/15/93	5.5/7/6/5.5/5.5	7.1/7.22/6.86/7/6.9	750/700/650/700/650	1000/1000/1000/44.3	32.5	5
MW13-5	11/9/93	10.5/6.5/8	7.58/7.34/7.58	550/650/600	1.48/1.14/4.57	27	3
MW13-6	12/15/93	5/5.5/5.5/6	7.53/7.5/7.43	425/400/415	324/35.6/20.1	17.85	2.8
MW13-7		DRY					
MW57-1	12/2/93	5/3.5/4.5	7.82/7.68/8.03	260/260/220	7.5/8.6/4.5	10	2.7
MW57-2	12/7/93	7/7/6/6.5/6.5	7.5/7.2/7.2/7.2/7.6/7.1/7.2	890/895/880/880/900/900	192/50.6/10.4/6.2	29.75	5.5
MW57-3	12/7/93	6/7.7		395/390/405	19	18.9	4.3

Note:
1. All wells were developed by the surge and pump method.

TABLE 2.2 – 3

MONITORING WELL FIELD SAMPLING INFORMATION

SENECA ARMY DEPOT
3 AOCs

MONITORING WELL	DATE	INDICATORS				GALLONS REMOVED (gal)	STANDING WATER VOLUME (gal)	WELL VOLUMES REMOVED (gal)
		TEMPERATURE (°C)	pH (standard units)	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTUs)			
MW–11–1	01/18/94	4 / 4 / 4.5	7.5 / 7.6 / 7.5	400 / 370 / 380	0.6	6.25	2.00	3.13
MW–11–2	01/18/94	4 / 4 / 3.5	7.5 / 7.4 / 7.4	480 / 480 / 500	2.3	3.75	1.25	3.00
MW–11–3	01/24/94	5 / 5 / 5	7 / 7.1// 7.1	750 / 750 / 725	13.9	3.30	1.10	3.00
MW–11–4	11/16/93	10.8 / 10.9 / 10.9	7.2 / 7.5 / 7.4	700 / 635 / 650		2.25	0.74	3.04
MW–13–1	02/3/94	4 / 5 / 5.5	7.5 / 7.4 / 7.4	380 / 385 / 380	18.2	6.00	2.00	3.00
MW–13–2	11/18/93	11.9 / 11.4 / 11.6	7.1 / 7.3 / 7.2	3400 / 3200 / 3150	4.2	7.20	2.40	3.00
MW–13–3	DRY							
MW–13–4	02/4/94	2 / 3 / 4	7.2 / 7.2 / 7.1	650 / 700 / 750	8.07	4.50	1.50	3.00
MW–13–5	02/4/94	5.5 / 5.5	7.3 / 7.3	600 / 600	19.5	4.40	2.40	1.83
MW–13–6	02/4/94	3 / 1.5	7.8 / 7.7	400 / 400	12.3	1.80	1.20	1.50
MW–13–7	DRY							
MW–57–1	02/3/94	2 / 1.5	7.7 / 7.7	265 / 255	31.6	1.20	0.70	1.71
MW–57–2	02/3/94	3 / 3	7.2 / 7.2	900 / 900	27.4	1.80	1.00	1.80
MW–57–3	02/3/94	1.5 / 2 / 2.5	7.5 / 7.3 / 7.5	350 / 345 / 350	8.9	2.61	0.87	3.00

The wells were purged prior to sampling using a peristaltic pump with the dedicated Teflon tube that extended to the bottom of the well. A low flow purging method was implemented to obtain samples of groundwater which contained as few suspended particles as possible in order to acquire groundwater samples with low turbidities.

The thickness of the silt was determined by measuring the depth to the top of the silt and subtracting that from the depth of the well. If the thickness of the silt was greater than 1 inch, then the silt was removed using the peristaltic pump and dedicated Teflon tubing. Silt removal was complete when the water was no longer silt-laden and dark brown-gray in color.

The purging process began with the open-end of the tube at the bottom of the well screen (or at least 6 inches from the bottom of the well). The purging flow rate was between 0.01 and 2 liter per minute (L/min) and the water was purged into a graduated 5-gallon bucket. During the purging process, the water level in the well was monitored with an electronic water level meter. The water was not pumped below one half of the static water column height measured before purging was initiated. During removal of the first volume of water, it was determined if the well was a slow or fast recharging well. A fast recharging well supplies water to the well such that the water level is not drawn below the depth of one half of the static height of the water column using flow rates between 0.01 and 2 L/min. A slow recharging well does not supply water to the well to maintain a water level at or above one half of the static height of the water in the well using a minimum purge rate of 0.01 L/min.

The following procedure was used for purging a fast recharging well. After approximately one well volume was removed, the time, flow rate, depth to the bottom of the opening of the Teflon tube and the total volume of water removed was recorded on the sampling data sheet. Measurements of indicator parameters (temperature, specific conductance and pH) were also made this time. The Teflon tube was slowly raised to a point between the top of the well screen and the water surface. After each well volume had been removed the indicator parameters were measured and recorded. Purging of the well continued until three well volumes were removed. After purging the third well volume, the indicator parameters were recorded for the last time. If required, additional temperature, specific conductance, and pH measurements were made until they stabilized (two successive measurements varied by less than 10 percent). Moving the location of the tube from the screened interval to a point near the top of the water surface during purging ensured the removal of any stagnant water from the well prior to sampling. After removal of three well volumes the well was allowed to sit for 2½ hours prior to sampling at which time the water level was measured in the well. If the well had recovered to 95 percent of the original static level, then sampling of the well was performed. If the 95 percent recovery was not achieved after 3 hours, then the recovery requirement for the well was reduced to 85 percent prior to sampling.

For wells that were slow to recharge, purging continued until approximately one-half the well volume had been removed or the water level in the well reached the depth of one half the static height of the water column. At this time, the indicator parameters were measured and the time, flow rate, depth to the bottom of the opening of the Teflon tube, and total volume of water removed were recorded in the sampling data sheet. The Teflon tube was slowly raised to the point between the top of the well screen and the water surface. If this was not feasible, the open end of the tube was raised to the highest point possible to allow water to be pumped. The water level was monitored with an electronic water level meter. Purging of the well continued until one well volume had been removed. Minor adjustments in the depth of the open end of the Teflon tube may have been made during this process, however, the depth to water was not allowed to fall below the one half static water column height. If during purging, the water level was lowered to an unacceptable depth, then the pump was shut off and the well allowed to recharge before continuing. After one well volume had been removed, the indicator parameters were measured and the time, flow rate, depths, and volume of water removed were recorded. If at least one well volume had been removed and the measurements of temperature, specific conductance, and pH had stabilized (i.e., two successive measurements varied be less than 10 percent), then purging stopped. If they have not stabilized, then purging continued until they stabilized. At this time, the well was considered to have been purged enough to ensure that the subsequent water samples collected from the well would be representative of water from the aquifer. After stabilization, the well was allowed to sit for 2-1/2 hours prior to sampling at which time the water level was measured in the well. If the well had recovered to 95 percent of the original static level, then sampling of the well was performed. If the 95 percent recovery had not been achieved after 3 hours, the recovery requirement for the well was reduced to 85 percent prior to sampling. If the well had not recharged to 85 percent after 6 hours, sampling of the well began.

Prior to collecting the sample, the Teflon purging tube was removed from the well and placed into a clean plastic bag during sampling. To sample, the bailer was lowered into the well at a rate of approximately 1/2-inch per second to minimize the disturbance of water and silt in the well. When the bailer was filled with water it was removed at a rate of approximately 1/2-inch per second and the appropriate sample containers were filled. If the well was bailed to near dryness during the sampling process (i.e., the bailer reaches the bottom of the well), sampling was stopped until the well recharged to 85 percent of the original static level. If it did not recharge to 85 percent after 6 hours, sampling continued as water was available for each parameter. When sampling was complete, the dedicated Teflon tubing was returned to the well.

Depending upon the activities performed at the AOC and the constituents of concern, monitoring wells were sampled for most or all of the following parameters:

1. Target Compound List (TCL) for Volatile Organic Compounds (VOC) by NYSDEC CLP
2. TCL for Semivolatiles, Pesticides and Polychlorinated Biphenyls (SVOs, Pesticides and PCBs);
3. Target Analyte List (TAL) (Metals and Cyanide)
4. Method 8150 (Herbicides)
5. Method 8330 (Explosives)
6. Method 418.1 (Total Recoverable Petroleum Hydrocarbons)
7. Method 353.2 (Nitrates)
8. Method 340.2 (Fluoride)

The sampling order was as follows: 1) volatile organic compounds, 2) semivolatile organic compounds, 3) metals, 4) cyanide, 5) explosives 6) pesticides, 7) herbicides, 8) Total Recovered Petroleum Hydrocarbons (TRPH), 9) nitrates and PCBs, and 10) fluoride. The sampling order allowed that metals were collected early in the sequence. Obtaining water samples for metals that are truly representative of the aquifer was a primary goal of the sampling procedure; therefore, collection of water for metals analysis was placed early in the sequence. The results of the testing are discussed in detail in Section 4 of this report.

One round of water level measurements were completed for the monitoring wells. The water level data have been used to determine the direction of groundwater flow within the till/weathered shale aquifer. These data are presented and discussed in detail in Section 3.

2.2.7 Surface Water and Sediment Sampling Procedures

Surface water samples were collected on the site by immersing a clean glass beaker or a sample bottle without preservatives. The sample was then transferred to a pre-preserved sample bottle, if required. Temperature, conductivity, and pH of surface water were measured directly in the field with calibrated meters. pH was measured with an Orion pH meter, Model SA230 or SA230A. Conductivity and temperature were measured with a YSI Model 33 conductivity meter.

Sediment samples were collected by scooping sediment into a decontaminated stainless steel bowl with a decontaminated trowel. Volatile Organic Analytes (VOA) samples were taken first, prior to any mixing of the sediments. Then, the bowl was refilled with additional sediment, if required, thoroughly mixed and the appropriate sample containers filled with sediment. Samples were then placed in coolers containing refrigerants.

2.3 SEAD-11: OLD CONSTRUCTION DEBRIS LANDFILL

Before this site investigation, it was anticipated that the landfill primarily contains construction debris; however, the actual contents of the landfill were not known.

2.3.1 Chemicals of Interest

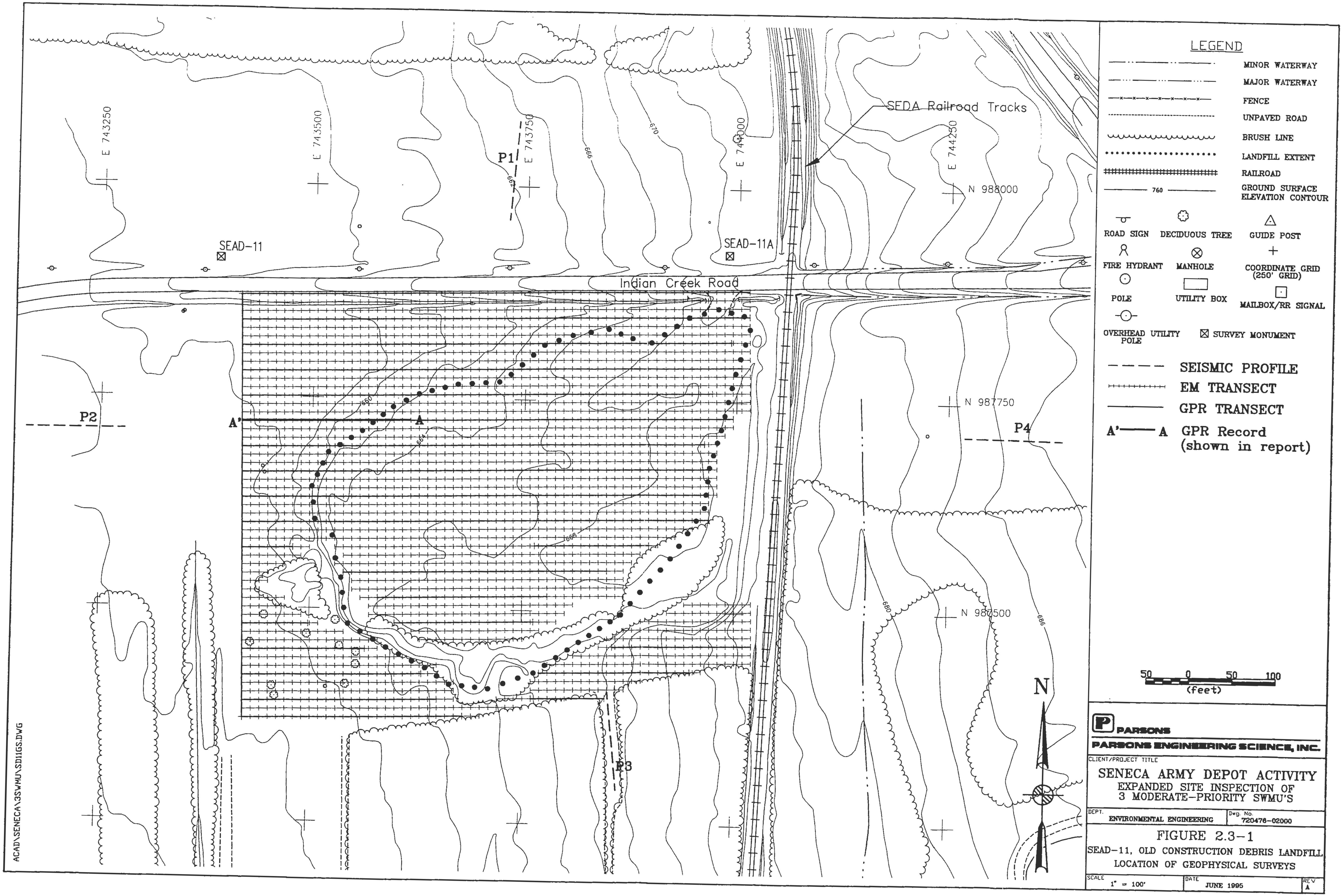
Presently, it is unknown what chemicals, if any, may have been disposed of in the landfill. Consequently, PCBs, VOCs, SVOCs, explosive organics, and heavy metals are considered to be potentially present.

2.3.2 Media To Be Investigated

Geophysics

Four 115-foot seismic refraction profiles were performed along two lines laid out perpendicular to each other (Figure 2.3-1). Data from the surveys were used to determine the direction of groundwater flow and adjust the location of the monitoring wells to locate a well upgradient and a well downgradient of the AOC.

An electromagnetic survey, using an EM-31, and GPR surveys were conducted on the landfill to delineate the limits of the landfill and to determine if any buried metallic objects are present within the landfill. A 10-foot by 10-foot grid was established over the landfill for the EM-31 Survey. The initial geophysical characterization consisted of collecting EM-31 data over this grid. The EM-31 data was interpreted to delineate the waste boundaries. A total of 25,390 linear feet of EM-31 surveys was conducted.


LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR
760
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
SEISMIC PROFILE
EM TRANSECT
GPR TRANSECT
A' A GPR Record (shown in report)
SEDA Railroad Tracks
Indian Creek Road
SEAD-11
SEAD-11A
E 743250
E 743500
E 743750
E 744000
E 744250
N 988000
N 987750
N 987500
P1
P2
P3
P4
A'
A
660
664
666
668
670
680
686
50 0 50 100
(feet)
N
ACAD\SENECA\3SWMU\SD11GS.DWG
PARSONS
PARSONS ENGINEERING SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S
DEPT. ENVIRONMENTAL ENGINEERING
Dwg. No. 720476-02000
FIGURE 2.3-1
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL LOCATION OF GEOPHYSICAL SURVEYS
SCALE 1" = 100'
DATE JUNE 1995
REV A

Subsequent to the EM-31 survey, a GPR survey was performed. The GPR data was collected along profiles spaced at 30-foot intervals to help delineate the landfill limits. A total of 8,420 feet of continous GPR profiles was conducted.

Soil Gas

A soil gas survey was performed on the fill area to determine if concentrations of volatile organic compounds were present in the fill soil gas. This survey identified source areas of VOCs within the fill.

Thirty-nine soil gas locations were established on the fill area within a specified grid. The locations are shown on Figure 2.3-2. Soil gas samples were obtained from 31 of these locations.

Soils

Borings: Three soil samples were obtained from one soil boring (SB11-3) drilled at a background location (refer to Figure 2.3-3 and Table 2.3-1). Two borings (SB11-1 and -2) were changed to test pits because of data from the geophysical and soil gas investigations.

Test Pits: Four test pits (TP) were excavated to the base of the landfill debris, to observe the type of material present in the landfill and obtain soil samples. The four test pits were located at geophysical or soil gas anomalies (Figure 2.3-3 and Table 2.3-1). Three samples from each test pit were obtained for chemical analysis.

Groundwater

Four monitoring wells (MW) were installed at SEAD-11 with one monitoring well (MW11-1) installed upgradient of SEAD-11 to obtain background water quality data (Figure 2.3-3). One monitoring well was installed north of the landfill, one south, and one immediately downgradient. For the workplan the presumed direction of groundwater flow at this AOC was to the west-southwest and the geophysical survey confirmed this direction.

One monitoring well was installed at each location and was constructed so that the entire thickness of the aquifer was screened. Following installation and development, one

TABLE 2.3-1

SOIL SAMPLING SUMMARY
SEAD - 11

SENECA ARMY DEPOT
3 AOCS

BORINGS

BORING NUMBER	WELL NUMBER	SAMPLE NUMBER	SAMPLE INTERVAL
SB11-3	MW11-1	SB11-3.1	0-2'
		SB11-3.2	2-4'
		SB11-3.6	10-12'
	MW11-2	NS	NS
	MW11-3	NS	NS
	MW11-4	NS	NS

TEST PITS

TEST PIT NUMBER	SAMPLE COMMENTS	SAMPLE NUMBER	SAMPLE DEPTH
TP11-1	Grab Sample	TP11-1.1	0-8"
	Grab Sample	TP11-1.2	3.3'
	Grab Sample	TP11-1.3	4'
TP11-2	Grab Sample	TP11-2.1	0-8"
	Grab Sample	TP11-2.2	7.9'
	Grab Sample	TP11-2.3	8.1'
TP11-3	Grab Sample	TP11-3.1	0-1'
	Grab Sample	TP11-3.2	2-4'
	Grab Sample	TP11-3.3	4-6'
TP11-4	Grab Sample	TP11-4.1	0-2'
	Grab Sample	TP11-4.2	2-4'
	Grab Sample	TP11-4.3	4-6'

Notes:

NS = Not Sampled

1) The sample number contains the sample location with a soil boring (SB), monitoring well (MW), or test pit (TP) identifier.
2) All samples were chemically analyzed for the following: volatile organics, semivolatile organics, pesticides/PCBs, metals, cyanide, herbicides, explosives, nitrates, and TPH.

LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760 GROUND SURFACE ELEVATION CONTOUR

ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT

SG 2-4 SOIL GAS POINT

50 0 50 100
(feet)

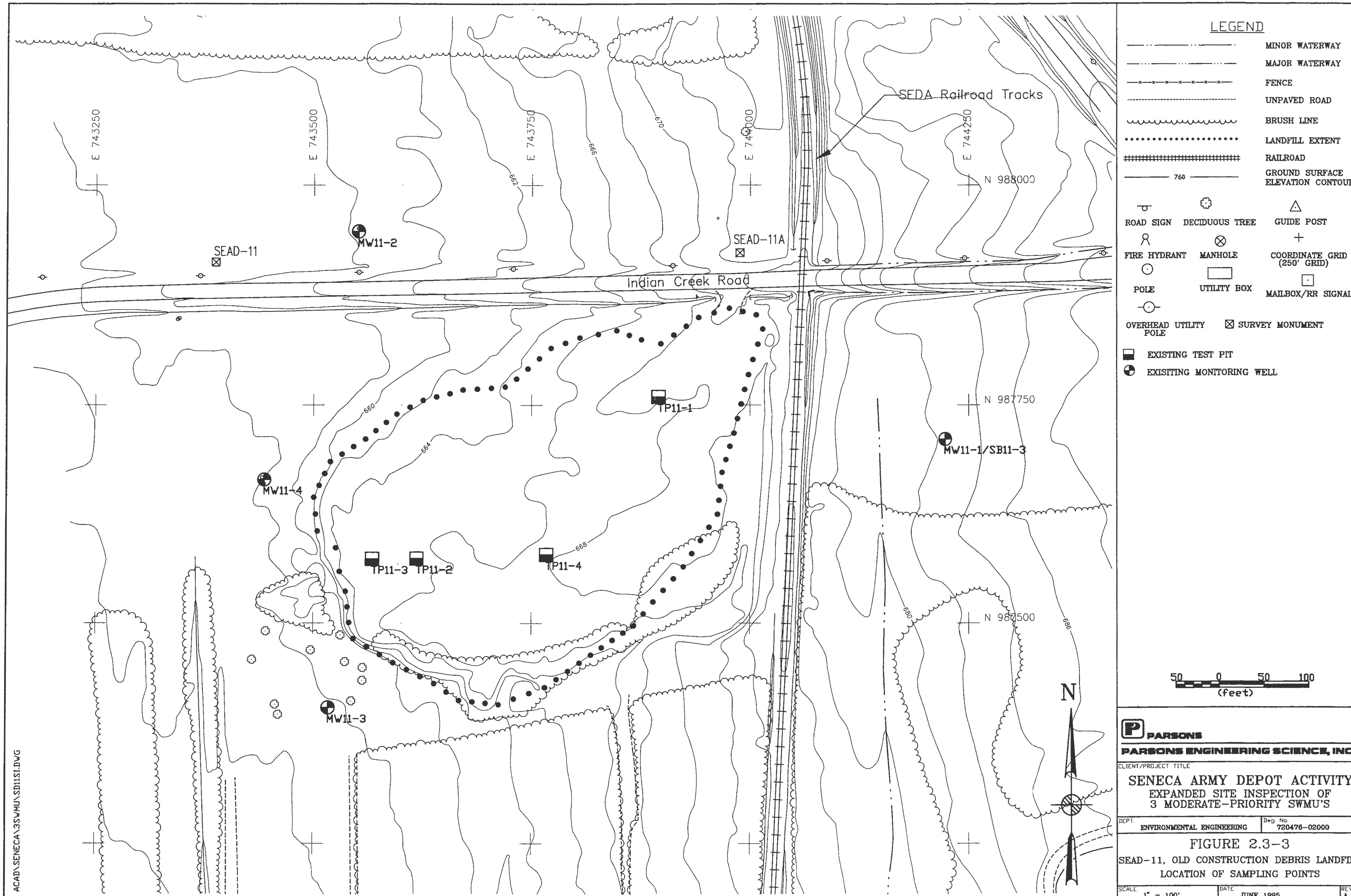
PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING	Dwg No. 720476-02000

FIGURE 2.3-2
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL
LOCATION OF SOIL GAS SAMPLING POINTS

SCALE	DATE	REV
1" = 100'	JUNE 1995	A


LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
EXISTING TEST PIT
EXISITING MONITORING WELL
SEDA Railroad Tracks
Indian Creek Road
SEAD-11
SEAD-11A
MW11-1/SB11-3
MW11-2
MW11-3
MW11-4
TP11-1
TP11-2
TP11-3
TP11-4
E 743250
E 743500
E 743750
E 744000
E 744250
N 988000
N 987750
N 987500
50 0 50 100
(feet)
N
PARSONS
PARSONS ENGINEERING SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S
DEPT. ENVIRONMENTAL ENGINEERING
Dwg. No. 720476-02000
FIGURE 2.3-3
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL
LOCATION OF SAMPLING POINTS
SCALE 1" = 100'
DATE JUNE 1995
REV A
ACAD\SENECA\3SWMU\SB11SI.DWG

groundwater sample was collected from each well and tested for the parameters listed in Section 2.3.3.

2.3.3 Analytical Program

A total of 15 soil samples and four groundwater samples were collected from SEAD-11 for chemical testing. All the samples were analyzed for the following: the TCL VOCs, SVOs, and Pesticides/PCBs and TAL Metals and Cyanide according to the NYSDEC CLP SOW. Explosive compounds were analyzed by EPA Method 8330, Herbicides were analyzed by EPA Method 8150, Nitrates were analyzed by EPA Method 352.2, and Total Recoverable Petroleum Hydrocarbons were analyzed by EPA Method 418.1. Thirty-one soil gas samples were collected from the fill area and analyzed for volatile organic compounds. A summary of the analytical program for SEAD-11 is presented in Table 2.1-3.

2.4 SEAD-13: IRFNA Disposal Site

The exact location of the pits used to dispose of IRFNA is unknown. An earlier investigation of ERCE indicated that the pits were located near the west end of the East-West Baseline Road on the south side of the road (ERCE 1991).

Abandoned aboveground piping was observed in the areas southeast and southwest of the Duck Pond. Some of this piping could have been used during the IRFNA disposal project as an emergency shower. An IRFNA disposal study stated that a deluge shower was used for personnel decontamination. Additionally, an abandoned water hydrant was observed southwest of the Duck Pond. Possibly this water hydrant was used to supply water pressure to the stainless steel ejector.

The pits were lined with limestone which neutralized some or all of the IRFNA. The neutralized wastewater may have migrated to the water table. In addition to groundwater, another potential migration pathway could be surface water via the Duck Pond.

2.4.1 Chemicals of Interest

The primary constituents of concern are heavy metals, nitrates, and fluoride.

2.4.2 Media To Be Investigated

Geophysics

To locate the six abandoned disposal pits and to evaluate the potential presence of IRFNA barrels in the subsurface, both GPR and EM-31 surveys were conducted. The GPR method was used to identify areas of disturbed soils that could be associated with the IRFNA pits. The EM-31 data was collected on profiles spaced at 10-foot intervals throughout the two areas where the pits are presumed to be (Figure 2.4-1). EM-31 measurements were made at 5-foot spacings along each profile. A total of 12,180 linear feet of EM-31 surveys was conducted at SEAD-13. The GPR data were collected along profiles spaced at 20-foot intervals. Additional GPR data were collected in order to delineate the extent of the pits. A total of 7,495 linear feet of GPR surveys was conducted at SEAD-13.

Four 115-foot seismic refraction surveys were performed along two lines laid out perpendicular to each other on each side of the Duck Pond. Data from the surveys were used to determine the direction of groundwater flow, adjust the location of the monitoring wells to located a well upgradient and a well downgradient of the AOC.

Soils

Ten borings were drilled at this AOC. Three soil borings were advanced within each of the two disposal areas (refer to Figure 2.4-2 and Table 2.4-1) at locations tentatively identified as IRFNA disposal pits. Two borings were also drilled on each side of the pond to obtain soil quality data at a background location (SB13-1 and -4) and near the pond (SB13-3 and -6). Three samples were collected from each boring.

Groundwater

A total of seven monitoring wells were installed at this AOC (Figure 2.4-2). One monitoring well was installed upgradient of each of the two disposal areas to obtain background water quality data (MW13-1 and -4). One well was located within each of the disposal areas (MW13-2 and 5). One well was installed nera the downgradient edge of the west disposal area (MW13-6) and two wells were installed near the downgradient edge of the east disposal

TABLE 2.4-1

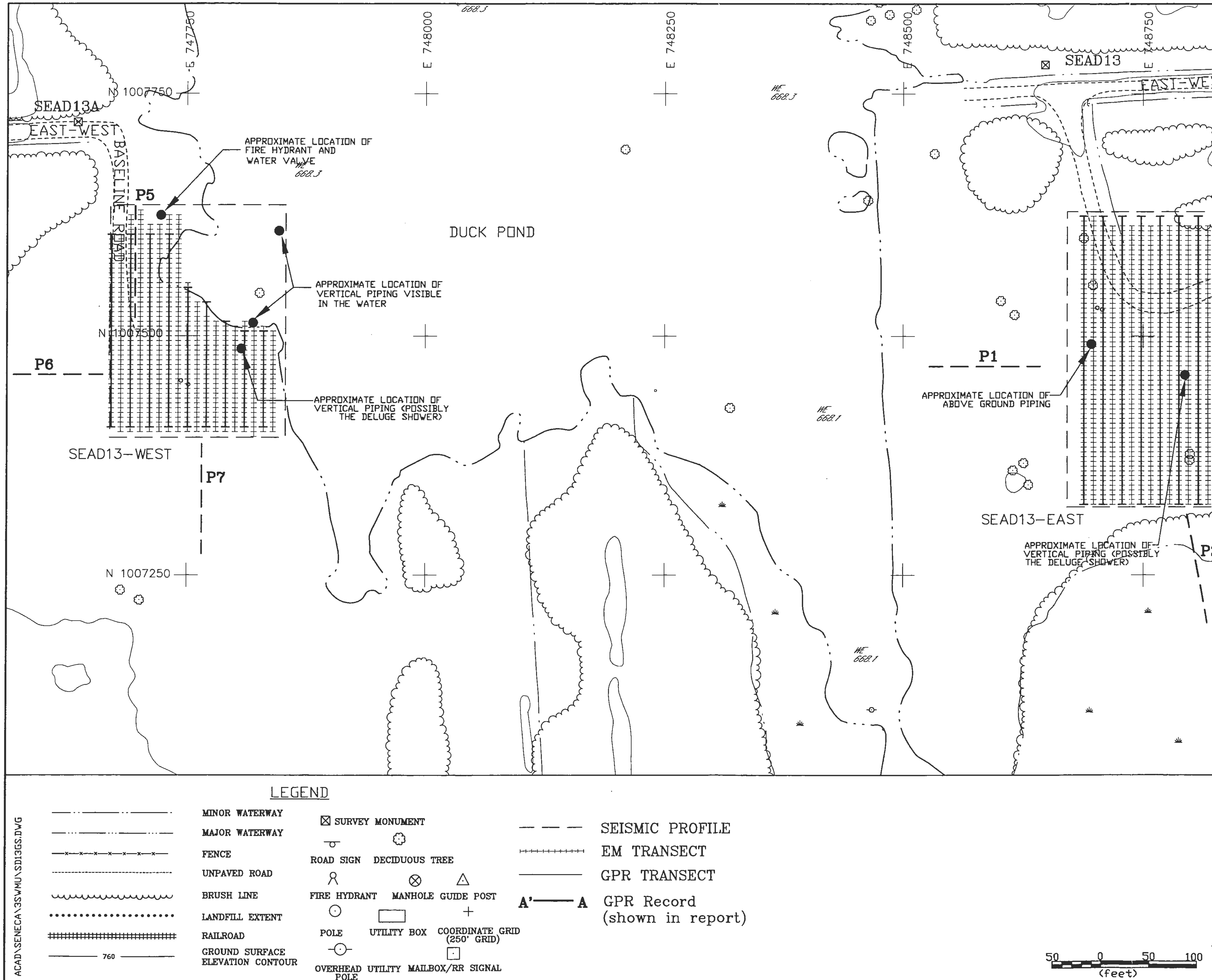
SOIL SAMPLING SUMMARY
SEAD - 13

SENECA ARMY DEPOT
3 AOCS

BORING NUMBER	WELL NUMBER	SAMPLE NUMBER	SAMPLE INTERVAL
SB13-1	MW13-1	SB13-1.1	0-2'
		SB13-1.3	4-6'
		SB13-1.4	6-8'
SB13-2	MW13-2	SB13-2.1	0-2'
		SB13-2.3	4-6'
		SB13-2.5	8-10'
SB13-3	MW13-3	SB13-3.1	0-2'
	MW3-7	SB13-3.3	4-6'
		SB13-3.5	8-10'
SB13-4	MW13-4	SB13-4.1	0-2'
		SB13-4.2	2-4'
		SB13-4.3	4-6'
SB13-5	MW13-5	SB13-5.1	0-2'
		SB13-5.3	4-6'
		SB13-5.5	8-10'
SB13-6	MW13-6	SB13-6.1	0-2'
		SB13-6.3	4-6'
		SB13-6.4	6-8'
SB13-7	No well installed	SB13-7.1	0-2'
		SB13-7.2	2-4'
		SB13-7.4	6-8'
SB13-8	No well installed	SB13-8.1	0-2'
		SB13-8.2	2-4'
		SB13-8.3	4-6'
SB13-9	No well installed	SB13-9.1	0-2'
		SB13-9.4	6-8'
		SB13-9.6	10-12'
SB13-10	No well installed	SB13-10.1	0-2'
		SB13-10.4	6-8'
		SB13-10.5	8-10'

1) The sample number contains the sample location with a soil boring (SB) or monitoring well (MW) identifier.

2) All SEAD-13 samples were chemically analyzed for the following: volatile organics, semivolatile organics, pesticides/PCBs, metals, cyanide, herbicides, nitrates, and fluoride.



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EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

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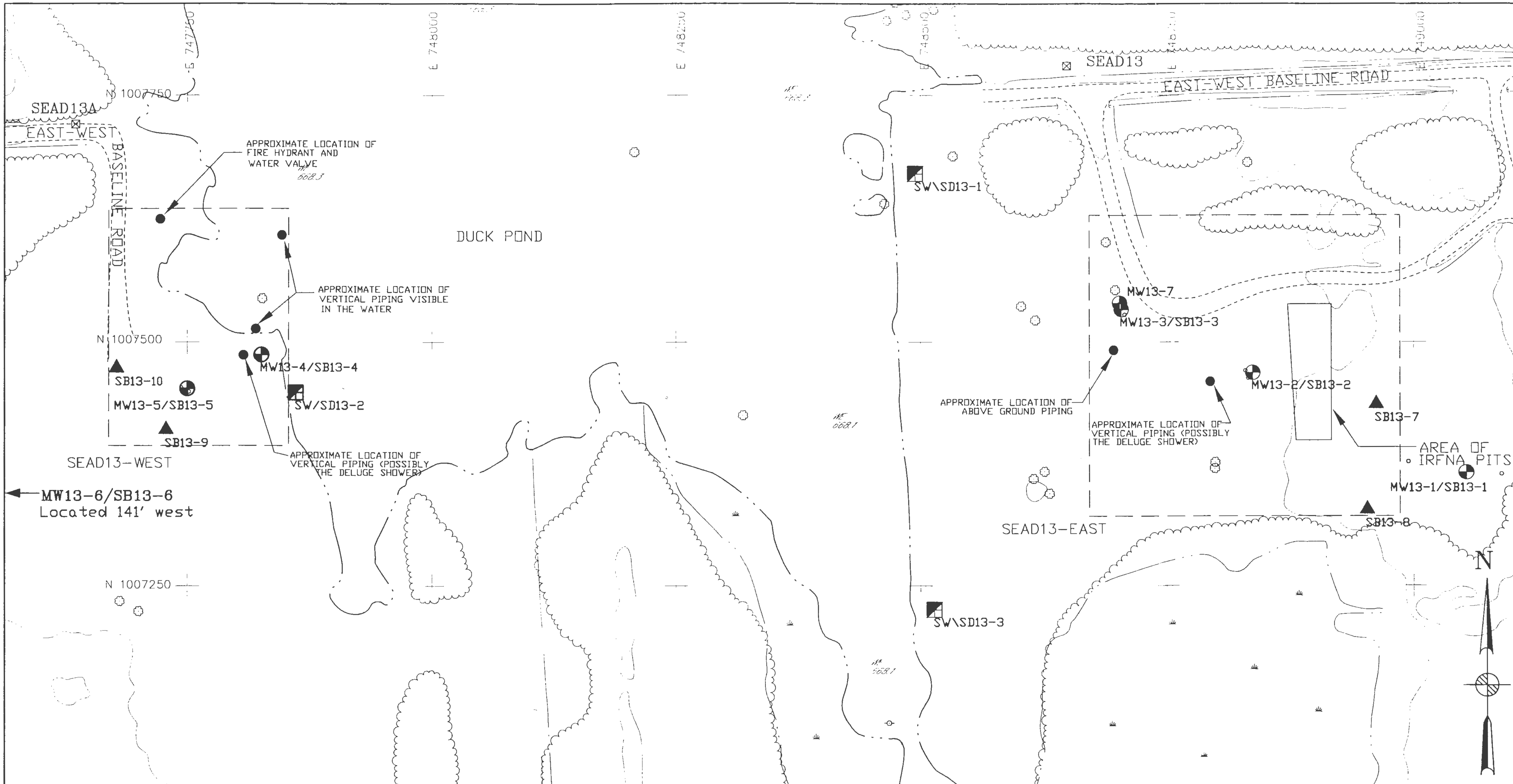
FIGURE 2.4-1
SEAD-13 IRFNA DISPOSAL SITE
LOCATION OF GEOPHYSICAL SURVEYS

SCALE 1" = 100' | DATE JUNE 1995 | REV A



ACAD\SENECA\3SWMU\SD13SP.DWG

LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR (760)

SURVEY MONUMENT
ROAD SIGN
DECIDUOUS TREE
FIRE HYDRANT
MANHOLE
GUIDE POST
POLE
UTILITY BOX
COORDINATE GRID (250' GRID)
OVERHEAD UTILITY POLE
MAILBOX/RR SIGNAL

EXISITING MONITORING WELL
EXISTING SOIL BORING
EXISTING SURFACE WATER/SEDIMENT SAMPLE

50 0 50 100
(feet)

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FIGURE 2.4-2
SEAD-13 IRFNA DISPOSAL SITE
LOCATION OF SAMPLING POINTS

SCALE: 1" = 100'
DATE: JUNE 1995
REV: A

area (MW13-3 and -7). The presumed direction of groundwater flow at this AOC was to the northwest for the pits east of the pond and to the northeast for the pits west of the pond. The geophysical survey determined that groundwater flows west on the east of the pond and east on the west side of the pond; i.e., directly into the pond. As a result, the background wells were moved slightly to the north and the two downgradient wells were moved to the south of the proposed workplan locations.

Except at MW13-3, one monitoring well was constructed at each designated location and was screened over the entire thickness of the aquifer above competent bedrock. At MW13-3, an additional shallower well, MW13-7, was installed and screened between 5.0 and 7.0 feet below the ground surface. Both wells were dry. Following installation and development, one groundwater sample was collected from five wells and tested for the parameters listed in Section 2.4.3.

Surface Water and Sediment

To assess the potential impact of the IRFNA disposal pits on adjacent surface water bodies, three sediment and surface water sample sets were collected from within the Duck Pond (Figure 2.4-2). One surface water and sediment sample set (SW13-3 and SD13-3) was used to obtain background surface water and sediment quality data. The exact locations of the other two sample sets were determined based on an inspection of the site. Criteria to select these locations included stressed vegetation, proximity to the pits, and surface water discharge points that originate from the area of the pits. Sediment and surface water sample sets were collected at the same location and were tested for the parameter listed in Section 2.4.3.

2.4.3 Analytical Program

A total of 30 soil samples, 5 groundwater samples, 3 surface water and 3 sediment samples were collected from SEAD-13 for chemical testing. All the samples were analyzed for the following: the TCL VOCs, SVOs, and Pesticides/PCBs and TAL Metals and Cyanide according to the NYSDEC CLP SOW. Herbicides were analyzed by EPA Method 8150, Nitrates were analyzed by EPA Method 352.2, and fluoride was analyzed by EPA Method 340.2. A summary of the analytical program for SEAD-13 is presented in Table 2.1-3.

2.5 SEAD-57: EXPLOSIVE ORDNANCE DISPOSAL AREA

Based on past operating practices, metals, nitrates and explosives from the detonation of explosives could become adsorbed onto soil particles or migrate to groundwater. The estimated direction of groundwater flow is southwest.

2.5.1 Chemicals of Interest

The primary chemicals of interest are heavy metals, nitrates, and explosive compounds.

2.5.2 Media To Be Investigated

Geophysics

Four 115-foot seismic refraction surveys were performed along two lines laid out perpendicular to each other (Figure 2.5-1). Data from the surveys were used to determine the direction of groundwater flow and adjust the location of the monitoring wells to locate a well upgradient and a well downgradient of the detonation area and shallow depression.

To evaluate the potential of buried unexploded ordnance at the site, GPR and EM-31 surveys were performed within the inner area of the circular 50-foot diameter bermed detonation area and shallow depression. The EM-31 data was collected on a 5-foot by 5-foot grid within the berm and on a 10-foot by 5-foot grid within the shallow depression. Where the EM-31 data indicated anomalies possibly associated with buried metallic objects, a subsequent GPR survey was performed to characterize the anomaly source. A total of 1,930 linear feet of EM and 1,815 linear feet of GPR surveys were conducted within SEAD-57.

Soils

Test Pits: Eleven test pits were excavated at SEAD-57: three on the berm (TP57-1, 3, and 4), two within the detonation area (TP57-2 and 5), five in the depressed area (TP57-6 to 10), and at a background location (TP57-11) (refer to Figure 2.5-2 and Table 2.5-1). The test pits were located at anomalies detected during the geophysical surveys in these three areas. If no anomalies were detected within an area, the test pits were located as shown in the workplan. Four soil samples were collected from each pit and composited into one sample per test pit.

TABLE 2.5-1

TEST PIT SAMPLING SUMMARY
SEAD - 57

SENECA ARMY DEPOT
3 AOCS

TEST PIT NUMBER	SAMPLING COMMENTS	SAMPLING DEPTH
TP57-1	Composite of 4 locations in pit	3'
TP57-2	Composite of 4 locations in pit	3'
TP57-3	Composite of 4 locations in pit	3'
TP57-4	Composite of 4 locations in pit	3'
TP57-5	Composite of 4 locations in pit	3.5'
TP57-6	Composite of 4 locations in pit	3.25'
TP57-7	Composite of 4 locations in pit	3.5'
TP57-8	Composite of 4 locations in pit	3'
TP57-9	Composite of 4 locations in pit	3.5'
TP57-10	Composite of 4 locations in pit	3.75'
TP57-11	Composite of 4 locations in pit	3'

Notes:

1) The sample number contains the sample location with a test pit (TP) identifier.

2) All samples were chemically analyzed for the following: volatile organics, semivolatile organics, pesticides/PCBs, metals, cyanide, herbicides, explosives, and nitrates.

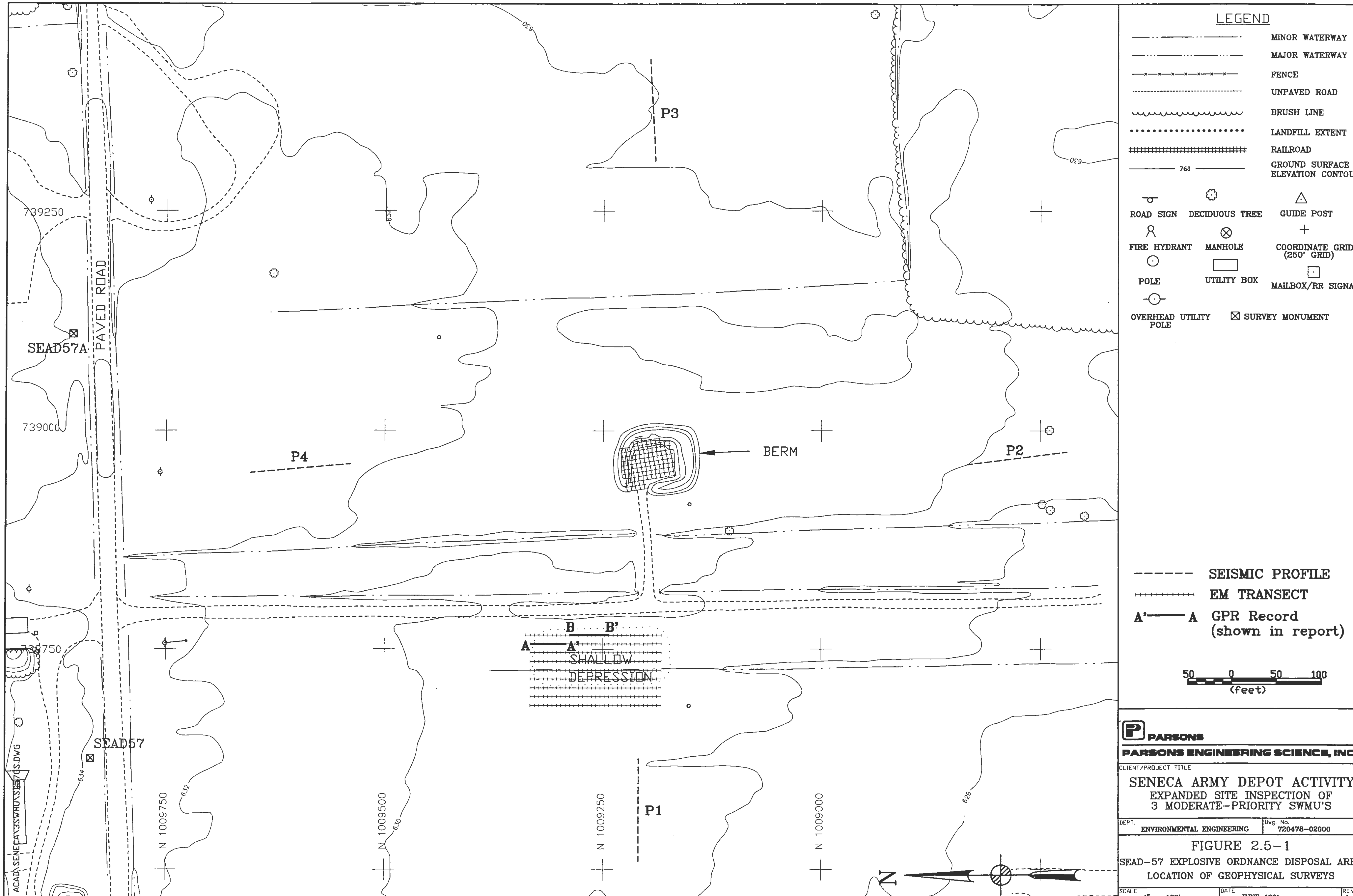

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FIGURE 2.5-1
SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION OF GEOPHYSICAL SURVEYS

SCALE 1" = 100' | DATE JUNE 1995 | REV A

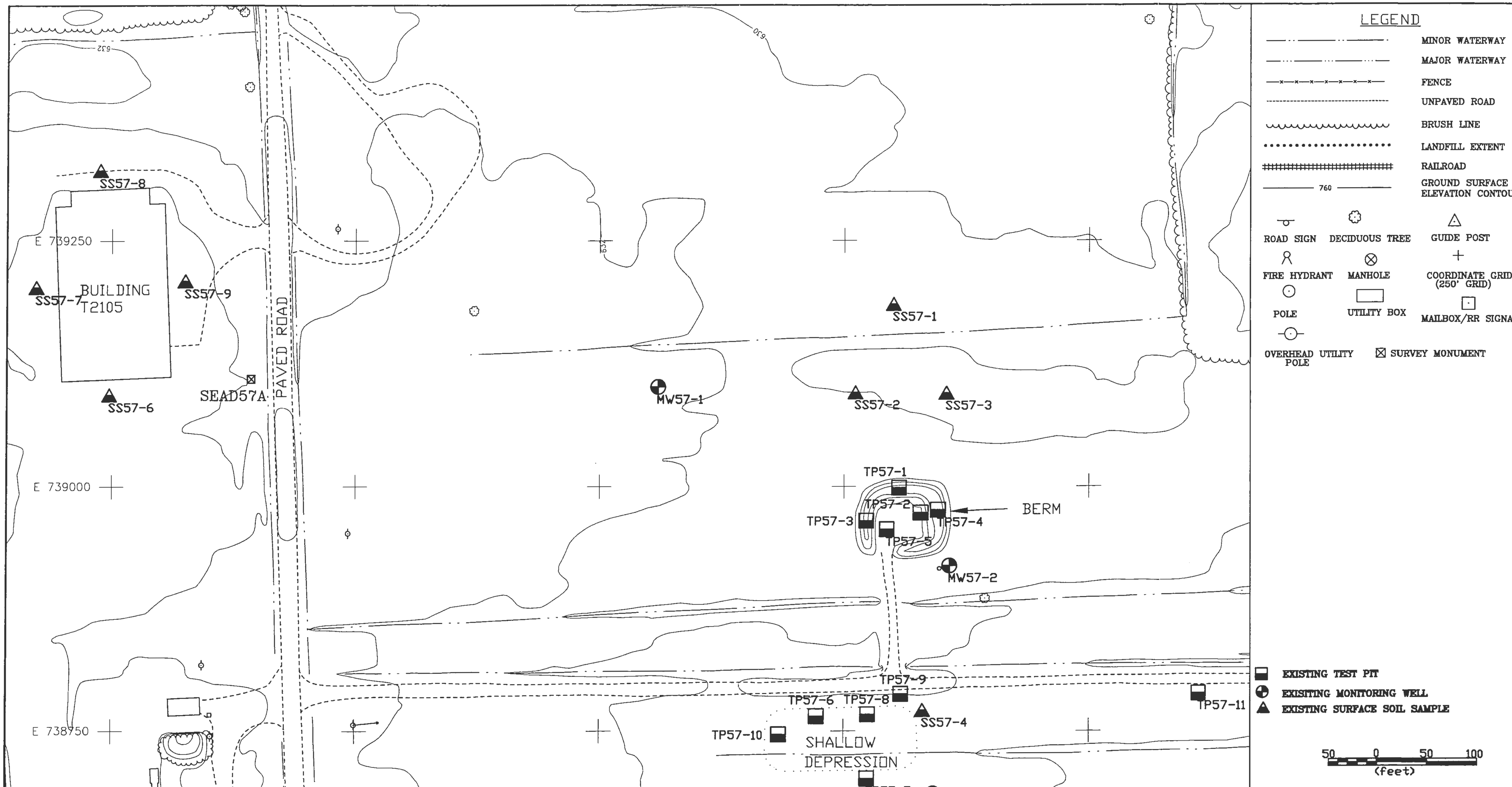

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FIGURE 2.5-2
SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA
LOCATION OF SAMPLING POINTS

SCALE 1" = 100' | DATE JUNE 1995 | REV A

Surface Soils: Five surficial soil samples were obtained from 0 to 2 inches below grade from locations east and west of the disposal area which are the dominant wind directions. Four other surficial soil samples were obtained from around Building T2105. These locations are shown on Figure 2.5-2.

Groundwater

Three wells were installed at SEAD-57, one upgradient (MW57-1) for background water quality data and two adjacent and downgradient (refer to Figure 2.5-2) to determine the groundwater flow direction and determine if hazardous constituents have migrated from the AOC. The presumed direction of groundwater flow at this AOC was to the northeast. The geophysical survey showed the direction to the southwest. Adjustments to the location of monitoring wells were based upon the seismic survey to assure wells were placed in upgradient and downgradient locations. MW57-2, the designated downgradient well, was moved to the southwest of the berm area, MW57-1, the designated upgradient well, was moved to the northeast of the bermed area, and MW57-3 was moved northwest of the shallow depression.

One monitoring well was constructed at each location and was screened over the entire thickness of the aquifer above competent bedrock. Following installation and development, one groundwater sample was collected from each well and tested for the parameters listed in Section 2.5.3.

2.5.3 Analytical Program

A total of 20 soil samples and 3 groundwater samples were collected from SEAD-57 for chemical testing. All these samples were analyzed for the following: the TCL VOCs, SVOs, Pesticides/PCBs and TAL Metals and Cyanide according to the NYSDEC CLP SOW. Explosives were analyzed by EPA Method 8330. Herbicides were analyzed by EPA Method 8150 and Nitrates were analyzed by EPA Method 352.2. A summary of the analytical program for SEAD-57 is presented in Table 2.1-3.

3.0 GEOLOGICAL, GEOPHYSICAL, AND HYDROLOGICAL SETTING

3.1 SEAD-11

3.1.1 Site Geology

Based on the results of the drilling program, till and calcareous black shale are the two major types of geologic materials present on the site. The till lies stratigraphically above the shale. Artificial fill comprises the elevated area and lies stratigraphically above the till. At the drilling locations a very thin soil horizon was observed, with till present within one foot of the ground surface.

At the Old Construction Debris Landfill there is a stratigraphic division within the till (an upper and lower unit) which is defined more by a change in density than by a change in composition. The density change occurs between 4.5 and 6.5 feet below the ground surface. The relative density of the lower till, as measured by blow counts during split spoon sampling, is greater than that for the upper till. Blow counts for the upper till are generally between 6 and 50 blows per 6 inches of penetration of the spoon, and for the lower till are between 50 and 120 blows or in some instances spoon refusal was encountered. The density change may be explained by a difference in mode of deposition for the two till units, such that the lower till (lodgement till) was deposited directly beneath a moving glacier, and the upper till (ablation till) was deposited by a stagnant, ablating glacier. Another explanation may be weathering of the upper portion of the till, rendering it less dense than the unweathered till below. The till is light brown and composed of silt and clay, and some black shale fragments, however, larger shale fragments (rip-up clasts) were observed at many locations near the till weathered shale contact. Some fine sand lenses were also observed. Oxidized peds were noted in the upper portions of the till.

Competent, calcareous black shale was encountered at depths between approximately 9 and 14 feet below the ground surface. The elevations of the competent bedrock determined during the drilling and seismic programs indicate that the shale slopes to the west mimicking the land surface. The upper portion of the competent shale (1 to 3 feet) is weathered.

3.1.2 Geophysics

3.1.2.1 Seismic Survey

The results of the seismic refraction survey conducted in SEAD-11 are shown in Table 3.1-1.

TABLE 3.1-1
SEAD-11
EXPANDED SITE INSPECTION
RESULTS OF SEISMIC REFRACTION SURVEY

Profile	Distance[1]	Ground Elev.[2]	Water Table		Bedrock	
			Depth	Elev.	Depth	Elev.
P1	0	98.7			4.1	94.6
	57.5	99.6			5.5	94.1
	115	100.5			5.4	95.1
P2	0	91.3			11.0	80.3
	57.5	90.0			10.9	79.1
	115	89.4			10.0	79.4
P3	0	100.8			7.0	93.8
	57.5	101.8			6.6	95.2
	115	102.4			6.8	95.6
P4	0	121.6	5.3	116.3	15.8	105.8
	57.5	123.9	5.0	118.9	16.9	107.0
	115	125.8	5.2	120.6	13.5	112.3

[1]All distances are in feet.

[2]All elevations are relative elevations in feet.

The seismic profiles detected 4 to 17 feet of till (1,100 to 5,400 feet per second) overlying bedrock (11,500 to 13,100 ft/s). In particular, the till material includes loose, unsaturated till (1,100 to 1,300 ft/s); compact unsaturated till (2,400 ft/s); and saturated till (5,000 to 5,400 ft/s).

Saturated till was detected only beneath profile P4 (see Figure 2.3-1 for profile locations). At the locations of the other profiles, either saturated till was not present or the saturated layer was too thin to be detected by the seismic refraction method. Profile P2 suggests that a layer of compact, unsaturated till is present at a depth of 4 to 5 feet.

A review of the relative elevation of bedrock, presented in Table 3.1-1, demonstrates that the bedrock surface slopes to the west following the slope of the surface topography. Groundwater flow is also expected to be directed to the west, following the slope of the bedrock surface.

3.1.2.2 EM-31 Survey

Figure 3.1-1 shows the apparent conductivity measured by the EM-31 survey at SEAD-11. The extent of the construction debris landfill is clearly shown as the roughly circular zone of low conductivity values occupying the central portion of the EM grid. Negative apparent conductivities have been grouped together and represented by the lowest conductivity range shown in the figure. The measured apparent conductivities over the landfill are predominantly negative. The minimum conductivity was -94 millisiemens per meter (mS/m). It is worth noting that negative conductivities are a physical impossibility. The Geonics EM-31 is calibrated to measure apparent conductivity under certain limiting conditions, including the assumption of a horizontally-layered earth model. Many of these assumptions are violated at the construction debris landfill due to the presence of metallic debris within the fill layer. The manner in which the EM-31's signal interacts with subsurface metallic debris results in negative conductivity values being calculated by the instrument's software. Actually, the quantity that is measured is proportional to the quadrature, or out-of-phase, component of the EM field.

The EM grid was extended beyond the limits of the landfill to define background apparent conductivities of the subsurface. A substantial change in the electrical properties of the soil was observed across the site. The apparent conductivity increases by about 6 mS/m from south to north across the EM grid. The higher conductivities in the northern portion of the

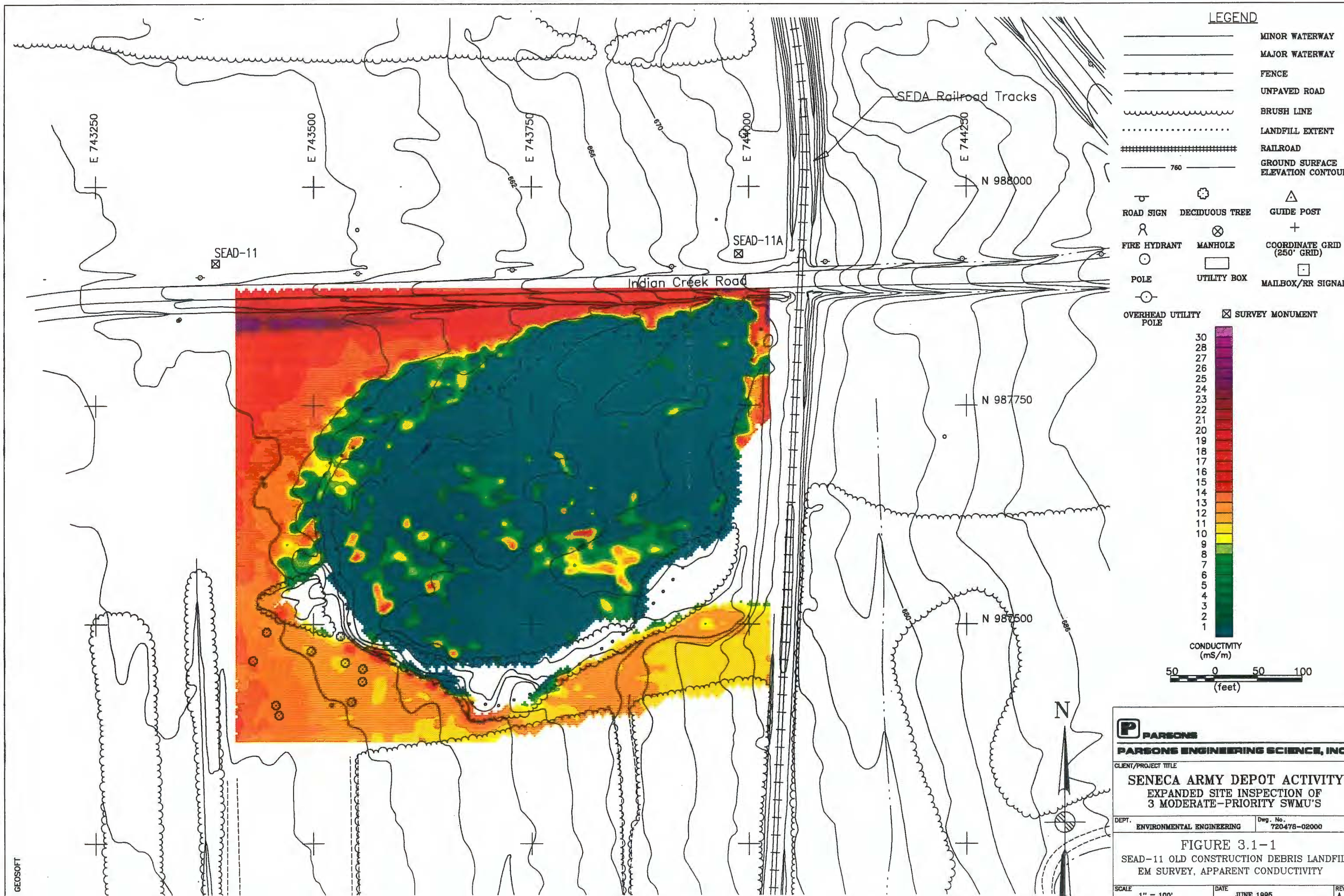

FIGURE 3.1-1
SEAD-11 OLD CONSTRUCTION DEBRIS LANDFILL
EM SURVEY, APPARENT CONDUCTIVITY

site could be attributed to several factors, such as increased clay content in the soil or a higher concentration of dissolved solids in the groundwater or soil moisture. Since the most conductive area was located along the roadway, road salt should be considered a possible explanation for the increase in the apparent conductivity.

The in-phase response of the EM-31 survey is shown in Figure 3.1-2. The extent of the landfill is again clearly defined by the chaotic response occupying the main portion of the surveyed area. The landfill can be divided into two parts on the basis of the in-phase response: the northeastern one-half of the landfill generally shows higher in-phase values than the southwestern portion. Since the in-phase response is particularly sensitive to ferrous material, it is inferred that the northeastern portion of the landfill has a higher concentration of buried metallic debris. A number of small isolated metallic objects were detected by the in-phase response beyond the limits of the landfill. A lineament in the apparent conductivity and in-phase response was detected along the south side of the roadway. This feature may be caused by buried utilities.

3.1.2.3 GPR Survey

A ground penetrating radar (GPR) survey was also conducted to confirm the extent of the construction debris landfill at SEAD-11. Figure 3.1-3 shows a typical radar record acquired over the boundary of the landfill. The left side of the record shows the chaotic response and multiple overlapping anomalies caused by buried debris. The right side of the record shows the relatively uniform and homogeneous response of undisturbed soil. The boundary of the landfill is generally marked by a sharp contact on the GPR records. The extent of the landfill as determined by the GPR survey is identical to that established by the EM-31 survey.

In the previous section, it was noted that the baseline conductivity of the subsurface increases towards the north within the study area. This change was also observed in the GPR records. The records acquired beyond the limits of the landfill along the northern and western portions of the grid exhibit weak, near-surface reflections (see Figure 3.1-3). This is attributed to greater attenuation of radar waves travelling through more conductive soil. The GPR records acquired in the southern portion of the site show strong subsurface reflections and banding across much of the time window of the records. The deeper penetration and stronger reflections are caused by the enhanced propagation of radar signals in more resistive overburden.

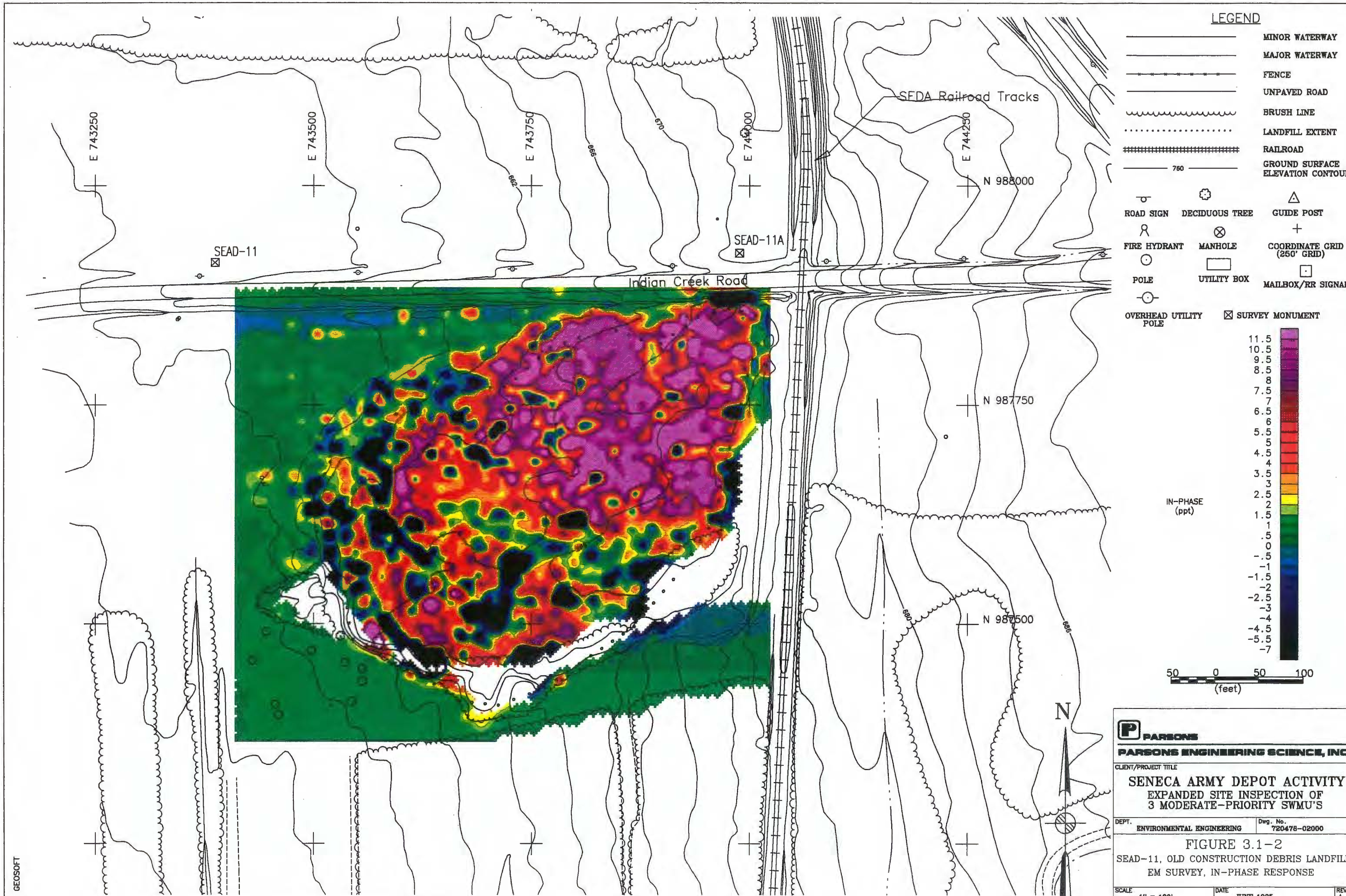

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FIGURE 3.1-2
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL
EM SURVEY, IN-PHASE RESPONSE

SCALE 1" = 100' | DATE JUNE 1995 | REV A

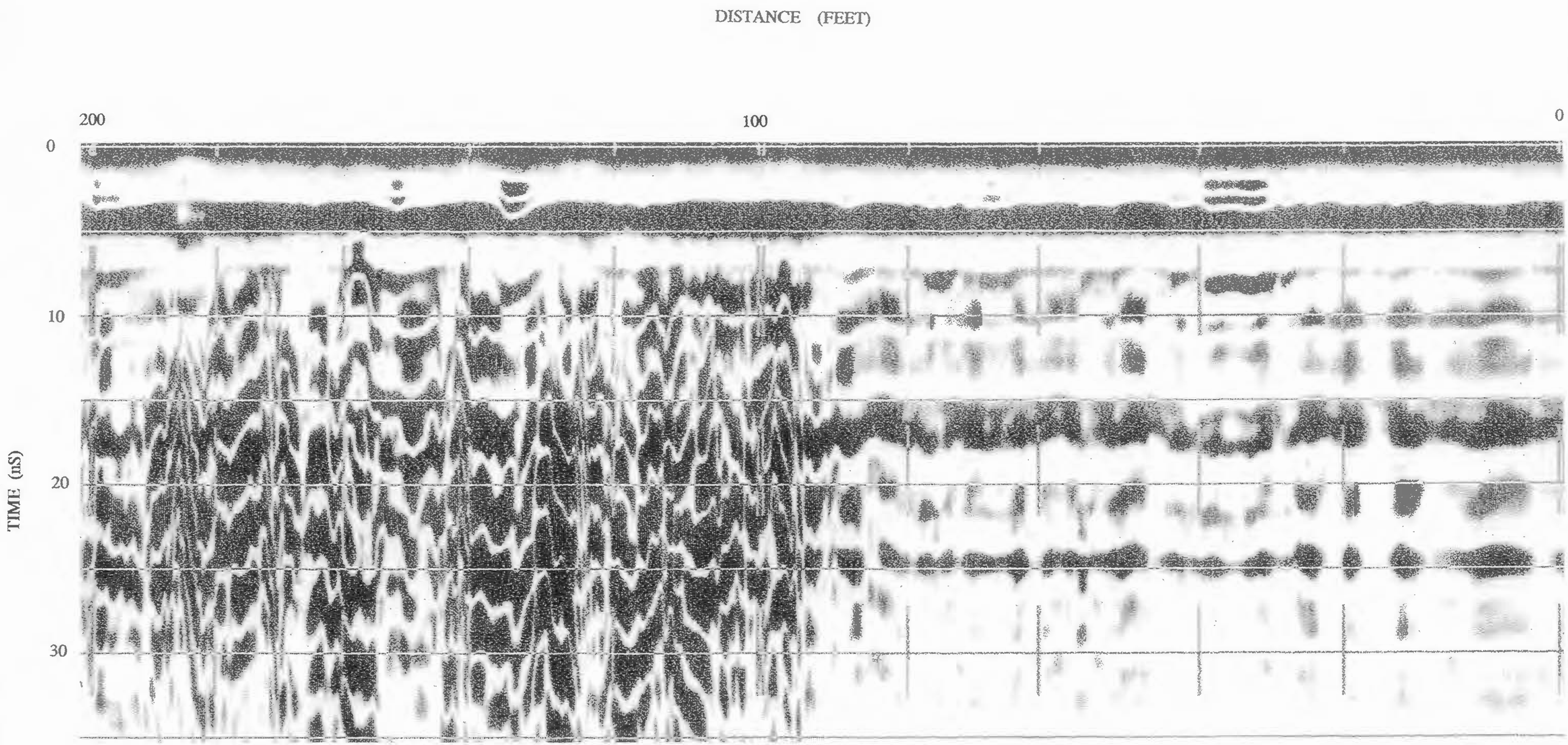

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FIGURE 3.1-3 SEAD-11, GPR Profile A-A'	
SCALE	

3.1.2.4 Test Pitting Program

Four test pits were excavated in SEAD-11 to characterize the types of geophysical anomalies present within the landfill. The GPR and EM conductivity surveys detected dense concentrations of overlapping anomalies throughout the landfill. The in-phase component of SEAD-11 (Figure 3.1-2) delineated a zone of enhanced response in the northeast portion of the landfill. Since the in-phase response is sensitive to ferrous material, it was inferred that the northeastern portion of the landfill has a higher concentration of buried metallic debris. Two test pit locations were selected to test this hypothesis. Test pit TP11-1 was excavated in the center of the zone of elevated in-phase values, while TP11-2 was excavated in the southwestern portion of the landfill (see Figure 2.3-2). Test pits TP11-3 and TP11-4 were situated over the two highest VOC concentration anomalies detected from the soil gas survey. TP11-3 was situated at soil gas sampling location SG2-1 which had a detected VOC concentration of 6.6 ppmv (as TCE). Test pit TP11-4 was situated at soil gas sampling location SG2-3 which had a detected VOC concentration of 14.6 ppmv (as TCE).

The test pit logs are presented in Appendix B. The thickness of fill at TP11-1 was approximately 4 feet. As predicted by the in-phase response, much of the excavated material was metallic debris, including various scrap metal, metallic rods, and metallic webbing. The thickness of fill at TP11-2 was approximately 8 feet. Although abundant metallic material was encountered, the dominant type of fill was nonmetallic, including soil, large concrete slabs and fragments, and asphalt. The fill material at test pit locations TP11-3 and TP11-4 was similar to that observed in test pit TP11-2. The predominant fill materials observed in these two test pits were construction debris (concrete, glass, and nails) dark brown soil, gravel, and boulders.

3.1.3 Site Hydrology and Hydrogeology

Surface water flow from precipitation events is controlled by local topography. The west-trending topographic gradient is relatively steep and uniform in areas north and south of the landfill, but the gradient becomes less steep and somewhat irregular beyond the "toe" of the landfill. Based on the topographic expression, surface water flow on most of the landfill surface is to the north-northwest and it is likely to be captured by the east-west trending swale located on the south side of Indian Creek Road. The swale drains west toward the SEDA boundary. Some surface water likely drains off of the landfill "toe" where it collects in a relatively flat area and eventually drains either to the north into the swale along Indian Creek Road or to the south in a relatively straight drainage swale which is covered by vegetation. An elongate topographic low area that abuts the southeastern corner of the landfill collects surface water which drains from the eastern portion of the site, between the landfill and the SEDA railroad tracks.

The groundwater flow direction in the till/weathered shall aquifer is generally to the west based on the groundwater elevations determined in four monitoring wells on April 4, 1994 (Table 3.1-2 and Figure 3.1-4). The groundwater flow contours were established using a straight-line interpolation method between monitoring wells combined with some modifications based on topographic expression of the land surface. The modifications were necessary between wells that are separated by relatively large distances with significant changes in topographic relief between them. The distribution of groundwater in the till portion of the aquifer is characterized by moist soil with coarse-grained lenses of water-saturated soil. At this site, some more saturated zones were noted at the base of the upper, less dense till suggesting that in some locations the water may be perched on the upper surface of the dense till. Recharge of groundwater to the wells during sampling was generally poor.

3.2 SEAD-13

3.2.1 Site Geology

Based on the results of the drilling program, till and calcareous weathered shale are the two primary types of geologic materials present on-site. The till lies stratigraphically above the shale. Both of the materials were encountered at all but one of the drilling locations. It is noteworthy that at one location (SB13-3/MW13-3) no black calcareous shale was encountered during drilling to a depth of 23 feet. Collectively, the drilling data to not show an apparent trend toward a thickening of overburden soils. However, data from SB13-3/MW13-3 in the eastern disposal area indicate that the overburden thickens considerably near the eastern shore of the Duck Pond where black shale is present greater than 23 feet below the ground surface.

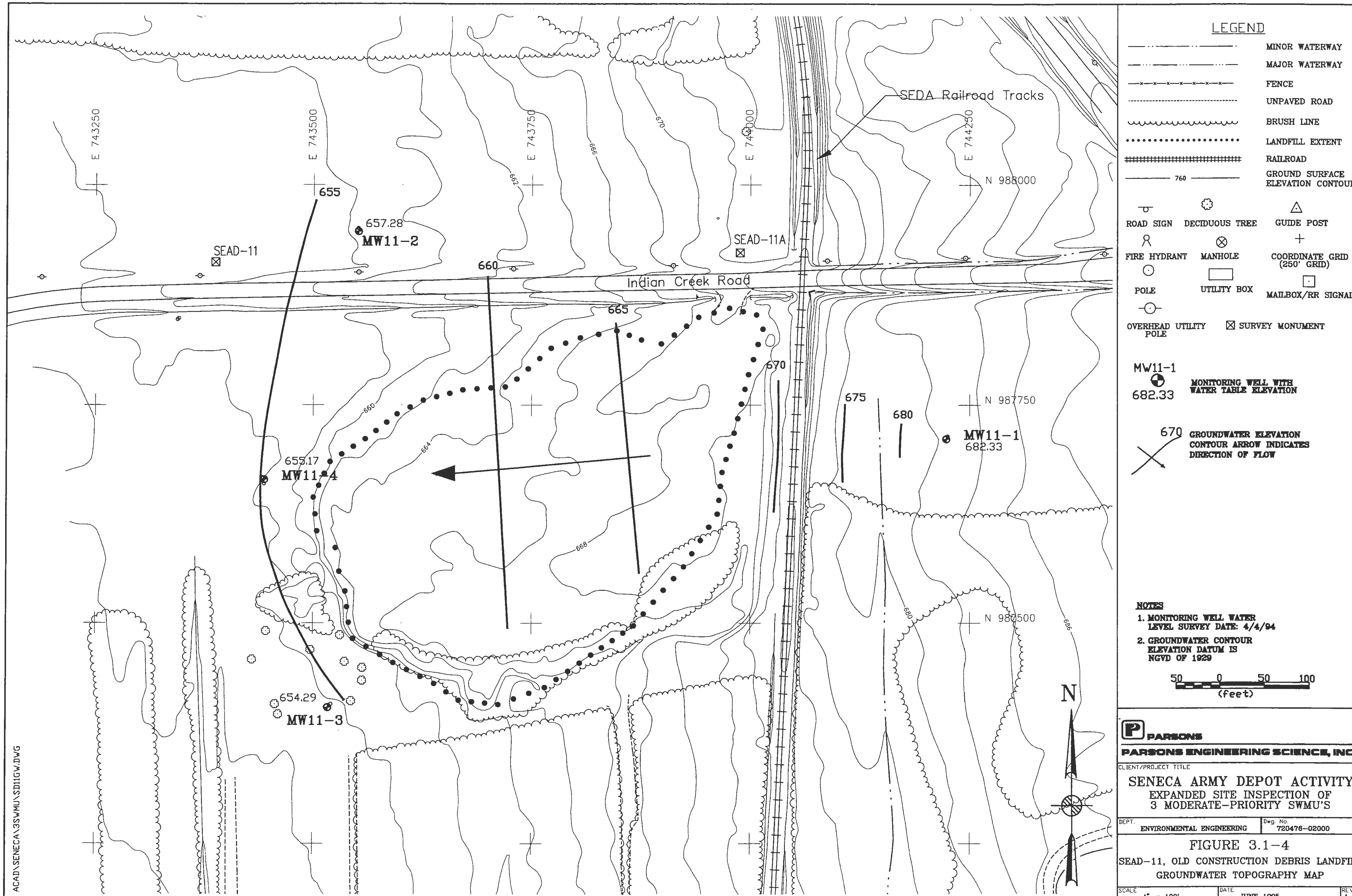
At the IRFNA Disposal Site there is a stratigraphic division within the till (an upper and lower unit) which is defined more by a change in density than by a change in composition. The density change occurs between approximately 5 and 6 feet below the ground surface. The relative density of the lower till, as measured by blow counts during sampling are generally between 10 and 50 blows per 6 inches of penetration of the spoon, and for the

TABLE 3.1-2
SEAD-11, GROUNDWATER MONITORING WELL WATER LEVEL SUMMARY

SENECA ARMY DEPOT
SEAD-11

MONITORING WELL NUMBER	TOP OF PVC CASING ELEVATION (MSL)	WELL DEVELOPMENT			SAMPLING			WATER LEVEL MEASUREMENTS		
		DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)
MW11-1	685.18	12/17/93	3.48	681.70	1/18/94	4.31	680.87	4/4/94	2.85	682.33
MW11-2	660.73	11/23/93	5.92	654.81	1/18/94	4.37	656.36	4/4/94	3.45	657.28
MW11-3	657.26	11/6/93	10.2	647.06	1/24/94	4.84	652.42	4/4/94	2.97	654.29
MW11-4	657.77	11/6/93	10.3	647.47	11/16/93	8.86	648.91	4/4/94	2.6	655.17

H:\ENG\SENECA\3SWMU\TABLES\SD11ELEV.WK3


LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR
760
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
MW11-1
682.33
MONITORING WELL WITH WATER TABLE ELEVATION
670
GROUNDWATER ELEVATION CONTOUR ARROW INDICATES DIRECTION OF FLOW
NOTES
1. MONITORING WELL WATER LEVEL SURVEY DATE: 4/4/94
2. GROUNDWATER CONTOUR ELEVATION DATUM IS NGVD OF 1929
50 0 50 100
(feet)
N
SEDA Railroad Tracks
Indian Creek Road
E 743250
E 743500
E 743750
E 744000
E 744250
N 988000
N 987750
N 987500
655
657.28
MW11-2
SEAD-11
SEAD-11A
660
665
670
675
680
MW11-1
682.33
655.17
MW11-4
654.29
MW11-3
ACAD\SENECA\3SWMU\SD11GW.DWG
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SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S
DEPT. ENVIRONMENTAL ENGINEERING
Dwg. No. 720476-02000
FIGURE 3.1-4
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL
GROUNDWATER TOPOGRAPHY MAP
SCALE 1" = 100'
DATE JUNE 1995
REV A

lower till are between 50 and 120 blows or spoon refusal. The density change may be explained by a difference in mode of deposition for the two till units, or by weathering of the upper portion of the till, rendering it less dense than the unweathered till below. The till is light brown and composed of silt and clay, and some black shale fragments. Oxidized ped were noted in the upper portions of the till.

Competent, calcareous black shale was encountered at depths between approximately 7 and greater than 23 feet below the ground surface. The elevations of the competent bedrock determined during the drilling and seismic programs indicate that the shale slopes generally to the west in the eastern disposal area and exhibits no trend in the western disposal area.

3.2.2 Geophysics

3.2.2.1 Seismic Survey

A total of seven seismic profiles were conducted at SEAD-13: four on the east side of the pond and three on the west. The results of the seismic refraction survey are presented in Tables 3.2-1 and 3.2-2. The profiles detected from 7 to more than 20 feet of till (1,100 to 7,900 ft/s) overlying bedrock (9,500 to 11,700 ft/s). In particular, the till material included unsaturated till (1,100 to 2,100 ft/s), saturated till (4,200 to 6,300 ft/s), and dense glacial till (7,900 ft/s).

Several of the seismic profiles, including P1, P2, and P7, were conducted on saturated ground. However, seismic velocities characteristic of saturated till were interpreted to be located at a depth of 3 to 6 feet along these profiles. It is common in swampy areas to encounter a low-velocity near-surface layer. This may be attributed to the effects of entrapped gas in swamp deposits and the inability of the seismic method to accurately resolve layers substantially thinner than the wavelength of the seismic energy. In spite of these limitations, a review of Table 3.2-1 suggest that groundwater flows to the west or northwest at the eastern site. The seismic survey conducted at the western site shows groundwater at a uniform level; therefore, a flow direction cannot be determined.

Unusually low bedrock velocities (9,400 to 9,500 ft/s) were detected on the east side of the pond. These velocities are characteristic of weathered rock. Profile P1 measured a basal velocity of only 7,900 ft/s, which is within the expected range of dense glacial till. Based on the seismic survey, it is likely that the depth to competent bedrock exceeds 20 feet beneath profile P1. Monitoring well MW13-3, drilled on the eastern side of the pond, was augured to a depth of 23 feet without encountering refusal (i.e., competent shale).

TABLE 3.2-1
SEAD-13, EAST
EXPANDED SITE INSPECTION
RESULTS OF SEISMIC REFRACTION SURVEY

Profile	Distance[1]	Ground	Water Table		Glacial Till		Bedrock	
		Elev.[2]	Depth	Elev.	Depth	Elev.	Depth	Elev.
P1	0	100.0	3.2	96.8	9.7	90.3	>20.0	<80.0
	57.5	99.3	3.8	95.5	10.5	88.8	>20.0	<79.3
	115	99.2	3.0	96.2	8.1	91.1	>20.0	<79.2
P2	0	99.8	3.6	96.2			13.2	86.6
	57.5	99.4	3.4	96.0			10.3	89.1
	115	99.4	4.0	95.4			12.0	87.4
P3	0	102.3					6.6	95.7
	57.5	103.1					9.6	93.5
	115	103.2	4.6	98.6			12.6	90.6
P4	0	101.6	5.0	96.6			15.0	86.6
	57.5	101.1	5.3	95.8			14.6	86.5
	115	101.4	4.3	97.1			13.7	87.7

[1]All distances are in feet.

[2]All elevations are relative elevations in feet.

TABLE 3.2-2
SEAD-13, WEST
EXPANDED SITE INSPECTION
RESULTS OF SEISMIC REFRACTION SURVEY

Profile	Distance[1]	Ground Elev.[2]	Water Table		Bedrock	
			Depth	Elev.	Depth	Elev.
P5	0	100.0	3.1	96.9	12.5	87.5
	57.5	99.4	3.1	96.3	11.9	87.5
	115	99.5	3.1	96.4	6.9	92.6
P6	0	100.1	4.3	95.8	9.5	90.6
	57.5	100.2	3.9	96.3	12.0	88.2
	115	100.5	3.0	97.5	9.4	91.1
P7	0	99.7	6.0	93.7	13.6	86.1
	57.5	100.0	5.7	94.3	16.0	84.0
	115	100.3	5.6	94.7	17.7	82.6

[1]All distances are in feet.

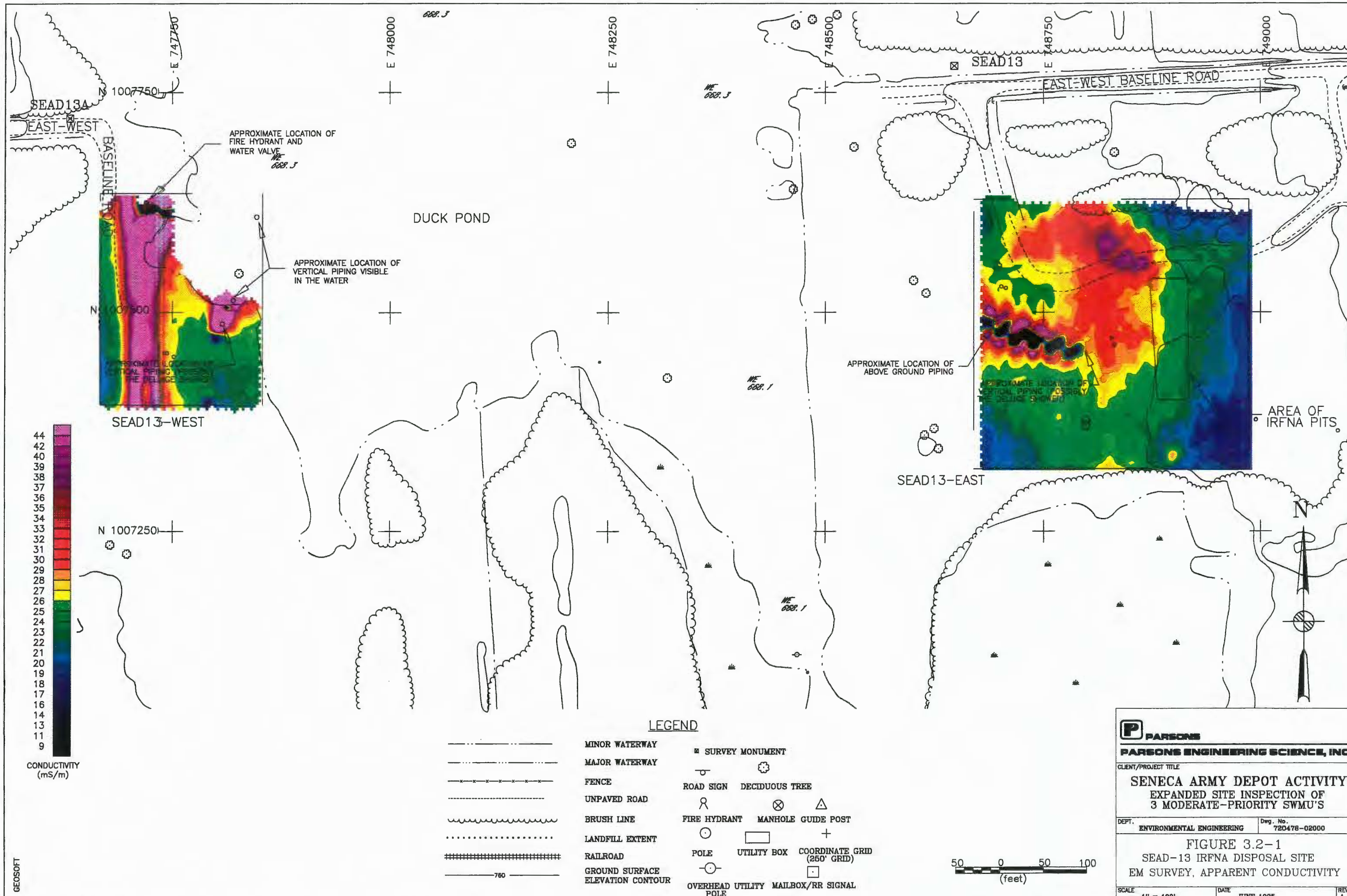
[2]All elevations are relative elevations in feet.

3.2.2.2 EM-31 Survey

Figure 3.2-1 shows the apparent conductivity measured at both sites within SEAD-13. The eastern site shows a pronounced linear anomaly projecting from the western edge towards the center of the EM grid. This feature is attributed to a pipe, two inches in diameter, that can be seen on the ground surface. This pipe terminates at the vertical shower pipe located in the west-central portion of the grid. The other pronounced EM anomaly at the eastern site is a zone of elevated conductivities in the central and northern portions of the grid. The extremely high conductivities measured in the groundwater from MW13-2 suggest that this EM anomaly represents a groundwater plume with a high concentration of dissolved solids. It is likely that the groundwater contains dissolved salts, a by-product of the former activities at this site which involved the disposal and neutralization of acids. The suspected plume originates in the area of the former pits and extends towards the west-northwest presumably following the direction of groundwater flow.

The apparent conductivity measured in the grid on the west side of the pond shows several anomalies, each attributed to pipes. The pronounced north-treading zone of elevated conductivities occurring the western portion of the grid is caused by a pipe running parallel to the EM lines. A second pipe treading east to west, is marked by a linear zone of low conductivities originating near the northern edge of the grid. Low conductivities are measured by the EM-31 directly over a pipe if the boom of the instrument is oriented perpendicular to the pipe. The reverse is true if the pipe is parallel to the orientation of the boom. Alignment of EM anomalies suggests that this second pipe connects with the pipe located on the east side of the pond. The apparent conductivity anomaly in the eastern portion of the EM grid is caused by a third pipe running between a water valve seen protruding from the pond and the vertical shower head located in the eastern portion of the grid.

The in-phase response of the EM survey at SEAD-13 is shown in Figure 3.2-2. The eastern site shows a generally featureless response. A weak signature from the pipe is evident on the western side of the grid. A small isolated anomaly is located directly south of the pipe. The circular in-phase anomaly along the southern edge of the grid is the effect of metallic debris lying on the surface. The in-phase response from the grid located west of the pond is dominated by the north- to south-trending pipe running through the surveyed area.



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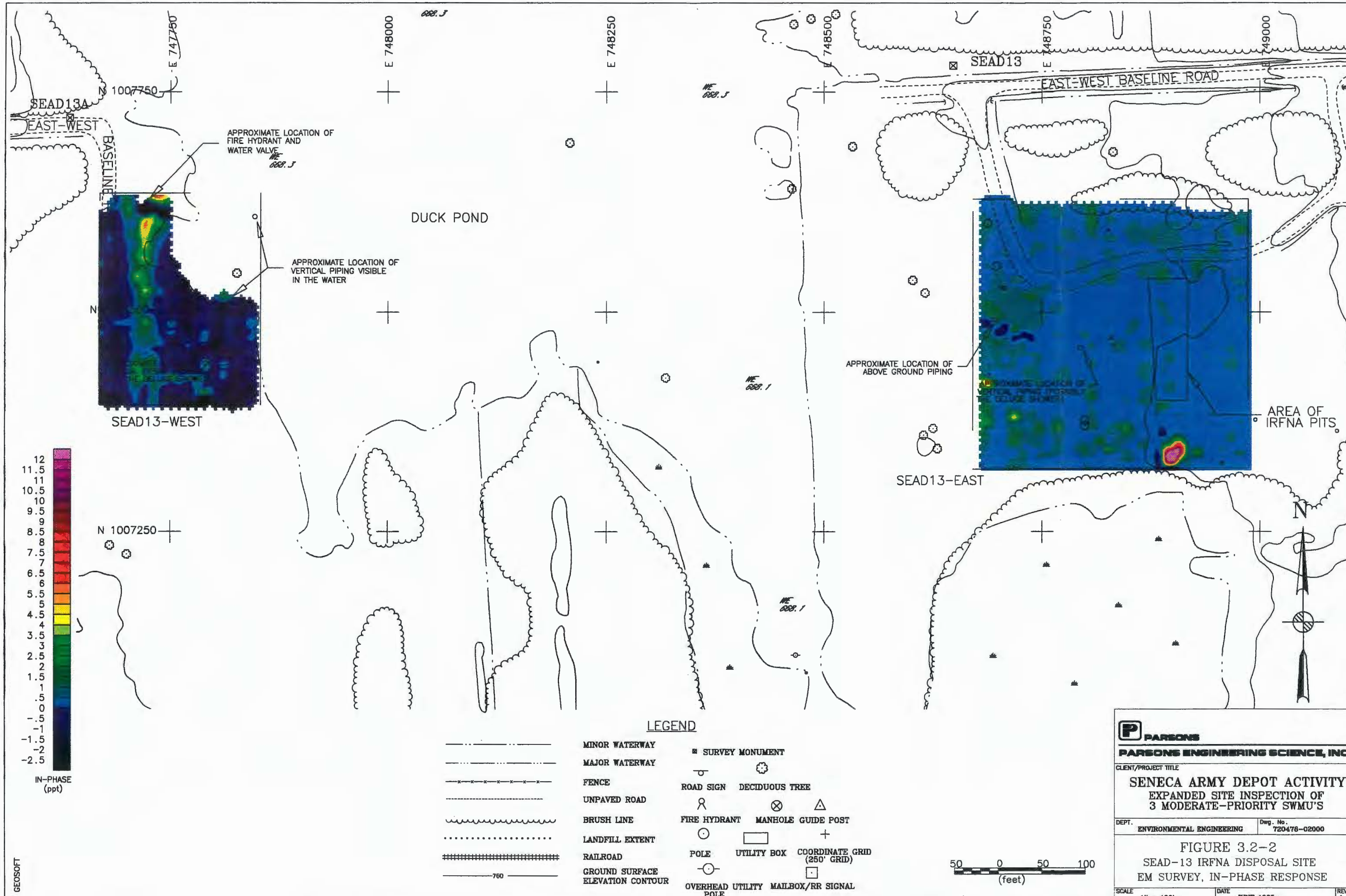
SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING	Dwg. No. 720478-02000

FIGURE 3.2-1
SEAD-13 IRFNA DISPOSAL SITE
EM SURVEY, APPARENT CONDUCTIVITY

SCALE 1" = 100'	DATE JUNE 1995	REV A



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EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No. 720476-02000

FIGURE 3.2-2
SEAD-13 IRFNA DISPOSAL SITE
EM SURVEY, IN-PHASE RESPONSE

SCALE 1" = 100' | DATE JUNE 1995 | REV A

3.2.2.3 GPR Survey

A GPR survey was conducted at both eastern and western sites of SEAD-13 to determine the location of the former IRFNA disposal pits. Data quality was degraded in certain areas due to standing water from recent rainfall. Penetration was limited to less than 30 nanoseconds (ns) or about 3 to 4 feet.

Preparation for the geophysical surveys involved the cutting of tall grass, brush, and small trees throughout the area of investigation. Following the removal of vegetation, 7 or 8 former pits were identified east of the pond by visual inspection. The pits were typically 10 to 15 feet wide by 40 to 50 feet long. The pits were stacked north to south across the central portion of the geophysical grid.

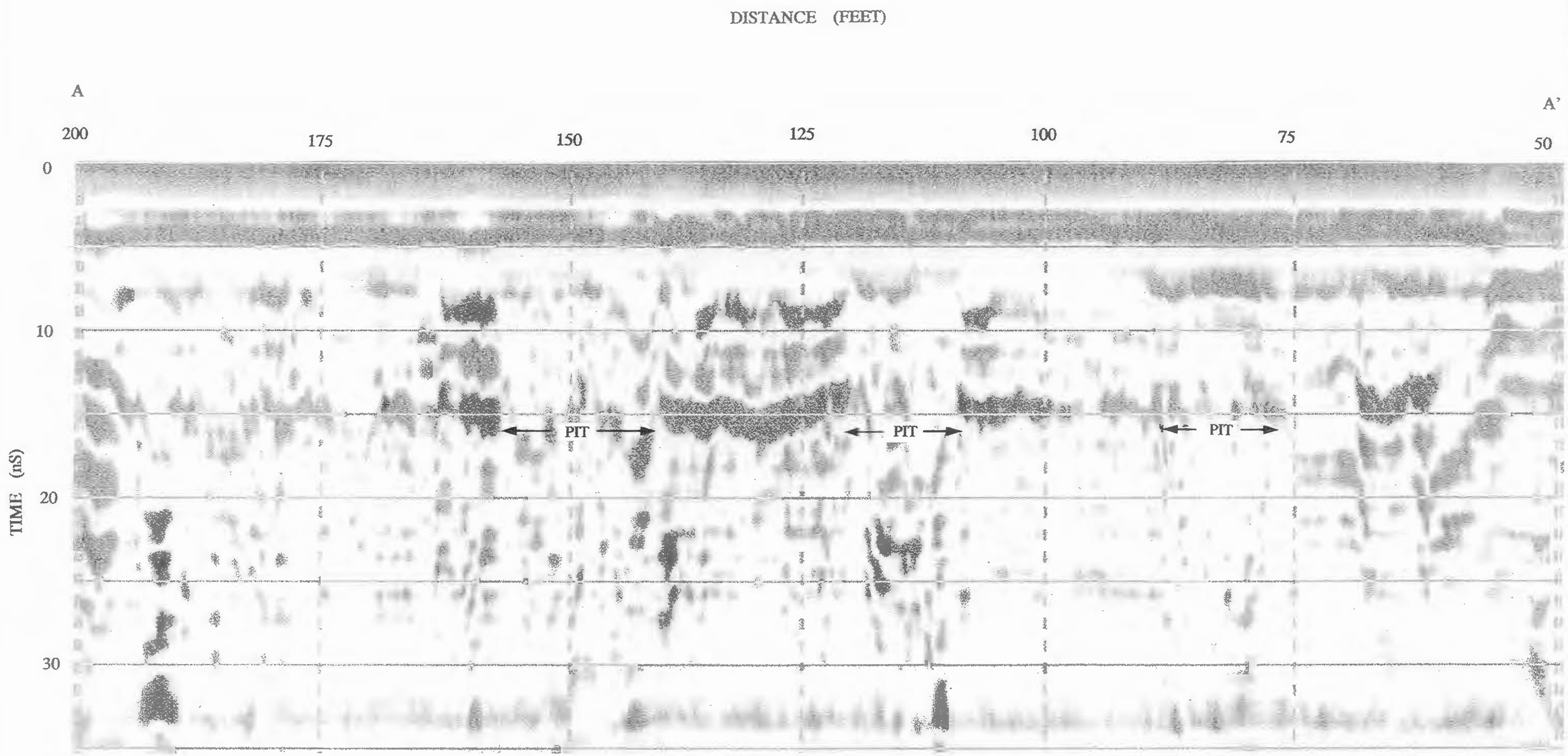
Figure 3.2-3 shows a GPR transect across several of the former IRFNA disposal pits. The pits are characterized by a disruption in the normal layering of the overburden. Without prior knowledge concerning the location of these pits, positive identification from the GPR records alone would have been impossible. The amplitude of the GPR reflections in the vicinity of the former pits was unusually weak. This is the effect of enhanced attenuation of the radar signal due to the higher ground conductivity in this area, as demonstrated by the EM survey.

No evidence of former pits was found on the west side of the pond. There were no well-defined zones of sparse vegetation, no elongate depressions in the surface topography, no crushed limestone visible on the surface, and no geophysical response that would suggest the presence of former pits.

3.2.3 Site Hydrology and Hydrogeology

Surface water flow from precipitation events is controlled by local topography although very little relief is present on the eastern and western IRFNA disposal areas. In general, the topography of the land slopes toward the Duck Pond, which separates the two disposal areas and is a sustained surface water body. Both areas abut the shoreline of the pond. Because no well developed drainage swales are present at either disposal area, it is likely that surface water ponds on the ground surface and eventually drains into the nearby Duck Pond.

The Duck Pond is fed from the south by a small stream which enters at a cove and wetland area. A beaver dam is also located near the intersection of the stream with the pond. The outflow for the pond is approximately 3500 feet north of the disposal areas.



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SENECA ARMY DEPOT
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING | NO. 720478-02000

FIGURE 3.2-3
SEAD-13, GPR Profile A-A'

SCALE

The groundwater flow direction at the eastern disposal area is to the west-northwest and on the western disposal area is to the east-northeast; groundwater generally flows toward the Duck Pond at both areas. These flow directions are based on groundwater elevations measured in 6 monitoring wells on the site on April 4, 1994 (Table 3.2-3 and Figure 3.2-4). The groundwater contours were established using a straight-line interpolation method between monitoring wells. The elevations determined at the location of well MW13-3 (a deep overburden well) and MW13-7 (a shallow overburden well) are not believed to represent the true water table. Well MW13-3 is screened in the dense till and has very little water in it. The shallow well, MW13-7, is screened in the upper, less dense till. The anomalous water table elevation in MW13-7 may be due to a lack of stabilization in the well prior to the measurement. The elevation of the water in the Duck Pond is 668± feet as determined from the photogrammetric reduction of the areal photos with a ground truth survey, which lends more support for the contention that the elevation of the water table in MW13-7 is not representative of static groundwater conditions. The groundwater elevation data collected from monitoring wells MW13-4 and MW13-5 on November 13, 1993, indicated that the groundwater flow direction in the western portion of the SEAD-13 was to the west-southwest. This flow direction is approximately opposite to that which was established from the April 4, 1994 groundwater elevation survey indicating that significant seasonal changes in groundwater flow directions may occur in the western portion of SEAD-13.

The distribution of groundwater in the till portion of the aquifer is characterized by moist soil with occasional coarse-grained lenses of water-saturated soil. In some locations the weathered shale horizon was water-saturated. Recharge of groundwater to the wells during sampling was generally fair to poor.

3.3 SEAD-57

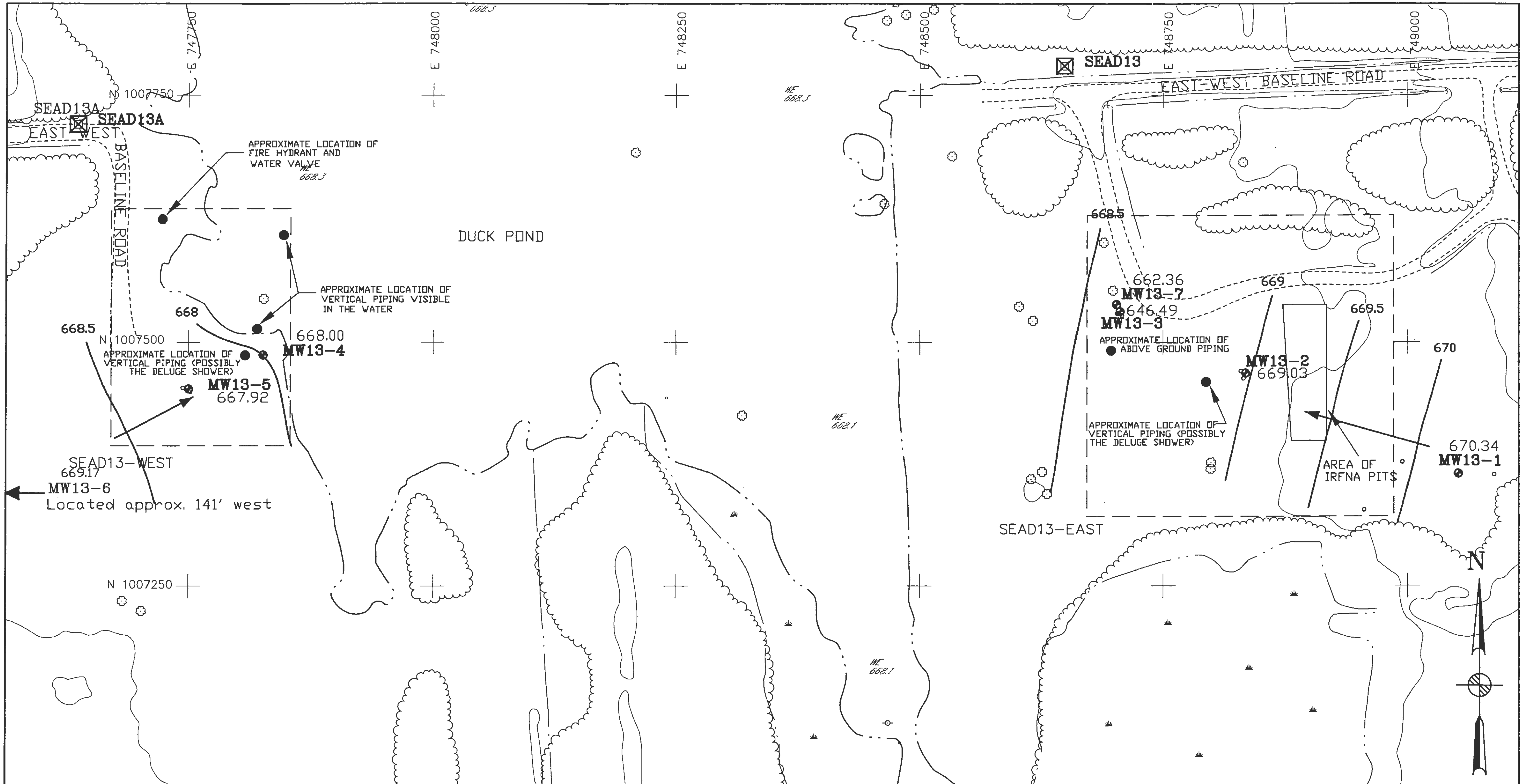
3.3.1 Site Geology

Based on the results of the drilling program, till and calcareous black shale are the two major types of geologic materials present on-site. The till is stratigraphically above the shale. In most borings, a thin soil horizon was observed within one foot of the ground surface. The depths of the borings at this site were up to 7 feet below the ground surface. The till is between 3.5 and 5 feet thick, which is considered to be thin compared to other locations at SEDA. The till is light brown to olive-gray and composed of silt and clay with a few shale fragments. Oxidized peds were also noted in the till.

TABLE 3.2-3
SEAD-13, GROUNDWATER MONITORING WELL WATER LEVEL SUMMARY

SENECA ARMY DEPOT
SEAD-13

MONITORING WELL NUMBER	TOP OF PVC CASING ELEVATION (MSL)	WELL DEVELOPMENT			SAMPLING			WATER LEVEL MEASUREMENTS		
		DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)
MW13-1	673.16	1/9/94	4.62	668.54	2/3/94	3.14	670.02	4/4/94	2.82	670.34
MW13-2	672.32	11/10/93	3.95	668.37	11/18/93	3.72	668.60	4/4/94	3.29	669.03
MW13-3	671.31	11/6/93	DRY	NA	2/3/94	DRY	NA	4/4/94	24.82	646.49
MW13-4	670.79	11/10/93	3.13	667.66	2/4/94	3.13	667.66	4/4/94	2.79	668.00
MW13-5	671.23	11/10/93	9.80	661.43	2/4/94	3.90	667.33	4/4/94	3.31	667.92
MW13-6	672.11	1/10/94	5.00	667.11	2/4/94	3.76	668.35	4/4/94	2.94	669.17
MW13-7	669.28	3/4/94	DRY	NA	2/4/94	NS	NA	4/4/94	6.92	662.36



ACAD\SENECA\3SWMU\SD13GW.DWG

LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
GROUND SURFACE ELEVATION CONTOUR (760)

SURVEY MONUMENT
ROAD SIGN
DECIDUOUS TREE
FIRE HYDRANT
MANHOLE
GUIDE POST
POLE
UTILITY BOX
COORDINATE GRID (250' GRID)
OVERHEAD UTILITY POLE
MAILBOX/RR SIGNAL

MW13-1 748.3 — MONITORING WELL WITH WATER TABLE ELEVATION

744 — GROUNDWATER ELEVATION CONTOUR, ARROW INDICATES DIRECTION OF FLOW

NOTES
1. MONITORING WELL WATER LEVEL SURVEY DATE: 4/4/94
2. GROUNDWATER CONTOUR ELEVATION DATUM IS NGVD OF 1929

50 0 50 100 (feet)

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EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

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FIGURE 3.2-4
SEAD-13 IRFNA DISPOSAL SITE
GROUNDWATER TOPOGRAPHY MAP

SCALE 1" = 100' | DATE JUNE 1995 | REV A

Competent, calcareous black shale was encountered at depths between approximately 6 and 7 feet below the ground surface. The elevations of the competent shale determined during the drilling and seismic programs indicate that the shale slopes to the west mimicking the land surface. The upper portion of the competent shale (2.5 to 3 feet) is weathered.
The U-shaped berm is composed of soil that was scraped from the surface in the immediate vicinity of the site.

3.3.2 Geophysics

3.3.2.1 Seismic Survey

The results of the seismic refraction survey conducted in SEAD-57 are shown in Table 3.3-1. The seismic profiles detected about 4 to 6 feet of unsaturated till (1,150 to 1,300 ft) overlying bedrock (10,400 to 12,500 ft/s). Saturated till was not detected by the seismic survey. Due to inherent limitations of the seismic refraction method, a thin layer of saturated till (< 2 feet) overlying the bedrock surface would be undetectable.

The relative elevation of the bedrock surface, as determined by the seismic survey, indicates that the bedrock slopes to the southwest, generally following the surface topography. Groundwater flow is also expected to be to the southwest, following the slope of the bedrock surface.

3.3.2.2 EM-31 Survey

Figure 3.3-1 shows the apparent conductivity measured in the two grids surveyed at SEAD-57. The grid within the bermed area revealed two anomalies in the southern portion of the grid. The broad conductivity low along the northeast corner of the grid is likely caused by natural variations in the apparent ground conductivities of the soils comprising the berm. The area surveyed in the shallow depression west of the access road also revealed two anomalies: one located in the west central portion of the grid and the other located along the southwestern edge. In general, the bermed area yielded higher apparent conductivities than the shallow depression.

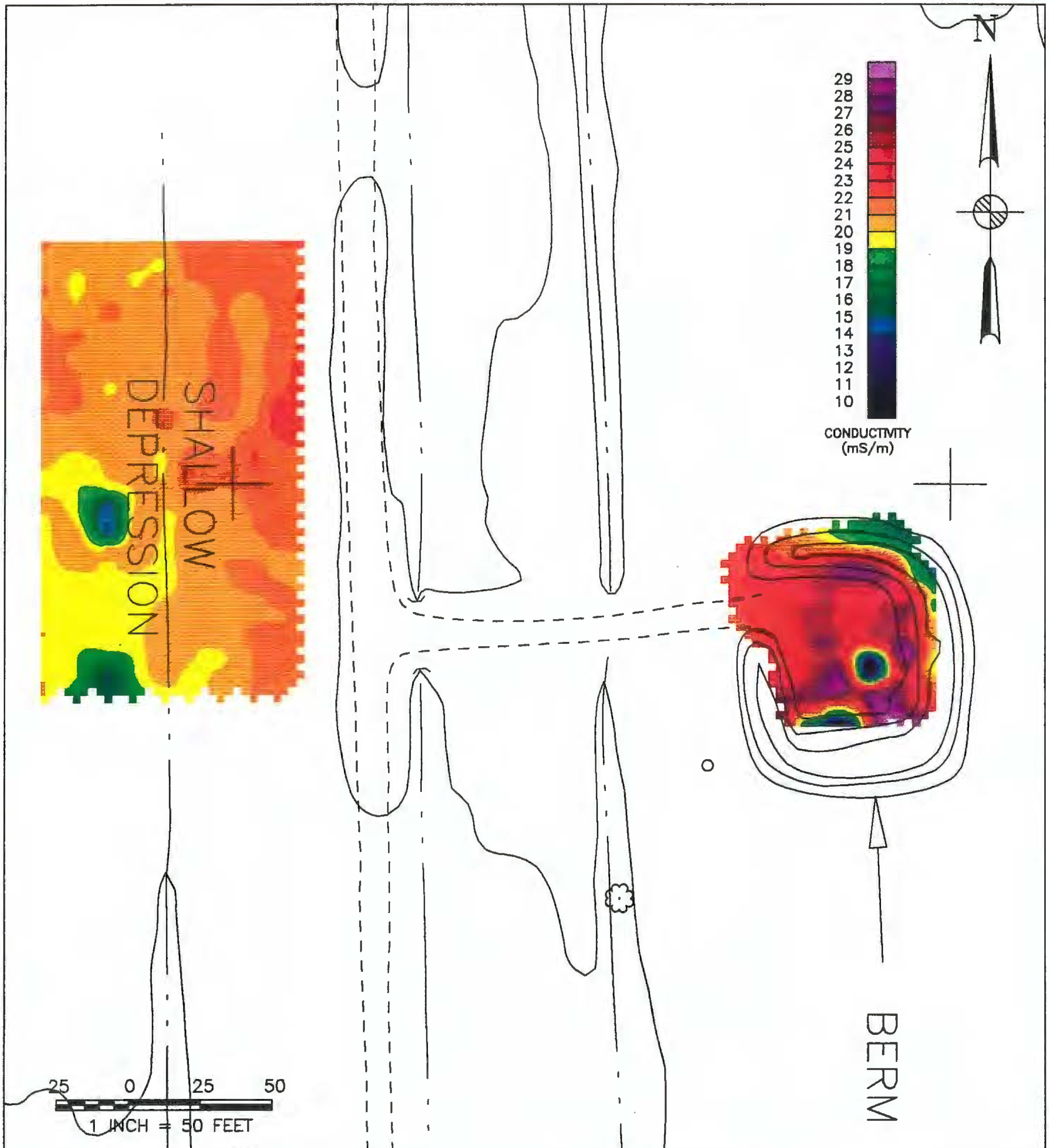
The in-phase response of the EM-31 survey is shown in Figure 3.3-2. The four anomalies identified by the apparent conductivity are also evident in the in-phase component. The in-phase response suggests that the sources of these anomalies are metallic objects. Follow up

TABLE 3.3-1
SEAD-57
EXPANDED SITE INSPECTION
RESULTS OF SEISMIC REFRACTION SURVEY

Profile	Distance[1]	Ground Elev.[2]	Bedrock	
			Depth	Elev.
P1	0	100.0	6.4	93.6
	57.5	100.5	6.0	94.5
	115	100.3	6.0	94.3
P2	0	101.6	4.1	97.5
	57.5	100.5	5.3	95.2
	115	100.0	5.5	94.5
P3	0	101.5	5.4	96.1
	57.5	101.3	5.9	95.4
	115	101.1	5.2	95.9
P4	0	104.9	6.2	98.7
	57.5	105.7	5.8	99.9
	115	105.9	6.2	99.7

[1]All distances are in feet.

[2]All elevations are relative elevations in feet.



LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760 GROUND SURFACE ELEVATION CONTOUR
SURVEY MONUMENT
ROAD SIGN
DECIDUOUS TREE
FIRE HYDRANT
MANHOLE
GUIDE POST
POLE
UTILITY BOX
OVERHEAD UTILITY POLE
MAILBOX/RR SIGNAL
COORDINATE GRID (250' GRID)

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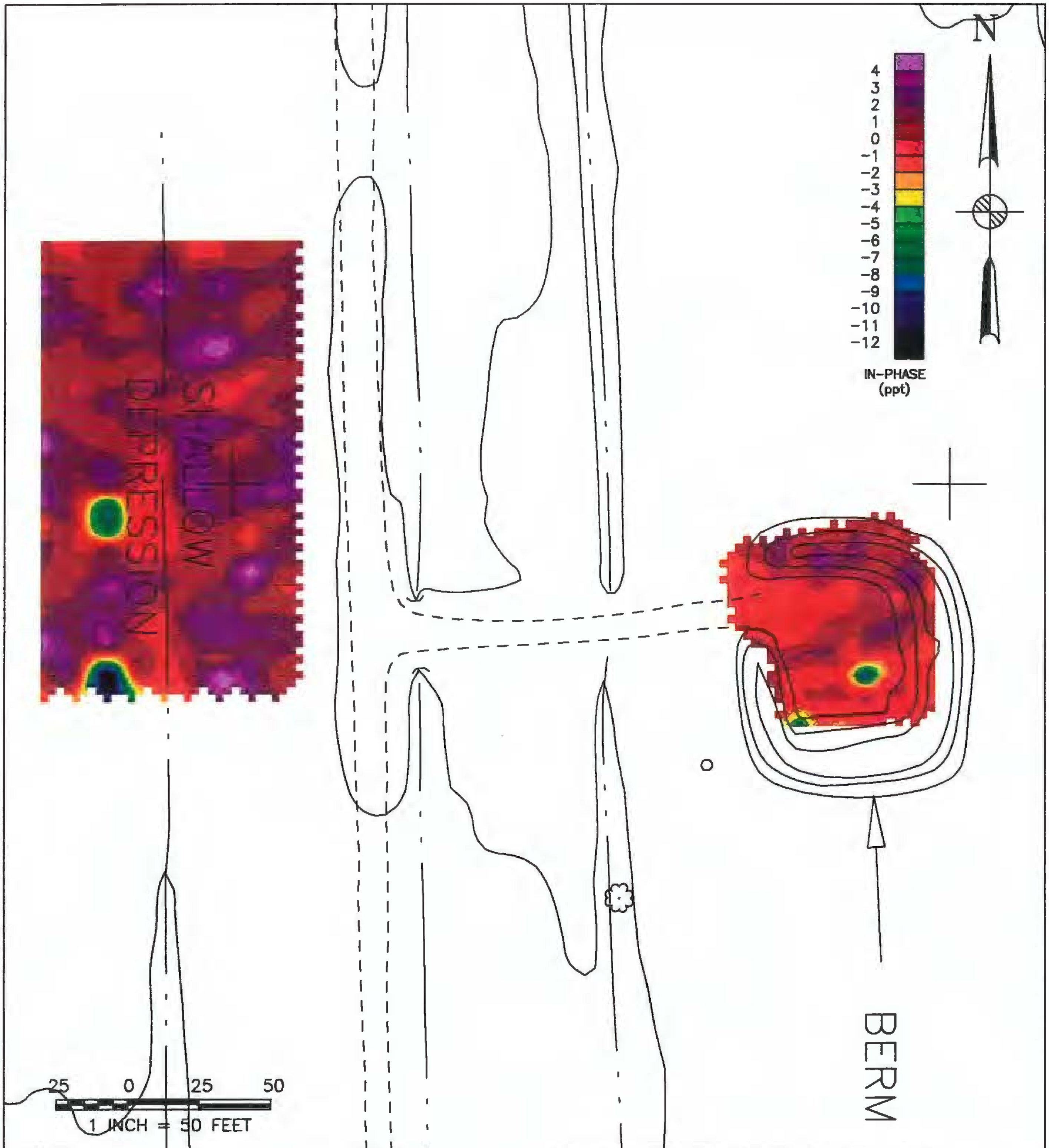
SEANECA ARMY DEPOT
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	720478-02000

FIGURE 3.3-1
SEAD-57, EXPLOSIVE ORDNANCE AREA
EM SURVEY, APPARENT CONDUCTIVITY

SCALE	DATE	REV
1" = 50'	JUNE 1995	A



LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760 GROUND SURFACE ELEVATION CONTOUR
SURVEY MONUMENT
ROAD SIGN
DECIDUOUS TREE
FIRE HYDRANT
MANHOLE
GUIDE POST
POLE
UTILITY BOX
OVERHEAD UTILITY POLE
MAILBOX/RR SIGNAL
COORDINATE GRID (250' GRID)

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EXPANDED SITE INSPECTION OF 3 MODERATE−PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING	Dwg. No. 720476−02000

FIGURE 3.3−2
SEAD−57 EXPLOSIVE ORDNANCE AREA
EM SURVEY, IN−PHASE RESPONSE

SCALE	DATE	REV
1" = 50'	JUNE 1995	A

inspection revealed that the EM anomaly in the southwest corner of the shallow depression was caused by the steel lid of a drum. Test pits excavated two of the other three EM anomalies (discussed in Section 3.3.2.4).

3.3.2.3 GPR Survey

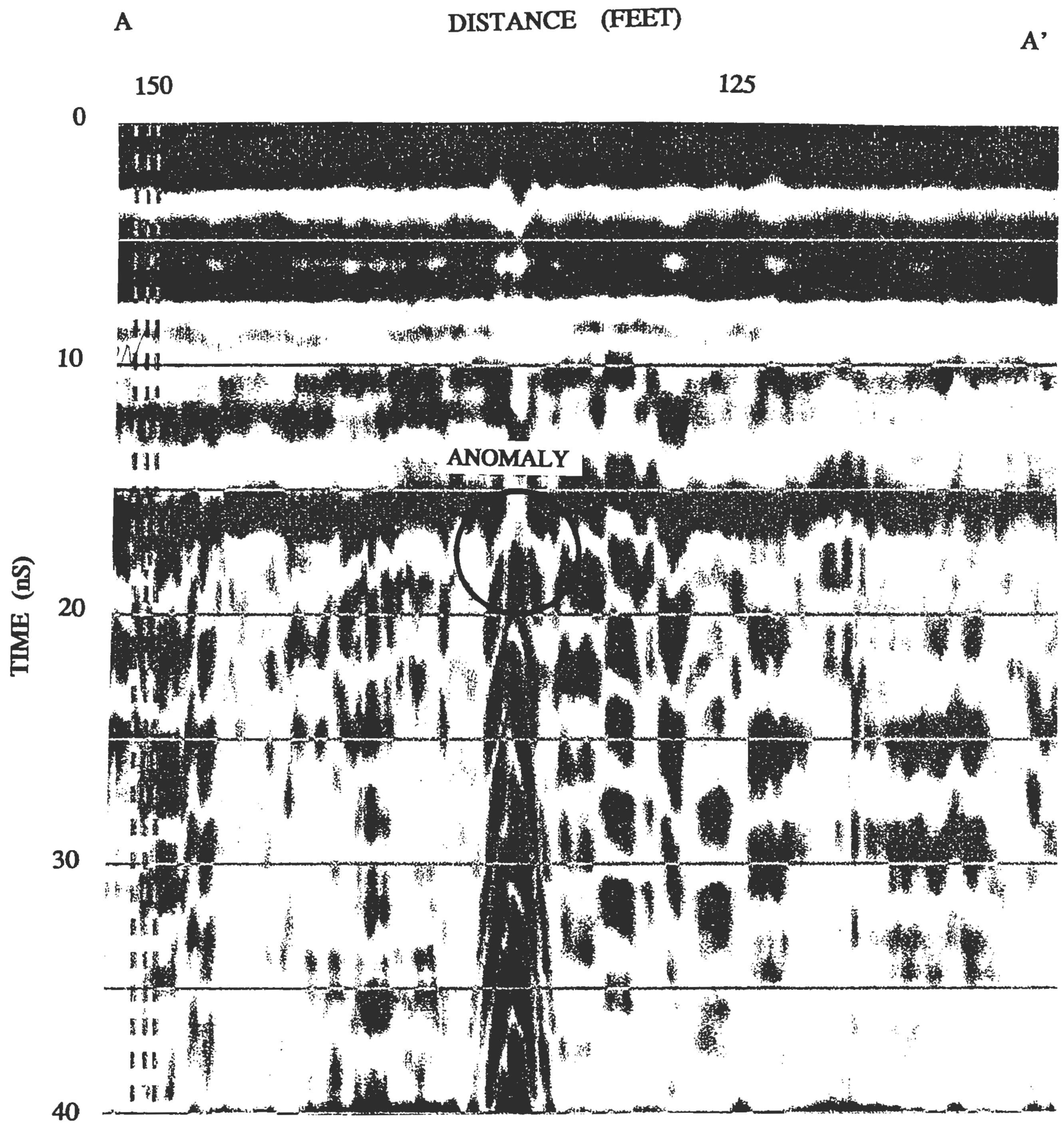
A GPR survey was conducted along the same transects as the EM survey. The deepest reflectors noted on the GPR records were located at a two-way travel time of about 20 ns which corresponds to a depth of about 4 feet. Abundant GPR anomalies were identified within both grids surveyed. Most of the GPR anomalies were localized hyperbolic reflectors. Figure 3.3-3 shows a typical hyperbolic anomaly located at a profile distance of about 132 feet along transect A-A' (Figure 2.5-1). Figure 3.3-4 shows a shallow horizontal reflector located from 75N to 100N along transect B-B'. The identification of the sources of the GPR anomalies are discussed in the following section on the test pitting program.

3.3.2.4 Test Pitting Program

A total of 7 test pits were excavated in SEAD-57 to characterize the sources of geophysical anomalies. Two test pits were excavated within the bermed area (TP57-2 and TP57-5), and five test pits were excavated in the shallow depression (TP57-6 through TP57-10).

The test pit logs are presented in Appendix B. The EM anomaly in the southeastern portion of the bermed area was excavated by TP57-2. Various metallic debris was found, including the rusted possible remains of a drum. Test pit TP57-5 was centered on a linear GPR anomaly within the bermed area. No buried objects were found in this test pit; the anomaly may be attributed to a zone of clay found in this area.

The five test pits excavated within the shallow depression were centered on GPR anomalies, one of which coincided with an EM anomaly. In only two of the five test pits were the likely sources of the anomalies identified. Test pit TP57-6 identified the shallow horizontal reflector as a layer of shale located at a depth of about 1 foot (Figure 3.3-4). The GPR anomaly at TP57-7 was attributed to four buried sand bags, but the EM anomaly at this location was not identified. The sources of the GPR anomalies at the other three locations were not identified, including the hyperbolic anomaly shown in Figure 3.3-3. GPR commonly produces spurious anomalies that cannot be attributed to any obvious subsurface objects or features. Such anomalies may be produced by localized changes in the electrical properties of the soil.



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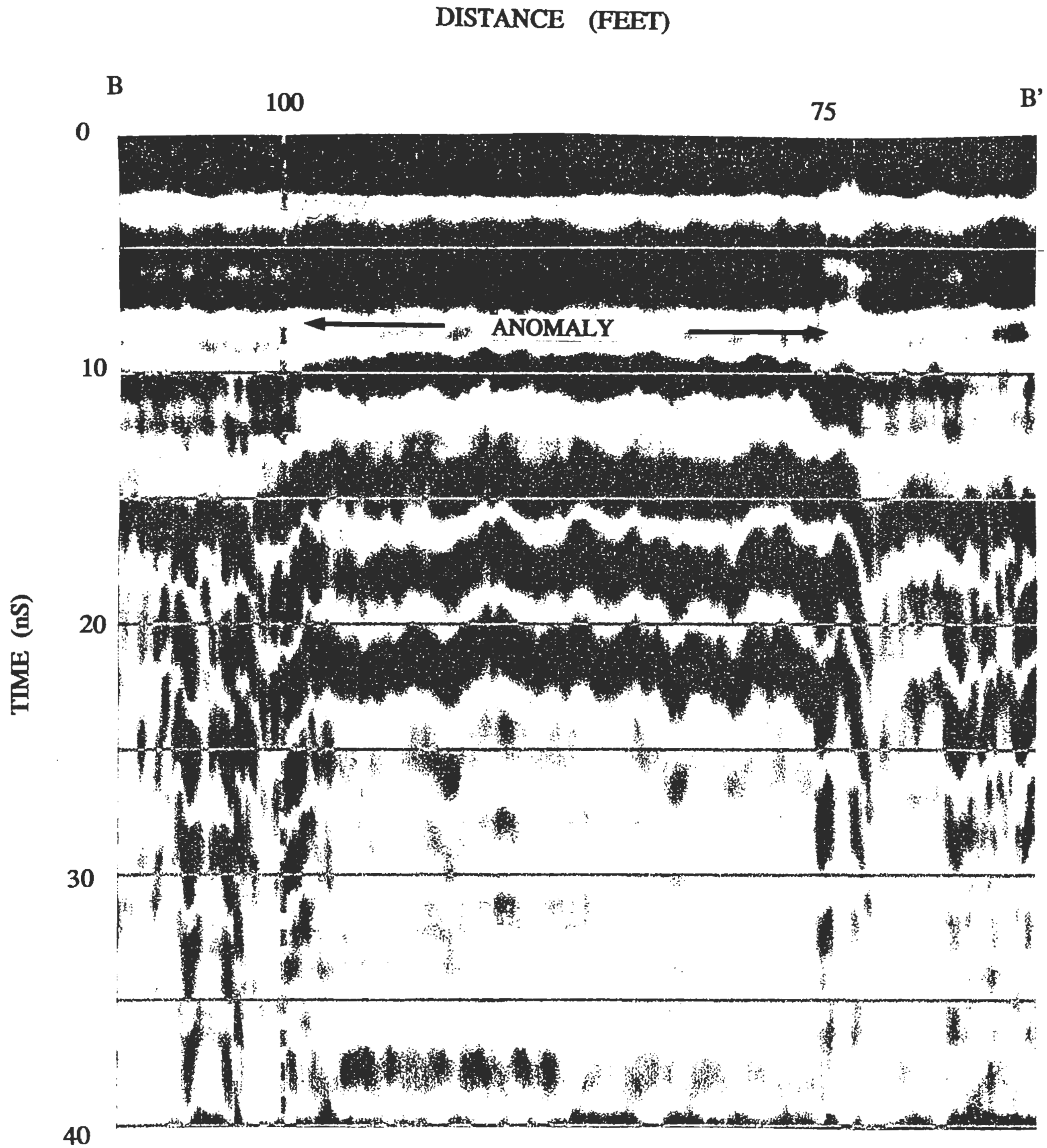
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT.	No.
ENVIROMENTAL ENGINEERING	720478-02000

FIGURE 3.3-3
SEAD-57, GPR Profile A-A'

SCALE	DATE	REV
		A



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CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY SWMU'S

DEPT.	NO.
ENVIROMENTAL ENGINEERING	720478-02000

FIGURE 3.3-4
SEAD-57, GPR Profile B-B'

SCALE	DATE	REV
		A

3.3.3 Site Hydrology and Hydrogeology

Surface water flow from precipitation events is controlled by local topography on the site. Surface water on the site would likely be collected in one of three north-south trending swales which originate near the paved road in the northern portion of the site and drain to the south. One swale is located east of the berm and the other two are between the berm and the unpaved access road. Immediately north of the road is a local topographic high where the ground elevation is greater than 634 feet. Topography on-site slopes to the south and southwest, however, in the eastern portion of the site it slopes gently to the east, indicating that there may be a local surface water flow divide in this area. The easternmost drainage swale which drains predominantly to the south on-site eventually bends to the east.

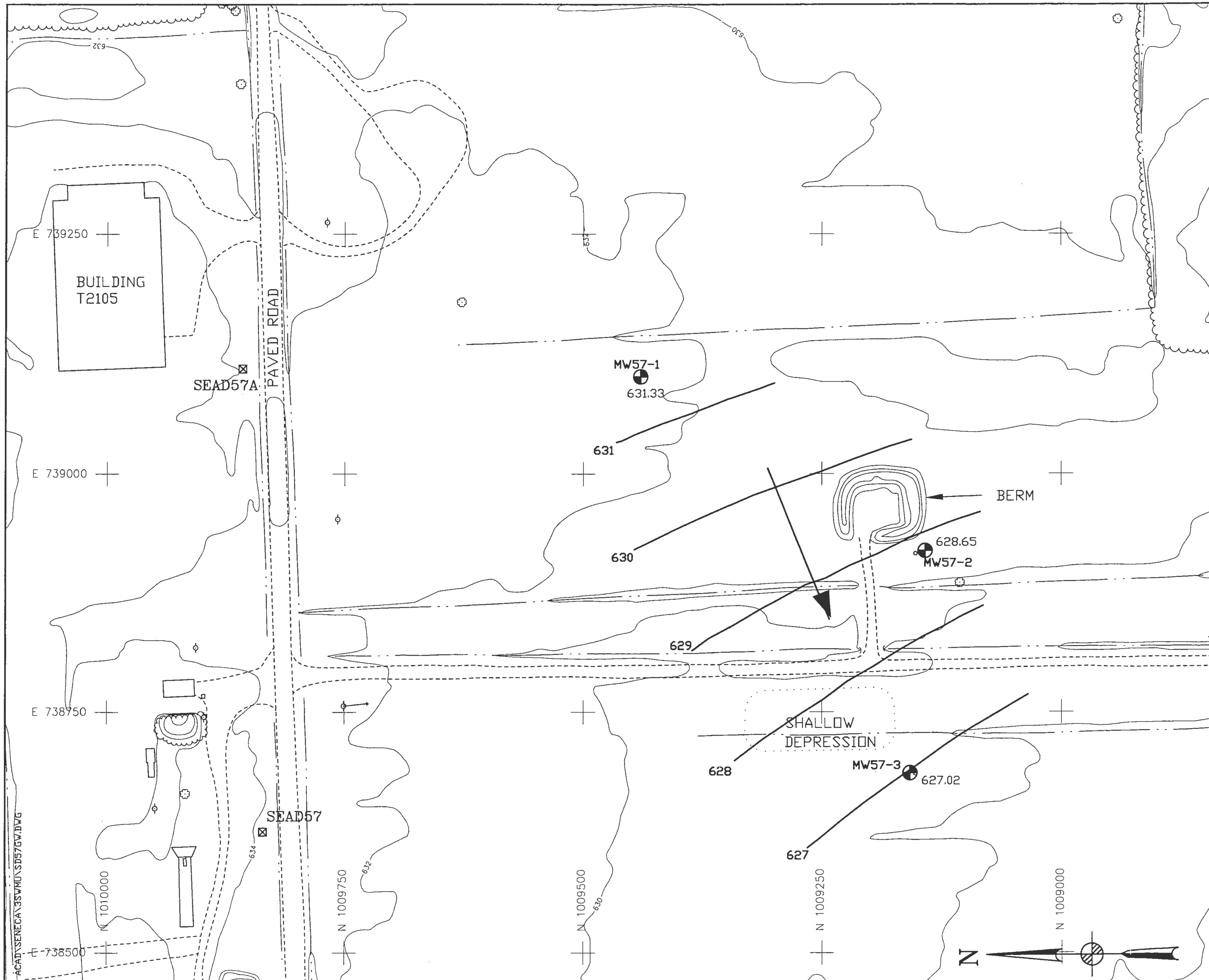
The groundwater flow direction in the till/weathered shale aquifer on the site is to the southwest based on the groundwater elevations determined for three monitoring wells on April 4, 1994 (Table 3.3-2 and Figure 3.3-5). Based on topographic expression, it is likely that in the northwestern portion of the site the groundwater flow is more toward the south. It is also noteworthy that in the far eastern portion of the site groundwater flow may be to the east or northeast based on topographic information (i.e., the topographic high defined by the 634- and 632-foot contours). The easterly flow is further supported by the close proximity of a groundwater divide at the nearby OB/OD grounds which, if extended to the south, would generally correspond to the location of the suspected divide on the Explosive Ordnance Disposal Area. Groundwater that flows east or northeast on the site would eventually discharge to Reeder Creek, which is located approximately 1500 feet to the northeast. The current array of wells at the Explosive Ordnance Disposal Area can not confirm the presence of the suspected divide.

In general, the distribution of groundwater in the till/weathered shale aquifer is characterized by moist soil with coarse-grained lenses of water-saturated soil. Recharge to the wells during groundwater sampling was fair.

TABLE 3.3-2
SEAD-57, GROUNDWATER MONITORING WELL WATER LEVEL SUMMARY

SENECA ARMY DEPOT
SEAD-57

MONITORING WELL NUMBER	TOP OF PVC CASING ELEVATION (MSL)	WELL DEVELOPMENT			SAMPLING			WATER LEVEL MEASUREMENTS		
		DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)	DATE	DEPTH TO GROUNDWATER WATER TOC (FT)	GROUNDWATER ELEVATION (MSL)
MW57-1	634.17	1/11/94	4.85	629.32	2/3/94	4.14	630.03	4/4/94	2.84	631.33
MW57-2	631.48	12/19/93	2.77	628.71	2/3/94	3.42	628.06	4/4/94	2.83	628.65
MW57-3	629.83	12/19/93	3.09	626.74	2/3/94	4.08	625.75	4/4/94	2.81	627.02



LEGEND

MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760 GROUND SURFACE ELEVATION CONTOUR
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT

MW57-1 631.33 MONITORING WELL WITH WATER TABLE ELEVATION

631 GROUNDWATER ELEVATION CONTOUR ARROW INDICATES DIRECTION OF FLOW

NOTES

1. MONITORING WELL WATER LEVEL SURVEY DATE: 4/4/94
2. GROUNDWATER CONTOUR ELEVATION DATUM IS NGVD OF 1929

50 0 50 100 (feet)

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EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

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FIGURE 3.3-5
SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA GROUNDWATER TOPOGRAPHY MAP

SCALE 1" = 100' | DATE JUNE 1995 | REV A

4.0 NATURE AND EXTENT OF CONTAMINATION

This section discusses the nature and extent of contaminants at each site based on the chemical analysis results for each sample. To evaluate whether each media (soil, groundwater, surface water, and sediment) is being impacted, the chemical analysis data were compared to available New York State and Federal standards, guidelines, and criteria. Only those state standards which are more stringent than federal requirements were used as criteria. For organics contaminants, the organic carbon normalized criteria were adjusted by applying a total organic carbon (TOC) content of one percent to the criteria. Specific TOC data were not collected during this ESI. A TOC content of 1% was used as an estimated value for the purposes of organic analyte concentration reporting.

The criteria for soils are listed in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) titled "Determination of Soil Cleanup Objectives and Cleanup Levels" (HWR-92-4046) issued in November 1992. This document, which contains the criteria for soil clean-up levels, has not been promulgated and the criteria are guidelines only. NYSDEC took into account the Contract Required Quantitation Limits (CRQLs) when they developed the guideline concentrations for the TAGM.

For the metals, the criteria used in this report were the greater of two values: the listed TAGM guideline or the SEDA background concentration. Site background values were calculated as the 95th UCL (Upper Confidence Level) of the mean for background concentrations of metals in the soil located at SEDA. The data for the site background concentrations were compiled from the background samples collected at the Ash Landfill site, the OB ground site, and the AOCs investigated for this ESI. Table 1.1-3 lists the 95th UCL of the mean for the metals analyzed in this investigation. The TAGM guidelines were used for the following metals: antimony, arsenic, barium, beryllium, cadmium, cobalt, lead, mercury, selenium, and vanadium. The SEDA background soil concentrations were used for the following metals: aluminum, calcium, chromium, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, thallium, and zinc.

In addition to guidelines for specific compounds, the TAGM also lists soil cleanup objectives for groups of compounds and SVOs that do not have a specific guideline:

	Maximum Concentration
Total VOCs	10 ppm
Total SVOs	500 ppm
Individual SVOs	50 ppm
Total Pesticides	10 ppm

The groundwater criteria which were applied to this ESI study were the NYSDEC Class GA Standards and Guidelines. Because New York State has promulgated the Class GA standards, they are legally enforceable.

Surface water criteria were the most stringent criteria from the following guidelines:

- NYSDEC Water Quality Regulations for Surface Water and Groundwaters (6NYCRR Parts 700-705)
- USEPA Water Quality Criteria Summary and Updates. These include the freshwater acute and chronic criteria.

All values, including NYSDEC surface water criteria, EPA freshwater acute criteria, and EPA freshwater chronic criteria, were listed in the surface water data tables in this section.

For the metals chromium, copper, lead, nickel, and zinc, the EPA chronic and acute criteria values were developed from equations in the Updates #1 and 2 which are based on the surface water hardness. The standards for the hardness dependent values were calculated using an average hardness of 300 mg/l, which was derived from calcium and magnesium concentrations at surface water locations in SEADs-4, 13, 26, and 45 where:

$$\text{total hardness} = 2.5(Ca^{+2} + 4.1(mg^{+2}).$$

and Ca^{+2} and Mg^{+2} concentrations were values from the 3 Moderate and 7 High Priority AOC Analytical results.

The average water hardness for the SEDA site was calculated to be 300 ppm.

The data tables included in this Section list only those constituents which were detected in the samples from that AOC. The complete data tables, which include all the constituents which were analyzed, are included in Appendix E.

Sediment criteria were guidance values from the NYSDEC Bureau of Environmental Protection Division of Fish and Wildlife. The most stringent of the sediment criteria for wildlife, human health, or for aquatic life were used as the criteria. All of these values were listed in the sediment data tables in this section. For metals, the criteria were the more stringent of the criteria for aquatic life or the Limit of Tolerance (LOT) values (listed in the same document as the criteria), which are defined as concentrations which would be detrimental to the majority of species, potentially eliminating most.

4.1 SEAD-11

4.1.1 Introduction

A 39 point soil gas survey was conducted on the landfill. Additionally, 5 surface and 10 subsurface soil samples were collected from soil borings and test pits completed at SEAD-11. Lastly, four monitoring wells were installed and sampled as part of this investigation. The following sections describe the nature and extent of contamination identified at SEAD-11.

4.1.2 Soil Gas

4.1.2.1 Introduction

This section presents the results of the soil gas survey at the Old Construction Debris Landfill. The intent of this survey was to locate areas on and in the immediate vicinity of the landfill that have been impacted by volatile organic compounds. Soil gas samples were collected at 31 of 39 sample locations on the grid shown in Figure 2.3-2. At eight of the locations, collection of soil gas was precluded by the high water table which filled the soil gas sampling tube with groundwater after it was driven into the ground.

4.1.2.2 Soil Gas Results and Summary

The results of the soil gas survey are summarized in Table 4.1-1. For the soil gas data, detector responses were used in conjunction with calibration curve data to calculate

Table 4.1-1
Summary of Soil Gas Results

Seneca Army Depot
SEAD-11

Sample Name	Location		OVM Screen (ppm)	Concentration (ppmV as TCE)
	Easting	Northing		
SG 0,0	743470.7	987372.538	no data	no data
SG 0,1	743568.5	987374.731	0.0	0.2
SG 0,2	743668.5	987375.4469	no data	no data
SG 0,3	743765.7	987395.8324	no data	no data
SG 0,4	743867.8	987419.4692	0.0	0.6
SG 0,5	743969.4	987441.8642	no data	no data
SG 1,0	743467.9	987473.2255	0.0	0
SG 1,1	743564.6	987488.5735	0.0	0.5
SG 1,2	743667.2	987475.3362	0.0	1
SG 1,3	743767.4	987476.1975	3.0	1.2
SG 1,4	743867.2	987499.1956	no data	no data
SG 1,5	743971	987477.7634	0.0	0
SG 2,0	743467	987573.5014	0.0	0.1
SG 2,1	743567.1	987573.3771	9.2	6.6
SG 2,2	743664.2	987574.4089	3.0	0
SG 2,2A	743664.5	987594.6074	0.0	0.5
SG 2.5,2.5	743715.5	987624.9052	3.0	0.7
SG 2,3	743766.8	987578.3305	12.3	14.6
SG 2,4	743865.7	987578.8576	3.0	0.6
SG 2,5	743965.6	987610.5863	0.0	0.8
SG 3,0	743496.9	987661.8324	0.0	0.2
SG 3,1	743566.3	987672.6855	0.0	0.1
SG 3,2	743664.8	987675.4015	0.9	3.2
SG 3,3	743765.2	987676.5335	3.2	4.9
SG 3,4	743863.2	987678.5625	1.3	1.2
SG 3,5	743963.6	987681.7443	1.3	1.8
SG 4,0	743414.5	987771.1101	no data	no data
SG 4,1	743576.1	987763.2403	0.0	0.6
SG 4,2	743662.8	987775.5407	0.9	0.9
SG 4,3	743761.9	987775.1712	0.4	1
SG 4,4	743863.4	987779.2466	3.2	1
SG 4,5	743962	987780.9374	1.3	0.1
SG 5,0	743413.7	987850.044	0.0	0.1
SG 5,1	743561.3	987852.6556	no data	no data
SG 5,2	743661.8	987854.4705	no data	no data
SG 5,3	743762.1	987855.946	5.0	0
SG 5,4	743862.6	987855.6674	0.0	0
SG 5,5	743960.7	987860.7673	0.0	0.9
SG X	743740.3	987650.7193	0.0	2.5

H:\eng\seneca\3swmu\tables\sd11sgas.wk3

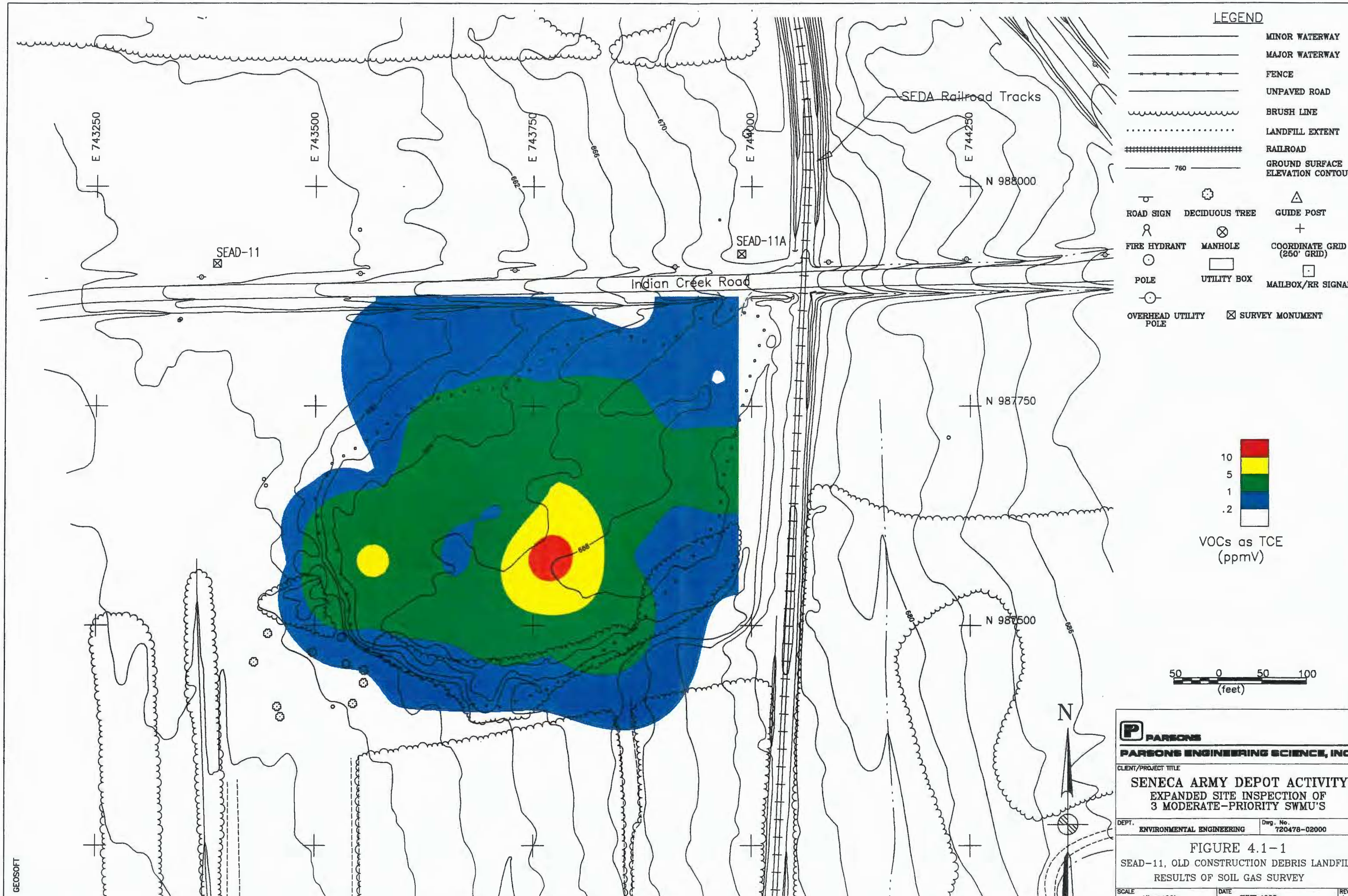
concentrations which are expressed as TCE in parts per million by volume (ppmv). Table 4.1-1 shows the concentrations of volatiles calculated at each sampling point as well as the results of the OVM screening (maximum value) of the soil gas prior to sampling.

The spatial distribution of the soil gas data is shown in Figure 4.1-1. The most noteworthy result is the presence of two areas on the landfill where elevated concentrations of volatiles in soil gas were detected. The highest of the two concentrations is located at point SG2-3 (14.6 ppmV as TCE). The next highest concentration is located at SG2-1 (6.6 ppmV as (TCE) which is approximately 100 feet west and hydrologically downgradient of SG2-3. Up to five individual compounds were identified in the two soil gas samples, although more peaks were present in the chromatograms. The positively identified compounds that were present in sample SG2-3 included vinyl chloride, 1,2-dichloroethene, trichloroethene, toluene, and ethylbenzene. Sample SG2-1 contained mostly 1,2-dichloroethene and trichloroethene. These two areas may be attributed to the same release, although at a sample point located midway between them no volatiles were detected. The areas impacted by elevated concentrations of volatiles in soil gas appear to be limited, as the surrounding data tend to show little or no volatile organics. To summarize, the data indicate that the west-central portion of the landfill has been impacted by volatiles, however, the concentrations are relatively low and the extent of the impacts are limited. There is no indication that soil gas west and hydrologically downgradient of the landfill has been impacted.

Two test pits (TP11-3 and TP11-4) were excavated at soil gas sample points SG2-3 and SG2-1. The excavations uncovered mostly building materials including concrete blocks, wire, pipe, glass, and plastic in a clayey sand and gravel matrix. Neither excavation uncovered any material that could be pinpointed as a source for the volatiles detected at these locations. No volatiles were detected in the soils excavated from the pits using an OVM.

4.1.3 Soil

The analytical results for the 5 surface and 10 subsurface soil samples collected as part of the SEAD-11 investigation are presented in Table 4.1-2. The sample locations are shown in Figure 2.3-3. The following sections describe the nature and extent of contamination in SEAD-11 soils.



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SENECA ARMY DEPOT ACTIVITY

EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

DEPT. ENVIRONMENTAL ENGINEERING	Dwg. No. 720478-02000	

FIGURE 4.1-1

SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL RESULTS OF SOIL GAS SURVEY

SCALE	DATE	REV
1" = 100'	JUNE 1995	A

TABLE 4.1-2

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-11 0-2 11/02/93 SB11-3.1 203222	SOIL SEAD-11 2-4 11/02/93 SB11-3.2 203223	SOIL SEAD-11 10-12 11/03/93 SB11-3.6 203224	SOIL SEAD-11 0-0.8 11/20/93 TP11-1.1 205264	SOIL SEAD-11 3.3 11/20/93 TP11-1.2 205265	SOIL SEAD-11 4.2 11/20/93 TP11-1.3 205266	SOIL SEAD-11 0-0.7 11/19/93 TP11-2.1 205111
VOLATILE ORGANICS												
1,2-Dichloroethene (total)	ug/kg	61	13.3%	300(b)	0	12 U	11 U	11 U	22 U	61 U	12 U	12 U
Trichloroethene	ug/kg	460	66.7%	700	0	12 U	11 U	11 U	410	460	34	13
Tetrachloroethene	ug/kg	370	20.0%	1400	0	12 U	11 U	11 U	22 U	61 U	12 U	12 U
Toluene	ug/kg	3	20.0%	1500	0	12 U	2 J	3 J	22 U	61 U	12 U	12 U
Ethylbenzene	ug/kg	3	6.7%	5500	0	12 U	11 U	11 U	22 U	61 U	12 U	12 U
Xylene (total)	ug/kg	4	6.7%	1200	0	12 U	11 U	11 U	22 U	61 U	12 U	12 U
HERBICIDES												
2,4-DB	ug/kg	550	13.3%	NA	NA	62 U	56 U	54 U	75	60 U	60 U	61 U
2,4,5-T	ug/kg	7.6	6.7%	1900	0	6.2 U	5.6 U	5.4 U	5.8 U	6 U	6 U	6.1 U
Dalapon	ug/kg	2500	6.7%	NA	NA	150 U	140 U	130 U	140 U	150 U	150 U	150 U
NITROAROMATICS												
1,3-Dinitrobenzene	ug/kg	770	6.7%	NA	NA	130 U	130 U	130 U	130 UJ	130 UJ	130 UJ	130 U
2,4,6-Trinitrotoluene	ug/kg	130	6.7%	NA	NA	130 U	130 U	130 U	130 UJ	130 UJ	130 UJ	130 U
2-amino-4,6-Dinitrotoluene	ug/kg	680	6.7%	NA	NA	130 U	130 U	130 U	130 UJ	130 UJ	130 UJ	130 U
2,6-Dinitrotoluene	ug/kg	400	6.7%	1000	0	130 U	130 U	130 U	130 UJ	130 UJ	130 UJ	130 U
2,4-Dinitrotoluene	ug/kg	440	13.3%	NA	NA	130 U	130 U	130 U	130 UJ	130 UJ	440	130 U
SEMIVOLATILE ORGANICS												
Naphthalene	ug/kg	100000	67.0%	13000	3	410 U	370 UJ	360 UJ	23 J	39 J	400 U	220 J
2-Methylnaphthalene	ug/kg	28000	60.0%	36400	0	410 U	370 UJ	360 UJ	27 J	27 J	400 U	1400 U
Acenaphthene	ug/kg	84000	60.0%	50000 *	1	410 U	370 UJ	360 UJ	380 U	400 U	400 U	630 J
Dibenzofuran	ug/kg	60000	66.7%	6200	4	410 U	370 UJ	360 UJ	23 J	25 J	400 U	250 J
Fluorene	ug/kg	88000	66.7%	50000 *	1	410 U	370 UJ	360 UJ	21 J	20 J	400 U	510 J
Phenanthrene	ug/kg	350000	73.3%	50000 *	4	410 U	370 UJ	360 UJ	230 J	260 J	400 U	5800
Anthracene	ug/kg	150000	73.3%	50000 *	1	410 U	370 UJ	360 UJ	53 J	42 J	400 U	1100 J
Carbazole	ug/kg	81000	53.3%	50000 *	1	410 U	370 UJ	360 UJ	380 U	400 U	400 U	820 J
Fluoranthene	ug/kg	350000	80.0%	50000 *	5	410 U	370 UJ	360 UJ	450	340 J	21 J	9800
Pyrene	ug/kg	280000	73.3%	50000 *	4	410 U	370 UJ	360 UJ	420	260 J	400 U	8500
Benzo(a)anthracene	ug/kg	190000	73.3%	220	8	410 U	370 UJ	360 UJ	150 J	160 J	400 U	4200
Chrysene	ug/kg	170000	73.3%	400	8	410 U	370 UJ	360 UJ	320 J	230 J	400 U	4500
bis(2-Ethylhexyl)phthalate	ug/kg	61000	26.7%	50000 *	0	670 J	760 UJ	1400 UJ	380 U	67 J	25 J	1400 U
Benzo(b)fluoranthene	ug/kg	110000	73.3%	1100	8	410 U	370 UJ	360 UJ	230 J	200 J	400 U	4700
Benzo(k)fluoranthene	ug/kg	130000	73.3%	1100	8	410 U	370 UJ	360 UJ	190 J	140 J	400 U	3000
Benzo(a)pyrene	ug/kg	140000	73.3%	61	11	410 U	370 UJ	360 UJ	210 J	130 J	400 U	3800
Indeno(1,2,3-cd)pyrene	ug/kg	100000	73.3%	3200	6	410 U	370 UJ	360 UJ	140 J	66 J	400 U	2800
Dibenz(a,h)anthracene	ug/kg	52000	66.7%	14	11	410 U	370 UJ	360 UJ	60 J	37 J	400 U	1100 J
Benzo(g,h,i)perylene	ug/kg	53000	66.7%	50000 *	1	410 U	370 UJ	360 UJ	81 J	400 U	400 U	1000 J

TABLE 4.1-2

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-11 0-2 11/02/93 SB11-3.1 203222	SOIL SEAD-11 2-4 11/02/93 SB11-3.2 203223	SOIL SEAD-11 10-12 11/03/93 SB11-3.6 203224	SOIL SEAD-11 0-0.8 11/20/93 TP11-1.1 205264	SOIL SEAD-11 3.3 11/20/93 TP11-1.2 205265	SOIL SEAD-11 4.2 11/20/93 TP11-1.3 205266	SOIL SEAD-11 0-0.7 11/19/93 TP11-2.1 205111
PESTICIDES/PCB												
alpha-BHC	ug/kg	24	6.7%	110	0	2.1 U	1.9 U	1.8 U	2 U	2 U	24 J	10 U
delta-BHC	ug/kg	15	20.0%	300	0	2.1 U	1.9 U	1.8 U	2 U	2 U	15 J	10 U
Dieldrin	ug/kg	29	20.0%	44	0	4.1 UJ	3.7 UJ	3.6 UJ	3.2 J	8.4 J	29 J	20 U
4,4'-DDE	ug/kg	1800	66.7%	2100	0	4.1 U	3.7 U	3.6 U	10	5.6 J	200 J	120
Endrin	ug/kg	49	26.7%	100	0	4.1 UJ	3.7 UJ	3.6 UJ	3.8 U	4 U	49 J	20 U
Endosulfan II	ug/kg	66	40.0%	900	0	4.1 U	3.7 U	3.6 U	3.8 U	3.1 J	40 U	20 U
4,4'-DDD	ug/kg	1400	53.3%	2900	0	4.1 U	3.7 U	3.6 U	2.9 J	4 U	28 J	18 J
Endosulfan sulfate	ug/kg	2.5	7.7%	1000	0	4.1 U	3.7 U	3.6 U	3.8 U	2.5 J	40 U	20 U
4,4'-DDT	ug/kg	4300	73.3%	2100	2	4.1 U	3.7 UJ	3.6 UJ	12	3.5 J	290 J	140 J
alpha-Chlordane	ug/kg	190	33.3%	540	0	2.1 U	1.9 U	1.8 U	3.3 J	9.1	190 J	10 U
METALS												
Aluminum	mg/kg	21700	100.0%	15523	2	17600	6330	10900	13300	12200	11100	15300
Antimony	mg/kg	285	40.0%	5	2	10.8 UJ	8 UJ	7.6 UJ	285 J	118 J	8.1 UJ	9.4 UJ
Arsenic	mg/kg	23.2	100.0%	7.5	5	5.6 R	3.4 R	6 R	15.5	11.8	4.7	23.2 J
Barium	mg/kg	1090	100.0%	300	4	113	57.4	62.7	1090	953	106	96.9
Beryllium	mg/kg	0.93	100.0%	1	0	0.85 J	0.34 J	0.47 J	0.63 J	0.59 J	0.54 J	0.76 J
Cadmium	mg/kg	16	40.0%	1	6	0.67 U	0.5 U	0.48 U	2.3	3.9	0.51 U	0.59 U
Calcium	mg/kg	103000	100.0%	120725	0	4950	91300	48600	30300	41700	54100	18600
Chromium	mg/kg	242	100.0%	24	7	24	11.1	18.6	67.2	53.9	18.7	23.9
Cobalt	mg/kg	27.5	100.0%	30	0	11.3	6.5 J	10.1	15.9	15.3	9.4	10.8
Copper	mg/kg	1090	100.0%	25	10	20	12.2	21.7	492	374	32.4	35.5
Iron	mg/kg	118000	100.0%	28986	6	27200	13200	28300	83600	42000	22700	29200
Lead	mg/kg	4050	100.0%	30	6	27.9	11.4	10.1	4050	2090	193	84.1
Magnesium	mg/kg	44600	100.0%	12308	5	4160	12900	10100	6760	10800	10100	11300
Manganese	mg/kg	946	100.0%	759	3	674	356	434	801	611	637	446 R
Mercury	mg/kg	2.9	86.7%	0.1	7	0.05 J	0.04 U	0.03 U	0.07 J	2.9	0.7	0.5 J
Nickel	mg/kg	117	100.0%	37	5	28.3	16.7	29.5	70.1	56.5	25.2	30.6
Potassium	mg/kg	2980	100.0%	1548	6	2110	1110	1230	1810	1620	1280	1430
Selenium	mg/kg	0.74	60.0%	2	0	0.24 J	0.13 UJ	0.21 UJ	0.25 UJ	0.25 J	0.15 UJ	0.68 J
Silver	mg/kg	11.3	46.7%	0.5	6	1.4 UJ	1 UJ	0.97 UJ	2.4	1.5 J	1 U	1.2 U
Sodium	mg/kg	1660	100.0%	114	10	66.3 J	136 J	146 J	288 J	296 J	111 J	75.1 J
Vanadium	mg/kg	31.8	100.0%	150	0	31.8	13.3	17	24.5	19.5	17.3	23.8
Zinc	mg/kg	7980	100.0%	90	12	83.2 R	65 R	77.3 R	3600	7980	377	139
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen	mg/kg	2.2	100.0%	NA	NA	0.47	0.27	0.05	0.27	1.09	0.02	0.81
Total Solids	%W/W	92.2	100.0%	NA	NA	81.1	89.1	92.2	86.5	83.2	83.5	81.3
Total Petroleum Hydrocarbons	mg/kg	6000	100.0%	NA	NA	64	65	67	2700	1350	66	103

TABLE 4.1-2

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-11 8 11/20/93 TP11-2.2 205267	SOIL SEAD-11 8.5 11/20/93 TP11-2.3 205268	SOIL SEAD-11 0-2 12/14/93 TP11-3.1 206880	SOIL SEAD-11 2-4 12/14/93 TP11-3.2 206881	SOIL SEAD-11 4-6 12/14/93 TP11-3.3 206882	SOIL SEAD-11 0-2 12/14/93 TP11-4.1 206883	SOIL SEAD-11 2-4 12/16/93 TP11-4.2 206884	SOIL SEAD-11 4-6 12/16/93 TP11-4.3 206885
VOLATILE ORGANICS													
1,2-Dichloroethene (total)	ug/kg	61	13.3%	300(b)	0	12 U	12 U	33 U	4 J	3 J	11 U	12 U	11 U
Trichloroethene	ug/kg	460	66.7%	700	0	15	12 U	69	40	40	40	11 J	11 U
Tetrachloroethene	ug/kg	370	20.0%	1400	0	12 U	12 U	370	260	200	11 U	12 U	11 U
Toluene	ug/kg	3	20.0%	1500	0	1 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Ethylbenzene	ug/kg	3	6.7%	5500	0	3 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Xylene (total)	ug/kg	4	6.7%	1200	0	4 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
HERBICIDES													
2,4-DB	ug/kg	550	13.3%	NA	NA	550	60 U	61 U	59.0 U	58 U	59 U	63 U	56 UJ
2,4,5-T	ug/kg	7.6	6.7%	1900	0	5.9 U	6 U	6.1 U	7.6	5.8 U	5.9 U	6.3 U	5.6 UJ
Dalapon	ug/kg	2500	6.7%	NA	NA	150 U	150 U	150 U	150.0 U	140 U	140 U	2500	140 UJ
NITROAROMATICS													
1,3-Dinitrobenzene	ug/kg	770	6.7%	NA	NA	130 UJ	130 UJ	130 U	130.0 U	770 J	130 U	130 U	130 U
2,4,6-Trinitrotoluene	ug/kg	130	6.7%	NA	NA	130 J	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
2-amino-4,6-Dinitrotoluene	ug/kg	680	6.7%	NA	NA	130 UJ	130 UJ	130 U	130.0 U	680 J	130 U	130 U	130 U
2,6-Dinitrotoluene	ug/kg	400	6.7%	1000	0	130 UJ	130 UJ	130 U	400.0 J	130 U	130 U	130 U	130 U
2,4-Dinitrotoluene	ug/kg	440	13.3%	NA	NA	170 J	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
SEMIVOLATILE ORGANICS													
Naphthalene	ug/kg	100000	67.0%	13000	3	100000	1700	19000 J	8600 J	21000 J	2500 J	400 J	370 U
2-Methylnaphthalene	ug/kg	28000	60.0%	36400	0	28000 J	460 J	7700 J	3200 J	7300 J	850 J	170 J	370 U
Acenaphthene	ug/kg	84000	60.0%	50000 *	1	84000	1400	28000 J	14000 J	25000 J	4100 J	1100 J	27 J
Dibenzofuran	ug/kg	60000	66.7%	6200	4	60000	1000 J	18000 J	7900 J	16000 J	2200 J	520 J	370 U
Fluorene	ug/kg	88000	66.7%	50000 *	1	88000	1600	27000 J	14000 J	24000 J	3300 J	1000 J	370 U
Phenanthrene	ug/kg	350000	73.3%	50000 *	4	350000	9200	210000 J	110000	180000	40000	9700	240 J
Anthracene	ug/kg	150000	73.3%	50000 *	1	150000	2800	49000 J	27000 J	44000 J	7700	2200	49 J
Carbazole	ug/kg	81000	53.3%	50000 *	1	81000	1600	33000 J	16000 J	30000 J	6400 J	1300 J	370 U
Fluoranthene	ug/kg	350000	80.0%	50000 *	5	350000	11000	320000 J	150000	230000	54000	14000	400
Pyrene	ug/kg	280000	73.3%	50000 *	4	280000	7800	190000 J	120000	140000	38000	12000	340 J
Benzo(a)anthracene	ug/kg	190000	73.3%	220	8	190000	4600	110000 J	67000	79000	20000	6600	160 J
Chrysene	ug/kg	170000	73.3%	400	8	170000	4300	110000 J	64000	74000	22000	6900	180 J
bis(2-Ethylhexyl)phthalate	ug/kg	61000	26.7%	50000 *	0	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	22 J
Benzo(b)fluoranthene	ug/kg	110000	73.3%	1100	8	99000	2900	110000 J	67000	68000	26000	8400	220 J
Benzo(k)fluoranthene	ug/kg	130000	73.3%	1100	8	130000	3700	94000 J	48000	66000	10000	3000	94 J
Benzo(a)pyrene	ug/kg	140000	73.3%	61	11	140000	3400	110000 J	60000	73000	19000	6100	160 J
Indeno(1,2,3-cd)pyrene	ug/kg	100000	73.3%	3200	6	100000	2300	60000 J	37000	45000 J	11000	3700	120 J
Dibenz(a,h)anthracene	ug/kg	52000	66.7%	14	11	52000	1200 J	16000 J	9300 J	12000 J	3500 J	1000 J	370 U
Benzo(g,h,i)perylene	ug/kg	53000	66.7%	50000 *	1	32000 J	630 J	53000 J	11000 J	39000 J	9100	2900	160 J

TABLE 4.1-2

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-11 8 11/20/93 TP11-2.2 205267	SOIL SEAD-11 8.5 11/20/93 TP11-2.3 205268	SOIL SEAD-11 0-2 12/14/93 TP11-3.1 206880	SOIL SEAD-11 2-4 12/14/93 TP11-3.2 206881	SOIL SEAD-11 4-6 12/14/93 TP11-3.3 206882	SOIL SEAD-11 0-2 12/14/93 TP11-4.1 206883	SOIL SEAD-11 2-4 12/16/93 TP11-4.2 206884	SOIL SEAD-11 4-6 12/16/93 TP11-4.3 206885
PESTICIDES/PCB													
alpha-BHC	ug/kg	24	6.7%	110	0	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
delta-BHC	ug/kg	15	20.0%	300	0	2 U	1.3 J	41 U	20 U	9.2 J	9.9 U	2.1 U	1.9 U
Dieldrin	ug/kg	29	20.0%	44	0	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
4,4'-DDE	ug/kg	1800	66.7%	2100	0	3.9 U	5 J	1800 J	1000 J	670 J	34 J	12 J	3.7 U
Endrin	ug/kg	49	26.7%	100	0	3.9 U	3 J	80 U	35 J	45 J	19 U	4.1 U	3.7 U
Endosulfan II	ug/kg	66	40.0%	900	0	3.9 U	4.3 J	66 J	36 J	31 J	14 J	4.1 U	3.7 U
4,4'-DDD	ug/kg	1400	53.3%	2900	0	3.9 U	4 U R	1400 J	630 J	320 J	13 J	4.8 J	3.7 U
Endosulfan sulfate	ug/kg	2.5	7.7%	1000	0	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
4,4'-DDT	ug/kg	4300	73.3%	2100	2	3.9 U	11 J	4300 J	2400	1500	72	17	1.6 J
alpha-Chlordane	ug/kg	190	33.3%	540	0	2 U	11 J	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
METALS													
Aluminum	mg/kg	21700	100.0%	15523	2	8720	14000	21700	12100	12300	9660	15000	7170
Antimony	mg/kg	285	40.0%	5	2	12.3 UJ	10.6 UJ	8.6 J	4 J	11.3 J	25.3 J	5.2 UJ	4.1 UJ
Arsenic	mg/kg	23.2	100.0%	7.5	5	6.4	6.4	8.2	6.9	6.9	12.4	5.7	5.7
Barium	mg/kg	1090	100.0%	300	4	68.6	119	415	133	477	244	131	44.1
Beryllium	mg/kg	0.93	100.0%	1	0	0.45 J	0.71 J	0.6 J	0.55 J	0.38 J	0.48 J	0.93 J	0.39 J
Cadmium	mg/kg	16	40.0%	1	6	0.77 U	0.66 U	9.2	3	16	5.6	0.51 U	0.4 U
Calcium	mg/kg	103000	100.0%	120725	0	83700	9090	73600	85300	41300	95300	4340	103000
Chromium	mg/kg	242	100.0%	24	7	15.5	19.5	78.2 J	41.4 J	172 J	242 J	21.3 J	25.9 J
Cobalt	mg/kg	27.5	100.0%	30	0	7.2 J	10.8	13.5	12.3	27.5	11.1	10.4 J	6.6 J
Copper	mg/kg	1090	100.0%	25	10	121	25.7	1090 J	225 J	642 J	154 J	22.9 J	19.4 J
Iron	mg/kg	118000	100.0%	28986	6	19100	27400	34800	30200	118000	27100	28300	15100
Lead	mg/kg	4050	100.0%	30	6	82.5	84.9	1170 R	474 R	1330 R	1890 R	27.3 R	161 R
Magnesium	mg/kg	44600	100.0%	12308	5	21100	6010	6860	12700	9190	44600	3710	26300
Manganese	mg/kg	946	100.0%	759	3	480	868	648	512	946	440	602	420
Mercury	mg/kg	2.9	86.7%	0.1	7	0.07 J	0.08 J	0.4	0.4	0.41	0.37	0.04 J	0.02 J
Nickel	mg/kg	117	100.0%	37	5	20.4	30.1	45.2	41.3	117	33	25	20.2
Potassium	mg/kg	2980	100.0%	1548	6	1080 J	1220	2980	2380	2040	1450	1530	1200
Selenium	mg/kg	0.74	60.0%	2	0	0.2 UJ	0.26 UJ	0.58 J	0.66 J	0.74 J	0.7 J	0.6 J	0.17 J
Silver	mg/kg	11.3	46.7%	0.5	6	1.6 U	1.3 U	10.8	5.2	11.3	1.3 J	1 U	0.81 U
Sodium	mg/kg	1660	100.0%	114	10	226 J	102 J	1660	315 J	508 J	236 J	48 U	156 J
Vanadium	mg/kg	31.8	100.0%	150	0	14.1	22.7	31	24.1	30.2	18.7	26.1	12.9
Zinc	mg/kg	7980	100.0%	90	12	153	111	1250	777	1720	632	99.7	92.4
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	2.2	100.0%	NA	NA	0.87	0.34	0.36	0.7	0.55	0.59	2.2	0.62
Total Solids	%W/W	92.2	100.0%	NA	NA	84.7	83.3	81.6	85.3	85.6	86.1	80	89.9
Total Petroleum Hydrocarbons	mg/kg	6000	100.0%	NA	NA	6000	48	960	1060	970	560	320	104

Notes:
a) * = As per proposed TAGM, total VOCs < 10ppm; total Semi-VOCs <500ppm; individual semi-VOCs < 50 ppm.
b) The TAGM for 1,2-Dichloroethene (trans) was used for 1,2-Dichloroehtene(total) since it was the only value available.
c) NA = Not Available
d) U = Compound was not detected.
e) J = the reported value is an estimated concentration.
f) R = the data was rejected in the data validating process.
g) UJ = the compound was not detected; the associated reporting limit is approximate.
h) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994. Soil cleanup objectives are based on a soil organic carbon content estimate of 1% .

4.1.3.1 Volatile Organic Compounds

Surface Soils

Two VOCs were found in 3 of the surface soil samples collected at SEAD-11. None of the volatile organic compounds were detected at concentrations above the associated TAGM values. The compound trichloroethene, which was the most prevalent, was found in 80% of the surface soil samples, at a maximum concentration of 410 μg/kg in surface soil sample TP11-1.1. The compound tetrachloroethene was found at a maximum concentration of 370 μg/kg in surface soil sample TP11-3.1.

Subsurface Soils

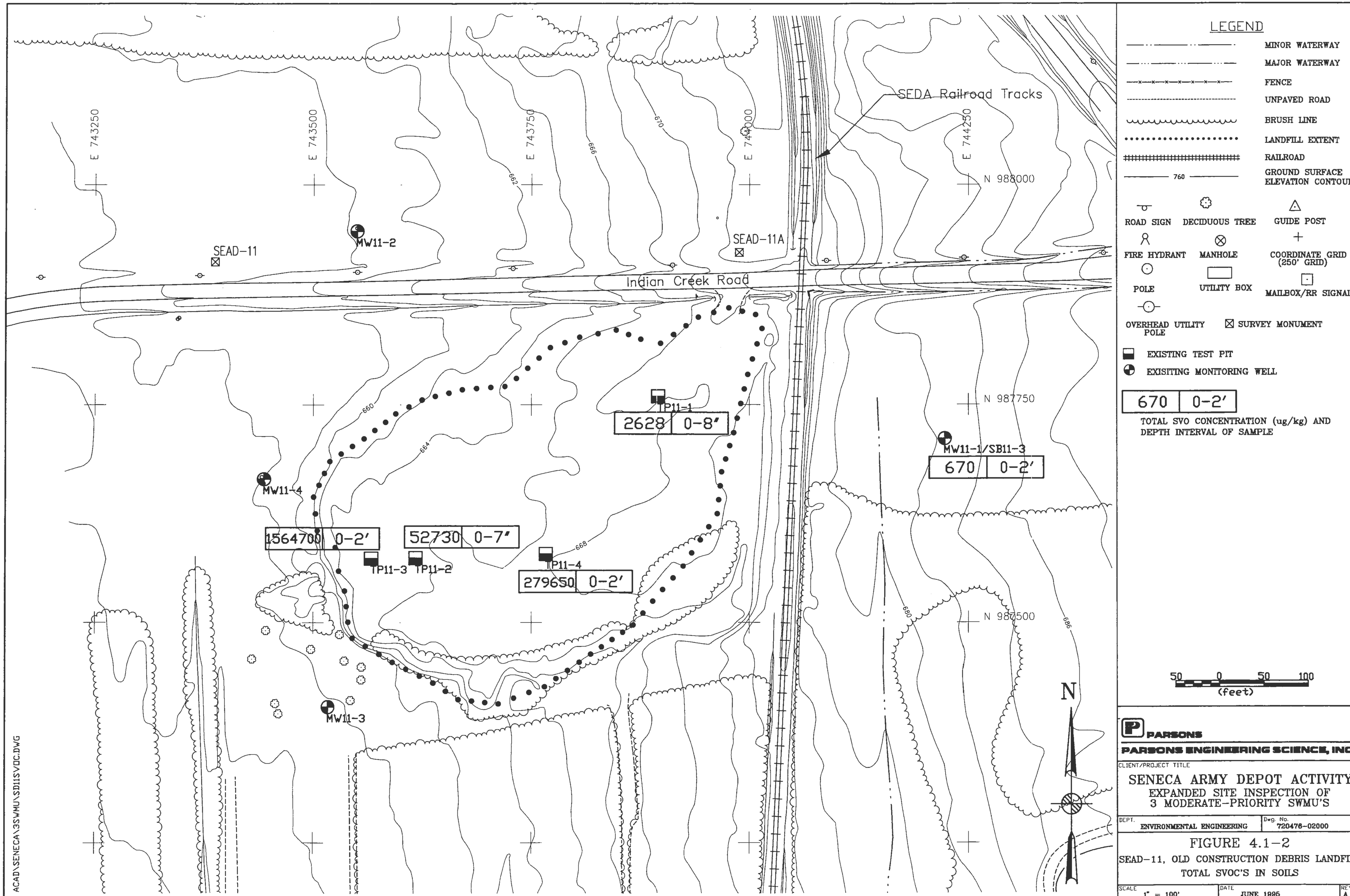
A total of 6 VOCs were detected in the subsurface soil samples analyzed. None of the VOCs were detected at concentrations which exceeded their associated TAGM values. Trichloroethene was detected in 7 of the 10 subsurface soil samples at a maximum concentration of 460 μg/kg. The compounds tetrachloroethene, 1,2 dichloroethene, ethylbenzene, and xylene were found only in one or two samples each. Toluene was found in 3 samples at a maximum concentration of 3J μg/kg.

4.1.3.2 Semi-Volatile Organic Compounds

Surface Soils

A total of 19 SVOCs were found at varying concentrations in the 5 surface soil samples analyzed. Figure 4.1-2 shows the total SVOC concentrations for the surface and test pit soil samples collected at SEAD-11.

With the exception of bis(2-ethylhexyl)phthalate, all of the semivolatile organic compounds detected were PAHs, which were likely derived from petroleum products. The PAHs were more widespread than the volatiles with most detected in 60 to 80% of the surface soil samples analyzed. All of the PAHs were found in the samples collected at the four test pit locations. None were detected in sample SB11-3.1 which was collected from the upgradient monitoring well location (MW11-1). Three surface soil samples exceeded the TAGM for benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene. All four surface soil samples collected from within the old construction debris landfill exceeded the TAGM for benzo(a)pyrene and dibenz(a,h)anthracene.



LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760
GROUND SURFACE ELEVATION CONTOUR
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
EXISTING TEST PIT
EXISITING MONITORING WELL
670 0-2'
TOTAL SVO CONCENTRATION (ug/kg) AND DEPTH INTERVAL OF SAMPLE
SEDA Railroad Tracks
Indian Creek Road
E 743250
E 743500
E 743750
E 744000
E 744250
N 988000
N 987750
N 987500
SEAD-11
SEAD-11A
MW11-2
MW11-4
MW11-3
MW11-1/SB11-3
670 0-2'
TP11-1
2628 0-8'
1564700 0-2'
52730 0-7'
TP11-3
TP11-2
TP11-4
279650 0-2'
660
662
664
666
668
670
680
686
N
50 0 50 100
(feet)
ACAD\SENECA\3SWMU\SD11SVOC.DWG
PARSONS
PARSONS ENGINEERING SCIENCE, INC.
CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S
DEPT. ENVIRONMENTAL ENGINEERING
Dwg. No. 720476-02000
FIGURE 4.1-2
SEAD-11, OLD CONSTRUCTION DEBRIS LANDFILL TOTAL SVOC'S IN SOILS
SCALE 1" = 100'
DATE JUNE 1995
REV A

Subsurface Soil Samples

The occurrence and distribution of PAHs which were observed in the subsurface soils of the Construction Debris landfill were similar to those observed in the surface soil samples analyzed. The 19 SVOs which were detected in the surface soils were also detected in the subsurface soil samples. One phthalate compound (bis(2ethylhexyl)phthalate) and 18 PAHs were detected in the subsurface soils collected from the test pit excavations. No SVOs were detected in the upgradient subsurface soil boring samples.

Five subsurface samples had reported concentrations of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluroanthene which exceeded their respective TAGM values by up to 2 orders of magnitude. Six subsurface soil samples exceeded the TAGM value of 14 μg/kg for dibenz(a,h)anthracene and seven subsurface soil samples exceeded the TAGM of 61 μg/kg for benzo(a)pyrene.

The sampling results indicated that high concentrations were present in the test pits, with almost all maximum concentrations found in soil sample TP11-2.2 collected on the west side of the landfill at a depth of approximately 8 feet.

4.1.3.3 Pesticides and PCBs

Surface Soils

Six pesticides were found in the surface soil samples collected from within the old construction debris landfill at SEAD-11. No pesticides were detected in the surface soil sample collected at SB11-3, the upgradient sampling location. The compound 4,4'DDT was reported in sample TP11-3.1 at a concentration of 4300J μg/kg. This was the only reported pesticide compound concentration in the surface soil samples that exceeded a TAGM value. The remaining pesticide detections were all reported at concentrations below the associated TAGM value. No PCBs were detected in the surface soil sample analyzed.

Subsurface Soils

Ten pesticides were found in the subsurface soil samples collected from the test pit excavations at SEAD-11. No pesticides were detected in the subsurface soil samples collected from SB11-3, the upgradient sampling location. The compound 4,4'DDT was reported in sample TP11-3.2 at a concentration of 2,400 μg/kg. This was the only reported pesticide concentration in the subsurface soil samples that exceeded its associated TAGM value. No PCBs were detected in the subsurface soil samples analyzed.

4.1.3.4 Herbicides

Surface Soils

2,4-DB was the only herbicide detected in the surface soil samples analyzed. It was found only in sample TP11-1.1 at a concentration of 75 μg/kg. There is no TAGM for 2,4-DB in soil.

Subsurface Soils

Three herbicides were detected in the subsurface soil samples collected at the site. No herbicides were found at concentrations above their associated TAGM values. Dalapon was detected in sample TP11-4.2 at a concentration of 2500 μg/kg. 2,4-DB was detected in sample TP11-2.2 at a concentration 550 μg/kg. The final herbicide detected, 2,4,5-T, was found in the subsurface soil sample TP11.3-2 at a concentration of 7.6 μg/kg.

4.1.3.5 Metals

Surface Soils

A number of surface soil samples were found to contain various metals at concentrations that exceeded their associated TAGM values. Of the 22 metals reported, 17 of these were found in one or more of the surface soil samples at concentrations above their TAGM values. In particular, several of the metals were identified at highly elevated concentrations and/or in a large number of samples above their TAGM values. Of particular note are the metals copper and zinc, where a large percentage of the surface soil samples exceed their respective TAGM values and where the concentrations of the exceedances are generally an order of magnitude or greater above the TAGM value. The maximum concentration of copper, 1090J mg/kg, was identified in the surface soil sample TP11-3.1 which was collected approximately in the center of the landfill. This sample also had an elevated concentration of zinc (1250 mg/kg). The maximum concentration of zinc in surface soils, 3,600 mg/kg, was identified in the surface soil sample TP11-1.1. This test pit is located on the east side of the landfill.

Subsurface Soils

All of the subsurface soil samples were found to contain various metals at concentrations that exceeded their associated TAGM values. Of the 22 metals reported, 16 or these were found at concentrations above their respective TAGM values. In general, the distribution and concentrations of the elements found above TAGM in the subsurface soil samples from any particular location were similar to those found in the surface soil sample collected at the same location. The exceptions were the subsurface soil samples collected from test pit TP11-4, where only four elements were detected at concentrations which slightly exceeded their respective TAGM values (ten elements exceeded TAGM values in the surface soil sample collected at this location). Of particular note are the metals copper and zinc, where a large percentage of the subsurface soil samples exceeded their respective TAGM values and where the concentrations of the exceedances were generally an order of magnitude or greater above the TAGM values. The highest concentration of copper, 642J μg/kg, was identified in the subsurface soil sample TP11-3.3. This sampling location (test pit TP11-3) also had the highest concentration of copper detected in the surface soil samples collected from SEAD-11. The highest concentration of zinc, 7,980 mg/kg, was found in subsurface soil sample TP11-1.2. This sampling location (test pit TP11-1) also had the highest concentration of zinc detected in the surface soil samples collected from SEAD-11.

4.1.3.6 Nitroaromatics

Surface Soils

No nitroaromatics were found in the surface soil samples analyzed.

Subsurface Soils

Five nitroaromatic compounds were found at low concentrations in the subsurface soil samples collected at SEAD-11. Most were detected in only one sample, except for 2,4-dinitrotoluene which was detected in two samples. The four soil samples in which nitroaromatic compounds were found were TP11-1.3, TP11-2.2, TP11-3.2, and TP11-3.3.

4.1.3.7 Indicator Compounds

Surface Soils

Nitrate/nitrite nitrogen and TPH were detected in all of the surface soil samples analyzed. Nitrate/nitrite nitrogen concentrations ranged from 0.27 to 0.81 mg/kg. The reported TPH concentrations ranged from 64 mg/kg (in sample SB11-3.1) to 2,700 mg/kg in sample TP11-1.1. Neither of these indicator compounds have associated TAGM values.

Subsurface Soils

Nitrate/nitrite nitrogen and TPH were detected in all of the subsurface soil samples analyzed. The reported concentrations of nitrate/nitrite nitrogen ranged from 0.02 mg/kg (in sample TP11-1.3) to 2.2 mg/kg (in sample TP11-4.2). The reported concentrations of TPH ranged from 48 mg/kg (in sample TP11-2.3) to 6,000 mg/kg (in sample TP11-2.2) neither of these indicator compounds have associated TAGM values.

4.1.4 Groundwater

Four monitoring wells were installed and sampled as part of the SEAD-11 investigation. The summary results of the chemical analysis of these samples are presented in Table 4.1-3. The following sections describe the nature and extent of groundwater contamination identified at SEAD-11.

4.1.4.1 Volatile Organic Compounds

No VOCs were found in the four groundwater samples collected at SEAD-11.

4.1.4.2 Semi-Volatile Organic Compounds

The SVOC diethylphthalate was detected in two of the four groundwater samples analyzed. The maximum value, 0.5J μg/L, was reported in both monitoring wells MW11-1 and MW11-2. This concentration is well below the NYS AWQS criteria value of 50 μg/L for class GA water.

TABLE 4.1-3

GROUNDWATER ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	NY AWQS CLASS GA (a)	MCL STANDARDS	NO. ABOVE CRITERIA	WATER SEAD-11 01/18/94 MW11-1 209093	WATER SEAD-11 01/18/94 MW11-2 209094	WATER SEAD-11 01/24/94 MW11-3 209335	WATER SEAD-11 01/24/94 MW11-5 209337 MW11-3DUP	WATER SEAD-11 11/16/93 MW11-4 204663
NITROAROMATICS											
2,4,6-Trinitrotoluene	ug/L	0.43	25.0%	5	NA	0	0.13 U	0.13 U	0.13 U	0.13 U	0.43 J
SEMIVOLATILE ORGANICS											
Diethylphthalate	ug/L	0.5	50.0%	50	NA	0	0.5 J	0.5 J	11 U	10 U	11 U
METALS											
Aluminum	ug/L	254	100.0%	NA	NA	NA	53.7 J	88.3 J	150 J	161 J	254
Arsenic	ug/L	1.1	25.0%	25	50	0	0.8 U	0.79 U	0.8 U	1.1 J	1 U
Barium	ug/L	53.4	100.0%	1000	2000	0	25.2 J	38.2 J	38.6 J	37.1 J	53.4 J
Calcium	ug/L	223000	100.0%	NA	NA	NA	97500	109000	223000	215000	137000
Cobalt	ug/L	7.2	25.0%	NA	NA	NA	4.4 U	4.4 U	4.4 J	7.2 J	4.9 U
Iron	ug/L	653	100.0%	300	NA	2	41.4 J	200	384	308	653
Lead	ug/L	33.7	75.0%	25	15(g)	1	1.1 J	2 J	33.7 J	0.5 U	0.6 U
Magnesium	ug/L	41900	100.0%	35000	NA	1	29700	28100	41900	40000	28300
Manganese	ug/L	281	100.0%	300	NA	0	278	218	233	204	281
Mercury	ug/L	0.04	50.0%	2	2	0	0.04 U	0.04 J	0.04 J	0.04 J	0.07 UJ
Potassium	ug/L	13600	100.0%	NA	NA	NA	7100	8300	8660	9310	13600
Selenium	ug/L	2	50.0%	10	50	0	0.7 U	0.69 U	1.6 J	2 J	1.3 J
Sodium	ug/L	36700	100.0%	20000	NA	1	4860 J	36700	17200	15900	16900
Zinc	ug/L	34.3	100.0%	300	NA	0	21.4	34.3	18.3 J	15.9 J	3.8 J
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/L	0.8	100.0%	10	10	0	0.19	0.09	0.18	0.21	0.8
Total Petroleum Hydrocarbons	mg/L	1.81	75.0%	NA	NA	NA	0.4	0.36 U	1.81	1.34	0.76
pH	standard units	7.5					7.5	7.4	7.11		7.35
Specific Conductivity	umhos/cm	725					380	500	725		650
Turbidity	NTU	13.9					0.6	2.3	13.9		NA(Clear)

NOTES:

a) NY State Class GA Groundwater Regulations
b) NA = Not Available
c) U = compound was not detected
d) J = the report value is an estimated concentration
e) UJ = the compound was not detected; the associated reporting limit is approximate
f) R = the data was rejected in the data validating process
g) The value listed is an action level for lead at the tap, and not an MCL standard

4.1.4.3 Pesticides and PCBs

No pesticides or PCBs were found in the four groundwater samples collected at SEAD-11.

4.1.4.4 Herbicides

No herbicides were found in the four groundwater samples collected at SEAD-11.

4.1.4.5 Metals

The four metals iron, lead, magnesium, and sodium were found in one or more of the groundwater samples at concentrations above the criteria value. Iron was found in two of the four monitoring wells at concentrations above the criteria value of 300 μg/L. The maximum iron concentration, 653 μg/L, was found in the sample collected from monitoring well MW11-4. Lead exceeded the criteria value of 25 μg/L in one well, MW11-3, which contained an estimated concentration of 33.7J μg/L. The metal sodium was found at a concentration above the criteria value of 20,000 μg/L in the sample collected from monitoring well MW11-2 (36,700 μg/L). Magnesium exceeded the NYSDEC Class GA criteria in one of the four wells sampled, MW11-3, which also contained the maximum concentration of 41,900 μg/L.

4.1.4.6 Nitroaromatics

The nitroaromatic compound, 2,4,6-trinitrotoluene was found in one sample collected from monitoring well MW11-4 at a concentration of 0.43J μg/L, which is below the NYSDEC Class GA groundwater standard of 5 μg/L.

4.1.4.7 Indicator Parameters

None of the four groundwater samples analyzed had nitrate concentrations above the criteria value of 10 mg/L. The maximum nitrate value detected was 0.19 mg/L in the sample MW11-1.

4.1.5 Tentatively Identified Compounds

Surface Soils

Tentatively identified compounds were detected at total concentrations of 426 mg/kg in surface soil sample TP11-3.1 and 81 mg/kg in surface soil sample TP11-4.1. The primary TICs detected in these two samples were 11H-benzo(a)fluorene, benzo(b)naphtho(2,3-d)furan, 4H-cyclopenta(def)phenanthrene, and benzo(e)pyrene. The highest reported concentrations of PAHs in surface soils (from Table 4.1-2) were also found in these two samples.

Subsurface Soils

Tentatively identified compounds were detected at total concentrations ranging from 55.6 to 997.0 mg/kg in 4 of the 10 subsurface soil samples analyzed. The total TIC concentrations in subsurface soil samples TP11-2.2 (997 mg/kg), TP11-2.3 (55.6 mg/kg), TP11-3.2 (335.2 mg/kg), and TP11-3.3 (376.0 mg/kg) included high concentrations of 11H-benzo(a)fluorene, benzo(e)pyrene, and 4H-cyclopenta(def)phenanthrene. The highest reported concentrations of PAHs in subsurface soils (from Table 4.1-2) were also found in these four samples.

4.2 SEAD-13

4.2.1 Introduction

A total of 10 surface soil samples and 20 subsurface soil samples were collected at SEAD-13. To assess the potential impact of the IRFNA disposal pits on adjacent surface water bodies, 3 surface water and 3 sediment samples were collected from the pond. Seven monitoring wells were also installed and sampled as part of this investigation. The following sections describe the nature and extent of contamination identified at SEAD-13.

4.2.2 Soil

The analytical results for the 10 surface and 20 subsurface soil samples collected as part of the SEAD-13 investigation are presented in Table 4.2-1. The following sections describe the nature and extent of contamination in SEAD-13 soils. The sample locations are shown in Figures 2.4-2.

4.2.2.1 Volatile Organic Compounds

Surface Soils

Four volatile organic compounds were detected in 3 of the 10 surface soil samples collected

TABLE 4.2-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (g)	NO. ABOV TAGM	SOIL SEAD-13 0-2 12/08/93 SB13-1.1 206397	SOIL SEAD-13 6-8 12/08/93 SB13-1.3 206398	SOIL SEAD-13 8-10 12/08/93 SB13-1.4 206399	SOIL SEAD-13 0-2 11/09/93 SB13-2.1 204003	SOIL SEAD-13 4-6 11/09/93 SB13-2.3 204004	SOIL SEAD-13 8-10 11/09/93 SB13-2.5 204005	SOIL SEAD-13 0-2 12/08/93 SB13-3.1 206400	SOIL SEAD-13 4-6 12/08/93 SB13-3.3 206401	SOIL SEAD-13 8-10 12/08/93 SB13-3.5 206402
VOLATILE ORGANICS														
Methylene Chloride	ug/kg	4	10.0%	100	0	12 U	3 J	4 J	11 UR	11 U	12 UJ	12 U	11 U	11 U
Acetone	ug/kg	86	3.3%	200	0	12 U	13 UJ	15 UR	11 UR	11 U	12 UJ	12 U	11 U	11 U
Carbon Disulfide	ug/kg	2	3.3%	2700	0	12 U	11 UJ	2 J	11 UR	11 U	12 UJ	12 U	11 U	11 U
Chloroform	ug/kg	2	3.3%	300	0	12 U	11 UJ	11 UR	11 UR	11 U	12 UJ	12 U	11 U	11 U
2-Butanone	ug/kg	26	3.3%	300	0	12 U	11 UJ	11 UR	11 UR	11 U	12 UJ	12 U	11 U	11 U
Toluene	ug/kg	6	6.7%	1500	0	12 U	11 UJ	11 UR	6 J	11 U	12 UJ	12 U	11 U	11 U
SEMIVOLATILE ORGANICS														
Phenol	ug/kg	14000	3.3%	30	1	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
1,4-Dichlorobenzene	ug/kg	3300	3.3%	85	1	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
4-Methylphenol	ug/kg	9200	3.3%	500	1	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Naphthalene	ug/kg	510	3.3%	13000	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Acenaphthene	ug/kg	650	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Dibenzofuran	ug/kg	340	3.3%	6200	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Phenanthrene	ug/kg	1400	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Carbazole	ug/kg	180	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Di-n-butylphthalate	ug/kg	20	3.3%	8100	0	400 U	360 U	20 J	360 U	380 U	370 U	400 U	370 U	360 U
Fluoranthene	ug/kg	800	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Pyrene	ug/kg	540	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
bis(2-Ethylhexyl)phthalate	ug/kg	1900	20.0%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
Di-n-octylphthalate	ug/kg	210	10.0%	50000 *	0	210 J	360 U	110 J	360 U	380 U	370 U	400 U	370 U	53 J
Benzo(g,h,i)perylene	ug/kg	20	3.3%	50000 *	0	400 U	360 U	350 U	360 U	380 U	370 U	400 U	370 U	360 U
PESTICIDES/PCB														
4,4'-DDE	ug/kg	3.6	3.3%	2100	0	4 U	3.6 U	3.5 U	3.6 J	3.8 U	3.7 U	4 U	3.7 U	3.6 U
METALS														
Aluminum	mg/kg	21200	100.0%	15523	8	18300	8250	11700	10700	12700	5700	10800	8720	13100
Antimony	mg/kg	5.8	23.3%	5	3	5.1 J	3.7 UJ	2.8 UJ	6.3 UJ	12.2 UJ	8.7 UJ	4.5 UJ	4.1 J	4.1 UJ
Arsenic	mg/kg	10.2	100.0%	7.5	8	7	6.2	5.7	5.6	5.4	5.3	5.5	6.7	6.5
Barium	mg/kg	584	100.0%	300	1	106	88.1	33.9	58.8	94.9	71.7	54.3	97.8	137
Beryllium	mg/kg	1.1	100.0%	1	2	0.92 J	0.42 J	0.54 J	0.52 J	0.62 J	0.27 J	0.52 J	0.43 J	0.65 J
Calcium	mg/kg	98100	100.0%	120725	0	3570	87700	50300	28800	61700	76100	83900	86900	64400
Chromium	mg/kg	35.8	100.0%	24	10	29.4	13.3	19.6	21.2	22.9	10.7	17.1	14.1	20.7
Cobalt	mg/kg	18.9	100.0%	30	0	12	7.2 J	11.1	11.3	12	7.4 J	10.2 J	8.8	12.8
Copper	mg/kg	45.2	100.0%	25	16	11.6	18.4	17.6	45.2	23.5	18.9	26.9	23.4	23.7
Iron	mg/kg	42500	100.0%	28986	9	32500	17400	24700	25000	27700	13600	23100	18500	26400
Lead	mg/kg	25.6	100.0%	30	0	15 R	9 R	11.7	25.6	9.3	7.7	10.6 R	11.9	14.1 R
Magnesium	mg/kg	25600	100.0%	12308	14	5890	20800	12600	5380	13300	21200	25600	21700	14300
Manganese	mg/kg	934	100.0%	759	1	451	517	404	336	445	411	443	390	446
Mercury	mg/kg	0.08	56.7%	0.1	0	0.03 J	0.07 J	0.02 U	0.04 J	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U
Nickel	mg/kg	57.1	100.0%	37	14	34.9	24	33.1	46.6	40.8	20	31.4	27.1	34.4
Potassium	mg/kg	2590	100.0%	1548	15	2190	1390	1270	1120	1410	1040	1150	1230	1980
Selenium	mg/kg	1.4	86.7%	2	0	0.26 J	0.56 J	0.51 J	0.83 J	0.53 J	0.32 J	0.14 U	0.14 U	0.64 J
Silver	mg/kg	1	3.3%	0.5	1	0.9 U	0.71 U	0.54 U	0.8 UJ	1.5 UJ	1.1 UJ	0.88 U	0.65 U	0.79 U
Sodium	mg/kg	196	100.0%	114	17	80.6 J	155 J	134 J	90.2 J	131 J	145 J	163 J	152 J	163 J
Thallium	mg/kg	0.91	43.3%	0.3	13	0.43 J	0.43 J	0.64 J	0.35 J	0.27 U	0.25 U	0.91 J	0.71 J	0.75 J
Vanadium	mg/kg	35.8	100.0%	150	0	32.7	13.3	16.3	19.3	21.4	12.2	17.1	14.1	19.3
Zinc	mg/kg	103	100.0%	90	5	81.9	56.2	45.8	63.6	78.6	45	62.4	46.9	62.3
OTHER ANALYSES														
Nitrate/Nitrite-Nitrogen	mg/kg	176	100.0%	NA	NA	0.1	0.02	0.02	0.31	129	176	0.04	5.6	4.8
Total Solids	%W/W	95.8		NA	NA	82.3	92.4	93.4	90.3	86.9	88.8	83.5	90	91.8
Fluoride	mg/kg	193	96.6%	NA	NA	68	55	99	80	138	135	125	170	142

TABLE 4.2-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (g)	NO. ABOV TAGM	SOIL SEAD-13 0-2 12/15/93 SB13-4.1 207023	SOIL SEAD-13 2-4 12/15/93 SB13-4.2 207024	SOIL SEAD-13 4-6 12/15/93 SB13-4.3 207025	SOIL SEAD-13 0-1 11/08/93 SB13-5.1 203820	SOIL SEAD-13 2-4 11/08/93 SB13-5.3 203821	SOIL SEAD-13 12-13 11/08/93 SB13-5.5 203822	SOIL SEAD-13 0-2 12/15/93 SB13-6.1 207026	SOIL SEAD-13 4-6 12/15/93 SB13-6.3 207027
VOLATILE ORGANICS													
Methylene Chloride	ug/kg	4	10.0%	100	0	12 U	11 U	11 U	11 U	11 U	11 U	13 U	11 U
Acetone	ug/kg	86	3.3%	200	0	12 U	11 U	11 U	11 U	11 U	11 U	86	11 U
Carbon Disulfide	ug/kg	2	3.3%	2700	0	12 U	11 U	11 U	11 U	11 U	11 U	13 U	11 U
Chloroform	ug/kg	2	3.3%	300	0	12 U	11 U	11 U	11 U	11 U	11 U	13 U	11 U
2-Butanone	ug/kg	26	3.3%	300	0	12 U	11 U	11 U	11 U	11 U	11 U	26	11 U
Toluene	ug/kg	6	6.7%	1500	0	12 U	11 U	11 U	11 U	11 U	2 J	13 U	11 U
SEMIVOLATILE ORGANICS													
Phenol	ug/kg	14000	3.3%	30	1	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
1,4-Dichlorobenzene	ug/kg	3300	3.3%	85	1	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
4-Methylphenol	ug/kg	9200	3.3%	500	1	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Naphthalene	ug/kg	510	3.3%	13000	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Acenaphthene	ug/kg	650	3.3%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Dibenzofuran	ug/kg	340	3.3%	6200	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Phenanthrene	ug/kg	1400	3.3%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Carbazole	ug/kg	180	3.3%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Di-n-butylphthalate	ug/kg	20	3.3%	8100	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Fluoranthene	ug/kg	800	3.3%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Pyrene	ug/kg	540	3.3%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
bis(2-Ethylhexyl)phthalate	ug/kg	1900	20.0%	50000 *	0	410 U	24 J	16 J	370 U	380 U	370 U	56 J	370 U
Di-n-octylphthalate	ug/kg	210	10.0%	50000 *	0	410 U	380 U	360 U	370 U	380 U	370 U	410 U	370 U
Benzo(g,h,i)perylene	ug/kg	20	3.3%	50000 *	0	410 U	20 J	360 U	370 U	380 U	370 U	410 U	370 U
PESTICIDES/PCB													
4,4'-DDE	ug/kg	3.6	3.3%	2100	0	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U	4.1 U	3.7 U
METALS													
Aluminum	mg/kg	21200	100.0%	15523	8	21200	15500	20400	13000	14000	8230	16000	13500
Antimony	mg/kg	5.8	23.3%	5	3	4 UJ	4.5 J	3.2 UJ	7.8 UJ	9 UJ	8.3 UJ	3.2 UJ	2.5 UJ
Arsenic	mg/kg	10.2	100.0%	7.5	8	8.1	6.8	9.6	4.6	6.3	4.7	4.6	2.7
Barium	mg/kg	584	100.0%	300	1	129	96.9	79.1	56.7	98.6	132	103	60.4
Beryllium	mg/kg	1.1	100.0%	1	2	1.1	0.78 J	1	0.63 J	0.63 J	0.4 J	0.92	0.71
Calcium	mg/kg	98100	100.0%	120725	0	28800	68000	10200	21600	25700	88000	5140	31800
Chromium	mg/kg	35.8	100.0%	24	10	30.2	25.8	35.8	25.4	23.3	14.8	21.5	23.5
Cobalt	mg/kg	18.9	100.0%	30	0	10.6	12.4	12.1	13.1	8.8	9.9	10.6	15
Copper	mg/kg	45.2	100.0%	25	16	21.6	21.1	26.5	31.2	26.4	26.5	16	27.4
Iron	mg/kg	42500	100.0%	28986	9	31600	30100	42500	28600	24300	19600	25300	26900
Lead	mg/kg	25.6	100.0%	30	0	13.6	13.6	7.1	21.3	12.8	8.3	13.8	11.6
Magnesium	mg/kg	25600	100.0%	12308	14	8780	10600	9660	6740	8990	20700	3750	6640
Manganese	mg/kg	934	100.0%	759	1	363	607	398	335	273	461	934	508
Mercury	mg/kg	0.08	56.7%	0.1	0	0.05 J	0.01 J	0.02 J	0.04 J	0.02 U	0.02 U	0.03 J	0.01 U
Nickel	mg/kg	57.1	100.0%	37	14	38.1	43.2	53	46.1	36.8	29	22.7	41.9
Potassium	mg/kg	2590	100.0%	1548	15	2130	1570	1810	1350	1630	1260	1330	1120
Selenium	mg/kg	1.4	86.7%	2	0	0.53 J	0.2 J	0.28 J	0.58 J	0.26 J	0.59 J	1.2	0.11 J
Silver	mg/kg	1	3.3%	0.5	1	0.77 U	0.69 U	0.63 U	0.99 UJ	1.1 UJ	1 UJ	0.62 U	0.49 U
Sodium	mg/kg	196	100.0%	114	17	81.5 J	183 J	87.8 J	94.7 J	87 J	187 J	61.9 J	116 J
Thallium	mg/kg	0.91	43.3%	0.3	13	0.22 U	0.2 U	0.18 U	0.2 U	0.27 U	0.19 U	0.18 U	0.14 U
Vanadium	mg/kg	35.8	100.0%	150	0	35.8	23.1	30.7	20	23.7	15.1	29.9	18.5
Zinc	mg/kg	103	100.0%	90	5	89.4	65.8	93	53.2	64.4	51.4	62.5	64.7
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	176	100.0%	NA	NA	0.09	0.2	0.09	0.04	0.07	0.06	0.55	0.9
Total Solids	%W/W	95.8		NA	NA	80.3	87	91.6	89	87.1	88.1	80.5	90.5
Fluoride	mg/kg	193	96.6%	NA	NA	64	91	2.2 U	56	124	193	78	50

TABLE 4.2-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (g)	NO. ABOV TAGM	SOIL SEAD-13 6-8 12/15/93 SB13-6.4 207028	SOIL SEAD-13 0-2 12/07/93 SB13-7.1 206405	SOIL SEAD-13 0-2 12/07/93 SB13-7.10 206408 SB13-7.1DUP	SOIL SEAD-13 2-4 12/07/93 SB13-7.2 206406	SOIL SEAD-13 6-8 12/07/93 SB13-7.4 206407	SOIL SEAD-13 0-2 12/07/93 SB13-8.1 206409	SOIL SEAD-13 2-4 12/07/93 SB13-8.2 206410	SOIL SEAD-13 4-6 12/07/93 SB13-8.3 206411
VOLATILE ORGANICS													
Methylene Chloride	ug/kg	4	10.0%	100	0	11 U	12 U	12 UJ	12 U	11 U	13 U	11 U	11 U
Acetone	ug/kg	86	3.3%	200	0	11 U	12 U	12 UJ	14 U	11 U	13 U	11 U	11 U
Carbon Disulfide	ug/kg	2	3.3%	2700	0	11 U	12 U	12 UJ	12 U	11 U	13 U	11 U	11 U
Chloroform	ug/kg	2	3.3%	300	0	11 U	12 U	2 J	12 U	11 U	13 U	11 U	11 U
2-Butanone	ug/kg	26	3.3%	300	0	11 U	12 U	12 UJ	12 U	11 U	13 U	11 U	11 U
Toluene	ug/kg	6	6.7%	1500	0	11 U	12 U	12 UJ	12 U	11 U	13 U	11 U	11 U
SEMIVOLATILE ORGANICS													
Phenol	ug/kg	14000	3.3%	30	1	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
1,4-Dichlorobenzene	ug/kg	3300	3.3%	85	1	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
4-Methylphenol	ug/kg	9200	3.3%	500	1	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Naphthalene	ug/kg	510	3.3%	13000	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Acenaphthene	ug/kg	650	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Dibenzofuran	ug/kg	340	3.3%	6200	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Phenanthrene	ug/kg	1400	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Carbazole	ug/kg	180	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Di-n-butylphthalate	ug/kg	20	3.3%	8100	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Fluoranthene	ug/kg	800	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Pyrene	ug/kg	540	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
bis(2-Ethylhexyl)phthalate	ug/kg	1900	20.0%	50000 *	0	24 J	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Di-n-octylphthalate	ug/kg	210	10.0%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
Benzo(g,h,i)perylene	ug/kg	20	3.3%	50000 *	0	350 U	390 U	390 U	400 U	370 U	440 U	400 U	360 U
PESTICIDES/PCB													
4,4'-DDE	ug/kg	3.6	3.3%	2100	0	3.5 U	3.9 U	3.9 U	4 U	3.7 U	4.4 U	4 U	3.6 U
METALS													
Aluminum	mg/kg	21200	100.0%	15523	8	10200	9810	14900	14200	8490	15500	19600	9710
Antimony	mg/kg	5.8	23.3%	5	3	2.9 UJ	4.4 UJ	4.5 UJ	4.7 J	3.6 UJ	5.4 UJ	3.1 UJ	5.7 J
Arsenic	mg/kg	10.2	100.0%	7.5	8	2.3	10	8.5	6.2	5.9	8.2	10.2	6
Barium	mg/kg	584	100.0%	300	1	56.8	37.3 J	89.5	79.1	62.7	125	96	119
Beryllium	mg/kg	1.1	100.0%	1	2	0.58 J	0.43 J	0.79 J	0.7 J	0.42 J	0.95 J	0.97	0.48 J
Calcium	mg/kg	98100	100.0%	120725	0	45200	25400	11000	33100	74800	6540	4010	76600
Chromium	mg/kg	35.8	100.0%	24	10	17.8	17.6	21.7	23	14.4	22	32.4	15.3
Cobalt	mg/kg	18.9	100.0%	30	0	11.3	9.9 J	8.8 J	13.1	11.5	8.1 J	18.9	10.6
Copper	mg/kg	45.2	100.0%	25	16	14.5	31.8	26.9	27.6	21.6	19.4	31.5	22.2
Iron	mg/kg	42500	100.0%	28986	9	20700	23000	24800	29500	18400	25500	41100	19600
Lead	mg/kg	25.6	100.0%	30	0	11.7	26.8 R	31.6	17.9 R	10.5	19 R	10 R	11.2
Magnesium	mg/kg	25600	100.0%	12308	14	5220	4800	4850	18400	17200	4130	7940	19500
Manganese	mg/kg	934	100.0%	759	1	556	313	266	518	466	358	687	380
Mercury	mg/kg	0.08	56.7%	0.1	0	0.01 U	0.05 J	0.08 J	0.03 J	0.02 U	0.06 J	0.02 J	0.02 U
Nickel	mg/kg	57.1	100.0%	37	14	33	38.7	31.9	38.1	34	24.7	55.6	31.4
Potassium	mg/kg	2590	100.0%	1548	15	1000	1080	1950	1840	1150	1660	1420	1590
Selenium	mg/kg	1.4	86.7%	2	0	0.24 J	0.72 J	0.65 J	0.14 U	0.26 J	0.98 J	0.29 J	0.14 U
Silver	mg/kg	1	3.3%	0.5	1	0.56 U	0.86 U	0.87 U	0.89 U	0.7 U	1.1 U	0.6 U	0.84 U
Sodium	mg/kg	196	100.0%	114	17	141 J	86.3 J	77.2 J	108 J	148 J	63.9 J	62 J	144 J
Thallium	mg/kg	0.91	43.3%	0.3	13	0.23 U	0.55 J	0.47 J	0.78 J	0.62 J	0.3 J	0.5 J	0.75 J
Vanadium	mg/kg	35.8	100.0%	150	0	13.8	16.1	24.2	22.9	13.3	26.7	27.1	15.8
Zinc	mg/kg	103	100.0%	90	5	39.3	47.1	84.3	75.4	47.4	91.2	103	68.5
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	176	100.0%	NA	NA	0.09	0.11	0.02	0.15	0.03	3.1	0.31	0.03
Total Solids	%W/W	95.8		NA	NA	93.4	83.8	85.1	82.5	90.5	74.6	82.8	90.7
Fluoride	mg/kg	193	96.6%	NA	NA	62	154	72	158	171	24	47	11.7

TABLE 4.2-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (g)	NO. ABOV TAGM	SOIL SEAD-13 0-2 12/16/93 SB13-9.1 207029	SOIL SEAD-13 0-2 12/16/93 SB13-9.7 207031 SB13-9.1DUP	SOIL SEAD-13 6-8 12/16/93 SB13-9.4 207182	SOIL SEAD-13 10-12 12/16/93 SB13-9.6 207183	SOIL SEAD-13 0-2 12/17/93 SB13-10.1 207184	SOIL SEAD-13 0-2 12/17/93 SB13-10.10 207188 SB13-10.1DUP	SOIL SEAD-13 6-8 12/17/93 SB13-10.4 207186	SOIL SEAD-13 8-10 12/18/93 SB13-10.5 207187
VOLATILE ORGANICS													
Methylene Chloride	ug/kg	4	10.0%	100	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	2 J
Acetone	ug/kg	86	3.3%	200	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	10 UJ
Carbon Disulfide	ug/kg	2	3.3%	2700	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	10 UJ
Chloroform	ug/kg	2	3.3%	300	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	10 UJ
2-Butanone	ug/kg	26	3.3%	300	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	10 UJ
Toluene	ug/kg	6	6.7%	1500	0	12 U	12 U	11 U	11 U	12 U	12 U	11 U	10 UJ
SEMIVOLATILE ORGANICS													
Phenol	ug/kg	14000	3.3%	30	1	430 U	400 U	360 U	350 U	14000 J	370 UJ	340 U	320 U
1,4-Dichlorobenzene	ug/kg	3300	3.3%	85	1	430 U	400 U	360 U	350 U	3300 J	370 UJ	340 U	320 U
4-Methylphenol	ug/kg	9200	3.3%	500	1	430 U	400 U	360 U	350 U	9200 J	370 UJ	340 U	320 U
Naphthalene	ug/kg	510	3.3%	13000	0	430 U	400 U	360 U	350 U	510 J	370 UJ	340 U	320 U
Acenaphthene	ug/kg	650	3.3%	50000 *	0	430 U	400 U	360 U	350 U	650 J	370 UJ	340 U	320 U
Dibenzofuran	ug/kg	340	3.3%	6200	0	430 U	400 U	360 U	350 U	340 J	370 UJ	340 U	320 U
Phenanthrene	ug/kg	1400	3.3%	50000 *	0	430 U	400 U	360 U	350 U	1400 J	370 UJ	340 U	320 U
Carbazole	ug/kg	180	3.3%	50000 *	0	430 U	400 U	360 U	350 U	180 J	370 UJ	340 U	320 U
Di-n-butylphthalate	ug/kg	20	3.3%	8100	0	430 U	400 U	360 U	350 U	3900 UJ	370 UJ	340 U	320 U
Fluoranthene	ug/kg	800	3.3%	50000 *	0	430 U	400 U	360 U	350 U	800 J	370 UJ	340 U	320 U
Pyrene	ug/kg	540	3.3%	50000 *	0	430 U	400 U	360 U	350 U	540 J	370 UJ	340 U	320 U
bis(2-Ethylhexyl)phthalate	ug/kg	1900	20.0%	50000 *	0	62 J	27 J	360 U	350 U	1900 J	370 UJ	340 U	320 U
Di-n-octylphthalate	ug/kg	210	10.0%	50000 *	0	430 U	400 U	360 U	350 U	3900 UJ	370 UJ	340 U	320 U
Benzo(g,h,i)perylene	ug/kg	20	3.3%	50000 *	0	430 U	400 U	360 U	350 U	3900 UJ	370 UJ	340 U	320 U
PESTICIDES/PCB													
4,4'-DDE	ug/kg	3.6	3.3%	2100	0	4.3 U	4 U	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U	3.4 U
METALS													
Aluminum	mg/kg	21200	100.0%	15523	8	18300	14200	12000	13800	12000	18500	12100	17100
Antimony	mg/kg	5.8	23.3%	5	3	5.6 UJ	4 UJ	5.8 J	4.6 J	4.4 UJ	5 J	3.7 UJ	4.1 UJ
Arsenic	mg/kg	10.2	100.0%	7.5	8	7.8	5.3	8	5.5	3.8	5.7	6.6	4.5
Barium	mg/kg	584	100.0%	300	1	124	105	191	173	72.2	157	174	584
Beryllium	mg/kg	1.1	100.0%	1	2	1.1 J	0.79 J	0.69 J	0.73 J	0.63 J	0.91 J	0.72 J	0.88 J
Calcium	mg/kg	98100	100.0%	120725	0	4800	7980	98100	78900	2070	4220	78900	32500
Chromium	mg/kg	35.8	100.0%	24	10	26.2	20.2	21.2	24.6	16.2	27.2	20.1	30.8
Cobalt	mg/kg	18.9	100.0%	30	0	10.3 J	7.9 J	13.8	10.4	4.3 J	8.2 J	17.8	18.6
Copper	mg/kg	45.2	100.0%	25	16	27.8	24.2	44	32.7	7.5 J	26.6 J	33.7	17.1
Iron	mg/kg	42500	100.0%	28986	9	31700	24300	25200	26800	16500	29000	25800	36800
Lead	mg/kg	25.6	100.0%	30	0	13.3	14.4	14.4	10.4	9	11	14.8	12.5
Magnesium	mg/kg	25600	100.0%	12308	14	5250	4350	17700	19800	2840	6210	16100	8700
Manganese	mg/kg	934	100.0%	759	1	473	352	532	396	104	204	708	546
Mercury	mg/kg	0.08	56.7%	0.1	0	0.04 J	0.03 J	0.02 J	0.02 J	0.03 J	0.03 J	0.02 J	0.02 U
Nickel	mg/kg	57.1	100.0%	37	14	35.4	28.5	45.9	40.9	14.1	32.6	57.1	53
Potassium	mg/kg	2590	100.0%	1548	15	1650	975	2150	2590	974 J	1500	1880	1580
Selenium	mg/kg	1.4	86.7%	2	0	1.4	0.69 J	0.52 J	0.47 J	0.29 J	0.32 J	0.45 J	0.42 J
Silver	mg/kg	1	3.3%	0.5	1	1.1 U	0.78 U	0.93 U	0.84 U	0.85 U	0.95 U	0.72 U	1 J
Sodium	mg/kg	196	100.0%	114	17	56 J	42.6 J	196 J	175 J	40 J	57 J	166 J	125 J
Thallium	mg/kg	0.91	43.3%	0.3	13	0.27 U	0.2 U	0.24 U	0.24 U	0.27 U	0.27 U	0.13 U	0.19 U
Vanadium	mg/kg	35.8	100.0%	150	0	34.8	25.6	25.8	24.5	21.6	31.7	21.6	24.3
Zinc	mg/kg	103	100.0%	90	5	56.9	48.5	73.5	98	40.7	68.7	92.8	82.2
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	176	100.0%	NA	NA	0.03	0.19	0.04	0.04	0.33	0.5	0.17	0.05
Total Solids	%W/W	95.8		NA	NA	75.8	82.2	89.3	92.1	84.6	84.7	91.7	95.8
Fluoride	mg/kg	193	96.6%	NA	NA	78	97	89	72	75	34	28	27

Notes:
a) * = As per proposed TAGM, total VOCs < 10ppm; total Semi-VOCs <500ppm; individual semi-VOCs < 50 ppm.
b) NA = Not Available
c) U = Compound was not detected.
d) J = the reported value is an estimated concentration.
e) R = the data was rejected in the data validating process.
f) UJ = the compound was not detected; the associated reporting limit is approximate.
g) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
Soil cleanup objectives are based on a soil organic carbon content estimate of 1%.

at SEAD-13. All were found at low concentrations, well below their respective TAGM values. The maximum detected concentration was 86 μg/kg of acetone in the surface soil sample SB13-6.1. All of the volatile organic compounds detected (acetone, 2-butanone, toluene, and chloroform) are considered to be common laboratory contaminants.

Subsurface Soils

Methylene chloride, carbon disulfide, and toluene were detected at low concentrations in four of the 20 subsurface soil samples analyzed. Methylene chloride was found in three subsurface soil samples at a maximum concentration of 4J μg/kg. Toluene was found at a concentration of 2J μg/kg in one sample only, SB13-5.5. Methylene chloride and toluene are both considered as common laboratory contaminants. Carbon disulfide was detected in one sample, SB13-1.4, at a concentration of 2J μg/kg.

4.2.2.2 Semivolatile Organic Compounds

Surface Soils

A total of 12 semivolatile organic compounds were found at varying concentrations in the surface soil samples collected at SEAD-13. Most were detected in only one sample. In general, the concentrations of semivolatile compounds were low, with only 3 results, phenol, 1,4-dichlorobenzene, and 4-methylphenol, exceeding their associated TAGM values. The TAGM for phenol, 30 μg/kg, 1,4-dichlorbenzene, 85 μg/kg, and for 4-methylphenol, 500 μg/kg, were exceeded in one sample, SB13-10.1, which was collected in the pit located west of the pond. The maximum values of many of the SVOCs detected were primarily found in the one soil sample, SB13-10.1, which was collected from the top two feet of the soil boring SB13-10. Although 10 of the 12 SVOCs were detected only in surface soil sample SB13-10.1, none were detected in the duplicate sample SB13-10.1, which was collected from the same material as SB13-10.1.

Subsurface Soils

Benzo(g,h,i)perylene, bis(2-Ethylhexyl)phthalate, di-n-octylphthalate, and di-n-butylphthalate zwere the only SVO compounds detected in the subsurface soil samples analyzed. Benzo(g,h,i)perylene was detected at a concentration of 20J ug/kg in subsurface soil sample SB13-4.2. The highest concentration of the three phthalates detected was 110J μg/kg (of di-n-octylphthalatle) in subsurface soil sample SB13-1.4. Phthalates are considered to be common laboratory contaminants.

4.2.2.3 Pesticides and PCBs

Surface Soils

Only one pesticide compound was detected in the 10 surface soil samples collected at SEAD-13. The pesticide, 4,4'-DDE, which was found in only one sample, SB13-2.1, was reported at a maximum concentration of 3.6J μg/kg, which is well below the TAGM value of 2,100 μg/kg.

Subsurface Soils

No pesticide or PCB compounds were detected in the subsurface soil samples analyzed.

4.2.2.4 Herbicides

Surface Soils

No herbicide compounds were detected in the surface soil samples collected from SEAD-13.

Subsurface Soils

No herbicide compounds were detected in the subsurface soil samples collected from SEAD-13.

4.2.2.5 Metals

Surface Soils

A variety of samples were found to contain metals at concentrations that exceed the associated TAGM values. Of the 22 metals reported, 12 were found in one or more samples at concentrations above the TAGM values. Several metals were identified in a large number of samples above the TAGM value. Of these metals, aluminum, arsenic, chromium, copper, iron, nickel, and thallium were found at the highest concentrations and in the largest number of samples above the associated TAGM values.

Chromium was detected at concentrations above the TAGM (24 mg/kg) in 4 of the surface soil samples and in one of the duplicate samples collected. The highest concentration, 30.2 mg/kg, was detected in the surface soil sample SB13-4.1.

Copper was detected at concentrations exceeding the TAGM value (25 mg/kg) in 5 of the surface soil samples and in two of the duplicate samples analyzed. Most were only slightly above the TAGM value with a maximum copper concentration of 45.2 mg/kg detected in the soil sample SB13-2.1.

Nickel concentrations exceeded the TAGM value (37 mg/kg) in 4 of the surface soil samples collected. Most exceeded the TAGM by only a slight amount with a maximum concentration of 46.6 mg/kg detected in the soil sample SB13-2.1.

Thallium concentrations exceeded the TAGM value (0.30 mg/kg) in 4 surface soil samples. The highest concentration was 0.91J mg/kg in SB13-3.1.

Subsurface Soils

A variety of samples were found to contain metals at concentrations that exceed the associated TAGM values. Of the 22 metals reported, 12 were found in one or more samples at concentrations above the TAGM values. Several metals were identified in a large number of samples above the TAGM value. Of these metals, aluminum, arsenic, chromium, copper, iron, nickel, and thallium were found at the highest concentrations and in the largest number of samples above the associated TAGM values.

Chromium was detected at concentrations above the TAGM (24 mg/kg) in 5 of the subsurface soil samples collected. The highest concentration, 35.8 mg/kg, was detected in the soil sample SB13-4.3. Other high concentrations were detected in samples SB13-8.2 (32.4 mg/kg), and SB13-10.5 (30.8 mg/kg).

Copper was detected at concentrations exceeding the TAGM value (25 mg/kg) in 9 of the subsurface soil samples analyzed. Most were only slightly above the TAGM value with a maximum copper concentration of 44 mg/kg detected in the subsurface soil sample SB13-9.4.

Nickel concentrations exceeded the TAGM value (37 mg/kg) in 10 of the subsurface soil samples collected. Most exceeded the TAGM by only a slight amount with a maximum concentration of 57.1 mg/kg detected in the soil sample SB13-10.4.

Thallium concentrations exceeded the TAGM value of 0.30 mg/kg in 8 subsurface soil samples. The highest concentration was 0.78J mg/kg in SB13-7.2.

4.2.2.6 Nitroaromatics

Surface Soils

No nitroaromatic compounds were detected in the surface soil samples collected at SEAD-13.

Subsurface Soils

No nitroaromatic compounds were detected in the subsurface soil samples collected at SEAD-13.

4.2.2.7 Indicator Compounds

Surface Soils

The surface soil samples at the site were analyzed for nitrate/nitrite nitrogen and fluoride. Nitrate/nitrite nitrogen concentrations ranged from a low of 0.02 mg/kg to a high of 3.1 mg/kg, found in the surface soil sample SB13-8.1. Fluoride concentrations ranged from 24 mg/kg to 154 mg/kg in surface soil sample SB13-7.1.

Subsurface Soils

The subsurface soil samples were analyzed for nitrate/nitrite nitrogen and fluoride. Nitrate/nitrite nitrogen concentrations ranged from 0.02 mg/kg to 176 mg/kg, found in subsurface soil sample SB13-2.5. Fluoride concentrations ranged from 11.7 mg/kg to 193 mg/kg, found in subsurface soil sample SB13-5.5.

4.2.3 Groundwater

Seven monitoring wells were installed as part of the SEAD-13 investigation. Monitoring wells

TABLE 4.2-2

GROUNDWATER ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	NY AWQS CLASS GA (a)	MCL STANDARD	NO. ABOVE CRITERIA	WATER SEAD-13 02/03/94 MW13-1 210501	WATER SEAD-13 11/18/93 MW13-2 205063	WATER SEAD-13 02/04/94 MW13-4 210496	WATER SEAD-13 02/04/94 MW13-8 210499 MW13-4DUP	WATER SEAD-13 02/05/94 MW13-5 210497	WATER SEAD-13 02/04/94 MW13-6 210498
SEMIVOLATILE ORGANICS												
bis(2-Ethylhexyl)phthalate	ug/L	23	40.0%	50	NA	0	11 U	11 U	17		23	10 U
METALS												
Aluminum	ug/L	42400	100.0%	NA	NA	NA	42400	89.6 J	5540		53.1 J	2810
Antimony	ug/L	52.7	80.0%	3	6	4	33.9 J	52.5 U	31.5 J		43 J	52.7 J
Arsenic	ug/L	9.3	40.0%	25	50	0	9.3 J	1.4 J	1.4 U		1.4 U	1.4 U
Barium	ug/L	337	100.0%	1000	2000	0	337	28.7 J	71.2 J		33.5 J	34.3 J
Beryllium	ug/L	2.2	20.0%	3	4	0	2.2 J	0.3 U	0.4 U		0.4 U	0.4 U
Calcium	ug/L	592000	100.0%	NA	NA	NA	181000	592000	182000		105000	81500
Chromium	ug/L	69.4	60.0%	50	100	1	69.4	2.5 U	9.9 J		2.6 U	6.1 J
Cobalt	ug/L	34.6	40.0%	NA	NA	NA	34.6 J	4.9 U	6.7 J		4.4 U	4.4 U
Copper	ug/L	23.3	40.0%	200	1300(g)	0	23.3 J	3.7 U	3.3 J		3.1 U	3.1 U
Iron	ug/L	69400	100.0%	300	NA	4	69400	562	8010		75.8 J	4550
Lead	ug/L	34.8	60.0%	25	15(h)	1	34.8	0.6 U	3.1		0.5 U	1.5 J
Magnesium	ug/L	188000	100.0%	35000	NA	5	50300	188000	44900		55300	51500
Manganese	ug/L	1120	100.0%	300	NA	3	1120	342	299		143	376
Mercury	ug/L	0.05	20.0%	2	2	0	0.05 J	0.07 UJ	0.04 U		0.04 U	0.04 U
Nickel	ug/L	99.8	100.0%	NA	100	0	99.8	5 J	17.5 J		4.6 J	8.6 J
Potassium	ug/L	10100	100.0%	NA	NA	NA	10100	8690	4460 J		5460	6780
Selenium	ug/L	3.6	80.0%	10	50	0	3.6 J	2.9 J	1.2 J		0.7 U	2.3 J
Sodium	ug/L	17000	100.0%	20000	NA	0	9350	17000	9340		14000	7880
Vanadium	ug/L	70.8	60.0%	NA	NA	NA	70.8	3.3 U	8.8 J		3.7 U	5.9 J
Zinc	ug/L	143	100.0%	300	NA	0	143	3.8 J	138		101	50.6
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen	mg/L	460	80.0%	10	10	1	0.01 U	460	0.03		0.12	0.16
Fluoride	mg/L	0.45	100.0%	1500	4	0	0.45	0.1	0.3	0.23	0.22	0.28
pH	standard units	7.72					7.4	7.17	7.14		7.3	7.72
Specific Conductivity	umhos/cm	3150					380	3150	750		600	400
Turbidity	NTU	195					18.2	4.2	8.1		195	12.3

NOTES:

a) NY State Class GA Groundwater Regulations
b) NA = Not Available
c) U = compound was not detected
d) J = the report value is an estimated concentration
e) UJ = the compound was not detected; the associated reporting limit is approximate
f) R = the data was rejected in the data validating process
g) The value listed is an action level for copper at the tap, and not an MCL
h) The value listed is an action level for lead at the tap, and not an MCL

MW13-3 and MW13-7 were found to be dry during sampling and therefore, no groundwater sample was collected. The summary of chemical analyses are presented in Table 4.2-2. The following sections describe the nature and extent of groundwater contamination identified at SEAD-13.

4.2.3.1 Volatile Organic Compounds

No volatile organic compounds were detected in the five groundwater samples collected at SEAD-13.

4.2.3.2 Semi-Volatile Organic Compounds

One semivolatile organic compound, bis(2-ethylhexyl)phthalate, was detected in two groundwater samples collected at SEAD-13. A maximum concentration of 23 μg/L was found in the sample MW13-5. Both detected concentrations were below the TAGM value of 50 μg/L. Phthalates are a common laboratory and sampling contaminant.

4.2.3.3 Pesticides and PCBs

No pesticides or PCBs were found in the five groundwater samples collected at SEAD-13.

4.2.3.4 Herbicides

No herbicides were found in the five groundwater samples collected at SEAD-13.

4.2.3.5 Metals

Six metals, antimony, chromium, iron, lead, magnesium, and manganese were found in the groundwater samples at concentrations above the criteria value. Magnesium was found in all of the monitoring wells at concentrations above the criteria value of 35,000 μg/L. The maximum concentration for magnesium, 188,000 μg/L, was found in the groundwater sample collected from monitoring well MW13-2. Iron exceeded the NYSDEC Class GA criteria in four of the five wells sampled, MW13-1, MW13-2, MW13-4, and MW13-6. The maximum concentration, 69,400 μg/L, was detected in the groundwater sample collected from monitoring well MW13-1.

Manganese was found in three of the five samples at concentrations exceeding the NYSDEC Class GA groundwater standard of 300 μg/L, with a maximum concentration of 1120 μg/L found in the groundwater sample collected from monitoring well MW13-1. Chromium and lead were found in one well at a concentration above the criteria value. A concentration of 69.4 μg/L for chromium and 34.8 μg/L for lead were both found in the groundwater sample collected from monitoring well MW13-1.

Antimony was found in four of the five samples at concentrations exceeding the NYSDEC Class GA groundwater standard of 3 μg/L and the federal MCL standard of 6 μg/L. A maximum concentration of 52.7J μg/L was found in the groundwater sample collected from monitoring well MW13-6.

4.2.3.6 Indicator Parameters

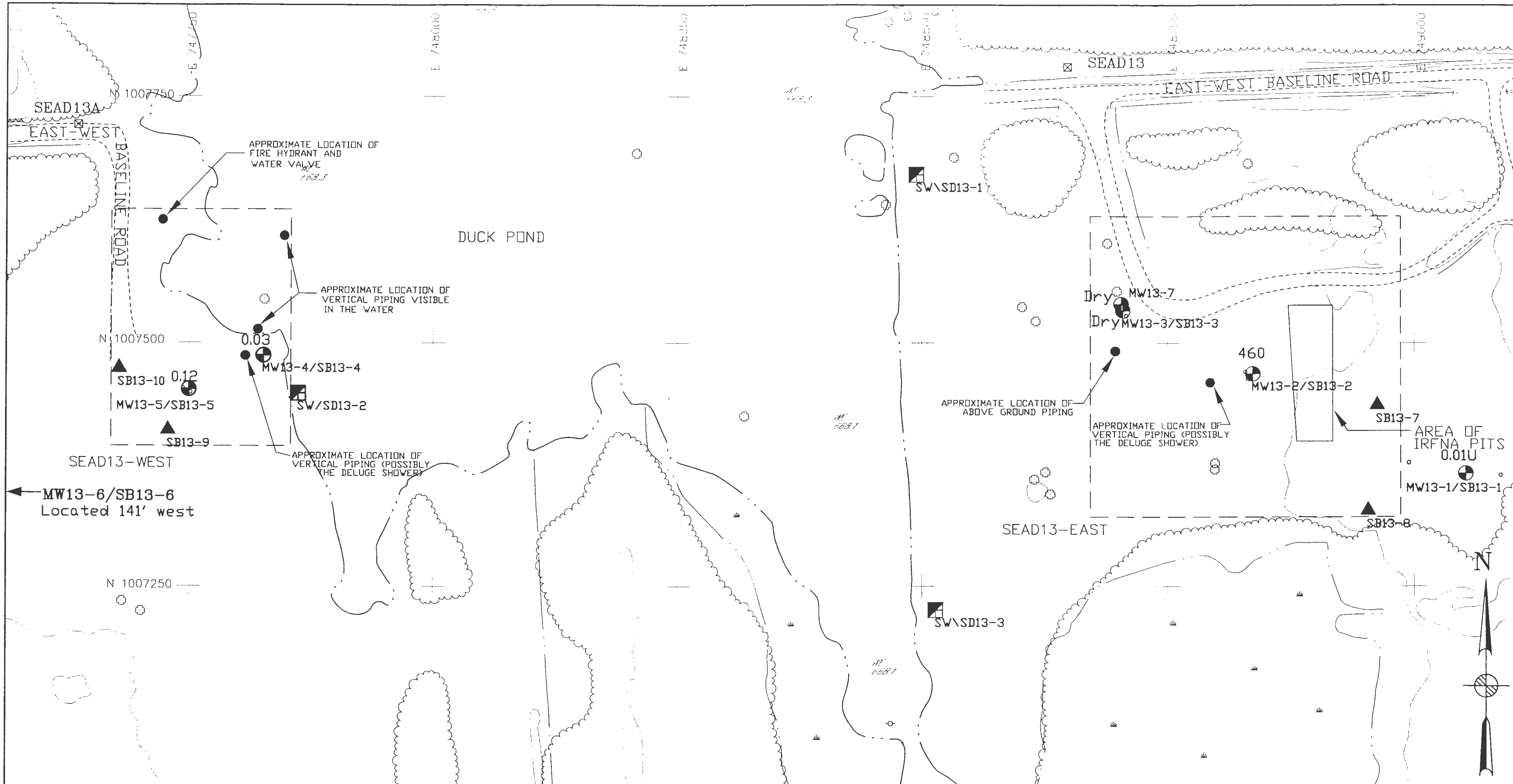
One of the five groundwater samples analyzed had nitrate/nitrite nitrogen concentrations above the criteria value of 10 mg/L. The maximum nitrate value detected was 460 mg/L in sample MW13-2, which is located within the area of the disposal pit on the east side of the Duck Pond. Figure 4.2-1 shows the nitrate/nitrite nitrogen concentrations in the groundwater samples. Fluoride was detected at concentrations ranging from 0.1 to 0.45 mg/L in all of the groundwater samples analyzed. All of the reported concentrations were below the NY AWQS Class GA criteria value of 1,500 mg/L and the MCL standard of 4 mg/L.

4.2.4 <u>Surface Water</u>

Three surface water samples were collected as part of the SEAD-13 investigation. The summary results of the chemical analyses are presented in Table 4.2-3. Two of the surface water samples were collected downstream of the pits, one from the east (SW13-1) and one from the west side (SW13-2) of the pond. The final sample (SW13-3) was collected at a location upstream of the pits. The following sections describe the nature and extent of surface water contamination identified at SEAD-13.

4.2.4.1 Volatile Organic Compounds

No volatile organic compounds were found in the three surface water samples collected at SEAD-13.



LEGEND

MINOR WATERWAY	SURVEY MONUMENT
MAJOR WATERWAY	ROAD SIGN
FENCE	DECIDUOUS TREE
UNPAVED ROAD	FIRE HYDRANT
BRUSH LINE	MANHOLE
LANDFILL EXTENT	GUIDE POST
RAILROAD	POLE
GROUND SURFACE ELEVATION CONTOUR (760)	UTILITY BOX
	COORDINATE GRID (250' GRID)
	OVERHEAD UTILITY POLE
	MAILBOX/RR SIGNAL

0.03 EXISITING MONITORING WELL & CONCENTRATION (mg/L)

EXISTING SOIL BORING

EXISTING SURFACE WATER/SEDIMENT SAMPLE

50 0 50 100 (feet)

ACAD\SENECA\3SWMU\SD13NIT.DWG

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

SENECA ARMY DEPOT ACTIVITY
EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY SWMU'S

ENVIRONMENTAL ENGINEERING — Dwg No. 720476-02000

FIGURE 4.2-1
SEAD-13 IRFNA DISPOSAL SITE
NITRATES IN GROUNDWATER (mg/L)

SCALE 1" = 100' — DATE JUNE 1995 — REV A

TABLE 4.2-3

SURFACE WATER ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	NYS GUIDELINES (a) CLASS D	EPA AWQC ACUTE	EPA AWQC CHRONIC	NO. ABOVE CRITERIA	WATER SEAD-13 11/03/93 SW13-1 203410	WATER SEAD-13 11/03/93 SW13-2 203411	WATER SEAD-13 11/04/93 SW13-3 203412
METALS										
Aluminum	ug/L	3830	100.0%	NA	750	87	3	3830	2410	162 J
Barium	ug/L	91.6	100.0%	NA	NA	NA	NA	91.6 J	50.4 J	31.8 J
Calcium	ug/L	75300	100.0%	NA	NA	NA	NA	75300	61400	73200
Chromium	ug/L	5.4	33.3%	4270	4270	509	0	5.4 J	2.5 U	2.5 U
Copper	ug/L	6.6	33.3%	50	50	30	0	6.6 J	3.7 U	3.7 U
Iron	ug/L	5790	100.0%	300	NA	1000	3	5790 J	4310 J	458 J
Lead	ug/L	7.5	66.7%	330	330.6	12.9	0	4.4	7.5	0.8 U
Magnesium	ug/L	14200	100.0%	NA	NA	NA	NA	14200	12800	13200
Manganese	ug/L	296	100.0%	NA	NA	NA	NA	268	296	85.3
Nickel	ug/L	7.1	66.7%	4250	3592.5	399.4	0	7.1 J	5.5 J	4.1 U
Potassium	ug/L	7200	100.0%	NA	NA	NA	NA	7200	4740 J	5240
Sodium	ug/L	70000	100.0%	NA	NA	NA	NA	62100	53400	70000
Vanadium	ug/L	6.2	33.3%	190	NA	NA	0	6.2 J	3.3 U	3.3 U
Zinc	ug/L	27.7	66.7%	800	297	269	0	27.7	15.9 J	3.1 U
OTHER ANALYSES										
Nitrate/Nitrite-Nitrogen	mg/L	0.1	100.0%	NA	NA	NA	NA	0.1	0.02	0.04
Fluoride	mg/L	0.39	100.0%	28700	NA	NA	0	0.37	0.39	0.27
pH	standard units	7.68						7.68	7.62	7.51
Specific Conductivity	umhos/cm									
Turbidity	NTU									

Notes:
a) The New York State Ambient Water Quality Standards and Guidelines for Class "D" Water.
b) EPA Water Quality Criteria Summary (1991), Quality Criteria for Water 1986 Updates # 1 and # 2.
c) Hardness dependent values assume a hardness of 300 mg/l.
d) NA = Not Available
e) U = Compound was not detected.
f) J = the reported value is an estimated concentration.
g) R = the data was rejected in the data validating process.
h) UJ = the compound was not detected; the associated reporting limit is approximate.

4.2.4.2 Semi-Volatile Organic Compounds

No semi-volatile organic compounds were found in the three surface water samples collected at SEAD-13.

4.2.4.3 Pesticides and PCBs

No pesticide or PCB compounds were found in the surface water samples collected at SEAD-13.

4.2.4.4 Herbicides

No herbicide compounds were found in the surface water samples collected at SEAD-13.

4.2.4.5 Metals

Two metals, aluminum and iron, were found in all three of the surface water samples analyzed at concentrations above the associated criteria values of 87 μg/L and 300 μg/L, respectively. The highest concentrations of aluminum (3830 μg/L) and of iron (5790J μg/L) were found in the sample SW13-1, which was collected on the east side of the pond. Though all three surface water samples had concentrations of aluminum and iron which exceeded criteria values, the two downgradient surface water samples, SW13-1 and SW13-2, had reported concentrations of these two metals which were an order of magnitude greater than the concentrations detect in the upgradient sample, SW13-3.

4.2.4.6 Nitroaromatics

No nitroaromatic compounds were found in the surface water samples collected at SEAD-13.

4.2.4.7 Indicator Compounds

Nitrate/nitrite nitrogen was detected in all three of the surface water samples collected at SEAD-13 with concentrations ranging from 0.02 mg/L to 0.1 mg/L. The maximum concentration, 0.10 mg/L, was found in sample MW13-1. Fluoride also was detected in all three of the surface water samples analyzed. The reported concentrations ranged from 0.27 to 0.39 mg/L, well below the NYS Class D guideline value of 28,700 mg/L.

4.2.5 Sediment

A total of three sediment samples were collected as part of the SEAD-13 investigation. The summary chemical analyses are presented in Table 4.2-4. The sediment samples were collected in the same locations as the surface water samples described above. The following sections describe the nature and extent of sediment contamination identified at SEAD-13.

4.2.5.1 Volatile Organic Compounds

A total of two VOCs were identified in the three sediment samples collected at SEAD-13. Both of these compounds, acetone and 2-butanone, are common laboratory contaminants. The maximum concentrations for both compounds were identified in sample SD13-1, which was collected at the waters edge on the east side the pond.

4.2.5.2 Semi-Volatile Organic Compounds

A total of three SVOCs were identified in the three sediment samples collected at SEAD-13. The SVOCs detected were all PAHs, and were found at low concentrations. The maximum concentration detected was an estimated value of 69J μg/kg of fluoranthene found in the sediment sample SD13-1. This sediment sample, which was collected on the east side of the pond, had the only SVOCs detected of the three samples analyzed.

4.2.5.3 Pesticides and PCBs

No pesticide or PCB compounds were detected in the three sediment samples collected at SEAD-13.

4.2.5.4 Herbicides

No herbicide compounds were found in the sediment samples collected at SEAD-13.

4.2.5.5 Metals

A number of metals were detected in the sediment samples collected at SEAD-13. Of these, chromium, copper, iron, and nickel were detected in excess of the NYSDEC Sediment Criteria for Aquatic Life. Nickel was detected at a concentration of 24.6J mg/kg in the

TABLE 4.2-4

SEDIMENT ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	NYSDEC SEDIMENT CRITERIA FOR AQUATIC LIFE (a)	NYSDEC SEDIMENT CRITERIA FOR HUMAN HEALTH (a)	NYSDEC SEDIMENT CRITERIA FOR WILDLIFE (a)	LOT (b)	NO. ABOVE CRITERIA	SOIL SEAD-13 0-0.5 11/03/93 SD13-1 203406	SOIL SEAD-13 0-0.5 11/03/93 SD13-4 203409 SD13-1DUP	SOIL SEAD-13 0-0.5 11/03/93 SD13-2 203407	SOIL SEAD-13 0-0.5 11/03/93 SD13-3 203408
VOLATILE ORGANICS												
Acetone	ug/kg	380	100.0%	NA	NA	NA		NA	380 J	110 J	150 J	110 J
2-Butanone	ug/kg	140	33.3%	NA	NA	NA		NA	140 J	28 UJ	43 UJ	28 UJ
NITROAROMATICS												
Tetryl	ug/kg	200	33.3%	NA	NA	NA		NA	130 UJ	130 UJ	200 J	130 UJ
SEMIVOLATILE ORGANICS												
Phenanthrene	ug/kg	35	33.3%	1390	NA	NA		0	970 UJ	35 J	990 UJ	2700 UJ
Fluoranthene	ug/kg	69	33.3%	NA	NA	NA		NA	69 J	63 J	990 UJ	2700 UJ
Pyrene	ug/kg	60	33.3%	NA	NA	NA		NA	60 J	54 J	990 UJ	2700 UJ
METALS												
Aluminum	mg/kg	18200	100.0%	NA			NA	NA	14500 J	18200 J	16900 J	17800 J
Barium	mg/kg	162	100.0%	NA			NA	NA	97.2 J	134 J	112 J	162 J
Beryllium	mg/kg	1	100.0%	NA			NA	NA	0.67 J	0.95 J	0.77 J	1 J
Calcium	mg/kg	7200	100.0%	NA			NA	NA	7000 J	5750 J	5780 J	7200 J
Chromium	mg/kg	26.9	100.0%	26			111	2	21.7 J	26.9 J	23.3 J	26.1 J
Cobalt	mg/kg	11.3	100.0%	NA			NA	NA	6.7 J	10.8 J	9.1 J	11.3 J
Copper	mg/kg	20.7	100.0%	19			114	2	16.5 J	20.7 J	18.3 J	20.6 J
Iron	mg/kg	28100	100.0%	24000			40000	2	19400 J	28100 J	21100 J	27200 J
Lead	mg/kg	25.7	100.0%	27			250	0	18.1 J	25.7 J	25.4 J	8.5 J
Magnesium	mg/kg	4680	100.0%	NA			NA	NA	4100 J	4610 J	3980 J	4680 J
Manganese	mg/kg	428	100.0%	428			1100	1	235 J	428 J	361 J	424 J
Mercury	mg/kg	0.09	66.7%	0.11			2	0	0.03 J	0.06 J	0.09 J	0.02 UJ
Nickel	mg/kg	31.1	100.0%	22			90	3	24.6 J	30.8 J	25.7 J	31.1 J
Potassium	mg/kg	2350	100.0%	NA			NA	NA	2350 J	2210 J	2210 J	2040 J
Selenium	mg/kg	0.49	66.7%	NA			NA	NA	0.49 J	0.37 J	0.54 UJ	0.42 J
Silver	mg/kg	3.2	33.3%	NA			NA	NA	3.4 UJ	3.2 J	4 UJ	2.7 UJ
Sodium	mg/kg	326	100.0%	NA			NA	NA	299 J	326 J	292 J	244 J
Vanadium	mg/kg	33.6	100.0%	NA			NA	NA	26.3 J	33.6 J	31.5 J	31.8 J
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen	mg/kg	0.18	100.0%	NA			NA	NA	0.09	0.18	0.15	0.05
Total Solids	%W/W	43.4							33.8	43.4	32.9	40.1
Fluoride	mg/kg	270	100.0%	NA			NA	NA	188	194	210	270

NA stands for NOT ANALYZED

NOTES:

a) NYSDEC Sediment Criteria - 1989.
b) LOT = limit of tolerance; represents point at which significant toxic effects on benthis species occur.
c) NA = Not Available
d) U = compound was not detected
e) J = the reported value is an estimated concentration
f) R = the data was rejected in the data validation process
g) UJ = the coumpound was not detected; the associated reporting limit is approximate.

sample SD13-1, at an concentration of 25.7J mg/kg in the sample SD13-2, and at an concentration of 31.1J mg/kg in sample SD13-3. All of these exceeded the sediment criteria for nickel of 22 mg/kg. The chromium concentrations of 26.1J mg/kg reported for sample SD13-3 and 26.9J mg/kg for sample SD13-1Dup exceeded the sediment criteria of 26 mg/kg. The copper criteria of 19 mg/kg was exceeded by the samples SD13-3 (concentration of 20.6J mg/kg) and SD13-1Dup (concentration of 20.7J mg/kg). The iron criteria of 24,000 mg/kg was exceeded by samples SD13-3 (concentration of 27,200J mg/kg) and SD13-1Dup (concentration of 28,100J mg/kg).

4.2.5.6 Nitroaromatics

One nitroaromatic compound, Tetryl, was found in the sample SD13-2 at a concentration of 200J μg/kg.

4.2.5.7 Indicator Compounds

Nitrate/nitrite nitrogen was detected in 100% of the sediment samples. The maximum concentration detected was 0.18 mg/kg in sample SD13-1 (duplicate). Fluoride also was detected in 100% of the sediment samples analyzed. The reported concentrations ranged from 188 to 270 mg/kg.

4.2.6 Tentatively Identified Compounds

Surface Soils

Tentatively identified compounds (TICs) were detected at total concentration greater than 50 mg/kg in one surface soil sample only, SB13-10.1 (a total TIC concentration of 730.6 mg/kg). The primary TICs contributing to the high total concentration were biphenyl and diphenyl ether. This surface soil sample was the only sample to have reported concentrations for 10 of the 14 SVOs detected in SEAD-13 soils (both surface and subsurface).

4.3 SEAD-57

4.3.1 Introduction

A total of nine surface soil and 11 subsurface soil samples were collected at SEAD-57. A total of three groundwater samples were collected as part of the SEAD-57 investigation. The following sections describe the nature and extent of contamination identified at SEAD-57.

4.3.2 Soil

The analytical results for the nine surface and 11 subsurface soil samples collected as part of the SEAD-57 investigation are presented in Table 4.3-1. The following sections describe the nature and extent of contamination in SEAD-57 soils. The sample locations are shown in Figure 2.5-2.

4.3.2.1 Volatile Organic Compounds

Surface Soils

Three volatile organic compounds, acetone, chloroform, and tetrachloroethene, were detected in the surface soil samples collected at SEAD-57. Acetone and chloroform are common laboratory and sampling contaminants. They were detected in a few samples and at low concentrations. All of the volatile organics were present in concentrations well below their respective TAGM values. Tetrachloroethene was detected in a number of surface soil samples but no subsurface soil samples. The maximum concentration of tetrachloroethene was 6 μg/kg, which is well below the TAGM value of 1400 μ/kg. The possible source of the tetrachloroethene is unknown.

Subsurface Soils

Acetone, a common sampling and laboratory contaminant, was the only VOC detected in the subsurface soil samples analyzed. The highest concentration, 23 μg/kg, was found in subsurface soil sample TP57-6.

4.3.2.2 Semi-Volatile Organic Compounds

Surface Soils

A total of 9 semivolatile organic compounds were found at varying concentrations in the surface soil samples collected at SEAD-57. In general, the concentrations of semivolatile compounds were low, with none exceeding a TAGM value.

TABLE 4.3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-57 0-0.2 10/26/93 SS57-1 202562	SOIL SEAD-57 0-0.2 12/08/93 SS57-1 206412	SOIL SEAD-57 0-0.2 10/26/93 SS57-2 202563	SOIL SEAD-57 0-0.2 12/08/93 SS57-2 206413	SOIL SEAD-57 0-0.2 10/26/93 SS57-3 202564	SOIL SEAD-57 0-0.2 12/08/93 SS57-3 206414	SOIL SEAD-57 0-0.2 10/26/93 SS57-4 202565	SOIL SEAD-57 0-0.2 12/08/93 SS57-4 206415	SOIL SEAD-57 0-0.2 10/26/93 SS57-5 202566	SOIL SEAD-57 0-0.2 12/08/93 SS57-5 206416
VOLATILE ORGANICS															
Acetone	ug/kg	23	17.2%	200	0	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Chloroform	ug/kg	7	3.4%	300	0	13 U	14 U	12 U	13 U	12 U	7 J	12 U	13 U	14 U	15 U
Tetrachloroethene	ug/kg	6	24.1%	1400	0	2 J	14 U	2 J	13 U	2 J	13 U	12 U	13 U	2 J	15 U
HERBICIDES															
2,4,5-TP (Silvex)	ug/kg	9.5	5.0%	NA	NA	6.5 U		6.3 U		6.4 U		6.6 U		7.2 U	
MCPA	ug/kg	10000	5.0%	NA	NA	6500 U		6300 U		6400 U		6600 U		7200 U	
SEMIVOLATILE ORGANICS															
Naphthalene	ug/kg	180	5.0%	13000	0	420 U		410 U		420 U		430 U		470 U	
2-Methylnaphthalene	ug/kg	750	5.0%	36400	0	420 U		410 U		420 U		430 U		470 U	
Fluorene	ug/kg	120	5.0%	50000 *	0	420 U		410 U		420 U		430 U		470 U	
Phenanthrene	ug/kg	230	20.0%	50000	0	420 U		410 U		420 U		430 U		470 U	
Di-n-butylphthalate	ug/kg	390	15.0%	8100	0	420 U		410 U		420 U		430 U		470 U	
Fluoranthene	ug/kg	56	25.0%	50000 *	0	420 U		410 U		420 U		430 U		470 U	
Pyrene	ug/kg	49	20.0%	50000 *	0	420 U		410 U		420 U		430 U		470 U	
Benzo(a)anthracene	ug/kg	24	5.0%	220	0	420 U		410 U		420 U		430 U		470 U	
Chrysene	ug/kg	42	10.0%	400	0	420 U		410 U		420 U		430 U		470 U	
Benzo(b)fluoranthene	ug/kg	25	5.0%	1100	0	420 U		410 U		420 U		430 U		470 U	
Benzo(k)fluoranthene	ug/kg	20	5.0%	1100	0	420 U		410 U		420 U		430 U		470 U	
Benzo(a)pyrene	ug/kg	20	5.0%	61	0	420 U		410 U		420 U		430 U		470 U	
PESTICIDES/PCB															
Heptachlor epoxide	ug/kg	2.0	5.0%	20	0	2.2 U		2.1 U		2.2 U		2.2 U		2.4 U	
Dieldrin	ug/kg	27	15.0%	44	0	26 J		9.5		4.2 U		4.3 U		4.7 U	
4,4'-DDE	ug/kg	32	35.0%	2100	0	4.3 U		4.1 U		4.2 U		4.3 U		4.7 U	
4,4'-DDD	ug/kg	8.9	15.0%	2900	0	4.3 U		4.1 U		4.2 U		4.3 U		4.7 U	
4,4'-DDT	ug/kg	23	20.0%	2100	0	4.3 U		4.1 U		4.2 U		4.3 U		4.7 U	
alpha-Chlordane	ug/kg	16	5.0%	540	0	2.2 U		2.1 U		2.2 U		2.2 U		2.4 U	
Aroclor-1260	ug/kg	27	10.0%	1000 (a)	0	24 J		41 U		42 U		43 U		27 J	
METALS															
Aluminum	mg/kg	22900	100.0%	15523	8	12000		17300		17400		13900		14000	
Antimony	mg/kg	6.5	10.0%	5	2	11.9 UJ		11.8 UJ		7.7 UJ		11.2 UJ		11.1 UJ	
Arsenic	mg/kg	9.6	55.0%	7.5	4	4.8 R		4.6 R		5 R		4.2 R		3.9 R	
Barium	mg/kg	174	100.0%	300	0	82.4		65.8		72.6		168		110	
Beryllium	mg/kg	1.1	100.0%	1	1	0.56 J		0.62 J		0.81		0.69 J		0.68 J	
Calcium	mg/kg	213000	100.0%	120725	1	2770		1950		1590		9270		4440	
Chromium	mg/kg	34.5	100.0%	24	9	15.7		24.2		24.5		22.5		17.8	
Cobalt	mg/kg	19	100.0%	30	0	8.4 J		9.6 J		9.9		13.2		5.9 J	
Copper	mg/kg	2930	100.0%	25	10	10.9		18.3		24.8		27.3		19.8	
Iron	mg/kg	44400	100.0%	28986	6	19300		28400		29100		26500		18900	
Lead	mg/kg	1860	100.0%	30	5	24		17.7		30.9		23.8		26.3	
Magnesium	mg/kg	27600	100.0%	12308	1	2680		4580		4510		4640		3220	
Manganese	mg/kg	818	100.0%	759	1	592		319		418		628		297	
Mercury	mg/kg	0.08	85.0%	0.1	0	0.06 J		0.04 J		0.06 J		0.04 J		0.08 J	
Nickel	mg/kg	54.1	100.0%	37	9	14.3		27.3		29.2		30.9		17.9	
Potassium	mg/kg	3250	100.0%	1548	12	892 J		1240		1370		1670		1660	
Selenium	mg/kg	1.2	70.0%	2	0	0.26 UJ		0.21 UJ		0.22 UJ		0.26 UJ		0.41 J	
Silver	mg/kg	1.7	5.0%	0.5	1	1.7 J		1.5 UJ		0.98 UJ		1.4 UJ		1.4 UJ	
Sodium	mg/kg	214	100.0%	114	5	56.7 J		44.5 J		39.2 J		86.1 J		68.6 J	
Thallium	mg/kg	1.1	40.0%	0.3	5	0.28 U		0.23 U		0.24 U		0.28 U		0.34 U	
Vanadium	mg/kg	104	100.0%	150	0	24.6		28.6		29.4		26.1		24.5	
Zinc	mg/kg	1250	55.0%	90	4	45.2 R		70.6 R		88 R		82.6 R		81.5 R	
OTHER ANALYSES															
Nitrate/Nitrite-Nitrogen	mg/kg	1.28	100.0%	NA	NA	0.12		0.13		0.4		1.28		0.39	
Total Solids	%W/W	93.1		NA	NA	77.2		79.6		78.5		75.7		69.9	

TABLE 4.3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-57 0-0.2 10/26/93 SS57-6 202567	SOIL SEAD-57 0-0.2 12/08/93 SS57-6 206417	SOIL SEAD-57 0-0.2 10/26/93 SS57-7 202568	SOIL SEAD-57 0-0.2 12/08/93 SS57-7 206419	SOIL SEAD-57 0-0.2 10/26/93 SS57-8 202569	SOIL SEAD-57 0-0.2 12/08/93 SS57-8 206420	SOIL SEAD-57 0-0.2 10/26/93 SS57-9 202570	SOIL SEAD-57 0-0.2 12/08/93 SS57-9 206421
VOLATILE ORGANICS													
Acetone	ug/kg	23	17.2%	200	0	13 U	14 U	11 U	11 U	11 U	12 U	11 U	11 U
Chloroform	ug/kg	7	3.4%	300	0	13 U	14 U	11 U	11 U	11 U	12 U	11 U	11 U
Tetrachloroethene	ug/kg	6	24.1%	1400	0	1 J	14 U	11 U	11 U	6 J	12 U	1 J	11 U
HERBICIDES													
2,4,5-TP (Silvex)	ug/kg	9.5	5.0%	NA	NA	6.5 U		5.5 U		5.4 U		5.4 U	
MCPA	ug/kg	10000	5.0%	NA	NA	6500 U		5500 U		5400 U		5400 U	
SEMIVOLATILE ORGANICS													
Naphthalene	ug/kg	180	5.0%	13000	0	420 U		360 U		360 UJ		350 U	
2-Methylnaphthalene	ug/kg	750	5.0%	36400	0	420 U		360 U		360 UJ		350 U	
Fluorene	ug/kg	120	5.0%	50000 *	0	420 U		360 U		360 UJ		350 U	
Phenanthrene	ug/kg	230	20.0%	50000	0	420 U		20 J		360 UJ		36 J	
Di-n-butylphthalate	ug/kg	390	15.0%	8100	0	420 U		18 J		360 UJ		35 J	
Fluoranthene	ug/kg	56	25.0%	50000 *	0	29 J		26 J		20 J		56 J	
Pyrene	ug/kg	49	20.0%	50000 *	0	23 J		20 J		360 UJ		49 J	
Benzo(a)anthracene	ug/kg	24	5.0%	220	0	420 U		360 U		360 UJ		24 J	
Chrysene	ug/kg	42	10.0%	400	0	420 U		360 U		360 UJ		42 J	
Benzo(b)fluoranthene	ug/kg	25	5.0%	1100	0	420 U		360 U		360 UJ		25 J	
Benzo(k)fluoranthene	ug/kg	20	5.0%	1100	0	420 U		360 U		360 UJ		20 J	
Benzo(a)pyrene	ug/kg	20	5.0%	61	0	420 U		360 U		360 UJ		20 J	
PESTICIDES/PCB													
Heptachlor epoxide	ug/kg	2.0	5.0%	20	0	2.2 U		2 J		1.8 U		1.8 UJ	
Dieldrin	ug/kg	27	15.0%	44	0	4.3 U		27 J		3.6 U		3.5 UJ	
4,4'-DDE	ug/kg	32	35.0%	2100	0	2.5 J		4.7 J		32		4.5 J	
4,4'-DDD	ug/kg	8.9	15.0%	2900	0	4.3 U		3.6 U		3.6 U		3.5 UJ	
4,4'-DDT	ug/kg	23	20.0%	2100	0	4.3 U		3.6 U		4.9		3.5 UJ	
alpha-Chlordane	ug/kg	16	5.0%	540	0	2.2 U		16 J		1.8 U		1.8 UJ	
Aroclor-1260	ug/kg	27	10.0%	1000 (a)	0	43 U		36 U		36 U		35 UJ	
METALS													
Aluminum	mg/kg	22900	100.0%	15523	8	13500		12600		3940		10300	
Antimony	mg/kg	6.5	10.0%	5	2	12.1 UJ		10.1 UJ		10.1 UJ		10.7 UJ	
Arsenic	mg/kg	9.6	55.0%	7.5	4	122 R		4.2 R		4 R		5.6 R	
Barium	mg/kg	174	100.0%	300	0	83.7		64.2		25.5 J		56.5	
Beryllium	mg/kg	1.1	100.0%	1	1	0.64 J		0.61 J		0.33 J		0.59 J	
Calcium	mg/kg	213000	100.0%	120725	1	2790		24300		213000		104000	
Chromium	mg/kg	34.5	100.0%	24	9	18.9		24.3		7.4		20.7	
Cobalt	mg/kg	19	100.0%	30	0	9.3 J		13.2		7.8 J		10.6	
Copper	mg/kg	2930	100.0%	25	10	17.4		33.4		12		47	
Iron	mg/kg	44400	100.0%	28986	6	21700		28400		7540		23000	
Lead	mg/kg	1860	100.0%	30	5	30.2		18.4		9.5		42.4	
Magnesium	mg/kg	27600	100.0%	12308	1	3230		6660		11600		9650	
Manganese	mg/kg	818	100.0%	759	1	464		347		401		356	
Mercury	mg/kg	0.08	85.0%	0.1	0	0.07 J		0.02 J		0.04 U		0.04 J	
Nickel	mg/kg	54.1	100.0%	37	9	19.8		46		17.2		38.7	
Potassium	mg/kg	3250	100.0%	1548	12	1650		1550		1210		1570	
Selenium	mg/kg	1.2	70.0%	2	0	0.31 J		0.18 UJ		0.2 UJ		0.37 J	
Silver	mg/kg	1.7	5.0%	0.5	1	1.5 UJ		1.3 UJ		1.3 UJ		1.4 UJ	
Sodium	mg/kg	214	100.0%	114	5	46.3 J		119 J		214 J		188 J	
Thallium	mg/kg	1.1	40.0%	0.3	5	0.17 U		0.2 U		2.2 U		0.23 U	
Vanadium	mg/kg	104	100.0%	150	0	26.2		19		11.2		18.8	
Zinc	mg/kg	1250	55.0%	90	4	64 R		53.4 R		42.1 R		266 R	
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	1.28	100.0%	NA	NA	0.29		0.09		0.11		0.13	
Total Solids	%W/W	93.1		NA	NA	77.1		91		91.6		93.1	

TABLE 4.3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-57 3 11/08/93 TP57-1 203827	SOIL SEAD-57 3 12/02/93 TP57-2 206070	SOIL SEAD-57 3 11/09/93 TP57-3 204008	SOIL SEAD-57 3 11/09/93 TP57-4 204011	SOIL SEAD-57 3 12/02/93 TP57-5 206071	SOIL SEAD-57 3 12/02/93 TP57-6 206072	SOIL SEAD-57 3 12/02/93 TP57-7 206073	SOIL SEAD-57 3 12/02/93 TP57-8 206074
VOLATILE ORGANICS													
Acetone	ug/kg	23	17.2%	200	0	13 U	20	12 U	11 U	15	23	6 J	12 U
Chloroform	ug/kg	7	3.4%	300	0	13 U	12 U	12 U	11 U	13 U	12 U	12 U	12 U
Tetrachloroethene	ug/kg	6	24.1%	1400	0	13 U	12 U	12 U	11 U	13 U	12 U	12 U	12 U
HERBICIDES													
2,4,5-TP (Silvex)	ug/kg	9.5	5.0%	NA	NA	5.5 U	6.2 U	5.6 UJ	9.5 J	6.3 U	6.6 U	6 U	5.8 U
MCPA	ug/kg	10000	5.0%	NA	NA	5500 U	6200 U	10000 J	5700 UJ	6300 U	6600 U	6000 U	5800 U
SEMIVOLATILE ORGANICS													
Naphthalene	ug/kg	180	5.0%	13000	0	360 U	180 J	370 U	370 U	410 U	430 U	390 U	380 U
2-Methylnaphthalene	ug/kg	750	5.0%	36400	0	360 U	750 J	370 U	370 U	410 U	430 U	390 U	380 U
Fluorene	ug/kg	120	5.0%	50000 *	0	360 U	120 J	370 U	370 U	410 U	430 U	390 U	380 U
Phenanthrene	ug/kg	230	20.0%	50000	0	360 U	230 J	370 U	20 J	410 U	430 U	390 U	380 U
Di-n-butylphthalate	ug/kg	390	15.0%	8100	0	360 U	390 J	370 U	370 U	410 U	430 U	390 U	380 U
Fluoranthene	ug/kg	56	25.0%	50000 *	0	360 U	2000 U	370 U	34 J	410 U	430 U	390 U	380 U
Pyrene	ug/kg	49	20.0%	50000 *	0	360 U	2000 U	370 U	33 J	410 U	430 U	390 U	380 U
Benzo(a)anthracene	ug/kg	24	5.0%	220	0	360 U	2000 U	370 U	370 U	410 U	430 U	390 U	380 U
Chrysene	ug/kg	42	10.0%	400	0	360 U	2000 U	370 U	25 J	410 U	430 U	390 U	380 U
Benzo(b)fluoranthene	ug/kg	25	5.0%	1100	0	360 U	2000 U	370 U	370 U	410 U	430 U	390 U	380 U
Benzo(k)fluoranthene	ug/kg	20	5.0%	1100	0	360 U	2000 U	370 U	370 U	410 U	430 U	390 U	380 U
Benzo(a)pyrene	ug/kg	20	5.0%	61	0	360 U	2000 U	370 U	370 U	410 U	430 U	390 U	380 U
PESTICIDES/PCB													
Heptachlor epoxide	ug/kg	2.0	5.0%	20	0	1.9 U	2.1 U	1.9 U	1.9 U	2.1 U	2.2 U	2 U	2 U
Dieldrin	ug/kg	27	15.0%	44	0	3.6 U	4.1 U	3.7 U	3.7 U	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDE	ug/kg	32	35.0%	2100	0	9.1	4.1 U	12	20	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDD	ug/kg	8.9	15.0%	2900	0	3.5 J	4.1 U	5.5	8.9	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDT	ug/kg	23	20.0%	2100	0	9.6	4.1 U	12	23	4.1 U	4.3 U	4 U	3.8 U
alpha-Chlordane	ug/kg	16	5.0%	540	0	1.9 U	2.1 U	1.9 U	1.9 U	2.1 U	2.2 U	2 U	2 U
Aroclor-1260	ug/kg	27	10.0%	1000 (a)	0	36 U	41 U	37 U	37 U	41 U	43 U	40 U	38 U
METALS													
Aluminum	mg/kg	22900	100.0%	15523	8	10700	17300	10800	16900	22000	22900	18300	15700
Antimony	mg/kg	6.5	10.0%	5	2	6.4 UJ	4.5 U	8.9 UJ	8.7 UJ	4.3 U	5.8 J	4.9 U	6.5 J
Arsenic	mg/kg	9.6	55.0%	7.5	4	4.9	9.5	4.8	4.2	9.6	7.5	8.5	4.8
Barium	mg/kg	174	100.0%	300	0	58.7	82.7	62.8	90.1	114	174	144	113
Beryllium	mg/kg	1.1	100.0%	1	1	0.56 J	0.81 J	0.61 J	0.91	1.1	1 J	0.87 J	0.77 J
Calcium	mg/kg	213000	100.0%	120725	1	16600	19200	15300	22400	4380	15200	18700	67000
Chromium	mg/kg	34.5	100.0%	24	9	20.5	29.9	20.2	28.9	34.5	30.8	24.2	25
Cobalt	mg/kg	19	100.0%	30	0	12.1	13.7	10.4	13.3	19	9.4 J	12.8	12.2
Copper	mg/kg	2930	100.0%	25	10	34.3	2930 J	32.2	39.2	34.2 J	26.8 J	19.7 J	25.4 J
Iron	mg/kg	44400	100.0%	28986	6	24700	35700	24300	30500	44400	30200	29300	27600
Lead	mg/kg	1860	100.0%	30	5	28.2	1860	60.9	19.5	23.1	21.9	14.7	14.9
Magnesium	mg/kg	27600	100.0%	12308	1	5050	8930	4920	7890	6860	6640	6060	10000
Manganese	mg/kg	818	100.0%	759	1	392	463 J	350	472	550 J	247 J	818 J	500 J
Mercury	mg/kg	0.08	85.0%	0.1	0	0.03 J	0.06 J	0.05 J	0.05 J	0.05 J	0.04 J	0.05 J	0.03 U
Nickel	mg/kg	54.1	100.0%	37	9	45	51.6	38.1	54.1	52.9	37.3	31.8	40.1
Potassium	mg/kg	3250	100.0%	1548	12	898	2080	935	2110	2210	3250	2190	1910
Selenium	mg/kg	1.2	70.0%	2	0	0.48 J	1.1 J	0.52 J	0.39 J	0.55 J	0.73 J	1.2 J	0.96 J
Silver	mg/kg	1.7	5.0%	0.5	1	0.81 UJ	0.87 U	1.1 UJ	1.1 UJ	0.84 U	1.1 U	0.96 U	0.72 U
Sodium	mg/kg	214	100.0%	114	5	56.9 J	99 J	70.7 J	97.9 J	90.6 J	102 J	82.7 J	136 J
Thallium	mg/kg	1.1	40.0%	0.3	5	0.3 J	0.27 UJ	0.24 J	0.16 U	1.1 J	0.95 J	0.96 J	0.88 J
Vanadium	mg/kg	104	100.0%	150	0	26.9	31.4	28.3	104	37.7	39	32.9	25.4
Zinc	mg/kg	1250	55.0%	90	4	81.1	1250 J	93.8	120	97.8 J	85.6 J	63.8 J	82.7 J
OTHER ANALYSES													
Nitrate/Nitrite-Nitrogen	mg/kg	1.28	100.0%	NA	NA	0.40	0.02	0.23	0.51	0.2	0.49	0.46	0.09
Total Solids	%W/W	93.1		NA	NA	90.8	81.4	88.2	87.8	80.4	75.9	82.8	85.6

TABLE 4.3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM (h)	NO. ABOVE TAGM	SOIL SEAD-57 3 12/02/93 TP57-9 206075	SOIL SEAD-57 3 12/02/93 TP57-10 206076	SOIL SEAD-57 3 11/08/93 TP57-11 203824
VOLATILE ORGANICS								
Acetone	ug/kg	23	17.2%	200	0	12 U	4 J	11 U
Chloroform	ug/kg	7	3.4%	300	0	12 U	12 U	11 U
Tetrachloroethene	ug/kg	6	24.1%	1400	0	12 U	12 U	11 U
HERBICIDES								
2,4,5-TP (Silvex)	ug/kg	9.5	5.0%	NA	NA	5.8 U	6 UJ	6.2 U
MCPA	ug/kg	10000	5.0%	NA	NA	5800 U	6000 UJ	6200 U
SEMIVOLATILE ORGANICS								
Naphthalene	ug/kg	180	5.0%	13000	0	380 U	390 U	410 U
2-Methylnaphthalene	ug/kg	750	5.0%	36400	0	380 U	390 U	410 U
Fluorene	ug/kg	120	5.0%	50000 *	0	380 U	390 U	410 U
Phenanthrene	ug/kg	230	20.0%	50000	0	380 U	390 U	410 U
Di-n-butylphthalate	ug/kg	390	15.0%	8100	0	380 U	390 U	410 U
Fluoranthene	ug/kg	56	25.0%	50000 *	0	380 U	390 U	410 U
Pyrene	ug/kg	49	20.0%	50000 *	0	380 U	390 U	410 U
Benzo(a)anthracene	ug/kg	24	5.0%	220	0	380 U	390 U	410 U
Chrysene	ug/kg	42	10.0%	400	0	380 U	390 U	410 U
Benzo(b)fluoranthene	ug/kg	25	5.0%	1100	0	380 U	390 U	410 U
Benzo(k)fluoranthene	ug/kg	20	5.0%	1100	0	380 U	390 U	410 U
Benzo(a)pyrene	ug/kg	20	5.0%	61	0	380 U	390 U	410 U
PESTICIDES/PCB								
Heptachlor epoxide	ug/kg	2.0	5.0%	20	0	2 U	2 U	2.1 U
Dieldrin	ug/kg	27	15.0%	44	0	3.8 U	3.9 U	4.1 U
4,4'-DDE	ug/kg	32	35.0%	2100	0	3.8 U	3.9 U	4.1 U
4,4'-DDD	ug/kg	8.9	15.0%	2900	0	3.8 U	3.9 U	4.1 U
4,4'-DDT	ug/kg	23	20.0%	2100	0	3.8 U	3.9 U	4.1 U
alpha-Chlordane	ug/kg	16	5.0%	540	0	2 U	2 U	2.1 U
Aroclor-1260	ug/kg	27	10.0%	1000 (a)	0	38 U	39 U	41 U
METALS								
Aluminum	mg/kg	22900	100.0%	15523	8	10300	12600	14600
Antimony	mg/kg	6.5	10.0%	5	2	3.5 U	3.6 U	11.3 UJ
Arsenic	mg/kg	9.6	55.0%	7.5	4	8.6	6.8	5.9
Barium	mg/kg	174	100.0%	300	0	70.8	97.5	120
Beryllium	mg/kg	1.1	100.0%	1	1	0.49 J	0.55 J	0.81 J
Calcium	mg/kg	213000	100.0%	120725	1	84000	33000	22300
Chromium	mg/kg	34.5	100.0%	24	9	16.5	17.1	20.1
Cobalt	mg/kg	19	100.0%	30	0	8	8.7	8.8 J
Copper	mg/kg	2930	100.0%	25	10	22.6 J	22.4 J	21.7
Iron	mg/kg	44400	100.0%	28986	6	19900	20500	24900
Lead	mg/kg	1860	100.0%	30	5	16.2	10.9	11.3
Magnesium	mg/kg	27600	100.0%	12308	1	27600	6400	5360
Manganese	mg/kg	818	100.0%	759	1	323 J	387 J	329
Mercury	mg/kg	0.08	85.0%	0.1	0	0.02 U	0.03 J	0.04 J
Nickel	mg/kg	54.1	100.0%	37	9	29.8	24.5	25.7
Potassium	mg/kg	3250	100.0%	1548	12	1350	1680	1430
Selenium	mg/kg	1.2	70.0%	2	0	1.1 J	0.61 J	0.46 J
Silver	mg/kg	1.7	5.0%	0.5	1	0.67 U	0.69 U	1.4 UJ
Sodium	mg/kg	214	100.0%	114	5	128 J	93.6 J	93 J
Thallium	mg/kg	1.1	40.0%	0.3	5	0.91 J	0.21 UJ	0.17 U
Vanadium	mg/kg	104	100.0%	150	0	17.9	22.9	27.8
Zinc	mg/kg	1250	55.0%	90	4	68.5 J	54.1 J	57.9
OTHER ANALYSES								
Nitrate/Nitrite-Nitrogen	mg/kg	1.28	100.0%	NA	NA	0.2	0.3	0.7
Total Solids	%W/W	93.1		NA	NA	86.1	83.9	81.2

Notes:
a) The TAGM value for PCBs is 1000 ug/kg for surface soils and 10,000 ug/kg for subsurface soils.
b) * = As per proposed TAGM, total VOCs < 10ppm; total Semi-VOCs <500ppm; individual semi-VOCs < 50 ppm.
c) NA = Not Available
d) U = Compound was not detected.
e) J = the reported value is an estimated concentration.
f) R = the data was rejected in the data validating process.
g) UJ = the compound was not detected; the associated reporting limit is approximate.
h) NYSDEC TAGM HWR-94-4046, Revised January 24, 1994.
Soil cleanup objectives are based on a soil organic carbon content estimate of 1%.

The types of semivolatile compounds detected can be divided into 2 subgroups. The first major class of semivolatile organic compounds detected were the PAHs, which make up the majority of the compounds detected. These compounds were primarily detected in surface soil samples collected from the perimeter of Building T-2105. Releases of fuel and other oils from the numerous pieces of heavy construction equipment which may have been used to reshape the berm area are a likely source of the PAHs detected at SEAD-57.

The second class of semivolatile compounds detected in the soil samples, phthalates, were represented by Di-n-butylphthalate. This compound was detected at a frequency of 22% and was generally detected at low concentrations.

Subsurface Soils

A total of eight semivolatile organic compounds were found at varying concentrations in the subsurface soil samples analyzed. In general, the reported concentrations of SVOs were low, with none exceeding a TAGM value. Seven of the eight SVOs detected were PAH compounds, and all were detected in subsurface soil samples TP57-2 and/or TP57-4. One phthalate compound, di-n-butylphthalate was detected only in sample TP57-2 at a concentration of 390J μg/kg.

4.3.2.3 Pesticides and PCBs

Surface Soils

Five pesticides and one PCB compound were found in the soil samples collected at SEAD-57. The frequency of detection of these compounds ranged from 11% for alpha-chlordane, 4,4'DDT, and heptachlor expoxide to 44% for 4,4'-DDE. There was no obvious spatial distribution of the compounds, with the compounds being detected in a variety of the samples. All of the concentrations were very low, well below the respective TAGM values. Several of the constituents were evident in surface soil sample SS57-7, which is located north of Building T-2105.

Subsurface Soils

Three pesticides, 4,4'DDE, 4,4'DDD, and 4,4'DDT, were each detected in subsurface soil samples TP57-1, TP57-3, and TP57-4. The highest reported concentration among these three compounds was 23 μg/kg (for 4,4' DDT) which is well below their respective TAGM values. No PCB compounds were detected in the subsurface soil samples analyzed.

4.3.2.4 Herbicides

Surface Soils

No herbicides were detected in the surface soil samples analyzed.

Subsurface Soils

Two herbicides were found in two subsurface soil samples collected at SEAD-57. The test pit soil samples TP57-3 and TP57-4, located on the berm, had concentrations of 10,000J μg/kg of MCPA and 9.5J μg/kg of 2,4,5-TP (Silvex), respectively. No other herbicide compounds were reported.

4.3.2.5 Metals

Surface Soils

A number of the surface soil samples collected at SEAD-57 were found to contain various metals at concentrations that exceeded their associated TAGM values. The majority of these exceedances were limited to 1 or 2 samples. The only exceptions to this were noted for copper, lead, potassium and sodium where TAGM exceedances were reported in 3 to 5 of the surface soil samples analyzed.

Subsurface Soils

Fifteen of the 22 reported metals were found in one or more subsurface samples at concentrations exceeding their respective TAGM values. While several of these exceedances were for only 1 or 2 samples, the majority of the TAGM exceedances were more significant. Of particular note are the metals copper, lead and nickel, where a large percentage of the samples exceeded their criteria values and for the metals copper and lead, the reported concentrations in subsurface soil sample TP57-2 were an order of magnitude above their criteria values.

Copper concentrations exceeded the TAGM (25 mg/kg) in seven of the 11 subsurface soil samples, with a maximum value detected of 2930 mg/kg found in subsurface soil sample TP57-2. The spatial distribution of copper in soil is shown in Figure 4.3-1. Subsurface soil sample TP57-2 also had the highest reported concentrations of lead (1,860 mg/kg) and zinc (1,250 mg/kg).

4.3.2.6 Nitroaromatics

Surface Soils

No nitroaromatics were found in the surface soil samples collected at SEAD-57.

Subsurface Soils

No nitroaromatics were found in the subsurface soil samples collected at SEAD-57.

4.3.2.7 Indicator Compounds

Surface Soils

The SEAD-57 surface soils were analyzed for nitrate/nitrite nitrogen. Concentrations ranged from a low of 0.09 mg/kg in surface soil sample SS57-7, to a maximum of 1.28 mg/kg in surface soil sample SS57-4.

Subsurface Soils

Nitrate/nitrite nitrogen was detected at concentrations ranging from 0.02 mg/kg (in subsurface soil sample TP57-2) to 0.7 mg/kg (in subsurface soil sample TP57-11).

4.3.3 Groundwater

Three monitoring wells were installed as part of the SEAD-57 investigation. The summary analytical results are presented in Table 4.3-2. The following sections describe the nature and extent of the groundwater contamination identified at SEAD-57.

FIGURE 4.3-1
SEAD-57 EXPLOSIVE ORDNANCE DISPOSAL AREA
COPPER IN SOILS (mg/kg)

TABLE 4.3-2
SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	NY AWQS CLASS GA (a)	MCL STANDARD	NO. ABOVE CRITERIA	WATER SEAD-57 02/03/94 MW57-1 210260	WATER SEAD-57 02/03/94 MW57-2 210261	WATER SEAD-57 02/03/94 MW57-3 210262	WATER SEAD-57 02/03/94 MW57-4 210263 MW57-3DUP
SEMI-VOLATILE ORGANICS										
bis(2-Ethylhexyl)phthalate	ug/L	20	33.3%	50	NA	0	10 U	10 U	20	
METALS										
Aluminum	ug/L	6540	100.0%	NA	NA	NA	4200	6540	482	
Antimony	ug/L	44.7	66.7%	3	6	2	44.7 J	21.6 UJ	35.7 J	
Barium	ug/L	83.5	100.0%	1000	2000	0	36.5 J	83.5 J	65.5 J	
Beryllium	ug/L	0.63	33.3%	3	4	0	0.4 U	0.63 J	0.4 U	
Cadmium	ug/L	3.1	33.3%	10	5	0	2.1 U	3.1 J	2.1 U	
Calcium	ug/L	288000	100.0%	NA	NA	NA	82000	288000	97900	
Chromium	ug/L	14.5	100.0%	50	100	0	7.7 J	14.5	3.7 J	
Cobalt	ug/L	14.8	33.3%	NA	NA	NA	4.4 U	14.8 J	4.4 U	
Copper	ug/L	5.2	33.3%	200	1300(g)	0	3.1 U	5.2 J	3.1 U	
Iron	ug/L	9260	100.0%	300	NA	0	6360	9260	652	
Lead	ug/L	2.2	100.0%	25	15(h)	0	2.1 J	2.2 J	1.1 J	
Magnesium	ug/L	36900	100.0%	35000	NA	1	11400	36900	21100	
Manganese	ug/L	327	100.0%	300	NA	1	245	327	122	
Nickel	ug/L	18.8	66.7%	NA	100	0	8.2 J	18.8 J	4 U	
Potassium	ug/L	4600	100.0%	NA	NA	NA	3860 J	4600 J	2150 J	
Selenium	ug/L	2.2	33.3%	10	50	0	0.69 U	2.2 J	0.7 U	
Sodium	ug/L	8920	100.0%	20000	NA	0	4080 J	8920	5540	
Vanadium	ug/L	9.2	100.0%	NA	NA	NA	7.6 J	9.2 J	4.5 J	
Zinc	ug/L	85.1	100.0%	300	NA	0	57.4	85.1	51.2	
OTHER ANALYSES										
Nitrate/Nitrite-Nitrogen	mg/L	1.13	100.0%	10	10	0	0.25	1.13	0.21	
pH	standard units	7.72					7.72	7.23	7.48	
Specific Conductance	umhos/cm	900					255	900	350	
Turbidity	NTU	31.6					31.6	27.4	8.9	

NOTES:

a) NY State Class GA Groundwater Regulations
b) NA = Not Available
c) U = compound was not detected
d) J = the report value is an estimated concentration
e) UJ = the compound was not detected; the associated reporting limit is approximate
f) R = the data was rejected in the data validating process
g) The value listed is an action level for copper at the tap, and not an MCL
h) The value listed is an action level for lead at the tap, and not an MCL

4.3.3.1 Volatile Organic Compounds

No VOCs were found in the groundwater samples collected at SEAD-57.

4.3.3.2 Semi-Volatile Organic Compounds

Only one semi-volatile organic compound, bis(2-ethylhexyl)phthalate, was detected in the three groundwater samples collected at SEAD-57. Bis(2-ethylhexyl)phthalate, was found in the groundwater sample collected from monitoring well MW57-3, at a concentration of 20 μg/L, which is below the NYSDEC Class GA groundwater standard of 50 μg/L.

4.3.3.3 Pesticides and PCBs

No pesticides or PCBs were found in the three groundwater samples collected at SEAD-57.

4.3.3.4 Herbicides

No herbicides were found in the three groundwater samples collected at SEAD-57.

4.3.3.5 Metals

Three metals, antimony, magnesium and manganese, were found in concentrations above the criteria value. A maximum concentration for magnesium, 36,900 μg/L, and a maximum concentration for manganese, 327 μg/L, were found in the groundwater sample collected from monitoring well MW57-2. A maximum concentration for antimony, 44.7J μg/L, was found in the groundwater sample collected from monitoring well MW57-1.

4.3.3.6 Nitroaromatics

No nitroaromatic compounds were found in the three groundwater samples collected at SEAD-57.

4.3.3.7 Indicator Parameters

None of the three groundwater samples analyzed had nitrate concentrations above the criteria value of 10 mg/L. The maximum nitrate value detected was 1.13 mg/L in the groundwater sample collected from monitoring well MW57-2.

4.3.4 Tentatively Identified Compounds

Subsurface Soils

Tentatively identified compounds (TICs) were found at a total concentration which was greater than 50 mg/kg in one subsurface soil sample. Sample TP57-2 had a total TIC concentration of 78.9 mg/kg which represented the sum of numerous decane and cosane compounds. Of the two subsurface soil samples having detectable concentrations of SVOs. Sample TP57-2 had the highest reported SVO compound concentrations.

5.0 HEALTH AND ENVIRONMENTAL CONCERNS

This section will identify the source areas, release mechanisms, potential exposure pathways and the likely human and environmental receptors at each of the three AOCs. Prior to identifying these items, an exposure pathway summary is presented.

The SEDA is a government-owned installation under the jurisdiction of the U.S. Army Material Command (AMC). The facilities include storage areas and warehouses, munitions destruction and deactivation facilities, and administration buildings. The Army has no plans to change the use of this facility or to transfer the ownership.

It should be noted that SEDA was recommended for the 1995 Base Closure List. If SEDA remains on the Final 1995 Base Closure List (which is to be determined in October, 1995), or if the property is to change ownership in the future, the Army will notify all appropriate regulatory agencies and will perform any additional investigations and remedial actions to assure that any changes in the intended use is protective of human health and the environment in accordance with CERCLA. Also, Army regulations (Regulation 200-1, paragraph 12-5, Real Property Transactions), requires the Army to perform an Environmental Baseline Study (EBS) prior to a transfer of Army property. The EBS is an inventory and a comprehensive evaluation of the existing environmental conditions and consists of scope definition, survey, sampling, investigative and risk assessment.

5.1 EXPOSURE PATHWAY SUMMARIES

A preliminary exposure pathway summary was developed for each of the three AOCs. The pathway summary combines both site conditions and expected behavior of the detected chemicals in the environment into a preliminary understanding of the site. The pathways were developed by evaluating the physical aspects of environmental conditions and the effect these conditions may have on the migration potential of the detected chemicals.

The proper framework of an exposure pathway involves a source, transport medium, exposure point, and an exposure route. A pathway is considered incomplete if one or more of these components is not present with the exception of the transport medium, which may be absent in the case of direct exposures. Therefore, if there is not a complete pathway, there is no risk from that theoretical pathway. This is designated on the Exposure Path Summary figures as NA. A pathway is an unlikely risk if there is only a remote possibility of an exposure above the appropriate criteria.

Ingestion of dust was not evaluated as a pathway because the quantity of compounds ingested as dust would be insignificant when compared to the quantity ingested as soil or inhaled as dust.

5.2 SEAD-11

5.2.1 Source Areas and Release Mechanisms

The Old Construction Debris Landfill was active from 1946 to 1949 although operating practices are unknown. The landfill, which covers approximately four acres, is currently abandoned and the surface is vegetated with grasses and weeds. This area primarily contains SVOs and heavy metals. The primary source area for SEAD-11 includes the buried wastes and contaminated soils within the landfill.

The primary release mechanisms from the soils that comprise the landfill is surface water runoff and infiltration of precipitation. Surface water, sediment, and groundwater are secondary release mechanisms. Wind is also a release mechanism, as dusts from impacted soil may be reintroduced into the breathing zone, although this is not expected to be significant as the site is vegetated.

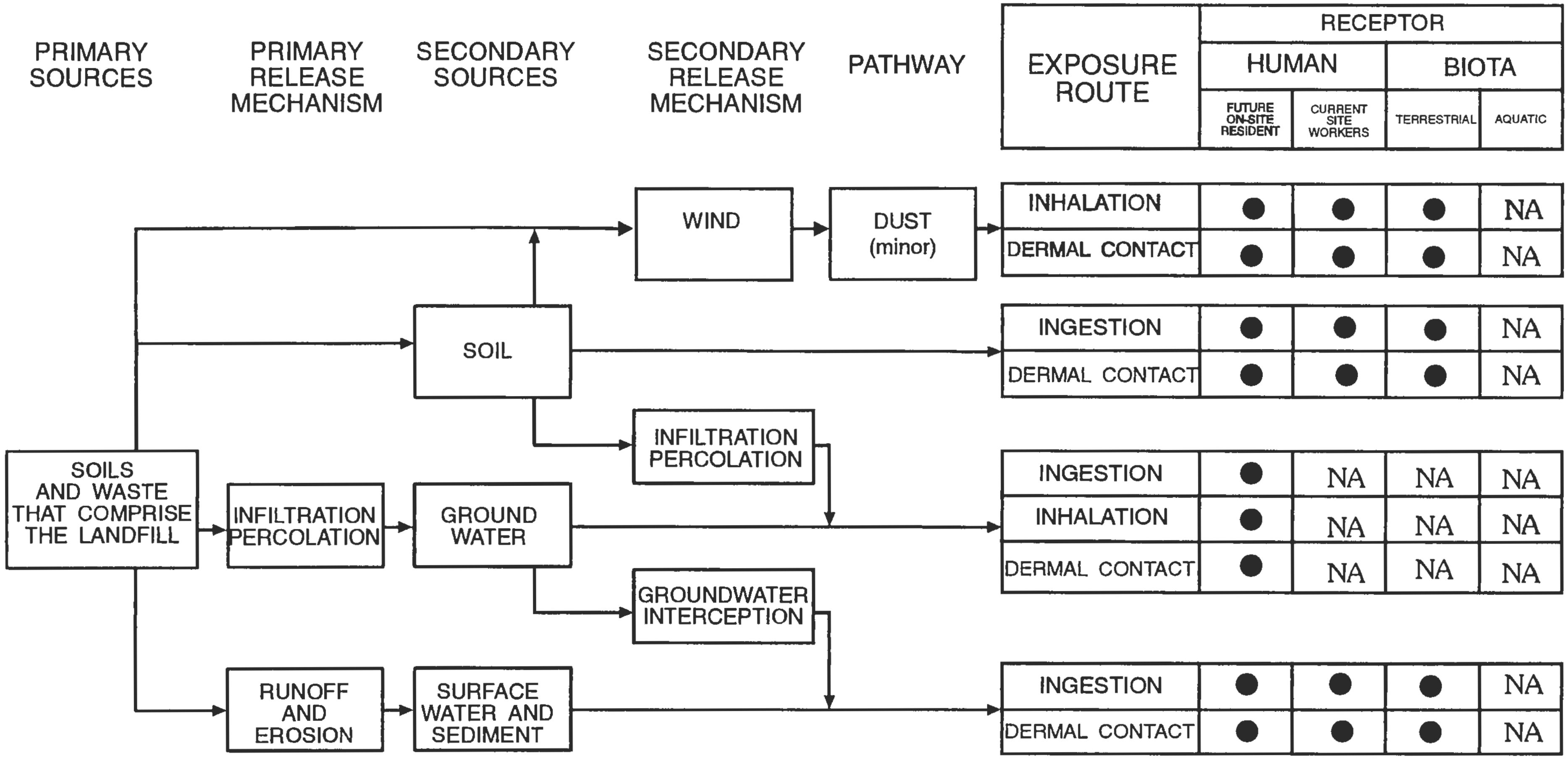
5.2.2 Potential Exposure Pathways and Receptors

The complete potential exposure pathways from sources to receptors are shown schematically in Figure 5.2-1. The potential for human exposure is directly affected by the accessibility to the site. Within SEDA, human and vehicular access to the site is restricted since the facility is located within the confines of the ammunition storage area.

There are three primary receptor populations for potential releases of contaminants from the Old Construction Debris Landfill:

1. SEDA personnel or other people who may visit the Old Construction Debris Landfill;
2. Future on-site residents; and
3. Terrestrial biota near the Old Construction Debris Landfill.

The exposure pathways and media of exposure are described below as they may effect the various receptors.



● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

NA NOT APPLICABLE RECEPTOR

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY AOCs

DEPT. ENVIRONMENTAL ENGINEERING | DWG NO. 720478-02000

FIGURE 5.2-1
EXPOSURE PATHWAY SUMMARY
FOR SEAD-11

SCALE NA | DATE APRIL 1995

H:\ENG\SENECA\3SWMU\FIG5-2-1.CDR

5.2.2.1 Ingestion and Dermal Exposure Due to Surface Water Runoff and Sediment

Surface water flow is controlled by local topography. The west trending topography gradient is relatively uniform and steep in areas north and south of the landfill but the gradient becomes less steep beyond the toe of the landfill, which is located to the west of the landfill. Based on the topographic expression, surface water flow on most of the landfill surface is to the north-northwest and is likely to be captured by the east-west trending swale located on the south side of Indian Creek Road. The swale drains west toward the SEDA boundary. Some surface water drains off of the landfill toe, where it collects in a relatively flat area and eventually drains either to the north into the swale along Indian Creek Road or to the south in a relatively straight drainage swale which is covered by vegetation. A topographic low area on the southeast perimeter of the landfill collects surface water which drains from the south eastern portion of the site between the landfill and the SEDA railroad tracks. Surface soils eroded from the site may be deposited in the drainage swale adjacent to Indian Creek Road or the low flat area west of the landfill.

The primary environmental receptors of any impacted surface water and sediment are the biota of the low-lying areas and drainage swales. Organisms which feed on the biota may be affected due to bioaccumulation of pollutants from the surface water and sediment. Terrestrial biota that drink from and come in contact with impacted surface waters may also be affected.

Human receptors of impacted surface water and sediment include future on-site residents, as well as current SEDA personnel and visitors, by way of ingestion and dermal contact.

5.2.2.2 Soil Ingestion and Dermal Contact

Ingestion of, and dermal contact with, soil is a potential exposure pathway for future on-site residents, and terrestrial biota. Inadvertent ingestion of, and dermal contact with, soil are potential exposure pathways for current site workers and visitors.

5.2.2.3 Groundwater Ingestion, Inhalation, and Dermal Contact

Ingestion of, inhalation of, and dermal contact with groundwater are potential exposure pathways for future on-site residents. This assumes that the residents will obtain their water supply from wells installed on-site. The groundwater beneath the Old Construction Debris Landfill is not used currently as a drinking water source and connection to other potable groundwater aquifers has not been demonstrated. It is not anticipated that there would be direct exposure to the groundwater from the site under current uses to site workers and visitors, and terrestrial biota. Groundwater beneath the site flows to the west.

5.2.3 Summary of Affect Media

A total of 5 surface soil samples and 10 subsurface soil samples were collected at SEAD-11. Four groundwater wells were installed and sampled as part of this investigation. The impacts to these media are summarized below. Detailed descriptions of the individual constituents and their concentrations (including any TAGM exceedances) were previously presented in Section 4.0.

Surface Soils

Surface soils at the site have been impacted primarily by semivolatile organic compounds and metals. Other constituents that were detected include volatile organic compounds, pesticides, PCBs, herbicides, nitroaromatics, and nitrate/nitrite nitrogen. VOCs, herbicides, and all of the pesticides except 4,4'-DDT were considered to be less significant because they were present in only a small number of samples and at concentrations which were below criteria values. The pesticide 4,4-DDT was detected at a concentration which exceeded its TAGM value of 2,100 μg/kg in only one surface soil sample, TP11-31 (4,300J μg/kg).

A total of 19 semivolatile organic compounds were found at varying concentrations in the soil samples analyzed. With the exception of bis(2-ethylhexyl)phthlate, all of the semivolatile organic compounds detected were PAHs, which are derived from petroleum products. Three of the four surface soil samples collected from within the old construction debris landfill exceeded the TAGM for benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene. All four surface soil samples collected from within the old construction debris landfill exceeded the TAGM for benzo(a)pyrene and dibenz(a,h)anthracene.

Of the 22 metals reported in the surface soils, 17 of these were found in one or more samples at concentrations above the TAGM value. Several metals were identified at concentrations significantly above the TAGM value. Of particular note are the metals copper and zinc, where a large percentage of the samples exceeded the TAGM value and where the concentrations of the exceedances are generally an order of magnitude or greater above the TAGM value. The maximum concentration of copper, 1090 mg/kg, was identified in surface soil sample TP11-3.1. This sample also had an elevated concentration of zinc (1250 mg/kg). The maximum concentration of zinc, 3600 mg/kg, was identified in surface soil sample TP11-1.1.

Subsurface Soils

The primary constituents of concern identified in the subsurface soil samples were PAHs and metals. The primary constituents identified in the surface soil samples (benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, copper and zinc) were also found in numerous subsurface soil samples at concentrations which were significantly above their respective criteria values. Other constituents that were detected in the subsurface soil samples included volatile organic compounds, pesticides, herbicides, nitroaromatics, and nitrate/nitrite nitrogen.

Groundwater

Groundwater at the site appears to have been impacted by metals. No volatile organic compounds, semi-volatile organic compounds, pesticides and PCBs, herbicides, nitrate/nitrite, and nitroaromatics were detected in any of the wells.

Four metals, iron, lead, magnesium, and sodium, were found in one or more of the groundwater samples at concentrations above their criteria values. Lead was considered as a major constituent of concern as it was detected in one well, MW11-3, at a concentration of 33.7 μg/L, which is over the NYSDEC Class GA groundwater standard of 25 μg/L.

5.3 SEAD-13

5.3.1 Source Areas and Release Mechanisms

The IRFNA disposal site was active during the early 1960s. The site consisted of six pits which were 30 feet long, 8 feet wide and 4 feet deep. The pits were constructed by excavating to a shale stratum 4 feet below ground. Following excavation, limestone was placed in the bottom of the pits to a depth of approximately 2.5 feet below ground. The sides of the pits were also lined with limestone.

Barrels of unserviceable IRFNA were stored on pallets near the west end of the pits. A stainless steel ejector, operated by water pressure, was fitted into a barrel with water flowing through the ejector. The ejector discharged a mixture of water and IRFNA through a long polyethylene hose under the water surface in the pit being used. During this period the IRFNA was allowed to mix with the limestone in the pit to facilitate the neutralization of the acid. At present, the site has been abandoned and the existence of any pits in the western portion of SEAD 13 is unknown. This area primarily contains metals and nitrates/nitrites. The primary source area for SEAD-13 includes contaminated soils within and adjacent to the IRFNA pits.

The primary release mechanism from the IRFNA disposal pits is surface water runoff and infiltration of precipitation. Wind is also a release mechanism as dust from impacted soil may be introduced into the breathing zone, although this is not expected to be significant as the site is vegetated.

5.3.2 Potential Exposure Pathways and Receptors

The complete potential exposure pathways from sources to receptors are shown schematically in Figure 5.3-1. The potential for human exposure is directly affected by the accessibility to the site. Within the boundaries of SEDA, human and vehicular access to the site is not restricted.

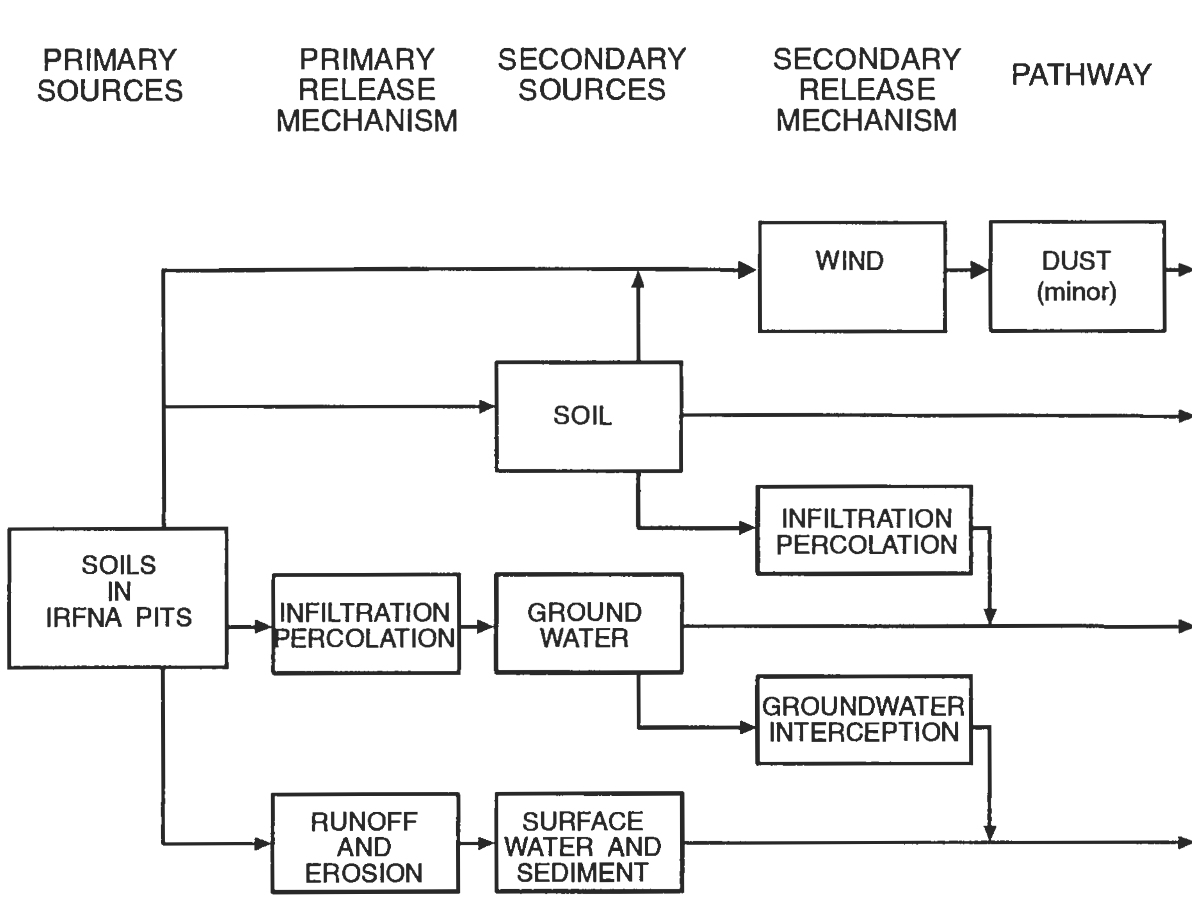
There are four primary receptor populations for potential releases of contaminants from the IRFNA disposal site:

1. SEDA personnel or other people who may visit the IRFNA disposal pits;
2. Future on-site residents;
3. Terrestrial biota on or near the IRFNA disposal pits; and
4. Aquatic biota in the Duck Pond.

The exposure pathways and media of exposure are described below as they may effect the various receptors.

5.3.2.1 Ingestion and Dermal Exposure Due to Surface Water Runoff and Sediment

Surface water flow is controlled by local topography although very little relief is present on the eastern and western IRFNA disposal areas. In general, the topography of the land slopes toward the Duck Pond which separates the two disposal areas. Because no well developed drainage swales are present at either disposal areas, it is likely that surface water ponds on



EXPOSURE ROUTE	FUTURE ON-SITE RESIDENT	CURRENT SITE WORKERS	TERRESTRIAL	AQUATIC
INHALATION	●	●	●	NA
DERMAL CONTACT	●	●	●	NA
INGESTION	●	●	●	NA
DERMAL CONTACT	●	●	●	NA
INGESTION	●	NA	NA	NA
INHALATION	●	NA	NA	NA
DERMAL CONTACT	●	NA	NA	NA
INGESTION	●	●	●	●
DERMAL CONTACT	●	●	●	●

● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

NA NOT APPLICABLE RECEPTOR

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

EXPANDED SITE INSPECTION OF 3 MODERATE-PRIORITY AOCs

DEPT. ENVIRONMENTAL ENGINEERING

DWG NO. 720478-02000

FIGURE 5.3-1

EXPOSURE PATHWAY SUMMARY FOR SEAD-13

SCALE NA

DATE APRIL 1995

H:\ENG\SENECA\3SWMU\FIG5-3-1.CDR

the surface and eventually drains into the Duck Pond. Surface soils eroded from the site would be deposited within the Duck Pond.

The primary human receptors of the surface water and sediment impacts are current SEDA personnel, site visitors, and future residents. Current SEDA personnel and visitors to the site could experience dermal exposure from wading in the Duck Pond and could inadvertently ingest surface water or sediment. Hunters would only walk through the site. Future on-site residents could come in contact with surface water and sediment. Since the site is abandoned and overgrown, wind-blown dust is not a significant release mechanism.

The primary environmental receptors of any impacted surface water and sediment are the biota of the low-lying areas and the Duck Pond. Organisms which feed on the biota may be affected due to bioaccumulation of pollutants from the water and sediment. Terrestrial biota that drink from impacted surface water bodies (e.g., the Duck Pond) may also be affected.

5.3.2.2 Soil Ingestion and Dermal Contact

Ingestion of and dermal contact with soil is a potential exposure pathway for future on-site residents, on-site visitors and workers, and terrestrial biota. Dermal contact with, and inadvertent ingestion of, soil is a potential pathway for current site workers and visitors.

5.3.2.3 Groundwater Ingestion, Inhalation and Dermal Contact

Ingestion of, inhalation of, and dermal contact with groundwater are potential exposure pathways for future on-site residents. This assumes that the residents will obtain their water supply from wells installed on-site.

The groundwater beneath the IRFNA disposal pits is not used currently as a drinking water source and connection to other potable groundwater aquifers has not been demonstrated. It is not anticipated that there would be direct exposure to the groundwater from the site under current uses. Groundwater flow direction on the eastern disposal area is to the west-northwest and in the western disposal area to the east-northeast, although seasonal variations in these groundwater flow directions may occur. In both areas, groundwater generally flows toward the Duck Pond. The potential groundwater contribution to the surface water (i.e., the Duck Pond) could result in the exposures identified for surface water and sediments above.

5.3.3 Summary of Affected Media

A total of 10 surface soil samples and 20 subsurface soil samples were collected at SEAD-13. To evaluate the extent of surface water runoff impacts, three surface water and three sediment samples were collected from the pond. Additionally, five groundwater samples were collected as part of this investigation. The impacts to these media are summarized below. Detailed descriptions of the individual constituents and their concentrations (including any TAGM exceedances) were presented in Section 4.0.

Surface Soils

Surface soils at the site have been impacted primarily by metals and fluoride. Other constituents that were detected include several semi-volatile organic compounds and nitrate/nitrite nitrogen. Constituents analyzed for but not detected on-site include volatiles, PCBs, pesticides and herbicides.

Of the 22 metals reported in soils, 12 of these were found in one or more samples at concentrations above the TAGM value. Several metals were identified in a large number of samples above the TAGM value. Of these metals, aluminum, arsenic, chromium, copper,iron, nickel, and thallium were found at the highest concentrations and in the largest number of samples above their respective TAGM values.

Chromium was detected at concentrations above the TAGM (24 mg/kg) in 4 of the surface soil samples and one of the duplicate samples collected. The highest concentration, 30.2 mg/kg, was detected in the surface soil sample SB13-4.1.

Copper was detected at concentrations exceeding the TAGM value (25 mg/kg) in 5 of the surface soil samples and 2 of the duplicate samples analyzed. Most were only slightly above the TAGM value. The maximum copper concentration detected was 45.2 mg/kg in soil sample SB13-2.1. Nickel concentrations exceeded the TAGM value (37 mg/kg) in 4 of the surface soil samples collected. Most exceeded the TAGM by only a slight amount with a maximum concentration of 46.6 mg/kg in soil sample SB13-2.1. Thallium concentrations exceeded the TAGM value (0.30 mg/kg) in 4 samples. The highest concentration was 0.91J mg/kg in SB13-3.1.

Subsurface Soils

The occurrence and distribution of constituents which were significantly above their respective TAGM values or were found in numerous samples at concentrations which exceeded their respective TAGM values were similar to those found in the surface soil samples. The major constituents of concern were the inorganic elements aluminum, arsenic, chromium, copper, iron, nickel and thallium and the indicator compounds nitrate/nitrite nitrogen and fluoride. The metals chromium, copper, nickel, and thallium were found at concentrations above criteria value in at least 30% of the subsurface soil samples analyzed, though all were reported at levels which were a factor of 2.6 or less above criteria values.

Groundwater

Groundwater at the site appears to have been impacted by metals and nitrate/nitrite. The other constituent that was detected, but is considered to be of less significance, includes the semivolatile organic compound bis(2-ethylhexyl)phthalate, which is a laboratory and sampling contaminant. This latter constituent was considered to be insignificant because it is present at concentrations which were below the NY AWQS Class GA criterium of 50 μg/L. Constituents that were not detected on-site include volatile organic compounds, pesticides and PCBs, and herbicides.

Six metals, antimony, chromium, iron, lead, magnesium, and manganese were found in one or more of the groundwater samples at concentrations above their criteria values. Chromium, antimony, lead and nitrate/nitrite nitrogen were considered to be the major constituents of concern due to their presence at significant concentrations in one or more of the groundwater samples. Chromium and lead were found in one well at a concentration above the criteria. A concentration of 69.4 μg/L for chromium and 34.8 μg/L for lead were both found in the groundwater sample from monitoring well MW13-1.

Antimony was found in four of the five samples exceeding the criteria. A maximum concentration of 52.7 μ/L was found in the groundwater sample collected from monitoring well MW 13-6.

One of the groundwater samples analyzed had a nitrate/nitrite nitrogen concentration above the criterion value of 10 μg/L. A concentration of 460 μg/L of nitrate was detected in the groundwater sample from monitoring well MW13-2, which is located in the area of the disposal pits east of the Duck Pond.

Surface Water

Two metals, aluminum and iron, were found in the three surface water samples at concentrations above the most stringent state or federal criteria value. Constituents that were not detected in SEAD-13 surface waters include volatile organic compounds, semivolatile organic compounds, pesticides and PCBs, and herbicides.

Sediment

The major constituents of concern in the sediments at the site are inorganic elements. Other constituents that were detected include volatile organic compounds, semi-volatile organic compounds, and nitrate/nitrite nitrogen. Herbicides, pesticides, PCBs, and nitroaromatics were not detected on-site.

None of the metals were found at concentrations exceeding the NYDSDEC Limit of Tolerance values, however five metals, chromium, copper, iron, manganese, and nickel, were found at concentrations above the NYSDEC sediment criteria values for protection of aquatic life. The maximum concentration detected for chromium was 26.9 mg/kg, the maximum concentration for copper was 20.7 mg/kg, and the maximum concentration for nickel was 31.1 mg/kg. Two sediment samples collected from the pond (SD13-2 and SD13-3) had concentrations of chromium, copper, and nickel that exceeded the NYSDEC sediment criteria values for protection of aquatic life. Generally, surface water runoff appears to be the likely mechanism for the distribution and concentration of metals in the pond.

5.4 SEAD-57

5.4.1 Source Areas and Release Mechanisms

The Explosive Ordnance Disposal Area has been active from 1941 to the present and is currently used for bomb squad training. The disposal area consists of a berm approximately 4 feet wide and 8 to 10 feet high with an inside diameter of approximately 70 feet. A shallow depression near the berm and Building T-2105 are also included in this AOC. These areas have been found to contain heavy metals.

The primary source areas for SEAD-57 include the contaminated soils in the berm and pad, and surface soils around Building T-2105.

The primary release mechanism from the soils that comprise the berm as well as the soils within the bermed area is surface water runoff and infiltration of precipitation. Surface water, sediment, and groundwater are secondary sources. Dust is also considered as a pathway, although it is not expected to be significant because the site is vegetated.

5.4.2 Potential Exposure Pathways and Receptors

The complete potential exposure pathways from sources to receptors are shown schematically in Figure 5.4-1. The potential for human exposure is directly affected by the accessibility to the site. Within SEDA, human and vehicular access to the site is restricted since the facility is located within the confines of the ammunition storage area.

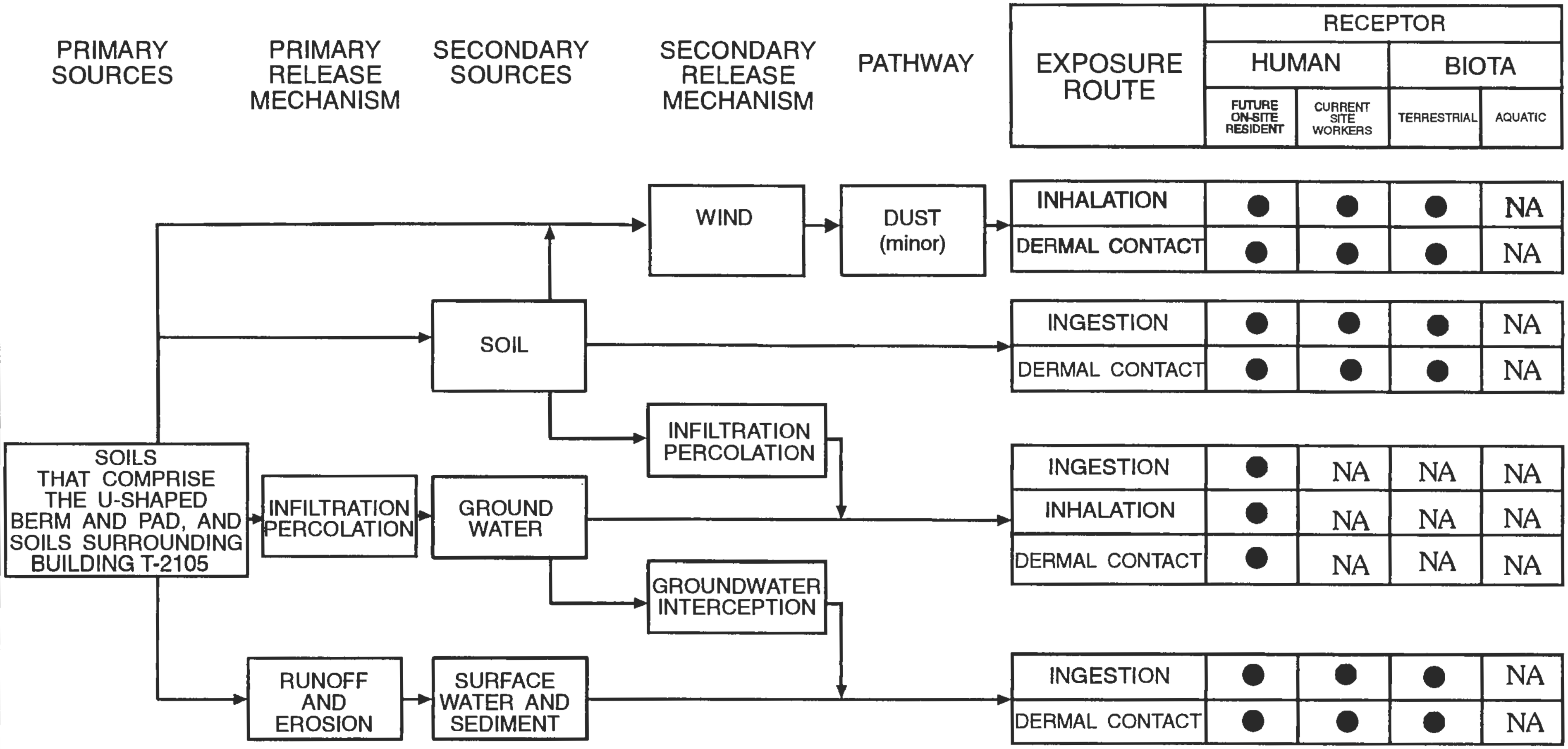
There are three primary receptor populations for potential releases of contaminants from the Explosive Ordnance Disposal Area:

1. SEDA personnel and visitors who go on or near the Explosive Ordnance Disposal Area;
2. Future on-site residents; and
3. Terrestrial biota near the Explosive Ordnance Disposal Area

The exposure pathways and media of exposure are described below as they may effect the various receptors.

5.4.2.1 Ingestion and Dermal Exposure Due to Surface Water Runoff and Sediment

Surface water flow is controlled by local topography on the site. Surface water would likely be directly collected in one of three north-south trending swales which originate at the paved road in the northern portion of the site and drain to the south. One swale is located east of the berm and the other two are between the berm and the unpaved access road. Immediately north of the road is a local topographic high where the ground elevation is greater than 634 feet above mean sea level. Topography on-site slopes to the south and southwest, however, in the eastern portion of the site topography slopes gently to the east, indicating that there may be a local surface water flow divide in this area. The eastern most drainage swale which drains predominantly to the south on-site eventually bends to the east. The majority of the site is expected to be west of the suspected divide.



● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

NA NOT APPLICABLE RECEPTOR

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
EXPANDED SITE INSPECTION OF
3 MODERATE-PRIORITY AOCs

DEPT. ENVIRONMENTAL ENGINEERING
DWG NO. 720478-02000

FIGURE 5.4-1
EXPOSURE PATHWAY SUMMARY
FOR SEAD-57

SCALE NA
DATE APRIL 1995

H:\ENG\SENECA\3SWMU\FIG5-4-1.CDR

The primary environmental receptors of any impacted surface water and sediment are the biota of the low-lying areas. Organisms which feed on the biota may be affected due to bioaccumulation of pollutants from the surface water and sediment. Terrestrial biota that drink from impacted ephemeral surface waters may also be affected.

Human receptors of impacted surface water and sediment include future on-site residents by way of ingestion and dermal contact and current SEDA personnel and visitors who may come in contact with the surface water and sediment. Inadvertent ingestion of surface water and sediment by SEDA personnel and site visitors is also a potential exposure pathway.

5.4.2.2 Soil Ingestion and Dermal Contact

Ingestion and dermal contact with soil are potential exposure pathways for future on-site residents. Dermal contact with, and inadvertent ingestion of, soil is a potential pathway for current site workers and visitors.

5.4.2.3 Groundwater Ingestion, Inhalation, and Dermal Contact

The groundwater beneath the Explosive Ordnance Disposal Area is not used as a drinking water source and connection to other potable groundwater aquifers has not been demonstrated. It is not anticipated that there will be direct exposure to the groundwater from the site under current uses to on-site workers and visitors, and terrestrial biota. All three pathways are potential routes of exposure to future on-site residents assuming on-site groundwater is used as their water supply.

Groundwater beneath the site flows generally to the southwest, although there may be a southerly component to the flow in the western portion of the site. It should also be noted that in the far eastern portion of the site, groundwater flow may be to the east or northeast based on topographic information. Groundwater that flows east or northeast on the site would eventually discharge to Reeder Creek, which is located approximately 1500 feet to the northeast. However, the majority of the site is believed to be located west of the suspected divide.

5.4.3 <u>Summary of Affected Media</u>

A total of nine surface soil samples and 11 subsurface soil samples were collected at SEAD-57. Three groundwater wells were installed and sampled as part of this investigation. The impacts to these media are summarized below. Detailed descriptions of the individual constituents and their concentrations (including any TAGM exceedances) were previously presented in Section 4.0.

Surface Soils

There were no major constituents of concern in the surface soils at SEAD-57. Constituents which were detected include VOCs, SVOs, pesticides, one PCB compound, metals, and nitrate/nitrite nitrogen. Of all the compounds detected, only several metals were found at concentrations which exceeded criteria values and none were found at significant concentrations. Herbicides and nitroaromatics were undetected in the surface soil samples.

Subsurface Soils

Subsurface soils at the site have been impacted primarily by metals. Other constituents that were detected include volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides, and nitrate/nitrite nitrogen. These constituents are not considered to be significant because they are present at concentrations which are below their respective TAGMs.

Of the 22 metals reported in soils, 15 of these were found in one or more samples at concentrations above their TAGM values. While several of these exceedances were found in only one or two samples, or were only marginally above the TAGM value, several metals were identified at significant concentrations and/or in a large number of samples above the TAGM value. Of a particular note are the metals copper, lead, and nickel where a large percentage of the samples exceeded the TAGM value. Copper and lead also were detected at concentrations which were up to an order of magnitude or greater above their respective TAGM values. The highest concentrations of these (Cu at 2930 mg/kg, and Pb at 1860 mg/kg) were found in test pit sample TP57-2.

Groundwater

The major constituents of concern in the groundwater at the site are inorganic elements. Other constituents that were detected include volatile organic compounds and nitrates. These latter constituents were considered to be insignificant because they are present at low concentrations which were below their respective criteria values. Constituents that were not detected on-site include semi-volatile organic compounds, pesticides and PCBs, herbicides, and nitroaromatics.

The metals magnesium and manganese were found in one of the groundwater samples at concentrations above the criteria value. The maximum concentration for magnesium, 36,900 μg/L, and the maximum concentration for manganese, 327 μg/L, were found in the groundwater sample for monitoring well MW57-2.

Antimony was found in two of the three groundwater samples at concentration above the criteria value. The maximum concentration for antimony, 44.7 μg/L, was found in the groundwater sample collected from monitoring well MW57-1.

6.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

6.1 CHEMICAL DATA QUALITY

Completeness

Completeness is defined as the percentage of measurements that have been judged to be valid measurements. Completeness of the chemical data was evaluated by comparing the sum of analysis results that were considered to be valid to the total number of analysis results that were performed. For this analysis, each datapoint was considered to comprise one measurement. The total number of measurements was obtained as the product of the number of analytes and the number of samples. The percentage of completeness ranged from 98.7 to 99.9% at the three moderate priority AOCs. This exceeded the QA objective established in the workplan of 90%.

Representativeness

The samples were representative of conditions at upgradient and downgradient locations for surface soil, groundwater, surface water, and sediment. Test pits and borings were installed at locations that had the greatest potential to be sources of contamination. The representativeness of all the samples was maintained by following the sampling protocols described in the workplan, decontaminating equipment between samples, and collecting the appropriate QC field samples. To evaluate representativeness, several of the completed field forms were audited. The work recorded on the forms complied with the protocol. The rinsate sample results indicate the sampling equipment was being decontaminated. Five rinsates and eight duplicates were obtained for the ESIs at the three AOCs. This represents 5% and 9%, respectively, of the total samples. This met or exceeded the QA objective of 5% for rinsates and duplicates. One VOC trip blank was sent with each cooler that contained samples for VOC analysis which met the QA objective.

Accuracy

A measurement's accuracy is evaluated by comparing the measured value to an accepted reference or true value. The accuracy is dependent on the matrix, method of analysis, and the compound or element being analyzed. Accuracy, expressed as percent recovery, was evaluated by comparing the results of a sample and a matrix spike sample analysis. Accuracy was also evaluated using recoveries of surrogate compounds spiked into the samples.

Accuracy evaluations were performed during the data validation process for the TCL compounds in accordance with the standard procedures for validation in Standard Operating Procedure No. HW-6 (Revision No. 8) titled CLP Organics Data Review and Preliminary Review. The QC limits for the TCL compounds were from the NYSDEC CLP Analytical Services Protocol, December 1991 with updates. The QC limits for herbicides and explosives analyses were from Methods 8150 and 8330, respectively as described in SW-846. Accuracy of the TAL elements and compounds were evaluated by comparing the spiked sample recoveries to the QC limits in the NYSDEC CLP Analytical Services Protocol, December 1991 with updates and using the data validation procedures in Standard Operating Procedure No. HW-2 (Revision No. 11) titled Evaluation of Metals Data for the Contract Laboratory Program (CLP).

Precision

Precision was measured by analyzing field duplicates and laboratory duplicates such as sample duplicates, matrix spike duplicates, and laboratory blank duplicates. Precision was most frequently expressed as relative percent difference (RPD).

The evaluation of precision was incorporated into the data validation process by following the data validation procedures in HW-2 and HW-6 for duplicates of samples, matrix spike samples, and blanks prepared by the laboratory.

Sample duplicates prepared in the field were evaluated using criteria from the validation procedures for EPA Region I, titled Laboratory Data Validation, Functional Guidelines for Evaluating Organics Analyses, February 1, 1988. The QC limits for duplicate analyses of organic compounds were 30% for aqueous samples and 50% for solid samples. The QC limits for inorganic compounds (metals and cyanide) were 50% for aqueous samples and 100% for solid samples.

RPDs of duplicate analyses that did not meet the criteria caused the analytical result for a sample and its duplicate to be qualified as an estimated value (J qualifier).

The precision of the organics data was very good based on a comparison of the field duplicates. Metals data that did not meet the criteria were more prevalent, probably due to soil matrix effects.

Comparability

The data are comparable because similar methodologies were used for sampling, chemical analysis, data validation, and reporting units of concentration. All the chemical analysis data for these investigations were analyzed by Aquatec Laboratories, Inc. using NYSDEC Contract Laboratory Protocols for Level III and IV data. All the soils data are reported on a dry weight basis.

Traceability

The quality of the chemical data can be substantiated by linking the results to authoritative standards and describing the history of each sample from collection to analysis.

Aquatec used calibration standards obtained from AccuStandard, Inc., Restek, Supelco, and Ultrascientific. These companies can trace their standards back to standards from the National Institute of Standards and Technology. The laboratory keeps on file data packages of certificate for all standards purchased from these companies. Aquatec also purchases pure compounds from Aldrich, Chemserve, and the Department of the Navy to prepare their own standards.

When Aquatec used these standards to prepare working standards, the supplier, lot number, and expiration data of the calibration standards were recorded in a logbook along with information on the preparation and concentration of each working standard.

ES recorded field data on forms and in notebooks and completed Chain-of-Custody forms for all the samples sent to Aquatec. ES recorded the following types of information: soil boring logs, well installation details, well development data, equipment calibration, groundwater sampling data, and data on sampling of soil, surface water, and sediment. ES maintained a Chain-of-Custody form for every sample sent to Aquatec. The airbill receipts were also kept on record in a file.

When Aquatec received samples, they were logged into the laboratory management system where an internal chain-of-custody record was maintained.

As part of the data validation process, all the samples were able to be traced from sample collection to report analysis by the laboratory. This ensured that all the samples obtained in the field were received by Aquatec, analyzed, reported, and validated.

6.2 DATA QUANTITY OBJECTIVES

Field Work

The amount of field work proposed in the workplan and performed at each of the 3 AOCs for the Expanded Site Inspections are presented in Table 6.2-1. This section describes why changes were made to the field program presented in the workplan.

The workplan stated that each seismic refraction profile would be 120 feet long resulting in 480 feet of profiles per SEAD. Each profile was actually 115 feet long for a total length of 460 feet per SEAD.

More linear feet of geophysical surveys using EM-31 and GPR were performed at SEAD-11 and SEAD-57. The landfill at SEAD-11 was larger than anticipated. The proposed area for the survey of 300 by 375 feet was expanded to 525 by 600 feet. The geophysical survey at the depression in SEAD-57 was expanded from 50 by 150 feet to 90 by 160 feet.

The linear footage of geophysical surveys were reduced at SEAD-13. The area covered by the geophysical surveys east of the pond was as proposed at 300 by 300 feet. The area west of the pond to be investigated was raised above the surrounding land, was smaller than anticipated, and was surrounded by water or swamp on three sides. As a result, the surveyed area was reduced from 130,000 ft^2 to 33,000 ft^2.

The purpose of the seismic refraction surveys was to estimate the direction of groundwater flow through each SEAD under investigation. The location of the monitoring wells would then be adjusted so that there would be an upgradient and a downgradient monitoring well at each SEAD. All the proposed well locations in the workplan were correctly located except at SEAD-57. The results of the seismic data indicated groundwater flowed in a southwesterly direction instead of a northeasterly direction. As a result, all three wells (MW57-1, MW57-2, and MW57-3) were moved. MW57-1 and MW57-2 were still the upgradient and downgradient wells, respectively. Wells at SEAD-13 were also moved. Groundwater was found to flow west, instead of northwest, in the area east of the pond and to flow east, instead of northeast, in the area west of the pond. As a result, the background wells were moved slightly to the north and the two downgradient wells were moved south of the proposed locations.

TABLE 6.2 – 1
COMPARISON OF PROPOSED FIELD WORK TO ACTUAL FIELD WORK

SENECA ARMY DEPOT
3 SWMU

	SEAD – 11	SEAD – 13	SEAD – 57
Geophysical Surveys			
Seismic Refraction	480/460	480/460	480/460
GPR	2160/8420	14000/7500	NS/1815
EM – 31	12380/25390	14000/12180	1460/1930
Explorations			
Soil Borings	3/1	10/10	–
Test Pits	2/4	–	11/11
Monitoring Wells	4/4	6/7	3/3
Soil Gas	30/31	–	–
Samples Analyzed			
Surface Soil	–	–	9/9
Subsurface Soil from Borings	9/3	30/30	–
Subsurface Soil from Test Pits	6/12	–	11/11
Groundwater	4/4	6/5	3/3
Surface Water	–	3/3	–
Sediment	–	3/3	–

NOTES:
1. NS stands for not specified in the Work Plan.
2. The data in the body of the table, such as "14/10", represent "proposed/actual" numbers.
3. The numbers for the proposed field work are from the Work Plan.

The well construction design was modified when bedrock was less than 8 feet deep. The sand pack around the screen was installed to 1 foot above the screen instead of 2 feet. The bentonite seal was 0.5 to 1 foot thick instead of 2 to 3 feet thick.

Thirty-nine soil gas probes were installed on the landfill at SEAD-11. Soil gas was obtained and analyzed from thirty-one of these locations which exceeded the thirty locations proposed in the workplan. Soil gas could not be sampled from the other eight probes because there was water in the probes. Extra probes were installed to evaluate the extent of higher soil gas VOC concentrations found at a few proposed grid locations.

Groundwater was collected from all but two of the wells installed for this investigation at the 3 AOCs. The wells MW13-3 and MW13-7, contained no groundwater.

Two proposed borings (SB11-1 and -2) were changed to test pits so that anomalies detected by the geophysical and soil gas surveys could be better observed.

<u>Sample Analyses</u>

Analysis Methods

The analysis methods proposed in the workplan were used to analyze the samples.

Analyses Performed

The type of analysis performed on the samples from each SEAD did not vary from the workplan except at SEAD-13. Twelve of the samples from SEAD-13 were additionally analyzed for explosives. All nine of the surface soil samples from SEAD-57 were resampled and analyzed because the original samples were analyzed outside the holding time specified by the NYSDEC CLP.

Quantitation Limits

The determination of an analytical quantitation limit is established by NYSDEC in the Analytical Services Protocol (ASP) which is routinely updated. As more information is obtained, the quantitation limits are re-established based upon statistical analyses of this data. During the performance of this project, quantitation limits were updated and there are some slight differences between the Contact Required Quantitation Limits (CRQLs) in the workplan and that reported in the chemical analysis data sheets.

The reporting limits and CRQLs are presented in Appendix G of this report. The slight variations between reporting limits and CRQLs are because reporting limits are on a wet weight basis, i.e., "as received" and CRQLs are based on a dry weight basis. When the reporting limits are corrected to a dry weight basis, the volatiles, semivolatiles, pesticides, PCBs, and herbicides generally met or were lower than the CRQLs. In the few instances where the reporting limit, corrected to dry weight, exceeded the CRQL for that analyte the reason why this occurred was because either the sample size was less than the recommended amount of sample in the analysis or interferences from other analytes or other materials were in the sample matrix.

7.0 RECOMMENDATION FOR FUTURE ACTION

7.1 INTRODUCTION

The expanded site inspections completed at the 3 moderate priority AOCs have provided significant additional information on the nature and extent of impacts present at each of the sites. This section is designed to provide a brief overview of the findings and to propose recommendations for future action at the 3 moderate priority AOCs.

7.2 SEAD-11

The results of the ESI conducted at SEAD-11 indicate that impacts to the surface and subsurface soils have occurred at this site. Based upon the results of the ESI, it appears that the site soils have been impacted primarily by the release of SVOs and heavy metals. A total of 17 SVO compounds and 17 metals were detected in the soils analyzed at concentrations which exceeded their respective TAGM values. All of the SVO TAGM exceedances and all of the significant concentrations of metals (i.e., detected at highly elevated concentrations and/or in a large number of samples at concentrations above the TAGM value) were found in the soil samples collected from within the boundaries of the old construction debris landfill. In particular, the SVOs benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(b)fluorenthene, benzo(k)fluoranthen, and dibenz(a,h)anthracene were detected at concentrations above the associated TAGM values in at least 8 of the soil samples analyzed.

The results of the groundwater sampling program at SEAD-11 indicate that iron, lead, and sodium were present in individual downgradient wells at concentrations above criteria values.

Based upon the results of the ESI conducted at SEAD-11, it appears that a threat due to SVOCs and heavy metals exists. Therefore, it is recommended that an RI/FS be conducted to fully define the impacts and the risks from site soils, groundwater, sediment, and surface water.

7.3 SEAD-13

The ESI conducted at SEAD-13 indicates that impacts to the groundwater have occurred at this site. The results of the ESI suggest that the groundwater at the site has been impacted by the release of nitrate/nitrite-nitrogen and possibly heavy metals. Elevated nitrite/nitrate-nitrogen levels were identified in one well downgradient of the former disposal pits. This elevated value is consistent with the disposal practices that were followed at SEAD-13. While no TAGM exists for nitrite\nitrate nitrogen in soils, the soil samples collected at the site indicate that elevated levels are present in many of the soil samples analyzed. TAGM exceedances were also noted for several heavy metals, in particular iron, magnesium, antimony, and manganese for the surface water and groundwater samples collected at SEAD-13. These data do not appear to be the result of turbidities of the groundwater samples since the sample with the highest heavy metal concentrations generally had low turbidity values.

Based upon the results of the ESI conducted at SEAD-13 a threat exists due to the presence of elevated nitrite\nitrate-nitrogen and heavy metal concentrations in the groundwater and surface water. Therefore, it is recommended that an RI/FS be conducted to fully define the impacts and the risks from site soils and surface water and groundwater.

7.4 SEAD-57

The ESI conducted at SEAD-57 indicates that impacts to the soils have occurred at this site. Based upon the results of the ESI, it appears that the site soils have been impacted by the release of heavy metals. In particular, the metals aluminum, chromium, copper, lead, nickel, potassium and zinc were identified at concentrations which were significantly above TAGM values and/or present above the TAGM value in a large number of samples. While, in general, these exceedances were only slightly above the associated TAGM values, test pit sample TP57-2 had copper, lead, and zinc concentrations which exceeded their respective TAGM values by at least an order of magnitude. This test pit sample was collected from within the bermed area at SEAD-57.

The results of the groundwater sampling program at SEAD-57 indicated that antimony was present in the groundwater collected from MW57-1 and MW57-3 at concentrations which exceeded both MCL and NY AWQS Class GA criteria. Additionally, magnesium and manganese were detected in the groundwater sample collected from MW57-2 at concentrations which exceeded their respective NW AWQS Class GA criteria.

The results of the ESI suggest that a threat exists due to the presence of heavy metals in site soils and groundwater. Therefore, it is recommended that an RI/FS be conducted to fully define the impacts and the risks from site soils and groundwater.

LIST OF APPENDICES

APPENDIX A

GEOPHYSICAL DATA: EM-31

Easting	Northing	Conductivity	In-Phase
LINE 500:	SEAD-11		
744013.1	987881.6	16.607	0.665
744003.1	987881.4	16.983	0.990
743993.1	987881.3	18.594	1.995
743983.1	987881.1	22.402	2.454
743973.1	987880.9	23.511	2.379
743963.1	987880.6	17.980	2.162
743953.1	987880.4	16.974	0.986
743943.1	987880.3	16.149	0.762
743933.1	987880.1	16.204	5.216
743923.1	987879.9	15.472	2.184
743913.1	987879.7	15.078	1.350
743903.1	987879.5	15.435	0.970
743893.1	987879.3	15.536	0.731
743883.1	987879.1	16.424	0.529
743873.1	987878.9	16.415	0.505
743863.1	987878.7	16.049	0.486
743853.1	987878.5	16.213	0.374
743843.1	987878.3	16.076	0.475
743833.1	987878.1	15.664	0.668
743823.1	987877.9	15.829	0.334
743813.1	987877.8	15.765	0.295
743803.1	987877.5	15.261	0.474
743793.1	987877.3	15.325	0.417
743783.1	987877.1	15.289	2.473
743773.2	987876.9	14.987	1.058
743763.2	987876.8	14.996	0.685
743753.2	987876.6	14.959	0.444
743743.2	987876.4	14.685	0.668
743733.2	987876.2	14.740	1.036
743723.2	987875.9	14.630	0.606
743713.2	987875.8	14.758	1.128
743703.2	987875.6	14.502	0.777
743693.2	987875.4	14.611	0.689
743683.2	987875.2	14.840	0.459
743673.2	987875	14.740	0.595
743663.2	987874.8	14.987	0.424
743653.2	987874.6	15.216	0.391
743643.2	987874.4	15.344	0.255
743633.2	987874.2	15.618	0.659
743623.2	987874	15.536	0.485
743613.2	987873.8	15.390	0.536
743603.2	987873.6	15.527	0.385
743593.2	987873.4	16.296	0.282
743583.2	987873.3	16.250	0.293
743573.2	987873.1	16.543	0.233
743563.2	987872.8	16.836	0.205
743553.2	987872.6	17.303	0.174
743543.2	987872.4	17.001	0.222
743533.2	987872.3	17.038	0.163
743523.2	987872.1	17.385	0.152
743513.2	987871.9	17.907	0.246
743503.2	987871.7	18.558	0.211
743493.2	987871.4	19.235	0.165
743483.2	987871.3	19.738	0.181
743473.2	987871.1	19.949	0.176
743463.2	987870.9	19.491	0.244
743453.3	987870.7	19.903	0.132
743443.3	987870.5	20.233	0.628
743433.3	987870.3	20.306	0.613
743423.3	987870.1	19.903	0.391
743413.3	987869.9	20.095	0.356
LINE 490			
743413.4	987859.9	20.983	-0.233
743423.4	987860.1	20.727	-0.117
743433.4	987860.3	20.599	-0.073
743443.4	987860.5	20.700	-0.101
743453.4	987860.7	20.425	0.020
743463.4	987860.9	20.370	-0.025
743473.4	987861.1	20.233	-0.192
743483.4	987861.3	20.059	-0.192
743493.4	987861.5	19.756	0.095
743503.4	987861.7	19.775	-0.290
743513.4	987861.9	19.418	-0.198
743523.4	987862.1	19.162	-0.176
743533.4	987862.3	18.530	-0.187
743543.4	987862.4	18.063	-0.075
743553.4	987862.6	17.916	-0.169
743563.4	987862.8	17.449	-0.161
743573.4	987863.1	17.733	-0.178
743583.4	987863.3	17.248	-0.078
743593.4	987863.4	16.983	0.000
743603.4	987863.6	16.873	-0.036
743613.4	987863.8	16.717	0.060
743623.4	987864	16.351	0.029
743633.4	987864.2	16.333	-0.113
743643.4	987864.4	16.223	0.108
743653.4	987864.6	16.213	-0.014
743663.4	987864.8	16.067	0.088
743673.4	987865	16.186	-0.058
743683.4	987865.2	16.396	0.271
743693.4	987865.4	16.067	0.056
743703.4	987865.6	15.820	0.044
743713.4	987865.8	15.729	0.108
743723.4	987865.9	15.518	0.066
743733.4	987866.2	15.765	0.170
743743.4	987866.4	15.774	0.229
743753.4	987866.6	15.655	0.196
743763.4	987866.8	16.278	0.152
743773.4	987866.9	16.497	0.180
743783.4	987867.1	15.490	0.218
743793.4	987867.3	15.939	0.292
743803.4	987867.5	16.177	0.148
743813.4	987867.8	15.838	0.123
743823.4	987867.9	16.058	-0.007
743833.3	987868.1	16.406	0.058
743843.3	987868.3	15.865	0.191
743853.3	987868.5	16.049	0.551
743863.3	987868.7	16.369	0.474
743873.3	987868.9	16.396	0.236
743883.3	987869.1	16.058	0.299
743893.3	987869.3	16.644	0.398
743903.3	987869.5	15.646	0.650
743913.3	987869.7	15.271	0.769
743923.3	987869.9	14.877	1.155
743933.3	987870.1	16.836	0.751
743943.3	987870.3	15.976	-1.718
743953.3	987870.4	21.615	3.116
743963.3	987870.7	1.419	-32.103
743973.3	987870.9	5.703	-26.260
743983.3	987871.1	7.507	-25.356
743993.3	987871.3	13.137	-17.464
744003.3	987871.4	14.254	-9.905
744013.3	987871.6	19.940	2.947
LINE 480			
744013.5	987861.6	13.732	0.187
744003.5	987861.4	11.142	2.778
743993.5	987861.3	-32.464	20.553
743983.5	987861.1	0.357	1.363
743973.5	987860.9	-0.210	5.536
743963.5	987860.7	1.675	5.089
743953.5	987860.4	-6.381	9.857

Easting	Northing	Conductivity	In-Phase
743943.5	987860.3	7.754	3.101
743933.5	987860.1	9.274	5.503
743923.5	987859.9	13.714	2.555
743913.5	987859.7	10.950	3.913
743903.5	987859.5	13.192	2.068
743893.5	987859.3	14.502	1.844
743883.5	987859.1	16.314	1.098
743873.5	987858.9	14.163	1.466
743863.6	987858.7	16.699	0.350
743853.6	987858.5	17.376	0.264
743843.6	987858.3	16.067	0.828
743833.6	987858.1	15.307	1.128
743823.6	987857.9	12.012	3.904
743813.6	987857.8	14.575	1.988
743803.6	987857.6	16.662	0.977
743793.6	987857.3	17.715	0.760
743783.6	987857.1	17.413	1.679
743773.6	987856.9	16.864	0.159
743763.6	987856.8	18.109	-0.066
743753.6	987856.6	18.163	-0.020
743743.6	987856.4	18.493	2.197
743733.6	987856.2	17.449	-0.049
743723.6	987855.9	17.697	-0.102
743713.6	987855.8	17.239	-0.281
743703.6	987855.6	18.933	-0.420
743693.6	987855.4	19.198	-0.338
743683.6	987855.2	19.894	6.587
743673.6	987855	18.868	3.928
743663.6	987854.8	18.072	-0.303
743653.6	987854.6	18.713	2.462
743643.6	987854.4	18.658	-0.156
743633.6	987854.2	18.347	-0.220
743623.6	987854	19.098	-0.078
743613.6	987853.8	19.363	0.200
743603.6	987853.6	20.205	4.487
743593.6	987853.4	20.325	-0.317
743583.6	987853.3	20.874	-0.207
743573.6	987853.1	21.478	-0.409
743563.6	987852.8	21.918	-0.200
743553.6	987852.6	22.018	-0.619
743543.6	987852.4	21.322	0.598
743533.6	987852.3	21.652	-0.374
743523.6	987852.1	21.744	-0.066
743513.6	987851.9	22.393	-0.332
743503.6	987851.7	22.585	-0.165
743493.6	987851.5	23.034	-0.531
743483.6	987851.3	23.593	-0.308
743473.6	987851.1	23.135	-0.293
743463.6	987850.9	22.366	-0.229
743453.6	987850.7	23.565	-0.293
743443.6	987850.5	22.430	-0.435
743433.6	987850.3	23.455	-0.488
743423.6	987850.1	24.142	-0.440
743413.6	987849.9	23.410	-0.786
LINE 470			
743413.8	987839.9	24.655	-1.054
743423.8	987840.1	24.426	-0.668
743433.8	987840.3	25.039	-0.637
743443.8	987840.5	22.329	-0.610
743453.8	987840.7	24.792	-0.766
743463.8	987840.9	24.087	-0.497
743473.8	987841.1	24.289	2.443
743483.8	987841.3	24.719	0.323
743493.8	987841.5	24.774	-0.389
743503.8	987841.7	24.939	-0.385
743513.8	987841.9	24.352	-0.946
743523.8	987842.1	23.794	-0.869
743533.8	987842.3	24.087	-0.900
743543.8	987842.4	23.245	-0.593
743553.8	987842.6	22.357	-0.880
743563.8	987842.8	21.991	-0.685
743573.8	987843.1	22.595	-0.859
743583.8	987843.3	22.054	-0.496
743593.8	987843.4	21.707	-0.474
743603.8	987843.6	20.635	2.002
743613.8	987843.8	21.084	-0.538
743623.8	987844	19.336	0.086
743633.8	987844.2	19.281	-0.286
743643.8	987844.4	19.024	0.475
743653.8	987844.6	18.988	1.008
743663.8	987844.8	18.951	1.385
743673.8	987845	18.850	-0.088
743683.8	987845.2	19.024	0.628
743693.8	987845.4	18.219	-0.101
743703.8	987845.6	18.228	-0.027
743713.8	987845.8	18.640	-0.253
743723.8	987846	17.303	0.198
743733.8	987846.2	17.312	0.099
743743.8	987846.4	18.246	-0.012
743753.8	987846.6	17.980	-0.069
743763.8	987846.8	16.443	0.981
743773.8	987846.9	15.188	2.671
743783.8	987847.1	9.814	2.846
743793.8	987847.3	8.130	5.528
743803.8	987847.6	8.056	3.496
743813.8	987847.8	0.091	7.278
743823.8	987847.9	-4.678	8.841
743833.8	987848.1	-2.289	10.589
743843.8	987848.3	-3.753	11.278
743853.8	987848.5	5.758	3.979
743863.8	987848.7	5.044	3.197
743873.8	987848.9	6.875	4.635
743883.8	987849.1	12.808	2.155
743893.8	987849.3	11.984	0.176
743903.8	987849.5	3.543	0.022
743913.7	987849.7	4.733	1.446
743923.7	987849.9	-29.553	14.197
743933.7	987850.1	10.803	3.636
743943.7	987850.3	-18.924	12.358
743953.7	987850.4	1.885	6.175
743963.7	987850.7	-3.570	7.660
743973.7	987850.9	-12.378	10.098
743983.7	987851.1	-4.568	5.881
743993.7	987851.3	4.065	-0.973
744003.7	987851.4	-6.555	13.014
744013.7	987851.6	16.314	0.518
LINE 460			
744013.9	987841.6	15.701	0.213
744003.9	987841.4	16.516	0.880
743993.9	987841.3	-3.497	7.298
743983.9	987841.1	-3.488	8.314
743973.9	987840.9	-12.753	9.238
743963.9	987840.7	-11.114	6.644
743953.9	987840.4	-40.054	18.234
743943.9	987840.3	-66.458	20.559
743933.9	987840.1	-16.369	14.828
743923.9	987839.9	0.714	9.161
743913.9	987839.7	-36.025	14.256
743903.9	987839.5	-51.636	16.972
743893.9	987839.3	11.114	3.706
743883.9	987839.1	12.213	1.188
743873.9	987838.9	-2.407	2.377

Easting	Northing	Conductivity	In-Phase
743863.9	987838.7	-2.994	6.759
743853.9	987838.5	-11.819	13.023
743843.9	987838.3	-18.969	12.367
743833.9	987838.1	-6.079	7.572
743823.9	987837.9	-33.389	18.797
743813.9	987837.8	-20.883	11.349
743803.9	987837.6	-5.548	13.249
743793.9	987837.3	-18.969	16.750
743783.9	987837.1	-39.578	-0.549
743773.9	987836.9	-17.907	-1.117
743763.9	987836.8	4.806	4.264
743753.9	987836.6	0.192	9.981
743743.9	987836.4	7.498	3.158
743733.9	987836.2	15.381	1.271
743723.9	987836	15.252	1.486
743713.9	987835.8	14.904	1.475
743703.9	987835.6	14.685	0.209
743693.9	987835.4	15.078	1.203
743683.9	987835.2	15.811	0.740
743673.9	987835	15.490	1.265
743663.9	987834.8	15.591	0.757
743653.9	987834.6	15.207	0.450
743643.9	987834.4	14.914	1.594
743633.9	987834.2	15.508	0.233
743623.9	987834	15.792	2.814
743614	987833.8	15.417	0.080
743604	987833.6	16.012	0.990
743594	987833.4	15.710	0.621
743584	987833.3	15.609	0.824
743574	987833.1	15.847	0.547
743564	987832.9	15.811	0.826
743554	987832.6	16.039	0.646
743544	987832.4	15.792	0.398
743534	987832.3	17.129	2.059
743524	987832.1	17.175	3.176
743514	987831.9	18.237	1.339
743504	987831.7	19.345	4.595
743494	987831.5	17.916	-0.242
743484	987831.3	18.558	-0.161
743474	987831.1	18.685	0.402
743464	987830.9	19.336	-0.301
743454	987830.7	19.519	0.180
743444	987830.5	19.299	0.220
743434	987830.3	19.967	0.475
743424	987830.1	19.766	-0.007
743414	987829.9	20.013	-0.191
LINE 450			
743414.2	987819.9	16.791	-0.033
743424.2	987820.1	16.314	0.589
743434.2	987820.3	16.296	0.082
743444.2	987820.5	16.735	0.165
743454.2	987820.7	16.241	0.885
743464.2	987820.9	16.387	0.391
743474.2	987821.1	16.516	0.148
743484.2	987821.3	16.159	0.159
743494.2	987821.5	16.067	0.145
743504.2	987821.7	15.939	0.169
743514.2	987821.9	15.518	0.135
743524.2	987822.1	15.207	0.157
743534.2	987822.3	14.785	0.139
743544.2	987822.4	13.741	0.316
743554.2	987822.6	14.263	0.328
743564.2	987822.9	14.154	0.196
743574.2	987823.1	14.620	0.207
743584.2	987823.3	14.163	0.244
743594.2	987823.4	13.806	0.407
743604.2	987823.6	13.861	0.268
743614.2	987823.8	13.714	0.273
743624.2	987824	13.989	0.145
743634.2	987824.2	13.962	0.270
743644.2	987824.4	13.504	0.244
743654.2	987824.6	13.449	0.417
743664.2	987824.8	14.694	0.102
743674.1	987825	14.758	0.257
743684.1	987825.2	14.868	0.420
743694.1	987825.4	15.481	0.380
743704.1	987825.6	13.824	0.264
743714.1	987825.8	13.284	0.251
743724.1	987826	11.791	1.139
743734.1	987826.2	6.802	2.482
743744.1	987826.4	2.188	4.648
743754.1	987826.6	-6.775	7.755
743764.1	987826.8	-40.045	-4.172
743774.1	987826.9	-27.127	0.771
743784.1	987827.1	-33.279	25.255
743794.1	987827.3	-51.086	22.440
743804.1	987827.6	-28.216	17.997
743814.1	987827.8	-38.076	28.346
743824.1	987827.9	-36.035	6.555
743834.1	987828.1	-12.909	11.338
743844.1	987828.3	-12.515	13.104
743854.1	987828.5	-26.028	18.192
743864.1	987828.7	-6.619	12.020
743874.1	987828.9	-4.724	7.583
743884.1	987829.1	-14.914	10.216
743894.1	987829.3	-7.809	8.878
743904.1	987829.5	6.664	5.686
743914.1	987829.7	-13.971	16.968
743924.1	987829.9	-6.381	8.101
743934.1	987830.1	8.899	1.714
743944.1	987830.3	-6.472	9.890
743954.1	987830.5	-12.057	15.004
743964.1	987830.7	-26.843	17.404
743974.1	987830.9	-1.739	9.376
743984.1	987831.1	-9.036	7.136
743994.1	987831.3	-5.319	6.026
744004.1	987831.4	15.033	0.808
744014.1	987831.6	10.794	1.350
LINE 440			
744014.3	987821.6	8.889	2.658
744004.3	987821.4	14.373	0.007
743994.3	987821.3	8.074	4.200
743984.3	987821.1	0.659	6.671
743974.3	987820.9	10.400	2.668
743964.3	987820.7	6.601	5.681
743954.3	987820.5	-1.483	6.568
743944.3	987820.3	-1.812	10.613
743934.3	987820.1	-24.984	22.148
743924.3	987819.9	-5.200	-3.498
743914.3	987819.7	-27.832	3.899
743904.3	987819.5	-29.599	21.064
743894.3	987819.3	-2.133	4.014
743884.3	987819.1	-13.861	0.880
743874.3	987818.9	-49.218	17.746
743864.3	987818.7	-0.851	7.428
743854.3	987818.5	-28.198	15.285
743844.3	987818.3	-25.827	15.434
743834.3	987818.1	-17.074	12.630
743824.3	987817.9	-14.676	14.999
743814.3	987817.8	-13.210	10.980
743804.3	987817.6	-3.451	8.503
743794.3	987817.3	-22.723	9.438

Easting	Northing	Conductivity	In-Phase
743784.3	987817.1	-41.171	8.349
743774.3	987816.9	-56.194	24.110
743764.3	987816.8	-64.333	16.669
743754.3	987816.6	-45.492	-7.836
743744.3	987816.4	-35.962	4.393
743734.3	987816.2	-3.607	8.465
743724.3	987816	2.380	5.190
743714.3	987815.8	1.812	3.680
743704.4	987815.6	12.817	0.957
743694.4	987815.4	4.413	2.682
743684.4	987815.2	18.631	1.102
743674.4	987815	10.583	0.123
743664.4	987814.8	15.005	0.698
743654.4	987814.6	13.962	0.819
743644.4	987814.4	13.586	0.641
743634.4	987814.2	13.760	0.391
743624.4	987814	13.412	0.424
743614.4	987813.8	14.136	1.365
743604.4	987813.6	13.568	0.644
743594.4	987813.4	13.330	0.494
743584.4	987813.3	13.467	0.407
743574.4	987813.1	13.824	0.474
743564.4	987812.9	14.181	0.312
743554.4	987812.6	13.943	0.290
743544.4	987812.4	13.971	0.442
743534.4	987812.3	14.035	0.369
743524.4	987812.1	14.218	0.264
743514.4	987811.9	14.282	0.347
743504.4	987811.7	14.859	0.361
743494.4	987811.5	15.188	0.200
743484.4	987811.3	15.362	0.248
743474.4	987811.1	16.003	0.163
743464.4	987810.9	15.875	0.187
743454.4	987810.7	15.875	0.264
743444.4	987810.5	15.838	0.281
743434.4	987810.3	15.893	0.222
743424.4	987810.1	16.039	0.033
743414.4	987809.9	15.682	0.110
LINE 430			
743414.6	987799.9	15.555	0.042
743424.6	987800.1	15.362	0.104
743434.6	987800.3	15.225	0.080
743444.6	987800.5	15.325	0.060
743454.6	987800.7	15.115	0.058
743464.6	987800.9	14.996	0.090
743474.6	987801.1	15.133	0.073
743484.6	987801.3	15.225	0.128
743494.6	987801.5	14.740	0.117
743504.6	987801.7	14.703	0.141
743514.6	987801.9	14.529	0.161
743524.6	987802.1	14.291	0.301
743534.6	987802.3	13.806	0.275
743544.6	987802.4	13.815	0.279
743554.6	987802.6	13.741	0.226
743564.6	987802.9	13.760	0.216
743574.6	987803.1	13.980	0.248
743584.6	987803.3	13.366	0.248
743594.6	987803.4	13.897	0.253
743604.6	987803.6	14.300	0.380
743614.6	987803.8	15.207	1.058
743624.6	987804	10.153	1.613
743634.6	987804.2	9.475	2.013
743644.6	987804.4	8.422	0.913
743654.6	987804.6	7.910	1.310
743664.6	987804.8	6.775	5.466
743674.6	987805	9.237	3.836
743684.6	987805.2	-3.699	4.457
743694.6	987805.4	4.211	0.213
743704.6	987805.6	-1.107	-1.106
743714.6	987805.8	8.899	5.214
743724.6	987806	4.174	4.310
743734.6	987806.2	-2.865	4.246
743744.6	987806.4	-17.221	11.625
743754.5	987806.6	-39.706	12.584
743764.5	987806.8	-54.519	3.195
743774.5	987806.9	-49.401	-5.343
743784.5	987807.1	-29.004	0.942
743794.5	987807.4	-59.225	-7.090
743804.5	987807.6	-28.207	17.213
743814.5	987807.8	-0.915	9.019
743824.5	987807.9	-14.950	12.143
743834.5	987808.1	-8.395	11.491
743844.5	987808.3	3.057	4.970
743854.5	987808.5	-19.455	14.442
743864.5	987808.7	-12.890	12.253
743874.5	987808.9	-0.595	4.755
743884.5	987809.1	-27.850	3.147
743894.5	987809.3	-2.563	2.800
743904.5	987809.5	-2.810	5.014
743914.5	987809.7	-20.608	8.174
743924.5	987809.9	-4.119	4.749
743934.5	987810.1	-25.992	15.717
743944.5	987810.3	-4.614	8.187
743954.5	987810.5	-19.326	19.555
743964.5	987810.7	-8.633	9.878
743974.5	987810.9	-6.060	9.378
743984.5	987811.1	-19.033	14.958
743994.5	987811.3	-42.508	32.906
744004.5	987811.4	3.332	5.041
744014.5	987811.6	14.154	0.156
LINE 420			
744014.7	987801.6	3.799	5.244
744004.7	987801.4	15.618	-0.896
743994.7	987801.3	-2.050	6.548
743984.7	987801.1	0.412	2.493
743974.7	987800.9	-2.966	11.337
743964.7	987800.7	-18.017	17.409
743954.7	987800.5	-13.760	10.839
743944.7	987800.3	-8.504	10.818
743934.7	987800.1	-0.274	7.564
743924.7	987799.9	-8.074	4.295
743914.7	987799.7	3.845	8.101
743904.7	987799.5	1.803	6.184
743894.7	987799.3	3.241	2.414
743884.7	987799.1	5.639	2.179
743874.7	987798.9	-10.381	10.495
743864.7	987798.7	-16.479	11.831
743854.7	987798.5	-25.085	15.691
743844.7	987798.3	-13.540	13.556
743834.7	987798.1	-5.914	5.911
743824.7	987797.9	-5.484	7.579
743814.7	987797.8	-9.823	13.258
743804.7	987797.6	-5.090	5.683
743794.7	987797.4	-8.487	13.356
743784.8	987797.1	-35.119	14.808
743774.8	987796.9	-43.643	3.134
743764.8	987796.8	-46.179	4.266
743754.8	987796.6	-39.321	15.304
743744.8	987796.4	-21.936	5.425
743734.8	987796.2	-54.574	8.689
743724.8	987796	-30.633	8.920
743714.8	987795.8	-37.271	17.848

Easting	Northing	Conductivity	In-Phase	Easting	Northing	Conductivity	In-Phase
743704.8	987795.6	-19.098	10.592	743764.9	987786.8	-28.207	2.697
743694.8	987795.4	12.963	3.294	743774.9	987786.9	-22.045	14.444
743684.8	987795.2	2.627	7.539	743784.9	987787.1	-28.051	16.055
743674.8	987795	7.324	4.498	743794.9	987787.4	-17.550	12.746
743664.8	987794.8	1.876	4.716	743804.9	987787.6	3.900	8.343
743654.8	987794.6	5.099	0.229	743814.9	987787.8	-17.651	13.523
743644.8	987794.4	9.695	0.782	743824.9	987787.9	-6.271	8.281
743634.8	987794.3	4.110	0.078	743834.9	987788.1	-8.999	9.308
743624.8	987794	0.165	2.151	743844.9	987788.3	-17.962	15.171
743614.8	987793.8	-6.976	1.631	743854.9	987788.5	-23.272	14.238
743604.8	987793.6	3.652	2.072	743864.9	987788.7	-18.558	16.152
743594.8	987793.4	11.984	0.187	743874.9	987788.9	-13.806	12.467
743584.8	987793.3	13.998	0.543	743884.9	987789.1	-2.810	2.675
743574.8	987793.1	14.099	0.227	743894.9	987789.3	-11.691	6.737
743564.8	987792.9	13.504	0.205	743904.9	987789.5	1.227	4.336
743554.8	987792.7	13.641	0.279	743914.9	987789.7	-0.943	6.515
743544.8	987792.4	13.824	0.282	743924.9	987789.9	-18.292	8.714
743534.8	987792.3	13.614	0.192	743934.9	987790.1	-21.304	13.367
743524.8	987792.1	13.778	0.207	743944.9	987790.3	5.832	3.401
743514.8	987791.9	13.906	0.305	743954.9	987790.5	-37.261	8.531
743504.8	987791.7	13.833	1.177	743964.9	987790.7	1.382	3.990
743494.8	987791.5	13.906	0.297	743974.9	987790.9	2.169	3.287
743484.8	987791.3	14.355	0.246	743984.9	987791.1	-5.685	6.070
743474.8	987791.1	14.319	0.812	743994.9	987791.3	-19.189	9.780
743464.8	987790.9	14.291	0.108	744004.9	987791.4	3.891	-2.269
743454.8	987790.7	14.767	0.191	744014.9	987791.6	1.812	5.969
743444.8	987790.5	14.410	0.786	LINE 400			
743434.8	987790.3	15.216	0.115	744015.1	987781.6	13.174	1.365
743424.8	987790.1	15.024	0.134	744005.1	987781.4	8.779	2.879
743414.8	987789.9	15.024	0.148	743995.1	987781.3	14.062	-0.248
LINE 410				743985.1	987781.1	-8.587	2.566
743415	987779.9	14.227	0.365	743975.1	987780.9	-47.918	20.889
743425	987780.1	14.620	0.349	743965.1	987780.7	7.269	4.617
743435	987780.3	14.630	0.670	743955.1	987780.5	7.003	3.981
743445	987780.5	15.087	1.609	743945.1	987780.3	-4.284	10.208
743455	987780.7	14.272	0.999	743935.1	987780.1	-13.806	12.540
743465	987780.9	14.566	0.617	743925.1	987779.9	-18.722	20.717
743475	987781.1	14.437	2.011	743915.1	987779.7	-9.347	12.185
743485	987781.3	14.062	0.483	743905.1	987779.5	-18.246	12.150
743495	987781.5	14.016	0.290	743895.1	987779.3	2.975	2.807
743505	987781.7	13.678	0.898	743885.1	987779.1	-14.309	4.444
743514.9	987781.9	13.504	0.575	743875.1	987778.9	-38.168	7.645
743524.9	987782.1	13.229	0.957	743865.1	987778.8	-11.169	11.348
743534.9	987782.3	13.668	0.758	743855.1	987778.5	-2.801	6.526
743544.9	987782.4	13.522	0.361	743845.1	987778.3	-17.257	10.973
743554.9	987782.7	13.375	0.281	743835.1	987778.1	-25.076	11.743
743564.9	987782.9	14.895	0.382	743825.1	987777.9	2.206	4.740
743574.9	987783.1	14.556	1.150	743815.1	987777.8	-13.384	4.487
743584.9	987783.3	13.000	1.041	743805.1	987777.6	-15.472	-3.928
743594.9	987783.4	6.454	3.153	743795.1	987777.4	-13.128	18.231
743604.9	987783.6	2.133	2.495	743785.1	987777.1	-48.102	32.315
743614.9	987783.8	-1.858	5.799	743775.1	987776.9	-28.939	14.174
743624.9	987784	0.448	0.356	743765.1	987776.8	-28.546	13.540
743634.9	987784.3	3.634	1.751	743755.1	987776.6	-18.741	6.460
743644.9	987784.4	2.764	-2.576	743745.1	987776.4	-18.814	12.535
743654.9	987784.6	-8.798	-3.226	743735.1	987776.2	-22.632	13.345
743664.9	987784.8	8.899	0.051	743725.1	987776	-25.900	8.709
743674.9	987785	9.192	-1.161	743715.1	987775.8	-28.738	8.251
743684.9	987785.2	3.085	1.490	743705.1	987775.6	-20.535	4.295
743694.9	987785.4	-6.866	5.041	743695.1	987775.4	-14.932	-3.153
743704.9	987785.6	-4.339	3.786	743685.1	987775.2	-8.642	-7.542
743714.9	987785.8	-3.177	8.288	743675.1	987775	9.787	-0.036
743724.9	987786	-25.735	7.336	743665.1	987774.8	7.846	-0.371
743734.9	987786.2	-33.590	10.642	743655.1	987774.6	10.858	-0.130
743744.9	987786.4	-28.051	11.726	743645.1	987774.4	10.592	1.379
743754.9	987786.6	-49.474	16.371	743635.1	987774.3	10.336	1.198

Easting	Northing	Conductivity	In-Phase
743625.1	987774	-1.867	-8.194
743615.1	987773.8	-9.576	-2.642
743605.1	987773.6	-7.773	-2.581
743595.1	987773.4	-7.791	0.363
743585.1	987773.3	0.457	0.023
743575.1	987773.1	-14.401	-7.193
743565.1	987772.9	-1.062	-0.235
743555.1	987772.7	8.166	1.142
743545.2	987772.4	14.602	0.446
743535.2	987772.3	13.485	0.422
743525.2	987772.1	13.531	0.402
743515.2	987771.9	13.558	0.490
743505.2	987771.7	13.485	0.288
743495.2	987771.5	13.614	0.341
743485.2	987771.3	14.080	0.365
743475.2	987771.1	14.172	0.363
743465.2	987770.9	14.419	0.174
743455.2	987770.7	14.785	0.531
743445.2	987770.5	14.410	0.404
743435.2	987770.3	14.859	0.310
743425.2	987770.1	14.520	0.240
743415.2	987769.9	14.676	0.205
LINE 390			
743415.4	987759.9	14.639	0.235
743425.4	987760.1	14.685	0.238
743435.4	987760.3	14.904	0.253
743445.4	987760.5	14.493	0.268
743455.4	987760.7	14.676	0.292
743465.4	987760.9	14.639	0.323
743475.4	987761.1	14.337	0.819
743485.4	987761.3	13.732	0.347
743495.4	987761.5	13.879	0.402
743505.4	987761.7	13.540	0.597
743515.4	987761.9	13.174	0.861
743525.4	987762.1	13.504	0.549
743535.4	987762.3	13.906	0.501
743545.4	987762.4	13.293	0.589
743555.4	987762.7	5.529	1.102
743565.4	987762.9	0.393	-2.146
743575.4	987763.1	-19.336	3.333
743585.4	987763.3	-10.308	-9.429
743595.3	987763.4	-2.407	5.912
743605.3	987763.6	-0.329	3.731
743615.3	987763.8	4.788	4.887
743625.3	987764	1.528	3.195
743635.3	987764.3	2.975	-0.238
743645.3	987764.4	-8.770	-3.062
743655.3	987764.6	-11.791	-7.022
743665.3	987764.8	7.242	-0.883
743675.3	987765	0.448	-1.949
743685.3	987765.2	-12.661	0.696
743695.3	987765.4	4.632	4.108
743705.3	987765.6	0.833	2.956
743715.3	987765.8	-27.310	9.009
743725.3	987766	-39.523	1.543
743735.3	987766.2	-29.205	1.883
743745.3	987766.4	-19.134	1.565
743755.3	987766.6	-11.133	6.682
743765.3	987766.8	-11.068	9.784
743775.3	987766.9	-23.483	10.197
743785.3	987767.2	-18.292	4.909
743795.3	987767.4	-45.694	9.826
743805.3	987767.6	-36.117	0.527
743815.3	987767.8	-1.528	9.301
743825.3	987767.9	-17.138	12.593
743835.3	987768.1	-4.751	6.243

Easting	Northing	Conductivity	In-Phase
743845.3	987768.3	-15.508	8.059
743855.3	987768.5	-12.359	4.716
743865.3	987768.8	-15.490	12.783
743875.3	987768.9	-10.592	11.902
743885.3	987769.1	-6.765	11.822
743895.3	987769.3	0.842	5.211
743905.3	987769.5	2.068	6.704
743915.3	987769.7	-13.403	13.880
743925.3	987769.9	-5.017	8.422
743935.3	987770.1	-14.602	0.317
743945.3	987770.3	-37.912	5.221
743955.3	987770.5	-20.370	4.994
743965.3	987770.7	-39.651	3.540
743975.3	987770.9	-26.660	-1.196
743985.3	987771.1	-26.678	16.906
743995.3	987771.3	6.829	2.441
744005.3	987771.4	10.455	1.552
744015.3	987771.6	13.467	-0.611
LINE 380			
744015.4	987761.6	13.668	0.494
744005.4	987761.4	11.169	1.521
743995.4	987761.3	9.558	2.072
743985.4	987761.1	-5.877	12.263
743975.4	987760.9	2.316	8.915
743965.4	987760.7	-20.361	10.745
743955.5	987760.5	-22.723	7.831
743945.5	987760.3	-5.255	6.307
743935.5	987760.1	-4.513	8.805
743925.5	987759.9	-20.800	10.407
743915.5	987759.7	-21.927	-6.758
743905.5	987759.5	-8.706	-1.367
743895.5	987759.3	-8.962	11.344
743885.5	987759.1	-18.640	12.863
743875.5	987758.9	-9.951	13.422
743865.5	987758.8	-31.897	13.725
743855.5	987758.5	-26.001	11.454
743845.5	987758.3	1.711	3.349
743835.5	987758.1	-5.062	9.580
743825.5	987757.9	-9.100	9.253
743815.5	987757.8	-2.947	9.442
743805.5	987757.6	-9.183	11.460
743795.5	987757.4	-7.369	9.141
743785.5	987757.2	-14.850	2.686
743775.5	987756.9	-37.564	5.069
743765.5	987756.8	-6.930	-0.328
743755.5	987756.6	-22.265	-6.094
743745.5	987756.4	-24.975	-3.290
743735.5	987756.2	-9.594	11.765
743725.5	987756	-14.117	13.213
743715.5	987755.8	-13.760	11.581
743705.5	987755.6	-22.000	8.825
743695.5	987755.4	-18.924	7.017
743685.5	987755.2	-9.347	4.189
743675.5	987755	-5.255	6.526
743665.5	987754.8	7.479	2.932
743655.5	987754.6	12.176	0.972
743645.5	987754.4	2.481	-2.403
743635.5	987754.3	2.032	-0.207
743625.6	987754.1	5.639	1.141
743615.6	987753.8	-15.334	-2.068
743605.6	987753.6	-11.718	1.558
743595.6	987753.4	-4.980	0.453
743585.6	987753.3	-10.849	0.564
743575.6	987753.1	-2.371	5.541
743565.6	987752.9	-6.775	0.055
743555.6	987752.7	0.649	2.862

Easting	Northing	Conductivity	In-Phase
743545.6	987752.4	-2.820	-1.815
743535.6	987752.3	8.624	-0.016
743525.6	987752.1	10.785	0.543
743515.6	987751.9	13.568	1.243
743505.6	987751.7	13.064	0.328
743495.6	987751.5	13.412	0.356
743485.6	987751.3	13.696	0.430
743475.6	987751.1	13.696	0.676
743465.6	987750.9	13.815	0.970
743455.6	987750.7	14.126	0.973
743445.6	987750.5	14.319	0.270
743435.6	987750.3	14.355	0.343
743425.6	987750.1	14.364	0.259
743415.6	987749.9	14.401	0.788
LINE 370			
743415.8	987739.9	14.227	0.306
743425.8	987740.1	14.511	0.286
743435.8	987740.3	14.245	0.363
743445.8	987740.5	13.797	0.345
743455.8	987740.7	13.998	0.279
743465.8	987740.9	13.852	0.365
743475.8	987741.1	13.943	0.257
743485.8	987741.3	13.357	0.295
743495.8	987741.5	13.064	0.305
743505.8	987741.7	13.293	0.343
743515.8	987741.9	13.540	0.323
743525.8	987742.1	13.000	0.903
743535.8	987742.3	10.372	2.399
743545.8	987742.5	7.049	-0.181
743555.8	987742.7	4.669	4.424
743565.8	987742.9	-17.743	-12.035
743575.8	987743.1	-1.474	-2.146
743585.8	987743.3	-1.309	0.435
743595.8	987743.4	4.019	1.835
743605.8	987743.6	-2.279	4.185
743615.8	987743.8	-13.257	-10.221
743625.8	987744.1	3.891	3.066
743635.8	987744.3	1.602	0.937
743645.8	987744.4	3.799	-0.343
743655.8	987744.6	-13.092	-0.836
743665.8	987744.8	-21.432	3.875
743675.7	987745	-5.053	-2.846
743685.7	987745.2	0.165	6.238
743695.7	987745.4	-7.470	4.667
743705.7	987745.6	-12.286	8.288
743715.7	987745.8	-25.113	7.968
743725.7	987746	-27.987	-8.896
743735.7	987746.2	-22.741	8.538
743745.7	987746.4	-8.459	6.533
743755.7	987746.6	-15.792	7.360
743765.7	987746.8	-22.576	7.432
743775.7	987746.9	-20.672	-1.102
743785.7	987747.2	-9.439	11.169
743795.7	987747.4	-9.072	14.896
743805.7	987747.6	-10.912	12.623
743815.7	987747.8	-18.887	4.147
743825.7	987747.9	-21.880	3.742
743835.7	987748.1	-5.465	8.025
743845.7	987748.3	-14.776	12.704
743855.7	987748.5	-7.232	2.293
743865.7	987748.8	-23.868	15.838
743875.7	987748.9	-3.085	6.704
743885.7	987749.1	-12.350	12.511
743895.7	987749.3	-12.853	7.235
743905.7	987749.5	-2.050	7.572
743915.7	987749.7	5.676	6.895

Easting	Northing	Conductivity	In-Phase
743925.7	987749.9	3.982	5.152
743935.7	987750.1	1.702	7.687
743945.7	987750.3	2.526	6.289
743955.7	987750.5	-4.394	11.068
743965.7	987750.7	-10.565	10.515
743975.7	987750.9	-4.193	4.924
743985.7	987751.1	-2.179	2.087
743995.7	987751.3	-0.466	1.773
744005.6	987751.4	9.686	1.751
744015.6	987751.7	14.987	0.349
LINE 360			
744015.9	987741.7	13.311	0.248
744005.9	987741.4	13.494	1.174
743995.9	987741.3	6.674	3.470
743985.9	987741.1	-27.145	-12.647
743975.9	987740.9	-26.394	-13.496
743965.9	987740.7	1.840	3.329
743955.9	987740.5	-10.794	2.980
743945.9	987740.3	-38.479	15.329
743935.9	987740.1	-10.638	10.274
743925.9	987739.9	-0.329	7.588
743915.9	987739.7	7.864	3.928
743905.9	987739.5	8.706	4.297
743895.9	987739.3	-12.936	-2.144
743885.9	987739.1	-22.375	9.341
743875.9	987738.9	-10.381	12.353
743865.9	987738.8	-12.515	10.997
743855.9	987738.6	-3.515	9.209
743845.9	987738.3	-1.401	7.904
743835.9	987738.1	-3.460	8.218
743825.9	987737.9	-10.080	10.603
743815.9	987737.8	-3.424	9.648
743805.9	987737.6	-14.886	10.104
743795.9	987737.4	-14.126	11.460
743785.9	987737.2	-12.735	7.983
743775.9	987736.9	-40.869	23.868
743765.9	987736.8	-7.900	7.191
743755.9	987736.6	-9.503	5.260
743745.9	987736.4	-25.186	16.288
743735.9	987736.2	-29.131	10.052
743725.9	987736	-37.848	12.228
743715.9	987735.8	-21.020	13.701
743705.9	987735.6	-16.754	10.530
743695.9	987735.4	-2.124	6.149
743685.9	987735.2	-6.537	2.326
743675.9	987735	-20.151	6.714
743665.9	987734.8	-3.076	-18.789
743655.9	987734.6	0.384	0.791
743645.9	987734.4	-21.560	11.133
743635.9	987734.3	-6.445	-3.278
743625.9	987734.1	8.761	4.815
743615.9	987733.8	6.903	1.666
743605.9	987733.6	8.779	2.039
743595.9	987733.4	1.089	3.459
743585.9	987733.3	2.142	3.599
743575.9	987733.1	8.038	1.504
743565.9	987732.9	10.903	4.613
743555.9	987732.7	3.634	1.150
743545.9	987732.5	3.525	1.944
743535.9	987732.3	5.997	3.289
743525.9	987732.1	4.587	1.479
743515.9	987731.9	9.329	5.038
743505.9	987731.7	13.687	0.595
743495.9	987731.5	12.817	1.284
743485.9	987731.3	13.083	2.017
743475.9	987731.1	12.900	0.617

Easting	Northing	Conductivity	In-Phase
743465.9	987730.9	13.641	0.407
743455.9	987730.7	13.513	0.409
743445.9	987730.5	13.971	0.352
743435.9	987730.3	14.136	0.308
743425.9	987730.1	14.328	0.428
743415.9	987729.9	14.456	0.277
LINE 350			
743416.2	987719.9	14.355	0.226
743426.2	987720.1	14.547	0.400
743436.1	987720.3	13.980	0.762
743446.1	987720.5	13.861	0.284
743456.1	987720.7	13.806	0.345
743466.1	987720.9	13.605	1.051
743476.1	987721.1	13.174	1.032
743486.1	987721.3	13.220	0.395
743496.1	987721.5	12.844	0.608
743506.1	987721.7	13.284	0.865
743516.1	987721.9	10.647	-2.361
743526.1	987722.1	7.406	-1.841
743536.1	987722.3	2.481	2.798
743546.1	987722.5	1.354	0.937
743556.1	987722.7	-1.336	0.123
743566.1	987722.9	-4.266	0.316
743576.1	987723.1	-4.239	-1.745
743586.1	987723.3	-16.177	-4.852
743596.1	987723.4	5.017	2.079
743606.1	987723.6	9.677	1.038
743616.1	987723.8	5.108	-0.755
743626.1	987724.1	-22.027	10.475
743636.1	987724.3	-30.679	8.187
743646.1	987724.4	-33.041	6.695
743656.1	987724.6	-4.220	6.083
743666.1	987724.8	-11.974	8.777
743676.1	987725	-18.924	-1.797
743686.1	987725.2	-6.866	-2.656
743696.1	987725.4	-3.442	7.794
743706.1	987725.6	-23.391	2.083
743716.1	987725.8	-56.845	-24.020
743726.1	987726	-26.907	13.284
743736.1	987726.2	-0.988	9.225
743746.1	987726.4	-27.355	9.472
743756.1	987726.6	-26.852	1.368
743766.1	987726.8	-34.909	6.697
743776.1	987727	-21.267	6.499
743786.1	987727.2	5.593	2.769
743796.1	987727.4	-28.125	18.725
743806.1	987727.6	-21.478	-0.639
743816.1	987727.8	-22.705	-1.052
743826.1	987727.9	-12.487	3.954
743836.1	987728.1	-7.672	10.126
743846.1	987728.3	-10.363	8.489
743856.1	987728.6	10.611	2.785
743866.1	987728.8	-13.705	14.286
743876.1	987728.9	-14.730	10.205
743886.1	987729.1	-2.783	6.576
743896.1	987729.3	-21.194	9.692
743906.1	987729.5	-32.922	6.122
743916.1	987729.7	-13.321	9.620
743926.1	987729.9	-22.759	12.147
743936.1	987730.1	-18.402	13.383
743946.1	987730.3	-13.632	9.709
743956.1	987730.5	-10.638	11.632
743966.1	987730.7	-16.086	12.241
743976.1	987730.9	-9.558	9.178
743986.1	987731.1	6.042	6.282
743996.1	987731.3	6.189	2.717

Easting	Northing	Conductivity	In-Phase
LINE 340			
743996.3	987721.3	5.832	2.331
743986.3	987721.1	0.512	3.772
743976.3	987720.9	-7.132	4.244
743966.3	987720.7	-10.656	12.500
743956.3	987720.5	-9.347	10.774
743946.3	987720.3	-10.940	7.349
743936.3	987720.1	-28.125	15.017
743926.3	987719.9	-29.965	17.382
743916.3	987719.7	-20.077	18.289
743906.3	987719.5	-18.283	17.216
743896.3	987719.3	-34.744	23.021
743886.3	987719.1	-5.612	4.983
743876.3	987718.9	-3.268	7.482
743866.3	987718.8	-3.689	8.952
743856.3	987718.6	-9.667	10.806
743846.3	987718.3	-6.921	10.618
743836.3	987718.1	-12.900	12.878
743826.3	987717.9	-12.396	11.504
743816.3	987717.8	1.446	7.511
743806.3	987717.6	-23.950	4.431
743796.3	987717.4	-37.811	5.247
743786.3	987717.2	-42.855	-2.416
743776.3	987717	6.958	0.654
743766.3	987716.8	-35.659	0.762
743756.3	987716.6	-42.892	14.872
743746.3	987716.4	-18.365	9.433
743736.3	987716.2	-8.157	8.569
743726.3	987716	-8.267	4.319
743716.3	987715.8	-25.781	11.245
743706.3	987715.6	-30.193	-12.119
743696.3	987715.4	-22.320	13.213
743686.3	987715.2	-7.910	8.463
743676.3	987715	-16.534	4.538
743666.3	987714.8	2.316	-0.268
743656.3	987714.6	2.261	1.166
743646.3	987714.4	-13.092	5.343
743636.3	987714.3	-17.038	9.143
743626.3	987714.1	-11.947	3.961
743616.3	987713.9	-9.237	9.808
743606.3	987713.6	-4.724	8.106
743596.3	987713.4	-5.419	5.714
743586.3	987713.3	-4.129	-3.408
743576.3	987713.1	2.472	0.988
743566.3	987712.9	7.269	-0.551
743556.3	987712.7	11.206	1.159
743546.3	987712.5	11.737	1.594
743536.3	987712.3	3.643	1.359
743526.3	987712.1	4.916	2.668
743516.3	987711.9	0.064	-1.275
743506.3	987711.7	1.968	2.425
743496.3	987711.5	11.911	-0.233
743486.3	987711.3	13.330	1.168
743476.3	987711.1	13.174	0.422
743466.4	987710.9	13.284	0.275
743456.4	987710.7	13.614	0.633
743446.4	987710.5	13.833	0.453
743436.4	987710.3	13.906	0.387
743426.4	987710.1	13.897	0.328
743416.4	987709.9	14.437	0.679
LINE 330			
743416.6	987699.9	14.300	0.374
743426.6	987700.1	14.410	0.367
743436.6	987700.3	13.861	0.512
743446.6	987700.5	13.741	0.468
743456.6	987700.8	13.201	0.542

Easting	Northing	Conductivity	In-Phase
743466.6	987700.9	13.247	0.485
743476.6	987701.1	13.229	0.547
743486.6	987701.3	12.771	0.598
743496.6	987701.5	13.861	1.407
743506.6	987701.7	2.655	-4.841
743516.5	987701.9	-1.876	-0.376
743526.5	987702.1	-9.566	-8.810
743536.5	987702.3	8.725	-0.251
743546.5	987702.5	12.451	1.618
743556.5	987702.7	3.726	-1.047
743566.5	987702.9	-35.257	-11.353
743576.5	987703.1	-21.340	-30.157
743586.5	987703.3	11.956	5.221
743596.5	987703.4	-2.554	-6.905
743606.5	987703.6	-12.790	-4.545
743616.5	987703.9	-4.815	9.947
743626.5	987704.1	-27.557	11.090
743636.5	987704.3	-25.762	9.505
743646.5	987704.4	-20.837	1.119
743656.5	987704.6	-28.793	6.603
743666.5	987704.8	-5.118	-1.060
743676.5	987705	-5.950	4.821
743686.5	987705.2	-24.554	0.988
743696.5	987705.4	-21.927	6.624
743706.5	987705.6	-0.302	6.102
743716.5	987705.8	-27.502	15.094
743726.5	987706	-20.095	10.203
743736.5	987706.2	-13.668	8.323
743746.5	987706.4	-28.619	14.776
743756.5	987706.6	-24.948	3.395
743766.5	987706.8	-65.433	-0.955
743776.5	987707	-83.725	-2.201
743786.5	987707.2	-17.843	16.217
743796.5	987707.4	-69.333	27.302
743806.5	987707.6	-15.518	14.897
743816.5	987707.8	-8.038	10.583
743826.5	987707.9	-10.446	10.236
743836.5	987708.1	-11.901	9.172
743846.4	987708.3	-7.827	11.316
743856.4	987708.6	-4.806	9.964
743866.4	987708.8	-7.287	9.266
743876.4	987708.9	-2.920	6.126
743886.4	987709.1	-15.729	7.638
743896.4	987709.3	-32.428	17.775
743906.4	987709.5	-25.387	24.884
743916.4	987709.7	-42.745	13.387
743926.4	987709.9	-13.962	8.081
743936.4	987710.1	-29.324	17.319
743946.4	987710.3	-40.210	18.207
743956.4	987710.5	-11.443	9.977
743966.4	987710.7	-8.340	8.051
743976.4	987710.9	-9.018	10.267
743986.4	987711.1	15.454	3.553
LINE 320			
743976.6	987700.9	-7.369	1.098
743966.6	987700.7	-29.928	0.644
743956.6	987700.5	-24.591	5.264
743946.6	987700.3	-13.210	2.250
743936.6	987700.1	-10.464	2.215
743926.6	987699.9	-3.744	6.910
743916.6	987699.7	-31.878	-12.904
743906.6	987699.5	-39.770	13.290
743896.6	987699.3	-30.514	16.007
743886.6	987699.1	-27.649	15.544
743876.7	987698.9	-5.795	11.421
743866.7	987698.8	-25.653	13.439

Easting	Northing	Conductivity	In-Phase
743856.7	987698.6	-26.871	12.557
743846.7	987698.4	-19.610	-1.102
743836.7	987698.1	-8.157	9.438
743826.7	987697.9	-19.766	11.702
743816.7	987697.8	-32.519	16.110
743806.7	987697.6	-45.721	2.337
743796.7	987697.4	-17.632	5.260
743786.7	987697.2	0.375	3.704
743776.7	987697	15.271	1.264
743766.7	987696.8	-27.282	14.813
743756.7	987696.6	-26.440	11.107
743746.7	987696.4	-0.210	4.685
743736.7	987696.2	3.231	5.082
743726.7	987696	-10.583	5.898
743716.7	987695.8	-46.765	11.248
743706.7	987695.6	-6.793	7.720
743696.7	987695.4	-28.170	-6.001
743686.7	987695.2	-29.260	-16.595
743676.7	987695	-19.042	-2.844
743666.7	987694.8	-37.756	5.490
743656.7	987694.6	-25.607	2.072
743646.7	987694.4	-15.014	10.760
743636.7	987694.3	-13.311	-11.695
743626.7	987694.1	-3.598	4.286
743616.7	987693.9	-11.343	8.558
743606.7	987693.6	-23.172	4.150
743596.7	987693.4	-23.281	0.226
743586.7	987693.3	-13.915	0.115
743576.7	987693.1	4.733	1.993
743566.7	987692.9	-16.763	-18.833
743556.7	987692.7	-14.767	-9.979
743546.8	987692.5	-3.369	-1.065
743536.8	987692.3	14.676	1.866
743526.8	987692.1	8.496	2.225
743516.8	987691.9	6.985	1.763
743506.8	987691.7	8.496	2.135
743496.8	987691.5	10.611	1.446
743486.8	987691.3	13.311	0.549
743476.8	987691.1	12.844	0.463
743466.8	987690.9	12.900	0.426
743456.8	987690.8	13.210	0.497
743446.8	987690.5	13.421	0.450
743436.8	987690.3	13.321	0.459
743426.8	987690.1	13.989	0.538
743416.8	987689.9	14.163	0.532
LINE 310			
743416.9	987679.9	14.108	0.310
743426.9	987680.1	14.053	0.376
743436.9	987680.3	13.797	0.406
743446.9	987680.5	13.330	0.611
743456.9	987680.8	13.321	0.439
743466.9	987680.9	12.799	0.400
743476.9	987681.1	12.478	0.459
743486.9	987681.3	12.900	0.470
743496.9	987681.5	11.737	-0.169
743506.9	987681.7	8.917	-0.861
743516.9	987681.9	10.519	1.993
743526.9	987682.1	7.846	3.335
743536.9	987682.3	6.253	2.598
743546.9	987682.5	7.296	1.616
743556.9	987682.7	10.473	-0.137
743566.9	987682.9	-1.941	-9.808
743576.9	987683.1	5.319	-1.583
743586.9	987683.3	-8.725	2.574
743596.9	987683.4	-16.552	0.769
743606.9	987683.6	-22.549	9.743

Easting	Northing	Conductivity	In-Phase
743616.9	987683.9	-15.271	8.698
743626.9	987684.1	-1.410	7.687
743636.9	987684.3	-5.649	4.929
743646.9	987684.4	-4.824	4.200
743656.9	987684.6	-4.888	6.631
743666.9	987684.8	2.590	4.571
743676.9	987685	1.044	4.117
743686.9	987685.2	-4.897	6.976
743696.9	987685.4	-22.906	-6.557
743706.9	987685.6	-33.306	-1.326
743716.9	987685.8	-13.266	-4.685
743726.9	987686	-8.541	3.597
743736.9	987686.2	-17.871	4.727
743746.9	987686.4	10.080	3.434
743756.9	987686.6	-11.929	-2.440
743766.9	987686.8	-9.677	4.764
743776.9	987687	-11.856	6.342
743786.9	987687.2	12.744	2.168
743796.9	987687.4	-25.057	7.125
743806.9	987687.6	-31.530	12.470
743816.9	987687.8	-42.352	20.030
743826.9	987687.9	-86.700	23.995
743836.9	987688.1	-57.256	7.024
743846.9	987688.4	-16.104	9.620
743856.9	987688.6	-22.915	16.002
743866.9	987688.8	-52.716	7.498
743876.9	987688.9	-59.994	7.687
743886.9	987689.1	-42.919	3.445
743896.9	987689.3	-9.741	11.825
743906.9	987689.5	-9.292	6.298
743916.9	987689.7	-20.883	3.847
743926.8	987689.9	-14.099	4.683
743936.8	987690.1	-7.040	5.376
743946.8	987690.3	-0.842	8.191
743956.8	987690.5	-10.327	3.430
743966.8	987690.7	-11.664	6.715
743976.8	987690.9	-1.519	4.479
LINE 300			
743977	987680.9	-13.852	-10.844
743967	987680.7	-13.183	-1.668
743957.1	987680.5	-3.378	6.671
743947.1	987680.3	-18.750	16.860
743937.1	987680.1	-5.071	11.553
743927.1	987679.9	-2.975	13.736
743917.1	987679.7	-17.660	16.853
743907.1	987679.5	-24.545	13.007
743897.1	987679.3	-20.269	6.567
743887.1	987679.1	-23.922	9.624
743877.1	987678.9	-13.357	15.680
743867.1	987678.8	-28.765	15.601
743857.1	987678.6	-44.220	11.800
743847.1	987678.4	-12.606	8.413
743837.1	987678.1	-31.448	16.051
743827.1	987677.9	-7.745	14.664
743817.1	987677.8	-21.194	15.410
743807.1	987677.6	-6.399	10.875
743797.1	987677.4	0.475	6.467
743787.1	987677.2	8.917	4.780
743777.1	987677	-12.936	10.041
743767.1	987676.8	-13.485	7.667
743757.1	987676.6	-18.558	6.947
743747.1	987676.4	-23.236	5.565
743737.1	987676.2	-28.518	6.932
743727.1	987676	-11.581	2.684
743717.1	987675.8	-9.649	9.031
743707.1	987675.6	-10.876	5.475

Easting	Northing	Conductivity	In-Phase
743697.1	987675.4	-4.596	2.458
743687.1	987675.3	2.902	5.297
743677.1	987675	8.788	4.369
743667.1	987674.8	4.193	3.665
743657.1	987674.6	-2.884	-5.084
743647.1	987674.4	-2.068	3.028
743637.1	987674.3	2.618	6.526
743627.1	987674.1	-3.900	4.747
743617.1	987673.9	3.964	5.754
743607.1	987673.7	-4.000	5.493
743597.1	987673.4	-23.373	13.148
743587.1	987673.3	-19.766	-8.786
743577.1	987673.1	1.657	-4.286
743567.1	987672.9	1.711	2.715
743557.1	987672.7	3.781	4.731
743547.1	987672.5	4.065	-0.663
743537.1	987672.3	11.096	5.176
743527.1	987672.1	12.918	1.411
743517.1	987671.9	7.122	2.634
743507.1	987671.7	10.720	2.316
743497.1	987671.5	5.914	0.178
743487.1	987671.3	5.346	1.214
743477.1	987671.1	13.915	3.210
743467.1	987670.9	12.396	0.633
743457.1	987670.8	12.771	0.966
743447.1	987670.5	13.018	3.790
743437.1	987670.3	12.771	2.122
743427.1	987670.1	13.870	1.883
743417.1	987669.9	13.925	0.801
LINE 290			
743417.3	987659.9	14.263	0.845
743427.3	987660.1	13.769	1.723
743437.3	987660.3	13.357	1.049
743447.3	987660.5	12.268	1.433
743457.3	987660.8	12.726	1.273
743467.3	987660.9	12.139	0.711
743477.3	987661.1	12.405	1.356
743487.3	987661.3	13.595	1.905
743497.3	987661.5	3.534	-4.137
743507.3	987661.7	2.453	-6.510
743517.3	987661.9	8.560	1.394
743527.3	987662.1	8.111	1.655
743537.3	987662.3	8.294	2.520
743547.3	987662.5	11.627	2.653
743557.3	987662.7	-3.085	-5.484
743567.3	987662.9	-6.683	6.488
743577.3	987663.1	-3.708	3.151
743587.3	987663.3	-8.212	-12.792
743597.3	987663.4	-7.416	15.588
743607.3	987663.7	-34.213	8.036
743617.3	987663.9	-9.256	-0.130
743627.3	987664.1	-6.335	6.739
743637.3	987664.3	-5.154	3.529
743647.3	987664.4	1.941	5.012
743657.3	987664.6	-3.341	4.172
743667.3	987664.8	-2.472	2.348
743677.3	987665	0.723	4.632
743687.3	987665.3	2.929	6.124
743697.3	987665.4	7.599	1.885
743707.3	987665.6	6.189	4.940
743717.3	987665.8	10.839	3.182
743727.3	987666	-12.094	16.908
743737.3	987666.2	-16.543	4.613
743747.3	987666.4	-5.447	1.155
743757.3	987666.6	0.842	6.282
743767.3	987666.8	-20.791	14.591

Easting	Northing	Conductivity	In-Phase
743777.3	987667	-10.858	11.156
743787.3	987667.2	-10.912	11.215
743797.3	987667.4	6.756	3.899
743807.3	987667.6	-89.538	43.709
743817.3	987667.8	-51.232	-3.413
743827.3	987667.9	-36.035	-7.358
743837.3	987668.1	-30.743	10.251
743847.3	987668.4	-18.621	14.631
743857.3	987668.6	-3.708	8.860
743867.3	987668.8	-54.675	21.095
743877.3	987668.9	-37.390	20.507
743887.3	987669.1	-21.579	8.711
743897.3	987669.3	-8.459	6.884
743907.3	987669.5	-8.578	1.446
743917.3	987669.7	-8.715	10.991
743927.3	987669.9	-1.391	7.046
743937.3	987670.1	-1.162	8.854
743947.3	987670.3	-7.571	11.353
743957.3	987670.5	-3.094	5.822
743967.3	987670.7	1.162	1.306
743977.3	987670.9	-4.183	0.279
LINE 280			
743977.4	987660.9	-32.400	-32.561
743967.4	987660.7	-22.567	13.606
743957.4	987660.5	-24.838	14.828
743947.4	987660.3	-41.674	16.526
743937.4	987660.1	-11.590	13.966
743927.4	987659.9	-8.130	12.623
743917.4	987659.8	-14.556	15.362
743907.4	987659.5	2.059	6.118
743897.4	987659.3	1.849	7.513
743887.4	987659.1	-0.906	7.676
743877.4	987658.9	-13.119	6.554
743867.4	987658.8	-20.508	13.150
743857.4	987658.6	-33.938	16.814
743847.4	987658.4	-3.872	9.297
743837.4	987658.1	-24.279	12.366
743827.4	987657.9	-9.832	10.727
743817.4	987657.8	13.605	1.741
743807.4	987657.6	-11.993	3.327
743797.4	987657.4	-25.918	16.985
743787.4	987657.2	-14.556	9.440
743777.4	987657	-2.572	4.305
743767.4	987656.8	3.451	6.835
743757.4	987656.6	2.893	6.265
743747.4	987656.4	-0.366	4.036
743737.4	987656.2	-6.775	5.398
743727.4	987656	-7.003	5.030
743717.5	987655.8	2.526	2.566
743707.5	987655.6	4.312	6.423
743697.5	987655.4	6.939	4.345
743687.5	987655.3	6.180	3.537
743677.5	987655	6.683	3.831
743667.5	987654.8	4.980	3.379
743657.5	987654.6	2.737	2.622
743647.5	987654.4	1.666	1.269
743637.5	987654.3	-1.290	3.617
743627.5	987654.1	-0.421	4.806
743617.5	987653.9	-7.580	7.401
743607.5	987653.7	-10.528	10.458
743597.5	987653.4	-28.253	14.863
743587.5	987653.3	-24.426	-3.974
743577.5	987653.1	-0.814	-1.164
743567.5	987652.9	-9.448	-9.321
743557.5	987652.7	4.980	9.031
743547.5	987652.5	-1.290	-1.164

Easting	Northing	Conductivity	In-Phase
743537.5	987652.3	9.457	4.727
743527.5	987652.1	10.684	1.223
743517.5	987651.9	4.596	1.649
743507.5	987651.7	9.603	-0.303
743497.5	987651.5	-4.641	-7.311
743487.5	987651.3	3.726	0.540
743477.5	987651.1	4.596	-1.973
743467.5	987650.9	12.286	0.567
743457.5	987650.8	12.057	0.780
743447.5	987650.6	12.625	1.251
743437.5	987650.3	12.689	0.885
743427.5	987650.1	13.247	1.457
743417.5	987649.9	13.741	0.507
LINE 270			
743417.8	987639.9	14.108	0.562
743427.8	987640.1	13.257	1.440
743437.7	987640.3	12.863	1.835
743447.7	987640.6	12.945	1.501
743457.7	987640.8	12.066	1.084
743467.7	987640.9	12.634	0.641
743477.7	987641.1	12.753	1.295
743487.7	987641.3	9.732	2.122
743497.7	987641.5	8.725	3.911
743507.7	987641.7	9.173	-0.011
743517.7	987641.9	-15.115	8.031
743527.7	987642.1	1.006	-1.107
743537.7	987642.3	5.795	-0.723
743547.7	987642.5	6.811	4.679
743557.7	987642.7	-2.783	7.412
743567.7	987642.9	8.065	2.579
743577.7	987643.1	-19.592	-15.958
743587.7	987643.3	-5.154	1.135
743597.7	987643.4	-18.237	6.267
743607.7	987643.7	-18.859	8.005
743617.7	987643.9	-2.106	3.652
743627.7	987644.1	-5.465	7.254
743637.7	987644.3	-0.137	4.698
743647.7	987644.4	6.042	4.231
743657.7	987644.6	-4.074	5.708
743667.7	987644.8	-9.228	3.867
743677.7	987645	-6.225	3.052
743687.7	987645.3	1.126	2.919
743697.7	987645.4	8.743	2.629
743707.7	987645.6	-1.062	2.346
743717.7	987645.8	2.792	2.171
743727.7	987646	5.273	4.523
743737.7	987646.2	-1.474	2.688
743747.7	987646.4	-3.076	2.372
743757.7	987646.6	6.619	4.170
743767.6	987646.8	-25.992	5.299
743777.6	987647	-47.067	1.521
743787.6	987647.2	-14.035	11.825
743797.6	987647.4	1.547	7.658
743807.6	987647.6	-20.114	6.644
743817.6	987647.8	-19.363	11.689
743827.6	987647.9	2.545	6.568
743837.6	987648.2	-4.559	5.512
743847.6	987648.4	-20.452	6.872
743857.6	987648.6	-13.705	10.287
743867.6	987648.8	13.421	-0.966
743877.6	987648.9	-11.764	6.816
743887.6	987649.1	-38.223	17.169
743897.6	987649.3	-19.620	11.983
743907.6	987649.5	-13.833	5.104
743917.6	987649.8	-10.327	8.817
743927.6	987649.9	4.540	6.374

Easting	Northing	Conductivity	In-Phase
743937.6	987650.1	-7.653	11.575
743947.6	987650.3	-15.811	14.817
743957.6	987650.5	-17.413	8.683
743967.6	987650.7	0.814	2.065
743977.6	987650.9	0.952	0.369
LINE 260			
743977.8	987640.9	-8.605	-1.756
743967.8	987640.7	7.168	5.558
743957.8	987640.5	-0.595	7.358
743947.8	987640.3	-27.365	14.532
743937.8	987640.1	-24.124	5.008
743927.8	987639.9	-45.767	11.089
743917.8	987639.8	-10.308	3.274
743907.8	987639.5	-5.218	10.837
743897.8	987639.3	-32.528	3.829
743887.8	987639.1	-42.214	16.276
743877.8	987638.9	-13.714	11.866
743867.8	987638.8	7.699	5.122
743857.8	987638.6	1.263	8.318
743847.8	987638.4	-28.308	-1.096
743837.8	987638.2	-7.690	1.473
743827.8	987637.9	-1.373	7.448
743817.8	987637.8	-10.162	9.492
743807.8	987637.6	-8.478	13.609
743797.9	987637.4	9.878	8.874
743787.9	987637.2	-6.664	2.840
743777.9	987637	0.933	6.271
743767.9	987636.8	-23.922	14.874
743757.9	987636.6	-0.402	5.051
743747.9	987636.4	-11.398	5.065
743737.9	987636.2	-13.137	8.002
743727.9	987636	-1.986	6.701
743717.9	987635.8	-0.036	4.700
743707.9	987635.6	5.685	3.476
743697.9	987635.4	5.877	4.487
743687.9	987635.3	-2.874	0.676
743677.9	987635.1	-6.921	0.354
743667.9	987634.8	-10.959	2.072
743657.9	987634.6	-5.997	-0.170
743647.9	987634.4	-0.448	-0.117
743637.9	987634.3	-10.849	3.612
743627.9	987634.1	-13.412	3.867
743617.9	987633.9	-3.460	6.008
743607.9	987633.7	-28.711	13.975
743597.9	987633.4	-10.821	8.047
743587.9	987633.3	-8.679	0.907
743577.9	987633.1	-0.897	7.019
743567.9	987632.9	1.739	2.138
743557.9	987632.7	-8.835	-0.951
743547.9	987632.5	2.444	2.302
743537.9	987632.3	4.009	0.248
743527.9	987632.1	-19.207	-24.709
743517.9	987631.9	-0.714	-0.604
743507.9	987631.7	-15.994	-13.496
743497.9	987631.5	-61.001	-25.777
743487.9	987631.3	9.082	1.914
743477.9	987631.1	10.739	0.760
743467.9	987630.9	12.332	0.558
743457.9	987630.8	12.341	0.628
743447.9	987630.6	11.929	0.948
743437.9	987630.3	12.469	0.891
743427.9	987630.1	12.936	0.742
743417.9	987629.9	14.263	0.644
LINE 250			
743418.1	987619.9	14.282	0.347
743428.1	987620.1	13.449	0.529

Easting	Northing	Conductivity	In-Phase
743438.1	987620.3	12.909	0.380
743448.1	987620.6	12.790	0.652
743458.1	987620.8	12.753	0.670
743468.1	987620.9	12.762	0.569
743478.1	987621.1	12.726	1.232
743488.1	987621.3	2.920	2.403
743498.1	987621.5	10.428	2.691
743508.1	987621.7	8.294	1.554
743518.1	987621.9	-8.917	1.613
743528.1	987622.1	-16.809	-2.436
743538.1	987622.3	-20.169	-19.625
743548.1	987622.5	5.273	-1.554
743558.1	987622.7	-6.555	3.292
743568.1	987622.9	6.912	-6.552
743578.1	987623.1	-27.768	-22.178
743588.1	987623.3	-3.304	3.594
743598.1	987623.5	-5.108	8.871
743608.1	987623.7	7.003	1.218
743618.1	987623.9	-11.077	7.755
743628.1	987624.1	-24.499	10.387
743638.1	987624.3	-5.649	6.013
743648.1	987624.4	-8.871	1.758
743658.1	987624.6	-5.593	2.669
743668.1	987624.8	7.590	2.403
743678.1	987625.1	-5.118	1.372
743688.1	987625.3	-12.414	2.164
743698.1	987625.4	-18.337	4.442
743708.1	987625.6	-3.982	-2.059
743718.1	987625.8	-7.626	-2.995
743728.1	987626	-1.098	3.085
743738.1	987626.2	-9.704	-0.415
743748.1	987626.4	-6.866	4.404
743758.1	987626.6	0.430	4.691
743768.1	987626.8	-13.806	5.420
743778.1	987627	-12.442	10.453
743788.1	987627.2	17.486	6.829
743798.1	987627.4	-54.126	0.926
743808.1	987627.6	-86.297	-3.919
743818.1	987627.8	13.009	10.822
743828.1	987627.9	-10.272	10.194
743838.1	987628.2	-2.188	4.538
743848	987628.4	-0.576	6.361
743858	987628.6	0.906	2.827
743868	987628.8	3.946	-0.172
743878	987628.9	-11.105	10.195
743888	987629.1	-11.728	5.374
743898	987629.3	-9.933	7.583
743908	987629.5	-14.126	11.017
743918	987629.8	-4.230	10.587
743928	987629.9	-18.072	11.774
743938	987630.1	-23.025	6.059
743948	987630.3	-5.090	3.044
743958	987630.5	8.569	7.254
743968	987630.7	-3.304	1.885
LINE 240			
743968.2	987620.7	-15.921	-4.108
743958.2	987620.5	-16.434	-9.731
743948.2	987620.3	-12.707	5.032
743938.2	987620.1	-2.160	3.349
743928.2	987619.9	1.016	4.420
743918.2	987619.8	2.764	3.794
743908.2	987619.6	-3.341	5.545
743898.2	987619.3	-2.169	4.854
743888.3	987619.1	0.475	3.965
743878.3	987618.9	3.588	3.935
743868.3	987618.8	8.257	3.753

Easting	Northing	Conductivity	In-Phase
743858.3	987618.6	5.548	4.002
743848.3	987618.4	1.950	5.822
743838.3	987618.2	-2.289	6.864
743828.3	987617.9	-7.965	9.488
743818.3	987617.8	-8.450	11.772
743808.3	987617.6	-93.878	-25.301
743798.3	987617.4	-93.887	-16.544
743788.3	987617.2	-93.878	-26.433
743778.3	987617	3.753	7.941
743768.3	987616.8	-14.620	-3.680
743758.3	987616.6	-6.298	4.856
743748.3	987616.4	-7.681	2.300
743738.3	987616.2	-22.998	3.384
743728.3	987616	2.975	1.853
743718.3	987615.8	12.835	2.476
743708.3	987615.6	-7.947	2.033
743698.3	987615.4	-11.993	1.879
743688.3	987615.3	-11.984	-2.243
743678.3	987615.1	-0.174	1.885
743668.3	987614.8	-3.561	2.050
743658.3	987614.6	-3.790	0.468
743648.3	987614.4	-3.525	6.006
743638.3	987614.3	-11.773	7.357
743628.3	987614.1	-5.172	5.453
743618.3	987613.9	-9.384	-23.912
743608.3	987613.7	12.533	-6.135
743598.3	987613.5	0.393	5.620
743588.3	987613.3	-70.459	-32.712
743578.3	987613.1	-22.787	-25.939
743568.3	987612.9	3.003	-2.438
743558.3	987612.7	5.758	1.600
743548.3	987612.5	-8.596	5.065
743538.3	987612.3	5.484	0.145
743528.3	987612.1	-1.053	0.817
743518.3	987611.9	-24.691	10.216
743508.3	987611.7	-12.689	0.644
743498.3	987611.5	13.201	0.716
743488.3	987611.3	8.779	0.716
743478.3	987611.1	0.000	1.131
743468.3	987610.9	13.522	0.516
743458.3	987610.8	12.414	0.553
743448.3	987610.6	12.661	0.565
743438.3	987610.4	12.790	0.554
743428.3	987610.1	13.110	0.459
743418.3	987609.9	13.741	0.424
LINE 230			
743418.5	987599.9	13.678	0.332
743428.5	987600.1	13.687	0.400
743438.5	987600.4	13.366	0.435
743448.5	987600.6	12.918	0.505
743458.5	987600.8	12.423	0.499
743468.5	987600.9	12.167	0.510
743478.5	987601.1	12.249	0.510
743488.5	987601.3	12.643	0.744
743498.5	987601.5	12.991	0.944
743508.5	987601.7	12.991	0.874
743518.5	987601.9	-34.698	-11.055
743528.5	987602.1	-38.095	0.977
743538.5	987602.3	3.021	-5.493
743548.5	987602.5	12.588	1.883
743558.5	987602.7	-0.219	4.457
743568.5	987602.9	1.236	-4.062
743578.5	987603.1	-5.896	-1.644
743588.5	987603.3	0.494	0.426
743598.5	987603.5	-6.948	-6.486
743608.4	987603.7	-1.702	2.772
743618.4	987603.9	8.422	4.735
743628.4	987604.1	12.387	2.331
743638.4	987604.3	4.944	1.752
743648.4	987604.4	-9.979	1.242
743658.4	987604.6	-19.033	3.391
743668.4	987604.8	-24.820	8.255
743678.4	987605.1	-20.151	4.251
743688.4	987605.3	3.231	3.404
743698.4	987605.4	5.959	1.337
743708.4	987605.6	-14.218	0.766
743718.4	987605.8	0.412	-1.955
743728.4	987606	4.934	1.949
743738.4	987606.2	7.983	1.637
743748.4	987606.4	-7.168	3.459
743758.4	987606.6	-2.856	3.013
743768.4	987606.8	0.339	4.584
743778.4	987607	-1.711	4.703
743788.4	987607.2	-6.097	6.897
743798.4	987607.4	8.670	3.118
743808.4	987607.6	15.994	2.239
743818.4	987607.8	15.151	1.240
743828.4	987608	4.989	6.083
743838.4	987608.2	-0.366	6.440
743848.4	987608.4	-7.855	8.852
743858.4	987608.6	2.188	1.922
743868.4	987608.8	-7.599	1.525
743878.4	987608.9	0.329	3.171
743888.4	987609.1	4.650	-1.980
743898.4	987609.3	3.387	2.781
743908.4	987609.6	4.724	2.928
743918.4	987609.8	6.198	3.160
743928.4	987609.9	8.056	2.017
743938.4	987610.1	-3.634	0.997
743948.4	987610.3	2.325	5.304
743958.4	987610.5	-3.561	5.427
743968.4	987610.7	-14.263	1.861
LINE 220			
743948.6	987600.3	-3.973	2.197
743938.6	987600.1	-5.181	7.175
743928.6	987599.9	-9.210	-0.378
743918.6	987599.8	-13.431	-5.087
743908.6	987599.6	2.847	2.278
743898.6	987599.3	0.732	1.865
743888.6	987599.1	5.355	0.654
743878.6	987598.9	7.425	1.152
743868.6	987598.8	8.331	1.587
743858.6	987598.6	-0.339	2.939
743848.6	987598.4	-1.044	1.582
743838.6	987598.2	-7.150	4.555
743828.6	987598	-4.230	-1.045
743818.6	987597.8	10.629	1.569
743808.6	987597.6	2.371	1.523
743798.6	987597.4	5.804	1.984
743788.6	987597.2	7.507	4.073
743778.6	987597	6.912	2.300
743768.6	987596.8	2.160	1.506
743758.6	987596.6	5.081	-1.271
743748.6	987596.4	-6.417	0.271
743738.6	987596.2	2.142	0.104
743728.6	987596	9.631	1.907
743718.6	987595.8	11.297	0.433
743708.6	987595.6	6.619	2.917
743698.6	987595.4	-6.133	3.244
743688.6	987595.3	0.970	0.271
743678.6	987595.1	-25.515	2.162
743668.6	987594.9	-2.032	2.901

Easting	Northing	Conductivity	In-Phase
743658.6	987594.6	3.085	4.713
743648.6	987594.4	9.384	2.181
743638.7	987594.3	0.723	5.705
743628.7	987594.1	5.392	3.518
743618.7	987593.9	6.655	3.219
743608.7	987593.7	-7.168	-1.861
743598.7	987593.5	0.311	-6.550
743588.7	987593.3	5.731	2.193
743578.7	987593.1	-2.590	-3.981
743568.7	987592.9	0.292	-2.454
743558.7	987592.7	-7.690	8.635
743548.7	987592.5	8.148	5.714
743538.7	987592.3	11.782	-1.455
743528.7	987592.1	1.171	2.276
743518.7	987591.9	-26.394	-0.187
743508.7	987591.7	-15.490	0.536
743498.7	987591.5	10.180	-1.264
743488.7	987591.3	12.890	1.440
743478.7	987591.1	10.153	-0.167
743468.7	987590.9	8.468	1.359
743458.7	987590.8	12.853	0.398
743448.7	987590.6	12.808	0.553
743438.7	987590.4	12.606	0.499
743428.7	987590.1	13.220	0.497
743418.7	987589.9	13.531	0.398
LINE 210			
743418.9	987579.9	13.741	0.389
743428.9	987580.1	13.558	0.483
743438.9	987580.4	13.183	0.558
743448.9	987580.6	12.900	0.536
743458.9	987580.8	12.863	0.510
743468.9	987580.9	10.986	0.701
743478.9	987581.1	11.508	0.773
743488.9	987581.3	-1.254	-0.933
743498.9	987581.5	7.663	-2.838
743508.9	987581.8	11.151	1.784
743518.9	987581.9	-7.800	-12.244
743528.9	987582.1	-26.458	1.016
743538.9	987582.3	-10.180	6.420
743548.9	987582.5	11.755	-0.248
743558.9	987582.7	8.752	2.318
743568.9	987582.9	-2.142	3.463
743578.9	987583.1	0.540	3.296
743588.9	987583.3	5.292	-4.189
743598.9	987583.5	9.054	3.252
743608.9	987583.7	3.460	-3.638
743618.9	987583.9	-1.437	-7.098
743628.9	987584.1	3.634	3.796
743638.9	987584.3	3.268	-4.560
743648.9	987584.4	7.369	6.862
743658.9	987584.6	-0.256	5.266
743668.9	987584.9	-1.144	2.605
743678.9	987585.1	4.761	4.435
743688.8	987585.3	-8.962	-1.534
743698.8	987585.4	-19.930	0.712
743708.8	987585.6	-33.252	7.959
743718.8	987585.8	-10.281	4.420
743728.8	987586	13.705	1.001
743738.8	987586.2	-1.236	2.811
743748.8	987586.4	4.879	1.126
743758.8	987586.6	12.524	1.025
743768.8	987586.8	2.453	-1.802
743778.8	987587	-6.948	-3.878
743788.8	987587.2	6.481	-1.826
743798.8	987587.4	8.706	2.644
743808.8	987587.6	6.573	3.116

Easting	Northing	Conductivity	In-Phase
743818.8	987587.8	10.171	-0.214
743828.8	987588	3.918	2.888
743838.8	987588.2	7.397	2.682
743848.8	987588.4	11.865	0.148
743858.8	987588.6	8.487	2.221
743868.8	987588.8	7.296	0.782
743878.8	987588.9	5.630	-3.950
743888.8	987589.1	8.770	1.993
743898.8	987589.3	7.965	8.071
743908.8	987589.6	3.909	2.816
743918.8	987589.8	3.835	4.584
743928.8	987589.9	-8.029	0.145
LINE 200			
743909	987579.6	3.204	2.599
743899	987579.4	6.591	1.198
743889	987579.1	6.097	3.792
743879	987578.9	6.692	1.846
743869	987578.8	9.988	2.416
743859	987578.6	9.667	2.864
743849	987578.4	10.565	0.327
743839	987578.2	6.555	-0.505
743829	987578	6.363	0.091
743819	987577.8	2.179	-6.901
743809	987577.6	7.369	0.466
743799	987577.4	11.133	2.298
743789	987577.2	9.613	1.550
743779	987577	3.808	2.899
743769	987576.8	8.605	0.997
743759	987576.6	1.098	1.363
743749	987576.4	1.492	-3.810
743739	987576.2	-20.883	-7.221
743729.1	987576	-39.321	-11.603
743719.1	987575.8	-39.898	-5.091
743709.1	987575.6	-16.534	3.889
743699.1	987575.4	-12.762	8.580
743689.1	987575.3	-68.142	6.124
743679.1	987575.1	-38.379	8.593
743669.1	987574.9	0.915	3.621
743659.1	987574.6	-7.416	4.420
743649.1	987574.4	1.272	0.736
743639.1	987574.3	-1.437	1.795
743629.1	987574.1	-8.615	-12.547
743619.1	987573.9	-3.671	-4.437
743609.1	987573.7	8.294	6.212
743599.1	987573.5	10.189	1.161
743589.1	987573.3	7.965	-0.442
743579.1	987573.1	5.749	5.993
743569.1	987572.9	-5.447	4.470
743559.1	987572.7	5.292	4.422
743549.1	987572.5	14.089	2.118
743539.1	987572.3	6.051	-2.197
743529.1	987572.1	-13.247	1.877
LINE 190			
743539.3	987562.3	-40.109	0.316
743549.3	987562.5	-24.032	-15.643
743559.3	987562.7	-2.700	-8.081
743569.3	987562.9	4.568	4.182
743579.3	987563.1	2.536	2.331
743589.3	987563.3	-4.779	5.756
743599.3	987563.5	-10.912	7.217
743609.3	987563.7	8.578	2.816
743619.3	987563.9	6.537	3.419
743629.3	987564.1	4.385	1.288
743639.3	987564.3	3.543	1.258
743649.3	987564.4	6.664	2.820
743659.3	987564.6	-6.701	10.341

Easting	Northing	Conductivity	In-Phase
743669.3	987564.9	5.245	3.504
743679.3	987565.1	0.640	5.753
743689.3	987565.3	-3.835	5.207
743699.3	987565.4	0.036	8.933
743709.3	987565.6	-13.348	2.337
743719.3	987565.8	-23.675	-3.489
743729.3	987566	-63.436	-23.019
743739.3	987566.2	-48.779	-16.684
743749.3	987566.4	1.391	-0.093
743759.3	987566.6	8.056	2.430
743769.3	987566.8	8.496	3.320
743779.2	987567	6.655	2.945
743789.2	987567.2	6.619	1.280
743799.2	987567.4	8.413	3.287
743809.2	987567.6	9.018	1.199
743819.2	987567.8	8.944	1.594
743829.2	987568	10.482	0.584
743839.2	987568.2	10.162	0.314
743849.2	987568.4	8.523	1.762
743859.2	987568.6	11.316	1.725
743869.2	987568.8	9.759	-2.447
743879.2	987568.9	-0.522	-2.397
743889.2	987569.1	-22.320	-6.392
LINE 180			
743879.4	987558.9	-24.765	-7.219
743869.4	987558.8	-17.743	-8.999
743859.4	987558.6	6.628	0.314
743849.4	987558.4	9.292	-3.774
743839.4	987558.2	12.543	-0.148
743829.4	987558	8.651	2.125
743819.4	987557.8	9.063	1.839
743809.4	987557.6	7.571	2.322
743799.4	987557.4	9.045	-1.168
743789.4	987557.2	10.839	3.685
743779.4	987557	-16.195	11.006
743769.4	987556.8	-5.959	4.589
743759.4	987556.6	-5.273	1.874
743749.4	987556.4	5.886	4.799
743739.4	987556.3	1.812	1.157
743729.4	987556	-39.779	-9.902
743719.4	987555.8	-43.185	-7.994
743709.4	987555.6	-2.746	5.097
743699.4	987555.4	-7.150	4.975
743689.4	987555.3	-12.313	-0.755
743679.4	987555.1	-5.255	5.488
743669.4	987554.9	-3.708	3.279
743659.4	987554.7	5.731	6.730
743649.4	987554.4	8.248	-0.123
743639.4	987554.3	6.070	1.541
743629.4	987554.1	2.792	1.049
743619.4	987553.9	6.664	-0.975
743609.4	987553.7	6.765	-1.925
743599.4	987553.5	1.290	10.186
743589.4	987553.3	-9.979	6.848
743579.4	987553.1	5.649	1.047
743569.4	987552.9	2.938	5.714
743559.4	987552.7	7.068	0.128
743549.4	987552.5	5.209	5.392
743539.4	987552.3	-31.659	9.556
743529.4	987552.1	-25.039	-5.637
LINE 170			
743539.6	987542.3	-23.373	2.963
743549.6	987542.5	-44.787	-9.466
743559.6	987542.7	-25.470	-3.945
743569.6	987542.9	12.973	2.570
743579.6	987543.1	5.978	4.240

Easting	Northing	Conductivity	In-Phase
743589.6	987543.3	5.438	6.543
743599.6	987543.5	0.073	6.289
743609.6	987543.7	-10.263	-4.016
743619.6	987543.9	-11.636	0.472
743629.6	987544.1	13.027	-2.215
743639.6	987544.3	13.668	14.366
743649.6	987544.4	3.076	1.093
743659.6	987544.7	-7.809	1.795
743669.6	987544.9	-25.762	0.090
743679.6	987545.1	-21.972	-5.288
743689.6	987545.3	-4.733	7.212
743699.6	987545.4	-4.129	6.629
743709.6	987545.6	-3.598	4.878
743719.6	987545.8	-15.481	-5.841
743729.6	987546	-39.019	-5.071
743739.6	987546.3	-13.797	0.834
743749.6	987546.4	-9.256	5.578
743759.6	987546.6	-12.378	3.785
743769.6	987546.8	-12.945	5.679
743779.6	987547	-17.175	2.188
743789.6	987547.2	-9.319	1.196
743799.6	987547.4	-5.593	3.256
743809.6	987547.6	-10.995	0.790
743819.6	987547.8	-7.534	1.051
743829.6	987548	-0.256	0.558
743839.6	987548.2	-16.067	-11.035
743849.6	987548.4	13.403	1.405
743859.6	987548.6	10.226	-0.260
743869.6	987548.8	1.702	0.033
LINE 160			
743869.8	987538.8	5.776	3.952
743859.8	987538.6	9.988	1.306
743849.8	987538.4	-0.741	3.158
743839.8	987538.2	-5.282	4.575
743829.8	987538	-11.224	2.283
743819.8	987537.8	-2.252	6.559
743809.8	987537.6	-0.146	6.409
743799.8	987537.4	0.814	5.539
743789.8	987537.2	-26.907	-7.634
743779.8	987537	-9.246	-2.497
743769.8	987536.8	5.923	6.677
743759.8	987536.6	0.659	8.206
743749.8	987536.4	-5.410	6.131
743739.8	987536.3	-6.015	6.741
743729.8	987536	-8.093	1.212
743719.8	987535.8	-20.526	-2.148
743709.8	987535.6	-22.989	-1.019
743699.8	987535.4	-11.801	-0.343
743689.8	987535.3	7.479	3.355
743679.8	987535.1	-19.729	0.198
743669.8	987534.9	-47.625	8.819
743659.8	987534.7	-26.614	13.850
743649.8	987534.4	7.773	-3.628
743639.8	987534.3	1.794	0.762
743629.8	987534.1	5.255	-0.598
743619.8	987533.9	-24.124	-7.377
743609.8	987533.7	-10.299	-2.076
743599.8	987533.5	-1.831	7.757
743589.8	987533.3	-1.025	4.431
743579.8	987533.1	8.285	5.661
743569.9	987532.9	8.999	1.431
743559.9	987532.7	-15.792	3.068
743549.9	987532.5	-39.953	-0.698
LINE 150			
743550.1	987522.5	-17.569	1.400
743560.1	987522.7	-36.786	6.811

Easting	Northing	Conductivity	In-Phase
743570.1	987522.9	3.964	-2.831
743580.1	987523.1	11.938	3.101
743590.1	987523.3	13.614	2.631
743600.1	987523.5	-7.726	8.720
743610.1	987523.7	1.391	5.256
743620	987523.9	1.831	1.440
743630	987524.1	-18.328	14.383
743640	987524.3	-15.618	12.739
743650	987524.4	4.925	3.886
743660	987524.7	-4.669	0.565
743670	987524.9	-6.436	5.394
743680	987525.1	-50.537	1.484
743690	987525.3	-67.153	1.069
743700	987525.4	-34.075	-5.067
743710	987525.6	-48.559	1.343
743720	987525.8	-19.473	-9.676
743730	987526	-12.506	-0.413
743740	987526.3	-21.615	0.071
743750	987526.4	-15.865	-3.921
743760	987526.6	-22.604	5.027
743770	987526.8	-31.201	5.958
743780	987527	-30.670	-17.121
743790	987527.2	-13.934	-9.292
743800	987527.4	-23.785	-7.180
743810	987527.6	-0.384	2.601
743820	987527.8	-22.101	-6.076
743830	987528	12.012	2.837
743840	987528.2	4.614	3.331
743850	987528.4	2.618	3.597
743860	987528.6	5.832	1.626
743870	987528.8	-4.660	-1.620
LINE 140			
743870.2	987518.8	-6.500	-15.498
743860.2	987518.6	6.427	2.179
743850.2	987518.4	5.630	0.374
743840.2	987518.2	9.805	0.303
743830.2	987518	7.324	2.124
743820.2	987517.8	-1.171	1.221
743810.2	987517.6	-1.071	4.630
743800.2	987517.4	0.348	2.037
743790.2	987517.2	-16.754	1.225
743780.2	987517	-19.830	9.663
743770.2	987516.8	-23.135	4.994
743760.2	987516.6	-24.664	2.851
743750.2	987516.4	-10.711	4.244
743740.2	987516.3	-4.577	3.919
743730.2	987516.1	-11.352	3.366
743720.2	987515.8	-23.089	-8.106
743710.2	987515.6	-36.566	-6.056
743700.2	987515.4	-21.780	-9.126
743690.2	987515.3	-63.436	-10.602
743680.2	987515.1	-59.079	-10.001
743670.2	987514.9	-18.942	-1.251
743660.2	987514.7	-0.274	4.340
743650.3	987514.5	-4.183	3.187
743640.3	987514.3	-8.368	9.056
743630.3	987514.1	-16.360	9.060
743620.3	987513.9	-0.128	2.708
743610.3	987513.7	-0.155	-1.995
743600.3	987513.5	-4.220	8.748
743590.3	987513.3	1.584	2.719
743580.3	987513.1	14.767	2.210
743570.3	987512.9	1.071	1.089
743560.3	987512.7	-28.857	-3.055
LINE 130			
743570.4	987502.9	-17.953	5.413
743580.4	987503.1	-20.434	-14.490
743590.4	987503.3	-16.149	-1.251
743600.4	987503.5	0.000	5.093
743610.4	987503.7	4.861	4.314
743620.4	987503.9	5.337	5.677
743630.4	987504.1	-4.083	3.465
743640.4	987504.3	-18.640	5.358
743650.4	987504.5	-8.688	7.540
743660.4	987504.7	4.458	4.042
743670.4	987504.9	-4.138	5.343
743680.4	987505.1	-8.459	-9.119
743690.4	987505.3	-66.458	-3.608
743700.4	987505.4	-73.498	-12.193
743710.4	987505.6	-83.496	-28.403
743720.4	987505.8	-69.168	-4.024
743730.4	987506.1	-39.202	2.995
743740.4	987506.3	-13.137	1.019
743750.4	987506.4	-1.895	5.742
743760.4	987506.6	-5.099	8.882
743770.4	987506.8	-12.094	5.409
743780.4	987507	-7.077	6.901
743790.4	987507.2	0.988	4.894
743800.4	987507.4	-16.735	3.261
743810.4	987507.6	-23.016	1.130
LINE 120			
743800.6	987497.4	-5.850	6.752
743790.6	987497.2	-8.358	8.957
743780.6	987497	2.261	5.229
743770.6	987496.8	0.311	5.885
743760.6	987496.6	-2.261	5.453
743750.6	987496.4	-28.948	4.972
743740.6	987496.3	-14.703	-0.593
743730.6	987496.1	-8.431	0.712
743720.6	987495.8	-33.370	-0.843
743710.6	987495.6	-68.389	-8.389
743700.6	987495.4	-39.770	-3.452
743690.6	987495.3	-32.345	0.086
743680.6	987495.1	-15.133	7.327
743670.6	987494.9	-7.021	1.670
743660.6	987494.7	-1.730	2.524
743650.6	987494.5	-0.384	6.341
743640.6	987494.3	-1.593	5.685
743630.6	987494.1	-12.405	11.884
743620.6	987493.9	-4.870	7.366
743610.6	987493.7	1.867	5.256
743600.6	987493.5	-4.074	1.826
743590.6	987493.3	-14.868	-6.383
743580.6	987493.1	-24.069	-3.820
743570.6	987492.9	2.407	22.821
LINE 110			
743600.8	987483.5	-26.806	-6.646
743610.8	987483.7	-28.344	2.469
743620.8	987483.9	1.034	1.892
743630.8	987484.1	4.284	7.675
743640.8	987484.3	3.323	8.338
743650.8	987484.5	3.076	8.794
743660.8	987484.7	-6.711	2.403
743670.8	987484.9	-12.286	-6.557
743680.8	987485.1	-1.464	0.358
743690.8	987485.3	-12.872	-8.503
743700.8	987485.4	-6.490	1.469
743710.8	987485.6	-4.998	1.418
743720.8	987485.8	-26.513	4.448
743730.8	987486.1	-11.590	0.867
743740.8	987486.3	-35.449	6.159
743750.8	987486.4	-16.058	2.848

Easting	Northing	Conductivity	In-Phase
743760.8	987486.6	-7.278	7.623
743770.8	987486.8	-5.941	6.941
743780.8	987487	-4.998	9.297
743790.8	987487.2	4.183	8.746
LINE 100			
743771	987476.8	-19.152	-3.555
743761	987476.6	-21.157	7.682
743751	987476.4	-14.639	7.562
743741	987476.3	-1.117	1.602
743731	987476.1	-11.169	5.211
743721	987475.9	-1.446	2.936
743711	987475.6	-3.726	4.465
743701	987475.4	-7.937	-0.339
743691	987475.3	6.198	1.080
743681	987475.1	6.591	3.878
743671	987474.9	2.179	4.725
743661	987474.7	3.149	6.219
743651	987474.5	4.239	5.005
743641	987474.3	11.380	5.848
743631	987474.1	-8.478	7.765
743621	987473.9	-8.084	-9.326
LINE 90			
743631.2	987464.1	-55.316	-32.660
743641.2	987464.3	-58.877	-32.660
743651.2	987464.5	-3.799	1.890
743661.2	987464.7	14.740	6.888
743671.2	987464.9	-1.336	-2.721
743681.2	987465.1	-3.057	5.497
743691.2	987465.3	-5.209	5.385
743701.2	987465.4	-1.281	3.990
743711.2	987465.6	1.611	3.335
743721.2	987465.9	-2.755	4.931
743731.2	987466.1	-6.537	-2.715
743741.2	987466.3	-60.809	-30.402
743751.2	987466.4	-39.660	-26.352
LINE 200			
743499.1	987571.5	10.409	1.576
743489.1	987571.3	9.430	1.356
743479.1	987571.1	8.349	2.537
743469.1	987570.9	2.994	2.127
743459.1	987570.8	7.525	0.268
743449.1	987570.6	13.384	0.518
743439.1	987570.4	12.487	0.621
743429.1	987570.2	13.119	0.556
743419.1	987569.9	13.714	0.507
LINE 190			
743419.3	987559.9	13.714	0.442
743429.3	987560.2	13.641	0.435
743439.3	987560.4	12.679	0.554
743449.3	987560.6	13.110	0.450
743459.3	987560.8	13.247	0.654
743469.3	987560.9	7.873	1.199
743479.3	987561.1	7.543	1.881
743489.3	987561.3	5.749	1.536
LINE 180			
743469.5	987550.9	6.701	-0.159
743459.5	987550.8	13.266	0.492
743449.5	987550.6	12.954	0.630
743439.5	987550.4	12.616	0.475
743429.5	987550.2	13.000	0.464
743419.5	987549.9	13.568	0.531
LINE 170			
743419.7	987539.9	12.387	0.343
743429.7	987540.2	12.698	0.415
743439.7	987540.4	12.588	0.464
743449.7	987540.6	12.094	0.418

Easting	Northing	Conductivity	In-Phase
LINE 160			
743449.9	987530.6	11.169	0.418
743439.9	987530.4	11.974	0.437
743429.9	987530.2	11.883	0.580
743419.9	987530	12.478	0.505
LINE 150			
743420.1	987520	12.350	0.308
743430.1	987520.2	11.929	0.554
743440.1	987520.4	11.654	0.339
LINE 140			
743470.3	987510.9	13.348	0.742
743460.3	987510.8	14.895	1.806
743450.3	987510.6	11.709	0.826
743440.3	987510.4	12.121	0.604
743430.3	987510.2	12.139	0.984
743420.3	987510	12.039	0.610
LINE 130			
743420.4	987500	12.918	0.464
743430.4	987500.2	12.469	0.582
743440.4	987500.4	11.773	0.567
743450.4	987500.6	12.103	0.648
743460.4	987500.8	11.279	0.689
743470.4	987500.9	11.380	0.817
LINE 120			
743490.6	987491.4	11.416	0.661
743480.6	987491.1	11.499	0.650
743470.6	987490.9	11.608	0.639
743460.6	987490.8	11.068	0.902
743450.6	987490.6	11.746	0.578
743440.6	987490.4	12.442	0.648
743430.6	987490.2	11.627	0.694
743420.6	987490	12.835	0.622
LINE 110			
743420.9	987480	13.321	0.516
743430.9	987480.2	12.661	0.683
743440.9	987480.4	11.984	0.655
743450.9	987480.6	12.570	0.564
743460.8	987480.8	11.819	0.542
743470.8	987480.9	11.407	0.637
743480.8	987481.1	11.554	0.674
743490.8	987481.4	11.481	0.652
743500.8	987481.6	11.242	0.771
743510.8	987481.8	11.297	0.677
LINE 100			
743541	987472.3	16.003	1.282
743531	987472.1	11.187	0.558
743521	987471.9	11.251	0.588
743511	987471.8	11.068	0.510
743501	987471.6	11.068	0.687
743491.1	987471.4	10.766	0.738
743481.1	987471.1	11.481	0.667
743471.1	987470.9	11.407	0.723
743461.1	987470.8	11.361	0.832
743451.1	987470.6	11.755	0.716
743441.1	987470.4	12.478	0.610
743431.1	987470.2	12.139	0.670
743421.1	987470	13.110	0.591
LINE 90			
743421.3	987460	13.330	0.485
743431.3	987460.2	12.991	0.565
743441.3	987460.4	12.204	0.626
743451.3	987460.6	12.506	0.565
743461.3	987460.8	12.112	0.703
743471.3	987460.9	12.085	0.622
743481.3	987461.1	12.002	0.617
743491.3	987461.4	11.398	0.705

Easting	Northing	Conductivity	In-Phase
743501.3	987461.6	11.508	0.637
743511.3	987461.8	11.178	0.903
743521.3	987461.9	10.995	0.874
743531.3	987462.1	11.023	0.742
743541.2	987462.3	11.251	0.757
743551.2	987462.5	11.572	0.791
743561.2	987462.8	12.716	0.610
743571.2	987462.9	15.637	1.631
743581.2	987463.1	17.715	4.722
LINE 80			
743581.4	987453.1	12.030	0.955
743571.4	987452.9	11.581	0.768
743561.4	987452.8	11.526	0.762
743551.4	987452.5	11.425	0.757
743541.4	987452.3	11.206	0.804
743531.4	987452.1	10.647	0.852
743521.4	987451.9	11.004	0.760
743511.4	987451.8	11.288	0.762
743501.4	987451.6	11.041	0.766
743491.4	987451.4	11.654	0.545
743481.4	987451.2	11.654	0.554
743471.4	987450.9	12.322	0.584
743461.4	987450.8	12.195	0.661
743451.4	987450.6	12.268	0.677
743441.4	987450.4	12.780	0.606
743431.4	987450.2	13.220	0.588
743421.4	987450	12.808	0.604
LINE 70			
743421.6	987440	13.083	0.558
743431.6	987440.2	12.863	0.711
743441.6	987440.4	12.936	0.635
743451.6	987440.6	12.496	0.538
743461.6	987440.8	12.927	0.540
743471.6	987440.9	12.057	0.551
743481.6	987441.2	12.002	0.633
743491.6	987441.4	11.911	0.582
743501.6	987441.6	11.791	0.711
743511.6	987441.8	11.544	0.701
743521.6	987441.9	11.499	0.773
743531.6	987442.1	11.096	0.628
743541.6	987442.3	11.334	0.718
743551.6	987442.5	11.004	0.793
743561.6	987442.8	11.481	0.700
743571.6	987442.9	11.270	0.725
743581.6	987443.1	11.059	0.836
743591.6	987443.3	11.389	0.731
743601.6	987443.5	11.617	1.141
743611.6	987443.7	14.227	4.474
LINE 60			
743651.8	987434.5	-36.199	6.153
743641.8	987434.3	20.654	2.214
743631.8	987434.1	13.238	1.951
743621.8	987433.9	12.808	1.499
743611.8	987433.7	11.554	1.113
743601.8	987433.5	11.416	0.843
743591.8	987433.3	11.471	0.742
743581.8	987433.1	10.867	0.600
743571.8	987432.9	10.867	0.654
743561.8	987432.8	11.462	0.698
743551.8	987432.5	11.105	0.681
743541.8	987432.3	11.023	0.707
743531.8	987432.1	11.334	0.720
743521.8	987431.9	11.004	0.815
743511.8	987431.8	11.453	0.830
743501.8	987431.6	11.288	0.668
743491.8	987431.4	11.691	0.644

Easting	Northing	Conductivity	In-Phase
743481.8	987431.2	12.295	0.600
743471.8	987430.9	12.259	0.641
743461.8	987430.8	12.478	0.683
743451.8	987430.6	12.378	0.641
743441.8	987430.4	13.101	0.540
743431.8	987430.2	13.201	0.567
743421.8	987430	12.909	0.576
LINE 50			
743422	987420	13.092	0.440
743432	987420.2	13.183	0.490
743442	987420.4	13.540	0.626
743452	987420.6	12.909	0.549
743462	987420.8	12.716	0.622
743472	987420.9	12.249	0.727
743482	987421.2	12.378	0.692
743492	987421.4	12.176	0.751
743502	987421.6	11.984	0.777
743512	987421.8	11.563	0.716
743522	987421.9	11.627	0.689
743532	987422.1	11.288	0.740
743542	987422.3	11.535	0.723
743552	987422.6	11.251	0.630
743562	987422.8	11.526	0.622
743572	987422.9	10.858	0.745
743582	987423.1	10.931	0.788
743592	987423.3	11.407	0.747
743602	987423.5	11.746	0.753
743612	987423.7	11.352	0.654
743622	987423.9	10.912	0.742
743632	987424.1	11.453	0.797
743642	987424.3	11.142	0.812
743652	987424.5	12.167	0.896
LINE 40			
743672.2	987414.9	12.561	1.130
743662.2	987414.7	12.249	1.243
743652.2	987414.5	11.535	0.826
743642.2	987414.3	11.471	0.768
743632.2	987414.1	11.013	0.858
743622.2	987413.9	11.233	0.824
743612.2	987413.7	10.931	0.802
743602.2	987413.5	10.922	0.859
743592.2	987413.3	11.352	0.810
743582.2	987413.1	11.096	0.740
743572.2	987412.9	10.308	0.909
743562.2	987412.8	11.572	0.837
743552.2	987412.6	11.535	0.847
743542.2	987412.3	11.178	0.828
743532.2	987412.1	11.325	0.654
743522.2	987411.9	11.068	0.804
743512.2	987411.8	11.782	0.753
743502.2	987411.6	11.370	0.723
743492.2	987411.4	12.066	0.689
743482.2	987411.2	11.947	0.764
743472.2	987411	12.469	0.608
743462.2	987410.8	12.616	0.619
743452.2	987410.6	12.625	0.683
743442.2	987410.4	12.936	0.644
743432.2	987410.2	13.147	0.571
743422.2	987410	13.449	0.485
LINE 30			
743422.4	987400	13.440	0.519
743432.4	987400.2	13.302	0.553
743442.4	987400.4	12.460	0.667
743452.4	987400.6	12.698	0.571
743462.4	987400.8	12.213	0.685
743472.4	987401	12.304	0.538

Easting	Northing	Conductivity	In-Phase
743482.4	987401.2	12.148	0.659
743492.4	987401.4	12.552	0.622
743502.4	987401.6	11.838	0.779
743512.4	987401.8	11.617	0.690
743522.4	987401.9	11.838	0.725
743532.4	987402.1	11.370	0.758
743542.4	987402.3	11.206	0.711
743552.4	987402.6	11.453	0.696
743562.4	987402.8	11.434	0.755
743572.4	987402.9	11.389	0.720
743582.4	987403.1	11.682	0.775
743592.4	987403.3	11.169	0.777
743602.4	987403.5	11.554	0.760
743612.4	987403.7	11.398	0.725
743622.4	987403.9	11.242	0.718
743632.4	987404.1	11.169	0.802
743642.4	987404.3	11.462	0.764
743652.4	987404.5	11.224	0.797
743662.4	987404.7	11.380	0.672
743672.4	987404.9	11.535	0.889
LINE 20			
743672.6	987394.9	14.062	2.405
743662.6	987394.7	10.986	0.775
743652.6	987394.5	11.123	0.839
743642.6	987394.3	10.940	0.755
743632.6	987394.1	11.050	0.725
743622.6	987393.9	11.224	0.744
743612.6	987393.7	11.032	0.714
743602.6	987393.5	11.178	0.740
743592.6	987393.3	11.691	0.742
743582.6	987393.1	11.334	0.676
743572.6	987392.9	11.297	0.670
743562.6	987392.8	11.554	0.790
743552.6	987392.6	11.260	0.755
743542.6	987392.3	10.885	0.779
743532.6	987392.1	10.922	0.940
743522.6	987391.9	10.968	0.847
743512.6	987391.8	11.270	0.793
743502.6	987391.6	11.481	0.764
743492.6	987391.4	11.737	0.764
743482.6	987391.2	12.652	0.718
743472.6	987391	12.249	0.661
743462.6	987390.8	12.744	0.591
743452.6	987390.6	12.570	0.556
743442.6	987390.4	13.357	0.494
743432.6	987390.2	12.670	0.542
743422.6	987390	13.833	0.509
LINE 10			
743422.8	987380	13.678	0.486
743432.8	987380.2	13.549	0.525
743442.8	987380.4	12.927	0.571
743452.8	987380.6	13.027	0.519
743462.8	987380.8	12.478	0.575
743472.8	987381	12.496	0.745
743482.8	987381.2	12.268	0.593
743492.8	987381.4	12.496	0.677
743502.8	987381.6	12.176	0.720
743512.8	987381.8	12.259	1.001
743522.8	987381.9	11.554	0.716
743532.8	987382.1	11.847	0.661
743542.8	987382.3	11.572	0.692
743552.8	987382.6	11.251	0.753
743562.8	987382.8	11.096	0.729
743572.8	987382.9	11.434	0.694
743582.8	987383.1	11.169	0.639
743592.8	987383.3	11.041	0.648

Easting	Northing	Conductivity	In-Phase
743602.8	987383.5	11.654	0.646
743612.8	987383.7	11.288	0.714
743622.8	987383.9	10.537	1.194
743632.8	987384.1	10.867	0.725
743642.8	987384.3	11.133	0.764
743652.8	987384.5	10.977	0.727
743662.8	987384.7	11.004	0.821
743672.8	987384.9	11.416	0.880
743682.8	987385.1	12.689	1.640
743692.8	987385.3	12.973	2.168
743702.8	987385.5	12.579	1.738
743712.8	987385.7	11.206	0.757
743722.8	987385.9	11.013	0.742
743732.8	987386.1	11.270	0.751
743742.8	987386.3	10.959	0.729
743752.8	987386.4	10.867	0.591
LINE 0			
743702.9	987375.5	10.711	0.760
743692.9	987375.3	10.931	1.166
743682.9	987375.1	10.995	0.982
743672.9	987374.9	10.318	0.703
743662.9	987374.7	10.592	0.769
743652.9	987374.5	10.363	0.841
743642.9	987374.3	10.839	0.799
743632.9	987374.1	10.794	0.738
743622.9	987373.9	11.032	0.823
743612.9	987373.7	10.812	0.821
743602.9	987373.5	10.876	0.793
743592.9	987373.3	10.995	0.738
743583	987373.1	11.178	0.731
743573	987372.9	10.766	0.742
743563	987372.8	11.215	0.830
743553	987372.6	11.325	0.744
743543	987372.4	11.086	0.720
743533	987372.1	11.654	0.681
743523	987371.9	11.572	0.716
743513	987371.8	11.416	0.843
743503	987371.6	11.801	0.709
743493	987371.4	12.295	0.626
743483	987371.2	12.634	0.694
743473	987371	12.735	0.597
743463	987370.8	12.341	0.659
743453	987370.6	12.286	0.676
743443	987370.4	12.387	0.593
743433	987370.2	12.588	0.602
743423	987370	13.119	0.542
LINE 20			
743722.6	987395.9	11.013	0.784
743732.6	987396.1	10.903	1.163
743742.6	987396.3	10.546	0.683
743752.6	987396.4	10.602	0.762
743762.6	987396.6	10.620	0.738
743772.6	987396.8	10.693	0.665
743782.6	987397.1	10.995	0.745
743792.6	987397.3	11.004	0.870
743802.6	987397.4	10.950	0.766
LINE 30			
743762.4	987406.6	9.521	0.584
743772.4	987406.8	10.894	0.780
743782.4	987407	10.839	0.696
743792.3	987407.3	11.013	0.725
743802.3	987407.4	11.041	0.644
743812.3	987407.6	11.462	0.650
743822.3	987407.8	11.307	0.924
743832.3	987408	11.178	0.757
743842.3	987408.2	11.654	0.711

Easting	Northing	Conductivity	In-Phase
743852.3	987408.4	11.599	0.775
743862.3	987408.6	11.307	0.659
743872.3	987408.8	11.032	0.725
LINE 40			
743892.1	987419.2	11.041	0.679
743882.1	987419	10.986	0.727
743872.1	987418.8	11.023	0.643
743862.1	987418.6	11.059	0.745
743852.1	987418.4	11.334	0.720
743842.1	987418.2	11.773	0.722
743832.1	987418	11.343	0.784
743822.1	987417.8	10.959	0.942
743812.1	987417.6	10.940	0.812
743802.1	987417.4	11.352	0.808
743792.1	987417.3	11.023	0.681
743782.1	987417	11.013	0.731
743772.1	987416.8	11.307	0.745
743762.1	987416.6	10.528	0.788
LINE 50			
743771.9	987426.8	6.564	1.649
743781.9	987427	8.294	1.161
743791.9	987427.3	11.361	1.062
743801.9	987427.4	10.757	0.707
743811.9	987427.6	11.206	0.720
743821.9	987427.8	11.434	0.771
743831.9	987428	11.242	0.749
743841.9	987428.2	11.151	0.918
743851.9	987428.4	11.453	0.674
743861.9	987428.6	11.187	0.740
743871.9	987428.8	11.407	0.854
743881.9	987429	11.325	0.775
743891.9	987429.2	11.142	0.793
743901.9	987429.4	10.794	0.804
743911.9	987429.6	10.602	0.762
743921.9	987429.8	10.794	0.720
743931.9	987429.9	10.308	0.878
743941.9	987430.1	10.729	0.788
743951.9	987430.4	10.776	0.681
743961.9	987430.6	10.776	0.788
LINE 60			
744021.7	987441.7	11.169	0.742
744011.7	987441.5	10.592	0.766
744001.7	987441.3	10.830	0.823
743991.7	987441.1	10.428	0.841
743981.8	987440.9	10.519	0.797
743971.8	987440.8	10.565	0.799
743961.8	987440.6	10.546	0.782
743951.8	987440.4	10.437	0.885
743941.8	987440.1	10.437	0.826
743931.8	987439.9	10.308	0.970
743921.8	987439.8	10.418	0.874
743911.8	987439.6	10.418	0.902
743901.8	987439.4	10.629	0.865
743891.8	987439.2	10.766	0.832
743881.8	987439	10.849	0.815
743871.8	987438.8	10.931	0.854
743861.8	987438.6	11.398	0.760
743851.8	987438.4	11.233	0.757
743841.8	987438.2	11.325	0.751
743831.8	987438	11.709	0.777
743821.8	987437.8	11.242	0.839
743811.8	987437.6	11.307	0.742
743801.8	987437.4	11.233	0.735
743791.8	987437.3	10.986	0.885
743781.8	987437	14.639	5.990
LINE 70			

Easting	Northing	Conductivity	In-Phase
743811.6	987447.6	12.790	0.176
743821.6	987447.8	11.810	0.257
743831.6	987448	11.563	0.233
743841.6	987448.2	11.490	0.185
743851.6	987448.4	10.849	0.235
743861.6	987448.6	11.453	0.286
743871.6	987448.8	11.728	0.148
743881.6	987449	11.544	0.305
743891.6	987449.2	11.041	0.246
743901.6	987449.4	11.160	0.354
743911.6	987449.6	10.903	0.371
743921.6	987449.8	10.675	0.312
743931.6	987449.9	10.656	0.297
743941.6	987450.1	10.611	0.222
743951.5	987450.4	10.729	0.194
743961.5	987450.6	10.391	0.203
743971.5	987450.8	10.812	0.242
743981.5	987450.9	10.912	0.222
743991.5	987451.1	10.912	0.090
744001.5	987451.3	10.977	0.169
744011.5	987451.5	11.023	0.189
744021.5	987451.7	10.693	0.224
LINE 80			
744021.3	987461.7	11.077	0.288
744011.3	987461.5	10.555	0.242
744001.3	987461.3	10.867	0.365
743991.3	987461.1	10.372	0.389
743981.3	987460.9	10.812	0.266
743971.3	987460.8	10.592	0.163
743961.3	987460.6	10.638	0.205
743951.3	987460.4	10.308	0.295
743941.3	987460.1	10.217	0.378
743931.3	987459.9	10.327	0.260
743921.3	987459.8	10.565	0.387
743911.3	987459.6	10.546	0.277
743901.4	987459.4	10.739	0.200
743891.4	987459.2	10.803	0.282
743881.4	987459	10.583	0.227
743871.4	987458.8	11.096	0.213
743861.4	987458.6	11.453	0.145
743851.4	987458.4	11.013	0.135
743841.4	987458.2	11.801	-0.068
LINE 90			
743851.2	987468.4	11.343	-0.020
743861.2	987468.6	11.654	-0.012
743871.1	987468.8	12.048	-0.099
743881.1	987469	11.416	0.031
743891.1	987469.2	10.830	0.169
743901.1	987469.4	10.528	0.172
743911.1	987469.6	10.720	0.236
743921.1	987469.8	10.134	0.101
743931.1	987469.9	10.473	0.911
743941.1	987470.1	10.263	0.036
743951.1	987470.3	10.080	0.167
743961.1	987470.6	10.482	0.128
743971.1	987470.8	10.473	0.038
743981.1	987470.9	10.583	0.062
743991.1	987471.1	10.675	0.097
744001.1	987471.3	10.400	0.189
744011.1	987471.5	10.748	0.176
744021.1	987471.7	10.629	0.141
LINE 100			
744020.9	987481.7	10.849	0.045
744010.9	987481.5	10.555	0.062
744000.9	987481.3	10.739	0.147
743990.9	987481.1	9.979	0.128

Easting	Northing	Conductivity	In-Phase
743980.9	987480.9	9.850	0.055
743970.9	987480.8	10.592	-0.055
743960.9	987480.6	10.959	-0.128
743950.9	987480.3	11.325	-0.203
743940.9	987480.1	11.270	-0.132
743930.9	987479.9	11.114	-0.014
743920.9	987479.8	11.142	-0.023
743910.9	987479.6	10.684	-0.029
743900.9	987479.4	10.912	-0.086
743890.9	987479.2	11.133	-0.058
743880.9	987479	11.270	0.007
743870.9	987478.8	11.169	-0.303
LINE 110			
743890.8	987489.2	12.543	0.464
743900.8	987489.4	11.316	-2.063
743910.8	987489.6	11.370	-0.112
743920.8	987489.8	11.590	-0.165
743930.8	987489.9	11.196	-0.086
743940.8	987490.1	11.581	-0.271
743950.8	987490.3	11.874	-0.268
743960.8	987490.6	11.215	-0.259
743970.8	987490.8	11.865	-0.303
743980.8	987490.9	11.764	-0.325
743990.8	987491.1	11.801	0.005
744000.8	987491.3	10.308	-0.137
744010.8	987491.5	10.409	-0.036
744020.8	987491.7	10.693	0.005
LINE 120			
744020.6	987501.7	10.995	-0.082
744010.6	987501.5	10.940	-0.071
744000.6	987501.3	10.208	-0.011
743990.6	987501.1	11.617	-0.099
743980.6	987500.9	11.508	-0.183
743970.6	987500.8	10.720	0.090
743960.6	987500.6	11.151	0.139
743950.6	987500.3	8.102	-0.576
743940.6	987500.1	11.737	-0.117
743930.6	987499.9	11.508	-0.163
743920.6	987499.8	11.260	-0.885
LINE 130			
743940.4	987510.1	11.746	-0.321
743950.4	987510.3	11.791	-0.240
743960.4	987510.5	12.021	-0.235
743970.4	987510.8	11.819	-0.242
743980.4	987510.9	11.307	-0.266
743990.4	987511.1	11.471	-0.317
744000.4	987511.3	9.549	0.080
744010.4	987511.5	10.583	-0.038
744020.4	987511.7	10.134	-0.009
LINE 0: SEAD13, EAST			
748688	1007324	19.967	0.402
748688	1007329	19.656	0.547
748688	1007334	19.620	0.420
748688	1007339	19.848	0.411
748688	1007344	19.793	0.540
748688	1007349	19.564	0.540
748688	1007354	19.225	0.644
748688	1007359	19.345	0.859
748688	1007364	19.299	0.602
748688	1007369	19.756	0.479
748688	1007374	21.405	3.470
748688	1007379	21.963	1.367
748688	1007384	20.773	1.661
748688	1007389	20.608	1.414
748688	1007394	21.890	1.460
748688	1007399	23.511	0.679

Easting	Northing	Conductivity	In-Phase
748688	1007404	23.327	0.545
748688	1007409	23.812	0.553
748688	1007414	24.362	0.718
748688	1007419	26.962	8.838
748688	1007424	24.526	1.712
748688	1007429	24.573	-0.565
748688	1007434	25.167	1.096
748688	1007439	25.644	0.661
748688	1007444	26.889	0.402
748688	1007449	27.694	0.542
748688	1007454	27.612	0.891
748688	1007459	28.866	0.711
748688	1007464	32.556	0.700
748688	1007469	35.806	1.131
748688	1007474	42.984	1.352
748688	1007479	42.370	1.028
748688	1007484	11.581	-0.430
748688	1007489	-6.601	-1.085
748688	1007494	28.408	0.757
748688	1007499	50.555	1.580
748688	1007504	42.105	1.407
748688	1007509	35.870	1.183
748688	1007514	33.370	1.030
748688	1007519	29.461	0.821
748688	1007524	28.417	0.435
748688	1007529	27.886	0.181
748688	1007534	25.955	0.448
748688	1007539	25.698	0.207
748688	1007544	26.577	0.268
748688	1007549	26.824	0.591
748688	1007554	25.204	0.509
748688	1007559	24.874	0.486
748688	1007564	24.316	0.463
748688	1007569	23.730	0.431
748688	1007574	24.847	0.418
748688	1007579	24.289	0.512
748688	1007584	23.538	0.483
748688	1007589	22.924	0.457
748688	1007594	21.744	0.975
748688	1007599	21.918	1.225
748688	1007604	22.696	0.641
748688	1007609	22.732	0.479
748688	1007614	22.018	0.430
748688	1007619	22.723	0.404
748688	1007624	23.638	0.349
LINE 10			
748698	1007624	24.325	0.459
748698	1007619	24.197	0.507
748698	1007614	23.821	0.446
748698	1007609	23.245	0.363
748698	1007604	24.051	0.382
748698	1007599	24.829	0.404
748698	1007594	24.865	0.415
748698	1007589	25.231	0.387
748698	1007584	25.616	0.378
748698	1007579	25.470	0.384
748698	1007574	24.984	0.413
748698	1007569	25.287	0.398
748698	1007564	25.250	0.442
748698	1007559	25.497	0.411
748698	1007554	26.001	0.406
748698	1007549	25.351	0.437
748698	1007544	24.618	0.698
748698	1007539	25.698	0.622
748698	1007534	26.220	0.808
748698	1007529	25.945	1.122

Easting	Northing	Conductivity	In-Phase
748698	1007524	25.790	0.718
748698	1007519	26.751	0.558
748698	1007514	26.614	0.677
748698	1007509	27.502	0.856
748698	1007504	29.452	1.229
748698	1007499	33.828	1.433
748698	1007494	37.966	1.032
748698	1007489	44.622	1.243
748698	1007484	38.946	0.933
748698	1007479	-0.137	-0.878
748698	1007474	0.091	-0.659
748698	1007469	36.603	1.181
748698	1007464	44.229	1.218
748698	1007459	35.431	0.922
748698	1007454	30.917	0.703
748698	1007449	29.031	0.571
748698	1007444	27.355	0.549
748698	1007439	26.330	0.565
748698	1007434	26.166	0.499
748698	1007429	25.442	0.411
748698	1007424	25.644	0.459
748698	1007419	25.927	0.426
748698	1007414	25.854	0.472
748698	1007409	25.195	0.426
748698	1007404	25.195	0.455
748698	1007399	24.215	0.361
748698	1007394	23.254	0.374
748698	1007389	22.723	0.330
748698	1007384	23.190	0.312
748698	1007379	22.320	0.343
748698	1007374	21.844	0.354
748698	1007369	22.302	0.325
748698	1007364	21.533	0.358
748698	1007359	21.039	0.363
748698	1007354	21.157	0.352
748698	1007349	20.645	0.316
748698	1007344	20.352	0.404
748698	1007339	20.700	0.463
748698	1007334	20.160	0.464
748698	1007329	20.443	0.418
748698	1007324	21.276	0.358
LINE 20			
748708	1007324	20.233	0.446
748708	1007329	20.214	0.303
748708	1007334	20.169	0.354
748708	1007339	20.480	0.440
748708	1007344	20.709	0.448
748708	1007349	20.407	0.341
748708	1007354	20.626	0.374
748708	1007359	20.809	0.374
748708	1007364	20.764	0.363
748708	1007369	21.267	0.413
748708	1007374	21.908	0.486
748708	1007379	22.558	0.339
748708	1007384	22.714	0.330
748708	1007389	23.062	0.363
748708	1007394	22.613	0.374
748708	1007399	23.217	0.409
748708	1007404	24.215	0.358
748708	1007409	24.728	0.306
748708	1007414	25.204	0.314
748708	1007419	25.442	0.395
748708	1007424	25.588	0.417
748708	1007429	25.744	0.389
748708	1007434	25.708	0.488
748708	1007439	25.653	0.549
748708	1007444	25.644	0.450
748708	1007449	26.486	0.459
748708	1007454	27.786	0.501
748708	1007459	29.883	0.549
748708	1007464	33.874	0.733
748708	1007469	40.484	0.986
748708	1007474	17.349	0.066
748708	1007479	11.471	-0.430
748708	1007484	-6.582	-1.039
748708	1007489	19.592	0.358
748708	1007494	39.495	1.003
748708	1007499	39.019	0.907
748708	1007504	33.966	0.735
748708	1007509	31.173	0.622
748708	1007514	28.674	0.549
748708	1007519	26.706	0.518
748708	1007524	27.044	0.475
748708	1007529	27.402	0.523
748708	1007534	26.330	0.505
748708	1007539	25.845	0.470
748708	1007544	26.037	0.464
748708	1007549	25.561	0.496
748708	1007554	26.678	0.505
748708	1007559	28.234	0.486
748708	1007564	26.605	0.490
748708	1007569	25.341	0.641
748708	1007574	26.321	0.400
748708	1007579	26.980	0.361
748708	1007584	26.843	0.418
748708	1007589	26.394	0.442
748708	1007594	26.046	0.422
748708	1007599	25.964	0.418
748708	1007604	26.349	0.446
748708	1007609	26.513	0.485
748708	1007614	26.083	0.481
748708	1007619	25.332	0.384
748708	1007624	25.012	0.361
LINE 30			
748718	1007614	25.653	0.312
748718	1007609	25.863	0.325
748718	1007604	27.118	0.428
748718	1007599	27.172	0.382
748718	1007594	27.228	0.393
748718	1007589	27.731	0.398
748718	1007584	28.234	0.389
748718	1007579	28.537	0.393
748718	1007574	29.489	0.334
748718	1007569	30.404	0.393
748718	1007564	30.313	0.382
748718	1007559	28.079	0.378
748718	1007554	25.744	0.433
748718	1007549	25.744	0.428
748718	1007544	26.861	0.453
748718	1007539	25.973	0.595
748718	1007534	25.387	0.519
748718	1007529	25.442	0.437
748718	1007524	24.966	0.795
748718	1007519	25.369	0.472
748718	1007514	25.644	0.529
748718	1007509	25.653	0.591
748718	1007504	26.788	0.602
748718	1007499	28.060	0.608
748718	1007494	30.853	0.622
748718	1007489	35.806	0.760
748718	1007484	49.557	1.418
748718	1007479	96.771	1.736

Easting	Northing	Conductivity	In-Phase
748718	1007474	-36.804	0.018
748718	1007469	-56.076	-0.531
748718	1007464	-22.018	0.334
748718	1007459	52.130	0.881
748718	1007454	39.276	0.611
748718	1007449	29.535	0.514
748718	1007444	28.674	0.503
748718	1007439	26.824	0.610
748718	1007434	25.680	0.446
748718	1007429	25.378	0.404
748718	1007424	26.110	0.387
748718	1007419	26.394	0.404
748718	1007414	25.616	0.382
748718	1007409	25.268	0.477
748718	1007404	25.250	0.450
748718	1007399	24.426	0.452
748718	1007394	24.160	0.387
748718	1007389	23.941	0.442
748718	1007384	23.694	3.518
748718	1007379	24.178	4.996
748718	1007374	23.272	0.242
748718	1007369	23.382	1.186
748718	1007364	23.062	1.644
748718	1007359	22.375	1.367
748718	1007354	21.286	2.353
748718	1007349	20.773	1.572
748718	1007344	21.304	0.123
748718	1007339	21.688	0.264
748718	1007334	21.066	0.396
748718	1007329	20.938	0.994
748718	1007324	21.157	1.014
LINE 40			
748728	1007324	21.551	0.665
748728	1007329	21.771	0.659
748728	1007334	21.396	0.571
748728	1007339	21.066	0.769
748728	1007344	21.039	0.558
748728	1007349	21.286	0.474
748728	1007354	21.643	0.727
748728	1007359	22.101	1.223
748728	1007364	22.869	0.676
748728	1007369	22.741	0.452
748728	1007374	22.741	0.639
748728	1007379	23.080	0.512
748728	1007384	23.327	0.668
748728	1007389	23.877	0.398
748728	1007394	24.115	0.426
748728	1007399	24.298	0.632
748728	1007404	25.268	0.543
748728	1007409	25.771	0.407
748728	1007414	25.689	0.373
748728	1007419	25.387	0.455
748728	1007424	26.220	0.472
748728	1007429	25.872	0.545
748728	1007434	25.122	0.503
748728	1007439	26.010	0.435
748728	1007444	26.577	0.406
748728	1007449	27.923	0.477
748728	1007454	30.001	0.558
748728	1007459	35.677	0.606
748728	1007464	54.126	0.757
748728	1007469	24.810	0.209
748728	1007474	-56.781	-0.290
748728	1007479	-29.782	-0.075
748728	1007484	63.455	0.845
748728	1007489	52.560	0.810
748728	1007494	32.684	0.580
748728	1007499	29.617	0.481
748728	1007504	28.473	0.994
748728	1007509	26.340	0.832
748728	1007514	26.550	0.391
748728	1007519	26.806	1.681
748728	1007524	25.149	0.420
748728	1007529	25.588	0.509
748728	1007534	24.774	0.514
748728	1007539	25.854	0.470
748728	1007544	26.861	0.503
748728	1007549	26.559	0.418
748728	1007554	26.056	0.431
748728	1007559	26.559	0.459
748728	1007564	28.894	0.367
748728	1007569	29.479	0.365
748728	1007574	29.223	0.354
748728	1007579	30.111	0.376
748728	1007584	31.137	0.365
748728	1007589	29.653	0.395
748728	1007594	28.948	0.393
748728	1007599	27.914	0.417
748728	1007604	28.363	1.729
748728	1007609	28.271	2.304
748728	1007614	26.678	1.488
LINE 50			
748738	1007614	24.536	0.536
748738	1007609	24.756	0.977
748738	1007604	26.037	0.955
748738	1007599	27.456	1.085
748738	1007594	28.317	0.564
748738	1007589	29.653	0.418
748738	1007584	29.919	0.507
748738	1007579	28.830	0.459
748738	1007574	30.294	0.477
748738	1007569	30.111	0.584
748738	1007564	29.718	0.538
748738	1007559	28.509	0.464
748738	1007554	27.639	0.464
748738	1007549	26.321	0.450
748738	1007544	26.458	0.470
748738	1007539	27.007	0.453
748738	1007534	26.092	0.407
748738	1007529	25.818	0.439
748738	1007524	25.451	0.632
748738	1007519	24.490	1.712
748738	1007514	24.042	1.403
748738	1007509	24.682	0.497
748738	1007504	25.076	0.457
748738	1007499	25.506	0.650
748738	1007494	27.264	0.940
748738	1007489	28.729	1.073
748738	1007484	31.237	0.668
748738	1007479	39.056	0.621
748738	1007474	-18.411	-0.266
748738	1007469	-34.103	-0.218
748738	1007464	-38.168	0.078
748738	1007459	2.014	0.163
748738	1007454	51.626	0.540
748738	1007449	39.367	0.512
748738	1007444	28.399	0.413
748738	1007439	26.669	0.586
748738	1007434	25.945	1.058
748738	1007429	25.231	0.911
748738	1007424	24.993	0.679
748738	1007419	25.470	0.512

Easting	Northing	Conductivity	In-Phase	Easting	Northing	Conductivity	In-Phase
748738	1007414	25.762	0.404	748748	1007554	26.815	0.459
748738	1007409	25.936	0.444	748748	1007559	28.473	0.457
748738	1007404	26.074	0.431	748748	1007564	29.553	0.363
748738	1007399	26.239	0.382	748748	1007569	30.148	0.395
748738	1007394	25.982	0.387	748748	1007574	29.965	1.199
748738	1007389	25.250	0.376	748748	1007579	29.937	0.464
748738	1007384	24.993	0.850	748748	1007584	30.478	0.459
748738	1007379	24.014	1.253	748748	1007589	30.029	0.435
748738	1007374	23.986	0.486	748748	1007594	30.212	0.400
748738	1007369	23.886	0.540	748748	1007599	30.212	0.345
748738	1007364	23.428	0.751	748748	1007604	29.809	0.395
748738	1007359	23.419	1.005	748748	1007609	29.013	0.411
748738	1007354	22.677	0.946	748748	1007614	25.012	0.714
748738	1007349	22.384	0.393	LINE 70			
748738	1007344	21.807	0.413	748758	1007614	26.523	0.334
748738	1007339	21.624	0.400	748758	1007609	27.273	0.293
748738	1007334	21.762	0.409	748758	1007604	28.464	0.496
748738	1007329	21.789	0.437	748758	1007599	29.855	0.407
748738	1007324	21.542	0.415	748758	1007594	29.489	0.452
LINE 60				748758	1007589	28.747	0.319
748748	1007324	22.265	0.244	748758	1007584	29.397	0.297
748748	1007329	22.485	0.259	748758	1007579	30.395	0.354
748748	1007334	22.723	0.621	748758	1007574	29.672	0.373
748748	1007339	22.723	0.518	748758	1007569	29.946	0.317
748748	1007344	23.043	0.433	748758	1007564	29.892	0.389
748748	1007349	23.346	0.859	748758	1007559	29.095	0.365
748748	1007354	23.455	0.556	748758	1007554	27.520	0.354
748748	1007359	23.931	0.457	748758	1007549	26.523	0.363
748748	1007364	24.188	1.593	748758	1007544	26.394	0.384
748748	1007369	24.042	2.118	748758	1007539	26.577	0.352
748748	1007374	24.270	0.988	748758	1007534	26.321	0.433
748748	1007379	25.177	0.251	748758	1007529	25.497	0.692
748748	1007384	25.360	0.402	748758	1007524	25.240	0.477
748748	1007389	24.783	0.431	748758	1007519	24.920	0.415
748748	1007394	24.325	0.354	748758	1007514	24.508	0.396
748748	1007399	23.977	0.354	748758	1007509	24.902	0.433
748748	1007404	25.003	0.338	748758	1007504	25.936	0.402
748748	1007409	25.818	0.380	748758	1007499	27.017	0.393
748748	1007414	25.003	0.584	748758	1007494	27.264	0.378
748748	1007419	24.829	0.602	748758	1007489	26.934	0.440
748748	1007424	24.911	0.667	748758	1007484	27.429	0.400
748748	1007429	24.939	0.475	748758	1007479	29.214	0.431
748748	1007434	25.131	0.428	748758	1007474	42.782	0.463
748748	1007439	25.387	0.466	748758	1007469	46.591	0.380
748748	1007444	26.495	0.560	748758	1007464	12.790	0.308
748748	1007449	27.886	0.621	748758	1007459	-16.845	0.523
748748	1007454	31.631	0.501	748758	1007454	11.709	0.185
748748	1007459	41.739	0.488	748758	1007449	44.961	0.281
748748	1007464	32.675	0.343	748758	1007444	30.624	0.330
748748	1007469	-20.974	0.319	748758	1007439	26.632	0.349
748748	1007474	64.462	0.505	748758	1007434	26.056	0.292
748748	1007479	55.755	0.470	748758	1007429	25.278	0.384
748748	1007484	42.004	0.479	748758	1007424	24.664	0.317
748748	1007489	31.384	0.604	748758	1007419	24.939	0.415
748748	1007494	28.399	0.876	748758	1007414	25.085	0.295
748748	1007499	28.134	0.663	748758	1007409	25.451	0.284
748748	1007504	28.042	0.569	748758	1007404	25.945	0.352
748748	1007509	27.255	0.674	748758	1007399	26.340	0.461
748748	1007514	26.614	0.556	748758	1007394	24.902	0.468
748748	1007519	24.682	0.554	748758	1007389	23.712	0.330
748748	1007524	24.252	0.791	748758	1007384	24.243	0.286
748748	1007529	25.369	0.492	748758	1007379	25.378	0.463
748748	1007534	26.422	0.453	748758	1007374	25.598	0.249
748748	1007539	26.248	0.435	748758	1007369	25.863	0.238
748748	1007544	26.385	0.466	748758	1007364	25.268	0.378
748748	1007549	26.815	0.396	748758	1007359	24.380	0.400

Easting	Northing	Conductivity	In-Phase
748758	1007354	23.922	0.396
748758	1007349	24.124	0.314
748758	1007344	24.051	0.271
748758	1007339	23.931	0.685
748758	1007334	23.959	0.402
748758	1007329	24.160	0.354
748758	1007324	22.815	0.290
LINE 80			
748768	1007324	23.034	0.308
748768	1007329	22.989	0.286
748768	1007334	22.769	0.350
748768	1007339	23.373	0.595
748768	1007344	23.337	0.942
748768	1007349	23.007	0.727
748768	1007354	24.243	0.496
748768	1007359	23.931	0.814
748768	1007364	23.675	0.880
748768	1007369	24.948	3.029
748768	1007374	25.662	1.214
748768	1007379	26.257	0.644
748768	1007384	26.175	0.481
748768	1007389	25.561	0.463
748768	1007394	24.847	0.356
748768	1007399	25.076	0.418
748768	1007404	26.220	0.376
748768	1007409	26.733	0.452
748768	1007414	25.845	0.538
748768	1007419	26.321	0.402
748768	1007424	25.414	0.677
748768	1007429	24.920	0.672
748768	1007434	26.166	0.395
748768	1007439	27.346	0.387
748768	1007444	27.969	0.378
748768	1007449	30.404	0.330
748768	1007454	38.717	0.336
748768	1007459	23.071	0.121
748768	1007464	-10.226	0.422
748768	1007469	3.680	0.192
748768	1007474	40.786	0.859
748768	1007479	33.948	0.384
748768	1007484	29.727	0.374
748768	1007489	29.242	0.422
748768	1007494	28.299	0.360
748768	1007499	27.868	0.360
748768	1007504	27.365	1.221
748768	1007509	27.337	0.395
748768	1007514	27.209	0.400
748768	1007519	27.136	0.444
748768	1007524	27.163	0.426
748768	1007529	26.861	0.391
748768	1007534	27.282	0.341
748768	1007539	27.538	0.404
748768	1007544	27.072	0.488
748768	1007549	27.291	0.435
748768	1007554	27.017	0.470
748768	1007559	27.621	0.433
748768	1007564	27.282	0.457
748768	1007569	28.647	0.452
748768	1007574	28.116	0.786
748768	1007579	29.150	0.398
748768	1007584	29.883	0.398
748768	1007589	31.255	0.446
748768	1007594	31.951	0.464
748768	1007599	32.400	0.422
748768	1007604	32.116	0.407
748768	1007609	30.386	0.654

Easting	Northing	Conductivity	In-Phase
748768	1007614	28.353	1.043
LINE 90			
748778	1007614	29.846	0.292
748778	1007609	30.047	0.404
748778	1007604	31.603	0.415
748778	1007599	32.821	0.435
748778	1007594	33.874	0.470
748778	1007589	32.858	0.992
748778	1007584	31.704	0.531
748778	1007579	30.780	0.468
748778	1007574	32.034	0.409
748778	1007569	31.759	0.450
748778	1007564	29.635	0.547
748778	1007559	27.896	0.457
748778	1007554	27.118	0.420
748778	1007549	26.660	0.569
748778	1007544	26.871	0.464
748778	1007539	27.813	0.444
748778	1007534	27.996	0.494
748778	1007529	27.172	0.442
748778	1007524	26.770	0.402
748778	1007519	28.436	0.407
748778	1007514	28.774	0.431
748778	1007509	28.216	0.459
748778	1007504	27.154	0.396
748778	1007499	27.154	0.389
748778	1007494	27.896	0.378
748778	1007489	28.051	0.444
748778	1007484	28.839	0.430
748778	1007479	29.718	0.474
748778	1007474	31.164	0.347
748778	1007469	31.805	0.350
748778	1007464	36.319	0.316
748778	1007459	27.786	0.135
748778	1007454	0.302	0.384
748778	1007449	9.961	0.220
748778	1007444	34.222	0.255
748778	1007439	30.578	0.619
748778	1007434	25.387	0.525
748778	1007429	25.323	0.725
748778	1007424	25.076	0.657
748778	1007419	24.792	0.402
748778	1007414	24.957	0.398
748778	1007409	25.149	0.518
748778	1007404	25.653	0.391
748778	1007399	25.891	0.376
748778	1007394	25.524	0.407
748778	1007389	24.829	0.435
748778	1007384	25.122	0.391
748778	1007379	25.396	0.365
748778	1007374	25.360	0.343
748778	1007369	25.552	0.310
748778	1007364	25.579	0.316
748778	1007359	24.883	0.295
748778	1007354	24.591	0.332
748778	1007349	24.673	0.360
748778	1007344	25.351	0.503
748778	1007339	24.655	0.338
748778	1007334	23.922	0.316
748778	1007329	23.694	0.367
748778	1007324	22.833	0.472
LINE 100			
748788	1007324	23.116	0.187
748788	1007329	23.135	0.281
748788	1007334	23.272	0.306
748788	1007339	23.135	0.268

Easting	Northing	Conductivity	In-Phase
748788	1007344	22.924	0.637
748788	1007349	23.565	0.393
748788	1007354	23.931	0.349
748788	1007359	24.005	0.306
748788	1007364	24.096	0.420
748788	1007369	24.105	0.439
748788	1007374	24.526	0.354
748788	1007379	24.545	0.365
748788	1007384	24.774	0.347
748788	1007389	25.067	0.297
748788	1007394	24.582	0.474
748788	1007399	24.499	0.382
748788	1007404	24.939	0.323
748788	1007409	25.405	0.332
748788	1007414	25.332	0.483
748788	1007419	25.048	0.406
748788	1007424	24.966	0.367
748788	1007429	25.433	0.358
748788	1007434	25.744	0.345
748788	1007439	25.964	0.371
748788	1007444	26.166	0.349
748788	1007449	28.894	0.365
748788	1007454	12.378	0.415
748788	1007459	13.137	0.358
748788	1007464	24.399	0.068
748788	1007469	34.671	0.349
748788	1007474	28.884	0.393
748788	1007479	28.253	0.369
748788	1007484	29.122	0.365
748788	1007489	29.754	0.354
748788	1007494	29.324	0.378
748788	1007499	29.379	0.356
748788	1007504	28.921	0.367
748788	1007509	28.765	0.367
748788	1007514	29.232	0.400
748788	1007519	29.782	0.450
748788	1007524	28.582	0.387
748788	1007529	28.491	0.371
748788	1007534	28.326	0.428
748788	1007539	28.784	0.420
748788	1007544	29.361	0.428
748788	1007549	29.324	0.406
748788	1007554	28.647	0.437
748788	1007559	29.196	0.415
748788	1007564	28.610	0.435
748788	1007569	28.491	0.404
748788	1007574	30.954	0.396
748788	1007579	32.739	0.413
748788	1007584	33.196	0.589
748788	1007589	32.684	0.542
748788	1007594	32.702	0.485
748788	1007599	33.059	0.426
748788	1007604	32.757	0.374
748788	1007609	33.032	0.358
748788	1007614	32.098	0.349
LINE 110			
748798	1007614	32.629	0.343
748798	1007609	33.370	0.380
748798	1007604	34.185	0.373
748798	1007599	34.396	0.350
748798	1007594	34.277	0.328
748798	1007589	33.700	0.387
748798	1007584	34.314	0.477
748798	1007579	35.184	0.457
748798	1007574	33.682	0.417
748798	1007569	34.258	0.380
748798	1007564	33.133	0.417
748798	1007559	30.193	0.518
748798	1007554	28.701	1.027
748798	1007549	29.196	0.926
748798	1007544	30.184	0.422
748798	1007539	30.569	0.371
748798	1007534	30.184	0.387
748798	1007529	29.873	0.486
748798	1007524	29.516	0.453
748798	1007519	28.747	0.415
748798	1007514	29.342	0.415
748798	1007509	30.249	0.378
748798	1007504	30.047	0.374
748798	1007499	30.093	0.361
748798	1007494	30.066	0.373
748798	1007489	29.333	0.395
748798	1007484	30.468	0.407
748798	1007479	31.329	0.404
748798	1007474	28.857	0.902
748798	1007469	27.420	0.417
748798	1007464	27.923	0.345
748798	1007459	28.711	0.409
748798	1007454	28.436	0.301
748798	1007449	26.202	0.266
748798	1007444	26.751	0.191
748798	1007439	27.685	0.288
748798	1007434	27.054	0.356
748798	1007429	26.166	0.404
748798	1007424	26.284	0.398
748798	1007419	26.184	0.367
748798	1007414	26.513	0.338
748798	1007409	26.440	0.376
748798	1007404	26.028	0.413
748798	1007399	25.515	0.393
748798	1007394	25.543	0.371
748798	1007389	24.508	0.343
748798	1007384	24.756	0.282
748798	1007379	24.600	0.356
748798	1007374	24.646	0.356
748798	1007369	24.646	0.349
748798	1007364	24.810	0.314
748798	1007359	24.600	0.284
748798	1007354	23.877	0.452
748798	1007349	23.346	0.856
748798	1007344	23.190	1.569
748798	1007339	23.666	1.058
748798	1007334	23.776	0.382
748798	1007329	24.032	0.503
748798	1007324	24.874	0.510
LINE 120			
748808	1007324	25.451	0.464
748808	1007329	25.149	0.470
748808	1007334	24.206	0.389
748808	1007339	24.142	0.608
748808	1007344	24.151	0.735
748808	1007349	24.920	0.494
748808	1007354	24.362	0.314
748808	1007359	24.142	0.334
748808	1007364	24.197	0.409
748808	1007369	24.371	1.159
748808	1007374	24.023	1.370
748808	1007379	23.941	0.630
748808	1007384	24.682	0.791
748808	1007389	24.847	0.571
748808	1007394	24.655	0.567
748808	1007399	24.435	0.442

Easting	Northing	Conductivity	In-Phase
748808	1007404	24.252	2.267
748808	1007409	24.435	1.185
748808	1007414	25.698	0.598
748808	1007419	25.936	0.619
748808	1007424	25.735	0.339
748808	1007429	25.698	0.430
748808	1007434	25.918	0.468
748808	1007439	26.110	0.654
748808	1007444	26.724	0.633
748808	1007449	27.154	0.490
748808	1007454	27.886	0.459
748808	1007459	28.134	0.565
748808	1007464	28.527	0.641
748808	1007469	28.774	0.332
748808	1007474	28.756	0.334
748808	1007479	28.069	0.461
748808	1007484	28.417	0.321
748808	1007489	29.727	0.306
748808	1007494	30.184	0.404
748808	1007499	30.075	0.503
748808	1007504	31.787	0.417
748808	1007509	31.659	0.459
748808	1007514	30.945	0.352
748808	1007519	30.075	0.407
748808	1007524	30.578	0.378
748808	1007529	31.210	0.406
748808	1007534	30.331	0.806
748808	1007539	30.523	0.400
748808	1007544	31.476	0.352
748808	1007549	31.942	0.420
748808	1007554	31.659	0.404
748808	1007559	30.954	0.455
748808	1007564	31.036	0.474
748808	1007569	32.986	0.400
748808	1007574	34.323	0.389
748808	1007579	34.698	0.435
748808	1007584	35.184	0.349
748808	1007589	35.440	1.332
748808	1007594	34.771	0.881
748808	1007599	32.327	1.887
748808	1007604	31.036	1.771
748808	1007609	31.851	1.914
748808	1007614	31.677	2.021
LINE 130			
748818	1007614	30.732	0.200
748818	1007609	31.402	0.246
748818	1007604	32.806	0.248
748818	1007599	34.272	0.474
748818	1007594	35.430	0.297
748818	1007589	36.254	0.384
748818	1007584	39.642	0.510
748818	1007579	40.008	0.472
748818	1007574	39.398	0.440
748818	1007569	38.970	0.457
748818	1007564	39.002	0.407
748818	1007559	36.072	0.376
748818	1007554	33.600	0.395
748818	1007549	32.562	0.617
748818	1007544	33.782	0.417
748818	1007539	33.722	0.643
748818	1007534	32.410	0.565
748818	1007529	32.502	0.373
748818	1007524	32.074	0.395
748818	1007519	32.440	0.413
748818	1007514	31.372	0.448
748818	1007509	30.090	0.477
748818	1007504	30.700	0.385
748818	1007499	32.806	0.360
748818	1007494	33.326	0.389
748818	1007489	32.806	0.413
748818	1007484	32.746	0.384
748818	1007479	33.416	0.407
748818	1007474	32.532	0.389
748818	1007469	32.136	0.360
748818	1007464	31.708	0.339
748818	1007459	31.312	0.297
748818	1007454	30.488	0.319
748818	1007449	30.030	0.360
748818	1007444	29.358	0.387
748818	1007439	28.870	0.339
748818	1007434	28.626	0.281
748818	1007429	27.862	0.356
748818	1007424	28.962	0.327
748818	1007419	27.914	0.292
748818	1007414	27.832	0.290
748818	1007409	27.365	0.301
748818	1007404	27.301	0.301
748818	1007399	27.740	0.290
748818	1007394	27.475	0.259
748818	1007389	25.323	0.273
748818	1007384	24.508	0.277
748818	1007379	24.636	0.279
748818	1007374	24.554	0.305
748818	1007369	23.986	0.510
748818	1007364	24.289	0.345
748818	1007359	25.140	0.268
748818	1007354	24.774	2.195
748818	1007349	24.362	0.742
748818	1007344	25.158	0.288
748818	1007339	24.948	0.481
748818	1007334	24.893	0.358
748818	1007329	25.616	0.319
748818	1007324	26.953	0.233
LINE 140			
748828	1007324	27.090	0.213
748828	1007329	27.282	0.227
748828	1007334	26.550	0.270
748828	1007339	25.653	0.604
748828	1007344	25.680	3.140
748828	1007349	25.497	0.527
748828	1007354	26.001	0.244
748828	1007359	25.351	0.418
748828	1007364	24.453	0.790
748828	1007369	25.240	0.534
748828	1007374	24.783	0.345
748828	1007379	23.886	0.290
748828	1007384	24.307	0.316
748828	1007389	25.094	0.406
748828	1007394	25.048	0.373
748828	1007399	25.067	0.396
748828	1007404	26.440	0.288
748828	1007409	26.907	0.323
748828	1007414	26.440	0.332
748828	1007419	26.605	0.382
748828	1007424	27.694	0.382
748828	1007429	27.841	0.345
748828	1007434	28.216	0.290
748828	1007439	29.635	0.314
748828	1007444	30.560	0.303
748828	1007449	30.084	0.325
748828	1007454	30.148	0.327
748828	1007459	30.203	0.327

Easting	Northing	Conductivity	In-Phase
748828	1007464	30.367	0.347
748828	1007469	31.494	0.310
748828	1007474	31.970	0.334
748828	1007479	32.061	0.288
748828	1007484	31.164	0.356
748828	1007489	29.700	0.501
748828	1007494	29.361	0.529
748828	1007499	30.880	0.308
748828	1007504	31.375	0.297
748828	1007509	30.762	0.369
748828	1007514	30.450	0.417
748828	1007519	30.285	0.376
748828	1007524	31.302	0.347
748828	1007529	31.576	0.433
748828	1007534	31.384	0.722
748828	1007539	31.100	1.514
748828	1007544	31.897	1.181
748828	1007549	33.609	0.531
748828	1007554	36.419	0.439
748828	1007559	35.146	0.558
748828	1007564	34.899	0.722
748828	1007569	37.719	0.602
748828	1007574	39.285	0.420
748828	1007579	40.420	0.442
748828	1007584	38.168	0.777
748828	1007589	37.609	0.797
748828	1007594	35.659	-0.431
748828	1007599	34.954	0.444
748828	1007604	32.308	0.916
748828	1007609	29.700	0.626
748828	1007614	26.852	0.459
LINE 150			
748838	1007614	26.824	0.244
748838	1007609	27.063	0.281
748838	1007604	27.118	0.334
748838	1007599	28.207	0.518
748838	1007594	30.798	0.430
748838	1007589	32.739	0.459
748838	1007584	34.817	0.463
748838	1007579	38.644	0.525
748838	1007574	34.515	0.349
748838	1007569	35.010	0.339
748838	1007564	36.447	0.576
748838	1007559	39.230	0.534
748838	1007554	38.342	0.464
748838	1007549	35.989	0.453
748838	1007544	34.707	0.598
748838	1007539	33.187	0.514
748838	1007534	31.173	0.450
748838	1007529	30.020	0.415
748838	1007524	30.276	0.385
748838	1007519	29.700	0.358
748838	1007514	28.537	0.347
748838	1007509	28.500	0.406
748838	1007504	29.068	0.409
748838	1007499	29.535	0.365
748838	1007494	30.258	0.417
748838	1007489	30.661	0.424
748838	1007484	29.086	0.417
748838	1007479	28.079	0.354
748838	1007474	30.532	0.137
748838	1007469	29.901	0.374
748838	1007464	28.848	1.181
748838	1007459	28.207	0.915
748838	1007454	27.987	0.384
748838	1007449	27.996	0.365
748838	1007444	28.116	0.374
748838	1007439	28.326	0.431
748838	1007434	28.262	0.345
748838	1007429	27.649	0.330
748838	1007424	26.312	0.284
748838	1007419	26.770	0.317
748838	1007414	26.220	0.338
748838	1007409	25.872	0.317
748838	1007404	25.753	0.407
748838	1007399	26.001	0.358
748838	1007394	24.865	0.316
748838	1007389	23.959	0.339
748838	1007384	23.849	0.350
748838	1007379	23.977	0.352
748838	1007374	23.337	0.391
748838	1007369	22.412	1.953
748838	1007364	23.464	0.448
748838	1007359	24.215	0.576
748838	1007354	24.060	0.791
748838	1007349	23.931	0.569
748838	1007344	24.975	0.584
748838	1007339	24.975	0.290
748838	1007334	24.160	0.360
748838	1007329	24.399	0.527
748838	1007324	26.184	0.271
LINE 160			
748848	1007324	25.900	0.198
748848	1007329	26.129	0.251
748848	1007334	25.341	1.128
748848	1007339	24.756	0.720
748848	1007344	23.629	0.507
748848	1007349	23.959	0.301
748848	1007354	24.133	0.764
748848	1007359	23.794	0.639
748848	1007364	23.767	2.478
748848	1007369	24.472	2.570
748848	1007374	23.638	0.657
748848	1007379	22.806	0.290
748848	1007384	22.641	0.457
748848	1007389	23.089	0.332
748848	1007394	23.904	0.352
748848	1007399	23.337	0.624
748848	1007404	24.462	0.464
748848	1007409	25.735	0.509
748848	1007414	26.019	0.387
748848	1007419	25.506	0.323
748848	1007424	25.781	0.316
748848	1007429	25.588	0.523
748848	1007434	26.302	0.365
748848	1007439	27.502	0.396
748848	1007444	28.509	0.398
748848	1007449	28.454	0.417
748848	1007454	28.711	0.464
748848	1007459	29.434	0.475
748848	1007464	29.672	0.413
748848	1007469	29.992	0.481
748848	1007474	30.578	0.496
748848	1007479	30.743	0.602
748848	1007484	30.404	0.420
748848	1007489	28.509	0.457
748848	1007494	27.465	0.455
748848	1007499	28.985	0.437
748848	1007504	29.425	0.420
748848	1007509	28.417	0.415
748848	1007514	28.006	0.413
748848	1007519	28.280	0.347

Easting	Northing	Conductivity	In-Phase
748848	1007524	28.033	0.490
748848	1007529	29.434	0.437
748848	1007534	31.173	0.435
748848	1007539	31.366	0.407
748848	1007544	33.627	0.327
748848	1007549	37.197	0.481
748848	1007554	36.062	0.384
748848	1007559	39.761	0.350
748848	1007564	40.731	0.448
748848	1007569	41.509	0.534
748848	1007574	31.540	0.411
748848	1007579	32.144	0.352
748848	1007584	33.490	0.347
748848	1007589	34.881	0.554
748848	1007594	32.904	0.573
748848	1007599	29.827	0.442
748848	1007604	28.170	0.424
748848	1007609	27.228	0.398
748848	1007614	24.408	0.350
LINE 170			
748858	1007614	23.574	0.255
748858	1007609	23.684	0.211
748858	1007604	24.270	0.516
748858	1007599	24.279	0.740
748858	1007594	26.056	0.762
748858	1007589	28.152	0.608
748858	1007584	30.578	1.012
748858	1007579	32.721	0.573
748858	1007574	31.787	0.374
748858	1007569	32.519	0.330
748858	1007564	33.279	0.389
748858	1007559	37.618	0.409
748858	1007554	39.532	0.365
748858	1007549	37.765	0.448
748858	1007544	35.257	0.479
748858	1007539	33.938	0.490
748858	1007534	30.825	0.361
748858	1007529	30.212	0.374
748858	1007524	29.205	0.349
748858	1007519	27.813	0.119
748858	1007514	27.649	0.367
748858	1007509	27.804	0.376
748858	1007504	27.493	0.365
748858	1007499	27.859	0.360
748858	1007494	28.555	0.424
748858	1007489	28.491	0.694
748858	1007484	28.024	0.531
748858	1007479	28.436	0.591
748858	1007474	30.679	0.341
748858	1007469	31.457	0.240
748858	1007464	31.237	0.385
748858	1007459	29.013	0.341
748858	1007454	27.850	0.317
748858	1007449	28.326	0.317
748858	1007444	28.134	0.327
748858	1007439	27.667	0.305
748858	1007434	26.559	0.350
748858	1007429	26.083	0.591
748858	1007424	24.975	0.202
748858	1007419	25.003	0.253
748858	1007414	24.499	0.402
748858	1007409	24.737	0.371
748858	1007404	25.149	0.332
748858	1007399	25.003	0.292
748858	1007394	23.995	0.319
748858	1007389	23.098	0.374
748858	1007384	24.261	0.369
748858	1007379	23.474	0.317
748858	1007374	22.604	0.288
748858	1007369	23.080	0.260
748858	1007364	23.821	0.492
748858	1007359	23.629	0.448
748858	1007354	23.492	0.411
748858	1007349	23.364	0.543
748858	1007344	23.400	0.404
748858	1007339	24.151	0.406
748858	1007334	25.479	0.492
748858	1007329	25.909	0.402
748858	1007324	25.470	0.356
LINE 180			
748868	1007324	23.263	0.281
748868	1007329	23.208	0.248
748868	1007334	23.053	0.330
748868	1007339	22.723	0.457
748868	1007344	23.355	0.474
748868	1007349	23.455	0.711
748868	1007354	23.428	0.567
748868	1007359	23.007	0.354
748868	1007364	22.320	0.360
748868	1007369	22.219	0.457
748868	1007374	23.574	0.312
748868	1007379	23.318	0.380
748868	1007384	23.025	0.354
748868	1007389	23.886	0.312
748868	1007394	24.060	0.411
748868	1007399	22.924	1.354
748868	1007404	22.806	0.549
748868	1007409	23.803	0.677
748868	1007414	24.435	0.492
748868	1007419	24.380	0.319
748868	1007424	23.794	0.988
748868	1007429	24.051	0.591
748868	1007434	24.298	1.286
748868	1007439	25.296	0.709
748868	1007444	25.909	0.466
748868	1007449	26.403	0.452
748868	1007454	27.273	0.446
748868	1007459	27.200	0.488
748868	1007464	26.568	0.900
748868	1007469	28.518	0.516
748868	1007474	31.741	0.330
748868	1007479	31.063	0.345
748868	1007484	29.095	0.356
748868	1007489	27.346	0.428
748868	1007494	26.998	0.411
748868	1007499	27.484	0.430
748868	1007504	27.264	0.374
748868	1007509	26.779	0.354
748868	1007514	26.916	0.384
748868	1007519	27.237	0.398
748868	1007524	26.871	0.512
748868	1007529	27.291	0.475
748868	1007534	29.589	0.430
748868	1007539	30.020	0.442
748868	1007544	30.120	1.719
748868	1007549	35.257	0.542
748868	1007554	41.922	0.562
748868	1007559	40.137	0.459
748868	1007564	35.861	0.545
748868	1007569	30.752	0.448
748868	1007574	28.857	0.424
748868	1007579	31.119	0.384

Easting	Northing	Conductivity	In-Phase
748868	1007584	31.356	0.531
748868	1007589	29.141	0.806
748868	1007594	26.568	0.564
748868	1007599	25.497	0.407
748868	1007604	24.435	0.371
748868	1007609	23.364	0.485
748868	1007614	21.991	0.321
LINE 190			
748878	1007614	20.727	0.238
748878	1007609	21.011	0.268
748878	1007604	21.048	0.354
748878	1007599	20.745	0.519
748878	1007594	22.238	0.420
748878	1007589	23.831	1.135
748878	1007584	25.259	1.458
748878	1007579	26.843	0.731
748878	1007574	28.857	0.336
748878	1007569	28.582	0.435
748878	1007564	27.154	0.387
748878	1007559	26.349	0.360
748878	1007554	29.013	0.611
748878	1007549	32.153	0.538
748878	1007544	31.494	0.970
748878	1007539	29.049	0.637
748878	1007534	28.390	0.407
748878	1007529	29.498	0.354
748878	1007524	28.060	0.452
748878	1007519	26.587	0.437
748878	1007514	27.200	0.551
748878	1007509	28.537	0.406
748878	1007504	27.996	0.428
748878	1007499	26.641	0.389
748878	1007494	26.550	0.297
748878	1007489	26.532	0.621
748878	1007484	26.413	0.389
748878	1007479	26.403	0.402
748878	1007474	27.731	0.431
748878	1007469	28.600	0.510
748878	1007464	28.774	0.422
748878	1007459	27.237	0.485
748878	1007454	26.340	0.525
748878	1007449	27.054	0.347
748878	1007444	26.953	0.369
748878	1007439	26.175	0.584
748878	1007434	25.927	0.385
748878	1007429	25.332	0.328
748878	1007424	24.801	0.345
748878	1007419	24.618	0.347
748878	1007414	23.995	0.736
748878	1007409	24.352	0.420
748878	1007404	24.948	0.398
748878	1007399	24.499	0.395
748878	1007394	23.538	0.332
748878	1007389	23.428	0.424
748878	1007384	23.602	0.428
748878	1007379	23.337	0.463
748878	1007374	23.126	0.350
748878	1007369	23.712	0.288
748878	1007364	23.694	0.330
748878	1007359	22.540	0.321
748878	1007354	21.880	0.385
748878	1007349	22.421	0.323
748878	1007344	22.659	0.446
748878	1007339	23.016	0.382
748878	1007334	23.053	0.316
748878	1007329	21.963	0.543

Easting	Northing	Conductivity	In-Phase
748878	1007324	23.657	0.293
LINE 200			
748888	1007324	21.981	0.334
748888	1007329	21.880	0.378
748888	1007334	21.148	0.733
748888	1007339	21.295	0.869
748888	1007344	21.505	1.578
748888	1007349	22.128	0.926
748888	1007354	21.734	0.488
748888	1007359	20.818	-0.262
748888	1007364	21.011	-0.025
748888	1007369	20.818	-0.102
748888	1007374	22.485	0.271
748888	1007379	23.327	0.420
748888	1007384	23.181	0.288
748888	1007389	23.593	0.297
748888	1007394	24.115	2.763
748888	1007399	22.265	0.240
748888	1007404	22.723	0.369
748888	1007409	22.906	0.413
748888	1007414	23.153	0.384
748888	1007419	23.895	0.437
748888	1007424	24.042	0.316
748888	1007429	24.032	0.284
748888	1007434	23.263	0.749
748888	1007439	24.508	0.297
748888	1007444	24.499	0.448
748888	1007449	24.352	0.437
748888	1007454	25.158	0.358
748888	1007459	26.340	0.330
748888	1007464	26.349	0.343
748888	1007469	25.479	0.452
748888	1007474	25.945	0.373
748888	1007479	26.431	0.501
748888	1007484	26.449	0.393
748888	1007489	26.523	0.415
748888	1007494	26.302	0.457
748888	1007499	25.387	0.507
748888	1007504	25.414	0.593
748888	1007509	24.526	0.589
748888	1007514	24.719	0.440
748888	1007519	25.030	0.433
748888	1007524	26.001	0.497
748888	1007529	26.266	0.422
748888	1007534	26.532	0.525
748888	1007539	26.907	1.570
748888	1007544	26.202	2.148
748888	1007549	27.475	1.205
748888	1007554	28.546	0.639
748888	1007559	27.759	0.488
748888	1007564	26.971	0.444
748888	1007569	27.044	0.553
748888	1007574	26.925	0.646
748888	1007579	25.369	0.727
748888	1007584	25.057	0.474
748888	1007589	24.343	0.497
748888	1007594	22.522	0.621
748888	1007599	21.276	0.667
748888	1007604	20.755	0.396
748888	1007609	19.930	0.336
748888	1007614	19.436	0.455
LINE 210			
748898	1007614	19.281	0.308
748898	1007609	19.162	0.334
748898	1007604	19.546	0.349
748898	1007599	19.912	0.668

Easting	Northing	Conductivity	In-Phase
748898	1007594	20.151	0.777
748898	1007589	21.213	0.621
748898	1007584	21.542	0.799
748898	1007579	21.505	1.194
748898	1007574	23.355	0.358
748898	1007569	23.511	0.341
748898	1007564	23.968	0.389
748898	1007559	25.021	0.442
748898	1007554	26.046	0.387
748898	1007549	25.845	0.428
748898	1007544	24.728	0.554
748898	1007539	24.765	0.499
748898	1007534	25.085	0.519
748898	1007529	25.140	0.444
748898	1007524	25.231	0.442
748898	1007519	25.872	0.391
748898	1007514	25.900	0.389
748898	1007509	25.213	0.418
748898	1007504	24.573	0.395
748898	1007499	24.115	0.455
748898	1007494	23.868	0.549
748898	1007489	24.005	0.576
748898	1007484	24.325	0.470
748898	1007479	24.197	0.382
748898	1007474	24.691	0.444
748898	1007469	25.195	0.409
748898	1007464	24.719	0.404
748898	1007459	24.462	0.402
748898	1007454	24.728	0.527
748898	1007449	24.160	0.788
748898	1007444	23.950	0.604
748898	1007439	24.252	0.420
748898	1007434	24.178	0.409
748898	1007429	23.126	0.490
748898	1007424	22.833	0.424
748898	1007419	23.574	0.667
748898	1007414	24.362	0.824
748898	1007409	24.078	0.532
748898	1007404	22.759	0.442
748898	1007399	23.483	0.505
748898	1007394	24.234	0.426
748898	1007389	23.694	0.374
748898	1007384	23.437	0.387
748898	1007379	23.300	0.363
748898	1007374	21.734	0.319
748898	1007369	21.936	0.497
748898	1007364	22.128	0.323
748898	1007359	21.166	0.376
748898	1007354	20.846	1.411
748898	1007349	22.091	1.503
748898	1007344	24.352	7.697
748898	1007339	28.647	21.538
748898	1007334	28.921	21.637
748898	1007329	25.790	12.595
748898	1007324	21.469	1.300
LINE 220			
748908	1007324	20.480	0.802
748908	1007329	20.682	1.293
748908	1007334	22.183	5.326
748908	1007339	24.573	10.794
748908	1007344	23.080	13.823
748908	1007349	21.890	6.638
748908	1007354	21.523	3.248
748908	1007359	20.104	0.911
748908	1007364	20.077	0.181
748908	1007369	19.967	0.299

Easting	Northing	Conductivity	In-Phase
748908	1007374	21.606	0.595
748908	1007379	22.219	0.328
748908	1007384	21.945	0.674
748908	1007389	22.174	0.277
748908	1007394	22.228	0.297
748908	1007399	23.043	0.314
748908	1007404	23.309	0.332
748908	1007409	22.366	0.393
748908	1007414	22.393	0.343
748908	1007419	23.172	0.282
748908	1007424	23.511	0.310
748908	1007429	23.007	0.553
748908	1007434	23.602	0.336
748908	1007439	23.355	0.385
748908	1007444	23.437	0.325
748908	1007449	23.520	0.336
748908	1007454	24.032	0.345
748908	1007459	24.014	0.325
748908	1007464	23.748	0.367
748908	1007469	23.400	0.354
748908	1007474	23.318	0.457
748908	1007479	24.096	0.426
748908	1007484	24.115	0.442
748908	1007489	23.730	0.365
748908	1007494	23.647	0.352
748908	1007499	23.638	0.385
748908	1007504	24.142	0.407
748908	1007509	24.462	0.431
748908	1007514	24.243	0.406
748908	1007519	24.307	0.387
748908	1007524	24.499	0.422
748908	1007529	24.517	0.437
748908	1007534	23.950	0.519
748908	1007539	23.941	0.455
748908	1007544	23.785	0.430
748908	1007549	23.492	0.440
748908	1007554	23.730	0.398
748908	1007559	24.408	0.321
748908	1007564	25.039	0.639
748908	1007569	23.602	0.751
748908	1007574	22.833	0.378
748908	1007579	22.375	0.679
748908	1007584	22.265	0.735
748908	1007589	22.338	0.413
748908	1007594	20.992	0.543
748908	1007599	20.517	0.652
748908	1007604	20.508	0.452
748908	1007609	20.269	0.325
LINE 230			
748918	1007609	19.446	0.275
748918	1007604	19.528	0.303
748918	1007599	20.013	0.332
748918	1007594	20.461	0.387
748918	1007589	20.956	0.361
748918	1007584	21.478	0.338
748918	1007579	22.082	0.367
748918	1007574	22.402	0.380
748918	1007569	22.741	0.328
748918	1007564	23.199	0.387
748918	1007559	24.051	0.442
748918	1007554	23.941	0.411
748918	1007549	22.989	0.404
748918	1007544	22.659	0.260
748918	1007539	22.384	0.319
748918	1007534	22.696	0.481
748918	1007529	23.245	0.468

Easting	Northing	Conductivity	In-Phase
748918	1007524	22.769	0.350
748918	1007519	23.025	0.336
748918	1007514	23.098	0.395
748918	1007509	23.382	0.382
748918	1007504	23.538	0.373
748918	1007499	22.732	0.395
748918	1007494	22.329	0.371
748918	1007489	22.622	0.395
748918	1007484	23.217	0.367
748918	1007479	23.501	0.396
748918	1007474	23.217	0.446
748918	1007469	22.467	0.385
748918	1007464	22.155	0.367
748918	1007459	22.275	0.385
748918	1007454	22.659	0.347
748918	1007449	22.219	0.308
748918	1007444	22.165	0.306
748918	1007439	22.174	0.371
748918	1007434	22.284	0.306
748918	1007429	22.119	0.330
748918	1007424	22.275	0.334
748918	1007419	22.732	0.312
748918	1007414	22.860	0.349
748918	1007409	22.357	0.367
748918	1007404	21.880	0.327
748918	1007399	21.871	0.306
748918	1007394	21.927	0.299
748918	1007389	22.238	0.299
748918	1007384	22.018	0.290
748918	1007379	21.423	0.295
748918	1007374	21.194	0.293
748918	1007369	21.349	0.314
748918	1007364	21.075	0.347
748918	1007359	20.434	0.273
748918	1007354	19.958	0.398
748918	1007349	19.225	0.597
748918	1007344	20.068	0.549
748918	1007339	20.599	0.733
748918	1007334	20.398	0.847
748918	1007329	20.498	0.731
748918	1007324	20.334	0.584
LINE 240			
748928	1007324	19.427	0.332
748928	1007329	20.050	0.282
748928	1007334	19.940	0.303
748928	1007339	20.526	2.682
748928	1007344	19.583	1.852
748928	1007349	18.722	0.029
748928	1007354	18.868	0.218
748928	1007359	18.832	0.327
748928	1007364	18.548	0.391
748928	1007369	19.024	0.292
748928	1007374	18.823	0.474
748928	1007379	19.729	0.266
748928	1007384	20.334	0.279
748928	1007389	19.601	0.330
748928	1007394	19.336	0.452
748928	1007399	20.709	0.400
748928	1007404	21.716	0.338
748928	1007409	21.533	0.350
748928	1007414	20.343	0.339
748928	1007419	21.331	0.297
748928	1007424	22.110	0.367
748928	1007429	22.238	0.310
748928	1007434	22.293	0.332
748928	1007439	22.338	0.211

Easting	Northing	Conductivity	In-Phase
748928	1007444	23.190	0.396
748928	1007449	22.302	0.453
748928	1007454	21.771	0.365
748928	1007459	22.128	0.305
748928	1007464	22.595	0.290
748928	1007469	22.384	0.321
748928	1007474	21.890	0.341
748928	1007479	22.210	0.450
748928	1007484	22.622	0.466
748928	1007489	22.815	0.371
748928	1007494	22.650	0.349
748928	1007499	22.759	0.365
748928	1007504	22.265	0.332
748928	1007509	22.201	0.369
748928	1007514	22.961	0.361
748928	1007519	23.647	0.378
748928	1007524	23.245	0.396
748928	1007529	22.732	0.426
748928	1007534	22.137	0.442
748928	1007539	22.833	0.775
748928	1007544	23.675	1.019
748928	1007549	24.343	1.344
748928	1007554	23.016	1.251
748928	1007559	22.101	0.975
748928	1007564	22.485	0.698
748928	1007569	23.593	0.369
748928	1007574	22.650	0.354
748928	1007579	22.449	0.361
748928	1007584	21.853	0.393
748928	1007589	22.228	0.327
748928	1007594	21.744	0.481
748928	1007599	20.691	0.824
748928	1007604	19.592	0.341
LINE 250			
748938	1007604	19.061	0.266
748938	1007599	19.812	0.334
748938	1007594	20.287	0.297
748938	1007589	20.626	0.303
748938	1007584	20.956	0.341
748938	1007579	21.093	0.440
748938	1007574	22.943	0.334
748938	1007569	22.906	0.398
748938	1007564	23.181	0.430
748938	1007559	23.144	1.209
748938	1007554	24.005	0.657
748938	1007549	23.812	0.404
748938	1007544	22.375	0.354
748938	1007539	22.091	0.347
748938	1007534	22.842	0.373
748938	1007529	22.137	0.398
748938	1007524	22.082	0.354
748938	1007519	22.613	0.352
748938	1007514	22.860	0.382
748938	1007509	22.622	0.407
748938	1007504	22.110	0.418
748938	1007499	21.927	0.376
748938	1007494	21.991	0.433
748938	1007489	22.155	0.455
748938	1007484	21.771	0.553
748938	1007479	22.045	0.470
748938	1007474	22.256	0.319
748938	1007469	22.054	0.338
748938	1007464	21.570	0.389
748938	1007459	22.082	0.356
748938	1007454	22.458	0.384
748938	1007449	21.377	0.584

Easting	Northing	Conductivity	In-Phase
748938	1007444	21.313	0.396
748938	1007439	21.349	0.332
748938	1007434	21.222	0.384
748938	1007429	21.213	0.468
748938	1007424	21.340	0.316
748938	1007419	21.368	0.435
748938	1007414	21.176	0.345
748938	1007409	20.325	0.497
748938	1007404	20.114	0.336
748938	1007399	20.764	0.382
748938	1007394	20.883	0.332
748938	1007389	20.022	0.424
748938	1007384	19.381	0.485
748938	1007379	19.793	0.373
748938	1007374	19.491	0.310
748938	1007369	19.720	0.268
748938	1007364	19.052	0.374
748938	1007359	17.862	0.510
748938	1007354	18.969	0.271
748938	1007349	19.848	0.325
748938	1007344	19.592	0.336
748938	1007339	19.006	0.424
748938	1007334	19.042	0.310
748938	1007329	19.299	0.556
748938	1007324	20.077	0.299
LINE 260			
748948	1007324	19.162	0.231
748948	1007329	19.107	0.249
748948	1007334	18.896	0.534
748948	1007339	18.530	0.437
748948	1007344	18.777	0.284
748948	1007349	18.960	0.301
748948	1007354	18.823	0.271
748948	1007359	18.878	0.347
748948	1007364	18.063	0.446
748948	1007369	17.834	0.268
748948	1007374	17.907	0.345
748948	1007379	18.887	0.317
748948	1007384	19.006	0.648
748948	1007389	19.116	0.270
748948	1007394	18.466	0.330
748948	1007399	19.042	0.334
748948	1007404	19.894	0.349
748948	1007409	20.132	0.295
748948	1007414	20.498	0.286
748948	1007419	20.544	0.270
748948	1007424	20.370	0.404
748948	1007429	21.176	0.310
748948	1007434	21.579	0.325
748948	1007439	21.560	0.396
748948	1007444	21.643	0.317
748948	1007449	21.359	0.426
748948	1007454	21.267	0.321
748948	1007459	21.231	0.308
748948	1007464	21.148	0.336
748948	1007469	21.405	0.262
748948	1007474	21.377	0.284
748948	1007479	21.505	0.284
748948	1007484	21.908	0.334
748948	1007489	22.174	0.365
748948	1007494	21.853	0.323
748948	1007499	21.753	0.361
748948	1007504	21.807	0.384
748948	1007509	22.082	0.328
748948	1007514	22.064	0.380
748948	1007519	21.496	0.418

Easting	Northing	Conductivity	In-Phase
748948	1007524	22.449	0.310
748948	1007529	22.558	0.356
748948	1007534	22.558	0.310
748948	1007539	22.970	0.295
748948	1007544	23.236	0.393
748948	1007549	23.181	0.769
748948	1007554	23.290	0.420
748948	1007559	22.824	0.358
748948	1007564	22.320	0.532
748948	1007569	22.659	1.464
748948	1007574	23.511	1.462
748948	1007579	23.410	0.308
748948	1007584	22.494	0.336
748948	1007589	21.176	0.562
748948	1007594	20.233	0.604
748948	1007599	21.039	0.409
748948	1007604	20.068	0.521
LINE 270			
748958	1007604	20.178	0.444
748958	1007599	20.480	0.455
748958	1007594	20.306	0.422
748958	1007589	20.004	0.543
748958	1007584	19.491	0.672
748958	1007579	21.084	0.428
748958	1007574	23.364	0.244
748958	1007569	23.730	0.277
748958	1007564	24.087	0.466
748958	1007559	22.659	0.569
748958	1007554	21.817	0.428
748958	1007549	22.375	0.303
748958	1007544	23.172	0.345
748958	1007539	22.943	0.369
748958	1007534	22.192	0.358
748958	1007529	22.045	0.334
748958	1007524	21.652	0.327
748958	1007519	21.460	0.384
748958	1007514	21.139	0.439
748958	1007509	21.066	0.246
748958	1007504	20.910	0.396
748958	1007499	20.736	0.521
748958	1007494	20.919	0.347
748958	1007489	21.148	0.339
748958	1007484	21.276	0.338
748958	1007479	20.947	0.468
748958	1007474	20.901	0.312
748958	1007469	21.029	0.352
748958	1007464	21.340	0.328
748958	1007459	21.103	0.338
748958	1007454	21.002	0.338
748958	1007449	20.974	0.343
748958	1007444	21.148	0.328
748958	1007439	21.267	0.339
748958	1007434	21.918	0.277
748958	1007429	21.478	0.367
748958	1007424	21.103	0.292
748958	1007419	20.141	0.316
748958	1007414	19.756	0.422
748958	1007409	20.416	0.378
748958	1007404	20.883	0.281
748958	1007399	19.930	0.415
748958	1007394	18.530	0.376
748958	1007389	17.990	0.339
748958	1007384	18.210	0.363
748958	1007379	17.916	0.339
748958	1007374	17.871	0.295
748958	1007369	18.081	0.293

Easting	Northing	Conductivity	In-Phase
748958	1007364	18.163	0.323
748958	1007359	18.109	0.264
748958	1007354	17.843	0.358
748958	1007349	18.163	0.332
748958	1007344	17.816	0.703
748958	1007339	18.182	0.317
748958	1007334	18.594	0.236
748958	1007329	18.658	0.249
748958	1007324	19.171	0.297
LINE 280			
748968	1007324	18.502	0.134
748968	1007329	18.585	0.147
748968	1007334	18.466	0.205
748968	1007339	18.081	0.626
748968	1007344	18.283	0.275
748968	1007349	18.658	0.288
748968	1007354	18.612	0.698
748968	1007359	18.228	1.017
748968	1007364	17.404	0.308
748968	1007369	17.505	0.200
748968	1007374	18.210	0.338
748968	1007379	18.411	0.407
748968	1007384	18.319	0.356
748968	1007389	18.585	0.260
748968	1007394	18.420	0.325
748968	1007399	18.576	0.314
748968	1007404	19.399	0.288
748968	1007409	20.022	0.284
748968	1007414	19.921	0.490
748968	1007419	20.187	0.257
748968	1007424	20.004	0.253
748968	1007429	19.940	0.350
748968	1007434	20.141	0.420
748968	1007439	20.965	0.951
748968	1007444	20.251	1.073
748968	1007449	20.544	0.268
748968	1007454	20.599	0.547
748968	1007459	20.040	0.747
748968	1007464	19.949	0.273
748968	1007469	19.738	0.415
748968	1007474	19.674	0.334
748968	1007479	19.491	0.595
748968	1007484	19.940	0.207
748968	1007489	19.967	0.233
748968	1007494	19.702	0.310
748968	1007499	19.885	0.323
748968	1007504	19.455	0.330
748968	1007509	18.960	0.371
748968	1007514	19.381	0.453
748968	1007519	20.104	0.352
748968	1007524	20.287	0.358
748968	1007529	20.910	0.281
748968	1007534	21.377	0.347
748968	1007539	20.856	0.670
748968	1007544	20.727	0.260
748968	1007549	21.414	0.279
748968	1007554	21.918	0.303
748968	1007559	22.311	0.270
748968	1007564	22.439	0.363
748968	1007569	22.686	0.367
748968	1007574	23.025	0.385
748968	1007579	22.668	0.339
748968	1007584	20.635	0.314
748968	1007589	20.645	0.336
748968	1007594	20.517	0.308
748968	1007599	19.244	0.430
748968	1007604	18.823	0.633
LINE 290			
748978	1007604	18.676	0.764
748978	1007599	18.777	1.196
748978	1007594	19.738	2.756
748978	1007589	18.969	0.455
748978	1007584	19.967	0.157
748978	1007579	21.249	0.433
748978	1007574	22.595	0.264
748978	1007569	22.796	0.297
748978	1007564	21.963	0.270
748978	1007559	21.697	0.317
748978	1007554	21.624	0.273
748978	1007549	20.956	0.282
748978	1007544	20.800	0.271
748978	1007539	21.185	0.360
748978	1007534	20.828	0.865
748978	1007529	20.654	0.356
748978	1007524	20.682	0.428
748978	1007519	20.077	0.602
748978	1007514	18.942	0.571
748978	1007509	18.933	0.499
748978	1007504	18.530	0.317
748978	1007499	18.951	0.268
748978	1007494	19.372	0.389
748978	1007489	19.427	0.312
748978	1007484	19.354	0.338
748978	1007479	19.647	0.356
748978	1007474	19.116	0.387
748978	1007469	19.381	0.323
748978	1007464	19.573	0.463
748978	1007459	19.656	0.354
748978	1007454	19.756	0.305
748978	1007449	19.756	0.323
748978	1007444	19.885	0.327
748978	1007439	19.610	0.367
748978	1007434	19.775	0.323
748978	1007429	19.967	0.321
748978	1007424	19.674	0.316
748978	1007419	19.427	0.360
748978	1007414	20.104	0.350
748978	1007409	20.013	0.356
748978	1007404	19.189	0.249
748978	1007399	18.750	0.270
748978	1007394	19.281	0.334
748978	1007389	19.216	0.398
748978	1007384	18.594	0.277
748978	1007379	18.384	0.317
748978	1007374	17.926	0.718
748978	1007369	18.163	0.246
748978	1007364	18.219	0.220
748978	1007359	17.743	0.238
748978	1007354	18.237	0.187
748978	1007349	19.134	0.286
748978	1007344	19.592	0.380
748978	1007339	18.036	0.852
748978	1007334	18.475	0.251
748978	1007329	18.493	0.242
748978	1007324	18.685	0.297
LINE 300			
748988	1007324	18.978	0.406
748988	1007329	19.089	0.341
748988	1007334	19.207	0.389
748988	1007339	19.473	0.341
748988	1007344	18.585	0.519
748988	1007349	18.054	0.299

Easting	Northing	Conductivity	In-Phase
748988	1007354	18.603	0.345
748988	1007359	19.436	0.248
748988	1007364	18.274	0.290
748988	1007369	17.697	0.312
748988	1007374	18.594	0.303
748988	1007379	18.978	0.382
748988	1007384	18.750	0.382
748988	1007389	18.493	0.409
748988	1007394	18.100	0.398
748988	1007399	18.558	0.328
748988	1007404	18.777	0.330
748988	1007409	18.741	0.268
748988	1007414	18.750	0.354
748988	1007419	19.629	0.650
748988	1007424	19.848	0.415
748988	1007429	18.658	0.404
748988	1007434	18.558	0.567
748988	1007439	18.786	0.430
748988	1007444	19.345	0.341
748988	1007449	19.784	0.281
748988	1007454	19.070	0.545
748988	1007459	19.061	0.334
748988	1007464	18.988	0.308
748988	1007469	18.960	0.328
748988	1007474	18.558	0.385
748988	1007479	18.658	0.374
748988	1007484	18.621	0.468
748988	1007489	18.567	0.527
748988	1007494	18.292	0.641
748988	1007499	18.283	0.431
748988	1007504	18.658	0.339
748988	1007509	19.033	0.402
748988	1007514	18.878	0.459
748988	1007519	19.015	0.435
748988	1007524	19.729	0.400
748988	1007529	19.491	0.426
748988	1007534	18.924	0.431
748988	1007539	19.390	0.417
748988	1007544	20.910	0.380
748988	1007549	22.467	0.479
748988	1007554	22.531	0.413
748988	1007559	20.517	0.367
748988	1007564	19.766	0.380
748988	1007569	20.407	0.325
748988	1007574	20.992	0.314
748988	1007579	21.936	0.334
748988	1007584	22.155	0.479
748988	1007589	20.745	0.830
748988	1007594	20.132	0.391
748988	1007599	20.004	0.380
748988	1007604	19.491	0.470
LINE 0: SEAD-13 (WEST)			
747671	1007405	20.663	-1.767
747671	1007410	20.461	-1.809
747671	1007415	20.242	-1.554
747671	1007420	20.013	-0.112
747671	1007425	19.903	-1.293
747671	1007430	19.977	-0.824
747671	1007435	19.674	-0.775
747671	1007440	19.446	-0.744
747671	1007445	19.766	-1.541
747671	1007450	20.306	-0.532
747671	1007455	20.755	-1.765
747671	1007460	20.956	-1.572
747671	1007465	21.258	-1.469
747671	1007470	21.084	-1.464

Easting	Northing	Conductivity	In-Phase
747671	1007475	21.441	1.468
747671	1007480	21.460	-0.282
747671	1007485	21.020	-1.692
747671	1007490	21.231	-1.596
747671	1007495	21.414	-1.745
747671	1007500	21.954	-0.953
747671	1007505	22.759	-1.664
747671	1007510	22.567	-1.644
747671	1007515	21.734	-1.458
747671	1007520	21.387	0.113
747671	1007525	21.880	-0.578
747671	1007530	22.842	-0.799
747671	1007535	23.089	-1.565
747671	1007540	23.565	-1.587
747671	1007545	22.924	-0.637
747671	1007550	22.540	-1.662
747671	1007555	23.300	1.857
747671	1007560	22.659	-0.588
747671	1007565	22.522	-0.705
747671	1007570	22.449	-1.049
747671	1007575	22.439	0.001
747671	1007580	22.393	-1.277
747671	1007585	23.437	-1.258
747671	1007590	22.888	-0.977
747671	1007595	22.576	-1.299
747671	1007600	22.961	-0.949
747671	1007605	24.197	-1.433
LINE 10			
747681	1007605	26.248	-1.328
747681	1007600	26.248	-1.317
747681	1007595	25.726	-1.367
747681	1007590	25.625	-0.720
747681	1007585	25.177	0.531
747681	1007580	26.028	0.055
747681	1007575	25.396	-0.622
747681	1007570	25.222	-0.112
747681	1007565	26.010	-0.979
747681	1007560	26.046	-1.017
747681	1007555	25.039	-1.435
747681	1007550	24.399	-1.389
747681	1007545	24.719	-1.210
747681	1007540	24.957	-1.269
747681	1007535	24.865	-1.334
747681	1007530	24.655	-1.427
747681	1007525	24.627	-0.753
747681	1007520	24.453	-1.152
747681	1007515	24.060	-1.227
747681	1007510	23.647	-0.870
747681	1007505	24.178	-1.253
747681	1007500	23.300	-0.977
747681	1007495	23.025	-0.940
747681	1007490	23.098	-0.172
747681	1007485	22.933	-0.391
747681	1007480	22.128	-0.422
747681	1007475	22.531	-0.632
747681	1007470	22.705	-1.414
747681	1007465	22.348	-1.288
747681	1007460	22.522	-1.027
747681	1007455	23.428	-1.591
747681	1007450	22.980	-1.457
747681	1007445	21.505	-1.001
747681	1007440	21.643	-0.696
747681	1007435	21.505	-0.547
747681	1007430	21.322	1.265
747681	1007425	21.340	-1.245
747681	1007420	21.231	-1.389

Easting	Northing	Conductivity	In-Phase
747681	1007415	20.892	0.350
747681	1007410	21.048	-1.054
747681	1007405	22.329	-1.545
747681	1007400	22.696	-1.655
LINE 20			
747691	1007400	23.913	-1.525
747691	1007405	24.234	-1.433
747691	1007410	24.133	-0.802
747691	1007415	23.172	-1.039
747691	1007420	23.556	-0.435
747691	1007425	23.172	-0.986
747691	1007430	23.959	-1.447
747691	1007435	24.042	-1.394
747691	1007440	23.419	-1.113
747691	1007445	24.362	-1.414
747691	1007450	24.756	-0.992
747691	1007455	24.627	-1.427
747691	1007460	24.371	-1.177
747691	1007465	24.188	-1.032
747691	1007470	24.499	-1.497
747691	1007475	25.195	-1.429
747691	1007480	25.222	-1.271
747691	1007485	25.003	0.134
747691	1007490	25.534	0.167
747691	1007495	26.340	-0.834
747691	1007500	26.907	-1.295
747691	1007505	26.751	-1.155
747691	1007510	27.310	-1.365
747691	1007515	27.246	-0.903
747691	1007520	27.465	-1.194
747691	1007525	27.447	-0.402
747691	1007530	27.685	-0.534
747691	1007535	27.850	-0.804
747691	1007540	28.189	-0.613
747691	1007545	28.088	-0.632
747691	1007550	28.647	-1.076
747691	1007555	28.976	-1.069
747691	1007560	29.205	-1.071
747691	1007565	29.443	-1.036
747691	1007570	29.333	-0.633
747691	1007575	29.470	-0.586
747691	1007580	29.901	-0.648
747691	1007585	30.597	-0.826
747691	1007590	31.631	-0.826
747691	1007595	31.805	-0.815
747691	1007600	31.833	-0.551
747691	1007605	33.783	-0.565
747691	1007610	33.673	-0.659
747691	1007615	34.277	-0.446
747691	1007620	32.839	1.003
747691	1007625	31.521	-0.293
LINE 30			
747701	1007630	51.132	1.486
747701	1007625	52.377	1.833
747701	1007620	50.179	2.258
747701	1007615	51.663	2.280
747701	1007610	50.610	1.411
747701	1007605	49.887	0.600
747701	1007600	49.338	0.641
747701	1007595	48.229	0.505
747701	1007590	45.978	0.911
747701	1007585	44.265	0.659
747701	1007580	44.943	0.316
747701	1007575	44.796	0.093
747701	1007570	43.954	-0.029
747701	1007565	42.865	0.007

Easting	Northing	Conductivity	In-Phase
747701	1007560	40.557	0.000
747701	1007555	41.977	-0.314
747701	1007550	40.832	-0.321
747701	1007545	41.143	-0.463
747701	1007540	40.420	-0.227
747701	1007535	39.633	-0.442
747701	1007530	40.630	-0.435
747701	1007525	39.706	-0.325
747701	1007520	38.992	-0.685
747701	1007515	39.568	-0.714
747701	1007510	37.665	-0.786
747701	1007505	33.645	0.064
747701	1007500	32.519	-0.349
747701	1007495	34.396	-0.801
747701	1007490	34.002	0.652
747701	1007485	33.261	0.139
747701	1007480	34.021	-0.814
747701	1007475	33.590	0.159
747701	1007470	33.600	-0.600
747701	1007465	33.499	-0.619
747701	1007460	33.618	-0.525
747701	1007455	33.948	-0.966
747701	1007450	33.874	-0.613
747701	1007445	33.718	-0.393
747701	1007440	33.471	0.170
747701	1007435	32.803	-0.415
747701	1007430	32.748	-0.266
747701	1007425	32.812	0.356
747701	1007420	33.069	-0.523
747701	1007415	32.602	-0.102
747701	1007410	32.052	-0.071
747701	1007405	34.249	-0.942
747701	1007400	33.462	-0.777
LINE 40			
747711	1007400	55.179	0.380
747711	1007405	51.269	0.339
747711	1007410	54.300	0.503
747711	1007415	54.364	0.900
747711	1007420	52.249	1.732
747711	1007425	50.500	3.663
747711	1007430	50.033	2.140
747711	1007435	52.176	3.397
747711	1007440	52.999	3.011
747711	1007445	51.159	0.891
747711	1007450	48.586	1.824
747711	1007455	48.943	0.209
747711	1007460	54.803	0.464
747711	1007465	52.377	0.391
747711	1007470	48.394	0.722
747711	1007475	47.515	0.990
747711	1007480	45.767	0.639
747711	1007485	46.408	0.492
747711	1007490	46.801	0.308
747711	1007495	46.765	0.439
747711	1007500	43.368	1.635
747711	1007505	41.152	0.793
747711	1007510	41.326	0.075
747711	1007515	44.650	0.264
747711	1007520	46.124	0.760
747711	1007525	51.846	0.613
747711	1007530	52.853	1.093
747711	1007535	54.812	2.322
747711	1007540	56.469	4.312
747711	1007545	56.890	2.006
747711	1007550	55.663	1.249
747711	1007555	57.577	1.554

Easting	Northing	Conductivity	In-Phase
747711	1007560	55.527	1.343
747711	1007565	53.283	3.164
747711	1007570	54.418	1.335
747711	1007575	53.567	0.745
747711	1007580	50.015	0.485
747711	1007585	49.759	1.923
747711	1007590	48.513	1.168
747711	1007595	48.193	0.648
747711	1007600	46.389	0.727
747711	1007605	34.423	0.123
747711	1007610	40.200	0.893
747711	1007615	37.435	-0.264
LINE 50			
747721	1007615	-18.045	-3.663
747721	1007610	17.496	-0.896
747721	1007605	123.660	5.580
747721	1007600	121.673	5.532
747721	1007595	105.038	5.740
747721	1007590	93.558	5.142
747721	1007585	83.679	3.998
747721	1007580	76.950	4.242
747721	1007575	76.711	4.545
747721	1007570	70.687	3.298
747721	1007565	68.188	2.923
747721	1007560	63.235	4.602
747721	1007555	65.569	1.892
747721	1007550	61.834	1.220
747721	1007545	59.225	1.793
747721	1007540	55.014	2.425
747721	1007535	56.295	2.640
747721	1007530	54.775	1.569
747721	1007525	55.600	4.556
747721	1007520	51.406	2.958
747721	1007515	50.665	1.694
747721	1007510	49.429	2.848
747721	1007505	47.003	0.020
747721	1007500	45.108	0.049
747721	1007495	46.453	0.747
747721	1007490	45.034	2.783
747721	1007485	44.851	2.331
747721	1007480	47.964	1.133
747721	1007475	49.512	1.462
747721	1007470	49.374	0.821
747721	1007465	48.715	0.905
747721	1007460	48.285	0.615
747721	1007455	44.888	-0.077
747721	1007450	45.510	-0.088
747721	1007445	40.741	1.139
747721	1007440	36.941	1.993
747721	1007435	37.655	0.384
747721	1007430	42.636	0.297
747721	1007425	38.159	2.829
747721	1007420	34.927	0.453
747721	1007415	28.069	-0.709
747721	1007410	25.177	-0.580
747721	1007405	31.549	-1.322
747721	1007400	30.367	-0.701
LINE 60			
747731	1007400	45.135	1.403
747731	1007405	47.607	1.038
747731	1007410	47.524	0.786
747731	1007415	46.939	1.725
747731	1007420	45.135	0.828
747731	1007425	45.730	0.227
747731	1007430	45.410	1.010
747731	1007435	45.181	1.602
747731	1007440	42.407	1.482
747731	1007445	39.074	1.999
747731	1007450	39.395	0.826
747731	1007455	41.757	0.075
747731	1007460	41.574	-0.387
747731	1007465	40.548	1.196
747731	1007470	39.358	0.992
747731	1007475	39.422	0.248
747731	1007480	38.910	0.775
747731	1007485	38.754	0.610
747731	1007490	38.607	0.696
747731	1007495	38.497	0.275
747731	1007500	38.882	-0.453
747731	1007505	38.827	0.200
747731	1007510	39.432	-0.507
747731	1007515	39.532	-0.132
747731	1007520	40.310	0.075
747731	1007525	40.905	1.820
747731	1007530	42.150	0.648
747731	1007535	42.956	0.095
747731	1007540	44.348	0.222
747731	1007545	45.208	0.102
747731	1007550	46.719	0.137
747731	1007555	46.270	1.453
747731	1007560	46.829	0.411
747731	1007565	45.877	0.545
747731	1007570	47.268	0.738
747731	1007575	48.248	1.227
747731	1007580	49.768	0.757
747731	1007585	50.931	1.302
747731	1007590	53.210	1.745
747731	1007595	62.924	1.837
747731	1007600	74.277	3.002
747731	1007605	88.036	3.487
747731	1007610	90.161	3.430
747731	1007615	17.303	-2.407
747731	1007620	-28.656	-5.019
747731	1007625	49.392	1.640
LINE 70			
747741	1007625	73.599	2.969
747741	1007620	57.916	1.321
747741	1007615	-4.056	-3.941
747741	1007610	-20.013	-4.156
747741	1007605	71.145	1.708
747741	1007600	76.602	2.300
747741	1007595	62.484	1.486
747741	1007590	52.890	0.801
747741	1007585	47.827	0.400
747741	1007580	44.329	0.147
747741	1007575	42.050	-0.108
747741	1007570	40.658	-0.297
747741	1007565	37.426	-0.078
747741	1007560	35.367	-0.608
747741	1007555	34.918	-0.720
747741	1007550	34.707	-0.635
747741	1007545	33.343	-0.602
747741	1007540	33.480	-0.584
747741	1007535	34.240	-0.804
747741	1007530	33.133	-0.352
747741	1007525	30.175	0.060
747741	1007520	29.489	0.205
747741	1007515	29.709	-0.426
747741	1007510	30.203	-0.327
747741	1007505	30.404	-0.705
747741	1007500	30.990	-1.107
747741	1007495	30.441	-0.654

Easting	Northing	Conductivity	In-Phase
747741	1007490	30.166	-0.898
747741	1007485	29.324	-0.334
747741	1007480	29.058	-0.437
747741	1007475	29.553	-0.437
747741	1007470	28.756	-0.047
747741	1007465	29.040	0.380
747741	1007460	28.610	-0.384
747741	1007455	30.038	-0.744
747741	1007450	30.066	-0.584
747741	1007445	29.901	-0.571
747741	1007440	29.864	-0.733
747741	1007435	29.296	-0.303
747741	1007430	29.205	0.066
747741	1007425	29.763	0.097
747741	1007420	31.347	1.460
747741	1007415	30.972	-0.591
747741	1007410	31.429	-0.769
747741	1007405	34.350	-0.843
747741	1007400	33.206	-0.979
LINE 80			
747751	1007400	27.310	-1.198
747751	1007405	27.438	-0.997
747751	1007410	27.822	-0.889
747751	1007415	27.081	-0.703
747751	1007420	26.660	-0.667
747751	1007425	26.376	2.827
747751	1007430	26.302	-0.014
747751	1007435	25.818	0.058
747751	1007440	25.332	-0.227
747751	1007445	25.936	-0.523
747751	1007450	26.623	0.363
747751	1007455	26.614	-0.516
747751	1007460	26.907	-1.243
747751	1007465	27.035	-1.146
747751	1007470	27.081	-1.238
747751	1007475	27.456	1.109
747751	1007480	27.054	-0.593
747751	1007485	26.550	0.926
747751	1007490	25.598	0.064
747751	1007495	26.349	-0.883
747751	1007500	26.367	-0.582
747751	1007505	27.731	-0.957
747751	1007510	27.667	-0.999
747751	1007515	27.218	-0.905
747751	1007520	27.676	-0.775
747751	1007525	28.912	-0.861
747751	1007530	28.738	-0.876
747751	1007535	28.518	-0.486
747751	1007540	28.482	-0.455
747751	1007545	29.406	-0.817
747751	1007550	29.571	-0.749
747751	1007555	30.981	-1.100
LINE 90			
747761	1007535	27.896	-1.394
747761	1007530	27.420	-1.433
747761	1007525	27.731	-1.225
747761	1007520	27.346	-0.795
747761	1007515	27.694	-0.780
747761	1007510	26.861	-0.951
747761	1007505	26.687	-1.337
747761	1007500	26.760	-1.065
747761	1007495	26.467	-0.999
747761	1007490	26.449	-1.300
747761	1007485	26.330	-0.903
747761	1007480	24.948	-0.841
747761	1007475	24.847	-0.902
747761	1007470	25.240	-0.854
747761	1007465	25.048	-1.008
747761	1007460	24.865	-0.913
747761	1007455	24.966	-0.593
747761	1007450	25.085	-1.069
747761	1007445	24.508	-0.907
747761	1007440	24.078	-1.087
747761	1007435	24.554	-1.076
747761	1007430	24.142	-0.758
747761	1007425	23.941	0.510
747761	1007420	23.675	0.567
747761	1007415	24.279	-0.650
747761	1007410	24.939	-0.069
747761	1007405	25.955	-1.273
747761	1007400	26.340	-1.295
LINE 100			
747771	1007400	25.003	-1.357
747771	1007405	23.547	-0.113
747771	1007410	24.169	-1.293
747771	1007415	23.840	-1.080
747771	1007420	24.005	-0.529
747771	1007425	24.298	1.253
747771	1007430	23.346	-0.468
747771	1007435	22.778	-1.166
747771	1007440	24.087	-1.014
747771	1007445	24.380	-0.209
747771	1007450	24.399	-0.876
747771	1007455	24.756	-1.416
747771	1007460	24.664	0.430
747771	1007465	23.694	-0.106
747771	1007470	24.408	-0.288
747771	1007475	24.728	-1.302
747771	1007480	25.003	-1.357
747771	1007485	24.700	-1.074
747771	1007490	24.655	-0.938
747771	1007495	25.964	-1.481
747771	1007500	26.815	-1.218
747771	1007505	26.871	-1.657
747771	1007510	26.925	-1.352
747771	1007515	26.962	-1.350
747771	1007520	27.703	-1.352
LINE 110			
747781	1007515	27.841	-1.249
747781	1007510	26.751	-0.911
747781	1007505	26.550	-1.302
747781	1007500	26.678	-1.330
747781	1007495	26.532	-0.668
747781	1007490	25.936	-0.542
747781	1007485	25.186	-0.536
747781	1007480	25.122	-0.870
747781	1007475	24.719	-0.812
747781	1007470	24.609	-0.883
747781	1007465	24.856	0.303
747781	1007460	24.939	-1.269
747781	1007455	24.399	-1.481
747781	1007450	24.380	-1.525
747781	1007445	22.787	-1.093
747781	1007440	22.686	-0.861
747781	1007435	22.943	-0.576
747781	1007430	22.989	-0.802
747781	1007425	23.620	1.275
747781	1007420	23.858	0.426
747781	1007415	23.071	1.135
747781	1007410	22.155	0.090
747781	1007405	23.034	0.323
747781	1007400	23.565	-1.087

Easting	Northing	Conductivity	In-Phase
LINE 120			
747791	1007400	14.328	-11.270
747791	1007405	25.744	2.745
747791	1007410	23.968	1.548
747791	1007415	21.697	-1.580
747791	1007420	23.511	0.178
747791	1007425	23.611	0.106
747791	1007430	23.126	-0.433
747791	1007435	22.064	0.995
747791	1007440	22.696	1.157
747791	1007445	23.107	0.648
747791	1007450	23.236	-1.008
747791	1007455	23.483	-0.696
747791	1007460	23.904	-1.475
747791	1007465	23.895	-0.110
747791	1007470	23.281	0.823
747791	1007475	23.922	0.865
747791	1007480	25.442	-0.532
747791	1007485	26.431	-0.367
747791	1007490	26.998	-0.430
747791	1007495	27.841	-0.233
747791	1007500	28.473	-0.150
747791	1007505	29.974	-1.357
747791	1007510	28.271	-0.391
LINE 130			
747801	1007510	47.214	-0.926
747801	1007505	55.270	-1.082
747801	1007500	57.183	-0.830
747801	1007495	58.978	-0.828
747801	1007490	63.885	-1.214
747801	1007485	69.003	-0.907
747801	1007480	59.902	-1.313
747801	1007475	17.322	-0.997
747801	1007470	10.555	-2.195
747801	1007465	23.337	-3.237
747801	1007460	23.620	-2.941
747801	1007455	23.941	-0.850
747801	1007450	23.135	-1.280
747801	1007445	23.455	-0.670
747801	1007440	22.696	-0.771
747801	1007435	22.476	-1.074
747801	1007430	21.725	-1.119
747801	1007425	21.414	-0.595
747801	1007420	22.045	-0.683
747801	1007415	21.176	-0.769
747801	1007410	21.762	-0.768
747801	1007405	22.476	0.020
747801	1007400	22.174	-0.826
LINE 140			
747811	1007400	21.084	-1.368
747811	1007405	22.210	-1.367
747811	1007410	22.064	-1.196
747811	1007415	21.295	-1.005
747811	1007420	22.238	-0.944
747811	1007425	22.091	0.380
747811	1007430	22.219	0.703
747811	1007435	21.844	-0.501
747811	1007440	22.485	1.240
747811	1007445	23.208	-0.672
747811	1007450	23.446	-1.199
747811	1007455	23.483	-1.330
747811	1007460	23.071	-0.924
747811	1007465	23.821	-0.876
747811	1007470	24.920	-0.751
747811	1007475	27.658	-0.363
747811	1007480	33.865	-0.519
747811	1007485	46.692	-0.812
747811	1007490	66.201	-1.196
747811	1007495	76.391	-1.148
747811	1007500	75.613	-1.265
747811	1007505	-14.639	-2.162
747811	1007510	49.099	-1.600
747811	1007515	121.572	1.756
LINE 150			
747821	1007510	54.794	-0.962
747821	1007505	46.563	-0.417
747821	1007500	42.214	-1.120
747821	1007495	38.259	-1.023
747821	1007490	33.819	0.290
747821	1007485	31.164	-0.330
747821	1007480	29.516	-1.034
747821	1007475	26.541	-0.876
747821	1007470	25.039	0.154
747821	1007465	24.700	-0.668
747821	1007460	23.986	-0.683
747821	1007455	22.815	-1.247
747821	1007450	23.208	-1.436
747821	1007445	23.492	-0.727
747821	1007440	23.172	-0.361
747821	1007435	23.089	-0.883
747821	1007430	22.375	-1.469
747821	1007425	21.963	-1.343
747821	1007420	22.998	-1.198
747821	1007415	22.970	-1.370
747821	1007410	22.540	-0.847
747821	1007405	21.945	-1.545
747821	1007400	22.540	-1.495
747821	1007395	22.430	-1.488
LINE 160			
747831	1007400	22.128	-1.666
747831	1007405	22.155	-0.837
747831	1007410	22.933	-1.618
747831	1007415	22.769	-1.120
747831	1007420	22.275	-0.696
747831	1007425	22.613	-1.341
747831	1007430	22.650	-1.225
747831	1007435	22.449	-0.799
747831	1007440	23.080	-1.188
747831	1007445	23.126	-0.576
747831	1007450	23.016	-0.907
747831	1007455	24.096	-1.420
747831	1007460	24.472	-1.069
747831	1007465	24.225	-0.376
747831	1007470	24.865	-1.117
747831	1007475	25.588	-1.277
747831	1007480	25.644	-1.214
747831	1007485	26.541	-1.159
747831	1007490	27.420	-0.694
747831	1007495	29.049	-1.326
747831	1007500	32.080	-1.164
747831	1007505	32.702	-1.249
747831	1007510	36.062	-1.262
LINE 170			
747841	1007505	30.597	-1.341
747841	1007500	29.901	-0.973
747841	1007495	28.234	-0.295
747841	1007490	27.118	0.404
747841	1007485	25.662	0.747
747841	1007480	26.056	-0.207
747841	1007475	25.992	-0.077
747841	1007470	25.278	0.170
747841	1007465	25.003	-0.332

Easting	Northing	Conductivity	In-Phase
747841	1007460	25.131	-0.507
747841	1007455	24.682	-0.249
747841	1007450	24.709	-0.970
747841	1007445	23.812	-1.159
747841	1007440	22.622	-0.931
747841	1007435	22.906	0.062
747841	1007430	22.696	-0.738
747841	1007425	22.183	-0.837
747841	1007420	23.071	-1.135
747841	1007415	22.980	-1.025
747841	1007410	23.400	-1.275
747841	1007405	23.391	-1.591
747841	1007400	22.110	-0.742
LINE-5: SEAD-57 (BERMED AREA)			
738948.8	1009169	20.663	-3.658
738953.8	1009170	20.489	-0.749
738958.7	1009171	17.303	-2.157
738963.6	1009171	19.033	-1.032
738968.6	1009172	22.604	-0.523
738973.5	1009173	29.260	-0.314
738978.4	1009174	27.255	-0.319
738983.4	1009175	26.275	-0.113
738988.3	1009175	23.053	-0.268
LINE 0			
738948	1009174	26.523	-0.051
738952.9	1009175	27.118	0.194
738957.9	1009176	28.207	0.361
738962.8	1009176	27.282	0.398
738967.8	1009177	26.019	0.001
738972.7	1009178	26.889	-0.248
738977.6	1009179	26.660	0.444
738982.6	1009180	26.806	0.150
738987.5	1009180	23.803	-0.187
LINE 5			
738947.2	1009179	25.076	-0.334
738952.2	1009180	25.598	-0.343
738957.1	1009181	27.282	-0.238
738962.1	1009181	28.884	0.325
738967	1009182	22.989	-4.499
738971.9	1009183	9.961	-9.747
738976.9	1009184	15.445	-3.667
738981.8	1009184	23.034	-1.390
738986.8	1009185	25.360	-0.207
738991.7	1009186	20.040	-0.286
LINE 10			
738946.4	1009184	23.767	-0.637
738951.4	1009185	25.414	-0.516
738956.3	1009185	25.497	-0.440
738961.3	1009186	27.282	-0.069
738966.2	1009187	21.203	0.068
738971.1	1009188	10.235	-0.281
738976.1	1009189	15.307	-1.308
738981	1009189	27.768	-0.442
738985.9	1009190	29.498	0.027
738990.9	1009191	22.869	-0.312
LINE 15			
738945.6	1009189	22.961	1.409
738950.6	1009190	23.776	1.504
738955.5	1009190	25.579	2.057
738960.5	1009191	25.396	1.365
738965.4	1009192	23.337	-1.585
738970.4	1009193	23.272	1.361
738975.3	1009194	24.911	0.667
738980.3	1009194	26.275	0.716
738985.2	1009195	27.017	0.159
738990.1	1009196	22.247	-0.358

Easting	Northing	Conductivity	In-Phase
LINE 20			
738944.9	1009194	24.142	-0.481
738949.8	1009195	25.387	-0.270
738954.8	1009195	27.273	0.005
738959.7	1009196	26.293	0.194
738964.6	1009197	24.225	0.404
738969.6	1009198	24.573	0.240
738974.5	1009198	25.104	2.572
738979.4	1009199	25.341	2.552
738984.4	1009200	25.021	1.069
738989.3	1009201	21.918	1.194
LINE 25			
738944.1	1009199	24.060	-0.097
738949	1009200	24.865	-0.112
738953.9	1009200	25.012	-0.078
738958.9	1009201	24.765	0.472
738963.8	1009202	23.959	0.196
738968.8	1009203	23.931	0.385
738973.8	1009203	24.865	0.259
738978.7	1009204	25.424	0.132
738983.6	1009205	27.319	1.311
738988.6	1009206	25.268	0.931
738993.5	1009207	17.779	0.496
LINE 30			
738933.4	1009202	22.284	-0.293
738938.4	1009203	22.265	-0.387
738943.3	1009204	24.984	-0.284
738948.3	1009204	25.195	-0.293
738953.2	1009205	25.506	-0.249
738958.1	1009206	25.552	-0.227
738963.1	1009207	24.526	-0.290
738968	1009208	23.785	0.049
738972.9	1009208	24.042	0.198
738977.9	1009209	25.314	0.373
738982.8	1009210	23.849	-1.243
738987.8	1009211	25.057	1.359
738992.7	1009211	19.446	-1.497
LINE 35			
738932.6	1009207	22.906	-0.220
738937.6	1009208	23.199	-0.194
738942.5	1009209	24.316	-0.203
738947.4	1009209	24.399	0.159
738952.4	1009210	24.774	-0.134
738957.3	1009211	25.057	-0.220
738962.3	1009212	24.005	0.031
738967.2	1009213	23.950	-0.038
738972.1	1009213	24.591	0.091
738977.1	1009214	25.076	0.385
738982.1	1009215	23.629	1.622
738987	1009216	19.500	3.619
LINE 40			
738931.9	1009212	22.741	-0.281
738936.8	1009213	22.970	-0.288
738941.8	1009214	23.400	-0.148
738946.7	1009214	24.352	-0.231
738951.6	1009215	24.865	0.150
738956.6	1009216	25.341	0.310
738961.5	1009217	26.715	-0.102
738966.4	1009217	26.962	-0.078
738971.4	1009218	27.402	0.064
738976.3	1009219	26.815	0.097
738981.3	1009220	23.995	0.698
LINE 45			
738931.1	1009217	23.400	-0.277
738936	1009218	23.446	-0.270
738940.9	1009218	24.014	-0.078

Easting	Northing	Conductivity	In-Phase
738945.9	1009219	24.316	0.003
738950.8	1009220	24.810	0.080
738955.8	1009221	25.927	3.854
738960.7	1009222	26.504	2.002
738965.6	1009222	27.438	1.618
738970.6	1009223	26.166	1.453
738975.5	1009224	22.778	0.273
738980.4	1009225	20.581	0.422
LINE 50			
738930.3	1009222	22.485	-0.064
738935.3	1009223	22.641	-0.011
738940.2	1009223	22.650	3.138
738945.1	1009224	21.716	0.398
738950.1	1009225	22.119	0.271
738955	1009226	21.496	2.168
738959.9	1009227	21.112	0.477
738964.9	1009227	20.846	1.166
738969.8	1009228	18.850	1.501
738974.8	1009229	18.310	0.435
738979.7	1009230	16.250	-0.167
LINE 0			
738686	1009183	19.876	0.575
738686	1009188	19.436	2.546
738686	1009193	19.399	4.569
738686	1009198	20.059	3.562
738686	1009203	19.500	1.062
738686	1009208	19.281	1.030
738686	1009213	19.555	0.466
738686	1009218	19.620	1.039
738686	1009223	19.519	1.093
738686	1009228	19.409	1.997
738686	1009233	19.564	0.077
738686	1009238	19.839	0.191
738686	1009243	20.581	3.788
738686	1009248	19.528	2.337
738686	1009253	19.839	2.353
738686	1009258	20.242	1.727
738686	1009263	20.910	5.065
738686	1009268	20.571	2.263
738686	1009273	20.883	0.580
738686	1009278	21.029	0.378
738686	1009283	20.901	0.942
738686	1009288	21.222	0.505
738686	1009293	21.450	0.373
738686	1009298	21.387	0.955
738686	1009303	21.322	1.945
738686	1009308	20.965	2.557
738686	1009313	20.837	1.339
738686	1009318	21.387	4.075
738686	1009323	20.526	1.431
738686	1009328	20.700	0.124
738686	1009333	21.267	0.174
LINE 10			
738696	1009333	20.132	-0.134
738696	1009328	20.251	-0.062
738696	1009323	19.867	1.124
738696	1009318	19.821	0.404
738696	1009313	19.977	1.260
738696	1009308	20.553	2.493
738696	1009303	21.121	1.117
738696	1009298	21.002	0.632
738696	1009293	20.663	1.019
738696	1009288	21.176	0.323
738696	1009283	21.130	-0.178
738696	1009278	21.213	0.567
738696	1009273	20.755	0.235

Easting	Northing	Conductivity	In-Phase
738696	1009268	20.809	0.628
738696	1009263	20.068	1.328
738696	1009258	19.638	1.146
738696	1009253	19.089	0.771
738696	1009248	19.024	1.203
738696	1009243	19.152	-0.222
738696	1009238	19.418	0.470
738696	1009233	20.672	-0.119
738696	1009228	20.709	-0.080
738696	1009223	20.297	0.071
738696	1009218	19.912	-0.038
738696	1009213	19.555	1.212
738696	1009208	19.491	1.209
738696	1009203	19.812	1.865
738696	1009198	19.225	1.809
738696	1009193	19.125	1.085
738696	1009188	18.933	1.694
738696	1009183	19.024	1.585
LINE 20			
738706	1009183	14.685	-14.151
738706	1009188	17.486	-4.224
738706	1009193	19.702	3.617
738706	1009198	19.446	3.224
738706	1009203	19.500	2.340
738706	1009208	19.555	1.451
738706	1009213	19.977	3.972
738706	1009218	19.958	1.776
738706	1009223	19.620	1.525
738706	1009228	20.361	1.914
738706	1009233	13.476	-6.956
738706	1009238	14.355	-8.266
738706	1009243	13.037	-9.703
738706	1009248	20.040	3.926
738706	1009253	20.141	3.108
738706	1009258	19.903	2.236
738706	1009263	20.691	0.490
738706	1009268	20.562	0.689
738706	1009273	20.287	0.097
738706	1009278	20.325	2.824
738706	1009283	19.665	1.100
738706	1009288	20.398	-0.128
738706	1009293	20.590	0.747
738706	1009298	20.553	2.598
738706	1009303	20.526	0.406
738706	1009308	21.322	1.185
738706	1009313	21.066	0.203
738706	1009318	20.718	0.172
738706	1009323	20.645	0.843
738706	1009328	20.160	1.113
738706	1009333	20.022	0.878
LINE 30			
738716	1009333	20.645	0.003
738716	1009328	20.526	0.060
738716	1009323	19.793	0.404
738716	1009318	19.821	3.244
738716	1009313	20.590	2.261
738716	1009308	20.489	0.282
738716	1009303	20.773	0.836
738716	1009298	20.663	1.313
738716	1009293	20.407	0.211
738716	1009288	20.508	0.529
738716	1009283	20.745	1.332
738716	1009278	20.773	-0.068
738716	1009273	20.370	2.397
738716	1009268	20.590	0.806
738716	1009263	20.635	0.312

Easting	Northing	Conductivity	In-Phase
738716	1009258	20.718	0.496
738716	1009253	20.672	0.387
738716	1009248	20.050	-0.014
738716	1009243	20.278	-0.141
738716	1009238	20.818	0.154
738716	1009233	20.983	-0.703
738716	1009228	21.203	-0.505
738716	1009223	20.599	-0.297
738716	1009218	19.885	1.846
738716	1009213	19.207	2.344
738716	1009208	19.098	2.583
738716	1009203	19.281	0.837
738716	1009198	19.546	0.159
738716	1009193	19.592	0.027
738716	1009188	19.042	1.403
738716	1009183	19.125	0.306
LINE 40			
738726	1009183	20.590	-0.793
738726	1009188	20.736	-0.545
738726	1009193	20.700	-0.207
738726	1009198	20.883	-0.301
738726	1009203	21.002	-0.768
738726	1009208	20.416	0.231
738726	1009213	19.326	1.190
738726	1009218	19.629	1.080
738726	1009223	19.656	0.343
738726	1009228	19.601	-0.689
738726	1009233	19.775	-0.588
738726	1009238	19.930	-1.181
738726	1009243	19.949	-0.589
738726	1009248	20.141	-0.720
738726	1009253	19.876	-0.314
738726	1009258	19.784	-0.407
738726	1009263	20.031	-0.554
738726	1009268	21.011	1.839
738726	1009273	21.414	1.034
738726	1009278	20.846	0.521
738726	1009283	20.306	1.993
738726	1009288	19.903	0.012
738726	1009293	20.791	1.106
738726	1009298	20.260	1.844
738726	1009303	19.995	0.970
738726	1009308	20.654	2.541
738726	1009313	20.635	1.446
738726	1009318	21.606	5.609
738726	1009323	20.068	2.237
738726	1009328	19.812	2.182
738726	1009333	20.654	1.133
LINE 50			
738736	1009333	21.615	-0.251
738736	1009328	21.579	-0.172
738736	1009323	21.313	1.429
738736	1009318	20.526	1.633
738736	1009313	20.443	0.931
738736	1009308	20.287	0.951
738736	1009303	20.407	2.342
738736	1009298	20.452	2.987
738736	1009293	20.452	4.327
738736	1009288	20.269	1.275
738736	1009283	20.132	0.898
738736	1009278	20.846	-0.141
738736	1009273	20.938	1.466
738736	1009268	20.571	3.371
738736	1009263	21.020	2.824
738736	1009258	21.945	3.303
738736	1009253	22.348	2.368

Easting	Northing	Conductivity	In-Phase
738736	1009248	21.249	4.400
738736	1009243	20.535	1.927
738736	1009238	20.114	1.093
738736	1009233	20.709	0.893
738736	1009228	20.910	0.176
738736	1009223	20.590	0.753
738736	1009218	20.498	0.854
738736	1009213	20.626	0.790
738736	1009208	20.910	1.163
738736	1009203	20.388	2.770
738736	1009198	20.251	2.256
738736	1009193	20.104	0.622
738736	1009188	20.068	1.133
738736	1009183	19.610	0.694
LINE 60			
738746	1009183	20.306	4.527
738746	1009188	19.693	-0.216
738746	1009193	20.251	2.928
738746	1009198	20.452	2.638
738746	1009203	20.278	2.776
738746	1009208	20.297	1.905
738746	1009213	20.443	1.560
738746	1009218	20.828	0.422
738746	1009223	21.002	0.510
738746	1009228	20.846	0.795
738746	1009233	20.736	0.363
738746	1009238	20.452	2.011
738746	1009243	20.571	1.912
738746	1009248	20.828	1.082
738746	1009253	21.450	1.651
738746	1009258	21.423	1.177
738746	1009263	20.590	0.152
738746	1009268	20.791	3.028
738746	1009273	21.130	2.166
738746	1009278	21.725	-0.617
738746	1009283	21.771	-0.282
738746	1009288	21.349	0.354
738746	1009293	21.441	3.189
738746	1009298	21.396	5.198
738746	1009303	21.331	2.638
738746	1009308	21.075	0.720
738746	1009313	21.130	1.991
738746	1009318	21.231	3.347
738746	1009323	21.213	2.644
738746	1009328	21.643	0.029
738746	1009333	21.615	-0.009
LINE 70			
738756	1009333	21.432	0.927
738756	1009328	21.533	0.279
738756	1009323	21.340	1.624
738756	1009318	21.029	1.547
738756	1009313	20.691	0.343
738756	1009308	20.498	0.837
738756	1009303	20.471	0.604
738756	1009298	20.691	2.596
738756	1009293	20.983	0.964
738756	1009288	20.635	-0.231
738756	1009283	20.608	0.060
738756	1009278	20.654	0.361
738756	1009273	20.682	1.106
738756	1009268	21.130	1.207
738756	1009263	22.000	0.141
738756	1009258	22.119	1.741
738756	1009253	21.798	1.582
738756	1009248	21.487	2.109
738756	1009243	21.222	3.066

Easting	Northing	Conductivity	In-Phase	Easting	Northing	Conductivity	In-Phase
738756	1009238	20.919	0.181				
738756	1009233	21.048	-0.356				
738756	1009228	20.434	-0.490				
738756	1009223	20.846	2.682				
738756	1009218	22.366	5.677				
738756	1009213	21.103	2.377				
738756	1009208	20.489	0.143				
738756	1009203	20.782	1.378				
738756	1009198	21.377	3.340				
738756	1009193	20.983	0.446				
738756	1009188	20.974	2.517				
738756	1009183	20.992	2.730				
LINE 80							
738766	1009183	21.377	0.338				
738766	1009188	20.992	1.130				
738766	1009193	21.103	1.310				
738766	1009198	21.377	2.168				
738766	1009203	20.809	1.405				
738766	1009208	21.185	0.492				
738766	1009213	21.377	-0.003				
738766	1009218	20.471	0.305				
738766	1009223	20.443	2.252				
738766	1009228	21.304	1.909				
738766	1009233	21.478	1.808				
738766	1009238	21.533	-0.192				
738766	1009243	21.634	1.681				
738766	1009248	21.469	3.979				
738766	1009253	21.286	1.798				
738766	1009258	21.322	1.543				
738766	1009263	21.725	2.735				
738766	1009268	22.412	1.541				
738766	1009273	22.476	0.365				
738766	1009278	22.659	1.482				
738766	1009283	21.487	0.742				
738766	1009288	21.826	0.134				
738766	1009293	21.478	0.211				
738766	1009298	21.606	2.328				
738766	1009303	21.340	1.828				
738766	1009308	21.542	1.330				
738766	1009313	21.771	0.711				
738766	1009318	21.624	0.655				
738766	1009323	21.753	1.914				
738766	1009328	21.194	0.992				
738766	1009333	22.091	0.655				

APPENDIX B

SUBSURFACE INVESTIGATIONS

- Boring/Monitoring Well Logs
- Test pit Logs
- Soil Gas Field Forms
- Soil Gas Data

Boring/Monitoring Well Logs

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: MW11-1

PROJECT: 10 SWMU ESI

LOCATION: SEAD 11

SB11-3

JOB NO.: —

EST. GROUND ELEV.:

START DATE: 11/2/93

FINISH DATE:

CONTRACTOR: Empire

DRILLER: Alan

INSPECTOR: PFM

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8 1/2"		3" x 2'	SS	HMR	140#/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM	PID	0-2000	0	1336	11/2/93			sunny
Rad		0-100	14.5 µR/h	1336	11/2/93			
Dust		0-0.99	0.07	1336	11/2/93			
OVM			0	830	11/3/93			cloudy
Rad			11.2 µR/h	830	11/3/93			
Dust			.05	830	11/3/93			

MONITORING ACRONYMS

PID	PHOTO-IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME-IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW11-1/SB

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire / Akn
OVM	0-2000	0	1336		INSPECTOR: PFM
Rad	0-100	5.5 uR/h	1330		DATE: 11/2/93 11/3/93
Dig	0-.99	.07	1336		

DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	1	0		0				.4' top soil		
1	3, 6		1.7		SB11-3.1	0	11.2	Med. brown CLAY and SILT, trace SHALE fragments, moist		
2	7	2		2				1.7		
	14	2		2				AA, some fine SAND		
3	21, 79		1.9		SB11-3.2	0	10.0	2.7 AA, some fine SAND, weathered SHALE		
4	54	4		4				3.9 4.0 fragments, oxidation, dry		
	17	4		4				AA		
5	/20		1.0	5	SB11-3.3	0	128	5.0		till
	100/.2		NR					5.2 ~~Spoon refusal @ 5.2'~~		
6		6						NR 6.0 ~~Augered to 6.0'~~		till
	44	6		6				AA, (very tight, tough drilling)		
7	77, 100/.3	7.3	1.3		SB11-3.4			7.3		till
8			NR	8				NR 8.1		
	77	8		8				(very tight, tough drilling)		
9	100, 100/.3		1.2		SB11-3.5	0	13.1	Med. brown CLAY and SILT, some shale 9.2 fragments (fine to med. GRAVEL size)		till
10		10	NR	10				NR dry, little fine SAND		
	100			10						
11	120/.5		1.4		SB11-3.6	0	15	11.4		
12			NR	12				NR 12.5		
	120/.5									
13			NR	—	NA	—	—	Rock? weathered Shale		
14								14.0		
	120/.2							Spoon refusal @ [illegible]		
15								[illegible] .5'		
								Augered to 14.0'		
								[illegible]		
								[illegible]		
								[illegible]		
								[illegible] -3.1, 1-3.2 and 1-3.6		
20								[illegible] 1-3.2 [illegible]		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

and [illegible] recovery.

ver. 15-Oct-93 OBBORP2.WK1

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: MW 11-2

PROJECT : 10 SMWU
LOCATION : SEAD 11

JOB NO. :
EST. GROUND ELEV.:
START DATE: 11/16/93
FINISH DATE:
CONTRACTOR: Empire
DRILLER: ~~Bob~~ John
INSPECTOR: LB/ES
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8¼"		3" x 2'	SS	HMR	140#/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM	PID	0-2000	0.0	1110	11/16/93			overcast
Miniram			0.06	1110	11/16/93			
Miniram			0.04	1300	11/16/93			
OVM			0.0	1300	11/16/93			

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT:	BORING #: MU11-2

INSTRUMENT	INTERVAL	BGD	TIME
OVM	0-2000	0.0	1110
Dust		0.06	1110

COMMENTS:

DRILLER: Empire

INSPECTOR: LB

DATE: 11-16-93

DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	3	0						Med. brown topsoil		
	6									
1	8		1.2	X	X	0	X	Lt. brown SILT, little Clay, trace v. fine Sand, moist		
	10	2								
2	6	2								
	7							Lt. brown v. fine SAND, some silt trace Cobbles (rounded), moist		
3	9		1.6	X	X	0	X			
4	60	4						Lt. brown to light gray SILT, some Clay, trace ~~or~~ Shale fragments, oxidation, moist		
	41	4								
5	100/.5		1.3	X	X		X	Lt brown fine SAND, some Cobbles (rounded) to 1.5" dia., moist, trace SILT		fill?
6		6								
	46	6						Lt brown SILT, little Clay, little Shale fragments, trace COBBLES (1-1.5" dia) moist, oxidation		
7	63		1.0	X	X	0	X			
		8								
8	100/.4							Augered to 8½'		
10										
15										
20										

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT:	BORING NO.: MW 11-3

PROJECT: 10 SWMU
LOCATION: SEAD 11

JOB NO.:
EST. GROUND ELEV.:
START DATE: 11/4/93
FINISH DATE: 11/5/93
CONTRACTOR: Empire
DRILLER: Al
INSPECTOR: ES/LB
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8 1/2"		3" x 2'	SS	HMR	140/30"
						~~[illegible]~~

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM	PID	0-2000	0	1450	11/4/93			cloudy
Rad		0-100	15.1	1450	11/4/93			sprinkling
Dust		0-0.99	0.	1450	11/4/93			
			Raining - no dust readings					

MONITORING ACRONYMS

PID	PHOTO-IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME-IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW11-3

MONITORING

INSTRUMENT	INTERVAL	BGD	TIME
OVM	0-2000		1450
Rad	0-100		1450
Dust	0-.99		1450

COMMENTS:

DRILLER: Empire/Al

INSPECTOR: ES/LB

DATE: 11/4/93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	3	0						.8' topsoil		
1	6, 9		1.6	—	—	0	133	Lt. brown SILT, some Clay, little fine SAND,		
2	17	2						rocks (2" dia.) moist, trace Shale fragments.		
	29	2						Lt. brown med SAND, little Cobbles (.25-.5")		
3	31, 38		1.6	—	—	0	~~133~~ 10	dry, trace silt, compact		
4	100/.2	4								
	44	4						Med. brown med SAND, some Cobbles		
5	100/.4		0.8	—	—	0		(.25"-.75"), little Silt; dry, Cobbles to		
6		6						2" dia., oxidation		
	22	6						AA		
7	67, 81		1.6			0		weathered SHALE		
8	100/.1	8								
9								Split spoon refusal @ 8.2'		
10								water at bottom. ≈ 7.8'		
								Augered to 9.0'		
15										
20										

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: MW11-4

PROJECT : 10 SWMU

LOCATION : SEAD 11

JOB NO. :

EST. GROUND ELEV.:

START DATE: 11/4/93

FINISH DATE: 11/4/93

CONTRACTOR: Empire

DRILLER: Alan

INSPECTOR: ES/LB

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8 1/2'		3"x2'	SS	HMR	140/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM	PID	0-2000	0	1000	11/4/93			cloudy
RAD		0-100	16.6	1000	11/4/93			
DUST		0-0.99	0.	1000	11/4/93			

MONITORING ACRONYMS

PID	PHOTO-IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME-IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW 11-4

MONITORING

INSTRUMENT	INTERVAL	BGD	TIME
OVM	0-2000	0	1000
Rad	0-100	16.6	1000
DUST	0-0.99		1000

COMMENTS: Rained yesterday

DRILLER: Empire / Al

INSPECTOR: ES/LB

DATE: 11/4/93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
0–2	2, 4, 5, 5	0–2	1.6	/	/	0	20.2	topsoil Med. brown CLAY and SILT, oxidation, wet, trace shale fragments, brick fragments, rock fragments (1" dia.)		
2–4	17, 21, 28, 40	2–4	2.0	/	/	0	13.3	2.4' Med. brown med. SAND, some silt, little shale fragments (.5" dia.), moist		
4–6	27, 98, 100/.4	4–6	1.4	/	/	0	12.7	Lt. brown SAND, little silt, some shale fragments (1" - >2" dia.), moist ~~very~~		
6–8	66, 76, 100/.2	6–8	1.8	/	/	0	10.3	10.7 Lt. brown SAND, little silt, some SHALE fragments, moist, very tight	~~t~~	till
8–10	94, 48, 88, 78, 100/.4	8–10	2.0	/	/	3.6	100	Lt. brown SAND, little SILT, some shale fragments (.25" - .5" dia) moist - wet oxidation		
10–20								Spoon refusal @ 10.4' Augered to 10.5'		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

ver. 15-Oct-93 OBBORP2.WK1

OVERBURDEN BORING REPORT

SB13-1

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: MW13-1

PROJECT : 10 SWMU

LOCATION : SEAD 4

JOB NO.:

EST. GROUND ELEV.:

START DATE: 12-8-93

FINISH DATE:

CONTRACTOR: Empire

DRILLER: John W

INSPECTOR: ES/BH/MLB

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8½"		3" x 2'	SS	HMR	140/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0	840	12-8-93			

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING NO.:

OVERBURDEN BORING REPORT

SB13-1

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-1

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire
OVM		0	840		INSPECTOR: ES/BH/MB
					DATE: 12-8-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	2	0		0				Topsoil		
1	5 10 16	2	1.5	2	13-1.1	0	X	Lt. brown SILT, some Clay, oxidation, moist, dense.		
2	19	2		2						
3	19 39 43	4	1.3	4	13-1.2	0	X	AA, little Cobbles. (to 3" dia.)		
4	28	4		4						
5	38 100/4	6	No Recovery	6	X	0	X	Rock in spoon.		
6	43	6		6						
7	46 42 46	8	1.8	8	13-1.3	0	X			
8	70	8		8						
9	52 60 100/3	10	1.5	10	13-1.4	0	X	Gray weathered Shale, some SILT, wet.		
10	100/.4							gray weathered Shale, wet.		
11								Spoon refusal at 10.4.		
12								Augered to 12.0'		
15										
20										

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

ver. 05-Nov-93 OBBORP2.WK1

OVERBURDEN BORING REPORT

SB13-2

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: MW13-2

PROJECT: 10 SWMU
LOCATION: SEAD 13

JOB NO.:	
EST. GROUND ELEV.:	
START DATE:	11/9/93
FINISH DATE:	11/9/93
CONTRACTOR:	Empire
DRILLER:	Bob
INSPECTOR:	ES
CHECKED BY:	
CHECK DATE:	

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8½"		3'x2'	SS	Hmr	140# /30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0-.6	1095	11/9/93			
DUST		0-0.99	0	1095	11/9/93			

MONITORING ACRONYMS

PID	PHOTO-IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME-IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS
BORING NO.:

OVERBURDEN BORING REPORT

SB13-2

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-2

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire / Bob
OVM	0-2000	0-.6	1045		INSPECTOR: ES / LB
DUST	0-.99	0	1045		DATE: 11/9/93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
1		0–2	1.9	0–2	13-2.1	0	-	.4' topsoil + organics; gray weathered SHALE fill, moist to wet at bottom of spoon (to 1.5" dia)		
3		2–4	1.6	2–4	13-2.2	0		Lt. gray, SILT and CLAY, trace shale fragments, oxidation, moist, very dense; sand lense - .1' from bottom		
5		4–6	1.6	4–6	13-2.3	4.2	-	Lt. brown SILT, some Clay, little weathered shale fragments, cobbles (rounded) (1.5" dia.) oxidation, moist, dense		
7		6–8	1.8	6–8	13-2.4	0	-	Lt brown SILT, some CLAY, trace shale fragments, dry to moist, very dense.		
9		8–10	1.7	8–10	13-2.5		-	Lt to med brown SILT, some CLAY, some fine SAND, oxidation, moist; Lt brown SILT, some CLAY, trace shale fragments, moist, dense.		
11		10–12	1.0	10–12	13-2.6	0	-			
13		12–14	1.0	12–14	13-2.7	0	-	Gray SILT, some Clay, little shale fragments, trace cobbles (rounded), moist to wet.		
15	100/.3	14–16	0.1	X	X	X	X	gray weathered SHALE; Spoon refusal @ 14.3'; Augered to 16.0'; Water ≈ 10.0'		
16										
20										

OVERBURDEN BORING REPORT

SB13-3

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | BORING NO.: MW13-3

PROJECT: 10 SWMU

LOCATION: SEAD 13

JOB NO.:

EST. GROUND ELEV.:

START DATE: 12-8-93

FINISH DATE: 12-8-93

CONTRACTOR: Empire

DRILLER: Bob

INSPECTOR: ES

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING	HOLE	DEPTH	SAMPLER		HAMMER	
METHOD	DIA.	INT.	SIZE	TYPE	TYPE	WT/FALL
HSA	8 1/2"		3"x2'	SS	Hmr	140/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT	DETECTOR	RANGE	BACKGROUND			CALIBRATION		
TYPE	TYPE/ENERGY		READING	TIME	DATE	TIME	DATE	WEATHER
OVM			0.0	1220	12-8-93			sunny

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING NO.:

OVERBURDEN BORING REPORT

SB13-3

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-3

MONITORING				COMMENTS	
INSTRUMENT	INTERVAL	BGD	TIME	Begin at 16.0' on 12-13-93. Driller 12-13-93 Bob	DRILLER: John W./Bob
OVM		0.0	1240		INSPECTOR: ES/LB
					DATE: 12-8-93/12-13

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
0–2	1, 3, 6, 9	0–2	1.6	0–2	13-3.1	0	X	.4 organics Lt. brown SILT, & some Clay, little Cobbles, ML moist 1.6 NR		
2–4	14, 21, 26, 27	2–4	1.7	2–4	13-3.2	0	X	AA. 3.7 NR		
4–6	22, 34, 50, 57	4–6	1.7	4–6	13-3.3	0	X	4.3–4.4 lense of medium sand AA. Lt. brown SILT, some Clay, little Cobbles (to 1" dia.), little to Shale fragments (to 1.5" dia.), moist 5.7 NR		
6–8	96, 100/.4	6–8	1.0	6–8	13-3.4	0	X	Lt. brown SILT, some Clay, little Cobbles (to .5"), little shale fragments (to 1.5" dia.) dry, dense. NR		
8–10	42, 75, 100/.3	8–10	1.0	8–10	13-3.5	0	X	AA. NR		
10–12	45, 51, 75, 100/.4	10–12	1.8	10–12	13-3.6	0	X	Gray SILT, some Clay, little shale, Cobbles (.5" dia.) dry, dense. 11.8 NR		
12–14	56, 100/.4	12–14	0.7	12–14	X	0	X	12.7 NR 14		
14–16	57, 85, 105	14–16	1.6	14–16	X		X	15.6 NR 16		
16–18	82, 100/4	16–18	0.9	16–18	X		X	16.9 NR		
18–20	55, 107	18–20	1.0	18–20				19.0 NR		

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

BORING #:

ver. 05-Nov-93

OBBORP2.WK1

OVERBURDEN BORING REPORT

SB 13-3

ENGINEERING–SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-3

MONITORING				COMMENTS	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Bob
					INSPECTOR: ES
					DATE: 12-13-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
20	85	20		20				Gray SILT, some Clay, little Shale		
21	100/.3		0.1		X		X	fragments (.25 to 1" dia), dry, dense. (dry corrected to "moist")		
22		22		22						
	100/.2									
23	100/.3*									
								* Drove 2" Dia. spoon		

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

at SB13-3

ENGINEERING-SCIENCE, INC. | CLIENT: | WELL #: MW 13-7

PROJECT: 10 SWMU ESI
LOCATION: Seneca Army Depot, Romulus, NY

PROJECT NO: 720478-01001
INSPECTOR: KK BH
CHECKED BY:

DRILLING CONTRACTOR: EMPIRE SOILS
DRILLER: JOHN / ED
DRILLING COMPLETED: 1-24-94
BORING DEPTH: 8.0 Ft.
DRILLING METHOD(S): Hollow Stem Auger
BORING DIAMETER(S): 8.5 in
ASSOCIATED SWMU/AOC: SEAD 13

POW DEPTH: 8.0 Ft.
INSTALLATION STARTED: 1-24-94
INSTALLATION COMPLETED: 1-24-94
SURFACE COMPLETION DATE: 1-25-94
COMPLETION CONTRACTOR/CREW: NA
BEDROCK CONFIRMED (Y/N): N
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 2 in LENGTH:

RISER:
TR: + 2.5 ft. TYPE: PVC DIAMETER: 2 in LENGTH:

SCREEN:
TSC: 5.0 ft. TYPE: PVC DIAMETER: 2 in LENGTH: 2 ft SLOT SIZE: 1/100 in

POINT OF WELL: (SILT SUMP)
TYPE: PVC BSC: 7.0 ft POW: 8.0

GROUT: NA
TG: TYPE: LENGTH:

SEAL: TBS: 3.0 ft. TYPE: bentonite pellets LENGTH: 1.0 ft.

SAND PACK: TSP: 4.0 ft. TYPE: #3 ROC – 8.0 to 4.5 ft; #1 ROC – 4.5 to 4.0 ft LENGTH:

SURFACE COLLAR:
TYPE: Quikrete RADIUS: 1 ft. THICKNESS CENTER: 3.0 ft THICKNESS EDGE: .5 ft.

CENTRALIZER DEPTHS NA
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC. | **CLIENT:** USACOE | **BORING #:** MW 13-7

MONITORING			
INSTRUMENT	INTERVAL	BGD	TIME
OVM	0-2000 ppm	0ppm	1330

COMMENTS: Re-installation of MW13-3. MW13-3 was dry. MW13-7 located 8ft N of MW13-3

DRILLER: EMPIRE – JOHN / EDWARD

INSPECTOR: KK/BH

DATE: 1-24-94

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	RAD SCRN
1	2, 5, 14	.5 – 2	1.2ft	0 – 2	NA	Ø	NA
2–3	10, 14, 42, 50	2 – 4	1.3ft	2 – 4	NA	Ø	NA
4–5	14, 29, 100/.4	4 – 6	1.3ft	4 – 6	NA	Ø	NA
6–7	33, 112	6 – 7	.8ft	6 – 7	NA	Ø	NA

SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.) | **USCS CLASS** | **STRATUM CLASS**

.5-1.7 Olive gray CLAY, some gray and rust orange pods of clay, trace subangular black shale clasts (<.5cm) wet, medium stiff, high organic content [pod of red sand ~1.2ft]

2.0-2.6 SAME

2.6-3.3 Olive gray SILT/CLAY, some subangular to subrounded black shale clasts (<6cm) – both competent and weathered shale – moist, stiff

4.0-5.3 Olive gray SILT/CLAY, some subang to subround black shale clasts (<3cm) and trace rounded gravel. Stiff, moist (but drier than above)

6.0-6.6 SAME

6.6-6.8 Transitional olive gray SILT/CLAY and weathered SHALE interbedded very stiff, drier than above, but still moist

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | BORING NO.: MW13-4

SB13-4

PROJECT: 10 SWMU
LOCATION: SEAD 13

JOB NO.:
EST. GROUND ELEV.:
START DATE: 12-15-93
FINISH DATE:
CONTRACTOR: Empire
DRILLER: Scott
INSPECTOR: ES/MB/KK
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8½"		3" x 2'	SS	HMR	140# / 30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0.0	1030	12-15-93		12-15-93	misty

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

SB13-4

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-4

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME	-	DRILLER: Empire / Scott
					INSPECTOR: ES/MB / KK
					DATE: 12-15-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	1	0		0	13-			Topsoil		
1	2		1.7		4.1	0	X	Lt. brown - gray CLAY, little Silt, trace		
	5							fine Gravel, moist. oxidation, trace Shale		
	8	2		2				fragments.		
2	8	2		2	13-			Lt. brown - gray CLAY and SILT, trace		
3	15		1.8		4.2	0	X	fine Gravel, trace Shale fragments, moist, dense.		
	20									
4	24	4		4						
	15	4		4	13					
5	25		1.8		4.3	0	X			
	40							Gray weathered shale, some Silt,		
6	44	6		6				moist.		
	66									
7	100/.3							Spoon refusal at 6.5'		
8								Augered to 8.5'		
9										
10										
15										
20										

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

BORING #:

ver. 05-Nov-93

OBBORP2.WK1

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. | **CLIENT:** ACOE | **BORING NO.:** MW13-5/ SB13-5

PROJECT: 10 SWMU

LOCATION: SEAD 13

JOB NO.:

EST. GROUND ELEV.:

START DATE: 11/8/93

FINISH DATE: 11/9/93

CONTRACTOR: Empire

DRILLER: Bob

INSPECTOR: ES/LB

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8½"		3"x2'	SS	Hme	140# /30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0-7	1415	11/8/93			Partly cloudy
Dust		0-.99	0	145	11/8/93			

MONITORING ACRONYMS

PID	PHOTO-IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME-IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

No Downwind monitoring.
Only used 1 OVM.

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-S/S

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire
OVM	0-2000	0-7	1415		INSPECTOR: Bob
DUST	0-.99	0	1415		DATE: 11/8/93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	12	0		0	13-			Dk. gray weathered SHALE, some SILT, wet		▽
1	14		1.8'	1	5.1			Lt. brown fine SAND, little Silt, oxidation,		
	17			1	13-	0	—	moist, dense		
2	20	2		1.8	5.2			NR		
	16	2		2				Lt. brown SILT, some Clay, little shale		
3	27		1.6		13-			fragments (to .5"), moist, dense.		
	36			3.6	5.3	0	—			
4	45	4								
	12	4		4	13-			Lt. brown SILT, some Clay, little Shale		
5	37		1.6		5.4	0	—	fragments (to 1.5" dia) very dense, dry.		
	58			5.6						
6	53	6								
	45	6						AA.		
7	55		1.7	X		0	—			
	55									
8	66	8								
	22	8								
9	49		2.0	X		0	—			
	86									
10	100/.5	10						10.2		▽
	25	10						Gray SILT, some clay, trace Shale		
11	55		2.0	X		0	—	fragments (appears to be weathered		
	100/.5							Shale zone), moist		
12		12								
	45	12			13-					
13	110/.5		1.3		5.6	0	—			
								Spoon Refusal @ 13.0'		
14		14						Augered to 16.0'		
15								Water @ 10.2' (measured		
16'								10/9/93)		
20										

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

ver. 15–Oct–93 OBBORP2.WK1

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: ACOE	BORING #: MW13-6/SB13-(

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire / Scott
OVM	0-2000	0	1420		INSPECTOR: ES/MB/KK
Dust		0	1420		DATE: 12-15-93

DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	2	0		0	B-6.1			Organics		
	8							Gray weathered SHALE fill		
1	6		1.8			0	X	Dark brown to gray SILT, some Clay, moist		
2	3	2		2						
	8	2		2	B-6.2					
3	12		1.4			0	X			
	15							Dark brown SILT and CLAY, little fine to med. Gravel, moist to wet, dense,		
4	22	4		4						
	10	4		4	B-6.3					
5	12		1.8			0	X	Drk. brown to gray SILT and Shale fragments, moist;		
	18									
6	22	6		6						
	40	6		6	13-6.4			Gray weathered SHALE and Clay, moist		
7	100/.3		1.0			0	X			
8		8		8						
	100/.3							Spoon refusal at 8.3'		
9								Augered to 10.0'		
10										
11										
12										
13										
14										

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	BORING NO.: SB 13-7

PROJECT : SEAD

LOCATION : Romulus NY SEAD 13

JOB NO.:	
EST. GROUND ELEV.:	
START DATE:	12-7-93
FINISH DATE:	12-7-93
CONTRACTOR:	Empire
DRILLER:	Bob/DW
INSPECTOR:	BH/MB
CHECKED BY:	
CHECK DATE:	

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8¼		2" X3'	SS	HMR	140#/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
DVM	PID	0-2000	0	0950	12-7-93			Cloudy cold
RAD		0-100	14-16	0950	12-7-93			
DUST		0-.99	0	0950	12-7-93			
DVM			0	1325	12-7-93			
RAD			13-15	1325	12-7-93			
DUST			0	1325	12-7-93			

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. | CLIENT: USGS | BORING #: SB73-7

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: JMN/SBS
OVM	0-2000	0	0950		INSPECTOR: BJ/MCS
RAD	0-100	14-16	0950		
MST	0-69	0	0950		DATE: 12-2-93

Time	DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	SAMPLE DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
0950	1	3, 7, 5, 8	0–2	2	0–2	13, 7.1, 13, 7.10	0	X	organics shale; shale sand; shale clay sand		
0955	2–4	10, 12, 26, 48	2–4	1.4	2–4	13, 7.2	0	X	clay		
1030	4–6	15, 46, 38, 46	4–6	1.6	4–6	13, 7.3	0	X	clay; wet		
1035	6–8	25, 45, 58, 100/4	6–8	1.4	6–8	13, 7.4	0	X	shale		
1047	8–10	25, 40, 85, 100/.4	8–10	2.0	8–10	13, 7.5	0	X			
1300	10–12	62, 100/4	10–12	0.9	10–12	13, 7.6	0	X	Med. brown SILT, and Shale fragments, Some Clay, wet. ~~dense~~		
1310	12–14	100/4	12–14	0.2	12–14	X	0	X	gray SHALE fragments;		
1320	14–16	100/.2							Spoon refusal at 14.2.		
									MRD sample 0-2'		
	20										

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. | CLIENT: US ACOE | BORING NO.: SB13-8

PROJECT: SBAD
LOCATION: Romulus, NY SBAD 13

JOB NO.:
EST. GROUND ELEV.:
START DATE: 12-7-93
FINISH DATE: 12-7-93
CONTRACTOR: Empire
DRILLER: John/Bob
INSPECTOR: BH-MA
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8 1/4"		2" x 2'	SS	HMR	140#/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM	PID	0-2000	0	1430	12-7-93			cloudy, cool
RAD		0-100	12-14	1430	12-7-93			
DUST		0-.99	0	1430	12-7-93			
OVM			0	1450	12-7-93			
RAD			12-15	1450	12-7-93			
DUST			0	1450	12-7-93			

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING NO.:

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC.	CLIENT:	BORING #: S013-8

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: John/Bob
OVM	0-2000	0	1430		INSPECTOR: BH/MCB
RAD	0-100	12-14	1430		
DUST	0-.99	0	1430		DATE: 12-7-93

TIME	DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	SAMPLE DEPTH INT (FEET)	SAMPLE NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
		2	0		0	13-			organic dark Roots		
		4									
1430	1	6	2	1.9	2	8.1	0	X	clay sand no rocks		
		11									
	2	14	2		2	12-			Sand, Clay		
		16									
1435	3	19		1.7		8.2	0	X			
		28	4		4						
	4	24	4		4	13-					
	5	28		1.2					Clay Sand Rocks		
1447		100/.4	6		6	8.3	0	X			
	6								Boring ended 6.3'		
	7										
	8										
	9										
	10										
	15										
	20										

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

BORING #:

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING NO.: SB 13-9

PROJECT : 10 SWMU

LOCATION : SEAD 13

JOB NO. :

EST. GROUND ELEV.:

START DATE: 12-16-93

FINISH DATE: 12-16-93

CONTRACTOR: Empire

DRILLER: Scott

INSPECTOR: KK/MCB

CHECKED BY:

CHECK DATE:

DRILLING SUMMARY:

DRILLING	HOLE	DEPTH	SAMPLER		HAMMER	
METHOD	DIA.	INT.	SIZE	TYPE	TYPE	WT/FALL
HSA	8 1/2"		3" x 2'	SS	Hmr	140#/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT	DETECTOR	RANGE	BACKGROUND			CALIBRATION		
TYPE	TYPE/ENERGY		READING	TIME	DATE	TIME	DATE	WEATHER
OVM		0-2000	0.					

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: USACOE	BORING #: SB13-9

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire / Scott
OVM	0-2000	0.00			INSPECTOR: KK / MCB
					DATE: 12-16-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
1	1, 2, 5, 10		1.9	0–2	SB13-9-1	0	X	Topsoil / organics ~ 5" Primarily CLAY - brown with green and grey nodules (<5cm) some oxidation, some shale particles. subordinate silt Shale (~ .5')		
3	8, 18, 18, 22		1.6	2–4	SB13-9-2	0	X	Brown CLAY subordinate silt, weathered shale particles subrounded gravel (< 5cm)		
5	10, 17, 24, 26		1.9	4–6	SB13-9-3	0	X	Brown CLAY w/ subangular clasts of shale and chert(?) (< 6cm) L w/ silt		
7	50, 55, 66, 74		1.0	6–8	SB13-9-4	0	X	Same		
9	28, 45, 57, 65		1.7	8–10	SB13-9-5	0	X	Same		
11	42, 52, 75, 100		2.0	10–12	SB13-9-6	0	X	transition from brown to Gray CLAY w/ sub. silt subrounded to subangular clasts (< 8cm) very dry, very dense		
13	100/.3			12–14	X			SS Refusal - Auger to 14' Gray CLAY w/ abundant subangular shale clasts, ~ .5' recovery dry		
15	38, 75, 100/.3			14–16	X			SS Refusal - Auger to 16' GRAY CLAY with abundant silt abundant [illegible] -4 in bottom [illegible] dry		
17	95, 100/.4			16–18	X			SS refusal - Auger to 18' weathered shale [illegible] gray shale [illegible] [illegible] clay [illegible] -dry		
19			0	18–				SS [illegible] NO [illegible]		
20				20						

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

ver. 05–Nov–93 OBBORP2.WK1

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | BORING NO.: SB13-10

PROJECT : 10 SWMU
LOCATION : SEAD 13

JOB NO. :
EST. GROUND ELEV.:
START DATE: 12-17-93
FINISH DATE: 12-17-93
CONTRACTOR: Empire
DRILLER: Scott
INSPECTOR: ES/MCB
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8 1/2"		3" x 2'	SS	HMR	140# /30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0.0	900	12-17-93			
Dust		0-0.99	0.02	900	12-17 93			

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: SB13-10

MONITORING

INSTRUMENT	INTERVAL	BGD	TIME
OVM	0-2000	0	900
Dust		.02	900

COMMENTS:

DRILLER: Empire / Scott
INSPECTOR: ES / MB
DATE: 12-17-93

DEPTH (FT)	BLOWS PER 6 INCHES	PENETRATION RANGE (FEET)	RECOVERY RANGE (FEET)	DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
0–2	3, 4, 5, 5	0–2	1.7	0–2	13-10.1, 10.1D, 10.1 NRP	0	X	Topsoil and weath. SHALE Lt. brown SILT, little Clay, trace fine Gravel, oxidation, moist		
2–4	6, 14, 18, 22	2–4	2.0	2–4	13-10.2	0	X	Lt. brown SILT, some Clay, trace fine GRAVEL, moist, dense		
4–6	18, 26, 44, 42	4–6	2	4–6	13-10.3	0	X	Lt. brown SILT, some Clay, little fine GRAVEL (.25 to 1." dia) rounded fragments oxidation.		
6–8	75, 100/4	6–8	2	6–8	13-10.4	0	X			
8–10	55, 68, 70, 70	8–10	2	8–10	13-10.5	0	X	Gray weath. SHALE, some SILT, dry. Gray weath. SHALE		
10–12	100/.4	10–12	0.2	10–12	X		X	Spoon refusal at 10.4'		
12–20								Auger Refusal at 17.5'		

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

BORING #:

ver. 05-Nov-93

OBBORP2.WK1

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. CLIENT: ACOE | **BORING NO.:** MW57-1

PROJECT : SEAD 10 SMWU
LOCATION : SEAD 57

JOB NO.: 720478-01001
EST. GROUND ELEV.:
START DATE: 12-2-93
FINISH DATE: 12-2-93
CONTRACTOR: Empire
DRILLER: John/Bos
INSPECTOR: ES/KS
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		downwind	1.5					

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

OVERBURDEN BORING REPORT

ENGINEERING–SCIENCE, INC. | CLIENT: ACOE | BORING #: MW57-2-1

MONITORING				COMMENTS:	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Empire / Scott
OVM	0-2000	0-1.3	1430		INSPECTOR: ES/LB
					DATE: 12-7-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	1	0						Topsoil		
1	2									
	6		1.7	X	X	0	X	Lt. brown SILT, some Clay, little Shale fragments moist		
2	6	2								
	12	2								
3	12									
	18		2	X	X	0	X			
4	50	4						weathered Shale fragments, little SILT wet.		
	30	4								
5	80		1.5	X	X	0	X	AA, moist		
	100/.3	6								
6										
								Spoon refusal at 5.3'		
								Augered to 7.0'		
10										
15										
20										

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC. CLIENT: ACOE | BORING NO.: 57-3

PROJECT: 10 SWMU
LOCATION: SEAD 57

JOB NO.: 720478-01001
EST. GROUND ELEV.:
START DATE: 12-7-93
FINISH DATE:
CONTRACTOR: Empire
DRILLER: Scott
INSPECTOR: ES
CHECKED BY:
CHECK DATE:

DRILLING SUMMARY:

DRILLING METHOD	HOLE DIA.	DEPTH INT.	SAMPLER SIZE	SAMPLER TYPE	HAMMER TYPE	HAMMER WT/FALL
HSA	8½"		3"x2'	SS	HMR	140/30"

DRILLING ACRONYMS:

HSA	HOLLOW-STEM AUGERS	HMR	HAMMER	SS	SPLIT SPOON
DW	DRIVE-AND-WASH	SHR	SAFETY HAMMER	CS	CONTINUOUS SAMPLING
MRSLC	MUD-ROTARY SOIL-CORING	HHR	HYDRAULIC HAMMER	5I	5 FT INTERVAL SAMPLING
CA	CASING ADVANCER	DHR	DOWN-HOLE HAMMER	NS	NO SAMPLING
SPC	SPIN CASING	WL	WIRE-LINE	ST	SHELBY TUBE
				3S	3 INCH SPLIT SPOON

MONITORING EQUIPMENT SUMMARY

INSTRUMENT TYPE	DETECTOR TYPE/ENERGY	RANGE	BACKGROUND READING	BACKGROUND TIME	BACKGROUND DATE	CALIBRATION TIME	CALIBRATION DATE	WEATHER
OVM		0-2000	0-1.3	940	12-7-93			cloudy
Ø								

MONITORING ACRONYMS

PID	PHOTO - IONIZATION DETECTOR	BGD	BACKGROUND	DGRT	DRAEGER TUBES
FID	FLAME - IONIZATION DETECTOR	CPM	COUNTS PER MINUTE	PPB	PARTS PER BILLION
GMD	GEIGER MUELLER DETECTOR	PPM	PARTS PER MILLION	MDL	METHOD DETECTION LIMIT
SCT	SCINTILLATION DETECTOR	RAD	RADIATION		

COMMENTS:

OTHER REPORTS	DATE/PENDING	N/A
WELL DEVELOPMENT		
SURVEYOR		
CORE LOG		
WELL INSTALLATION DETAILS		
HYDRAULIC TESTING		
GEOPHYSICAL LOGGING		

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING NO.:

OVERBURDEN BORING REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	BORING #: MW57-

MONITORING				COMMENTS	
INSTRUMENT	INTERVAL	BGD	TIME		DRILLER: Scott
OVM	0-2000	0-1.3	940		INSPECTOR: ES
					DATE: 12-7-93

DEPTH (FT)	SAMPLING: BLOWS PER 6 INCHES	SAMPLING: PENETRATION RANGE (FEET)	SAMPLING: RECOVERY RANGE (FEET)	SAMPLE: DEPTH INT (FEET)	SAMPLE: NO.	SAMPLE: VOC	SAMPLE: RAD SCRN	SAMPLE DESCRIPTION (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
	2	0						Topsoil		
1	3		1.5	X	X	0	X	Lt. brown SILT, little Clay, trace Cobbles, moist		
	6									
2	12	2								
	12	2						Olive gray SILT, some Clay, some cobbles (to 1" dia.) moist, dense.		
3	15		1.8	X	X	0	X			
	25									
4	30	4								
	15	4								
5	15		2.0	X	X	0	X			
	30							gray weathered Shale		
6	100/3	6								
7								Spoon refusal at 5.8'		
8								Augered to 7.0'		
9										
10										
15										
20										

 SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS BORING #:

ver. 05-Nov-93 OBBORP2.WK1

Test Pit Logs

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP11-1

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 11

JOB NUMBER: 720478-01000
EST. GROUND ELEV.:
INSPECTOR: JWC
CONTRACTOR: ES/WB
START DATE: 11/20/93
COMPLETION DATE: 11/20/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
8'	4'	4'4"	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	——	11/20/93 11:10am
LEL/O2/H2S		NORMAL	11/20/93 "
RADIATION		——	11/20/93 11:15

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:
QA/QC Rinsate Sample Number:

COMMENTS: [15] 3 Location Depths

SCALE (FT)	VOC/ RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
0–3		1	0-8"	FILL LAYER	TOPSOIL, FILL TOPSOIL w/Definite SCRAP METAL Cobbweb metal, SCRAPS, Bottles, metal RODS*	* Anomaly Determination metal RODS which were entangled in A BALL of webbed metal
		2	3'4"			
4					FILL material w/SHALE FRAGMENTS interbedded	
		3	4'+		NATURAL material clastic TILL (DARK GREY Bottom OF TEST PIT	
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS TEST PIT #: TP11-1

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP11-2

PROJECT: SENECA 10 SWMU INVESTIGATION
LOCATION:

JOB NUMBER: 720478-01000
EST. GROUND ELEV.
INSPECTOR: JWC
CONTRACTOR: ES/UXB
START DATE: 11/19/93
COMPLETION DATE: 11/20/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
15'	4'6"	8'6"	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0 eV	ø	11/19/93 1:30
LEL/O2/H_2S		—	" "

COMMENTS: SEAD-11 LANDFILL INVESTIGATION

TOTAL SAMPLES: 15 3 LOCATIONS (DEPTHS)

SCALE (FT)	VOC/RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
	ø				TOPSOIL W/FORIEGN MATERIAL METAL PIECES	
1 2	ø	Full SUITE	SAMPLE TAKEN 8"		FILL MATERIAL MED.-BROWN SILT ORGANIC W/ HUGE PIECES OF CONCRETE (5'x4') SECTIONS 1" DIAMETER STEEL CABLE >20' LONG	LARGE FOREIGN OBJECTS
3 4					Rubber Hoses LARGE METAL TRASH (1) << FILL MATERIAL >> 6" STEEL GURDERS Rebar CONCRETE PIECES	
5					FILL MATERIAL	

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS TEST PIT #:

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT:	TEST PIT #: TP11-2 (CONT'D)

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE	
OVM-580B	10.0 eV	—	11/20/93	10:30 AM
LEL/O2/H2S	—	—	"	"

DATE START:	11/19/93
DATE FINISH:	11/20/93
INSPECTOR:	JWC
CONTRACTOR:	ES/UXB

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
6	Ø				FILL MATERIAL MEDIUM BROWN SILT W/ CONCRETE AND STEEL PIECES	
7	Ø	5 Full Suite	SAMPLE TAKEN		ASPHALT MATERIAL MUCH LIKE ROOFING MATERIAL	SAMPLE HAD ODOR OF TAR/ ASPHALT
8		5	SAMPLE Full Suite		NATURAL MATERIAL MED.-FINE SILTY SAND MED. BROWN	NO WATER ENCOUNTERED

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #:

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: US ACOE	TEST PIT #: TP 11-3

PROJECT: Seneca Army Depot
LOCATION: SEAD 11

JOB NUMBER:
EST. GROUND ELEV.
INSPECTOR: BH
CONTRACTOR:
START DATE: 12/14/93
COMPLETION DATE:
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM	PID		
Rad			

COMMENTS: SG 2-1 location
Depth 6.6
Width
Length

TOTAL SAMPLES:

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
1	0ppm ↓		0-1		Building material, concrete block, wire, pipe, Glass, Sand, Dark brn (color)	Sample No 11-3-1 Time 1350
2			1-2		Rust, Plastic (melted), Ash (black)	
3		0ppm	2-4		Metal, Glass bottle w/liquid (Soda bottle), Dark brn, Nails, Large boulders, Wet soil, Sand, Rust, Ash (black)	Sample No 11-3-2 Time 1400
4			4-6		Stone, Metal, Glass, Gravel, small rock, nails, Debris, Dark Brn Soil	Sample No 11-3-3 TIME 1420
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #:

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: US ACOE	TEST PIT #: TP 11-4

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM	PID	0 ppm	

DATE START: 12/14/93
DATE FINISH:
INSPECTOR: BH
CONTRACTOR:

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
	0 ppm	0-2			Glass, Drills Clay, Sand, Dk Brn	SG 2-3 Time 1500 11-4-1
	0 ppm	2-4			Clay, shale Dk Brown (color) Rock	Time 1515 11-4-2
	0 ppm Rock		4-6		Sand, Clay, Glass Dark Brn	11-4-3 Time 1530

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS TEST PIT #:

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: USACE	TEST PIT #: TP57-1

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
U/M	PID	0	
Victoreen		BKG	

DATE START: 11/3/93
DATE FINISH: 11/3/93
INSPECTOR: DMK
CONTRACTOR: UXB

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
1						
2						
3		TP57-1 11/3/93 1630	3ft		Dark clayey material with brown shale ≅ 30-50% shale no ordnance in sample, but 60mm mortar near the pit location.	Photo #5
4						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS — TEST PIT #:

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT:	TEST PIT #: TP57-2

PROJECT: SEAD 3 SWMU INVESTIGATION
LOCATION: SEAD 57

JOB NUMBER: 720978-01000
EST. GROUND ELEV.
INSPECTOR: JNC
CONTRACTOR: ES/UXB
START DATE: 12/[illegible]/93
COMPLETION DATE: 12/[illegible]/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
8'	2.5'	3'	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	~6 ppm	(SAMPLE HEADSPACE)
RADIATION		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:

QA/QC Rinsate Sample Number:

COMMENTS: 1 composite SAMPLE for ALL PARAMETERS

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
			★		– DARK CLAYED LAYER W/ SHALE FRAGMENTS	★ possible DRUM
1		1 composite	★		– METAL DEBRIS FOUND W/ water recharge quickly into the PIT. Possible Drum Remains. OILY sheen ON WATER SURFACE. SMELLED OF Diesel fuel.	
2			★			SAMPLE HEADSPACE ~6 ppm
			★			ORDINANCE FRAGMENTS NOTED
3					BOTTOM OF PIT @ 3'	★ Probable ANOMALY Due TO Drum Remains
4						
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #: TP57-2

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACE	TEST PIT #: TP57-3

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM	PID	0	0900 11/9/93
Vulcreen 190		0	0900 11/9/93

DATE START: 11/9/93
DATE FINISH: 11/9/93
INSPECTOR: DMK
CONTRACTOR: UXB

SCALE (FT)	VOC/RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
1						
2						
3	0/0	TP57-3 11/9/93 0950	3 feet		Dark brown clayey ≈ 30% shale	Photo #6

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

TEST PIT #: TP57-3

ver. 1/ 15-Oct-93

TSTPITP2.WK1

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACE	TEST PIT #: TP57-4

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM	PID	0	0900 11/9/93
Victoreen 190		0	0900 11/9/93

DATE START: 11/9/93
DATE FINISH: 11/9/93

INSPECTOR: DMK
CONTRACTOR: UXB

SCALE (FT)	VOC/ RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
1						
2						
3	0/0	TP57-4	3 feet		Dark brown-gray ≅ 30% shale no ordnance 2 worms	Photo #7

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS

TEST PIT #: TP57-4

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-5

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 57

JOB NUMBER: 720478-01000
EST. GROUND ELEV.
INSPECTOR: JWC
CONTRACTOR: ES/UXB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
7.5'	2.5'	3.5'	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	—	12/02/93
RADIATION		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:
QA/QC Rinsate Sample Number:
COMMENTS: 1 composite Sample

SCALE (FT)	VOC/RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
					TOPSOIL	
		1 COMPOSITE SAMPLE (0.5'–3.5')	*		GREY CLAY	
1						
2			*			* SIGNIFICANT NO ANOMALY NOTED
3			*		MED. – GREY TILL	
					BOTTOM OF PIT @ 3.5'	
4						
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS — TEST PIT #: TP57-5

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-6

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 57

JOB NUMBER: 720478-01000
EST. GROUND ELEV.:
INSPECTOR: DWC
CONTRACTOR: ES/UXB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
8'	2.5'	3'3"	BACKHOE

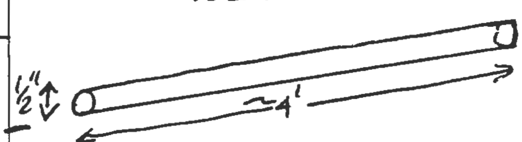
MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	—	12/02/93
RADIATION		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:

QA/QC Rinsate Sample Number:

COMMENTS: 1 composite sample for all parameters

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
	0	1 composite sample	★		SILTY CLAY (heavy)	
1					SHALE LAYER	
			★		DARKER SILTY SAND WET	★ ANOMALY 4' metal ROD 1/2" thick
2	0 ppm		★			
3			★		TILL	
					BOTTOM OF PIT @ 3'3"	
4						
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #: TP57-6

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-7

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 57

JOB NUMBER: 720478-01000
EST. GROUND ELEV.:
INSPECTOR: JMC
CONTRACTOR: ES/LXB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
7'	3.5'	3.5'	BACK HOE

MONITORING DATA

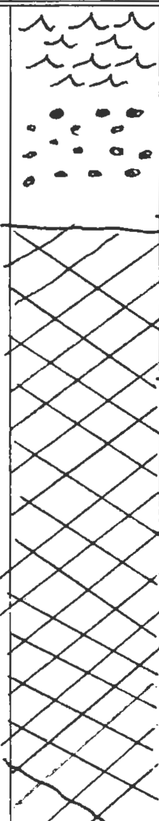
INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.6	—	12/02/93
RADIATION		—	" "

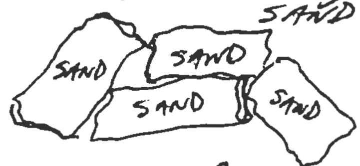
QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:

QA/QC Rinsate Sample Number:

COMMENTS: 1 composite sample for all parameters

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
	0 ppm	1 composite sample (0–3')	*		TOPSOIL	
			*		SILTY SAND	
1					ANOMALY * 4 bags of SAND	* probable Geophysical Anomaly
	0 ppm		*		TILL	
2						
			*			
3						
					BOTTOM OF PIT @ 3.5'	
4						
5						





SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS TEST PIT #: TP57-7

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-8

PROJECT: SEAD 3 SWMU INVESTIGATION
LOCATION: SEAD 57

JOB NUMBER: 720478-0100
EST. GROUND ELEV.
INSPECTOR: JMC
CONTRACTOR: ES/VHB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
7'	2.5'	3'	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	—	12/02/93
RADIATION		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:
QA/QC Rinsate Sample Number:

COMMENTS: 1 composite sample for all parameters

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
0–0.3			★		TOPSOIL	
0.3–1.5	0ppm	1 composite sample	★		WELL DEFINED FINE SILTY SAND W/ CLASTIC PROPERTIES (LIGHT BROWN	
1.5–3			★ ★		↑ TILL ↓	NO ANOMALY NOTED
3					BOTTOM OF PIT 3'	
4						
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS — TEST PIT #: TP57-8

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-9

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 57

JOB NUMBER: 720478-01000
EST. GROUND ELEV.
INSPECTOR: JWL
CONTRACTOR: ES/UXB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
8'	2.5'	3.5'	BACK HOE

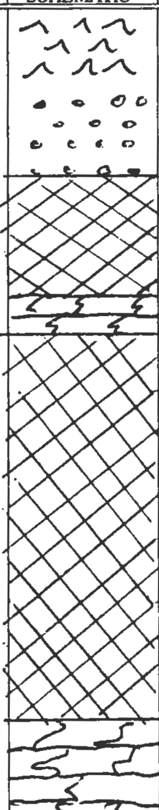
MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0	—	12/02/93
RADIATION		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:
QA/QC Rinsate Sample Number:

COMMENTS: 1 composite sample FOR ALL PARAMETERS

SCALE (FT)	VOC./ RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
			★		TOPSOIL	
					SILTY SAND	
1		1 composite sample	★		TILL	
					SHALE LAYER ENCOUNTERED	
2			★		MED.-GREY TILL	
			★			★ NO ANOMALIES NOTED
3					LARGE competent SHALE LAYER (LARGE pieces)	
					BOTTOM OF PIT 3.5'	
4						
5						



SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS — TEST PIT #: TP57-

TEST PIT REPORT

ENGINEERING–SCIENCE, INC.	CLIENT: SEAD	TEST PIT #: TP57-10

PROJECT: SEAD 3 SWMU Investigation
LOCATION: SEAD 57

JOB NUMBER: 7304[illegible]-0000
EST. GROUND ELEV.
INSPECTOR: JNC
CONTRACTOR: ES/UXB
START DATE: 12/02/93
COMPLETION DATE: 12/02/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
8'	2.5'	3'8"	BACKHOE

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM-580B	10.0 ev	—	12/02/93
RAD meter		—	12/02/93

QA/QC DUPLICATE SAMPLE: YES or NO
Duplicate Sample Number:
MRD Sample Number:

QA/QC Rinsate Sample Number:

COMMENTS: 1 Homogenized sample for all parameter

SCALE (FT)	VOC./ RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
			☆		TOPSOIL	
1	0ppm				SILTY SAND w/ SHALE FRAGMENTS WET	
2		Composite 1 sample	☆		med. – course sand some shale fragments	color change
3			☆ ☆		→ RED MED-COURSE SILTY SAND	☆
4					BOTTOM OF PIT 3'8"	
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #: TP57-2

TEST PIT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACE	TEST PIT #: TP57-11

PROJECT: SEAD 16 SWMU ESI
LOCATION: SWMU 57

JOB NUMBER:
EST. GROUND ELEV.
INSPECTOR: DMK
CONTRACTOR: UXB
START DATE: 11/3/93
COMPLETION DATE: 11/3/93
CHECKED BY:
DATE CHECKED:

TEST PIT DATA

LENGTH	WIDTH	DEPTH	EXCAVATION/SHORING METHOD
5'	3'	3'	Backhoe / No shoring

MONITORING DATA

INSTRUMENT	DETECTOR	BACKGROUND	TIME/DATE
OVM	PID	0	
Victoreen		0.04	

COMMENTS:

TOTAL SAMPLES:

SCALE (FT)	VOC./RAD.	SAMPLE NUMBER	SAMPLE DEPTH RANGE	STRATA SCHEMATIC	DESCRIPTION OF MATERIALS (BURMEISTER METHODOLOGY)	REMARKS
1						
2						
3	0/BKG	TP57-11 11/3/93 1555	3 feet		Dark brown Clay Moist little foreign material	Photo #4
4						
5						

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   TEST PIT #:

Soil Gas Field Forms

SOIL GAS SAMPLE LOCATION DATA

ENGINEERING-SCIENCE	CLIENT: ACOE	DATE: 12/9/93
PROJECT: 10 SWMU ESI		INSPECTOR: PFM
LOCATION: SEAD-11 Seneca Army Depot Romulus, NY		CONTRACTOR: Empire Soils Investigations TYPE OF RIG: Truck Mount CME 45

WEATHER/FIELD CONDITIONS (record major changes)

TIME	TEMP	PRECIP.	GROUND SURFACE CONDITIONS
0715	30	None	partly frozen, damp

MONITORING

INSTRUMENT	DETECTOR
OVM	PID

SAMPLE LOCATION: Rod Blank

BLOWS PER 6 INCHES:	NA	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	NA	TIME OF SOIL GAS SAMPLE:	0803
DEPTH TO BOTTOM OF ROD:	NA	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	0801	SYRINGE #:	7
TIME STOP EVACUATION PUMP:	0803	EVACUATION RATE:	2L/min

COMMENTS: Rod Blank taken at trailer.

SAMPLE LOCATION: SG2-1

BLOWS PER 6 INCHES:	2-5-7-4-9-4-4-2	OVM MAXIMUM:	9.2 ppm
		TIME OF OVM MAXIMUM:	0826
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0826
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	14L Air
TIME START EVACUATION PUMP:	0822	SYRINGE #:	6
TIME STOP EVACUATION PUMP:	0829	EVACUATION RATE:	2L/min

COMMENTS: Duplicate #4 taken with syringe. Duplicate might not have been at same high OVM reading.

SAMPLE LOCATION: SG2-2

BLOWS PER 6 INCHES:	2-2-3-3-9-4-3-2	OVM MAXIMUM:	3 ppm
		TIME OF OVM MAXIMUM:	0839
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0839
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	0838	SYRINGE #:	1
TIME STOP EVACUATION PUMP:	0841	EVACUATION RATE:	2L/min

COMMENTS:

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG2-3		
BLOWS PER 6 INCHES:		OVM MAXIMUM:	12.3 ppm
		TIME OF OVM MAXIMUM:	0852
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0852
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	0850	SYRINGE #:	2
TIME STOP EVACUATION PUMP:	0854	EVACUATION RATE:	2L/min

COMMENTS: Duplicate taken with syringe #3.

SAMPLE LOCATION:	SG2-4		
BLOWS PER 6 INCHES:	1-2-2-2-4-8-3-2	OVM MAXIMUM:	3.0 ppm
		TIME OF OVM MAXIMUM:	0906
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0906
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	0904	SYRINGE #:	5
TIME STOP EVACUATION PUMP:	0908	EVACUATION RATE:	2L/min

COMMENTS:

SAMPLE LOCATION:	SG2-5		
BLOWS PER 6 INCHES:	1-1-1-6-3-2-1-2	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	0920	SYRINGE #:	C
TIME STOP EVACUATION PUMP:	0922	EVACUATION RATE:	2L/min

COMMENTS: Moved off grid due to thick brush. Moved north a bit. Water in hole.

SAMPLE LOCATION:	SG1-3		
BLOWS PER 6 INCHES:	7-4-5-11-12-6-3-1	OVM MAXIMUM:	3 ppm
		TIME OF OVM MAXIMUM:	0932
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0932
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	0931	SYRINGE #:	8
TIME STOP EVACUATION PUMP:	0934	EVACUATION RATE:	2L/min

COMMENTS:

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG1-2		
BLOWS PER 6 INCHES:	1-2-3-3-4-3-3-2	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1107
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1105	SYRINGE #:	C
TIME STOP EVACUATION PUMP:	1107	EVACUATION RATE:	2L/min
COMMENTS:			

SAMPLE LOCATION:	SG1-1		
BLOWS PER 6 INCHES:	NA	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1117
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1115	SYRINGE #:	5
TIME STOP EVACUATION PUMP:	1117	EVACUATION RATE:	2L/min
COMMENTS:			

SAMPLE LOCATION:	SG2-2A		
BLOWS PER 6 INCHES:	2-3-4-5-5-4-3-3	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1132
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1130	SYRINGE #:	8
TIME STOP EVACUATION PUMP:	1132	EVACUATION RATE:	2L/min
COMMENTS:	Did SG2-2 again due to 0.0 ppm concentration. May be questionable result given results from surrounding locations.		

SAMPLE LOCATION:	SG4-1		
BLOWS PER 6 INCHES:	2-3-3-3-4-3-2-1	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1147
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1145	SYRINGE #:	1
TIME STOP EVACUATION PUMP:	1147	EVACUATION RATE:	2L/min
COMMENTS:			

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG2.5–2.5		
BLOWS PER 6 INCHES:	4–8–21–21–8–4–2–1	OVM MAXIMUM:	3 ppm
		TIME OF OVM MAXIMUM:	1314
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1314
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	1312	SYRINGE #:	2
TIME STOP EVACUATION PUMP:	1315	EVACUATION RATE:	2L/min
COMMENTS:	Mid–point between 4 grid locations.		

SAMPLE LOCATION:	SG–X		
BLOWS PER 6 INCHES:	3–7–14–7–6–4–3–3	OVM MAXIMUM:	3 ppm
		TIME OF OVM MAXIMUM:	1321
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1321
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1322	SYRINGE #:	7
TIME STOP EVACUATION PUMP:	1324	EVACUATION RATE:	2L/min
COMMENTS:	Sample is in area of stressed vegitation. The area is about 15' X 10'.		

SAMPLE LOCATION:	SG3–0		
BLOWS PER 6 INCHES:	1–1–2–5–3–4–3–5	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1337
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1335	SYRINGE #:	
TIME STOP EVACUATION PUMP:	1337	EVACUATION RATE:	2L/min
COMMENTS:	Water in hole. Moved.		

SAMPLE LOCATION:	SG2–0		
BLOWS PER 6 INCHES:	1–1–1–2–3–3–3–11	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1352
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1350	SYRINGE #:	6
TIME STOP EVACUATION PUMP:	1352	EVACUATION RATE:	2L/min
COMMENTS:	Water in hole. Pump shut off on its own, too much vacuum.		

SAMPLE LOCATION:	SG1–0		
BLOWS PER 6 INCHES:	1–2–2–3–12–10–9–14	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	N

reprint – change pg. break.

SOIL GAS SAMPLE LOCATION DATA

DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1405
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1403	SYRINGE #:	4
TIME STOP EVACUATION PUMP:	1405	EVACUATION RATE:	2L/min

COMMENTS: Water in the hole.

SAMPLE LOCATION:	SG0-1		
BLOWS PER 6 INCHES:	1-2-2-9-16-22-20-15	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1445.5
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	1L Air
TIME START EVACUATION PUMP:	1445	SYRINGE #:	9
TIME STOP EVACUATION PUMP:	NA	EVACUATION RATE:	2L/min

COMMENTS: Water in hole. Pump shut off due to high vacuum. No water to 3.5' in pipe Probable water below 3.5'.

SAMPLE LOCATION:	SG0-2		
BLOWS PER 6 INCHES:	1-2-1-2-1-3-27-35/3"	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	3.2'	TIME OF SOIL GAS SAMPLE:	NA
DEPTH TO BOTTOM OF ROD:	2.0'	VOLUME OF GAS REMOVED:	NA
TIME START EVACUATION PUMP:	1130	SYRINGE #:	NA
TIME STOP EVACUATION PUMP:	1132	EVACUATION RATE:	2L/min

COMMENTS: Water in hole. Water up into pipe so no sample taken.
NO SAMPLE.

SAMPLE LOCATION:	SG0-3		
BLOWS PER 6 INCHES:	1-2-2-1-3-4-4-15/1"	OVM MAXIMUM:	NA
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	NA
DEPTH TO BOTTOM OF ROD:	2'	VOLUME OF GAS REMOVED:	NA
TIME START EVACUATION PUMP:	NA	SYRINGE #:	NA
TIME STOP EVACUATION PUMP:	NA	EVACUATION RATE:	NA

COMMENTS: Water in hole and water in rod.
NO SAMPLE.

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG0-4		
BLOWS PER 6 INCHES:	1-2-4-6-18-19-23-28	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1517
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1515	SYRINGE #:	C
TIME STOP EVACUATION PUMP:	1517	EVACUATION RATE:	Flow 2L/min
COMMENTS:			

SAMPLE LOCATION:	SG1-4		
BLOWS PER 6 INCHES:	1-2-4-10-100/0"	OVM MAXIMUM:	NA
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	NA	TIME OF SOIL GAS SAMPLE:	NA
DEPTH TO BOTTOM OF ROD:	NA	VOLUME OF GAS REMOVED:	NA
TIME START EVACUATION PUMP:	NA	SYRINGE #:	NA
TIME STOP EVACUATION PUMP:	NA	EVACUATION RATE:	NA
COMMENTS:	NO SAMPLE. Refusal in three places at 2', therefore abandoned the spot and move onto the last point.		

SAMPLE LOCATION:	SG1-5		
BLOWS PER 6 INCHES:	1-2-3-2-6-8-13-15	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1542
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1540	SYRINGE #:	
TIME STOP EVACUATION PUMP:	1542	EVACUATION RATE:	2L/min
COMMENTS:	END OF DAY.		

SAMPLE LOCATION:			
BLOWS PER 6 INCHES:		OVM MAXIMUM:	
		TIME OF OVM MAXIMUM:	
DEPTH OF PENETROMETER POINT:		TIME OF SOIL GAS SAMPLE:	
DEPTH TO BOTTOM OF ROD:		VOLUME OF GAS REMOVED:	
TIME START EVACUATION PUMP:		SYRINGE #:	
TIME STOP EVACUATION PUMP:		EVACUATION RATE:	
COMMENTS:			

SOIL GAS SAMPLE LOCATION DATA

ENGINEERING-SCIENCE	CLIENT: ACOE	DATE: 12/8/93
PROJECT: 10 SWMU ESI LOCATION: SEAD-11 Seneca Army Depot Romulus, NY		INSPECTOR: PFM CONTRACTOR: Empire Soils Investigations TYPE OF RIG: Truck Mount CME 45

WEATHER/FIELD CONDITIONS (record major changes)				MONITORING	
TIME	TEMP	PRECIP.	GROUND SURFACE CONDITIONS	INSTRUMENT	DETECTOR
1100	30	None	damp	OVM	PID

SAMPLE LOCATION: Rod Blank

BLOWS PER 6 INCHES:	NA	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	NA	TIME OF SOIL GAS SAMPLE:	0735
DEPTH TO BOTTOM OF ROD:	NA	VOLUME OF GAS REMOVED:	
TIME START EVACUATION PUMP:	0725	SYRINGE #:	7
TIME STOP EVACUATION PUMP:	0735	EVACUATION RATE:	2L/min

COMMENTS: Rod blank taken at trailer.

SAMPLE LOCATION: SG5-5

BLOWS PER 6 INCHES:	3-7-7-5-3-4-2	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	0912
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	0910	SYRINGE #:	6
TIME STOP EVACUATION PUMP:	0912	EVACUATION RATE:	2L/min

COMMENTS: The point is really SG5-480. We moved line 20' to the south – south of drainage ditch that runs along the road.

SAMPLE LOCATION: SG5-4

BLOWS PER 6 INCHES:	1-3-4-4-6-11-8-14	OVM MAXIMUM:	0 ppm (cycle 0.4)
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1132
DEPTH TO BOTTOM OF ROD:	3.0'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1130	SYRINGE #:	3
TIME STOP EVACUATION PUMP:	1132	EVACUATION RATE:	2L/min

COMMENTS:

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG5-3		
BLOWS PER 6 INCHES:	1-2-2-2-3-2-17-18	OVM MAXIMUM:	5 ppm
		TIME OF OVM MAXIMUM:	1142 - 1143
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1143
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	7L Air
TIME START EVACUATION PUMP:	1140	SYRINGE #:	2
TIME STOP EVACUATION PUMP:	1143.5	EVACUATION RATE:	2L/min

COMMENTS:

SAMPLE LOCATION:	SG5-2		
BLOWS PER 6 INCHES:	1-1-1-3-3-6-8-6	OVM MAXIMUM:	0.9 ppm
		TIME OF OVM MAXIMUM:	1151
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	NA
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	2L Air
TIME START EVACUATION PUMP:	1150	SYRINGE #:	4
TIME STOP EVACUATION PUMP:	1151	EVACUATION RATE:	2L/min

COMMENTS: Water in hole. Pumped water into tubing. No Sample.

SAMPLE LOCATION:	SG5-1		
BLOWS PER 6 INCHES:	1-1-1-2-3-7-5-4	OVM MAXIMUM:	NA
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	NA	TIME OF SOIL GAS SAMPLE:	NA
DEPTH TO BOTTOM OF ROD:	NA	VOLUME OF GAS REMOVED:	NA
TIME START EVACUATION PUMP:	NA	SYRINGE #:	NA
TIME STOP EVACUATION PUMP:	NA	EVACUATION RATE:	NA

COMMENTS: Water in hole. No Sample.

SAMPLE LOCATION:	SG5-0		
BLOWS PER 6 INCHES:	1-2-2-2-3-3-3-3	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1206
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	2L Air
TIME START EVACUATION PUMP:	1205	SYRINGE #:	1
TIME STOP EVACUATION PUMP:	1206	EVACUATION RATE:	2L/min

COMMENTS: Water in hole. Vacuum created while pumping, pump shut off 3 times. No flow.

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG4–2		
BLOWS PER 6 INCHES:	2–3–5–9–9–4–3–11	OVM MAXIMUM:	0.9 ppm
		TIME OF OVM MAXIMUM:	1330
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1330
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	1330	SYRINGE #:	5
TIME STOP EVACUATION PUMP:	1333	EVACUATION RATE:	2L/min

COMMENTS:

SAMPLE LOCATION:	SG4–3		
BLOWS PER 6 INCHES:	1–3–3–3–2–2–3–3	OVM MAXIMUM:	0.4 ppm
		TIME OF OVM MAXIMUM:	1346
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1346
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	5L Air
TIME START EVACUATION PUMP:	1344	SYRINGE #:	7
TIME STOP EVACUATION PUMP:	1347	EVACUATION RATE:	2L/min

COMMENTS:

SAMPLE LOCATION:	SG4–4		
BLOWS PER 6 INCHES:	2–3–2–1–2–3–2–2	OVM MAXIMUM:	3.2 ppm
		TIME OF OVM MAXIMUM:	1356
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1356
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	1355	SYRINGE #:	1
TIME STOP EVACUATION PUMP:	1358	EVACUATION RATE:	2L/min

COMMENTS:

SAMPLE LOCATION:	SG4–5		
BLOWS PER 6 INCHES:	2–3–3–3–9–4–4–3	OVM MAXIMUM:	1.3 ppm
		TIME OF OVM MAXIMUM:	1410 – 1411
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1412
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	1410	SYRINGE #:	8
TIME STOP EVACUATION PUMP:	1413	EVACUATION RATE:	2L/min

COMMENTS: Possible plugged syringe. Missed VOC peak a little. Had to evacuate syringe in field one time to clear Teflon plug.

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG3-5		
BLOWS PER 6 INCHES:	2-3-4-3-2-1-2-4	OVM MAXIMUM:	1.3 ppm
		TIME OF OVM MAXIMUM:	1425.25
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1425.50
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	6L Air
TIME START EVACUATION PUMP:	1425	SYRINGE #:	C
TIME STOP EVACUATION PUMP:	1428	EVACUATION RATE:	2L/min
COMMENTS:			

SAMPLE LOCATION:	SG3-4		
BLOWS PER 6 INCHES:	2-4-5-5-2-1-1-2	OVM MAXIMUM:	1.3 ppm
		TIME OF OVM MAXIMUM:	1519
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1519
DEPTH TO BOTTOM OF ROD:	2'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1518	SYRINGE #:	7
TIME STOP EVACUATION PUMP:	1520	EVACUATION RATE:	2L/min
COMMENTS:	Water in hole, but did not get sucked into pump.		

SAMPLE LOCATION:	SG3-3		
BLOWS PER 6 INCHES:	2-5-4-4-2-3-2-3	OVM MAXIMUM:	3.2 ppm
		TIME OF OVM MAXIMUM:	1539
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1539
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1538	SYRINGE #:	2 (#6)
TIME STOP EVACUATION PUMP:	1540	EVACUATION RATE:	2L/min
COMMENTS:	Duplicate taken with syringe #6.		

SAMPLE LOCATION:	SG3-2		
BLOWS PER 6 INCHES:	3-6-10-18-20-19-5-2	OVM MAXIMUM:	0.9 ppm
		TIME OF OVM MAXIMUM:	1551
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	1551
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1550	SYRINGE #:	5
TIME STOP EVACUATION PUMP:	1552	EVACUATION RATE:	2L/min
COMMENTS:			

SOIL GAS SAMPLE LOCATION DATA

SAMPLE LOCATION:	SG3-1		
BLOWS PER 6 INCHES:	2-4-1-1-1-1-1-2-3	OVM MAXIMUM:	0 ppm
		TIME OF OVM MAXIMUM:	NA
DEPTH OF PENETROMETER POINT:	4'	TIME OF SOIL GAS SAMPLE:	2 min
DEPTH TO BOTTOM OF ROD:	2.5'	VOLUME OF GAS REMOVED:	4L Air
TIME START EVACUATION PUMP:	1600	SYRINGE #:	4
TIME STOP EVACUATION PUMP:	1602	EVACUATION RATE:	2L/min

COMMENTS: END OF DAY.

SAMPLE LOCATION:			
BLOWS PER 6 INCHES:		OVM MAXIMUM:	
		TIME OF OVM MAXIMUM:	
DEPTH OF PENETROMETER POINT:		TIME OF SOIL GAS SAMPLE:	
DEPTH TO BOTTOM OF ROD:		VOLUME OF GAS REMOVED:	
TIME START EVACUATION PUMP:			
TIME STOP EVACUATION PUMP:			

COMMENTS:

SAMPLE LOCATION:			
BLOWS PER 6 INCHES:		OVM MAXIMUM:	
		TIME OF OVM MAXIMUM:	
DEPTH OF PENETROMETER POINT:		TIME OF SOIL GAS SAMPLE:	
DEPTH TO BOTTOM OF ROD:		VOLUME OF GAS REMOVED:	
TIME START EVACUATION PUMP:			
TIME STOP EVACUATION PUMP:			

COMMENTS:

SAMPLE LOCATION:			
BLOWS PER 6 INCHES:		OVM MAXIMUM:	
		TIME OF OVM MAXIMUM:	
DEPTH OF PENETROMETER POINT:		TIME OF SOIL GAS SAMPLE:	
DEPTH TO BOTTOM OF ROD:		VOLUME OF GAS REMOVED:	
TIME START EVACUATION PUMP:			
TIME STOP EVACUATION PUMP:			

COMMENTS:

Soil Gas Data

Scott Specialty Gases, Inc.

PRODUCTION

INVOICE DATE	INVOICE NO.
11/24/93	

ADDRESS INQUIRES TO:

SCOTT SPECIALTY GASES
2600 CAJON BLVD.

SAN BERNARDINO CA 92411
909-887-2571

PAGE	PROJECT NO.
1	0228852

01 00198 INACTIVE ACCOUNTS

SOLD TO:
ENGINEERING SCIENCE
101 HUNTINGTON AVE
BOSTON MA 02199

SHIP TO:
ENGINEERING SCIENCE
SENECA ARMY DEPOT
BLDG 323
ROMULUS NY 14541

WE ARE NOW ACCEPTING VISA/MASTER CARD PAYMENTS.
CONTACT OUR CUSTOMER SERVICE DEPARTMENT FOR DETAILS.

CUSTOMER CODE	CUSTOMER'S P.O./RELEASE NO.	AUTHORITY	F.O.B.
400089-18400092	720478-013	617-859-2583 GEORGE PATERSON	SAN BERNARDINO DD

DATE SHIPPED	SHIPPED VIA		TERMS
12/01/93	FED X 2 DAY	PREPAID & ADD	10 DAYS NET

PRODUCT CODE	CYL SIZE	QTY ORD'D	DESCRIPTION	QTY. B O	QTY. SHIP'D.	UNIT PRICE	EXTENSION
0204B700031	4	1	6 COMPONENT MIX IN NITROGEN		1		
			50. PPM BENZENE				
DS			50. PPM ETHYLBENZENE				
* SEE COMMENTS			50. PPM TOLUENE				
			50. PPM M-XYLENE				
			50. PPM O-XYLENE				
			50. PPM P-XYLENE				
			BAL NITROGEN				
			MIXTURE PHASE: GAS	MEASUREMENT:		MOLES	
			BL: +/-5%			ANLT: +-2%	
			PRICE DUE TO LOW PRESSURE				
			SCOTTY IV				

FOR SALES TERMS, CYLINDER TERMS AND RETURN OF GOODS REFER TO BACK OF INVOICE.

SUBTOTAL	
TAX	
FREIGHT	
DEPOSIT	
PAY THIS AMOUNT	

REMIT TO:
SCOTT SPECIALTY GASES
P.O. Box 8500-50910
Philadelphia, PA 19178

WE HEREBY CERTIFY THAT THESE GOODS WERE PROVIDED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF SECTIONS 6, 7 AND 12 OF THE FAIR LABOR STANDARDS ACT, AS AMENDED, AND OF REGULATIONS AND ORDERS OF THE UNITED STATES DEPARTMENT OF LABOR ISSUED UNDER SECTION 14, THERE OF.

SERVICE CHARGE: 1% PER MONTH ON ALL AMO NOT PAID WITHIN 30 DAYS OF DATE OF INVOICE

ANBOE16 18400089 11/24/93

PRODUCTION [redacted]

PARSONS MAIN, INC.

CLIENT USACE
SUBJECT 3 SWMU ESI
SEAD 11 Soil Gas

JOB NO.
BY DMK
CKD.

SHEET 1 OF 6
DATE 12/7/93
REVISION

PARSONS

PHOTOVAC

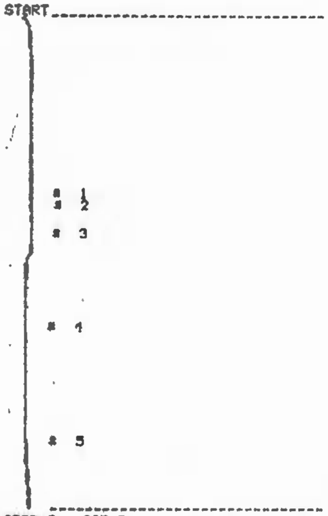
DEC 7 93 8:0

FIELD: 30
POWER: 38

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	10.0	200.0
EVENT 4	0.0	0.0
EVENT 5	10.0	200.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

PHOTOVAC

START

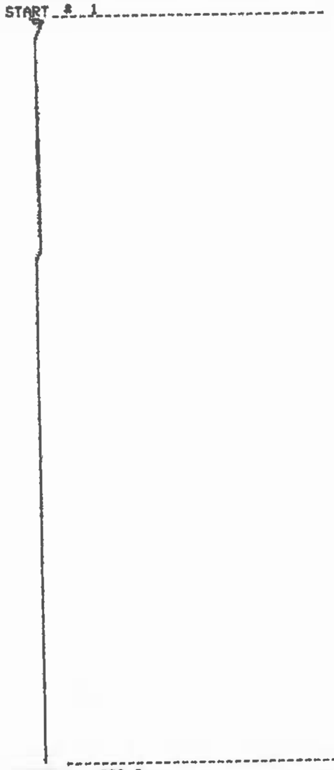


STOP @ 395.3
SAMPLE LIBRARY 1 DEC 7 93 8:8
ANALYSIS # 3 INST BLANK
INTERNAL TEMP 26 0 ML
GAIN 2

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC

START # 1

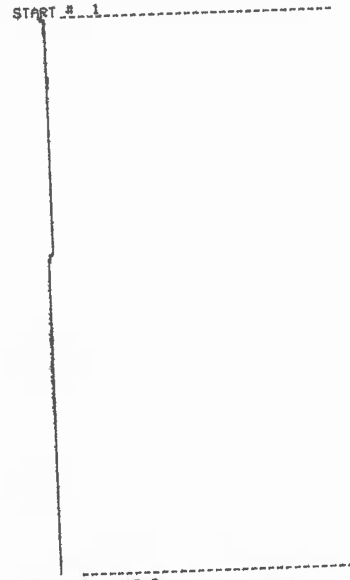


STOP @ 600.0
SAMPLE LIBRARY 1 DEC 7 93 8:21
ANALYSIS # 5 SYR BLK
INTERNAL TEMP 27 10 ML
GAIN 2 ZERO AIR

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC

START # 1



STOP @ 449.9
SAMPLE LIBRARY 1 DEC 7 93 8:31
ANALYSIS # 6 SYR BLK SYR A
INTERNAL TEMP 28 1.0 ML
GAIN 2 ZERO AIR

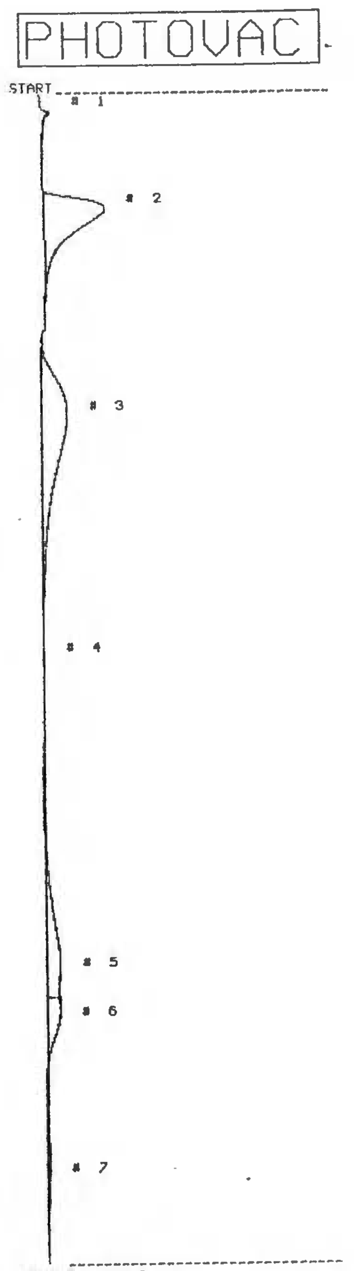
COMPOUND NAME PEAK R.T. AREA/PPM

PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE | JOB NO.: | SHEET 2 OF 6

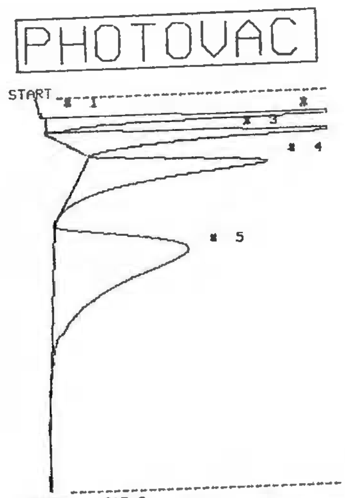
SUBJECT: 3 SWMU ESI | BY: DMK | DATE 12/7/93

SEAD 11 Soil Gas - Std. Check | CKD.: | REVISION:



STOP @ 940.9
SAMPLE LIBRARY 1 DEC 7 93 9: 8
ANALYSIS # 9 BTEX STD SYR A
INTERNAL TEMP 27 0.5 ML
GAIN 2

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	94.3	5.9	VS
UNKNOWN	3	261.8	7.1	VS
UNKNOWN	5	708.9	3.2	VS
UNKNOWN	6	748.4	1.6	VS
UNKNOWN	7	873.0	316.0	mVS



STOP @ 317.2
SAMPLE LIBRARY 1 DEC 7 93 9:12
ANALYSIS # 10 CL STD SYR A
INTERNAL TEMP 30 0.2 ML
GAIN 2

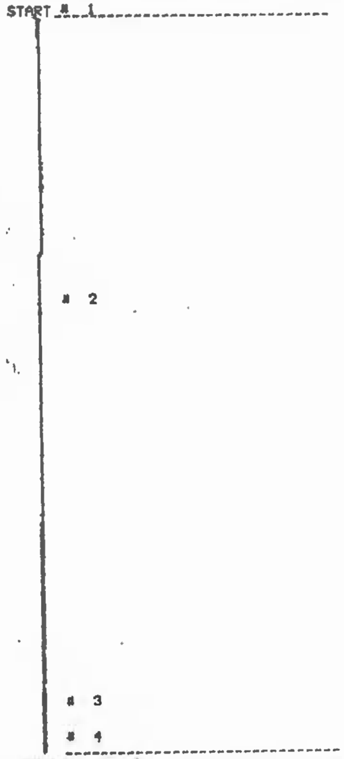
COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	18.5	6.5	VS
UNKNOWN	3	32.0	8.1	VS
UNKNOWN	4	56.8	9.9	VS
UNKNOWN	5	127.1	18.9	VS

PARSONS MAIN, INC. **PARSONS**

CLIENT: US ACE
SUBJECT: SEDA 3 Swmu ESI
SEAD 11 Soil Gas - Clear Syringes

JOB NO.
BY: DMK
CKD.
SHEET 3 OF 6
DATE 12/7/93
REVISION

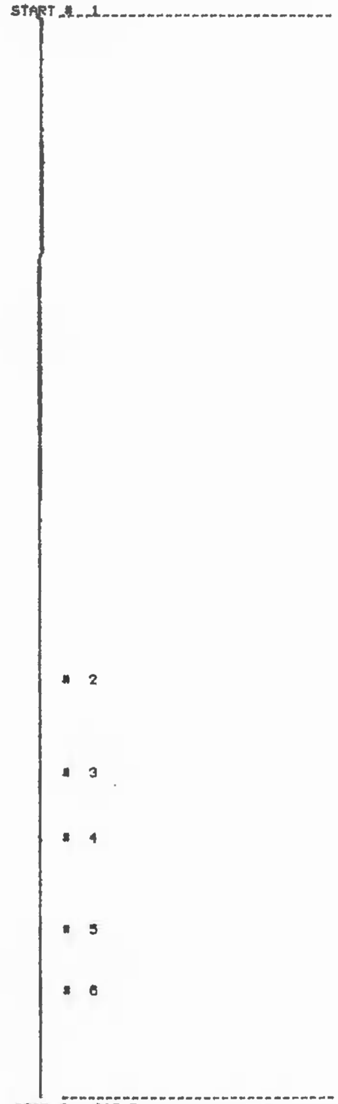
PHOTOVAC



STOP @ 591.5
SAMPLE LIBRARY 1 DEC 7 93 9:25
ANALYSIS # 11 ~~CL-STD-SYR-A~~ SYR BLK
INTERNAL TEMP 29 ~~0.2 ML~~ 1.0 ML SYR 1
GAIN 2 ZERO AIR

COMPOUND NAME PEAK R.T. AREA/PPM

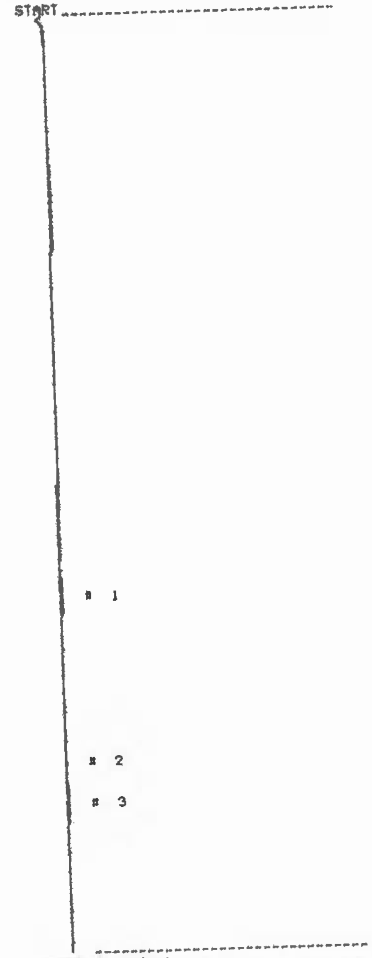
PHOTOVAC



STOP @ 667.5
SAMPLE LIBRARY 1 DEC 7 93 9:41
ANALYSIS # 12 SYR BLK SYR 2
INTERNAL TEMP 29 1.0 ML
GAIN 2 ZERO AIR

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 754.1
SAMPLE LIBRARY 1 DEC 7 93 9:55
ANALYSIS # 13 SYR BLK SYR 4
INTERNAL TEMP 29 1.0 ML
GAIN 2 ZERO AIR

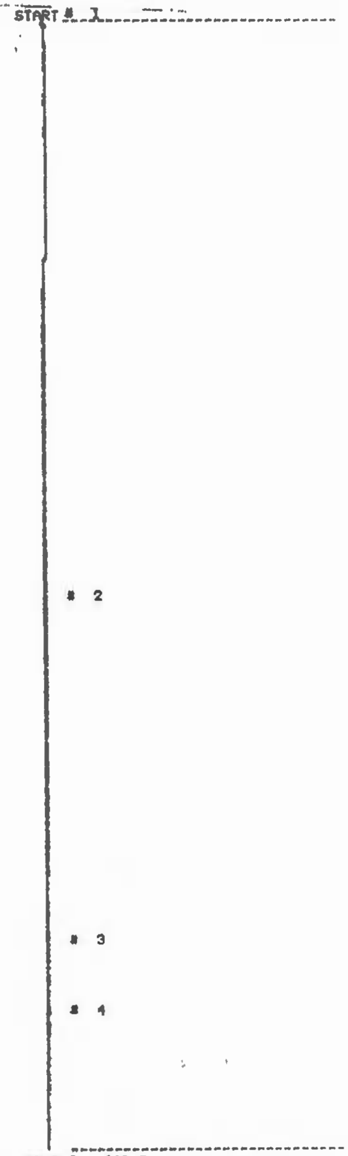
COMPOUND NAME PEAK R.T. AREA/PPM

PARSONS MAIN, INC. PARSONS

CLIENT: USACE
SUBJECT: SEDA 3 SWMU ESI
SEAD 11 Soil Gas - Clear Syringes

JOB NO. ______
BY: DMK
CKD. ______
SHEET 4 OF 6
DATE 12/7/93
REVISION ______

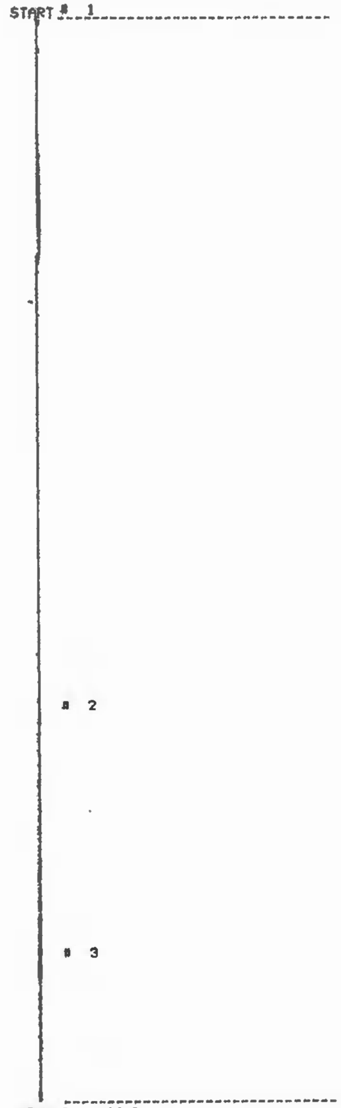
PHOTOVAC



STOP @ 900.0
SAMPLE LIBRARY 1 DEC 7 93 10:11
ANALYSIS # 14 SYR BLK SYR 3
INTERNAL TEMP 29 1.0 ML
GAIN 2 ZERO AIR

COMPOUND NAME PEAK R.T. AREA/PPM

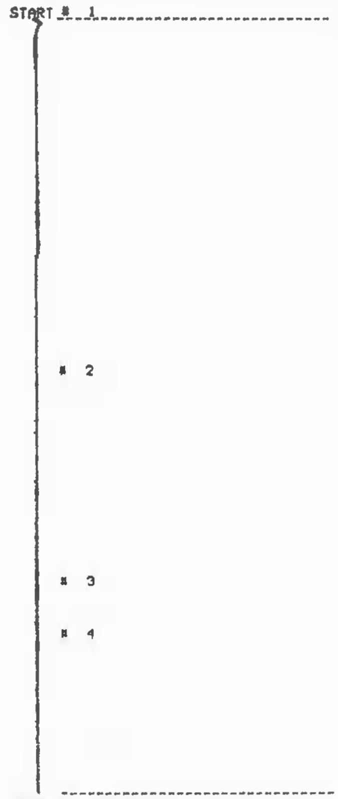
PHOTOVAC



STOP @ 867.2
SAMPLE LIBRARY 1 DEC 7 93 10:27
ANALYSIS # 15 SYR BLK SYR 5
INTERNAL TEMP 29 1.0 ML
GAIN 2 ZERO AIR

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 621.0
SAMPLE LIBRARY 1 DEC 7 93 10:38
ANALYSIS # 16 SYR BLK SYR 6
INTERNAL TEMP 30 5.0 ML
GAIN 2 ZERO AIR

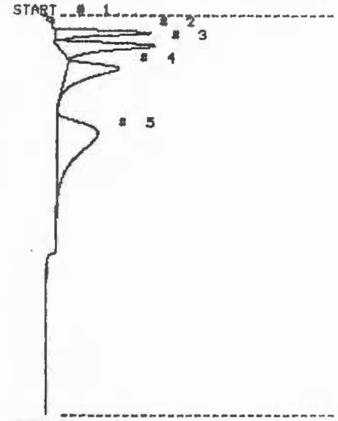
COMPOUND NAME PEAK R.T. AREA/PPM

PARSONS MAIN, INC. PARSONS

CLIENT: USACE
SUBJECT: SEDA 3 Summa ESI
SEAD 11 Soil Gas - Calibrations

JOB NO. ____ SHEET 5 OF 6
BY DMK DATE 12/7/93
CKD. ____ REVISION ____

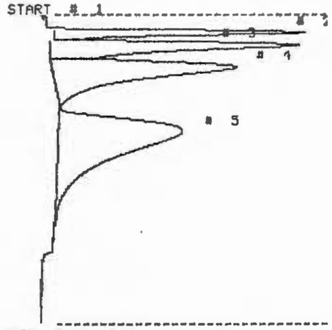
PHOTOVAC



STOP @ 318.4
SAMPLE LIBRARY 1 DEC 7 93 11:23
ANALYSIS # 23 CL STD 1.0 PPM
INTERNAL TEMP 35 1.0 ML
GAIN 5 SYR A

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	15.6	1.3	VS
UNKNOWN	3	25.8	2.0	VS
UNKNOWN	4	44.0	2.0	VS
UNKNOWN	5	98.5	3.8	VS

PHOTOVAC



STOP @ 247.6
SAMPLE LIBRARY 1 DEC 7 93 11:28
ANALYSIS # 24 CL STD 5 PPM
INTERNAL TEMP 36 1.0 ML
GAIN 5 SYR A

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	15.4	3.9	VS
UNKNOWN	3	25.5	6.9	VS
UNKNOWN	4	43.3	9.5	VS
UNKNOWN	5	95.7	12.7	VS

PARSONS MAIN, INC.

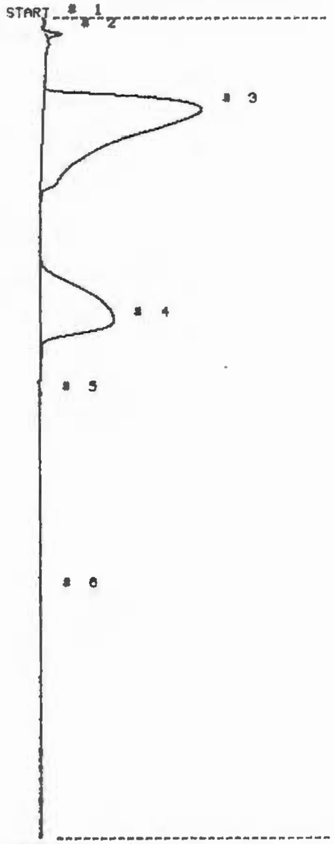
PARSONS

CLIENT USACE
SUBJECT SEDA 3 Summa ESI
SEAD 11 Soil Gas / Calibration / Clear Syring

JOB NO. ____
BY DMK
CKD. ____

SHEET 6 OF 6
DATE 12/7/93
REVISION ____

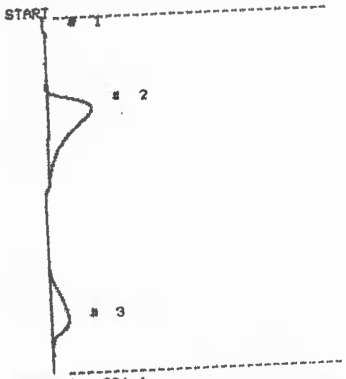
PHOTOVAC



STOP @ 658.5
SAMPLE LIBRARY 1 DEC 7 93 15:50
ANALYSIS # 34 BTEX STD 50 PPM
INTERNAL TEMP 31 0.5 ML
GAIN 5 SYR A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	14.0	159.3 mUS
UNKNOWN	3	74.9	19.5 US
UNKNOWN	4	246.3	8.9 US

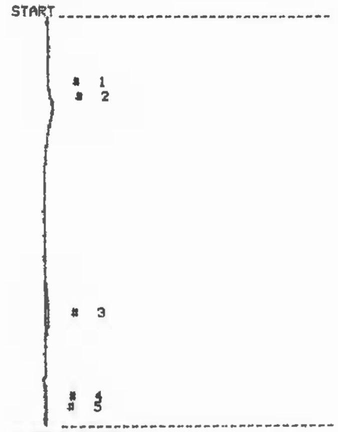
PHOTOVAC



STOP @ 284.4
SAMPLE LIBRARY 1 DEC 7 93 15:58
ANALYSIS # 35 BTEX STD 50 PPM
INTERNAL TEMP 35 0.1 ML
GAIN 5 SYR A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	75.7	4.1 US
UNKNOWN	3	247.8	1.8 US

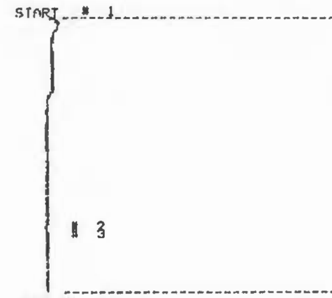
PHOTOVAC



STOP @ 329.1
SAMPLE LIBRARY 1 DEC 7 93 16: 5
ANALYSIS # 36 BTEX STD 50 PPM
INTERNAL TEMP 35 0.02 ML
GAIN 5 SYR A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	247.8	300.4 mUS

PHOTOVAC



STOP @ 221.2
SAMPLE LIBRARY 1 DEC 7 93 16:18
ANALYSIS # 38 SYR BLK SYR 7
INTERNAL TEMP 35 5.0 ML
GAIN 5 ZERO AIR

COMPOUND NAME	PEAK	R.T.	AREA/PPM

PARSONS MAIN, INC. PARSONS

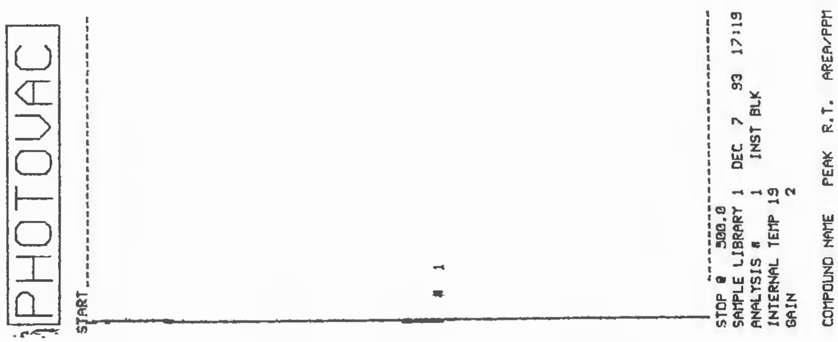
CLIENT USACE | JOB NO. | SHEET 1 OF 13

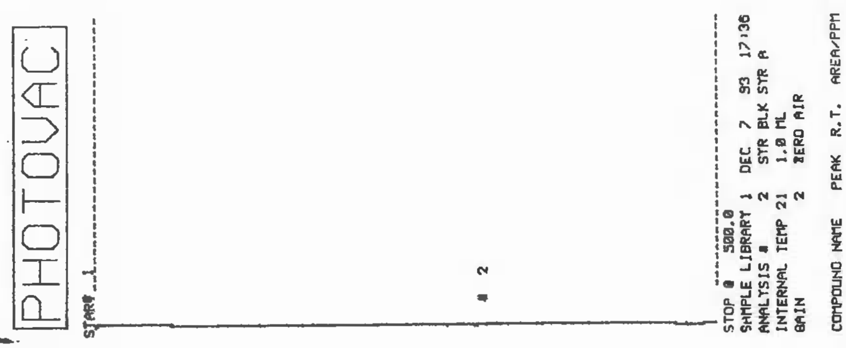
SUBJECT SEAD 11 Soil Gas Preliminary Runs | BY DMK | DATE 12/8/93

CKD. | REVISION

GC Info

Photo Vac 10S50 with CPSIL 30 column
Flow = 12 mL/min
Temp ≈ 20°C
Chart speed = 1 cm/sec
Gain = 10
Sensitivity up = 5 down = 10
Tank Pressure = 800 psi





PHOTOVAC

PHOTOVAC

DEC 7 93 17: 8
FIELD: 30
POWER: 37

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	10.0	70.0
EVENT 4	0.0	0.0
EVENT 5	10.0	70.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

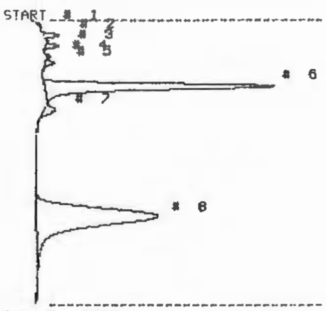
PARSONS MAIN, INC. PARSONS

CLIENT USACE JOB NO. ______ SHEET 2 OF 13

SUBJECT SEAD 11 Soil Gas BY DMK DATE 12/8/93

BTEX Calibration CKD. ______ REVISION ______

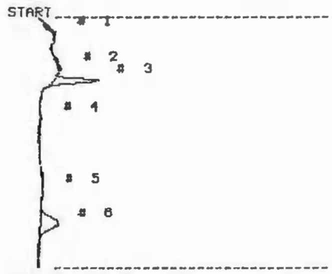
PHOTOVAC



STOP @ 228.8
SAMPLE LIBRARY 1 DEC 7 93 20:26
ANALYSIS # 5 BTEX STD SYR A
INTERNAL TEMP 31 1.0 ML
GAIN 10 5 PPM STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.2	150.3 mVS
UNKNOWN	3	21.8	105.8 mVS
UNKNOWN	6	53.9	4.3 VS
UNKNOWN	7	73.7	213.3 mVS
UNKNOWN	8	159.8	6.4 VS

PHOTOVAC



STOP @ 201.3
SAMPLE LIBRARY 1 DEC 7 93 20:37
ANALYSIS # 7 BTEX STD
INTERNAL TEMP 32 0.1 ML
GAIN 10 5 PPM STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	51.9	608.7 mVS
UNKNOWN	6	167.3	686.1 mVS

Analyte	Concentration	RF	Concentration	RF	ΔRF		RF$_{avg}$
Benzene	4.9	1.14	0.49	0.71	46%	✓	0.93
Toluene	4.8	0.75	0.48	0.70	7%	✓	0.73

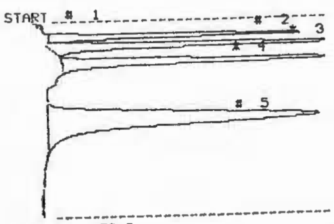
PARSONS MAIN, INC. PARSONS

CLIENT: USACE JOB NO.: SHEET 3 OF 13

SUBJECT: SEAD 11 Soil Gas BY: DMK DATE: 12/8/93

Chlorinated Calibration CKD.: REVISION:

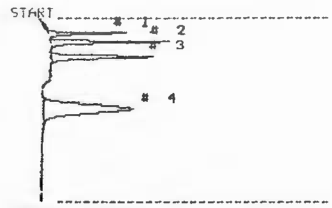
PHOTOVAC



STOP @ 156.6
SAMPLE LIBRARY 1 DEC 7 93 20:42
ANALYSIS # 8 CL STD
INTERNAL TEMP 32 1.0 ML
GAIN 10 5 PPM STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.5	2.8 VS
UNKNOWN	3	20.6	4.1 VS
UNKNOWN	4	33.1	4.2 VS
UNKNOWN	5	79.5	10.2 VS

PHOTOVAC



STOP @ 147.5
SAMPLE LIBRARY 1 DEC 7 93 21: 0
ANALYSIS # 12 CL STD
INTERNAL TEMP 33 1.0 ML
GAIN 10 5 PPM STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.0	449.1 mVS
UNKNOWN	2	20.3	781.9 mVS
UNKNOWN	3	32.3	900.8 mVS
UNKNOWN	4	74.9	2.2 VS

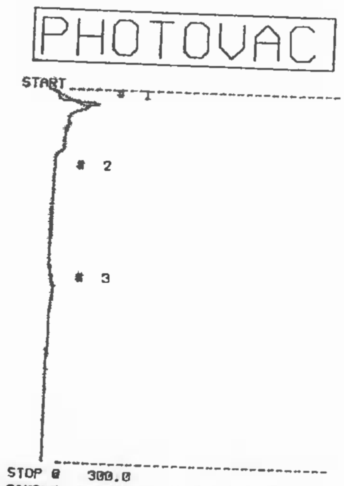
Analyte	Concentration	RF	Concentration	RF	ΔRF	RF avg
Vinyl Chloride	4.88	1.74	0.98	2.18	22% ✓	1.96
1,1 DCE	4.91	1.20	0.98	1.26	5% ✓	1.23
1,2 DCE	4.53	1.08	0.91	1.00	8%	1.04
TCE	4.58	0.45	0.92	0.42	7%	0.43

PARSONS MAIN, INC. PARSONS

CLIENT: USACE | JOB NO. | SHEET 4 OF 13

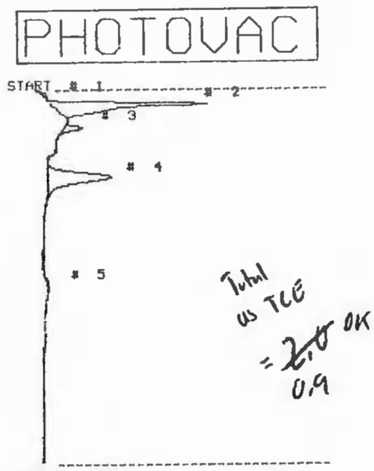
SUBJECT: SEAD 11 Soil Gas ~~Chlorinated Calibration~~ DK Samples | BY: DMK | DATE: 12/8/93

CKD. | REVISION



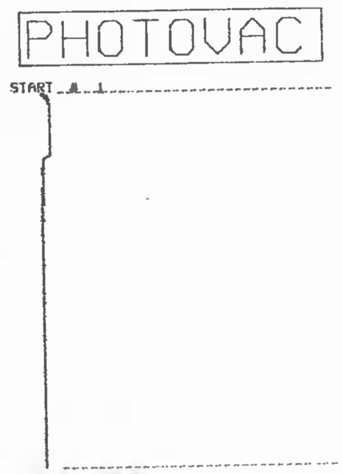
STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 21: 9
ANALYSIS # 13 ROD BLANK
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME PEAK R.T. AREA/PPM



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 21:15
ANALYSIS # 14 SG ~~1.0~~ 5,5 DK
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.8	2.5 US
UNKNOWN	3	31.3	198.0 mUS
UNKNOWN	4	71.7	1.9 US



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 21:22
ANALYSIS # 15 SYR BLK
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME PEAK R.T. AREA/PPM

RT windows

Vinyl Chloride	12.8-13.0	Benzene	53.4-42.6
1,1 DCE	19.0-20.6	TCE	59.1-79.5
1,2DCE	29.1-33.1	Toluene	154.3-162.2

Sample 5,5

Peak #	RT	ID	Area (US)	Conc (ppmv)
2	12.8	Vinyl Chloride	2.5	~~4.9~~ No DMK
3	31.3	1,2 DCE	0.20	0.2
4	71.7	TCE	1.9	2.0

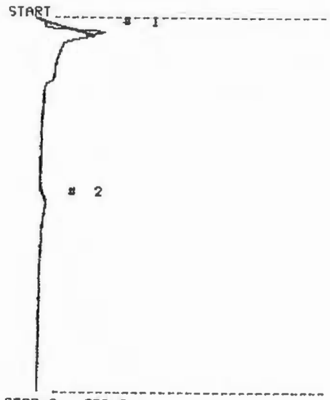
PARSONS MAIN, INC. PARSONS

CLIENT USACE JOB NO. ____ SHEET 5 OF 13

SUBJECT SEAD 11 Soil Gas BY DMK DATE 12/8/93

Amb. Air, Check Syringe CKD. ____ REVISION -

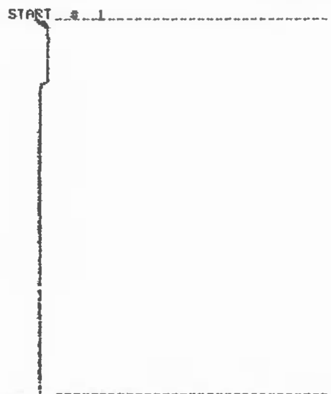
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 21:53
ANALYSIS # 16 AMB AIR
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME PEAK R.T. AREA/PPM

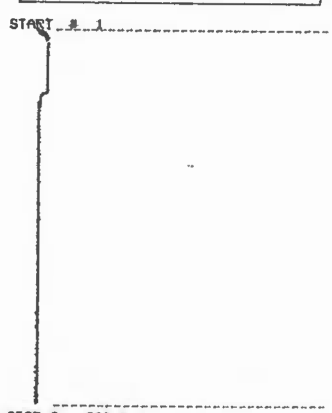
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22: 5
ANALYSIS # 18 ZERO AIR
INTERNAL TEMP 33 1.0 ML
GAIN 10 SYR C

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 21:59
ANALYSIS # 17 ZERO AIR
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME PEAK R.T. AREA/PPM

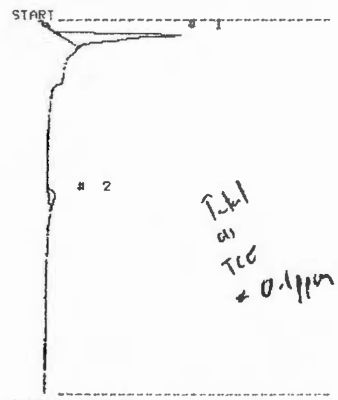
PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE JOB NO. ______ SHEET 6 OF 13

SUBJECT: SEAD 11 Soil Gas BY: DMK DATE: 12/8/93

Samples / Syringe Blanks CKD. ______ REVISION ______

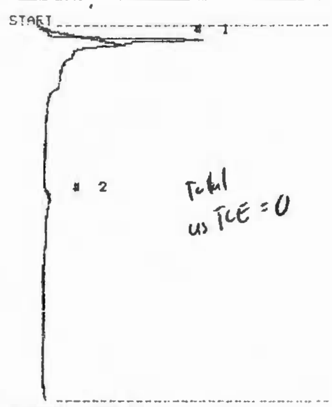
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:15
ANALYSIS # 19 SG 5,0
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.9	1.8 VS
UNKNOWN	2	143.9	196.7 mVS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:28
ANALYSIS # 21 SG 5,3
INTERNAL TEMP 33 1.0 ML
GAIN 10 SYR 2

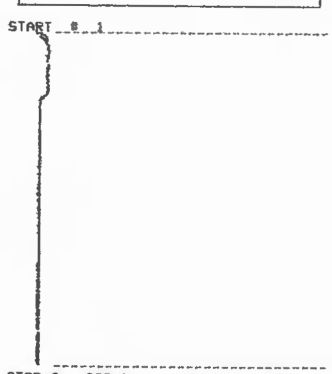
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.6	167.8 mVS

For FT windows see page 4

Sample SG 5,0

Toluene ≈ 0.15 ppm

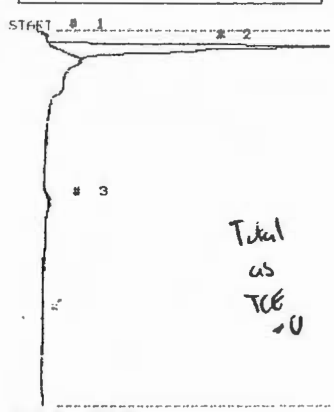
PHOTOVAC



STOP @ 266.9
SAMPLE LIBRARY 1 DEC 7 93 22:22
ANALYSIS # 20 ZERO AIR
INTERNAL TEMP 33 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:34
ANALYSIS # 22 SG 5,4
INTERNAL TEMP 34 1.0 ML
GAIN 10 SYR 3

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.3	4.5 VS

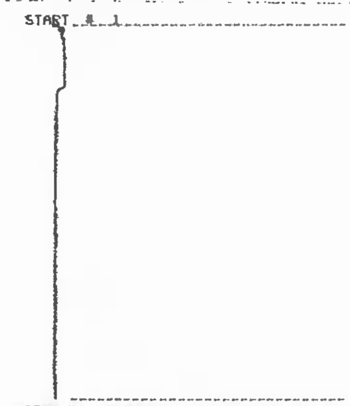
PARSONS MAIN, INC. PARSONS

CLIENT: USACE | JOB NO.: | SHEET 7 OF 13

SUBJECT: SEAD 11 Soil Gas | BY: DMK | DATE: 12/8/93

Samples/Syringe Blanks/Re Cal | CKD.: | REVISION:

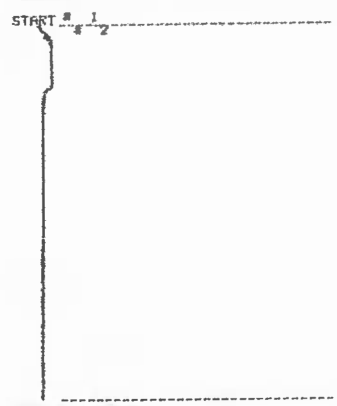
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:40
ANALYSIS # 23 ZERO AIR
INTERNAL TEMP 34 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME PEAK R.T. AREA/PPM

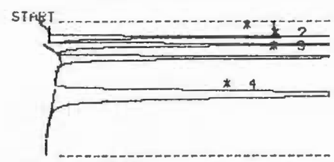
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:57
ANALYSIS # 26 ZERO AIR
INTERNAL TEMP 35 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME PEAK R.T. AREA/PPM

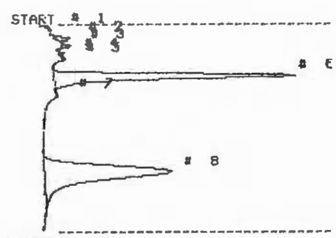
PHOTOVAC



STOP @ 107.9
SAMPLE LIBRARY 1 DEC 7 93 22:59
ANALYSIS # 27 CL STD
INTERNAL TEMP 36 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.8	2.0 VS
UNKNOWN	2	19.0	2.8 VS
UNKNOWN	3	29.1	3.2 VS
UNKNOWN	4	59.1	7.6 VS

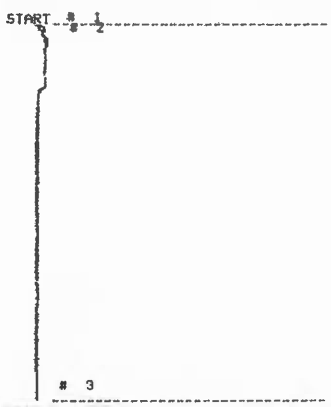
PHOTOVAC



STOP @ 166.0
SAMPLE LIBRARY 1 DEC 7 93 23: 3
ANALYSIS # 28 BTEX STD
INTERNAL TEMP 36 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.5	112.7 mVS
UNKNOWN	6	42.8	4.1 VS
UNKNOWN	8	120.2	5.3 VS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 7 93 22:46
ANALYSIS # 24 ZERO AIR
INTERNAL TEMP 34 1.0 ML
GAIN 10 SYR 3

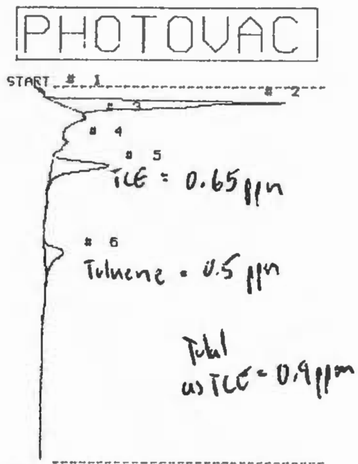
COMPOUND NAME PEAK R.T. AREA/PPM

PARSONS MAIN, INC. PARSONS

CLIENT: USACE JOB NO. ______ SHEET 8 OF 13

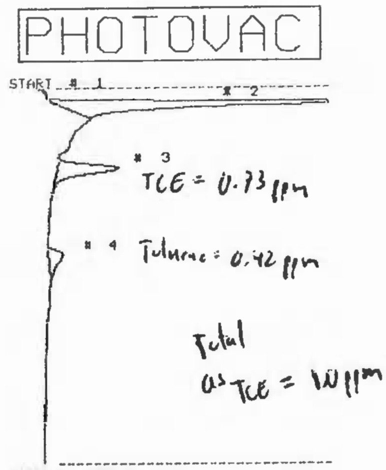
SUBJECT: SEAD 11 Soil Gas Samples / Syringe Blanks BY: DMK DATE: 12/8/93

CKD. ______ REVISION ______



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 0:20
ANALYSIS # 29 SG 4,2
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.2	3.9 VS
UNKNOWN	5	64.9	1.5 VS
UNKNOWN	6	134.9	703.2 mVS

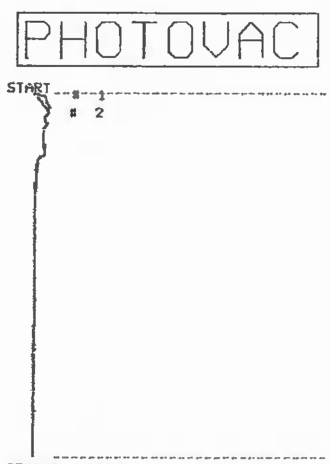


STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 0:31
ANALYSIS # 31 SG 4,3
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.9	5.6 VS
UNKNOWN	3	65.9	1.7 VS
UNKNOWN	4	135.8	567.3 mVS

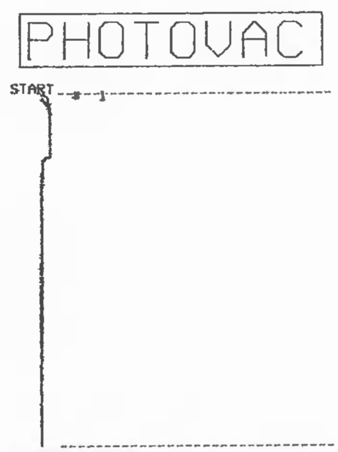
RT Windows

Vinyl Chloride	12.3 - 13.1
1,1 DCE	19.0 - 19.6
1,2 DCE	29.1 - 30.7
Benzene	42.8 - 48.2
TCE	59.1 - 68.5
Toluene	120.2 - 149



STOP @ 291.3
SAMPLE LIBRARY 1 DEC 8 93 0:26
ANALYSIS # 30 ~~SG 4,2~~ Zero Air
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	151.4 mVS



STOP @ 282.2
SAMPLE LIBRARY 1 DEC 8 93 0:37
ANALYSIS # 32 ZERO AIR
INTERNAL TEMP 31 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME	PEAK	R.T.	AREA/PPM

PARSONS MAIN, INC. **PARSONS**

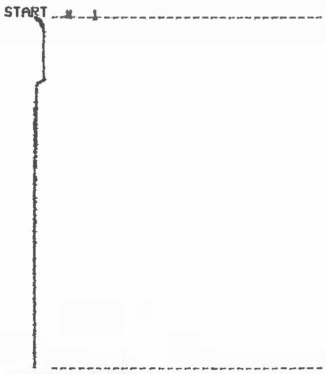
CLIENT: USACE | JOB NO.: | SHEET 9 OF 13

SUBJECT: SEAD 11 Soil Gas | BY: DMK | DATE: 12/8/93

Samples/syringe Blanks | CKD.: | REVISION:

RT windows see p. 8

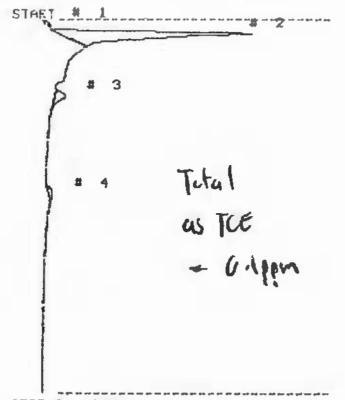
PHOTOVAC



STOP @ 281.6
SAMPLE LIBRARY 1 DEC 8 93 0:42
ANALYSIS # 33 ZERO AIR
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME PEAK R.T. AREA/PPM

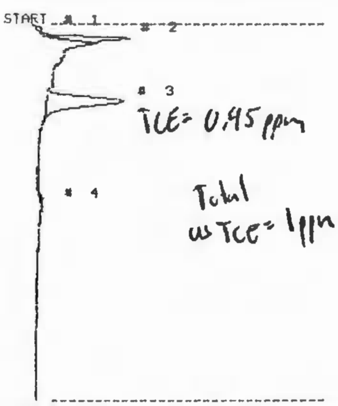
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 0:54
ANALYSIS # 35 SG 4,5
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.6	3.2 VS
UNKNOWN	3	63.9	235.4 mVS

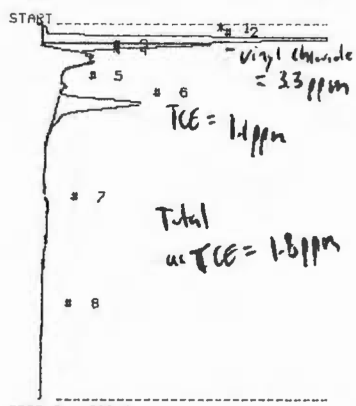
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 0:48
ANALYSIS # 34 SG 4,4
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.7	539.0 mVS
UNKNOWN	3	63.5	2.2 VS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 1: 0
ANALYSIS # 36 SG 3,5
INTERNAL TEMP 32 1.0 ML
GAIN 10 SYR C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	5.3 VS
UNKNOWN	2	16.9	1.7 VS
UNKNOWN	6	65.3	2.5 VS

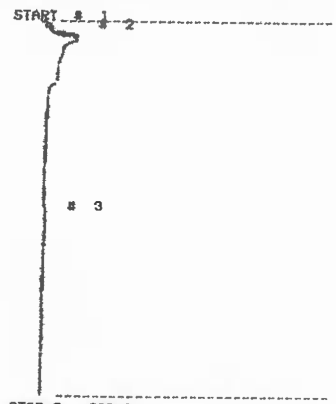
PARSONS MAIN, INC. **PARSONS**

CLIENT USACE JOB NO. ______ SHEET 10 OF 13

SUBJECT SEAD 11 Soil Gas BY DMK DATE 12/8/93

Syringe Blanks/ReCal CKD. ______ REVISION ______

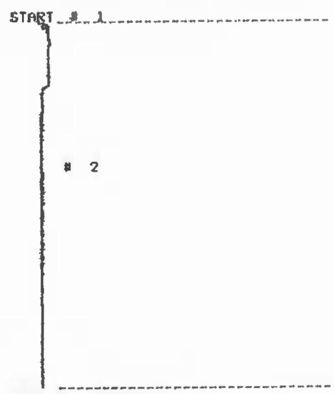
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 1: 6
ANALYSIS # 37 ZERO AIR
INTERNAL TEMP 31 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME PEAK R.T. AREA/PPM

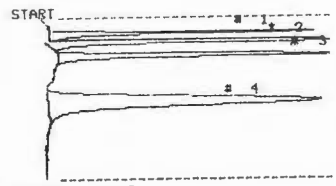
PHOTOVAC



STOP @ 293.3
SAMPLE LIBRARY 1 DEC 8 93 1:17
ANALYSIS # 39 ZERO AIR
INTERNAL TEMP 31 1.0 ML
GAIN 10 SYR C

COMPOUND NAME PEAK R.T. AREA/PPM

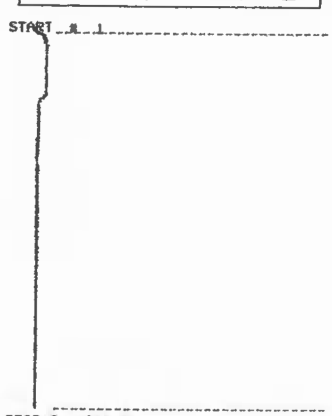
PHOTOVAC



STOP @ 123.2
SAMPLE LIBRARY 1 DEC 8 93 1:20
ANALYSIS # 40 CL STD
INTERNAL TEMP 32 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.1	2.0 VS
UNKNOWN	2	19.6	2.8 VS
UNKNOWN	3	30.7	3.0 VS
UNKNOWN	4	68.5	7.7 VS

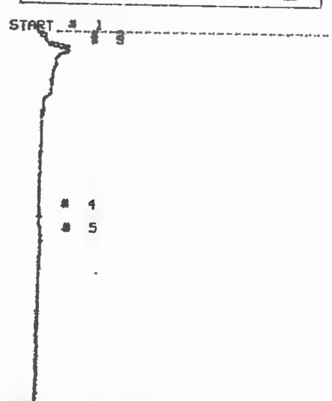
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 1:12
ANALYSIS # 38 ZERO AIR
INTERNAL TEMP 31 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME PEAK R.T. AREA/PPM

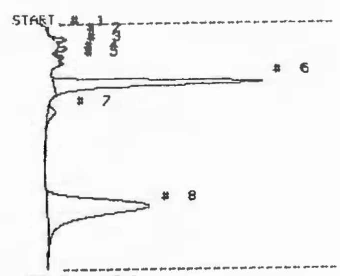
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 1:37
ANALYSIS # 43 ZERO AIR
INTERNAL TEMP 31 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 195.8
SAMPLE LIBRARY 1 DEC 8 93 1:24
ANALYSIS # 41 CL STD
INTERNAL TEMP 32 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.2	125.8 mVS
UNKNOWN	6	48.2	3.7 VS
UNKNOWN	7	72.3	157.9 mVS
UNKNOWN	8	149.0	4.9 VS

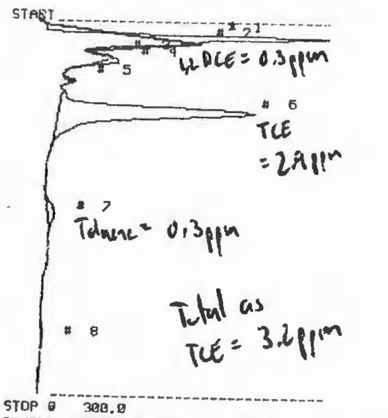
PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE JOB NO.: ____ SHEET 11 OF 13

SUBJECT: SEAD 11 Soil Gas Samples BY: DMK DATE: 12/8/93

CKD.: ____ REVISION: ____

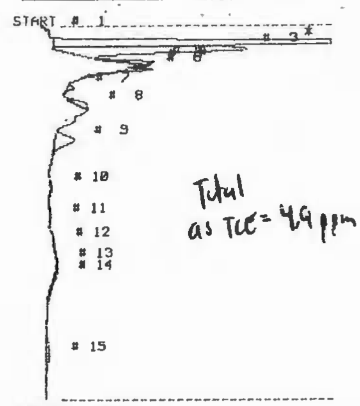
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 1:54
ANALYSIS # 44 SG 3,2
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.0	1.0 VS
UNKNOWN	4	33.0	332.7 mVS
UNKNOWN	6	74.1	6.8 VS
UNKNOWN	7	158.3	362.6 mVS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2: 0
ANALYSIS # 45 SG 3,3
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 2

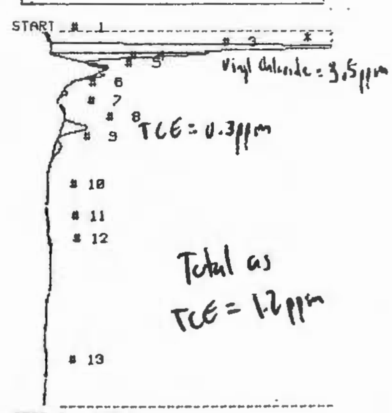
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	14.2	5.7 VS
UNKNOWN	3	20.1	3.0 VS
UNKNOWN	4	30.0	171.5 mVS
UNKNOWN	6	36.5	275.2 mVS
UNKNOWN	8	65.7	118.0 mVS
UNKNOWN	9	93.5	486.6 mVS
UNKNOWN	15	267.8	170.4 mVS

RT Windows

Vinyl Chloride	13.1 - 13.7
1,1 DCE	19.6 - 21.2
1,2 DCE	30.7 - 34.0
Benzene	48.2 - 51.5
TCE	68.5 - 82.1
Toluene	149.0 - 170.0

1,1 DCE = 3.7 ppm
1,2 DCE = 0.2 ppm
TCE = 0.1 ppm

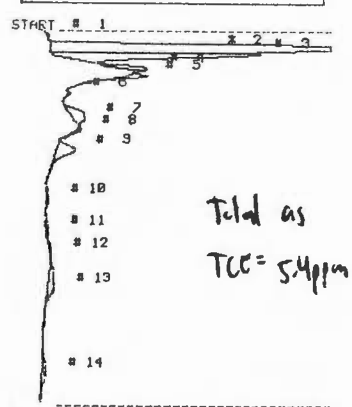
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:12
ANALYSIS # 47 SG 3,4
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.6	6.4 VS
UNKNOWN	3	19.0	1.8 VS
UNKNOWN	5	36.3	128.8 mVS
UNKNOWN	8	79.3	616.2 mVS
UNKNOWN	9	94.7	130.0 mVS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2: 6
ANALYSIS # 46 SG 3,3 DUP
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	14.2	8.3 VS
UNKNOWN	3	19.6	2.6 VS
UNKNOWN	4	31.5	180.5 mVS
UNKNOWN	5	37.4	268.2 mVS
UNKNOWN	7	71.9	442.2 mVS
UNKNOWN	9	97.7	507.0 mVS
UNKNOWN	13	208.1	449.2 mVS
UNKNOWN	14	275.8	261.7 mVS

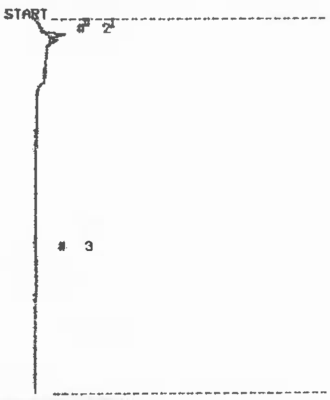
		Mean	RPD
1,1 DCE	= 3.2 ppm	3.45	14%
1,2 DCE	= 0.2 ppm	0.2	0
TCE	≈ 0.2 ppm	0.15	67%

PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE	JOB NO.	SHEET 12 OF 13
SUBJECT: SEAD 11 Soil Gas	BY: DMK	DATE: 12/8/93
Samples / Field Blank / Syringe Blank	CKD.	REVISION

RT Windows see page 12

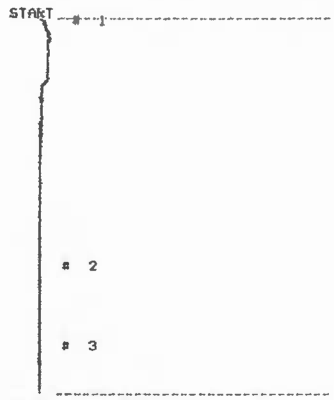
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:18
ANALYSIS # 48 FIELD BLANK
INTERNAL TEMP 31 0.5 ML
GAIN 10 SYR 3

COMPOUND NAME PEAK R.T. AREA/PPM

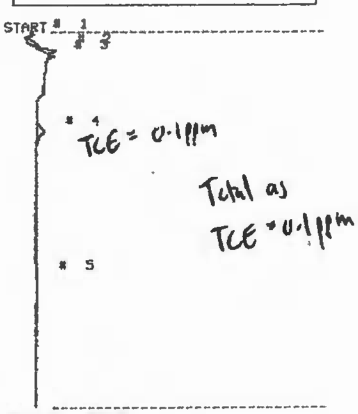
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:30
ANALYSIS # 50 ZERO AIR
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME PEAK R.T. AREA/PPM

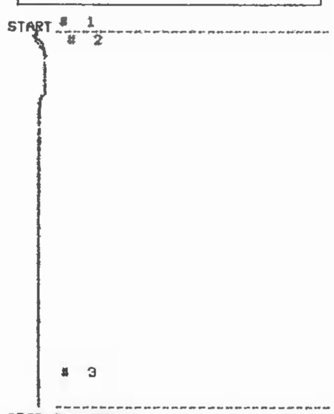
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:24
ANALYSIS # 49 SG 3,1
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	15.8	107.5 mVS
UNKNOWN	4	81.5	154.6 mVS

PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:35
ANALYSIS # 51 ZERO AIR
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME PEAK R.T. AREA/PPM

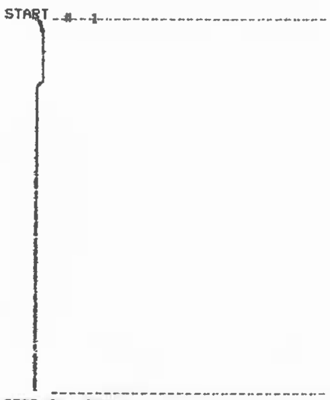
PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE JOB NO. ______ SHEET 13 OF 13

SUBJECT: SEAD 11 Soil Gas BY: DMK DATE 12/8/93

Syringe Blanks / ReCal CKD. ______ REVISION ______

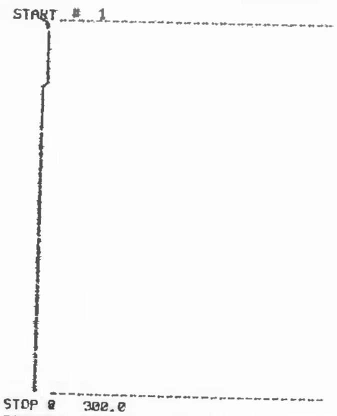
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:41
ANALYSIS # 52 ZERO AIR
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME PEAK R.T. AREA/PPM

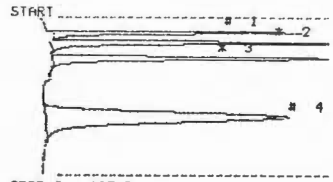
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:53
ANALYSIS # 54 ZERO AIR
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME PEAK R.T. AREA/PPM

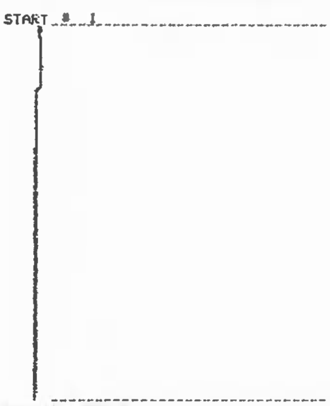
PHOTOVAC



STOP @ 127.0
SAMPLE LIBRARY 1 DEC 8 93 2:56
ANALYSIS # 55 CL STD
INTERNAL TEMP 31 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.7	1.7 US
UNKNOWN	2	21.2	2.6 US
UNKNOWN	3	34.0	3.0 US
UNKNOWN	4	82.1	7.5 US

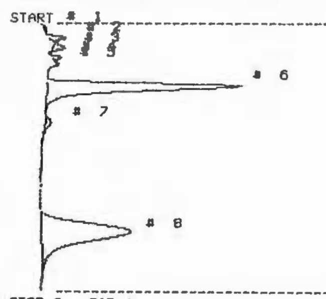
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 8 93 2:47
ANALYSIS # 53 ZERO AIR
INTERNAL TEMP 30 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 215.4
SAMPLE LIBRARY 1 DEC 8 93 3: 0
ANALYSIS # 56 BTEX STD
INTERNAL TEMP 30 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.1	135.3 mUS
UNKNOWN	3	21.0	158.8 mUS
UNKNOWN	6	51.5	4.3 US
UNKNOWN	7	81.7	148.9 mUS
UNKNOWN	8	170.0	4.8 US

PARSONS MAIN, INC. PARSONS

CLIENT: USACE — JOB NO.: — SHEET 1 OF 15

SUBJECT: SEAD 11 Soil Gas — BY: DMK — DATE: 12/9/93

Warm-Up / Initial Cal — CKD.: — REVISION:

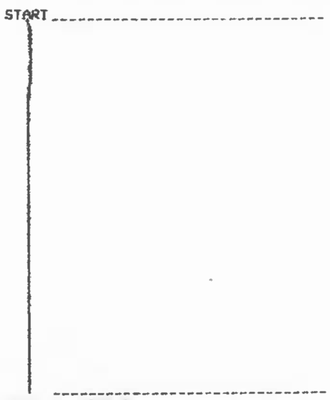
PHOTOVAC

DEC 9 93 7: 8

FIELD: 30
POWER: 30

SAMPLE	8.0	10.0
CAL	0.0	0.0
EVENT 3	10.0	60.0
EVENT 4	0.0	0.0
EVENT 5	0.0	60.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

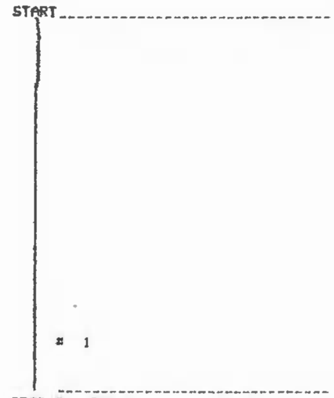
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 9 93 7:23
ANALYSIS # 2 INSTR BLANK
INTERNAL TEMP 20
GAIN 10

COMPOUND NAME PEAK R.T. AREA/PPM

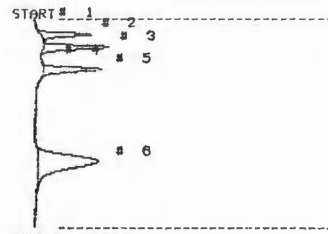
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 9 93 7:29
ANALYSIS # 3 ZERO AIR
INTERNAL TEMP 21 1.0 ML
GAIN 10 SYR D

COMPOUND NAME PEAK R.T. AREA/PPM

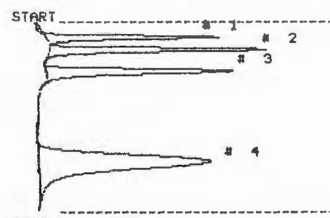
PHOTOVAC



STOP @ 167.8
SAMPLE LIBRARY 1 DEC 9 93 7:42
ANALYSIS # 4 CL STD
INTERNAL TEMP 22 1.0 ML
GAIN 10 1 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.6	534.7 mVS
UNKNOWN	3	23.6	766.9 mVS
UNKNOWN	5	41.5	831.6 mVS
UNKNOWN	6	116.3	2.4 VS

PHOTOVAC



STOP @ 152.5
SAMPLE LIBRARY 1 DEC 9 93 7:45
ANALYSIS # 5 CL STD
INTERNAL TEMP 23 1.0 ML
GAIN 10 ~~1~~ 5 PPM DMK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.7	1.8 VS
UNKNOWN	2	23.5	2.7 VS
UNKNOWN	3	41.0	2.9 VS
UNKNOWN	4	114.7	7.7 VS

Calibration

Analyte	Conc (ppmv)	Area (vs)	RF	Conc (ppmv)	Area (vs)	RF	RF-RPD (%)	RFavg
Vinyl Chloride	0.98	0.53	1.85	4.9	1.8	2.72	38	2.29
1,1 DCE	0.98	0.77	1.27	4.9	2.7	1.81	35	1.54
1,2 DCE	0.91	0.83	1.10	4.5	2.9	1.55	34	1.33
TCE	0.92	2.4	0.38	4.6	7.7	0.60	45	0.49

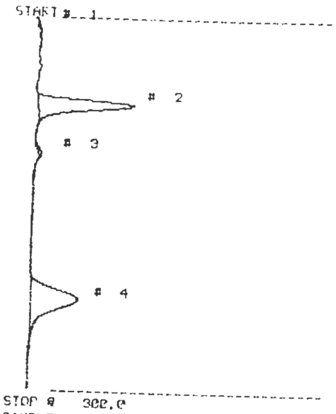
PARSONS MAIN, INC. PARSONS

CLIENT: USACE | JOB NO.: | SHEET 2 OF 15

SUBJECT: SEAD 11 Soil Gas | BY: DMK | DATE: 12/9/93

Initial Cal / Ambient Air & H_2O Blank | CKD.: | REVISION:

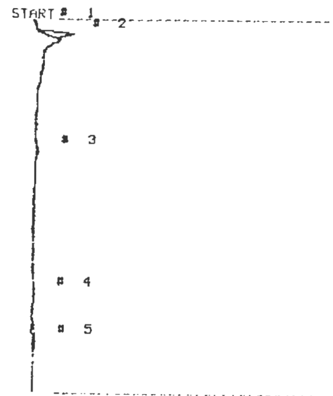
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 9 93 8: 4
ANALYSIS # 6 BTEX STD
INTERNAL TEMP 23 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	72.1	2.9 VS
UNKNOWN	4	220.5	3.0 VS

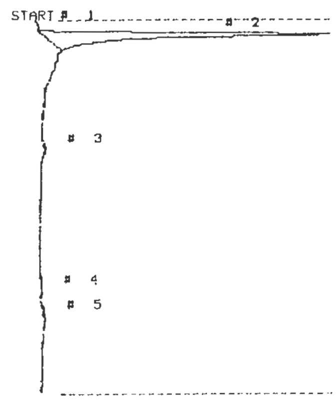
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 9 93 8:17
ANALYSIS # 8 AMB AIR
INTERNAL TEMP 24 1.0 ML
GAIN 10 SYR D

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.9	272.5 mVS

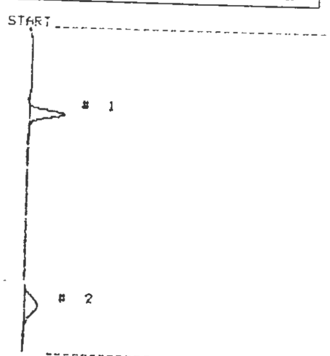
PHOTOVAC



STOP @ 300.0
SAMPLE LIBRARY 1 DEC 9 93 8:24
ANALYSIS # 9 WATER HEADSPACE
INTERNAL TEMP 25 1.0 ML
GAIN 10 SYR D

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.0	4.3 VS

PHOTOVAC



STOP @ 260.6
SAMPLE LIBRARY 1 DEC 9 93 8:10
ANALYSIS # 7 BTEX STD
INTERNAL TEMP 23 1.0 ML
GAIN 10 1 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	71.5	797.4 mVS
UNKNOWN	2	226.9	707.3 mVS

Analyte	Conc (ppm)	RF	Conc (ppm)	RF	RPD RF	RF avg
Benzene	4.9	1.69	0.98	1.23	32%	1.46
Toluene	4.8	1.60	0.96	1.35	17%	1.48

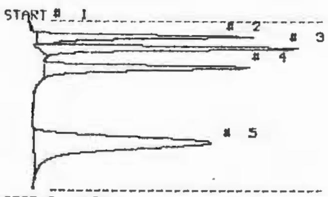
PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE — JOB NO.: — SHEET 3 OF 15

SUBJECT: SEAD 11 Soil Gas Samples / Recalibration — BY: DMK — DATE: 12/9/93

CKD.: — REVISION:

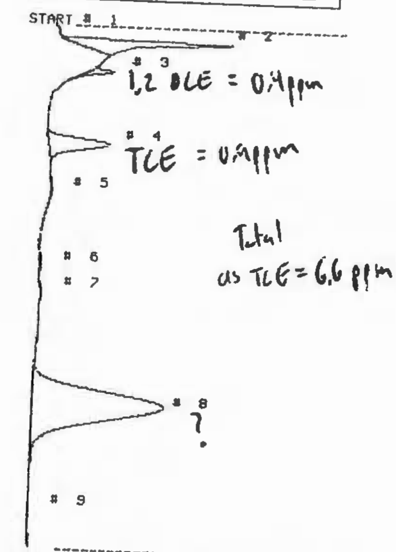
PHOTOVAC



STOP @ 135.9
SAMPLE LIBRARY 1 DEC 9 93 9: 0
ANALYSIS # 10 CL STD
INTERNAL TEMP 26 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.8	2.6 VS
UNKNOWN	3	22.7	3.4 VS
UNKNOWN	4	38.2	3.1 VS
UNKNOWN	5	99.1	7.0 VS

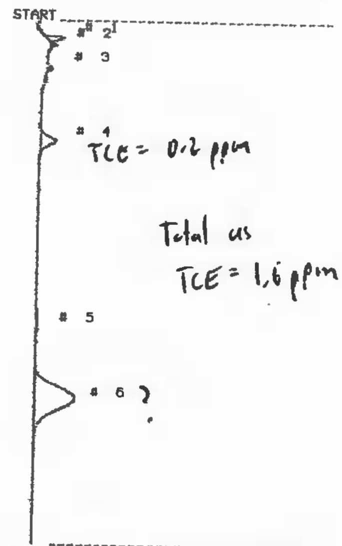
PHOTOVAC



STOP @ 420.0
SAMPLE LIBRARY 1 DEC 9 93 9:17
ANALYSIS # 12 SG 2,1
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.3	2.5 VS
UNKNOWN	3	37.0	334.2 mVS
UNKNOWN	4	96.3	1.9 VS
UNKNOWN	8	309.5	11.2 VS

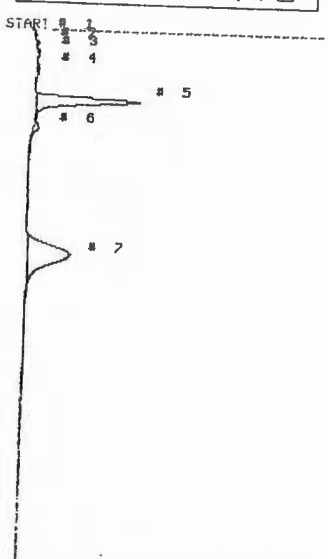
PHOTOVAC



STOP @ 420.0
SAMPLE LIBRARY 1 DEC 9 93 9:26
ANALYSIS # 13 SG 2,1 DUP
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	15.3	112.3 mVS
UNKNOWN	4	99.3	383.4 mVS
UNKNOWN	6	320.9	2.9 VS

PHOTOVAC



STOP @ 425.8
SAMPLE LIBRARY 1 DEC 9 93 9: 9
ANALYSIS # 11 BTEX STD
INTERNAL TEMP 26 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	5	57.8	2.0 VS
UNKNOWN	7	184.1	2.5 VS

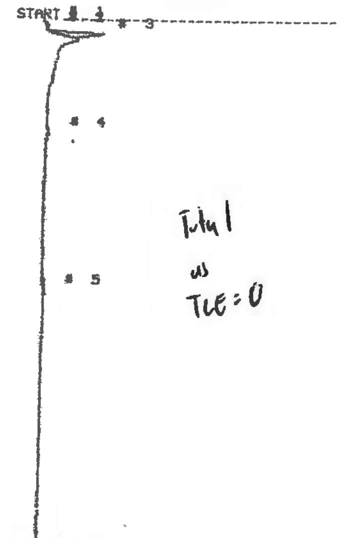
PARSONS MAIN, INC. PARSONS

CLIENT: USACE JOB NO.: ___ SHEET 4 OF 15

SUBJECT: SEAD 11 Soil Gas Samples BY: DMK DATE: 12/9/93

CKD.: ___ REVISION: ___

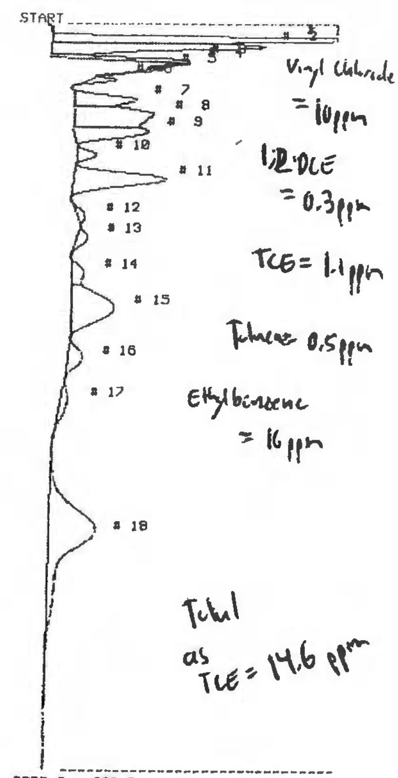
PHOTOVAC



STOP @ 420.0
SAMPLE LIBRARY 1 DEC 9 93 9:34
ANALYSIS # 14 SG 2,2
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	13.1	420.2 mUS

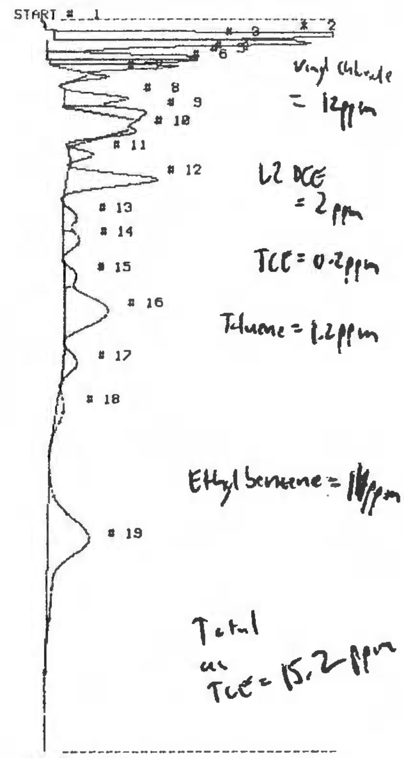
PHOTOVAC



STOP @ 600.0
SAMPLE LIBRARY 1 DEC 9 93 9:56
ANALYSIS # 16 SG 2,3 DUP
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 3

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.8	5.9 US
UNKNOWN	2	18.8	4.5 US
UNKNOWN	3	30.4	593.6 mUS
UNKNOWN	5	37.4	250.1 mUS
UNKNOWN	6	45.3	381.3 mUS
UNKNOWN	7	62.5	1.7 US
UNKNOWN	8	73.9	3.7 US
UNKNOWN	9	87.9	2.2 US
UNKNOWN	10	106.5	481.8 mUS
UNKNOWN	11	127.1	3.6 US
UNKNOWN	12	157.4	295.7 mUS
UNKNOWN	13	174.5	373.9 mUS
UNKNOWN	14	203.3	610.4 mUS
UNKNOWN	15	232.1	3.5 US
UNKNOWN	16	272.8	714.4 mUS
UNKNOWN	17	305.9	374.5 mUS
UNKNOWN	18	413.9	6.6 US

PHOTOVAC

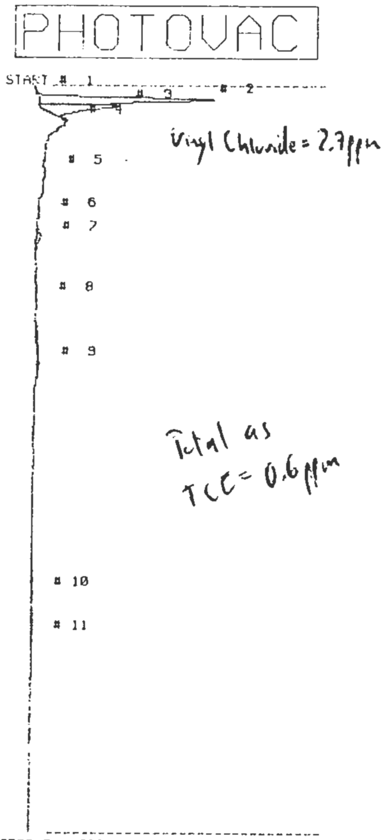


STOP @ 586.9
SAMPLE LIBRARY 1 DEC 9 93 9:44
ANALYSIS # 15 SG 2,3
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.3	7.3 US
UNKNOWN	3	20.3	5.4 US
UNKNOWN	4	31.1	1.9 US
UNKNOWN	5	33.8	1.6 US
UNKNOWN	6	38.7	1.6 US
UNKNOWN	7	46.7	374.9 mUS
UNKNOWN	8	65.1	1.8 US
UNKNOWN	9	76.5	1.2 US
UNKNOWN	10	91.3	399.1 mUS
UNKNOWN	11	110.1	657.3 mUS
UNKNOWN	12	131.0	3.4 US
UNKNOWN	13	161.3	700.7 mUS
UNKNOWN	14	179.7	806.1 mUS
UNKNOWN	15	209.3	612.8 mUS
UNKNOWN	16	237.7	3.7 US
UNKNOWN	17	279.3	779.8 mUS
UNKNOWN	18	314.3	491.9 mUS
UNKNOWN	19	422.8	5.7 US

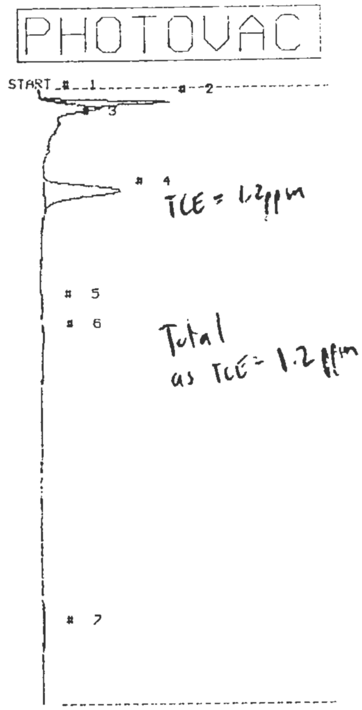
PARSONS MAIN, INC. PARSONS

CLIENT	USACE	JOB NO.	SHEET 5 OF 15
SUBJECT	SEAD 11 Soil Gas Samples	BY DMK	DATE 12/9/93
		CKD.	REVISION



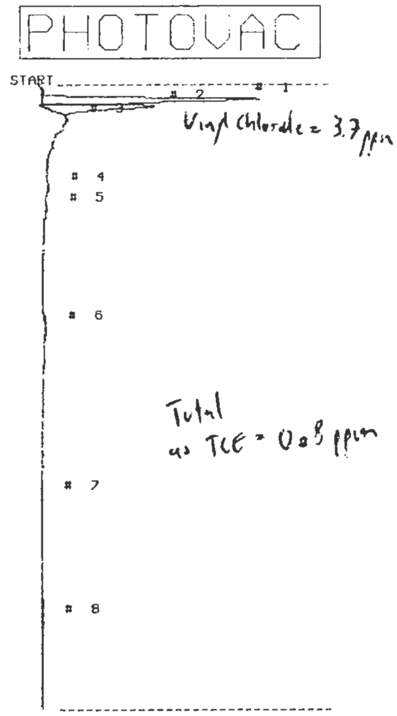
STOP @ 600.0
SAMPLE LIBRARY 1 DEC 9 93 10: 7
ANALYSIS # 17 SG 2,4
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	12.4	2.4	US
UNKNOWN	3	17.3	1.2	US



STOP @ 495.2
SAMPLE LIBRARY 1 DEC 9 93 10:17
ANALYSIS # 18 SG 1,3
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	12.5	1.0	US
UNKNOWN	4	84.7	2.4	US



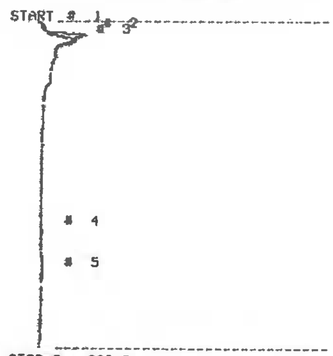
STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 10:28
ANALYSIS # 19 SG 2,5
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR C

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	12.4	2.9	US
UNKNOWN	2	18.0	1.6	US

PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE | JOB NO.: | SHEET 6 OF 15
SUBJECT: SEAD 11 Soil Gas / Samples / Syringe Blanks | BY: DMK | DATE: 12/9/93
CKD.: | REVISION:

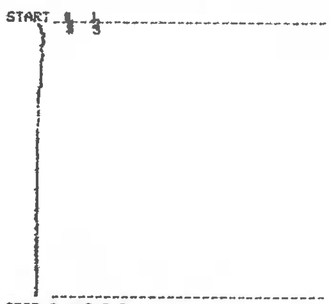
PHOTOVAC



STOP @ 263.9
SAMPLE LIBRARY 1 DEC 9 93 10:31
ANALYSIS # 20 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.5	239.8 mVS

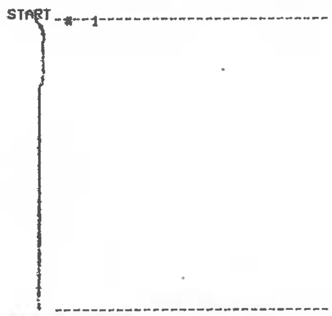
PHOTOVAC



STOP @ 219.8
SAMPLE LIBRARY 1 DEC 9 93 10:35
ANALYSIS # 21 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME PEAK R.T. AREA/PPM

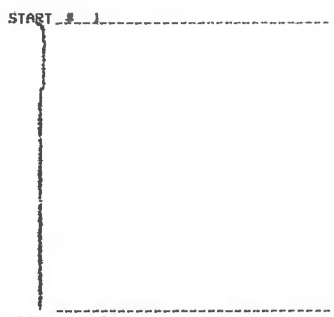
PHOTOVAC



STOP @ 233.2
SAMPLE LIBRARY 1 DEC 9 93 10:40
ANALYSIS # 22 ZERO AIR
INTERNAL TEMP 29 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME PEAK R.T. AREA/PPM

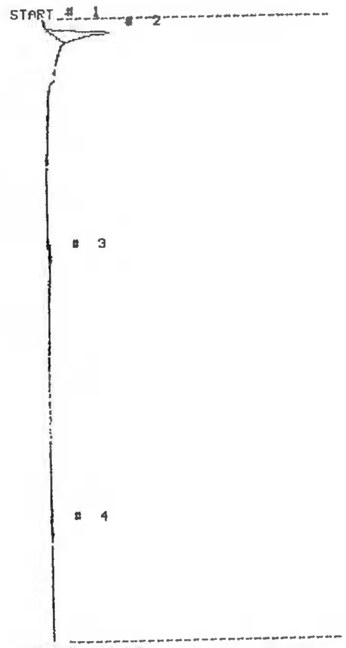
PHOTOVAC



STOP @ 230.6
SAMPLE LIBRARY 1 DEC 9 93 10:44
ANALYSIS # 23 ZERO AIR
INTERNAL TEMP 29 1.0 ML
GAIN 10 SYR C

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 10:53
ANALYSIS # 24 ROD BLANK
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.7	897.3 mVS

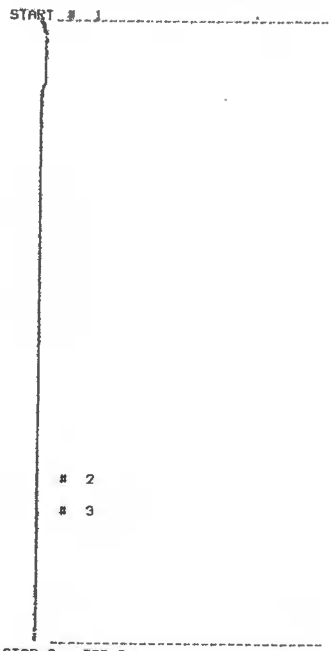
PARSONS MAIN, INC. PARSONS

CLIENT USACE JOB NO. ____ SHEET 7 OF 15

SUBJECT SEAD 11 Soil Gas BY DMK DATE 12/9/93

Syringe Blanks CKD. ____ REVISION ____

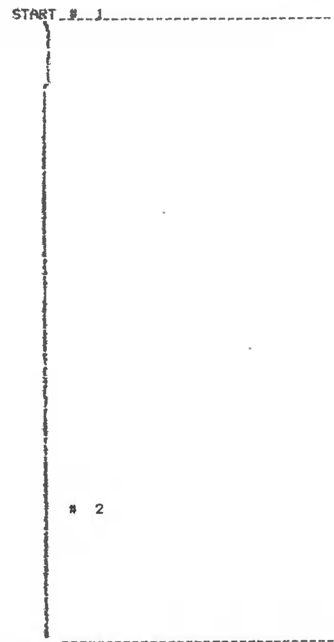
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 11: 3
ANALYSIS # 25 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 3

COMPOUND NAME PEAK R.T. AREA/PPM

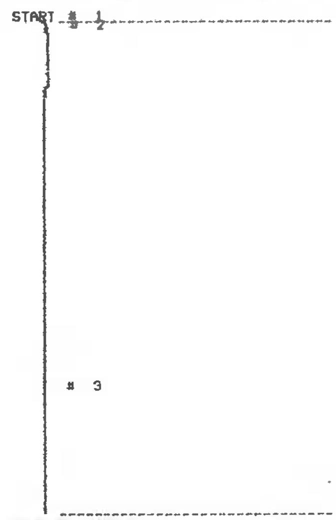
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 11:17
ANALYSIS # 26 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME PEAK R.T. AREA/PPM

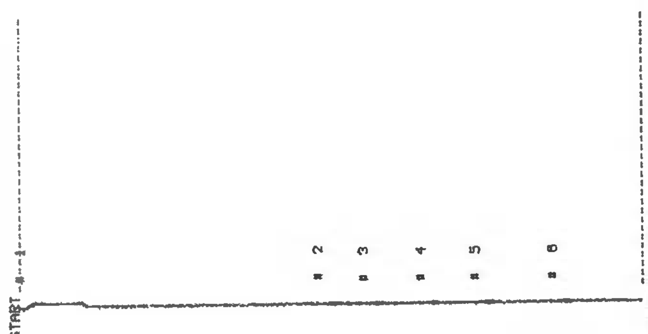
PHOTOVAC



STOP @ 394.9
SAMPLE LIBRARY 1 DEC 9 93 11:24
ANALYSIS # 27 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 7

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



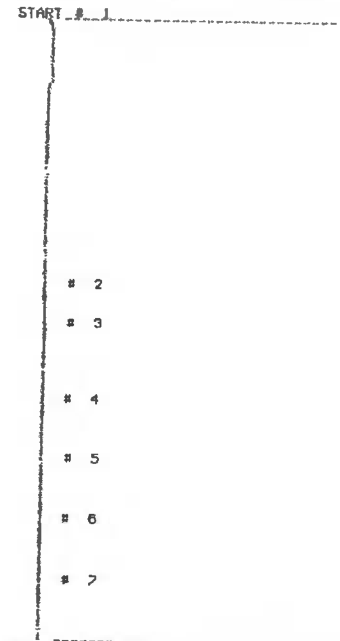
STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 11:33
ANALYSIS # 28 ZERO AIR
INTERNAL TEMP 29 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME PEAK R.T. AREA/PPM

PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE | JOB NO.: | SHEET 8 OF 15
SUBJECT: SEAD 11 Soil Gas | BY: DMK | DATE: 12/9/93
Recal / Syr. Blank / Samples | CKD.: | REVISION:

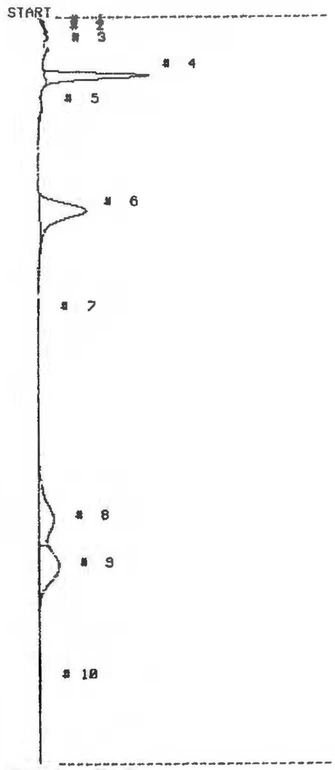
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 11:42
ANALYSIS # 29 ZERO AIR
INTERNAL TEMP 29 1.0 ML
GAIN 10 SYR 6

COMPOUND NAME PEAK R.T. AREA/PPM

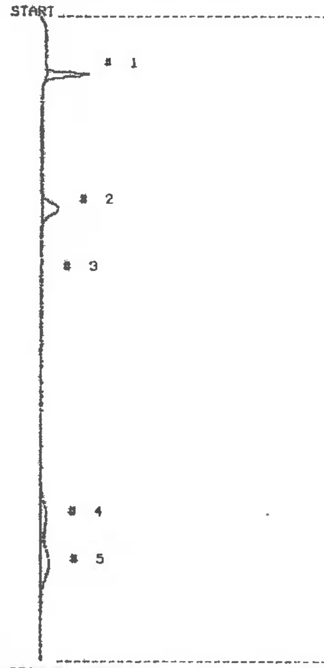
PHOTOVAC



STOP @ 600.0
SAMPLE LIBRARY 1 DEC 9 93 11:56
ANALYSIS # 31 BTEX STD
INTERNAL TEMP 29 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	4	48.1	1.7	VS
UNKNOWN	6	158.0	2.2	VS
UNKNOWN	8	410.4	1.6	VS
UNKNOWN	9	448.4	1.8	VS

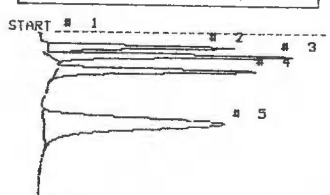
PHOTOVAC



STOP @ 518.2
SAMPLE LIBRARY 1 DEC 9 93 12: 6
ANALYSIS # 32 BTEX STD
INTERNAL TEMP 28 1.0 ML
GAIN 10 1 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	48.4	512.7 mVS
UNKNOWN	2	157.7	639.9 mVS
UNKNOWN	4	408.3	481.5 mVS
UNKNOWN	5	446.8	756.8 mVS

PHOTOVAC



STOP @ 133.4
SAMPLE LIBRARY 1 DEC 9 93 11:45
ANALYSIS # 30 CL STD
INTERNAL TEMP 30 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	12.9	2.1	VS
UNKNOWN	3	19.8	2.9	VS
UNKNOWN	4	31.8	2.7	VS
UNKNOWN	5	74.9	6.4	VS

Calculate Response Factors for Ethylbenzene & o-xylene

	Conc	RF	Conc	RF	RF RPD	Avg RF
Ethylbenzene	4.6	2.88	0.92	1.92	40%	2.40
o-xylene	4.5	2.50	0.90	1.18	72%	1.84

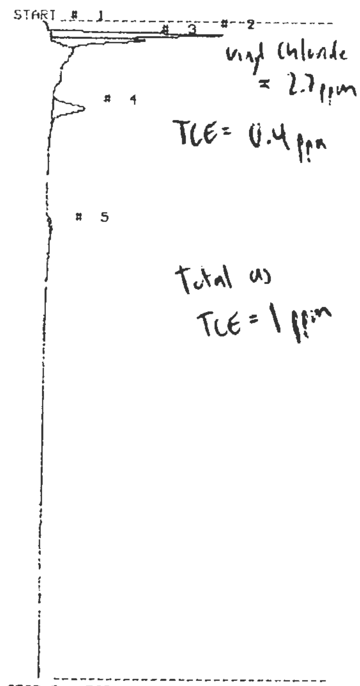
PARSONS MAIN, INC. PARSONS

CLIENT: USACE   JOB NO.   SHEET 9 OF 15

SUBJECT: SEAD 11 Soil Gas Samples   BY: DMK   DATE: 12/9/93

CKD.   REVISION

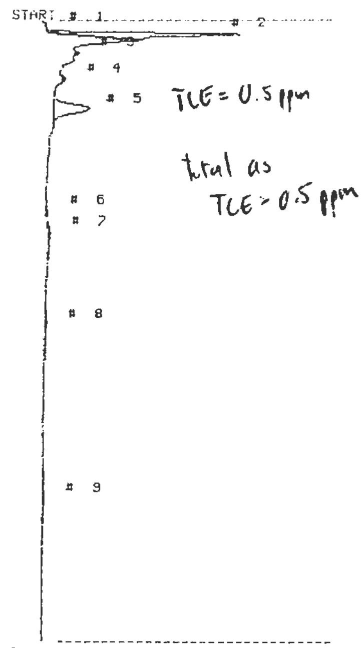
PHOTOVAC



STOP @ 528.7
SAMPLE LIBRARY 1 DEC 9 93 12:15
ANALYSIS # 33 SG 1,2
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.1	2.1 VS
UNKNOWN	3	16.8	1.2 VS
UNKNOWN	4	72.9	626.3 mVS

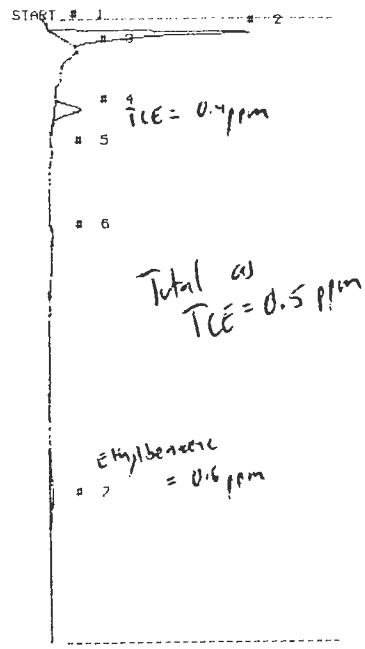
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 12:25
ANALYSIS # 34 SG 1,1
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.4	1.3 VS
UNKNOWN	5	73.1	956.0 mVS

PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 12:34
ANALYSIS # 35 SG 2,2A
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.5	3.1 VS
UNKNOWN	4	73.9	743.1 mVS
UNKNOWN	7	368.7	232.0 mVS

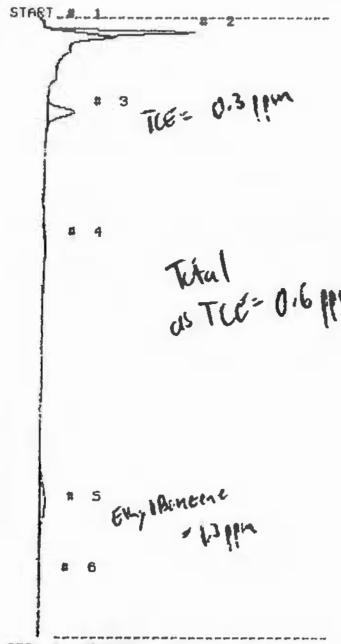
PARSONS MAIN, INC. — **PARSONS**

CLIENT: USACE — JOB NO.: ____ — SHEET 10 OF 16

SUBJECT: SEAD 11 Soil Gas Samples / Syringe blanks — BY: DMK — DATE: 12/9/93

CKD.: ____ — REVISION: ____

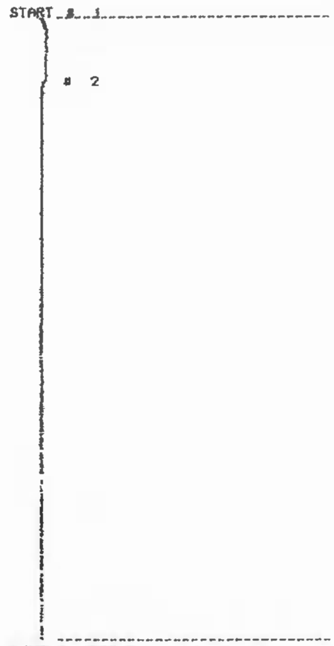
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 12:43
ANALYSIS # 36 SG 4,1
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.9	1.1 VS
UNKNOWN	3	78.5	693.4 mVS
UNKNOWN	5	398.4	539.9 mVS

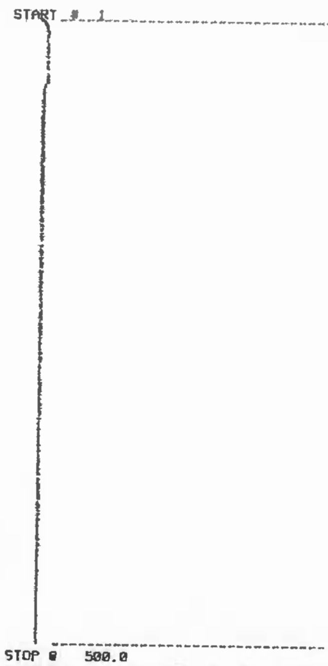
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 12:58
ANALYSIS # 38 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME PEAK R.T. AREA/PPM

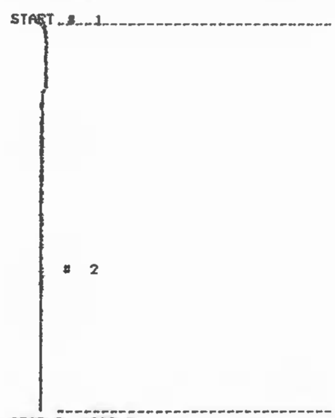
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 13: 7
ANALYSIS # 39 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 8

COMPOUND NAME PEAK R.T. AREA/PPM

PHOTOVAC



STOP @ 308.5
SAMPLE LIBRARY 1 DEC 9 93 12:49
ANALYSIS # 37 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR C

COMPOUND NAME PEAK R.T. AREA/PPM

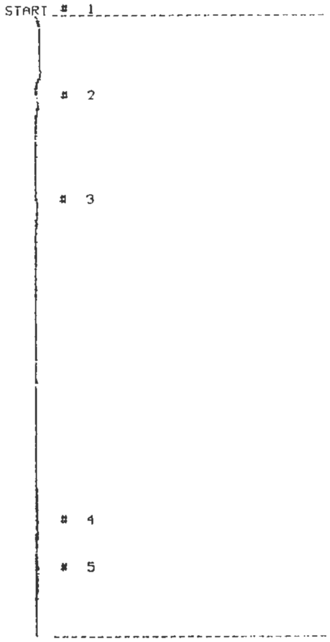
PARSONS MAIN, INC. PARSONS

CLIENT: USACE JOB NO.: SHEET 11 OF 15

SUBJECT: SEAD 11 Soil Gas BY: DMK DATE: 12/9/93

See Syringe Blanks/Recalibration CKD.: REVISION:

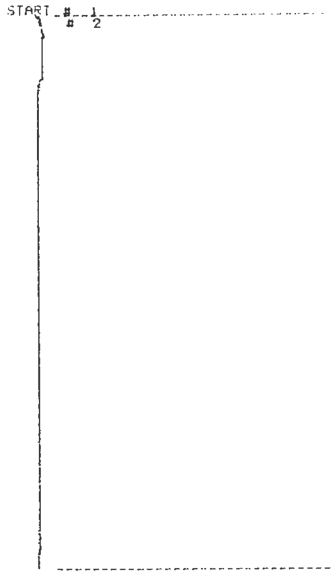
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 13:18
ANALYSIS # 40 ZERO AIR
INTERNAL TEMP 28 1.0 ML
GAIN 10 SYR 9

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	5	454.0	116.2 mVS

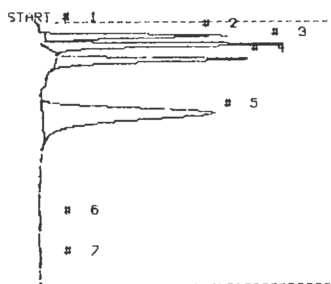
PHOTOVAC



STOP @ 444.7
SAMPLE LIBRARY 1 DEC 9 93 13:24
ANALYSIS # 41 ZERO AIR
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR 1

COMPOUND NAME PEAK R.T. AREA/PPM

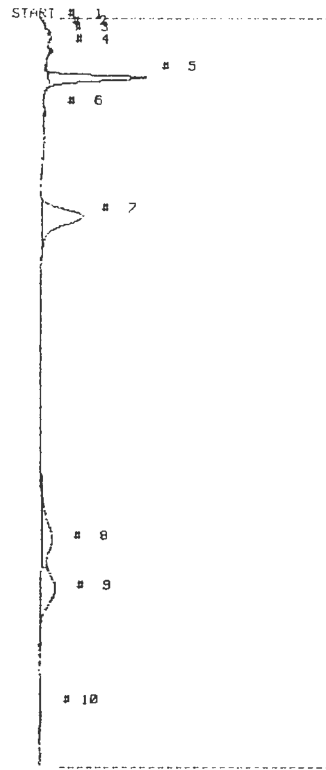
PHOTOVAC



STOP @ 210.2
SAMPLE LIBRARY 1 DEC 9 93 13:32
ANALYSIS # 42 CL STD
INTERNAL TEMP 28 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	12.5	2.0	VS
UNKNOWN	3	19.4	2.8	VS
UNKNOWN	4	31.3	2.6	VS
UNKNOWN	5	75.1	6.2	VS

PHOTOVAC



STOP @ 600.0
SAMPLE LIBRARY 1 DEC 9 93 13:43
ANALYSIS # 43 BTEX STD
INTERNAL TEMP 27 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	5	48.1	1.6	VS
UNKNOWN	7	161.9	2.0	VS
UNKNOWN	8	424.4	1.4	VS
UNKNOWN	9	464.4	1.4	VS

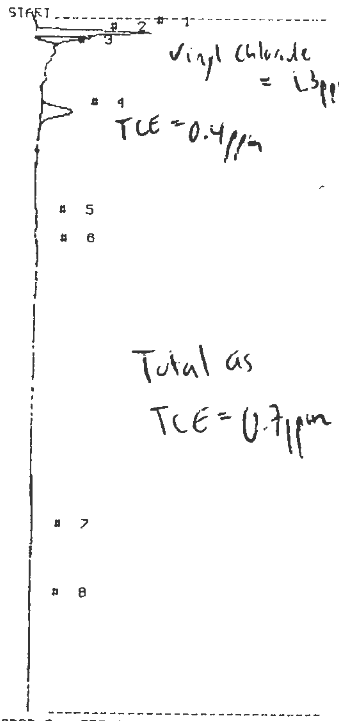
PARSONS MAIN, INC. PARSONS

CLIENT: USACE — JOB NO. — SHEET 12 OF 15

SUBJECT: SEAD 11 Soil Gas Samples — BY: DMK — DATE: 12/9/93

CKD. — REVISION

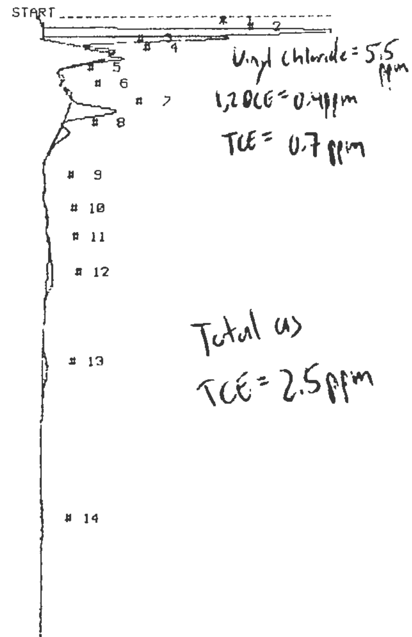
PHOTOVAC



STOP @ 559.1
SAMPLE LIBRARY 1 DEC 9 93 14:24
ANALYSIS # 44 SG 2,5,2.5
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	1.5 VS
UNKNOWN	2	16.4	571.7 mVS
UNKNOWN	4	27.5	888.3 mVS

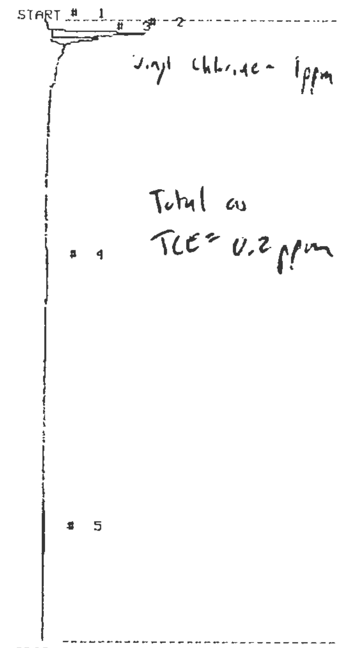
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 14:33
ANALYSIS # 45 SG X
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 2

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.3	6.4 VS
UNKNOWN	2	17.8	2.4 VS
UNKNOWN	4	34.4	270.5 mVS
UNKNOWN	7	77.5	1.4 VS
UNKNOWN	8	94.5	334.8 mVS
UNKNOWN	12	214.5	387.2 mVS
UNKNOWN	13	287.3	325.3 mVS

PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 14:42
ANALYSIS # 46 SG 3,0
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR 3

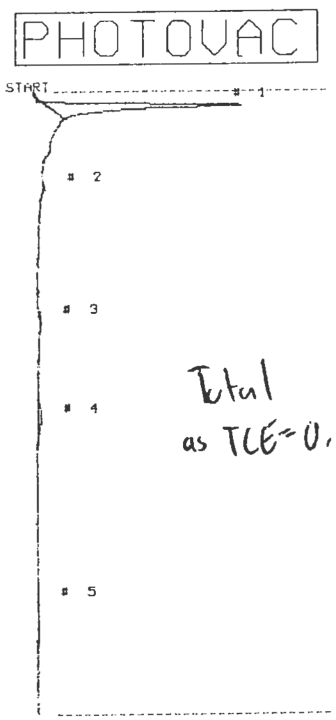
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.1	1.0 VS
UNKNOWN	3	15.9	456.2 mVS

PARSONS MAIN, INC. **PARSONS**

CLIENT: USACE JOB NO. ______ SHEET 13 OF 15

SUBJECT: SEAD 11 Soil Gas BY: DMK DATE: 12/9/93

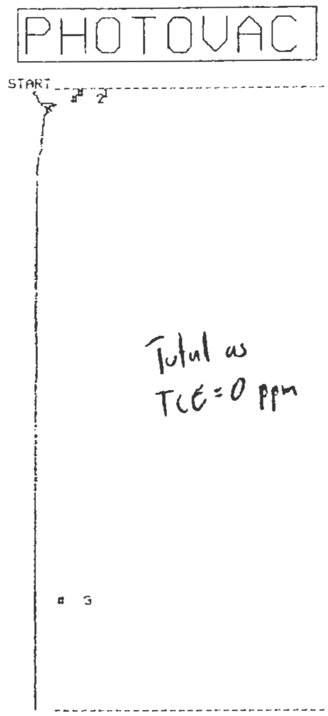
Samples/Cal Check CKD. ______ REVISION ______



Total as TCE=0.1ppm

STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 14:51
ANALYSIS # 47 SG 2,0
INTERNAL TEMP 27 1,0 ML
GAIN 10 SYR 6

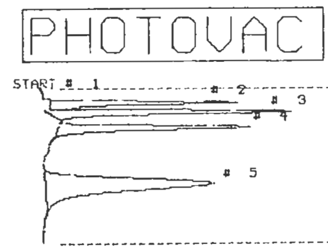
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.3	2.6 US
UNKNOWN	4	264.3	212.7 mUS



Total as TCE=0 ppm

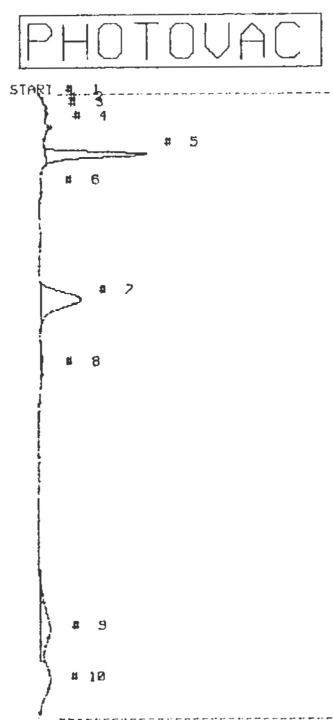
STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 15: 0
ANALYSIS # 48 SG ~~2.1~~ 1,0 OK
INTERNAL TEMP 27 1.0 ML
GAIN 10 SYR 4

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	14.1	109.9 mUS



STOP @ 124.0
SAMPLE LIBRARY 1 DEC 9 93 15: 3
ANALYSIS # 49 CL STD
INTERNAL TEMP 28 1.0 ML
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.5	2.0 US
UNKNOWN	3	19.8	2.6 US
UNKNOWN	4	32.0	2.6 US
UNKNOWN	5	77.9	6.2 US



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 15:12
ANALYSIS # 50 BTEX STD
INTERNAL TEMP 27 1.0 ML
GAIN 10 5 PPM

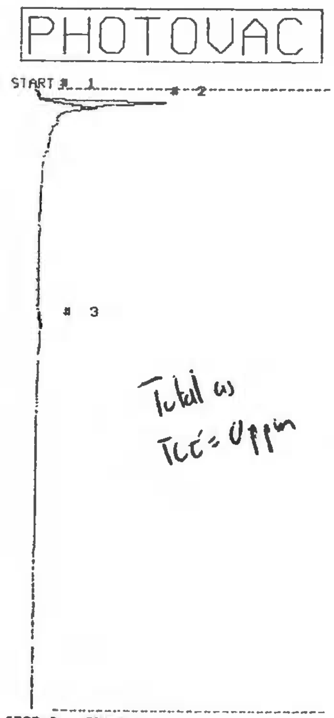
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	5	49.5	1.6 US
UNKNOWN	7	167.0	1.9 US
UNKNOWN	9	435.6	1.3 US

PARSONS MAIN, INC. PARSONS

CLIENT: USACÉ
JOB NO.:
SHEET 14 OF 15

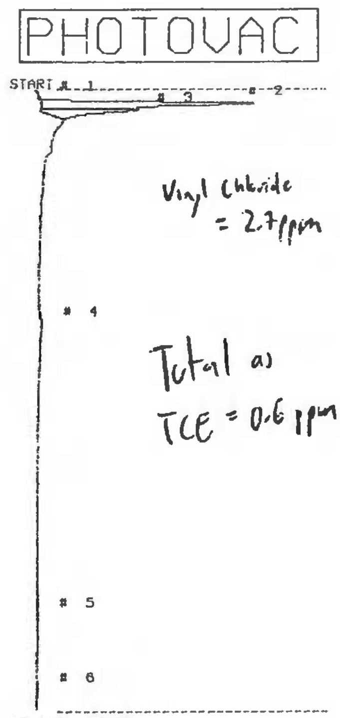
SUBJECT: SEAD 11 Soil Gas Samples
BY: DMK
DATE: 12/9/93

CKD.:
REVISION:



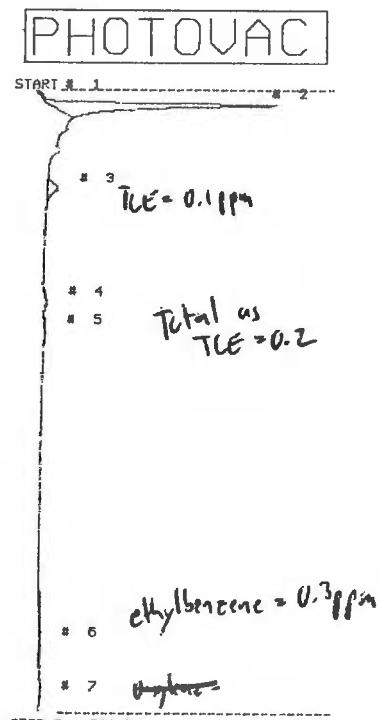
STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 16: 7
ANALYSIS # 51 SG 1,5
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.2	969.7 mVS



STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 16:16
ANALYSIS # 52 SG 0,4
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	12.4	2.8 VS
UNKNOWN	3	16.9	1.2 VS

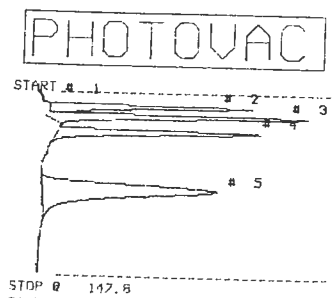


STOP @ 500.0
SAMPLE LIBRARY 1 DEC 9 93 16:25
ANALYSIS # 53 SG 0,1
INTERNAL TEMP 26 1.0 ML
GAIN 10 SYR 9

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	13.2	3.5 VS
UNKNOWN	3	81.5	255.2 mVS
UNKNOWN	6	445.2	140.6 mVS

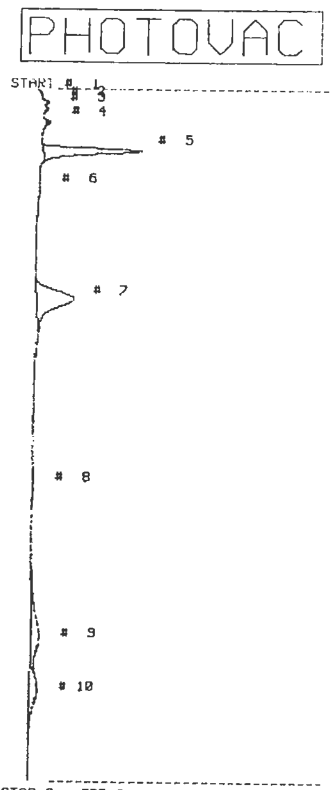
PARSONS MAIN, INC. PARSONS

CLIENT: USACE	JOB NO.	SHEET 15 OF 15
SUBJECT: SEAD 11 Soil Gas	BY: DMK	DATE 12/9/93
Ending Calibration	CKD.	REVISION



STOP @ 147.6
SAMPLE LIBRARY 1 DEC 9 93 16:29
ANALYSIS # 54 CL STD
INTERNAL TEMP 27 1.0 mL
GAIN 10 5 PPM

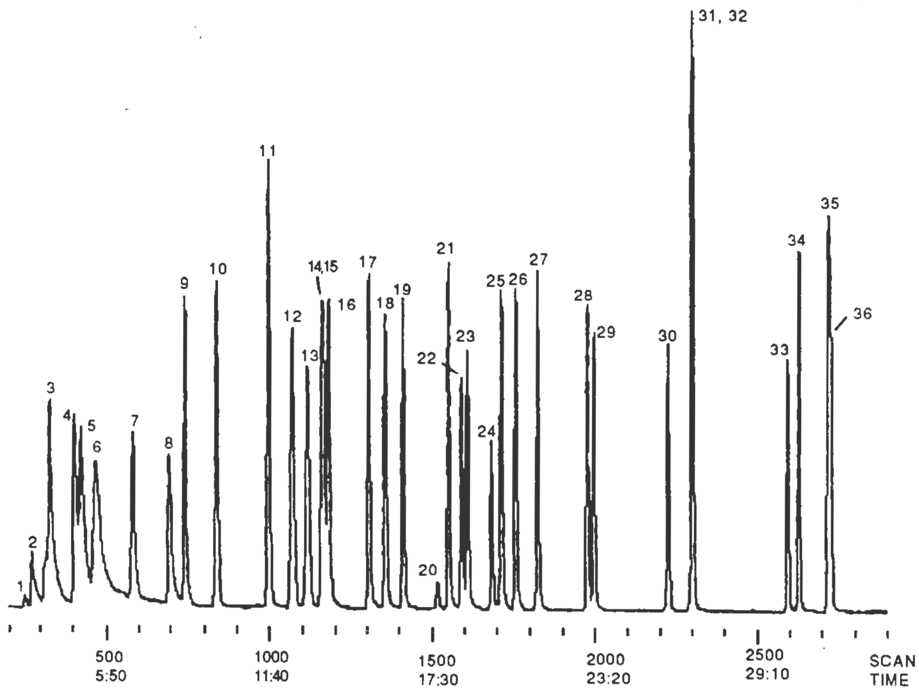
COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	12.9	2.4	VS
UNKNOWN	3	20.2	3.1	VS
UNKNOWN	4	32.8	2.8	VS
UNKNOWN	5	80.5	6.3	VS



STOP @ 555.8
SAMPLE LIBRARY 1 DEC 9 93 16:39
ANALYSIS # 55 BTEX STD
INTERNAL TEMP 27 1.0 mL
GAIN 10 5 PPM

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	5	50.4	1.7	VS
UNKNOWN	7	171.8	1.8	VS
UNKNOWN	9	446.0	1.1	VS
UNKNOWN	10	489.6	719.1	mVS

Figure A — Purgeable Compounds by US EPA Method 624 Using a VOCARB 3000 Trap



92-0007

1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethylene
8. Methylene chloride
9. trans-1,2-Dichloroethylene
10. 1,1-Dichloroethane
11. Chloroform
12. 1,1,1-Trichloroethane
13. Carbon tetrachloride
14. 1,2-Dichloroethane-d_4 (int std)
15. Benzene
16. 1,2-Dichloroethane
17. Trichloroethylene
18. 1,2-Dichloropropane
19. Bromodichloromethane
20. 2-Chloroethyl vinyl ether
21. cis-1,3-Dichloropropene
22. Toluene-d_8 (int std)
23. Toluene
24. trans-1,3-Dichloropropene
25. 1,1,2-Trichloroethane
26. Tetrachloroethylene
27. Chlorodibromomethane
28. Chlorobenzene
29. Ethylbenzene
30. Bromoform
31. 4-Bromofluorobenzene (tuning cmpd)
32. 1,1,2,2-Tetrachloroethane
33. 1,3-Dichlorobenzene
34. 1,4-Dichlorobenzene
35. 1,2-Dichlorobenzene-d_4 (int std)
36. 1,2-Dichlorobenzene

VOCOL™ , 60m x 0.75mm ID, 1.5µm film, Col. Temp.: 10°C for 4 min., then to 200°C at 4°C/min., Det.: GC/MS, Scan Range: 33-300m/z, 0.7 sec./scan. Purge: 11min., Dry Purge: 3 min., Purge Flow Rate: 40ml/min.

T412145

SUPELCO
SEPARATION TECHNOLOGIES
DIVISION OF ROHM AND HAAS

PARSONS MAIN, INC.

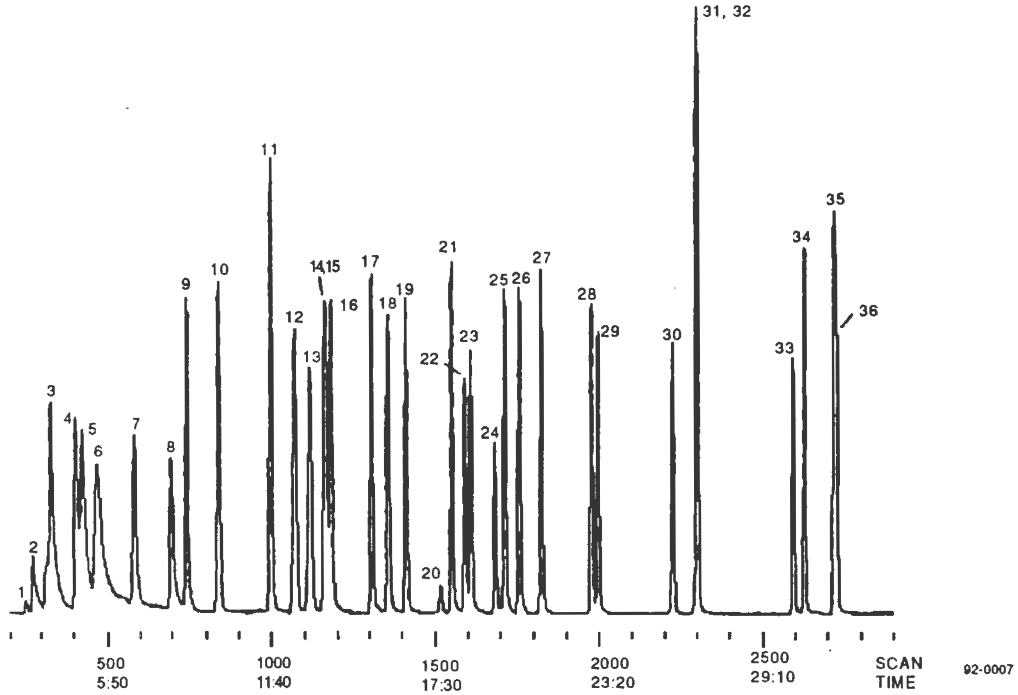
CLIENT ________ JOB NO. ________ SHEET ____ OF ____

SUBJECT ________ BY ________ DATE ________

CKD. ________ REVISION ________

PARSONS

Figure A — Purgeable Compounds by US EPA Method 624 Using a VOCARB 3000 Trap



1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethylene
8. Methylene chloride
9. trans-1,2-Dichloroethylene
10. 1,1-Dichloroethane
11. Chloroform
12. 1,1,1-Trichloroethane
13. Carbon tetrachloride
14. 1,2-Dichloroethane-d_4 (int std)
15. Benzene
16. 1,2-Dichloroethane
17. Trichloroethylene
18. 1,2-Dichloropropane
19. Bromodichloromethane
20. 2-Chloroethyl vinyl ether
21. cis-1,3-Dichloropropene
22. Toluene-d_8 (int std)
23. Toluene
24. trans-1,3-Dichloropropene
25. 1,1,2-Trichloroethane
26. Tetrachloroethylene
27. Chlorodibromomethane
28. Chlorobenzene
29. Ethylbenzene
30. Bromoform
31. 4-Bromofluorobenzene (tuning cmpd)
32. 1,1,2,2-Tetrachloroethane
33. 1,3-Dichlorobenzene
34. 1,4-Dichlorobenzene
35. 1,2-Dichlorobenzene-d_4 (int std)
36. 1,2-Dichlorobenzene

VOCOL™, 60m x 0.75mm ID, 1.5µm film, Col. Temp.: 10°C for 4 min., then to 200°C at 4°C/min., Det.: GC/MS, Scan Range: 33-300m/z, 0.7 sec./scan. Purge: 11min., Dry Purge: 3 min., Purge Flow Rate: 40ml/min.

T412145

SUPELCO
SEPARATION TECHNOLOGIES
DIVISION OF ROHM AND HAAS

PARSONS MAIN, INC.

CLIENT_____ JOB NO._____ SHEET_____ OF_____

SUBJECT_____ BY_____ DATE_____

CKD._____ REVISION_____

PARSONS

APPENDIX C

MONITORING WELL INSTALLATION DIAGRAMS

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | WELL #: MW11-1

PROJECT: 10 SWMU-
PROJECT NO:
LOCATION: SEAD-11
INSPECTOR: ES/LB
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Alan
DRILLING COMPLETED: 11/3/93
BORING DEPTH: 14.2'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC:

POW DEPTH: 14.2'
INSTALLATION STARTED: 11/3/93
INSTALLATION COMPLETED: 11/3/93
SURFACE COMPLETION DATE: 11/3/93
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4" x 4" Steel LENGTH: 5'

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 6.1' TYPE: PVC-40 DIAMETER: 2" LENGTH: 7' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 13.5' POW: 14.2' 0.5 point

GROUT:
TG: 0.0 TYPE: Cem & Bentonite LENGTH: 3.6

SEAL: TBS: 3.6' TYPE: Bentonite [illegible] LENGTH: 1.0

SAND PACK: TSP: 4.6' #1 / 5.6' #3 TYPE: #1 Silica / #3 Silica LENGTH: [illegible]

SURFACE COLLAR:
TYPE: Grout RADIUS: 2.2' THICKNESS CENTER: ' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: — DEPTH 2: — DEPTH 3: DEPTH 4:

COMMENTS:

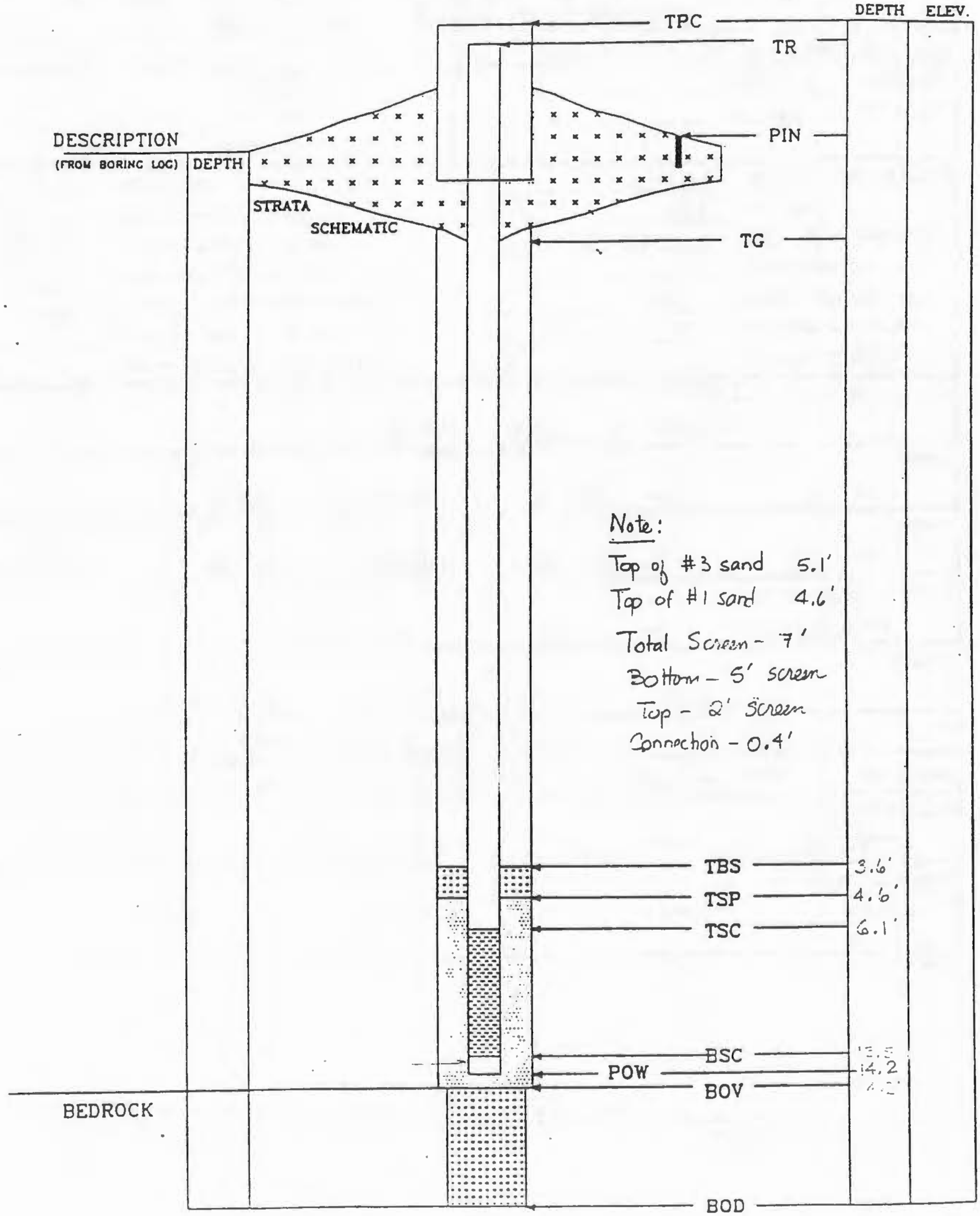
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW11-1

DATE: ____________



depths measured from ground surface.

• NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
ROADWAY BOX – SURFACE COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | WELL #: MW11-2

PROJECT: 10 SWMU
LOCATION: SEAD 11
PROJECT NO:
INSPECTOR: ES
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: John W.
DRILLING COMPLETED: 11/16/93
BORING DEPTH: 8.5'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8 1/2"
ASSOCIATED SWMU/AOC: 11

POW DEPTH: 8.5'
INSTALLATION STARTED: 11/16/93
INSTALLATION COMPLETED: 11/16/93
SURFACE COMPLETION DATE: 11/16/93
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?):
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x4" Steel LENGTH:

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 3.4 TYPE: PVC-40 DIAMETER: 2" LENGTH: 4' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 7.4 POW: 8.5'

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 1.8'

SEAL: TBS: 1.8' TYPE: bentonite pellets LENGTH: 0.6'

SAND PACK: TSP: 2.4 TYPE: #3 + #1 LENGTH: 6.1'

SURFACE COLLAR:
TYPE: Cement RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

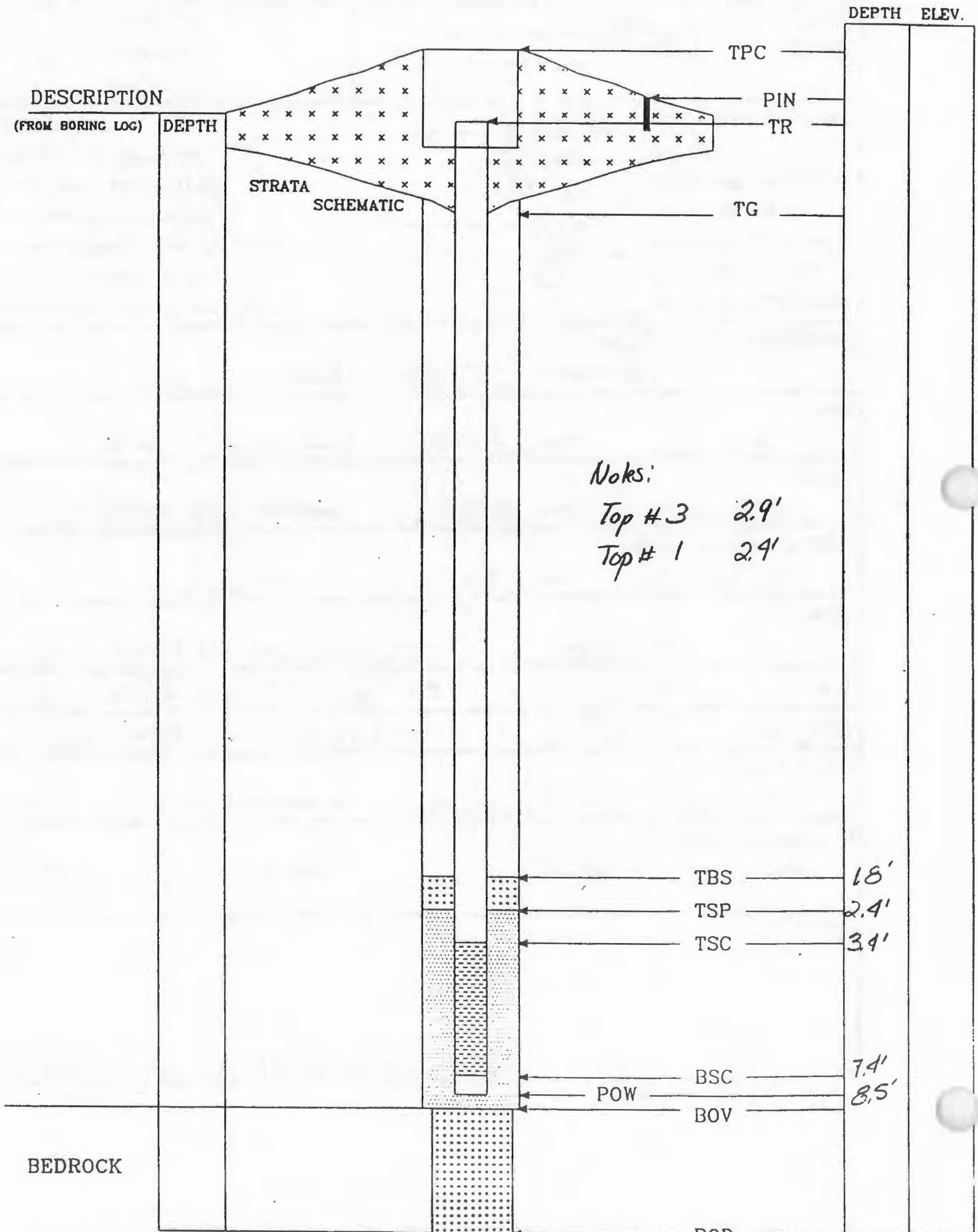
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
ROADWAY BOX INSTALLATION DETAIL

ENGINEERING–SCIENCE, INC.	CLIENT: ACOE	WELL #: MW11-2

DATE 11/16/93



Note : all depths to ground surface

* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: | WELL #: MW-11-3

PROJECT: 10-SWMU
LOCATION: SEAD 11
PROJECT NO:
INSPECTOR: ES/LB
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Al
DRILLING COMPLETED: 11/4/93
BORING DEPTH: 9.0'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC: 11

POW DEPTH: 9.0'
INSTALLATION STARTED: 11/4/93
INSTALLATION COMPLETED: 11/5/93
SURFACE COMPLETION DATE: 11/5/93
COMPLETION CONTRACTOR/CREW:
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x4" Steel LENGTH: 4'- total length

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 3.9' TYPE: PVC-40 DIAMETER: 2" LENGTH: 4.0' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 7.9' POW: 9.0' 1.1' btw. POW and BSC.

GROUT:
TG: NA TYPE: LENGTH:

SEAL: TBS: near surface TYPE: bentonite pellets LENGTH: 2.4'

SAND PACK: TSP: 2.4' → #1 2.9 #3 TYPE: # 3 and # 1 LENGTH: 6.6'

SURFACE COLLAR:
TYPE: Cement RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:
Well screen is 4.0'
Depth to POW from BSC 1.1' } note change

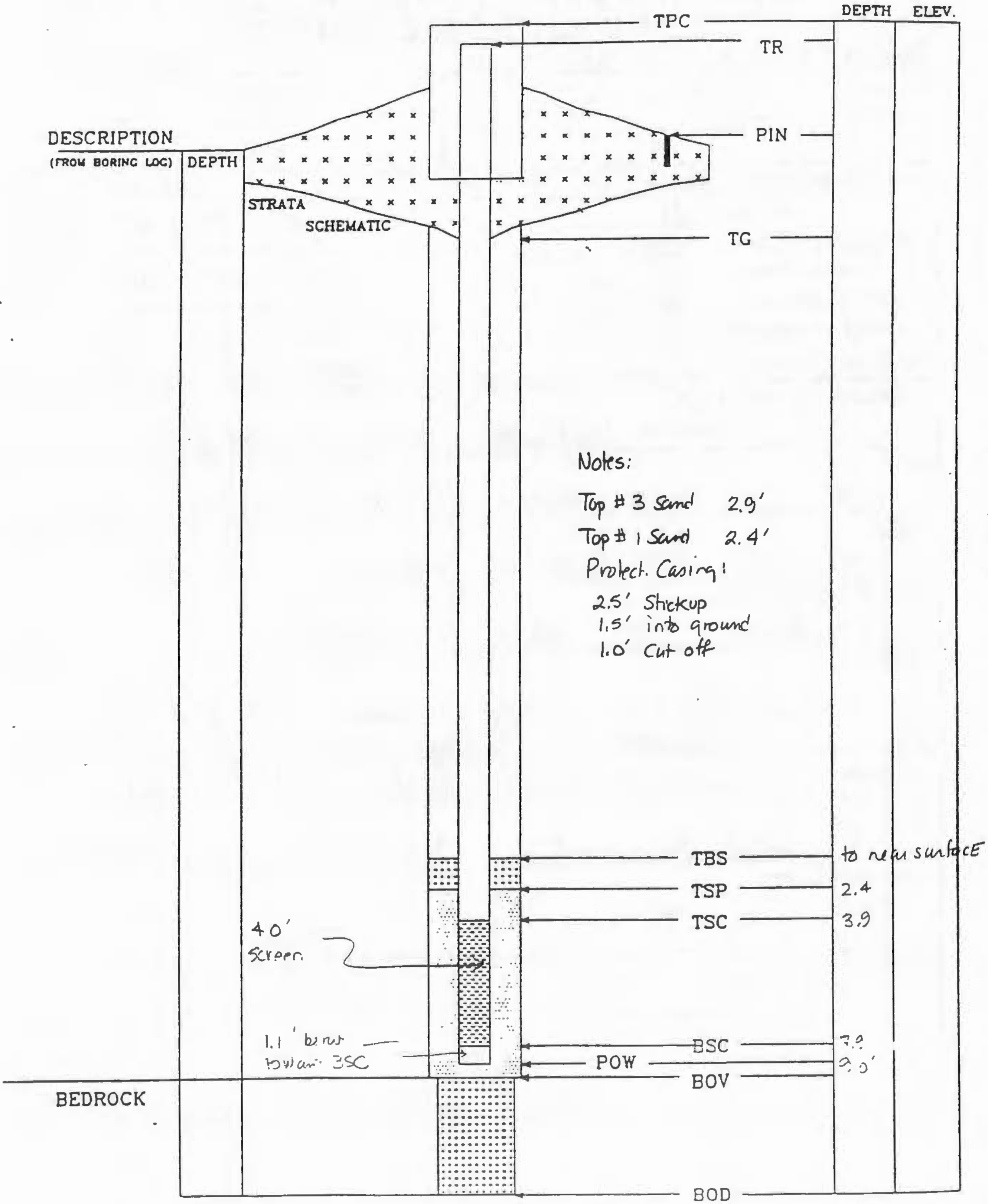
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC. | CLIENT: | WELL #: MW11-3

DATE: ______



Notes:

Top #3 Sand 2.9'

Top #1 Sand 2.4'

Protect. Casing:

2.5' Stickup

1.5' into ground

1.0' Cut off

All depths measured from ground surface

• NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: | WELL #: MW11-4

PROJECT: 10 SWMU
LOCATION: SEAD -11

PROJECT NO:
INSPECTOR: E/S / LB
CHECKED BY:

DRILLING CONTRACTOR: EMPIRE
DRILLER: AL
DRILLING COMPLETED: 11/4/93
BORING DEPTH: 10.5'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8 1/2"
ASSOCIATED SWMU/AOC: 11

POW DEPTH: 10.5'
INSTALLATION STARTED: 11/4/93
INSTALLATION COMPLETED:
SURFACE COMPLETION DATE:
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?) y
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x4" Steel LENGTH: 2.9' Stickup

RISER:
TR: TYPE: PVC - 40 DIAMETER: 2" LENGTH: 2.5'

SCREEN:
TSC: 4.8' TYPE: PVC-40 DIAMETER: 2" LENGTH: 5.0' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 9.8' POW: 10.5' 0.5' point

GROUT:
TG: 0.0 TYPE: Cem-bentonite LENGTH: 2.8'

SEAL: TBS: 2.8' TYPE: bentonite pellets LENGTH: 0.5'

SAND PACK: TSP: 3.3' TYPE: #3 and #1 LENGTH: 7.2

SURFACE COLLAR:
TYPE: Cement RADIUS: 2' x 2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: — DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

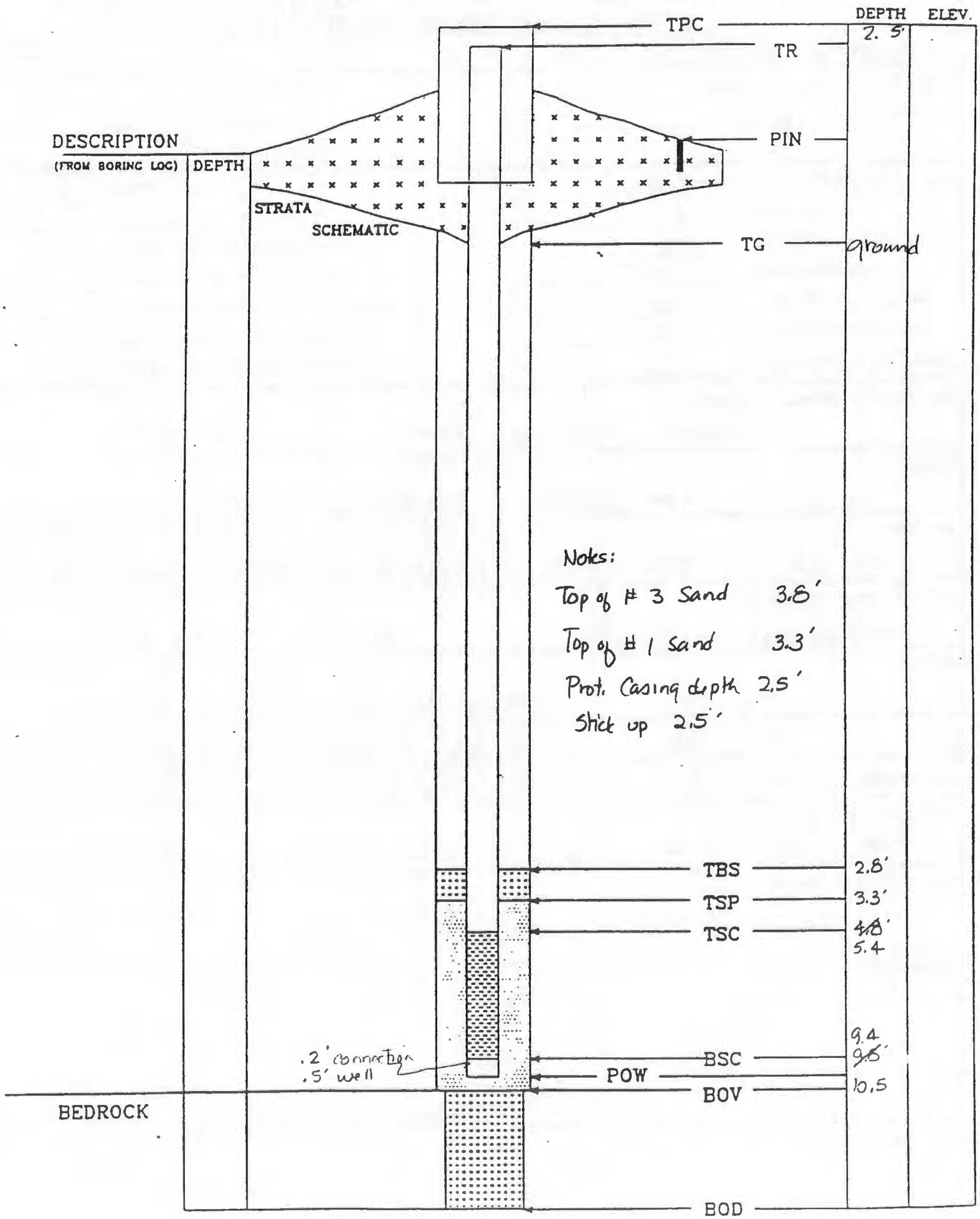
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW11-4

DATE: ____________



Notes:

Top of # 3 Sand 3.8'

Top of # 1 Sand 3.3'

Prot. Casing depth 2.5'

Stick up 2.5'

depths measured from ground surface

• NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: ACOE | WELL #: MW13-1

PROJECT: 10 SWMU.
LOCATION: SEAD 13
PROJECT NO:
INSPECTOR: ES
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: John
DRILLING COMPLETED: 12-8-93
BORING DEPTH: 12'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC: 13

POW DEPTH: 12'
INSTALLATION STARTED: 12-8-93
INSTALLATION COMPLETED: 12-8-93
SURFACE COMPLETION DATE:
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4" x 4" LENGTH:

RISER:
TR: TYPE: PVC 40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 4.3' TYPE: PVC 40 DIAMETER: 2" LENGTH: 2' + 4' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 11.1' POW: 12.0'

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 2.0'

SEAL: TBS: 2.0' TYPE: bentonite pellets LENGTH: 1'

SAND PACK: TSP: 3.0' #1 3.5' #3 TYPE: #3 and #1 LENGTH: 9.0'

SURFACE COLLAR:
TYPE: RADIUS: 2' x 2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

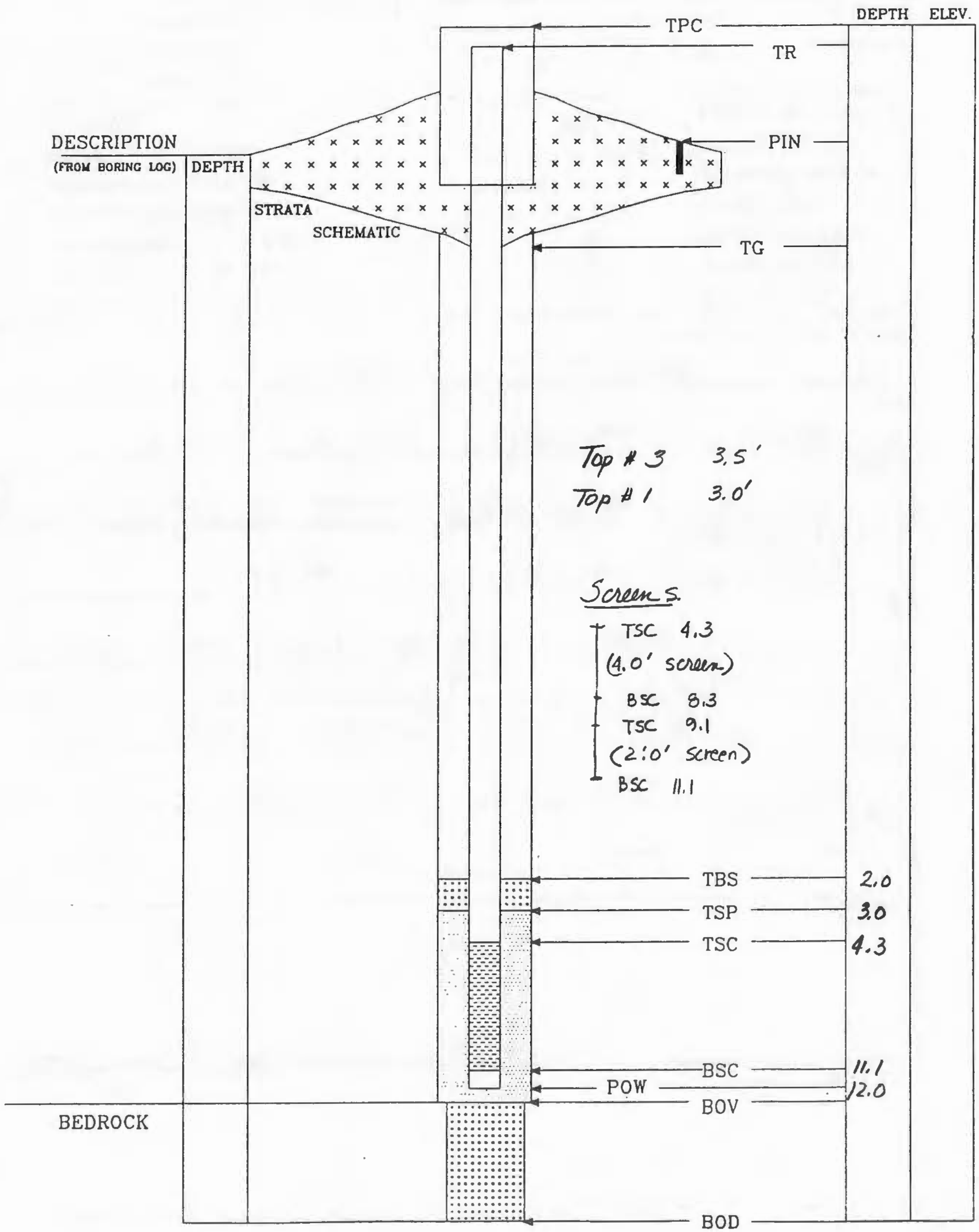
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING–SCIENCE, INC.	CLIENT:	WELL #: 13-1

DATE: 12-8-93



Note: depth measured from ground.

* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
ROADWAY BOX – SURFACE COMPLETION

ENGINEERING-SCIENCE, INC. CLIENT: ACOE WELL #: MW 13-2

PROJECT: 10 SWMU PROJECT NO:
LOCATION: SEAD 13 INSPECTOR: ES
CHECKED BY:

DRILLING CONTRACTOR: Empire POW DEPTH: 16.0'
DRILLER: Bob INSTALLATION STARTED: 11/9/93
DRILLING COMPLETED: 11/9/93 INSTALLATION COMPLETED: 11/9/93
BORING DEPTH: 16.0' SURFACE COMPLETION DATE:
DRILLING METHOD(S): HSA COMPLETION CONTRACTOR/CREW: Empire
BORING DIAMETER(S): 8½" BEDROCK CONFIRMED (Y/N?)
ASSOCIATED SWMU/AOC: 13 ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x 4" Steel LENGTH: 5' total

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 6.3' TYPE: PVC-40 DIAMETER: 2" LENGTH: 9.0 SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC Cap BSC: 15.3' POW: 16.0

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 3.0'

SEAL: TBS: 3.0' TYPE: Benton-pellets LENGTH: 1.0'

SAND PACK: TSP: #3 - 5.3' #1 - 4.8' TYPE: #3 + #1 Silica LENGTH: 10.2'

SURFACE COLLAR:
TYPE: Cement RADIUS: 2' x 2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

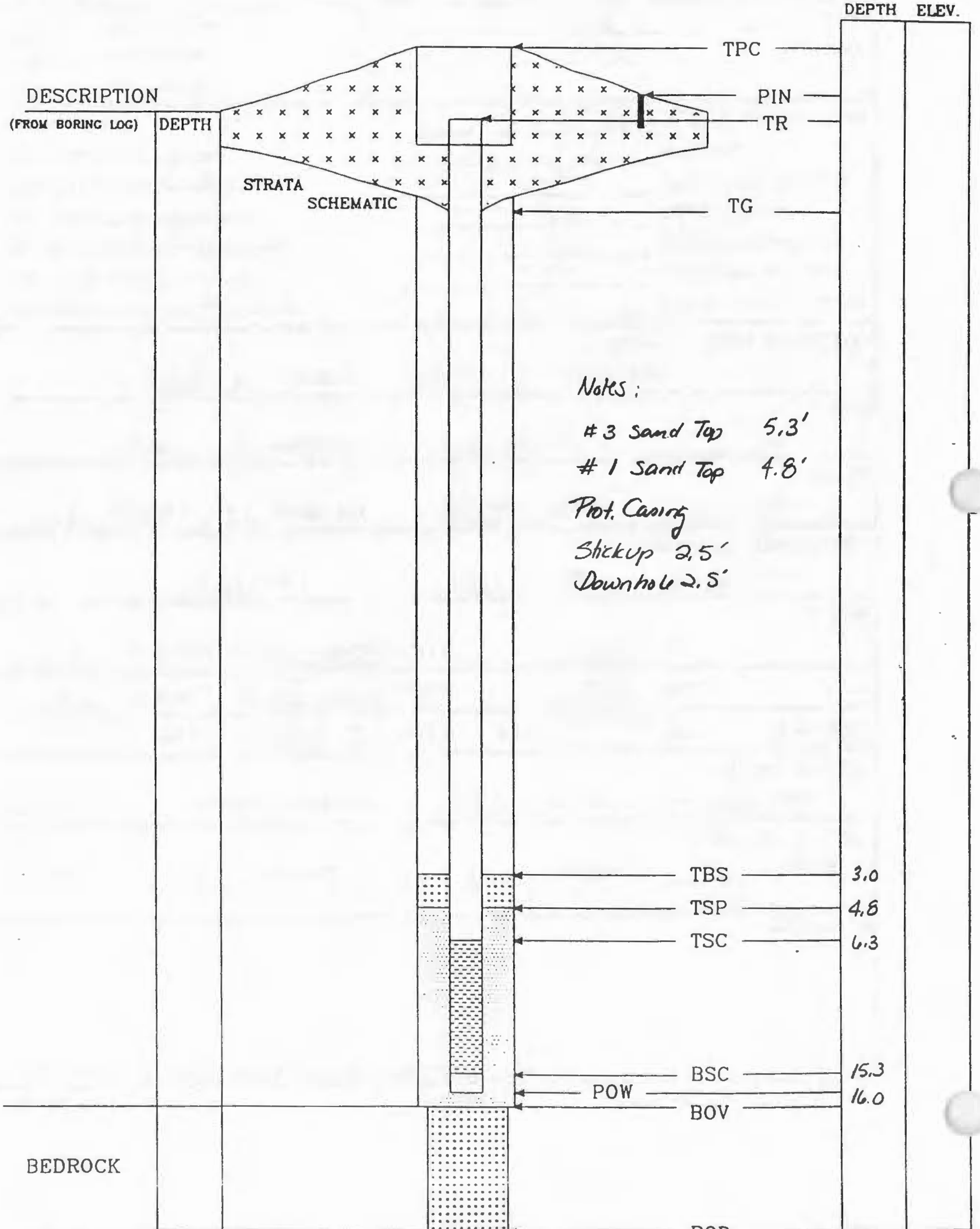
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
ROADWAY BOX INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT:	WELL #: MW13-2

DATE: 11/9/93



Notes;
#3 Sand Top 5.3'
#1 Sand Top 4.8'
Prot. Casing
Stickup 2.5'
Downhole 2.5'

* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW13-3

PROJECT: 10 SWMU	PROJECT NO:
LOCATION: SEAD 13	INSPECTOR:
	CHECKED BY:

DRILLING CONTRACTOR: Empire	POW DEPTH: 24.0'
DRILLER: Bob	INSTALLATION STARTED: 12-8-93
DRILLING COMPLETED: 12-13-93	INSTALLATION COMPLETED: 12-13-93
BORING DEPTH: 24.0'	SURFACE COMPLETION DATE: 12-13-93
DRILLING METHOD(S): HSA	COMPLETION CONTRACTOR/CREW:
BORING DIAMETER(S): 8½"	BEDROCK CONFIRMED (Y/N?) N
ASSOCIATED SWMU/AOC: 13	ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4" x 4" Steel LENGTH: 5'

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN: Two screens - 4' and 9'
TSC: 8.9' TYPE: PVC-40 DIAMETER: 2" LENGTH: 13' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC-point BSC: 22.9' POW: 24.0'

GROUT:
TG: Ground TYPE: Cem-bentonite LENGTH: 5.5'

SEAL: TBS: 5.5' TYPE: bentonite pellets LENGTH: 2.0'

SAND PACK: TSP: #3-8' #1-7.5' TYPE: #3 + #1 LENGTH: 16.5'

SURFACE COLLAR:
TYPE: RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: Ø DEPTH 3: DEPTH 4:

COMMENTS:

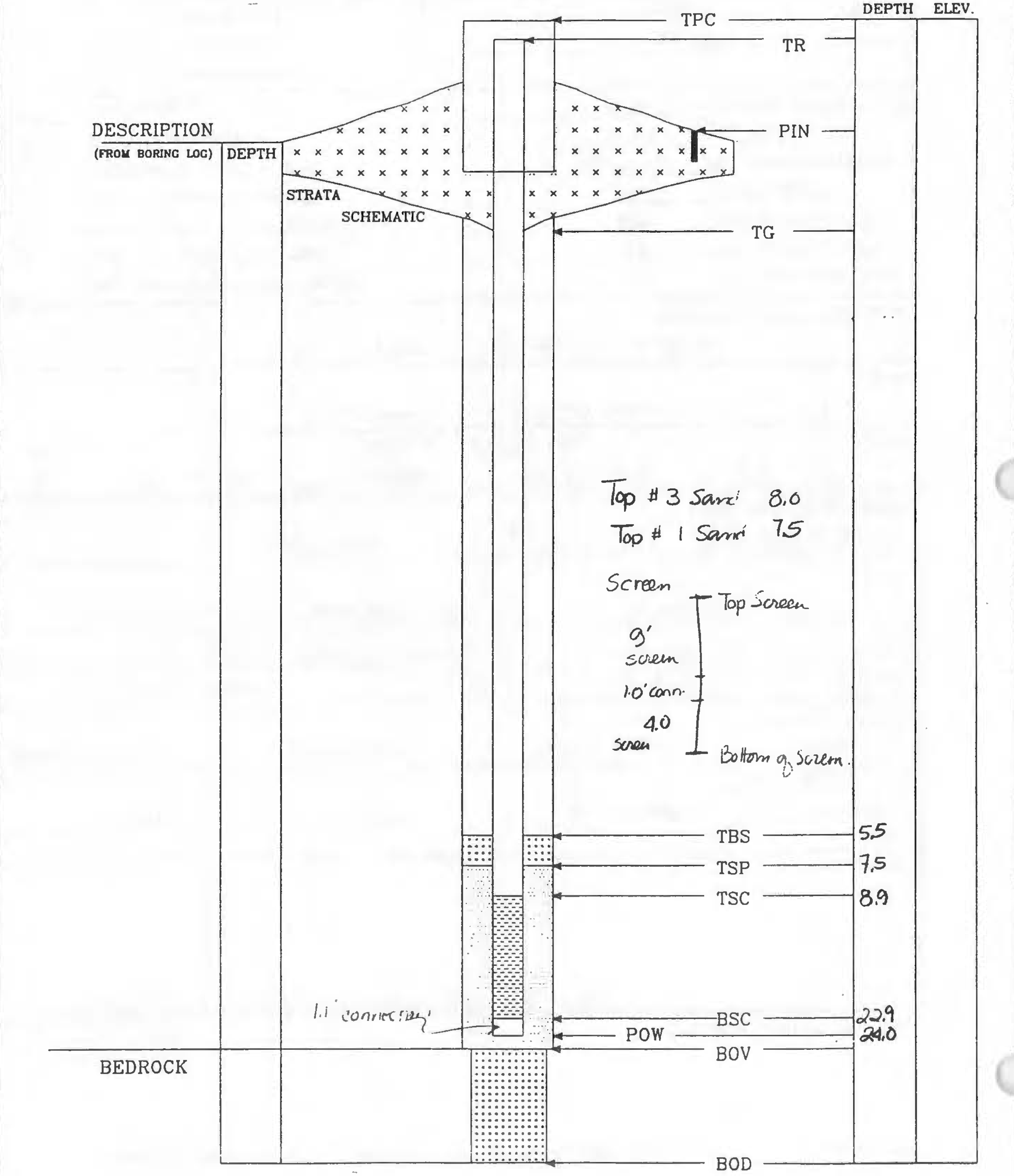
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW 13-3

DATE: 12-13-93



Depth measured to ground surface

* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW13-4

PROJECT: 10 SWMU
LOCATION: SEAD 13
PROJECT NO:
INSPECTOR: ES/MB/KK
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Scott
DRILLING COMPLETED:
BORING DEPTH: 8.5'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8 1/2"
ASSOCIATED SWMU/AOC: 13

POW DEPTH: 8.5'
INSTALLATION STARTED: 12-15-93
INSTALLATION COMPLETED:
SURFACE COMPLETION DATE:
COMPLETION CONTRACTOR/CREW: Empire/Scott
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4" x 4" Steel LENGTH:

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 2.5' TYPE: PVC 40 DIAMETER: 2" LENGTH: 4.0' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 7.5' POW: 8.5'

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 1.5'

SEAL: TBS: 1.5' TYPE: bentonite pellets LENGTH: 1.0'

SAND PACK: TSP: #1-2.5' #3-3.0' TYPE: #3 and #1 LENGTH: 6.0'

SURFACE COLLAR:
TYPE: RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

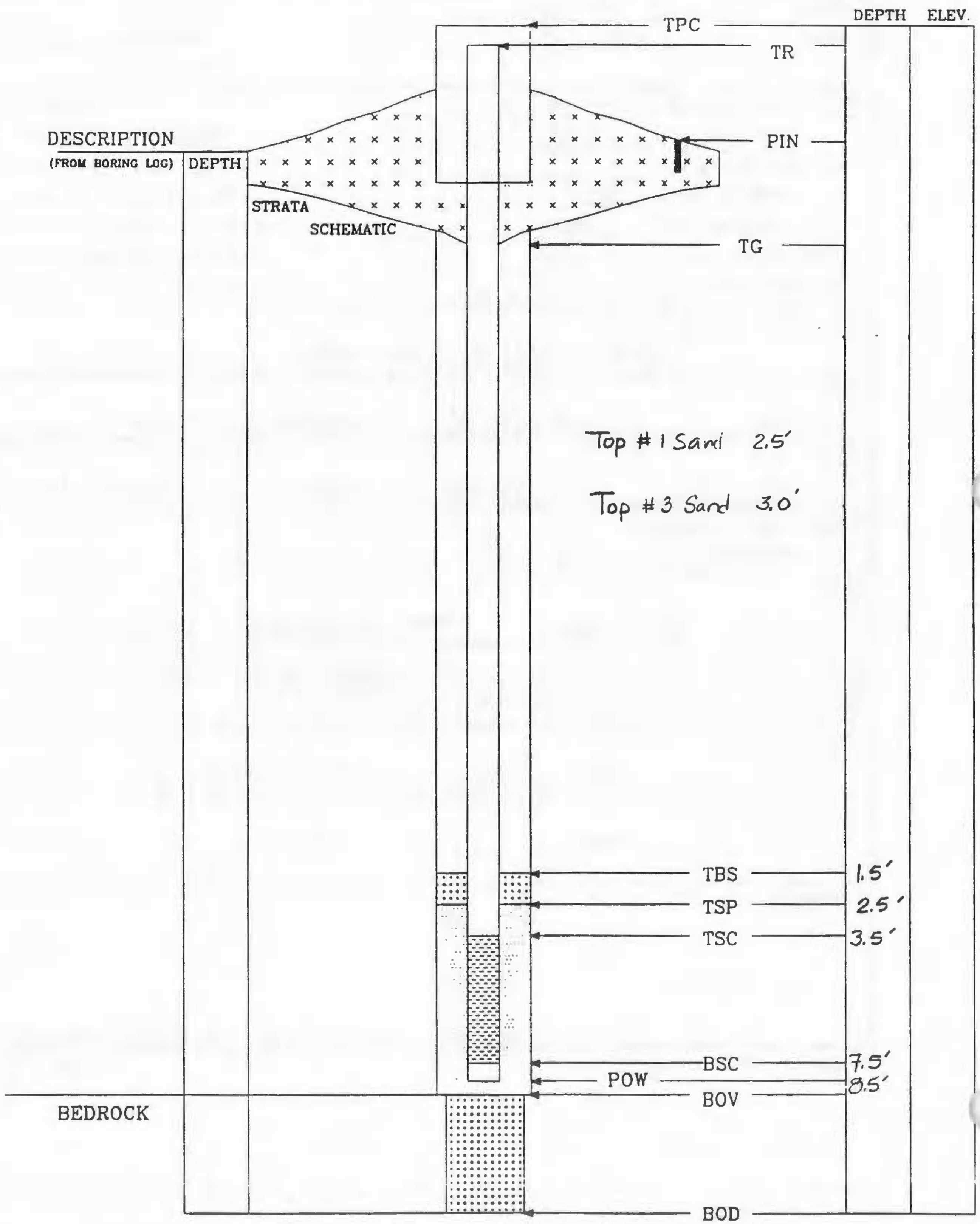
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW13-4

DATE: 12-15-93



* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
ROADWAY BOX – SURFACE COMPLETION

ENGINEERING-SCIENCE, INC.	CLIENT: ACoE	WELL #: MW 13-5

PROJECT: 10 SWMU
LOCATION: SEAD 13

PROJECT NO:
INSPECTOR: ES/LB
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Bob
DRILLING COMPLETED: 11/9/93
BORING DEPTH: 16.0'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC: 13

POW DEPTH: 16.0'
INSTALLATION STARTED: 11/8/93
INSTALLATION COMPLETED: 11/9/93
SURFACE COMPLETION DATE:
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4" x 4" Steel LENGTH: 5.0' total

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 6.3' TYPE: PVC-40 DIAMETER: 2" LENGTH: 9.0' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC Cap BSC: 15.3 POW: 16.0'

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 3.0'

SEAL: TBS: 3.0' TYPE: Bentonite pellets LENGTH: 1.8'

SAND PACK: TSP: #3 – 5.3' #1 – 4.8' TYPE: #3 + #1 Silica LENGTH: 10.2'

SURFACE COLLAR:
TYPE: Cement RADIUS: 2' x 2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

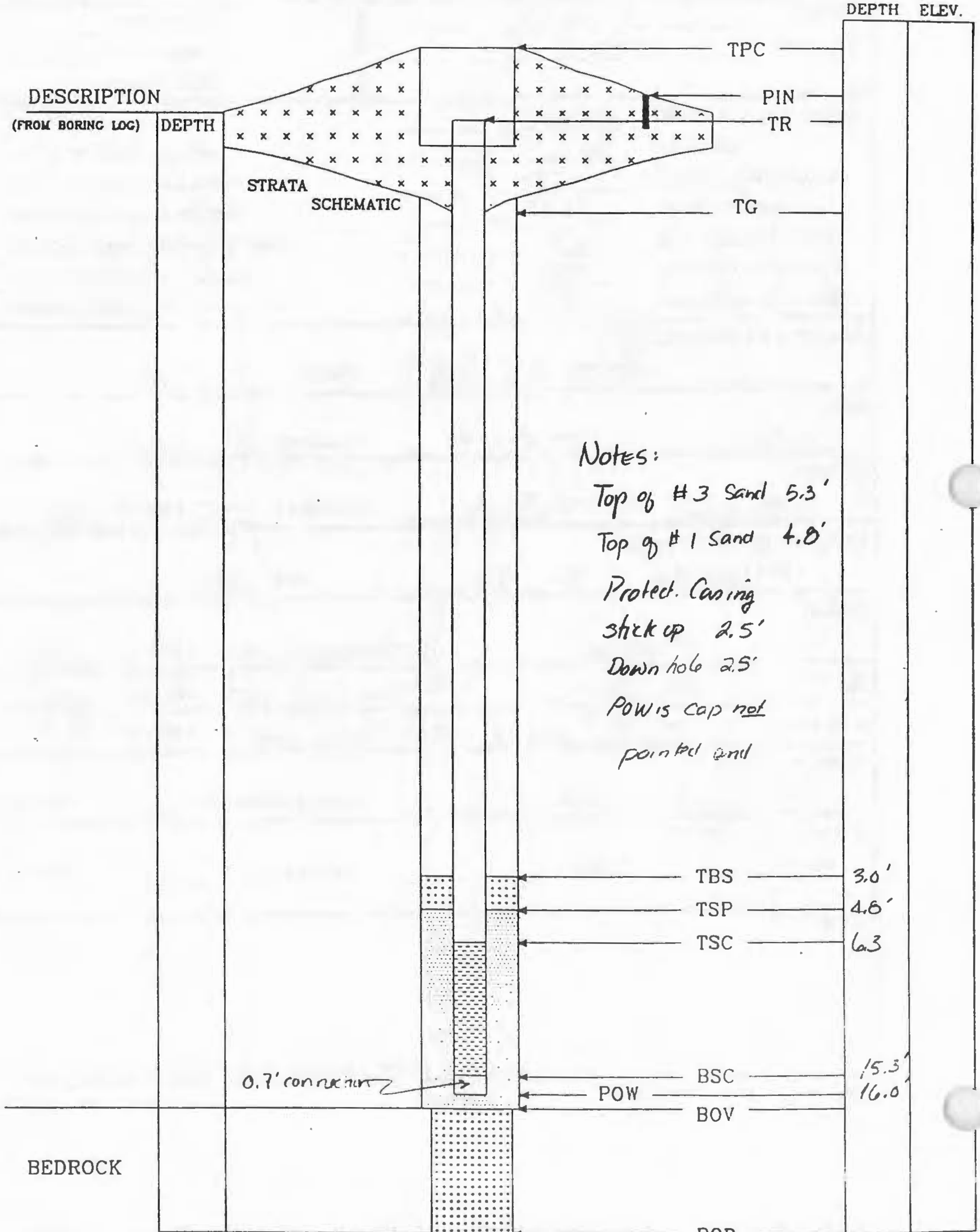
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
ROADWAY BOX INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW13-5

DATE 11/19/93



Note: All depths measured from ground surface

* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: 13-6

PROJECT:	10 SWMU	PROJECT NO:	
LOCATION:	SEAD 13	INSPECTOR:	ES/MB/KK
		CHECKED BY:	

DRILLING CONTRACTOR:	Empire	POW DEPTH:	10.0'
DRILLER:	Scott	INSTALLATION STARTED:	12-15-93
DRILLING COMPLETED:	12-15-93	INSTALLATION COMPLETED:	12-15-93
BORING DEPTH:	10.0'	SURFACE COMPLETION DATE:	12-17-93
DRILLING METHOD(S):	HSA	COMPLETION CONTRACTOR/CREW:	Empire/Scott
BORING DIAMETER(S):	8½"	BEDROCK CONFIRMED (Y/N?)	
ASSOCIATED SWMU/AOC:	13	ESTIMATED GROUND ELEVATION:	

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x 4" Steel LENGTH:

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 5.0' TYPE: PVC-40 DIAMETER: 2" LENGTH: 4' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 9.0' POW: 10.0

GROUT:
TG: Ground TYPE: Cem-bentonite LENGTH: 2.5'

SEAL: TBS: 2.5' TYPE: bentonite pellets LENGTH: 1.0'

SAND PACK: TSP: 3.5'-#1 9.0-#3 TYPE: #3 + #1 LENGTH: 6.5'

SURFACE COLLAR:
TYPE: RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

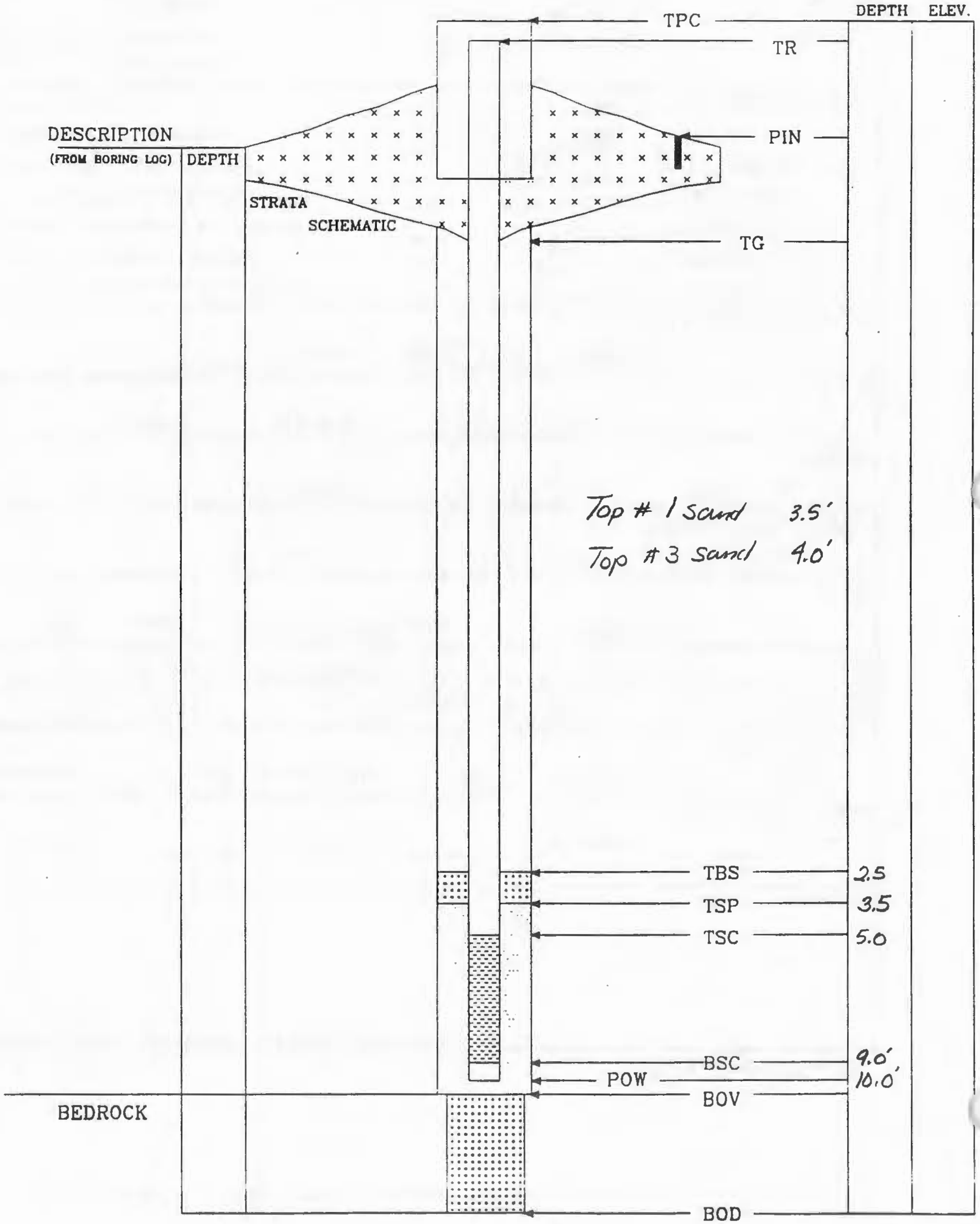
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW13-6

DATE: ____________



* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC. | CLIENT: | WELL #: MW 13-7

PROJECT: 10 SWMU ESI
LOCATION: Seneca Army Depot, Romulus, NY
PROJECT NO: 720478-01001
INSPECTOR: KK BH
CHECKED BY:

DRILLING CONTRACTOR: EMPIRE SOILS
DRILLER: JOHN/ED
DRILLING COMPLETED: 1-24-94
BORING DEPTH: 8.0 ft
DRILLING METHOD(S): Hollow Stem Auger
BORING DIAMETER(S): 8.5 in
ASSOCIATED SWMU/AOC: SEAD 13
POW DEPTH: 8.0 ft
INSTALLATION STARTED: 1-24-94
INSTALLATION COMPLETED: 1-24-94
SURFACE COMPLETION DATE: 1-25-94
COMPLETION CONTRACTOR/CREW: NA
BEDROCK CONFIRMED (Y/N): N (circled)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 2 in LENGTH:

RISER:
TR: +2.5 ft. TYPE: PVC DIAMETER: 2 in LENGTH:

SCREEN:
TSC: 5.0 ft. TYPE: PVC DIAMETER: 2 in LENGTH: 2 ft SLOT SIZE: 1/100 in

POINT OF WELL: (SILT SUMP)
TYPE: PVC BSC: 7.0 ft POW: 8.0

GROUT: NA
TG: TYPE: LENGTH:

SEAL: TBS: 3.0 ft TYPE: bentonite pellets LENGTH: 1.0 ft.

SAND PACK: TSP: 4.0 ft. TYPE: #3 RSC - 8.0 to 4.5 ft; #1 RX - 4.5 to 4.0 ft LENGTH:

SURFACE COLLAR:
TYPE: Quikrete RADIUS: 1 ft. THICKNESS CENTER: 3.0 ft THICKNESS EDGE: .5 ft.

CENTRALIZER DEPTHS NA
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

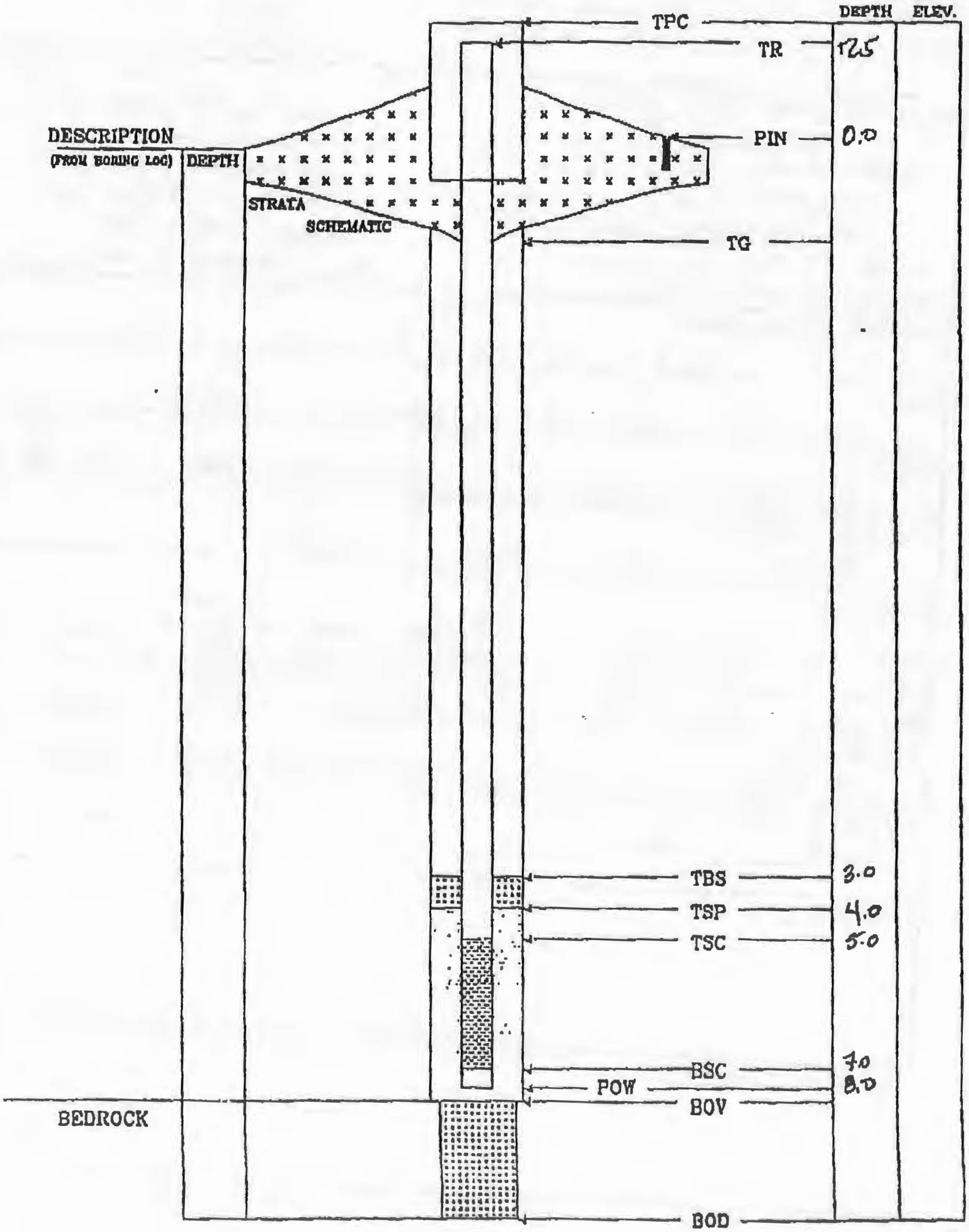
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: US ACOE	WELL #: MW13-7

DATE: 1-24-94



* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
ROADWAY BOX – SURFACE COMPLETION

ENGINEERING-SCIENCE, INC. CLIENT: ACOE WELL #: MW57-1

PROJECT: SEAD 10 SMWU PROJECT NO: 720478-0001
LOCATION: SEAD 57 INSPECTOR: ES/LB
CHECKED BY:

DRILLING CONTRACTOR: EMPIRE POW DEPTH: 6.0'
DRILLER: BOB/JOHN INSTALLATION STARTED: 12-2-93
DRILLING COMPLETED: 12-2-93 INSTALLATION COMPLETED: 12-2-93
BORING DEPTH: 6.0' SURFACE COMPLETION DATE:
DRILLING METHOD(S): HSA COMPLETION CONTRACTOR/CREW:
BORING DIAMETER(S): 8.5" BEDROCK CONFIRMED (Y/N?)
ASSOCIATED SWMU/AOC: SEAD 57 ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x4" steel LENGTH:

RISER:
TR: TYPE: PVC 40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 3.1' TYPE: PVC 40 DIAMETER: 2" LENGTH: 2' SLOT SIZE: .01'

POINT OF WELL: (SILT SUMP)
TYPE: PVC POINT BSC: 5.1' POW: 6.0'

GROUT:
TO: Ground TYPE: cement bentonite LENGTH: 1.3'

SEAL: TBS: 1.3' TYPE: bentonite pellets LENGTH: .7'

SAND PACK: TSP: 2.0 #1 / 2.5 #3 TYPE: #3, #1 LENGTH: .6 #3 / .5 #1

SURFACE COLLAR:
TYPE: cement RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:
Sand was tremied in

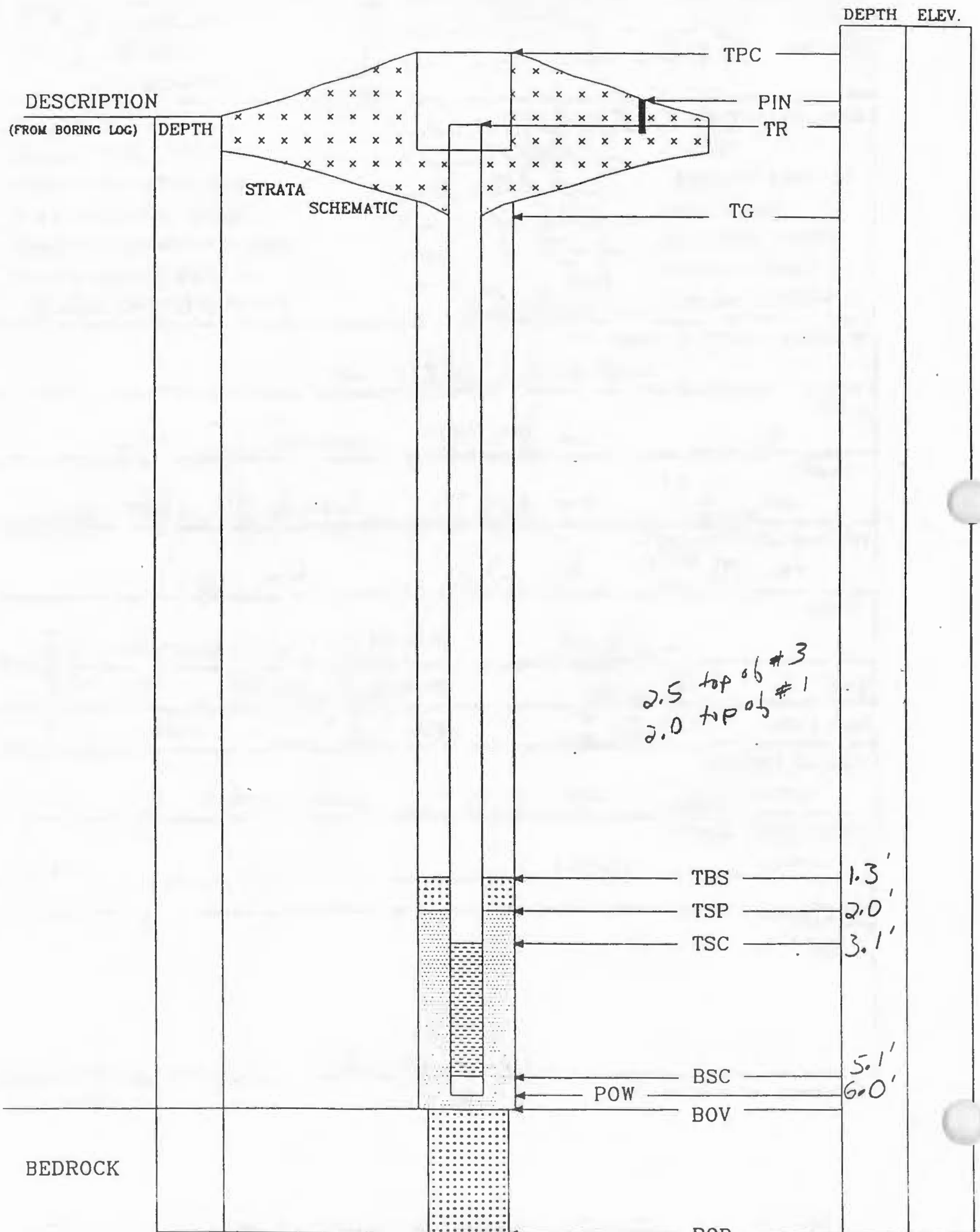
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
ROADWAY BOX INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT:	WELL #: MW57-1

DATE: 12-3-93



* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING–SCIENCE, INC. | CLIENT: ACOE | WELL #: MW57-2

PROJECT: 10 SWMU
LOCATION: SEAD 57
PROJECT NO:
INSPECTOR: ES/LB
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Scott
DRILLING COMPLETED: 12-7-93
BORING DEPTH: 7'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC: 57

POW DEPTH: 7.0'
INSTALLATION STARTED: 12-7-93
INSTALLATION COMPLETED: 12-7-93
SURFACE COMPLETION DATE: 12-7-93
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?):
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: LENGTH:

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: TYPE: PVC-40 DIAMETER: 2" LENGTH: 2' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 6.1' POW: 7.0'

GROUT:
TG: Ground TYPE: Cem-bentonite LENGTH: 2.0'

SEAL: TBS: 2.0' TYPE: Bentonite pellets LENGTH: 1.0'

SAND PACK: TSP: 3.0'-#1 3.5'-#3 TYPE: #3, #1 LENGTH: 4.0'

SURFACE COLLAR:
TYPE: Concrete RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

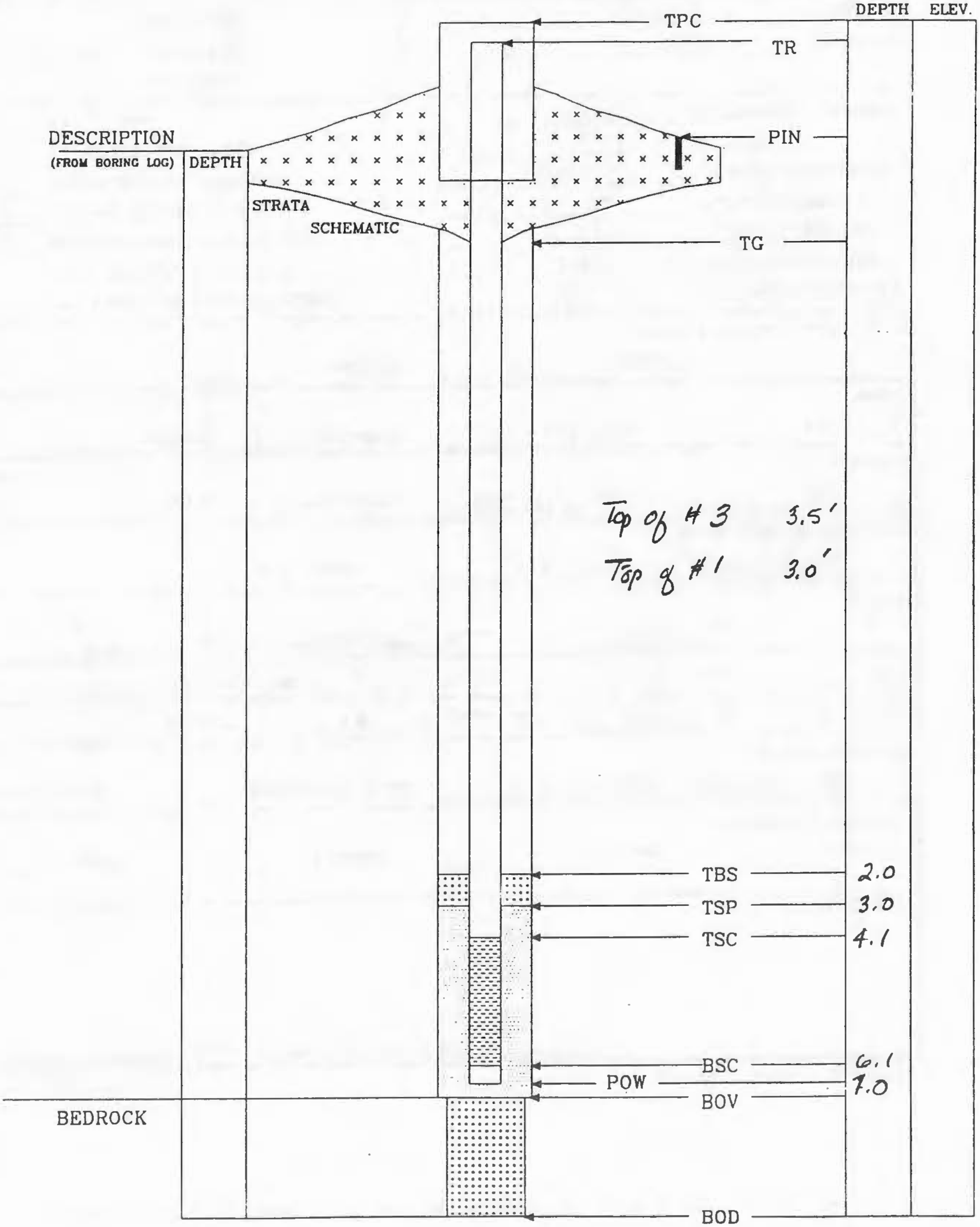
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING–SCIENCE, INC.	CLIENT:	WELL #: MW57-2

DATE: 12-7-93



* NOT TO SCALE

OVERBURDEN MONITORING WELL
COMPLETION REPORT & INSTALLATION DETAIL
PROTECTIVE RISER COMPLETION

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW57-3

PROJECT: 10 SWMU
LOCATION: SEAD 57
PROJECT NO:
INSPECTOR: ES
CHECKED BY:

DRILLING CONTRACTOR: Empire
DRILLER: Scott
DRILLING COMPLETED: 12-7-93
BORING DEPTH: 7.0'
DRILLING METHOD(S): HSA
BORING DIAMETER(S): 8½"
ASSOCIATED SWMU/AOC: 57

POW DEPTH: 7.0'
INSTALLATION STARTED: 12-7-93
INSTALLATION COMPLETED: 12-7-93
SURFACE COMPLETION DATE: 12-7-93
COMPLETION CONTRACTOR/CREW: Empire
BEDROCK CONFIRMED (Y/N?)
ESTIMATED GROUND ELEVATION:

PROTECTIVE SURFACE CASING:
DIAMETER: 4"x4" LENGTH:

RISER:
TR: TYPE: PVC-40 DIAMETER: 2" LENGTH:

SCREEN:
TSC: 4.1 TYPE: PVC 40 DIAMETER: 2" LENGTH: 2' SLOT SIZE: 0.01"

POINT OF WELL: (SILT SUMP)
TYPE: PVC point BSC: 6.1 POW: 7.0

GROUT:
TG: Ground TYPE: Cement-bentonite LENGTH: 2.0'

SEAL: TBS: 2.0 TYPE: bentonite pellets LENGTH: 1.0'

SAND PACK: TSP: 3.0' #1 3.5' #3 TYPE: #1 + #3 LENGTH: 4.0'

SURFACE COLLAR:
TYPE: Concrete RADIUS: 2'x2' THICKNESS CENTER: 1' THICKNESS EDGE: 1'

CENTRALIZER DEPTHS
DEPTH 1: DEPTH 2: DEPTH 3: DEPTH 4:

COMMENTS:

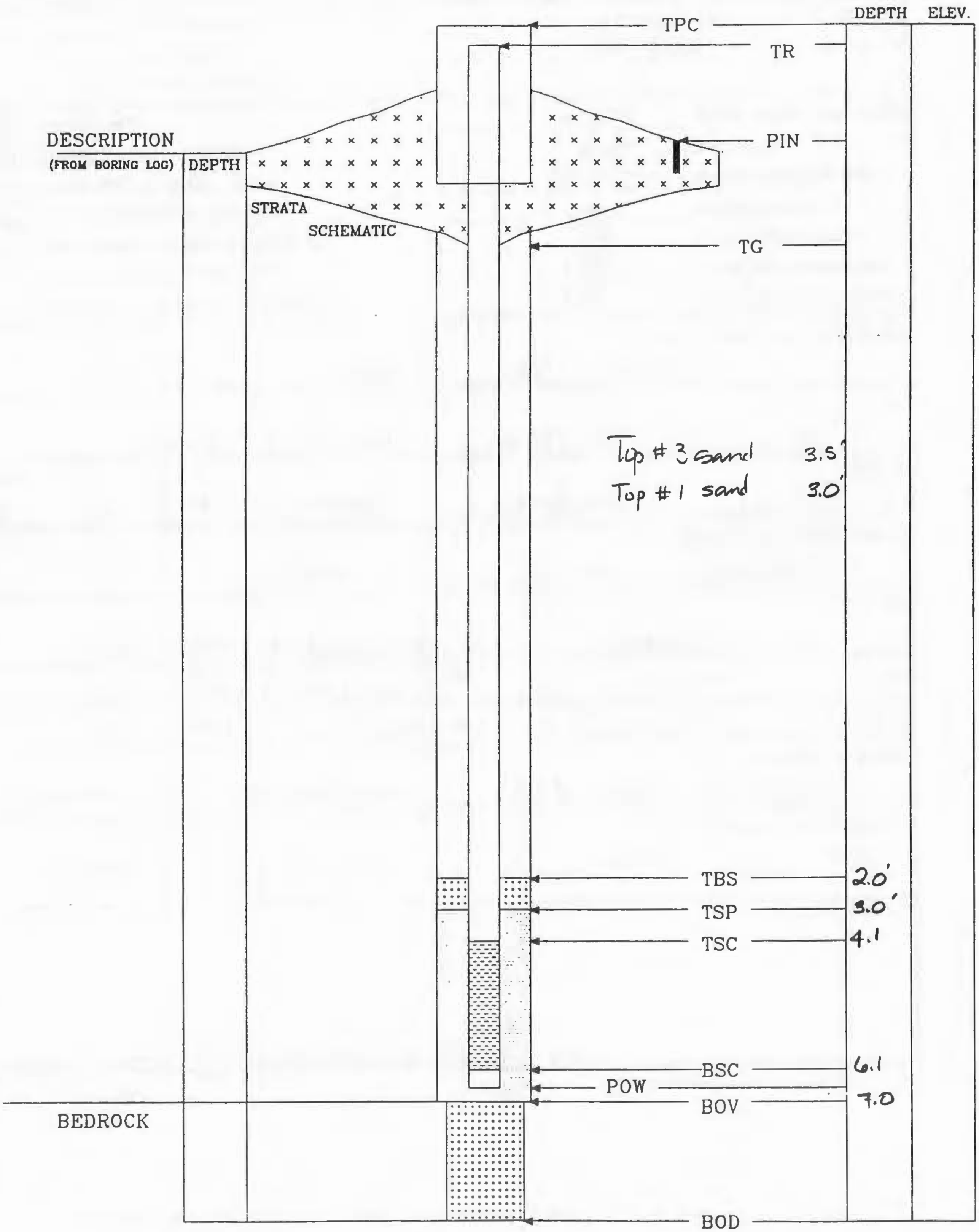
* ALL DEPTH MEASUREMENTS REFERENCED TO GROUND SURFACE

SEE PAGE 2 FOR SCHEMATIC

OVERBURDEN MONITORING WELL
PROTECTIVE RISER INSTALLATION DETAIL

ENGINEERING-SCIENCE, INC.	CLIENT: ACOE	WELL #: MW 57-3

DATE: 12-7-93



Depths measured from ground.

* NOT TO SCALE

APPENDIX D

WELL DEVELOPMENT REPORTS

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW11-1

PROJECT : 10 SWMU ESI SEAD-11
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 12/17/93
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/3/93

INSPECTOR: KK & BH & AS
CONTRACTOR:
CREW:
START DEVELOPMENT DATE: 12/17/93
END DEVELOPMENT DATE: 12/17/93

WATER DEPTH (TOC): 3.48 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 16.58 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 2.14 GAL. = A

A = 13.10 * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 8.03 GAL. = B

B = 9.6 * (2.95 – 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 10.17 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 30.51 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
12/17 SURGE 1st volume	1200	1240	40	5.0						13.23
PUMP 1st volume	1250	1302	12	2.8						dry
12/18 PUMP 1st volume	0932	0938	6	2.9	7.34	430	5.5	clear	5.5	10.34
PUMP 2nd volume	0948	0959	11	4.5					79	dry
PUMP 2nd volume	1510	1530	20	5.0						dry
PUMP 3rd volume	1535	1540	5	0.3	7.43	480	9.5	cl. white	26.6	dry
12/19 PUMP 3rd volume	1012	1100	48	8.6	7.5	400	8.5	clear	5 to 34.2	dry
PUMP 3rd volume	1407	1419	12	1.6	7.36	438	9.9	clear	11.5	13.86
TOTALS/FINAL				30.70				clear	11.5	

COMMENTS:
12/17 (1250) rate = 1000 ml/min.
12/18 (0930) depth = 3.37, rate = 1500 ml/min.
12/18 (0945) depth = 10.58 ft.
12/18 (1510) depth = 9.83 ft.
12/19 (1012) rate = 1000 ml/min.
12/19 (1018) rate = 110 ml/min.
12/19 (1026) rate = 1000 ml/min.
12/19 (1407) depth = 11.94 ft, rate = 125 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW11-1

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW11-2

PROJECT : 10 SWMU ESI SEAD-11
LOCATION: Seneca Army Depot, Romulus, NY

DATE: 11/23/93
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/26/93

INSPECTOR: BH & KK & AS
CONTRACTOR:
CREW:
START DEVELOPMENT DATE: 11/23/93
END DEVELOPMENT DATE: 12/19/93

WATER DEPTH (TOC): 5.92 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 12.08 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.0 GAL. = A
A = 6.16 * 0.163
STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 5.1 GAL. = B
B = 6.16 (2.95 – 0.163) * 0.3
SINGLE STANDING WATER VOLUME = A + B = ... 6.1 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 18.3 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
11/23 SURGE 1st volume	1005	1035	30	6.0	7.66	650	11	lt. brn		dry
12/18 PUMP 1st volume	1018	1020	2	0.2					4.89	3.82
PUMP 2nd volume	1036	1107	31	5.1						
PUMP 2nd volume	1140	1143	3	0.5						dry
PUMP 2nd volume	1220	1223	3	0.5	7.49	580	8.8	clear	7.45	dry
PUMP 3rd volume	1607	1617	10	2.0					12.70	dry
12/19 PUMP 3rd volume	1400	1425	25	5.0	7.54	640	9.0	clear	5.01	
				COMPLETE						
TOTALS/FINAL				19.3				clear		

COMMENTS:
11/23 (1400) depth = 9.82 ft.
12/18 (1018) depth = 3.82 ft.
12/18 (1036) rate = 1000 ml/min.
12/18 (1045) 850 ml/min.
12/18 (1605) OVM reads 0.3.
12/18 (1607) rate = 700 ml/min.
12/19 Well pressurized upon opening, OVM reads 0.6.
12/19 (1400) rate = 800 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW11-2

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW11-3

PROJECT: 10 SWMU ESI SEAD-11
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 11/6/93
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/4/93

INSPECTOR: DMK & BFH
CONTRACTOR:
CREW:
START DEVELOPMENT DATE: 11/10/93
END DEVELOPMENT DATE: 11/22/93

WATER DEPTH (TOC): 10.20 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 11.60 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 0.2 GAL. = A

A = 1.400 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR − WELL DIAM. FACTOR) X 0.3 = 1.2 GAL. = B

B = 1.400 * (2.95 − 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 1.4 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 7 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
11/10 SURGE 1st volume	1145	1205	20	1.0	7.18	700	10.4	clear	6.02	dry
11/22 PUMP 2nd volume	1045	1105	20	1.4	7.48	750	11	clear	4.25	8.48
PUMP 3rd volume	1120	1150	30	1.5	7.38	750	11.5	clear	1.10	8.70
PUMP 4th volume	1200	1225	25	1.5	7.34	750	12	clear	1.53	8.62
				COMPLETE						
TOTALS/FINAL				5.9				clear	1.53	

COMMENTS:
11/9 depth = 10.46 ft.
11/10 depth = 10.2 ft, SURGE 0.5 gal.
11/12 depth = 9.9 ft.
11/21 depth = 7.34 ft.
11/22 depth = 7.02, rate = 800 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW11-3

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW11-4

PROJECT: 10 SWMU ESI SEAD-11
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 11/6/93
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/4/93

INSPECTOR: DMK & BFH
CONTRACTOR:
CREW:
START DEVELOPMENT DATE: 11/6/93
END DEVELOPMENT DATE: 11/9/93

WATER DEPTH (TOC): 10.30 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 12.82 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 0.41 GAL. = A

A = 2.52 * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR − WELL DIAM. FACTOR) X 0.3 = 2.1 GAL. = B

B = 2.52 * (2.95 − 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 2.5 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 12.5 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
11/6 SURGE 1st volume	1220			2.0						dry
PUMP 1st volume	1520	1535	15	0.5	7.10	550	8.8	clear	16.7	dry
PUMP 2nd volume	1536	1630	54	1.0						dry
11/7 PUMP 2nd volume		1115		1.5	7.14	550	10.3	clear	0.05	dry
PUMP 3rd volume	1116	1220	56	1.0						dry
11/8 PUMP 3rd volume	0930	1130	120	1.5	7.02	600	10.6	clear	2.42	11.2
11/9 PUMP 4th volume	0905	1110	125	2.5	7.53	650	11.7	clear	2.15	12.2
PUMP 5th volume	1455	1645	110	2.5	7.70	600	11.3	clear	0.75	12.7
				COMPLETE						
TOTALS/FINAL				12.5					0.75	

COMMENTS:
11/6 (1520) depth = 10.88 ft.
11/7 2nd volume rate is about 100 ml/min.
11/7 (1220) depth = 11.70 ft.
11/8 (0930) depth = 9.8 ft.
11/9 (0905) depth = 9.6 ft.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   WELL #: MW11-4

WELL DEVELOPMENT REPORT

ENGINEERING–SCIENCE, INC. CLIENT: USACOE | WELL #: MW13–1

PROJECT: 10 SWMU ESI SEAD–13 | DATE: 1/9/94
LOCATION: Seneca Army Depot, Romulus, NY | PROJECT NO.: 720478–01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/8/93

INSPECTOR: KS
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 1/9/94
END DEVELOPMENT DATE: 1/22/94

WATER DEPTH (TOC): 4.62 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(GS): 12.0 ft
MEASURED POW DEPTH(TOC): 14.8 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.66 GAL. = A

A = 10.18 * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 7.53 GAL. = B

B = 10.18 * (2.95 – 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 9.2 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 46 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
1/9 SURGE 1st volume	1000	1030	30	9.2	7.30	420	6.5	dark	1000+	3.95
PUMP 2nd volume	1030	1100	30	9.2	7.33	425	7.25	clearer	1000+	5.00
PUMP 3rd volume	1100	1124	24	9.2	7.32	430	7.25	silty	318	5.00
PUMP 4th volume	1125	1142	17	9.2	7.24	425	7.25	silty	241	5.00
PUMP 5th volume	1143	1205	22	9.2	7.23	425	7.25	p. silty	80	5.00
1/22 PUMP 6th volume	1420	1444	24	10.0	7.44	410	5.00	clear	1.52	4.72
PUMP 7th volume	1444	1525	41	10.0	7.37	410	3.5	clear	1.08	4.90
				COMPLETE						
TOTALS/FINAL				66.0				clear	1.08	

COMMENTS: PUMP rate for 2nd through 7th volumes was 1500 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW13–1

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-2

PROJECT: 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 11/10/93
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/9/93

INSPECTOR: BH
CONTRACTOR:
CREW:
START DEVELOPMENT DATE: 11/10/93
END DEVELOPMENT DATE: 11/10/93

WATER DEPTH (TOC): 3.95 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 18.4 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 2.4 GAL. = A

A = 14.45 * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR − WELL DIAM. FACTOR) X 0.3 = 9.4 GAL. = B

B = 11.2 * (2.95 − 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 11.8 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 3 X C .... 35.4 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
SURGE 1st volume	1005	1030	25	11.8	7.23	3000	12.7	dk brn	NA	6.0
PUMP 2nd volume	1545	1615	30	11.8	7.32	3100	12.7	cloudy	112	7.6
PUMP 3rd volume	1618	1632	14	11.8	7.20	3050	12.2	clear	20.0	8.2
				COMPLETE						
TOTALS/FINAL				35.4				clear	20.0	

COMMENTS: Bailed 1st volume.
2nd volume : depth = 4.14 ft., rate = 2000 ml/min.
3rd volume : rate = 2000 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW13-2

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-3

PROJECT : 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 1/9/94
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/8/93

INSPECTOR: BH
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE:
END DEVELOPMENT DATE:

WATER DEPTH (TOC): DRY
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 26.45 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = NA GAL. = A

A = * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = NA GAL. = B

B = * (2.95 - 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... NA GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... NA GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
1/9 Well not developed - dry.										
TOTALS/FINAL										

COMMENTS:

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   WELL #: MW13-3

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-3

PROJECT : 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY

DATE: 3/4/94
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/8/93

INSPECTOR: KS & LR
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE:
END DEVELOPMENT DATE:

WATER DEPTH (TOC): 26.45 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 26.45 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = NA GAL. = A

A = * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = NA GAL. = B

B = * (2.95 - 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... NA GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... NA GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
3/4 Well not developed - dry.										
TOTALS/FINAL										

COMMENTS:

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   WELL #: MW13-3

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-4

PROJECT : 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY

DATE: 1/10/94
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/15/93

INSPECTOR: KS
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 1/10/94
END DEVELOPMENT DATE: 1/12/94

WATER DEPTH (TOC): 3.13 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): 8.5 ft
MEASURED POW DEPTH(TOC): 12.5 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.53 GAL. = A
A = 9.37 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 5.0 GAL. = B
B = 6.0 * (2.95 – 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 6.5 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 32.5 GALS.
= 3 X C 19.5 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
1/10 SURGE 1st volume	1425	1450	25	5				dk brn		dry
SURGE 1st volume	1525	1545	20	1.5	7.10	750	5.5	dk brn	1000+	
SURGE 2nd volume	1545	1555	10	2.25				dk brn		dry
1/11 PUMP 2nd volume	1110	1125	15	4.25	7.22	700	7.0	dk brn	1000+	10.5
PUMP 3rd volume	1125	1130	5	0.25						dry
PUMP 3rd volume	1208	1225	17	4						dry
PUMP 3rd volume	1350	1400	10	2.25	6.86	650	6.0	silty	1000+	9.4
PUMP 4th volume	1400	1412	12	1.75				silty	1000+	
1/12 PUMP 4th volume	0840	0915	35	4.75	7.00	700	5.5	silty		9.0
PUMP 5th volume	0915	0945	30	3.5						
PUMP 5th volume	1040	1120	40	3.0	6.90	650	5.5	clear	44.3	9.0
TOTALS/FINAL				32.5				clear	44.3	

COMMENTS: 1/10 OVM reads 7.0 ppm. Possible moisture related. Well frozen upon arrival.
1/11 Well frozen upon arrival, depth = 3.1 ft.
1/11 (1110) rate = 900 ml/min.
1/11 (1208) rate change to 570 ml/min.
1/12 (0840) Well frozen upon arrival, rate at 400 ml/min until end of 5th volume.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW13-4

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-5

PROJECT : 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY

DATE: 11/10/93
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 11/8/93

INSPECTOR: BH
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 11/10/93
END DEVELOPMENT DATE: 1/10/94

WATER DEPTH (TOC): 9.8 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(GS): 16.0 ft
MEASURED POW DEPTH(TOC): 18.8 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.5 GAL. = A
A = 9.0 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 7.5 GAL. = B
B = 9.0 * (2.95 – 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 9.0 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 45 GALS.
= 3 X C 27 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
11/10 SURGE 1st volume	1125			6.5				lt brn		
11/12 PUMP 1st volume	1425	1700	155	9.0	7.58	550	10.5	clear	1.48	15.76
1/10 PUMP 2nd volume	1345	1355	10	2.5	7.34	650	6.5	clear	1.14	11.0
PUMP 3rd volume	1355	1410	15	6.0				clear		
PUMP 3rd volume	1410	1455	45	3.0	7.58	600	8.0	clear	4.57	dry
TOTALS/FINAL				27.0				clear	4.57	

COMMENTS: 11/10 (1125) OVM reads 0 ppm.
1/10 (1345) Depth = 4.11 ft., slow recovery at rate of 900 ml/min,
changed to maintaining rate of 300 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW13-5

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-6

PROJECT: 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 1/10/94
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/15/93

INSPECTOR: KS
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 1/10/94
END DEVELOPMENT DATE: 1/17/94

WATER DEPTH (TOC): 5.0 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 11.30 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.03 GAL. = A
A = 6.3 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR − WELL DIAM. FACTOR) X 0.3 = 5.25 GAL. = B
B = 6.3 * (2.95 − 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 6.30 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 31.5 GALS.
= 3 X C 19.0 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
1/10 SURGE 1st volume	1520	1600	5	5.0				dk brn		5.0
1/11 PUMP 1st volume	1140	1148	8	1.3	7.53	425	5.0	silty	324	4.77
PUMP 2nd volume	1148	1200	12	2.5						dry
PUMP 2nd volume	1416	1425	9	1.5						dry
1/12 PUMP 2nd volume	0955	1005	10	1.25			5.5	p silty	35.6	9.75
PUMP 3rd volume	1005	1030	25	2.5	7.50	400	5.5	p. silty		dry
1/17 PUMP 3rd volume	1105	1130	25	3.8	7.43	415	6.0	clear	20.1	9.5
TOTALS/FINAL				17.85				clear	20.1	

COMMENTS:
1/11 (1140) rate = 900 ml/min, changed to 570 ml/min.
1/11 (1148) rate = 570 ml/min.
1/11 (1416) rate = 520 ml/min.
1/12 (0955) depth = 4.85 ft., rate = 400 ml/min.
1/12 (1105) rate = 800 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW13-6

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW13-7

PROJECT : 10 SWMU ESI SEAD-13
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 3/4/94
PROJECT NO. : 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 1/24/94

INSPECTOR: KS & LR
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE:
END DEVELOPMENT DATE:

WATER DEPTH (TOC): 9.04 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 10.44 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = NA GAL. = A

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = NA GAL. = B

SINGLE STANDING WATER VOLUME = A + B = ... NA GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... NA GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
3/4 Well not developed - dry.										
TOTALS/FINAL										

COMMENTS: There is no protective well casing on this well.
The well was pressurized upon opening.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS   WELL #: MW13-7

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC. | CLIENT: USACOE | WELL #: MW57-1

PROJECT: 10 SWMU ESI SEAD-57
LOCATION: Seneca Army Depot, Romulus, NY

DATE: 1/11/94
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/2/93

INSPECTOR: BH
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 1/11/94
END DEVELOPMENT DATE: 1/12/94

WATER DEPTH (TOC): 4.85 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 8.62 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 0.61 GAL. = A
A = 3.77 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR – WELL DIAM. FACTOR) X 0.3 = 3.15 GAL. = B
B = 3.77 * (2.95 – 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 3.76 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 18.8 GALS.
= 3 X C 11.28 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
1/11 SURGE 1st volume	1430	1445	15	2.5				dk brn		dry
SURGE 1st volume	1505	1515	10	0.75						
SURGE 1st volume	1530	1535	5	0.25	7.82	260	5.0	cloudy	NA	dry
1/12 PUMP 2nd volume	0835	0845	10	2.0				clear		dry
PUMP 2nd volume	0924	0930	6	1.1				clear	7.59	dry
PUMP 2nd volume	0945	0950	5	0.6	7.68	260	3.5	clear	8.59	dry
PUMP 3rd volume	1255	1300	5	1.3						dry
PUMP 3rd volume	1310	1331	21	1.5	8.03	220	4.5	clear	4.52	dry
				COMPLETE						
TOTALS/FINAL				10				clear	4.52	

COMMENTS: 1/12 depth = 4.88 ft., rate = 570 ml/min.
1/12 (1255) depth = 6.09 ft.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW57-1

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW57-2

PROJECT: 10 SWMU ESI SEAD-57
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 12/19/93
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/7/93

INSPECTOR: KK
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 12/20/93
END DEVELOPMENT DATE: 1/11/94

WATER DEPTH (TOC): 2.77 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 9.40 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.08 GAL. = A
A = 6.63 * 0.163

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR − WELL DIAM. FACTOR) X 0.3 = 3.34 GAL. = B
B = 4.0 * (2.95 − 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 4.42 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C .... 13.26 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
12/20 SURGE 1st volume	1145	1330		5.0	7.45	890	7.0	brn	NA	NA
PUMP 2nd volume	1340	1415	35	4.25	7.24	890	7.0	cloudy	NA	7.3
PUMP 3rd volume	1415	1448	33	4.5	7.17	880	6.0	cloudy	NA	7.8
PUMP 4th volume	1455	1520	25	5.0	7.20	880	6.5	cloudy	192	8.3
PUMP 5th volume	1530	1540	10	2.0	7.56	900	6.5	cloudy	50.6	dry
PUMP 5ht volume	1600	1605	5	3.5	NA	NA	NA	cloudy	NA	NA
1/11/94 PUMP 6th volume	0930	1010	40	4.0				clear	35.7	dry
PUMP 6th volume	1030	1040	10	0.5	7.12	900	4.5	clear	10.4	7.4
PUMP 7th volume	1040	1100	20	2.5					NA	dry
PUMP 7th volume	1125	1155	30	2.5	7.21	900	5.5	clear	6.20	dry
				COMPLETE						
TOTALS/FINAL				29.75				clear	6.20	

COMMENTS: 12/19 (1637) well pressurized, OVM reads 0.4, depth = 3.98 ft (rising).
12/20 OVM reads 1.2, recharge rate = 57 ml/min.
1/11/94 depth = 5.80 ft., rate = 400 ml/min.
1/11 6th volume NTU's at 1.5 gals. = 3.27
1/11 (1040) depth = 6.7 ft.
1/11 (1125) 7th volume depth = 6.6 ft.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW57-2

WELL DEVELOPMENT REPORT

ENGINEERING-SCIENCE, INC.	CLIENT: USACOE	WELL #: MW57-3

PROJECT: 10 SWMU ESI SEAD-57
LOCATION: Seneca Army Depot, Romulus, NY
DATE: 12/19/93
PROJECT NO.: 720478-01000

DRILLING METHOD (s): Hollow Stem Auger
PUMP METHOD (s): Peristaltic Pump
SURGE METHOD (s): Teflon Bailer
INSTALLATION DATE: 12/7/93

INSPECTOR: KK
CONTRACTOR:
CREW: UXB
START DEVELOPMENT DATE: 12/20/93
END DEVELOPMENT DATE: 12/20/93

WATER DEPTH (TOC): 3.09 ft
WELL DIA. (ID CASING): 0.167 ft
BORING DIAMETER: 0.708 ft

INSTALLED POW DEPTH(TOC): ft
MEASURED POW DEPTH(TOC): 9.46 ft
SILT THICKNESS: ft
POW AFTER DEVELOPMENT: ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	8.5	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	2.95	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.04 GAL. = A

A = 6.37 * 0.163

STANDING WATER IN ANNULAR SPACE =

WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = 3.34 GAL. = B

B = 4.0 * (2.95 - 0.163) * 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 4.38 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 3 X C .... 13.14 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP °C	COLOR	Turbidity NTU	Water Depth (TOC) FT
12/20 SURGE 1st volume	0855	0940	45	4.4		395	6	brn	NA	NA
SURGE 2nd volume	0950	0957	7	0.5		NA	NA	lt brn	NA	NA
PUMP 2nd volume	1000	1025	25	4.5		390	7	clear	NA	7.38
PUMP 3rd volume	1030	1100	30	5.0		405	7	clear	19	8.28
				COMPLETE						
TOTALS/FINAL				14.4				clear	19	

COMMENTS: 12/19 (1635) Well pressurized upon opening, OVM = 0.2, depth = 5.40 ft (rising).
12/20 (0855) depth = 3.09 ft., recharge rate = 168 ml/min.

SEE MASTER ACRONYM LIST FOR COMPLETE LISTING OF ABBREVIATIONS WELL #: MW57-3

APPENDIX E

ANALYTICAL RESULTS

- SEAD-11
- SEAD-13
- SEAD-57
- QC Rinsates and Trip Blanks
- Data Qualifiers

Data Qualifiers

DATA QUALIFIERS

U - The analyte was not detected.

UJ - The analyte was not detected; however, the associated reporting limit is approximate.

J - The analyte was positively identified; however, QC results indicate that the reported concentration may not be accurate and is therefore an estimate.

R - The analyte was rejected due to laboratory QC deficiencies, sample preservation problems, or holding time exceedance. The presence or absence of the analyte cannot be determined.

The following refer particularly to PCBs:

UN - The analyte was unidentified. Peaks were found, but the laboratory was unable to identify the specific analyte. Therefore, the concentration was totalled under the analyte labeed with NJ.

NJ - The analyte was tentatively identified.

SEAD-11

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	0-2	0-2	2-4	2-4	10-12	10-12	0-0.8	3.3	4.2	0-0.7
	SAMPLE DATE	11/02/93	11/02/93	11/02/93	11/02/93	11/03/93	11/03/93	11/20/93	11/20/93	11/20/93	11/19/93
	ES ID	SB11-3.1	SB11-3.1RE	SB11-3.2	SB11-3.2RE	SB11-3.6	SB11-3.6RE	TP11-1.1	TP11-1.2	TP11-1.3	TP11-2.1
	LAB ID	203222	203222	203223	203223	203224	203224	205264	205265	205266	205111
COMPOUND	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Bromomethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Vinyl Chloride	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Chloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Methylene Chloride	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Acetone	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Carbon Disulfide	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Chloroform	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
2-Butanone	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Bromodichloromethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Trichloroethene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	410	460	34	13
Dibromochloromethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Benzene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Bromoform	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
2-Hexanone	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Tetrachloroethene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Toluene	ug/Kg	12 U	NS	2 J	NS	3 J	NS	22 U	61 U	12 U	12 U
Chlorobenzene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Ethylbenzene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Styrene	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
Xylene (total)	ug/Kg	12 U	NS	11 U	NS	11 U	NS	22 U	61 U	12 U	12 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	62 U	NS	56 U	NS	54 U	NS	58 U	60 U	60 U	61 U
2,4-DB	ug/Kg	62 U	NS	56 U	NS	54 U	NS	75	60 U	60 U	61 U
2,4,5-T	ug/Kg	6.2 U	NS	5.6 U	NS	5.4 U	NS	5.8 U	6 U	6 U	6.1 U
2,4,5-TP (Silvex)	ug/Kg	6.2 U	NS	5.6 U	NS	5.4 U	NS	5.8 U	6 U	6 U	6.1 UJ
Dalapon	ug/Kg	150 U	NS	140 U	NS	130 U	NS	140 U	150 U	150 U	150 U
Dicamba	ug/Kg	6.2 U	NS	5.6 U	NS	5.4 U	NS	5.8 U	6 U	6 U	6.1 U
Dichloroprop	ug/Kg	62 U	NS	56 U	NS	54 U	NS	58 U	60 U	60 U	61 U
Dinoseb	ug/Kg	31 U	NS	28 U	NS	27 U	NS	29 U	30 U	30 U	31 UJ
MCPA	ug/Kg	6200 U	NS	5600 U	NS	5400 U	NS	5800 U	6000 U	6000 U	6100 U
MCPP	ug/Kg	6200 U	NS	5600 U	NS	5400 U	NS	5800 U	6000 U	6000 U	6100 U
NITROAROMATICS											
HMX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
RDX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
1,3,5-Trinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
1,3-Dinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
Tetryl	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 UJ
2,4,6-Trinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	130 UJ	130 U
2,4-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 UJ	130 UJ	440	130 U

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / DEPTH (FEET) / SAMPLE DATE / ES ID / LAB ID / UNITS	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	0-2	0-2	2-4	2-4	10-12	10-12	0-0.8	3.3	4.2	0-0.7
	SAMPLE DATE	11/02/93	11/02/93	11/02/93	11/02/93	11/03/93	11/03/93	11/20/93	11/20/93	11/20/93	11/19/93
	ES ID	SB11-3.1	SB11-3.1RE	SB11-3.2	SB11-3.2RE	SB11-3.6	SB11-3.6RE	TP11-1.1	TP11-1.2	TP11-1.3	TP11-2.1
	LAB ID	203222	203222	203223	203223	203224	203224	205264	205265	205266	205111
COMPOUND	UNITS										
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
bis(2-Chloroethyl) ether	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2-Chlorophenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
1,3-Dichlorobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
1,4-Dichlorobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
1,2-Dichlorobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2-Methylphenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
4-Methylphenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
N-Nitroso-di-n-propylamine	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Hexachloroethane	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Nitrobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Isophorone	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2-Nitrophenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,4-Dimethylphenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
bis(2-Chloroethoxy) methane	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,4-Dichlorophenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
1,2,4-Trichlorobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Naphthalene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	23 J	39 J	400 U	220 J
4-Chloroaniline	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Hexachlorobutadiene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
4-Chloro-3-methylphenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2-Methylnaphthalene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	27 J	27 J	400 U	1400 U
Hexachlorocyclopentadiene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,4,6-Trichlorophenol	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,4,5-Trichlorophenol	ug/Kg	990 U	990 UJ	690 U R	900 UJ	660 U R	870 UJ	930 U	960 U	960 U	3300 U
2-Chloronaphthalene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2-Nitroaniline	ug/Kg	990 U	990 UJ	690 U R	900 UJ	860 U R	670 UJ	930 U	960 U	960 U	3300 U
Dimethylphthalate	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Acenaphthylene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
2,6-Dinitrotoluene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
3-Nitroaniline	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
Acenaphthene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	630 J
2,4-Dinitrophenol	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
4-Nitrophenol	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
Dibenzofuran	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	23 J	25 J	400 U	250 J
2,4-Dinitrotoluene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Diethylphthalate	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
4-Chlorophenyl-phenylether	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Fluorene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	21 J	20 J	400 U	510 J
4-Nitroaniline	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
4,6-Dinitro-2-methylphenol	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
N-Nitrosodiphenylamine	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
4-Bromophenyl-phenylether	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Hexachlorobenzene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Pentachlorophenol	ug/Kg	990 U	990 UJ	890 U R	900 UJ	860 U R	870 UJ	930 U	960 U	960 U	3300 U
Phenanthrene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	230 J	260 J	400 U	5800
Anthracene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	53 J	42 J	400 U	1100 J
Carbazole	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	820 J
Di-n-butylphthalate	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Fluoranthene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	450	340 J	21 J	9800
Pyrene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	420	260 J	400 U	8500
Butylbenzylphthalate	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
3,3'-Dichlorobenzidine	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Benzo(a)anthracene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	150 J	160 J	400 U	4200
Chrysene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	320 J	230 J	400 U	4500
bis(2-Ethylhexyl)phthalate	ug/Kg	740 U	670 J	480 U R	760 UJ	350 U R	1400 UJ	380 U	67 J	25 J	1400 U
Di-n-octylphthalate	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	380 U	400 U	400 U	1400 U
Benzo(b)fluoranthene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	230 J	200 J	400 U	4700
Benzo(k)fluoranthene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	190 J	140 J	400 U	3000
Benzo(a)pyrene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	210 J	130 J	400 U	3800
Indeno(1,2,3-cd)pyrene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	140 J	66 J	400 U	2800
Dibenz(a,h)anthracene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	60 J	37 J	400 U	1100 J
Benzo(g,h,i)perylene	ug/Kg	410 U	410 UJ	370 U R	370 UJ	350 U R	360 UJ	81 J	400 U	400 U	1000 J

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	0-2	0-2	2-4	2-4	10-12	10-12	0-0.8	3.3	4.2	0-0.7
	SAMPLE DATE	11/02/93	11/02/93	11/02/93	11/02/93	11/03/93	11/03/93	11/20/93	11/20/93	11/20/93	11/19/93
	ES ID	SB11-3.1	SB11-3.1RE	SB11-3.2	SB11-3.2RE	SB11-3.6	SB11-3.6RE	TP11-1.1	TP11-1.2	TP11-1.3	TP11-2.1
	LAB ID	203222	203222	203223	203223	203224	203224	205264	205265	205266	205111
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	24 J	10 U
beta-BHC	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	20 U R	10 U
delta-BHC	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	15 J	10 U
gamma-BHC (Lindane)	ug/Kg	21 U	2.1 UJ	18 U	1.9 UJ	15 U	1.8 UJ	2 U	2 U	20 U R	10 U
Heptachlor	ug/Kg	20 U	2.1 UJ	17 U	1.9 UJ	15 U	1.8 UJ	2 U	2 U	20 U R	10 U
Aldrin	ug/Kg	21 U	2.1 UJ	18 U	1.9 UJ	15 U	1.8 UJ	2 U	2 U	20 U R	10 U
Heptachlor epoxide	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	20 U R	10 U
Endosulfan I	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	20 U R	10 U
Dieldrin	ug/Kg	41 U	4.1 UJ	36 U	3.7 UJ	30 U	3.6 UJ	3.2 J	8.4 J	29 J	20 U
4,4'-DDE	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	10	5.6 J	200 J	120
Endrin	ug/Kg	43 U	4.1 UJ	37 U	3.7 UJ	31 U	3.6 UJ	3.8 U	4 U	49 J	20 U
Endosulfan II	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	3.8 U	3.1 J	40 U R	20 U
4,4'-DDD	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	2.9 J	4 U	28 J	18 J
Endosulfan sulfate	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	3.8 U	2.5 J	40 U R	20 U
4,4'-DDT	ug/Kg	4.1 U	4.1 UJ	35 U	3.7 UJ	30 U	3.6 UJ	12	3.5 J	290 J	140 J
Methoxychlor	ug/Kg	21 U	21 UJ	19 U	19 UJ	18 U	18 UJ	20 U	20 U	200 U R	100 U
Endrin ketone	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	3.8 U	4 U	40 U R	20 U
Endrin aldehyde	ug/Kg	4.1 U	4.1 UJ	3.7 U	3.7 UJ	3.6 U	3.6 UJ	3.8 U	4 U	40 U R	20 U
alpha-Chlordane	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	3.3 J	9.1	190 J	10 U
gamma-Chlordane	ug/Kg	2.1 U	2.1 UJ	1.9 U	1.9 UJ	1.8 U	1.8 UJ	2 U	2 U	20 U R	10 U
Toxaphene	ug/Kg	210 U	210 UJ	190 U	190 UJ	180 U	180 UJ	200 U	200 U	2000 U R	1000 U
Aroclor-1016	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
Aroclor-1221	ug/Kg	83 U	83 UJ	75 U	75 UJ	73 U	73 UJ	78 U	81 U	810 U R	410 U
Aroclor-1232	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
Aroclor-1242	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
Aroclor-1248	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
Aroclor-1254	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
Aroclor-1260	ug/Kg	41 U	41 UJ	37 U	37 UJ	36 U	36 UJ	38 U	40 U	400 U R	200 U
METALS											
Aluminum	mg/Kg	17600	NS	6330	NS	10900	NS	13300	12200	11100	15300
Antimony	mg/Kg	10.8 UJ	NS	8 UJ	NS	7.6 UJ	NS	285 J	118 J	8.1 UJ	9.4 UJ
Arsenic	mg/Kg	5.6 R	NS	3.4 R	NS	6 R	NS	15.5	11.8	4.7	23.2 J
Barium	mg/Kg	113	NS	57.4	NS	62.7	NS	1090	953	106	96.9
Beryllium	mg/Kg	0.85 J	NS	0.34 J	NS	0.47 J	NS	0.63 J	0.59 J	0.54 J	0.76 J
Cadmium	mg/Kg	0.67 U	NS	0.5 U	NS	0.48 U	NS	2.3	3.9	0.51 U	0.59 U
Calcium	mg/Kg	4950	NS	91300	NS	48600	NS	30300	41700	54100	18600
Chromium	mg/Kg	24	NS	11.1	NS	18.6	NS	67.2	53.9	18.7	23.9
Cobalt	mg/Kg	11.3	NS	6.5 J	NS	10.1	NS	15.9	15.3	9.4	10.8
Copper	mg/Kg	20	NS	12.2	NS	21.7	NS	492	374	32.4	35.5
Iron	mg/Kg	27200	NS	13200	NS	28300	NS	83600	42000	22700	29200
Lead	mg/Kg	27.9	NS	11.4	NS	10.1	NS	4050	2090	193	84.1
Magnesium	mg/Kg	4160	NS	12900	NS	10100	NS	6760	10800	10100	11300
Manganese	mg/Kg	674	NS	356	NS	434	NS	801	611	637	446 R
Mercury	mg/Kg	0.05 J	NS	0.04 U	NS	0.03 U	NS	0.07 J	2.9	0.7	0.5 J
Nickel	mg/Kg	28.3	NS	16.7	NS	29.5	NS	70.1	56.5	25.2	30.6
Potassium	mg/Kg	2110	NS	1110	NS	1230	NS	1810	1620	1280	1430
Selenium	mg/Kg	0.24 J	NS	0.13 UJ	NS	0.21 UJ	NS	0.25 UJ	0.25 J	0.15 UJ	0.68 J
Silver	mg/Kg	1.4 UJ	NS	1 UJ	NS	0.97 UJ	NS	2.4	1.5 J	1 U	1.2 U
Sodium	mg/Kg	66.3 J	NS	136 J	NS	146 J	NS	288 J	296 J	111 J	75.1 J
Thallium	mg/Kg	0.19 U	NS	1.5 U	NS	0.23 U	NS	0.27 UJ	0.26 UJ	0.17 UJ	0.21 U
Vanadium	mg/Kg	31.8	NS	13.3	NS	17	NS	24.5	19.5	17.3	23.8
Zinc	mg/Kg	83.2 R	NS	65 R	NS	77.3 R	NS	3600	7980	377	139
Cyanide	mg/Kg	0.57 U	NS	0.47 U	NS	0.53 U	NS	0.54 U	0.56 U	0.59 U	0.58 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.47	NS	0.27	NS	0.05	NS	0.27	1.09	0.02	0.81
Total Solids	%W/W	81.1	NS	89.1	NS	92.2	NS	86.5	83.2	83.5	81.3
Total Petroleum Hydrocarbons	mg/Kg	64	NS	65	NS	87	NS	2700	1350	66	103
Fluoride	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	5	5	0-2	2-4	4-6	0-2	2-4	4-6
	SAMPLE DATE	11/20/93	11/20/93	12/14/93	12/14/93	12/14/93	12/14/93	12/16/93	12/16/93
	ES ID	TP11-2.2	TP11-2.3	TP11-3.1	TP11-3.2	TP11-3.3	TP11-4.1	TP11-4.2	TP11-4.3
	LAB ID	205267	205268	206880	206881	206882	206883	206884	206885
	UNITS								
VOLATILE ORGANICS									
Chloromethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Bromomethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Vinyl Chloride	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Chloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Methylene Chloride	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Acetone	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Carbon Disulfide	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,1-Dichloroethene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,1-Dichloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,2-Dichloroethene (total)	ug/Kg	12 U	12 U	33 U	4 J	3 J	11 U	12 U	11 U
Chloroform	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,2-Dichloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
2-Butanone	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,1,1-Trichloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Carbon Tetrachloride	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Bromodichloromethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,2-Dichloropropane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
cis-1,3-Dichloropropene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Trichloroethene	ug/Kg	15	12 U	69	40	40	40	11 J	11 U
Dibromochloromethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
1,1,2-Trichloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Benzene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
trans-1,3-Dichloropropene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Bromoform	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
4-Methyl-2-Pentanone	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
2-Hexanone	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Tetrachloroethene	ug/Kg	12 U	12 U	370	260	200	11 U	12 U	11 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Toluene	ug/Kg	1 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Chlorobenzene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Ethylbenzene	ug/Kg	3 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Styrene	ug/Kg	12 U	12 U	33 U	22 U	12 U	11 U	12 U	11 U
Xylene (total)	ug/Kg	4 J	12 U	33 U	22 U	12 U	11 U	12 U	11 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES									
2,4-D	ug/Kg	59 U	60 U	61 U	59.0 U	58 U	59 U	63 U	56 UJ
2,4-DB	ug/Kg	550	60 U	61 U	59.0 U	58 U	59 U	63 U	56 UJ
2,4,5-T	ug/Kg	5.9 U	6 U	6.1 U	7.6	5.8 U	5.9 U	6.3 U	5.6 UJ
2,4,5-TP (Silvex)	ug/Kg	5.9 U	6 U	6.1 U	5.9 U	5.8 U	5.9 U	6.3 U	5.6 UJ
Dalapon	ug/Kg	150 U	150 U	150 U	150.0 U	140 U	140 U	2500	140 UJ
Dicamba	ug/Kg	5.9 U	6 U	6.1 U	5.9 U	5.8 U	5.9 U	6.3 U	5.6 UJ
Dichloroprop	ug/Kg	59 U	60 U	61 U	59.0 U	58 U	59 U	63 U	55 UJ
Dinoseb	ug/Kg	30 U	30 U	31 U	30.0 U	29 U	30 U	32 U	28 UJ
MCPA	ug/Kg	5900 U	6000 U	6100 U	5900.0 U	5800 U	5900 U	6300 U	5600 UJ
MCPP	ug/Kg	5900 U	6000 U	6100 U	5900.0 U	5800 U	5900 U	6300 U	5600 UJ
NITROAROMATICS									
HMX	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
RDX	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
1,3,5-Trinitrobenzene	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	770 J	130 U	130 U	130 U
Tetryl	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
2,4,6-Trinitrotoluene	ug/Kg	130 J	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 U	130.0 U	680 J	130 U	130 U	130 U
2,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 U	400.0 J	130 U	130 U	130 U	130 U
2,4-Dinitrotoluene	ug/Kg	170 J	130 UJ	130 U	130.0 U	130 U	130 U	130 U	130 U

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	5	5	0-2	2-4	4-6	0-2	2-4	4-6
	SAMPLE DATE	11/20/93	11/20/93	12/14/93	12/14/93	12/14/93	12/14/93	12/16/93	12/16/93
	ES ID	TP11-2.2	TP11-2.3	TP11-3.1	TP11-3.2	TP11-3.3	TP11-4.1	TP11-4.2	TP11-4.3
	LAB ID	205267	205268	206880	206881	206882	206883	206884	206885
	UNITS								
SEMIVOLATILE ORGANICS									
Phenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
bis(2-Chloroethyl) ether	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2-Chlorophenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
1,3-Dichlorobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
1,4-Dichlorobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
1,2-Dichlorobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2-Methylphenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
4-Methylphenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
N-Nitroso-di-n-propylamine	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Hexachloroethane	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Nitrobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Isophorone	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2-Nitrophenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,4-Dimethylphenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
bis(2-Chloroethoxy) methane	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,4-Dichlorophenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
1,2,4-Trichlorobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Naphthalene	ug/Kg	100000	1700	19000 J	8600 J	21000 J	2500 J	400 J	370 U
4-Chloroaniline	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Hexachlorobutadiene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
4-Chloro-3-methylphenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2-Methylnaphthalene	ug/Kg	28000 J	460 J	7700 J	3200 J	7300 J	850 J	170 J	370 U
Hexachlorocyclopentadiene	ug/Kg	39000 U	1300 U	81000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,4,6-Trichlorophenol	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,4,5-Trichlorophenol	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
2-Chloronaphthalene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2-Nitroaniline	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
Dimethylphthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Acenaphthylene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
2,6-Dinitrotoluene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
3-Nitroaniline	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
Acenaphthene	ug/Kg	84000	1400	28000 J	14000 J	25000 J	4100 J	1100 J	27 J
2,4-Dinitrophenol	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
4-Nitrophenol	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
Dibenzofuran	ug/Kg	60000	1000 J	18000 J	7900 J	16000 J	2200 J	520 J	370 U
2,4-Dinitrotoluene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Diethylphthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
4-Chlorophenyl-phenylether	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Fluorene	ug/Kg	88000	1600	27000 J	14000 J	24000 J	3300 J	1000 J	370 U
4-Nitroaniline	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
4,6-Dinitro-2-methylphenol	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
N-Nitrosodiphenylamine	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
4-Bromophenyl-phenylether	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Hexachlorobenzene	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Pentachlorophenol	ug/Kg	94000 U	3200 U	150000 UJ	74000 U	140000 U	19000 U	5000 U	890 U
Phenanthrene	ug/Kg	350000	9200	210000 J	110000	180000	40000	9700	240 J
Anthracene	ug/Kg	150000	2800	49000 J	27000 J	44000 J	7700	2200	49 J
Carbazole	ug/Kg	81000	1600	33000 J	16000 J	30000 J	6400 J	1300 J	370 U
Di-n-butylphthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Fluoranthene	ug/Kg	350000	11000	320000 J	150000	230000	54000	14000	400
Pyrene	ug/Kg	280000	7800	190000 J	120000	140000	38000	12000	340 J
Butylbenzylphthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
3,3'-Dichlorobenzidine	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Benzo(a)anthracene	ug/Kg	190000	4600	110000 J	67000	79000	20000	6600	160 J
Chrysene	ug/Kg	170000	4300	110000 J	64000	74000	22000	6900	180 J
bis(2-Ethylhexyl)phthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	22 J
Di-n-octylphthalate	ug/Kg	39000 U	1300 U	61000 UJ	29000 U	58000 U	7700 U	2100 U	370 U
Benzo(b)fluoranthene	ug/Kg	99000	2900	110000 J	67000	68000	26000	8400	220 J
Benzo(k)fluoranthene	ug/Kg	130000	3700	94000 J	48000	66000	10000	3000	94 J
Benzo(a)pyrene	ug/Kg	140000	3400	110000 J	60000	73000	19000	6100	160 J
Indeno(1,2,3-cd)pyrene	ug/Kg	100000	2300	60000 J	37000	45000 J	11000	3700	120 J
Dibenz(a,h)anthracene	ug/Kg	52000	1200 J	16000 J	9300 J	12000 J	3500 J	1000 J	370 U
Benzo(g,h,i)perylene	ug/Kg	32000 J	630 J	53000 J	11000 J	39000 J	9100	2900	160 J

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	DEPTH (FEET)	5	5	0-2	2-4	4-6	0-2	2-4	4-6
	SAMPLE DATE	11/20/93	11/20/93	12/14/93	12/14/93	12/14/93	12/14/93	12/16/93	12/16/93
	ES ID	TP11-2.2	TP11-2.3	TP11-3.1	TP11-3.2	TP11-3.3	TP11-4.1	TP11-4.2	TP11-4.3
	LAB ID	205267	205268	206880	206881	206882	206883	206884	206885
COMPOUND	UNITS								
PESTICIDES/PCB									
alpha-BHC	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
beta-BHC	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
delta-BHC	ug/Kg	2 U	1.3 J	41 U	20 U	9.2 J	9.9 U	2.1 U	1.9 U
gamma-BHC (Lindane)	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Heptachlor	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Aldrin	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Heptachlor epoxide	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Endosulfan I	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Dieldrin	ug/Kg	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
4,4'-DDE	ug/Kg	3.9 U	5 J	1800 J	1000 J	670 J	34 J	12 J	3.7 U
Endrin	ug/Kg	3.9 U	3 J	80 U	35 J	45 J	19 U	4.1 U	3.7 U
Endosulfan II	ug/Kg	3.9 U	4.3 J	66 J	36 J	31 J	14 J	4.1 U	3.7 U
4,4'-DDD	ug/Kg	3.9 U	4 U R	1400 J	630 J	320 J	13 J	4.8 J	3.7 U
Endosulfan sulfate	ug/Kg	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
4,4'-DDT	ug/Kg	3.9 U	11 J	4300 J	2400	1500	72	17	1.6 J
Methoxychlor	ug/Kg	20 U	20 U R	410 U	200 U	99 U	99 U	21 U	19 U
Endrin ketone	ug/Kg	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
Endrin aldehyde	ug/Kg	3.9 U	4 U R	80 U	39 U	19 U	19 U	4.1 U	3.7 U
alpha-Chlordane	ug/Kg	2 U	11 J	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
gamma-Chlordane	ug/Kg	2 U	2 U R	41 U	20 U	9.9 U	9.9 U	2.1 U	1.9 U
Toxaphene	ug/Kg	200 U	200 U R	4100 U	2000 U	990 U	990 U	210 U	190 U
Aroclor-1016	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
Aroclor-1221	ug/Kg	79 U	81 U R	1600 U	790 U	390 U	390 U	84 U	74 U
Aroclor-1232	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
Aroclor-1242	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
Aroclor-1248	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
Aroclor-1254	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
Aroclor-1260	ug/Kg	39 U	40 U R	800 U	390 U	190 U	190 U	41 U	37 U
METALS									
Aluminum	mg/Kg	8720	14000	21700	12100	12300	9660	15000	7170
Antimony	mg/Kg	12.3 UJ	10.6 UJ	8.6 J	4 J	11.3 J	25.3 J	5.2 UJ	4.1 UJ
Arsenic	mg/Kg	6.4	6.4	8.2	6.9	6.9	12.4	5.7	5.7
Barium	mg/Kg	68.6	119	415	133	477	244	131	44.1
Beryllium	mg/Kg	0.45 J	0.71 J	0.6 J	0.55 J	0.38 J	0.48 J	0.93 J	0.39 J
Cadmium	mg/Kg	0.77 U	0.66 U	9.2	3	16	5.6	0.51 U	0.4 U
Calcium	mg/Kg	83700	9090	73600	85300	41300	95300	4340	103000
Chromium	mg/Kg	15.5	19.5	78.2 J	41.4 J	172 J	242 J	21.3 J	25.9 J
Cobalt	mg/Kg	7.2 J	10.8	13.5	12.3	27.5	11.1	10.4 J	6.6 J
Copper	mg/Kg	121	25.7	1090 J	225 J	642 J	154 J	22.9 J	19.4 J
Iron	mg/Kg	19100	27400	34800	30200	118000	27100	28300	15100
Lead	mg/Kg	82.5	84.9	1170 R	474 R	1330 R	1890 R	27.3 R	161 R
Magnesium	mg/Kg	21100	6010	6860	12700	9190	44600	3710	26300
Manganese	mg/Kg	480	868	648	512	946	440	602	420
Mercury	mg/Kg	0.07 J	0.08 J	0.4	0.4	0.41	0.37	0.04 J	0.02 J
Nickel	mg/Kg	20.4	30.1	45.2	41.3	117	33	25	20.2
Potassium	mg/Kg	1080 J	1220	2980	2380	2040	1450	1530	1200
Selenium	mg/Kg	0.2 UJ	0.28 UJ	0.58 J	0.66 J	0.74 J	0.7 J	0.6 J	0.17 J
Silver	mg/Kg	1.6 U	1.3 U	10.8	5.2	11.3	1.3 J	1 U	0.81 U
Sodium	mg/Kg	226 J	102 J	1660	315 J	508 J	236 J	48 U	156 J
Thallium	mg/Kg	0.22 UJ	0.29 UJ	1 U	0.2 U	0.25 U	0.27 U	0.24 U	0.26 U
Vanadium	mg/Kg	14.1	22.7	31	24.1	30.2	18.7	26.1	12.9
Zinc	mg/Kg	153	111	1250	777	1720	632	99.7	92.4
Cyanide	mg/Kg	0.58 U	0.55 U	0.6 U	0.58 U	0.55 U	0.54 U	0.55 U	0.55 U
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	0.87	0.34	0.36	0.7	0.55	0.59	2.2	0.62
Total Solids	%W/W	84.7	83.3	81.6	85.3	85.6	86.1	80	89.9
Total Petroleum Hydrocarbons	mg/Kg	6000	48	960	1060	970	560	320	104
Fluoride	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	SAMPLE DATE	01/18/94	01/18/94	01/24/94	01/24/94	01/24/94	01/24/94	11/16/93
	ES ID	MW11-1	MW11-2	MW11-3	MW11-3RE	MW11-5	MW11-5RE	MW11-4
	LAB ID	209093	209094	209335	209335	209337	209337	204663
						MW11-3DUP	MW11-3DUP	
	UNITS							
VOLATILE ORGANICS								
Chloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromomethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Acetone	ug/L	10 U	10 U	10 U	NS	10 U	NS	12 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chloroform	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
2-Butanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Benzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromoform	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Toluene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Styrene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
MTBE	ug/L	NS	NS	NS	NS	NS	NS	NS
HERBICIDES								
2,4-D	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
2,4-DB	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
2,4,5-T	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
2,4,5-TP (Silvex)	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
Dalapon	ug/L	2.5 U	2.4 U	2.5 U	NS	2.5 U	NS	2.4 U
Dicamba	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
Dichloroprop	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
Dinoseb	ug/L	0.53 U	0.52 U	0.54 U	NS	0.53 U	NS	0.52 U
MCPA	ug/L	110 U	110 U	110 U	NS	110 U	NS	110 U
MCPP	ug/L	110 U	110 U	110 U	NS	110 U	NS	110 U
NITROAROMATICS								
HMX	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.28 U	0.13 UJ	0.13 U
RDX	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
Tetryl	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.43 J
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	SAMPLE DATE	01/18/94	01/18/94	01/24/94	01/24/94	01/24/94	01/24/94	11/16/93
	ES ID	MW11-1	MW11-2	MW11-3	MW11-3RE	MW11-5	MW11-5RE	MW11-4
	LAB ID	209093	209094	209335	209335	209337	209337	204663
						MW11-3DUP	MW11-3DUP	
	UNITS							
SEMIVOLATILE ORGANICS								
Phenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2-Chlorophenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
1,2-Dichlorobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2-Methylphenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
4-Methylphenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Hexachloroethane	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Nitrobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Isophorone	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2-Nitrophenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4-Dimethylphenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4-Dichlorophenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Naphthalene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
4-Chloroaniline	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Hexachlorobutadiene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2-Methylnaphthalene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4,5-Trichlorophenol	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
2-Chloronaphthalene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2-Nitroaniline	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
Dimethylphthalate	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Acenaphthylene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
3-Nitroaniline	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
Acenaphthene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4-Dinitrophenol	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
4-Nitrophenol	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
Dibenzofuran	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Diethylphthalate	ug/L	0.5 J	0.5 J	11 U	NS	10 U	NS	11 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Fluorene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
4-Nitroaniline	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
4,6-Dinitro-2-methylphenol	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
N-Nitrosodiphenylamine	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Hexachlorobenzene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Pentachlorophenol	ug/L	26 U	26 U	27 U	NS	25 U	NS	27 U
Phenanthrene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Anthracene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Carbazole	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Di-n-butylphthalate	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Fluoranthene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Pyrene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Butylbenzylphthalate	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Benzo(a)anthracene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Chrysene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	13 U	11 U	NS	10 U	NS	11 U
Di-n-octylphthalate	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Benzo(a)pyrene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	11 U	NS	10 U	NS	11 U

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-11 01/18/94 MW11-1 209093	WATER SEAD-11 01/18/94 MW11-2 209094	WATER SEAD-11 01/24/94 MW11-3 209335	WATER SEAD-11 01/24/94 MW11-3RE 209335	WATER SEAD-11 01/24/94 MW11-5 209337 MW11-3DUP	WATER SEAD-11 01/24/94 MW11-5RE 209337 MW11-3DUP	WATER SEAD-11 11/16/93 MW11-4 204663
VOLATILE ORGANICS								
Chloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromomethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Acetone	ug/L	10 U	10 U	10 U	NS	10 U	NS	12 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chloroform	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
2-Butanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Benzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Bromoform	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Toluene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Styrene	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	NS	10 U	NS	10 U
MTBE	ug/L	NS	NS	NS	NS	NS	NS	NS
HERBICIDES								
2,4-D	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
2,4-DB	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
2,4,5-T	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
2,4,5-TP (Silvex)	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
Dalapon	ug/L	2.5 U	2.4 U	2.5 U	NS	2.5 U	NS	2.4 U
Dicamba	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	NS	0.11 U
Dichloroprop	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	NS	1.1 U
Dinoseb	ug/L	0.53 U	0.52 U	0.54 U	NS	0.53 U	NS	0.52 U
MCPA	ug/L	110 U	110 U	110 U	NS	110 U	NS	110 U
MCPP	ug/L	110 U	110 U	110 U	NS	110 U	NS	110 U
NITROAROMATICS								
HMX	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.28 U	0.13 UJ	0.13 U
RDX	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
Tetryl	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.43 J
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 UJ	0.13 U

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-11 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11	SEAD-11
	SAMPLE DATE	01/18/94	01/18/94	01/24/94	01/24/94	01/24/94	01/24/94	11/16/93
	ES ID	MW11-1	MW11-2	MW11-3	MW11-3RE	MW11-5	MW11-5RE	MW11-4
	LAB ID	209093	209094	209335	209335	209337	209337	204663
COMPOUND	UNITS					MW11-3DUP	MW11-3DUP	
PESTICIDES/PCB								
alpha-BHC	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
beta-BHC	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
delta-BHC	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
gamma-BHC (Lindane)	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Heptachlor	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Aldrin	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Heptachlor epoxide	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Endosulfan I	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Dieldrin	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
4,4'-DDE	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
Endrin	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
Endosulfan II	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
4,4'-DDD	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
4,4'-DDT	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
Methoxychlor	ug/L	0.52 U	0.52 U	0.57 U	NS	0.52 U	NS	0.54 U
Endrin ketone	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
Endrin aldehyde	ug/L	0.1 U	0.1 U	0.11 U	NS	0.1 U	NS	0.11 U
alpha-Chlordane	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
gamma-Chlordane	ug/L	0.052 U	0.052 U	0.057 U	NS	0.052 U	NS	0.054 U
Toxaphene	ug/L	5.2 U	5.2 U	5.7 U	NS	5.2 U	NS	5.4 U
Aroclor-1016	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
Aroclor-1221	ug/L	2.1 U	2.1 U	2.3 U	NS	2.1 U	NS	2.1 U
Aroclor-1232	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
Aroclor-1242	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
Aroclor-1248	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
Aroclor-1254	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
Aroclor-1260	ug/L	1 U	1 U	1.1 U	NS	1 U	NS	1.1 U
METALS								
Aluminum	ug/L	53.7 J	88.3 J	150 J	NS	161 J	NS	254
Antimony	ug/L	21.4 U	21.5 U	21.4 U	NS	21.4 U	NS	52.7 U
Arsenic	ug/L	0.8 U	0.79 U	0.8 U	NS	1.1 J	NS	1 U
Barium	ug/L	25.2 J	38.2 J	38.6 J	NS	37.1 J	NS	53.4 J
Beryllium	ug/L	0.4 U	0.4 U	0.4 U	NS	0.4 U	NS	0.3 U
Cadmium	ug/L	2.1 U	2.1 U	2.1 U	NS	2.1 U	NS	3.3 U
Calcium	ug/L	97500	109000	223000	NS	215000	NS	137000
Chromium	ug/L	2.6 U	2.6 U	2.6 U	NS	2.6 U	NS	2.5 U
Cobalt	ug/L	4.4 U	4.4 U	4.4 J	NS	7.2 J	NS	4.9 U
Copper	ug/L	3.1 U	3.1 U	3.1 U	NS	3.1 U	NS	3.7 U
Iron	ug/L	41.4 J	200	384	NS	308	NS	653
Lead	ug/L	1.1 J	2 J	33.7 J	NS	0.5 U	NS	0.6 U
Magnesium	ug/L	29700	28100	41900	NS	40000	NS	28300
Manganese	ug/L	278	218	233	NS	204	NS	281
Mercury	ug/L	0.04 U	0.04 J	0.04 J	NS	0.04 J	NS	0.07 UJ
Nickel	ug/L	4 U	4 U	4 U	NS	4 U	NS	4.1 U
Potassium	ug/L	7100	8300	8660	NS	9310	NS	13600
Selenium	ug/L	0.7 U	0.69 U	1.6 J	NS	2 J	NS	1.3 J
Silver	ug/L	4.2 U	4.2 U	4.2 U	NS	4.2 U	NS	6.7 U
Sodium	ug/L	4860 J	36700	17200	NS	15900	NS	16900
Thallium	ug/L	1.2 U	1.2 U	1.2 U	NS	1.2 U	NS	1.8 U
Vanadium	ug/L	3.7 U	3.7 U	3.7 U	NS	3.7 U	NS	3.3 U
Zinc	ug/L	21.4	34.3	18.3 J	NS	15.9 J	NS	3.8 J
Cyanide	ug/L	5 U	5 U	5 U	NS	5 U	NS	5 U
OTHER ANALYSES								
Nitrate/Nitrite-Nitrogen	mg/L	0.19	0.09	0.18	NS	0.21	NS	0.8
Total Petroleum Hydrocarbons	mg/L	0.4	0.36 U	1.81	NS	1.34	NS	0.76
Fluoride	mg/L	NS	NS	NS	NS	NS	NS	NS
pH	standard units	7.5	7.4	7.11	NS	NS	NS	7.35
Specific Conductivity	umhos/cm	380	500	725	NS	NS	NS	650
Turbidity	NTU	0.6	2.3	13.9	NS	NS	NS	NA(Clear)

SEAD-13

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	0-2	6-8	6-8	8-10	8-10	0-2	0-2	4-6	4-6	8-10
	SAMPLE DATE	12/08/93	12/08/93	12/08/93	12/08/93	12/08/93	11/09/93	11/09/93	11/09/93	11/09/93	11/09/93
	ES ID	SB13-1.1	SB13-1.3	SB13-1.3RE	SB13-1.4	SB13-1.4RE	SB13-2.1	SB13-2.1RE	SB13-2.3	SB13-2.3RE	SB13-2.5
	LAB ID	206397	206398	206398	206399	206399	204003	204003	204004	204004	204005
	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Bromomethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Vinyl Chloride	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Chloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Methylene Chloride	ug/Kg	12 U	2 J	3 J	4 J	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Acetone	ug/Kg	12 U	13 UJ	11 UJ	15 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Carbon Disulfide	ug/Kg	12 U	11 UJ	11 UJ	2 J	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,1-Dichloroethene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,1-Dichloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,2-Dichloroethene (total)	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Chloroform	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,2-Dichloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
2-Butanone	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,1,1-Trichloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Carbon Tetrachloride	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Bromodichloromethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,2-Dichloropropane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
cis-1,3-Dichloropropene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Trichloroethene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Dibromochloromethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,1,2-Trichloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Benzene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
trans-1,3-Dichloropropene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Bromoform	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
4-Methyl-2-Pentanone	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
2-Hexanone	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Tetrachloroethene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Toluene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	6 J	5 J	11 U	NS	12 UJ
Chlorobenzene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Ethylbenzene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Styrene	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
Xylene (total)	ug/Kg	12 U	11 UJ	11 UJ	11 U R	11 U R	11 U R	11 U R	11 U	NS	12 UJ
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	61 U	55 U	NS	54 U	NS	56 U R	56 UJ	58 U R	58 UJ	56 U R
2,4-DB	ug/Kg	61 U	55 U	NS	54 U	NS	56 U R	56 UJ	58 U R	58 UJ	56 U R
2,4,5-T	ug/Kg	6.1 U	5.5 U	NS	5.4 U	NS	5.6 U R	5.6 UJ	5.8 U R	5.8 UJ	5.6 U R
2,4,5-TP (Silvex)	ug/Kg	6.1 U	5.5 U	NS	5.4 U	NS	5.6 U R	5.6 UJ	5.8 U R	5.8 UJ	5.6 U R
Dalapon	ug/Kg	150 U	130 U	NS	130 U	NS	140 U R	140 UJ	140 U R	140 UJ	140 U R
Dicamba	ug/Kg	6.1 U	5.5 U	NS	5.4 U	NS	5.6 U R	5.6 UJ	5.8 U R	5.8 UJ	5.6 U R
Dichloroprop	ug/Kg	61 U	55 U	NS	54 U	NS	56 U R	56 UJ	58 U R	58 UJ	56 U R
Dinoseb	ug/Kg	31 U	28 U	NS	27 U	NS	28 U R	28 UJ	29 U R	29 UJ	28 U R
MCPA	ug/Kg	6100 U	5500 U	NS	5400 U	NS	5600 U R	5600 UJ	5800 U R	5800 UJ	5600 U R
MCPP	ug/Kg	6100 U	5500 U	NS	5400 U	NS	5600 U R	5600 UJ	5800 U R	5800 UJ	5600 U R
NITROAROMATICS											
HMX	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
RDX	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
1,3,5-Trinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
1,3-Dinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
Tetryl	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
2,4,6-Trinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U
2,4-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	130 U	NS	130 U	NS	130 U

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	UNITS										
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	0-2	6-8	6-8	8-10	8-10	0-2	0-2	4-6	4-6	8-10
	SAMPLE DATE	12/08/93	12/08/93	12/08/93	12/08/93	12/08/93	11/09/93	11/09/93	11/09/93	11/09/93	11/09/93
	ES ID	SB13-1.1	SB13-1.3	SB13-1.3RE	SB13-1.4	SB13-1.4RE	SB13-2.1	SB13-2.1RE	SB13-2.3	SB13-2.3RE	SB13-2.5
	LAB ID	206397	206398	206398	206399	206399	204003	204003	204004	204004	204005
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
bis(2-Chloroethyl) ether	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2-Chlorophenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
1,3-Dichlorobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
1,4-Dichlorobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
1,2-Dichlorobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2-Methylphenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Methylphenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
N-Nitroso-di-n-propylamine	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Hexachloroethane	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Nitrobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Isophorone	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2-Nitrophenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4-Dimethylphenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
bis(2-Chloroethoxy) methane	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4-Dichlorophenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
1,2,4-Trichlorobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Naphthalene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Chloroaniline	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Hexachlorobutadiene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Chloro-3-methylphenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2-Methylnaphthalene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Hexachlorocyclopentadiene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4,6-Trichlorophenol	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4,5-Trichlorophenol	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
2-Chloronaphthalene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2-Nitroaniline	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
Dimethylphthalate	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Acenaphthylene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,6-Dinitrotoluene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
3-Nitroaniline	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
Acenaphthene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4-Dinitrophenol	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
4-Nitrophenol	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
Dibenzofuran	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
2,4-Dinitrotoluene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Diethylphthalate	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Chlorophenyl-phenylether	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Fluorene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Nitroaniline	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
4,6-Dinitro-2-methylphenol	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
N-Nitrosodiphenylamine	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
4-Bromophenyl-phenylether	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Hexachlorobenzene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Pentachlorophenol	ug/Kg	980 U	870 U	NS	860 U	NS	880 U	NS	920 U	NS	890 U
Phenanthrene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Anthracene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Carbazole	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Di-n-butylphthalate	ug/Kg	400 U	360 U	NS	20 J	NS	360 U	NS	380 U	NS	370 U
Fluoranthene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Pyrene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Butylbenzylphthalate	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
3,3'-Dichlorobenzidine	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Benzo(a)anthracene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Chrysene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Di-n-octylphthalate	ug/Kg	210 J	360 U	NS	110 J	NS	360 U	NS	380 U	NS	370 U
Benzo(b)fluoranthene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Benzo(k)fluoranthene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Benzo(a)pyrene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Indeno(1,2,3-cd)pyrene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Dibenz(a,h)anthracene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U
Benzo(g,h,i)perylene	ug/Kg	400 U	360 U	NS	350 U	NS	360 U	NS	380 U	NS	370 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	0-2	6-8	6-8	8-10	8-10	0-2	0-2	4-6	4-6	8-10
	SAMPLE DATE	12/08/93	12/08/93	12/08/93	12/08/93	12/08/93	11/09/93	11/09/93	11/09/93	11/09/93	11/09/93
	ES ID	SB13-1.1	SB13-1.3	SB13-1.3RE	SB13-1.4	SB13-1.4RE	SB13-2.1	SB13-2.1RE	SB13-2.3	SB13-2.3RE	SB13-2.5
	LAB ID	206397	206398	206398	206399	206399	204003	204003	204004	204004	204005
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
beta-BHC	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
delta-BHC	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
gamma-BHC (Lindane)	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Heptachlor	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Aldrin	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Heptachlor epoxide	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Endosulfan I	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Dieldrin	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
4,4'-DDE	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.6 J	NS	3.8 U	NS	3.7 U
Endrin	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
Endosulfan II	ug/Kg	4 U	3.8 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
4,4'-DDD	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
Endosulfan sulfate	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
4,4'-DDT	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
Methoxychlor	ug/Kg	21 U	18 U	NS	18 U	NS	19 U	NS	20 U	NS	19 U
Endrin ketone	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
Endrin aldehyde	ug/Kg	4 U	3.6 U	NS	3.5 U	NS	3.7 U	NS	3.8 U	NS	3.7 U
alpha-Chlordane	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
gamma-Chlordane	ug/Kg	2.1 U	1.8 U	NS	1.8 U	NS	1.9 U	NS	2 U	NS	1.9 U
Toxaphene	ug/Kg	210 U	180 U	NS	180 U	NS	190 U	NS	200 U	NS	190 U
Aroclor-1016	ug/Kg	40 U	36 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
Aroclor-1221	ug/Kg	82 U	73 U	NS	72 U	NS	74 U	NS	77 U	NS	75 U
Aroclor-1232	ug/Kg	40 U	36 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
Aroclor-1242	ug/Kg	40 U	36 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
Aroclor-1248	ug/Kg	40 U	38 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
Aroclor-1254	ug/Kg	40 U	36 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
Aroclor-1260	ug/Kg	40 U	36 U	NS	35 U	NS	37 U	NS	38 U	NS	37 U
METALS											
Aluminum	mg/Kg	18300	8250	NS	11700	NS	10700	NS	12700	NS	5700
Antimony	mg/Kg	5.1 J	3.7 UJ	NS	2.8 UJ	NS	6.3 UJ	NS	12.2 UJ	NS	8.7 UJ
Arsenic	mg/Kg	7	6.2	NS	5.7	NS	5.6	NS	5.4	NS	5.3
Barium	mg/Kg	106	88.1	NS	33.9	NS	58.8	NS	94.9	NS	71.7
Beryllium	mg/Kg	0.92 J	0.42 J	NS	0.54 J	NS	0.52 J	NS	0.62 J	NS	0.27 J
Cadmium	mg/Kg	0.45 U	0.36 U	NS	0.27 U	NS	0.4 U	NS	0.76 U	NS	0.54 U
Calcium	mg/Kg	3570	87700	NS	50300	NS	28800	NS	61700	NS	76100
Chromium	mg/Kg	29.4	13.3	NS	19.6	NS	21.2	NS	22.9	NS	10.7
Cobalt	mg/Kg	12	7.2 J	NS	11.1	NS	11.3	NS	12	NS	7.4 J
Copper	mg/Kg	11.6	18.4	NS	17.6	NS	45.2	NS	23.5	NS	18.9
Iron	mg/Kg	32500	17400	NS	24700	NS	25000	NS	27700	NS	13600
Lead	mg/Kg	15 R	9 R	NS	11.7 R	NS	25.6	NS	9.3	NS	7.7
Magnesium	mg/Kg	5890	20800	NS	12600	NS	5380	NS	13300	NS	21200
Manganese	mg/Kg	451	517	NS	404	NS	336	NS	445	NS	411
Mercury	mg/Kg	0.03 J	0.07 J	NS	0.02 U	NS	0.04 J	NS	0.02 U	NS	0.03 U
Nickel	mg/Kg	34.9	24	NS	33.1	NS	46.6	NS	40.8	NS	20
Potassium	mg/Kg	2190	1390	NS	1270	NS	1120	NS	1410	NS	1040
Selenium	mg/Kg	0.26 J	0.56 J	NS	0.51 J	NS	0.83 J	NS	0.53 J	NS	0.32 J
Silver	mg/Kg	0.9 U	0.71 U	NS	0.54 U	NS	0.8 UJ	NS	1.5 UJ	NS	1.1 UJ
Sodium	mg/Kg	80.6 J	155 J	NS	134 J	NS	90.2 J	NS	131 J	NS	145 J
Thallium	mg/Kg	0.43 J	0.43 J	NS	0.64 J	NS	0.35 J	NS	0.27 U	NS	0.25 U
Vanadium	mg/Kg	32.7	13.3	NS	16.3	NS	19.3	NS	21.4	NS	12.2
Zinc	mg/Kg	81.9	56.2	NS	45.8	NS	63.6	NS	78.6	NS	45
Cyanide	mg/Kg	0.61 U	0.5 U	NS	0.53 U	NS	0.52 U	NS	0.53 U	NS	0.5 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.1	0.02	NS	0.02	NS	0.31	NS	129	NS	176
Total Solids	%W/W	82.3	92.4	NS	93.4	NS	90.3	NS	86.9	NS	88.8
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	68	55	NS	99	NS	80	NS	138	NS	135
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 8-10 11/09/93 SB13-2.5RE 204005	SOIL SEAD-13 0-2 12/08/93 SB13-3.1 206400	SOIL SEAD-13 4-6 12/08/93 SB13-3.3 206401	SOIL SEAD-13 8-10 12/08/93 SB13-3.5 206402	SOIL SEAD-13 0-2 12/15/93 SB13-4.1 207023	SOIL SEAD-13 2-4 12/15/93 SB13-4.2 207024	SOIL SEAD-13 4-6 12/15/93 SB13-4.3 207025	SOIL SEAD-13 0-1 11/08/93 SB13-5.1 203820	SOIL SEAD-13 2-4 11/08/93 SB13-5.3 203821	SOIL SEAD-13 12-13 11/08/93 SB13-5.5 203822
VOLATILE ORGANICS											
Chloromethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Bromomethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Vinyl Chloride	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Chloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Methylene Chloride	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Acetone	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Carbon Disulfide	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,1-Dichloroethene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,1-Dichloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,2-Dichloroethene (total)	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Chloroform	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,2-Dichloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
2-Butanone	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,1,1-Trichloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Carbon Tetrachloride	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Bromodichloromethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,2-Dichloropropane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
cis-1,3-Dichloropropene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Trichloroethene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Dibromochloromethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,1,2-Trichloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Benzene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
trans-1,3-Dichloropropene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Bromoform	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
4-Methyl-2-Pentanone	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
2-Hexanone	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Tetrachloroethene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
1,1,2,2-Tetrachloroethane	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Toluene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Chlorobenzene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Ethylbenzene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Styrene	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
Xylene (total)	ug/Kg	12 UJ	12 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U R
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	56 UJ	60 U	55 U	54 U	63 U	58 U	55 U	56 U	58 U	57 U
2,4-DB	ug/Kg	56 UJ	60 U	55 U	54 U	63 U	58 U	55 U	56 U	58 U	57 U
2,4,5-T	ug/Kg	5.6 UJ	6 U	5.5 U	5.4 U	6.3 U	5.8 U	5.5 U	5.6 U	5.8 U	5.7 U
2,4,5-TP (Silvex)	ug/Kg	5.6 UJ	6 U	5.5 U	5.4 U	6.3 U	5.8 U	5.5 U	5.6 U	5.8 U	5.7 U
Dalapon	ug/Kg	140 UJ	150 U	140 U	130 U	150 U	140 U	130 U	140 U	140 U	140 U
Dicamba	ug/Kg	5.6 UJ	6 U	5.5 U	5.4 U	6.3 U	5.8 U	5.5 U	5.6 U	5.8 U	5.7 U
Dichloroprop	ug/Kg	56 UJ	60 U	55 U	54 U	63 U	58 U	55 U	56 U	58 U	57 U
Dinoseb	ug/Kg	28 UJ	30 U	28 U	27 UJ	32 U	29 U	28 U	28 U	29 U	28 U
MCPA	ug/Kg	5600 UJ	6000 U	5500 U	5400 U	6300 U	5800 U	5500 U	5600 U	5800 U	5700 U
MCPP	ug/Kg	5600 UJ	6000 U	5500 U	5400 U	6300 U	5800 U	5500 U	5600 U	5800 U	5700 U
NITROAROMATICS											
HMX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
RDX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
1,3,5-Trinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
1,3-Dinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
Tetryl	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
2,4,6-Trinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U
2,4-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	130 U	130 U	130 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	8-10	0-2	4-6	8-10	0-2	2-4	4-6	0-1	2-4	12-13
	SAMPLE DATE	11/09/93	12/08/93	12/08/93	12/08/93	12/15/93	12/15/93	12/15/93	11/08/93	11/08/93	11/08/93
	ES ID	SB13-2.5RE	SB13-3.1	SB13-3.3	SB13-3.5	SB13-4.1	SB13-4.2	SB13-4.3	SB13-5.1	SB13-5.3	SB13-5.5
	LAB ID	204005	206400	206401	206402	207023	207024	207025	203820	203821	203822
	UNITS										
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
bis(2-Chloroethyl) ether	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2-Chlorophenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
1,3-Dichlorobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
1,4-Dichlorobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
1,2-Dichlorobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2-Methylphenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Methylphenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
N-Nitroso-di-n-propylamine	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Hexachloroethane	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Nitrobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Isophorone	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2-Nitrophenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4-Dimethylphenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
bis(2-Chloroethoxy) methane	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4-Dichlorophenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
1,2,4-Trichlorobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Naphthalene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Chloroaniline	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Hexachlorobutadiene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Chloro-3-methylphenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2-Methylnaphthalene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Hexachlorocyclopentadiene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4,6-Trichlorophenol	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4,5-Trichlorophenol	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
2-Chloronaphthalene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2-Nitroaniline	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
Dimethylphthalate	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Acenaphthylene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,6-Dinitrotoluene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
3-Nitroaniline	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
Acenaphthene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4-Dinitrophenol	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
4-Nitrophenol	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
Dibenzofuran	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
2,4-Dinitrotoluene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Diethylphthalate	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Chlorophenyl-phenylether	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Fluorene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Nitroaniline	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
4,6-Dinitro-2-methylphenol	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
N-Nitrosodiphenylamine	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
4-Bromophenyl-phenylether	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Hexachlorobenzene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Pentachlorophenol	ug/Kg	NS	960 U	890 U	870 U	1000 U	920 U	870 U	900 U	920 U	910 U
Phenanthrene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Anthracene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Carbazole	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Di-n-butylphthalate	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Fluoranthene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Pyrene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Butylbenzylphthalate	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
3,3'-Dichlorobenzidine	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Benzo(a)anthracene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Chrysene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
bis(2-Ethylhexyl)phthalate	ug/Kg	NS	400 U	370 U	360 U	410 U	24 J	16 J	370 U	380 U	370 U
Di-n-octylphthalate	ug/Kg	NS	400 U	370 U	53 J	410 U	380 U	360 U	370 U	380 U	370 U
Benzo(b)fluoranthene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Benzo(k)fluoranthene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Benzo(a)pyrene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Indeno(1,2,3-cd)pyrene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	380 U	370 U	380 U	370 U
Dibenz(a,h)anthracene	ug/Kg	NS	400 U	370 U	360 U	410 U	380 U	360 U	370 U	380 U	370 U
Benzo(g,h,i)perylene	ug/Kg	NS	400 U	370 U	360 U	410 U	20 J	360 U	370 U	380 U	370 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	8-10	0-2	4-8	8-10	0-2	2-4	4-8	0-1	2-4	12-13
	SAMPLE DATE	11/09/93	12/08/93	12/08/93	12/08/93	12/15/93	12/15/93	12/15/93	11/08/93	11/08/93	11/08/93
	ES ID	SB13-2.5RE	SB13-3.1	SB13-3.3	SB13-3.5	SB13-4.1	SB13-4.2	SB13-4.3	SB13-5.1	SB13-5.3	SB13-5.5
	LAB ID	204005	206400	206401	206402	207023	207024	207025	203820	203821	203822
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
beta-BHC	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
delta-BHC	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
gamma-BHC (Lindane)	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Heptachlor	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Aldrin	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Heptachlor epoxide	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Endosulfan I	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Dieldrin	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
4,4'-DDE	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.6 U	3.6 U	3.7 U	3.8 U	3.7 U
Endrin	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
Endosulfan II	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
4,4'-DDD	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
Endosulfan sulfate	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
4,4'-DDT	ug/Kg	NS	4 U	3.7 U	3.8 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
Methoxychlor	ug/Kg	NS	20 U	19 U	18 U	21 U	20 U	18 U	19 U	20 U	19 U
Endrin ketone	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
Endrin aldehyde	ug/Kg	NS	4 U	3.7 U	3.6 U	4.1 U	3.8 U	3.6 U	3.7 U	3.8 U	3.7 U
alpha-Chlordane	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
gamma-Chlordane	ug/Kg	NS	2 U	1.9 U	1.8 U	2.1 U	2 U	1.8 U	1.9 U	2 U	1.9 U
Toxaphene	ug/Kg	NS	200 U	190 U	180 U	210 U	200 U	180 U	190 U	200 U	190 U
Aroclor-1016	ug/Kg	NS	40 U	37 U	36 U	41 U	38 U	36 U	37 U	38 U	37 U
Aroclor-1221	ug/Kg	NS	81 U	74 U	73 U	84 U	77 U	73 U	75 U	77 U	76 U
Aroclor-1232	ug/Kg	NS	40 U	37 U	38 U	41 U	38 U	36 U	37 U	38 U	37 U
Aroclor-1242	ug/Kg	NS	40 U	37 U	36 U	41 U	38 U	36 U	37 U	38 U	37 U
Aroclor-1248	ug/Kg	NS	40 U	37 U	38 U	41 U	38 U	36 U	37 U	38 U	37 U
Aroclor-1254	ug/Kg	NS	40 U	37 U	36 U	41 U	38 U	36 U	37 U	38 U	37 U
Aroclor-1260	ug/Kg	NS	40 U	37 U	36 U	41 U	38 U	36 U	37 U	38 U	37 U
METALS											
Aluminum	mg/Kg	NS	10800	8720	13100	21200	15500	20400	13000	14000	6230
Antimony	mg/Kg	NS	4.5 UJ	4.1 J	4.1 UJ	4 UJ	4.5 J	3.2 UJ	7.8 UJ	9 UJ	8.3 UJ
Arsenic	mg/Kg	NS	5.5	6.7	6.5	8.1	6.8	9.8	4.8	6.3	4.7
Barium	mg/Kg	NS	54.3	97.8	137	129	96.9	79.1	56.7	98.6	132
Beryllium	mg/Kg	NS	0.52 J	0.43 J	0.65 J	1.1	0.78 J	1	0.63 J	0.63 J	0.4 J
Cadmium	mg/Kg	NS	0.44 U	0.32 U	0.39 U	0.38 U	0.34 U	0.31 U	0.49 U	0.56 U	0.52 U
Calcium	mg/Kg	NS	83900	86900	84400	28800	68000	10200	21600	25700	88000
Chromium	mg/Kg	NS	17.1	14.1	20.7	30.2	25.8	35.8	25.4	23.3	14.8
Cobalt	mg/Kg	NS	10.2 J	8.8	12.8	10.6	12.4	12.1	13.1	8.8	9.9
Copper	mg/Kg	NS	28.9	23.4	23.7	21.6	21.1	26.5	31.2	26.4	26.5
Iron	mg/Kg	NS	23100	18500	26400	31600	30100	42500	28600	24300	19600
Lead	mg/Kg	NS	10.8 R	11.9 R	14.1 R	13.6	13.8	7.1	21.3	12.8	8.3
Magnesium	mg/Kg	NS	25600	21700	14300	8780	10600	9660	6740	8990	20700
Manganese	mg/Kg	NS	443	390	446	363	607	398	335	273	461
Mercury	mg/Kg	NS	0.02 U	0.03 U	0.02 U	0.05 J	0.01 J	0.02 J	0.04 J	0.02 U	0.02 U
Nickel	mg/Kg	NS	31.4	27.1	34.4	38.1	43.2	53	46.1	36.8	29
Potassium	mg/Kg	NS	1150	1230	1980	2130	1570	1810	1350	1630	1260
Selenium	mg/Kg	NS	0.14 U	0.14 U	0.64 J	0.53 J	0.2 J	0.28 J	0.58 J	0.26 J	0.59 J
Silver	mg/Kg	NS	0.88 U	0.65 U	0.79 U	0.77 U	0.69 U	0.63 U	0.99 UJ	1.1 UJ	1 UJ
Sodium	mg/Kg	NS	163 J	152 J	163 J	81.5 J	183 J	87.8 J	94.7 J	87 J	187 J
Thallium	mg/Kg	NS	0.91 J	0.71 J	0.75 J	0.22 U	0.2 U	0.18 U	0.2 U	0.27 U	0.19 U
Vanadium	mg/Kg	NS	17.1	14.1	19.3	35.8	23.1	30.7	20	23.7	15.1
Zinc	mg/Kg	NS	62.4	46.9	62.3	89.4	65.8	93	53.2	64.4	51.4
Cyanide	mg/Kg	NS	0.59 U	0.55 U	0.53 U	0.54 U	0.51 U	0.54 U	0.54 U	0.52 U	0.53 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	NS	0.04	5.6	4.8	0.09	0.2	0.09	0.04	0.07	0.06
Total Solids	%W/W	NS	83.5	90	91.8	80.3	87	91.6	89	87.1	88.1
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	NS	125	170	142	64	91	2.2 U	56	124	193
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	12-13	0-2	4-6	6-8	0-2	0-2	0-2	2-4	6-8	0-2
	SAMPLE DATE	11/08/93	12/15/93	12/15/93	12/15/93	12/07/93	12/07/93	12/07/93	12/07/93	12/07/93	12/07/93
	ES ID	SB13-5.5RE	SB13-6.1	SB13-6.3	SB13-6.4	SB13-7.1	SB13-7.10	SB13-7.10RE	SB13-7.2	SB13-7.4	SB13-8.1
	LAB ID	203822	207026	207027	207028	206405	206408 SB13-7.1DUP	206408 SB13-7.1DUP	206406	206407	206409
	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Bromomethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Vinyl Chloride	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Chloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Methylene Chloride	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Acetone	ug/Kg	11 U R	86	11 U	11 U	12 U	12 UJ	12 UJ	14 U	11 U	13 U
Carbon Disulfide	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,1-Dichloroethene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,1-Dichloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,2-Dichloroethene (total)	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Chloroform	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	2 J	12 U	11 U	13 U
1,2-Dichloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
2-Butanone	ug/Kg	11 U R	26	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,1,1-Trichloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Carbon Tetrachloride	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Bromodichloromethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,2-Dichloropropane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
cis-1,3-Dichloropropene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Trichloroethene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Dibromochloromethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,1,2-Trichloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Benzene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
trans-1,3-Dichloropropene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Bromoform	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
4-Methyl-2-Pentanone	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
2-Hexanone	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Tetrachloroethene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
1,1,2,2-Tetrachloroethane	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Toluene	ug/Kg	2 J	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Chlorobenzene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Ethylbenzene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Styrene	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
Xylene (total)	ug/Kg	11 U R	13 U	11 U	11 U	12 U	12 UJ	12 UJ	12 U	11 U	13 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	NS	63 U	56 U	54 U	59 U	59 U	NS	61 U	56 U	67 U
2,4-DB	ug/Kg	NS	63 U	56 U	54 U	59 U	59 U	NS	61 U	56 U	67 U
2,4,5-T	ug/Kg	NS	6.3 U	5.6 U	5.4 U	5.9 U	5.9 U	NS	6.1 U	5.6 U	6.7 U
2,4,5-TP (Silvex)	ug/Kg	NS	6.3 U	5.6 U	5.4 U	5.9 U	5.9 U	NS	6.1 U	5.6 U	6.7 U
Dalapon	ug/Kg	NS	150 U	140 U	130 U	150 U	150 U	NS	150 U	140 U	160 U
Dicamba	ug/Kg	NS	6.3 U	5.6 U	5.4 U	5.9 U	5.9 U	NS	6.1 U	5.6 U	6.7 U
Dichloroprop	ug/Kg	NS	63 U	56 U	54 U	59 U	59 U	NS	61 U	56 U	67 U
Dinoseb	ug/Kg	NS	32 U	28 U	27 U	30 U	30 U	NS	31 U	28 U	34 U
MCPA	ug/Kg	NS	6300 U	5600 U	5400 U	5900 U	5900 U	NS	6100 U	5600 U	6700 U
MCPP	ug/Kg	NS	6300 U	5600 U	5400 U	5900 U	5900 U	NS	6100 U	5600 U	6700 U
NITROAROMATICS											
HMX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
RDX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3-Dinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetryl	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4,6-Trinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-amino-2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-amino-4,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 12-13 11/08/93 SB13-5.5RE 203822	SOIL SEAD-13 0-2 12/15/93 SB13-6.1 207026	SOIL SEAD-13 4-6 12/15/93 SB13-6.3 207027	SOIL SEAD-13 6-8 12/15/93 SB13-6.4 207028	SOIL SEAD-13 0-2 12/07/93 SB13-7.1 206405	SOIL SEAD-13 0-2 12/07/93 SB13-7.10 206408 SB13-7.1DUP	SOIL SEAD-13 0-2 12/07/93 SB13-7.10RE 206408 SB13-7.1DUP	SOIL SEAD-13 2-4 12/07/93 SB13-7.2 206406	SOIL SEAD-13 6-8 12/07/93 SB13-7.4 206407	SOIL SEAD-13 0-2 12/07/93 SB13-8.1 206409
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
bis(2-Chloroethyl) ether	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2-Chlorophenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
1,3-Dichlorobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
1,4-Dichlorobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
1,2-Dichlorobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2-Methylphenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Methylphenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
N-Nitroso-di-n-propylamine	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Hexachloroethane	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Nitrobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Isophorone	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2-Nitrophenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4-Dimethylphenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
bis(2-Chloroethoxy) methane	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4-Dichlorophenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
1,2,4-Trichlorobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Naphthalene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Chloroaniline	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Hexachlorobutadiene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Chloro-3-methylphenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2-Methylnaphthalene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Hexachlorocyclopentadiene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4,6-Trichlorophenol	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4,5-Trichlorophenol	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
2-Chloronaphthalene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2-Nitroaniline	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
Dimethylphthalate	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Acenaphthylene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,6-Dinitrotoluene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
3-Nitroaniline	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
Acenaphthene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4-Dinitrophenol	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
4-Nitrophenol	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
Dibenzofuran	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
2,4-Dinitrotoluene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Diethylphthalate	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Chlorophenyl-phenylether	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Fluorene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Nitroaniline	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
4,6-Dinitro-2-methylphenol	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
N-Nitrosodiphenylamine	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
4-Bromophenyl-phenylether	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Hexachlorobenzene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Pentachlorophenol	ug/Kg	NS	990 U	890 U	860 U	950 U	940 U	NS	960 U	890 U	1100 U
Phenanthrene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Anthracene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Carbazole	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Di-n-butylphthalate	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Fluoranthene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Pyrene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Butylbenzylphthalate	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
3,3'-Dichlorobenzidine	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Benzo(a)anthracene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Chrysene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
bis(2-Ethylhexyl)phthalate	ug/Kg	NS	56 J	370 U	24 J	390 U	390 U	NS	400 U	370 U	440 U
Di-n-octylphthalate	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Benzo(b)fluoranthene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Benzo(k)fluoranthene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Benzo(a)pyrene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Indeno(1,2,3-cd)pyrene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Dibenz(a,h)anthracene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U
Benzo(g,h,i)perylene	ug/Kg	NS	410 U	370 U	350 U	390 U	390 U	NS	400 U	370 U	440 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX / UNITS	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	12-13	0-2	4-6	6-8	0-2	0-2	0-2	2-4	6-8	0-2
	SAMPLE DATE	11/08/93	12/15/93	12/15/93	12/15/93	12/07/93	12/07/93	12/07/93	12/07/93	12/07/93	12/07/93
	ES ID	SB13-5.5RE	SB13-6.1	SB13-6.3	SB13-6.4	SB13-7.1	SB13-7.10	SB13-7.10RE	SB13-7.2	SB13-7.4	SB13-8.1
	LAB ID	203822	207026	207027	207028	206405	206408	206408	206406	206407	206409
	UNITS						SB13-7.1DUP	SB13-7.1DUP			
PESTICIDES/PCB											
alpha-BHC	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
beta-BHC	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
delta-BHC	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
gamma-BHC (Lindane)	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Heptachlor	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Aldrin	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Heptachlor epoxide	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Endosulfan I	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Dieldrin	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
4,4'-DDE	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
Endrin	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
Endosulfan II	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
4,4'-DDD	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
Endosulfan sulfate	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
4,4'-DDT	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
Methoxychlor	ug/Kg	NS	21 U	19 U	18 U	20 U	20 U	NS	20 U	19 U	23 U
Endrin ketone	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
Endrin aldehyde	ug/Kg	NS	4.1 U	3.7 U	3.5 U	3.9 U	3.9 U	NS	4 U	3.7 U	4.4 U
alpha-Chlordane	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
gamma-Chlordane	ug/Kg	NS	2.1 U	1.9 U	1.8 U	2 U	2 U	NS	2 U	1.9 U	2.3 U
Toxaphene	ug/Kg	NS	210 U	190 U	180 U	200 U	200 U	NS	200 U	190 U	230 U
Aroclor-1016	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
Aroclor-1221	ug/Kg	NS	84 U	74 U	72 U	80 U	79 U	NS	81 U	74 U	89 U
Aroclor-1232	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
Aroclor-1242	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
Aroclor-1248	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
Aroclor-1254	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
Aroclor-1260	ug/Kg	NS	41 U	37 U	35 U	39 U	39 U	NS	40 U	37 U	44 U
METALS											
Aluminum	mg/Kg	NS	16000	13500	10200	9810	14900	NS	14200	8490	15500
Antimony	mg/Kg	NS	3.2 UJ	2.5 UJ	2.9 UJ	4.4 UJ	4.5 UJ	NS	4.7 J	3.6 UJ	5.4 UJ
Arsenic	mg/Kg	NS	4.6	2.7	2.3	10	8.5	NS	6.2	5.9	8.2
Barium	mg/Kg	NS	103	60.4	56.8	37.3 J	89.5	NS	79.1	62.7	125
Beryllium	mg/Kg	NS	0.92	0.71	0.58 J	0.43 J	0.79 J	NS	0.7 J	0.42 J	0.95 J
Cadmium	mg/Kg	NS	0.31 U	0.25 U	0.28 U	0.43 U	0.43 U	NS	0.44 U	0.35 U	0.53 U
Calcium	mg/Kg	NS	5140	31800	45200	25400	11000	NS	33100	74800	6540
Chromium	mg/Kg	NS	21.5	23.5	17.8	17.6	21.7	NS	23	14.4	22
Cobalt	mg/Kg	NS	10.6	15	11.3	9.9 J	8.8 J	NS	13.1	11.5	8.1 J
Copper	mg/Kg	NS	16	27.4	14.5	31.8	26.9	NS	27.6	21.6	19.4
Iron	mg/Kg	NS	25300	26900	20700	23000	24800	NS	29500	18400	25500
Lead	mg/Kg	NS	13.8	11.6	11.7	26.8 R	31.6 R	NS	17.9 R	10.5 R	19 R
Magnesium	mg/Kg	NS	3750	6640	5220	4800	4850	NS	18400	17200	4130
Manganese	mg/Kg	NS	934	508	556	313	266	NS	518	466	358
Mercury	mg/Kg	NS	0.03 J	0.01 U	0.01 U	0.05 J	0.08 J	NS	0.03 J	0.02 U	0.06 J
Nickel	mg/Kg	NS	22.7	41.9	33	38.7	31.9	NS	38.1	34	24.7
Potassium	mg/Kg	NS	1330	1120	1000	1080	1950	NS	1840	1150	1660
Selenium	mg/Kg	NS	1.2	0.11 J	0.24 J	0.72 J	0.65 J	NS	0.14 U	0.26 J	0.98 J
Silver	mg/Kg	NS	0.62 U	0.49 U	0.56 U	0.86 U	0.87 U	NS	0.89 U	0.7 U	1.1 U
Sodium	mg/Kg	NS	61.9 J	116 J	141 J	86.3 J	77.2 J	NS	108 J	148 J	63.9 J
Thallium	mg/Kg	NS	0.18 U	0.14 U	0.23 U	0.55 J	0.47 J	NS	0.78 J	0.62 J	0.3 J
Vanadium	mg/Kg	NS	29.9	18.5	13.8	16.1	24.2	NS	22.9	13.3	26.7
Zinc	mg/Kg	NS	62.5	64.7	39.3	47.1	84.3	NS	75.4	47.4	91.2
Cyanide	mg/Kg	NS	0.6 U	0.53 U	0.51 U	0.58 U	0.57 U	NS	0.59 U	0.54 U	0.58 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	NS	0.55	0.9	0.09	0.11	0.02	NS	0.15	0.03	3.1
Total Solids	%W/W	NS	80.5	90.5	93.4	83.8	85.1	NS	82.5	90.5	74.6
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	NS	78	50	62	154	72	NS	158	171	24
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 2-4 12/07/93 SB13-8.2 206410	SOIL SEAD-13 4-6 12/07/93 SB13-8.3 206411	SOIL SEAD-13 0-2 12/16/93 SB13-9.1 207029	SOIL SEAD-13 0-2 12/16/93 SB13-9.7 207031 SB13-9.1DUP	SOIL SEAD-13 0-2 12/16/93 SB13-9.7RE 207031 SB13-9.1DUP	SOIL SEAD-13 6-8 12/16/93 SB13-9.4 207182	SOIL SEAD-13 10-12 12/16/93 SB13-9.6 207183	SOIL SEAD-13 0-2 12/17/93 SB13-10.1 207184	SOIL SEAD-13 0-2 12/17/93 SB13-10.10 207188 SB13-10.1DUP	SOIL SEAD-13 6-8 12/17/93 SB13-10.4 207186
VOLATILE ORGANICS											
Chloromethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Bromomethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Vinyl Chloride	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Chloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Methylene Chloride	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Acetone	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Carbon Disulfide	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,1-Dichloroethene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,1-Dichloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,2-Dichloroethene (total)	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Chloroform	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,2-Dichloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
2-Butanone	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,1,1-Trichloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Carbon Tetrachloride	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Bromodichloromethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,2-Dichloropropane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
cis-1,3-Dichloropropene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Trichloroethene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Dibromochloromethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,1,2-Trichloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Benzene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
trans-1,3-Dichloropropene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Bromoform	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
4-Methyl-2-Pentanone	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
2-Hexanone	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Tetrachloroethene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
1,1,2,2-Tetrachloroethane	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Toluene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Chlorobenzene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Ethylbenzene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Styrene	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
Xylene (total)	ug/Kg	11 U	11 U	12 U	12 U	12 UJ	11 U	11 U	12 U	12 U	11 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	60 U	55 U	66 U	61 U	NS	56 U	55 U	59 U	59 U	54 U
2,4-DB	ug/Kg	60 U	55 U	66 U	61 U	NS	56 U	55 U	59 U	59 U	54 U
2,4,5-T	ug/Kg	6 U	5.5 U	6.6 U	6.1 U	NS	5.6 U	5.5 U	5.9 U	5.9 U	5.4 U
2,4,5-TP (Silvex)	ug/Kg	6 U	5.5 U	6.6 U	6.1 U	NS	5.6 U	5.5 U	5.9 U	5.9 U	5.4 U
Dalapon	ug/Kg	150 U	140 U	160 U	150 U	NS	140 U	130 U	150 U	150 U	130 U
Dicamba	ug/Kg	6 U	5.5 U	6.6 U	6.1 U	NS	5.6 U	5.5 U	5.9 U	5.9 U	5.4 U
Dichloroprop	ug/Kg	60 U	55 U	66 U	61 U	NS	56 U	55 U	59 U	59 U	54 U
Dinoseb	ug/Kg	30 U	28 U	33 U	31 U	NS	28 U	28 U	30 U	30 U	27 U
MCPA	ug/Kg	6000 U	5500 U	6600 U	6100 U	NS	5600 U	5500 U	5900 U	5900 U	5400 U
MCPP	ug/Kg	6000 U	5500 U	6600 U	6100 U	NS	5600 U	5500 U	5900 U	5900 U	5400 U
NITROAROMATICS											
HMX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
RDX	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3-Dinitrobenzene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetryl	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4,6-Trinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-amino-2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-amino-4,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,6-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dinitrotoluene	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	2-4	4-6	0-2	0-2	0-2	6-8	10-12	0-2	0-2	6-8
	SAMPLE DATE	12/07/93	12/07/93	12/16/93	12/16/93	12/16/93	12/16/93	12/16/93	12/17/93	12/17/93	12/17/93
	ES ID	SB13-8.2	SB13-8.3	SB13-9.1	SB13-9.7	SB13-9.7RE	SB13-9.4	SB13-9.6	SB13-10.1	SB13-10.10	SB13-10.4
	LAB ID	206410	206411	207029	207031	207031	207182	207183	207184	207188	207186
	UNITS				SB13-9.1DUP	SB13-9.1DUP				SB13-10.1DUP	
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	14000 J	370 UJ	340 U
bis(2-Chloroethyl) ether	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2-Chlorophenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
1,3-Dichlorobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
1,4-Dichlorobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3300 J	370 UJ	340 U
1,2-Dichlorobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2-Methylphenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
4-Methylphenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	9200 J	370 UJ	340 U
N-Nitroso-di-n-propylamine	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Hexachloroethane	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Nitrobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Isophorone	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2-Nitrophenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,4-Dimethylphenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
bis(2-Chloroethoxy) methane	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,4-Dichlorophenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
1,2,4-Trichlorobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Naphthalene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	510 J	370 UJ	340 U
4-Chloroaniline	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Hexachlorobutadiene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
4-Chloro-3-methylphenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2-Methylnaphthalene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Hexachlorocyclopentadiene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,4,6-Trichlorophenol	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,4,5-Trichlorophenol	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
2-Chloronaphthalene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2-Nitroaniline	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
Dimethylphthalate	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Acenaphthylene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
2,6-Dinitrotoluene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
3-Nitroaniline	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
Acenaphthene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	650 J	370 UJ	340 U
2,4-Dinitrophenol	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
4-Nitrophenol	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
Dibenzofuran	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	340 J	370 UJ	340 U
2,4-Dinitrotoluene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Diethylphthalate	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
4-Chlorophenyl-phenylether	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Fluorene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
4-Nitroaniline	ug/Kg	960 U	680 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
4,6-Dinitro-2-methylphenol	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
N-Nitrosodiphenylamine	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
4-Bromophenyl-phenylether	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Hexachlorobenzene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Pentachlorophenol	ug/Kg	960 U	880 U	1000 U	980 U	NS	860 U	850 U	9400 UJ	890 UJ	830 U
Phenanthrene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	1400 J	370 UJ	340 U
Anthracene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Carbazole	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	180 J	370 UJ	340 U
Di-n-butylphthalate	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Fluoranthene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	800 J	370 UJ	340 U
Pyrene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	540 J	370 UJ	340 U
Butylbenzylphthalate	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
3,3'-Dichlorobenzidine	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Benzo(a)anthracene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Chrysene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
bis(2-Ethylhexyl)phthalate	ug/Kg	400 U	360 U	62 J	27 J	NS	360 U	350 U	1900 J	370 UJ	340 U
Di-n-octylphthalate	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Benzo(b)fluoranthene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Benzo(k)fluoranthene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Benzo(a)pyrene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Indeno(1,2,3-cd)pyrene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Dibenz(a,h)anthracene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U
Benzo(g,h,i)perylene	ug/Kg	400 U	360 U	430 U	400 U	NS	360 U	350 U	3900 UJ	370 UJ	340 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-13
	DEPTH (FEET)	2-4	4-6	0-2	0-2	0-2	6-8	10-12	0-2	0-2	6-8
	SAMPLE DATE	12/07/93	12/07/93	12/16/93	12/16/93	12/16/93	12/16/93	12/16/93	12/17/93	12/17/93	12/17/93
	ES ID	SB13-8.2	SB13-8.3	SB13-9.1	SB13-9.7	SB13-9.7RE	SB13-9.4	SB13-9.6	SB13-10.1	SB13-10.10	SB13-10.4
	LAB ID	206410	206411	207029	207031	207031	207182	207183	207184	207188	207186
	UNITS				SB13-9.1DUP	SB13-9.1DUP				SB13-10.1DUP	
PESTICIDES/PCB											
alpha-BHC	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
beta-BHC	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
delta-BHC	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
gamma-BHC (Lindane)	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Heptachlor	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Aldrin	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Heptachlor epoxide	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Endosulfan I	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Dieldrin	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U
4,4'-DDE	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.8 U	3.8 U	3.9 U	3.6 U
Endrin	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U
Endosulfan II	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U
4,4'-DDD	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.8 U	3.8 U	3.9 U	3.6 U
Endosulfan sulfate	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.8 U
4,4'-DDT	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.8 U	3.8 U	3.9 U	3.8 U
Methoxychlor	ug/Kg	20 U	19 U	22 U	21 U	NS	19 U	18 U	20 U	20 U	18 U
Endrin ketone	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U
Endrin aldehyde	ug/Kg	4 U	3.6 U	4.3 U	4 U	NS	3.7 U	3.6 U	3.8 U	3.9 U	3.6 U
alpha-Chlordane	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
gamma-Chlordane	ug/Kg	2 U	1.9 U	2.2 U	2.1 U	NS	1.9 U	1.8 U	2 U	2 U	1.8 U
Toxaphene	ug/Kg	200 U	190 U	220 U	210 U	NS	190 U	180 U	200 U	200 U	180 U
Aroclor-1016	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	36 U	38 U	39 U	38 U
Aroclor-1221	ug/Kg	81 U	74 U	88 U	82 U	NS	75 U	73 U	78 U	79 U	72 U
Aroclor-1232	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	36 U	38 U	39 U	36 U
Aroclor-1242	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	38 U	38 U	39 U	36 U
Aroclor-1248	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	36 U	38 U	39 U	36 U
Aroclor-1254	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	36 U	38 U	39 U	36 U
Aroclor-1260	ug/Kg	40 U	36 U	43 U	40 U	NS	37 U	38 U	38 U	39 U	38 U
METALS											
Aluminum	mg/Kg	19600	9710	18300	14200	NS	12000	13800	12000	18500	12100
Antimony	mg/Kg	3.1 UJ	5.7 J	5.6 UJ	4 UJ	NS	5.8 J	4.6 J	4.4 UJ	5 J	3.7 UJ
Arsenic	mg/Kg	10.2	6	7.8	5.3	NS	8	5.5	3.8	5.7	6.6
Barium	mg/Kg	98	119	124	105	NS	191	173	72.2	157	174
Beryllium	mg/Kg	0.97	0.48 J	1.1 J	0.79 J	NS	0.69 J	0.73 J	0.63 J	0.91 J	0.72 J
Cadmium	mg/Kg	0.3 U	0.42 U	0.54 U	0.39 U	NS	0.47 U	0.42 U	0.42 U	0.48 U	0.36 U
Calcium	mg/Kg	4010	76600	4800	7980	NS	98100	78900	2070	4220	78900
Chromium	mg/Kg	32.4	15.3	26.2	20.2	NS	21.2	24.6	16.2	27.2	20.1
Cobalt	mg/Kg	18.9	10.6	10.3 J	7.9 J	NS	13.8	10.4	4.3 J	8.2 J	17.8
Copper	mg/Kg	31.5	22.2	27.8	24.2	NS	44	32.7	7.5 J	26.6 J	33.7
Iron	mg/Kg	41100	19600	31700	24300	NS	25200	26800	16500	29000	25800
Lead	mg/Kg	10 R	11.2 R	13.3	14.4	NS	14.4	10.4	9	11	14.8
Magnesium	mg/Kg	7940	19500	5250	4350	NS	17700	19800	2840	6210	16100
Manganese	mg/Kg	687	380	473	352	NS	532	396	104	204	708
Mercury	mg/Kg	0.02 J	0.02 U	0.04 J	0.03 J	NS	0.02 J	0.02 J	0.03 J	0.03 J	0.02 J
Nickel	mg/Kg	55.6	31.4	35.4	28.5	NS	45.9	40.9	14.1	32.8	57.1
Potassium	mg/Kg	1420	1590	1650	975	NS	2150	2590	974 J	1500	1880
Selenium	mg/Kg	0.29 J	0.14 U	1.4	0.69 J	NS	0.52 J	0.47 J	0.29 J	0.32 J	0.45 J
Silver	mg/Kg	0.6 U	0.84 U	1.1 U	0.78 U	NS	0.93 U	0.84 U	0.85 U	0.95 U	0.72 U
Sodium	mg/Kg	62 J	144 J	56 J	42.6 J	NS	196 J	175 J	40 J	57 J	166 J
Thallium	mg/Kg	0.5 J	0.75 J	0.27 U	0.2 U	NS	0.24 U	0.24 U	0.27 U	0.27 U	0.13 U
Vanadium	mg/Kg	27.1	15.8	34.8	25.6	NS	25.8	24.5	21.6	31.7	21.6
Zinc	mg/Kg	103	68.5	56.9	48.5	NS	73.5	98	40.7	68.7	92.8
Cyanide	mg/Kg	0.57 U	0.54 U	0.63 U	0.58 U	NS	0.54 U	0.51 U	0.49 U	0.59 U	0.48 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.31	0.03	0.03	0.19	NS	0.04	0.04	0.33	0.5	0.17
Total Solids	%W/W	82.8	90.7	75.8	82.2	NS	89.3	92.1	84.8	84.7	91.7
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	47	11.7	78	97	NS	89	72	75	34	28
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL		SOIL
	LOCATION	SEAD-13		SEAD-13
	DEPTH (FEET)	8-10		8-10
	SAMPLE DATE	12/18/93		12/18/93
	ES ID	SB13-10.5		SB13-10.5RE
	LAB ID	207187		207187
	UNITS			
VOLATILE ORGANICS				
Chloromethane	ug/Kg	10 U	R	10 UJ
Bromomethane	ug/Kg	10 U	R	10 UJ
Vinyl Chloride	ug/Kg	10 U	R	10 UJ
Chloroethane	ug/Kg	10 U	R	10 UJ
Methylene Chloride	ug/Kg	2 J		10 UJ
Acetone	ug/Kg	11 U	R	10 UJ
Carbon Disulfide	ug/Kg	10 U	R	10 UJ
1,1-Dichloroethene	ug/Kg	10 U	R	10 UJ
1,1-Dichloroethane	ug/Kg	10 U	R	10 UJ
1,2-Dichloroethene (total)	ug/Kg	10 U	R	10 UJ
Chloroform	ug/Kg	10 U	R	10 UJ
1,2-Dichloroethane	ug/Kg	10 U	R	10 UJ
2-Butanone	ug/Kg	10 U	R	10 UJ
1,1,1-Trichloroethane	ug/Kg	10 U	R	10 UJ
Carbon Tetrachloride	ug/Kg	10 U	R	10 UJ
Bromodichloromethane	ug/Kg	10 U	R	10 UJ
1,2-Dichloropropane	ug/Kg	10 U	R	10 UJ
cis-1,3-Dichloropropene	ug/Kg	10 U	R	10 UJ
Trichloroethene	ug/Kg	10 U	R	10 UJ
Dibromochloromethane	ug/Kg	10 U	R	10 UJ
1,1,2-Trichloroethane	ug/Kg	10 U	R	10 UJ
Benzene	ug/Kg	10 U	R	10 UJ
trans-1,3-Dichloropropene	ug/Kg	10 U	R	10 UJ
Bromoform	ug/Kg	10 U	R	10 UJ
4-Methyl-2-Pentanone	ug/Kg	10 U	R	10 UJ
2-Hexanone	ug/Kg	10 U	R	10 UJ
Tetrachloroethene	ug/Kg	10 U	R	10 UJ
1,1,2,2-Tetrachloroethane	ug/Kg	10 U	R	10 UJ
Toluene	ug/Kg	10 U	R	10 UJ
Chlorobenzene	ug/Kg	10 U	R	10 UJ
Ethylbenzene	ug/Kg	10 U	R	10 UJ
Styrene	ug/Kg	10 U	R	10 UJ
Xylene (total)	ug/Kg	10 U	R	10 UJ
MTBE	ug/Kg	NS		NS
HERBICIDES				
2,4-D	ug/Kg	52 U		NS
2,4-DB	ug/Kg	52 U		NS
2,4,5-T	ug/Kg	5.2 U		NS
2,4,5-TP (Silvex)	ug/Kg	5.2 U		NS
Dalapon	ug/Kg	130 U		NS
Dicamba	ug/Kg	5.2 U		NS
Dichloroprop	ug/Kg	52 U		NS
Dinoseb	ug/Kg	26 U		NS
MCPA	ug/Kg	5200 U		NS
MCPP	ug/Kg	520 U		NS
NITROAROMATICS				
HMX	ug/Kg	NS		NS
RDX	ug/Kg	NS		NS
1,3,5-Trinitrobenzene	ug/Kg	NS		NS
1,3-Dinitrobenzene	ug/Kg	NS		NS
Tetryl	ug/Kg	NS		NS
2,4,6-Trinitrotoluene	ug/Kg	NS		NS
4-amino-2,6-Dinitrotoluene	ug/Kg	NS		NS
2-amino-4,6-Dinitrotoluene	ug/Kg	NS		NS
2,6-Dinitrotoluene	ug/Kg	NS		NS
2,4-Dinitrotoluene	ug/Kg	NS		NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 8-10 12/18/93 SB13-10.5 207187	SOIL SEAD-13 8-10 12/18/93 SB13-10.5RE 207187
SEMIVOLATILE ORGANICS			
Phenol	ug/Kg	320 U	NS
bis(2-Chloroethyl) ether	ug/Kg	320 U	NS
2-Chlorophenol	ug/Kg	320 U	NS
1,3-Dichlorobenzene	ug/Kg	320 U	NS
1,4-Dichlorobenzene	ug/Kg	320 U	NS
1,2-Dichlorobenzene	ug/Kg	320 U	NS
2-Methylphenol	ug/Kg	320 U	NS
2,2'-oxybis(1-Chloropropane)	ug/Kg	320 U	NS
4-Methylphenol	ug/Kg	320 U	NS
N-Nitroso-di-n-propylamine	ug/Kg	320 U	NS
Hexachloroethane	ug/Kg	320 U	NS
Nitrobenzene	ug/Kg	320 U	NS
Isophorone	ug/Kg	320 U	NS
2-Nitrophenol	ug/Kg	320 U	NS
2,4-Dimethylphenol	ug/Kg	320 U	NS
bis(2-Chloroethoxy) methane	ug/Kg	320 U	NS
2,4-Dichlorophenol	ug/Kg	320 U	NS
1,2,4-Trichlorobenzene	ug/Kg	320 U	NS
Naphthalene	ug/Kg	320 U	NS
4-Chloroaniline	ug/Kg	320 U	NS
Hexachlorobutadiene	ug/Kg	320 U	NS
4-Chloro-3-methylphenol	ug/Kg	320 U	NS
2-Methylnaphthalene	ug/Kg	320 U	NS
Hexachlorocyclopentadiene	ug/Kg	320 U	NS
2,4,6-Trichlorophenol	ug/Kg	320 U	NS
2,4,5-Trichlorophenol	ug/Kg	790 U	NS
2-Chloronaphthalene	ug/Kg	320 U	NS
2-Nitroaniline	ug/Kg	790 U	NS
Dimethylphthalate	ug/Kg	320 U	NS
Acenaphthylene	ug/Kg	320 U	NS
2,6-Dinitrotoluene	ug/Kg	320 U	NS
3-Nitroaniline	ug/Kg	790 U	NS
Acenaphthene	ug/Kg	320 U	NS
2,4-Dinitrophenol	ug/Kg	790 U	NS
4-Nitrophenol	ug/Kg	790 U	NS
Dibenzofuran	ug/Kg	320 U	NS
2,4-Dinitrotoluene	ug/Kg	320 U	NS
Diethylphthalate	ug/Kg	320 U	NS
4-Chlorophenyl-phenylether	ug/Kg	320 U	NS
Fluorene	ug/Kg	320 U	NS
4-Nitroaniline	ug/Kg	790 U	NS
4,6-Dinitro-2-methylphenol	ug/Kg	790 U	NS
N-Nitrosodiphenylamine	ug/Kg	320 U	NS
4-Bromophenyl-phenylether	ug/Kg	320 U	NS
Hexachlorobenzene	ug/Kg	320 U	NS
Pentachlorophenol	ug/Kg	790 U	NS
Phenanthrene	ug/Kg	320 U	NS
Anthracene	ug/Kg	320 U	NS
Carbazole	ug/Kg	320 U	NS
Di-n-butylphthalate	ug/Kg	320 U	NS
Fluoranthene	ug/Kg	320 U	NS
Pyrene	ug/Kg	320 U	NS
Butylbenzylphthalate	ug/Kg	320 U	NS
3,3'-Dichlorobenzidine	ug/Kg	320 U	NS
Benzo(a)anthracene	ug/Kg	320 U	NS
Chrysene	ug/Kg	320 U	NS
bis(2-Ethylhexyl)phthalate	ug/Kg	320 U	NS
Di-n-octylphthalate	ug/Kg	320 U	NS
Benzo(b)fluoranthene	ug/Kg	320 U	NS
Benzo(k)fluoranthene	ug/Kg	320 U	NS
Benzo(a)pyrene	ug/Kg	320 U	NS
Indeno(1,2,3-cd)pyrene	ug/Kg	320 U	NS
Dibenz(a,h)anthracene	ug/Kg	320 U	NS
Benzo(g,h,i)perylene	ug/Kg	320 U	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 8-10 12/18/93 SB13-10.5 207187	SOIL SEAD-13 8-10 12/18/93 SB13-10.5RE 207187
PESTICIDES/PCB			
alpha-BHC	ug/Kg	1.8 U	NS
beta-BHC	ug/Kg	1.8 U	NS
delta-BHC	ug/Kg	1.8 U	NS
gamma-BHC (Lindane)	ug/Kg	1.8 U	NS
Heptachlor	ug/Kg	1.8 U	NS
Aldrin	ug/Kg	1.8 U	NS
Heptachlor epoxide	ug/Kg	1.8 U	NS
Endosulfan I	ug/Kg	1.8 U	NS
Dieldrin	ug/Kg	3.4 U	NS
4,4'-DDE	ug/Kg	3.4 U	NS
Endrin	ug/Kg	3.4 U	NS
Endosulfan II	ug/Kg	3.4 U	NS
4,4'-DDD	ug/Kg	3.4 U	NS
Endosulfan sulfate	ug/Kg	3.4 U	NS
4,4'-DDT	ug/Kg	3.4 U	NS
Methoxychlor	ug/Kg	18 U	NS
Endrin ketone	ug/Kg	3.4 U	NS
Endrin aldehyde	ug/Kg	3.4 U	NS
alpha-Chlordane	ug/Kg	1.8 U	NS
gamma-Chlordane	ug/Kg	1.8 U	NS
Toxaphene	ug/Kg	180 U	NS
Aroclor-1016	ug/Kg	34 U	NS
Aroclor-1221	ug/Kg	69 U	NS
Aroclor-1232	ug/Kg	34 U	NS
Aroclor-1242	ug/Kg	34 U	NS
Aroclor-1248	ug/Kg	34 U	NS
Aroclor-1254	ug/Kg	34 U	NS
Aroclor-1260	ug/Kg	34 U	NS
METALS			
Aluminum	mg/Kg	17100	NS
Antimony	mg/Kg	4.1 UJ	NS
Arsenic	mg/Kg	4.5	NS
Barium	mg/Kg	584	NS
Beryllium	mg/Kg	0.88 J	NS
Cadmium	mg/Kg	0.39 U	NS
Calcium	mg/Kg	32500	NS
Chromium	mg/Kg	30.8	NS
Cobalt	mg/Kg	18.6	NS
Copper	mg/Kg	17.1	NS
Iron	mg/Kg	36800	NS
Lead	mg/Kg	12.5	NS
Magnesium	mg/Kg	8700	NS
Manganese	mg/Kg	546	NS
Mercury	mg/Kg	0.02 U	NS
Nickel	mg/Kg	53	NS
Potassium	mg/Kg	1580	NS
Selenium	mg/Kg	0.42 J	NS
Silver	mg/Kg	1 J	NS
Sodium	mg/Kg	125 J	NS
Thallium	mg/Kg	0.19 U	NS
Vanadium	mg/Kg	24.3	NS
Zinc	mg/Kg	82.2	NS
Cyanide	mg/Kg	0.51 U	NS
OTHER ANALYSES			
Nitrate/Nitrite-Nitrogen	mg/Kg	0.05	NS
Total Solids	%W/W	95.8	NS
Total Petroleum Hydrocarbons	mg/Kg	NS	NS
Fluoride	mg/Kg	27	NS
pH	standard units	NS	NS

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 02/03/94 MW13-1 210501	WATER SEAD-13 11/18/93 MW13-2 205063	WATER SEAD-13 02/04/94 MW13-4 210496	WATER SEAD-13 02/04/94 MW13-8 210499 MW13-4DUP	WATER SEAD-13 02/05/94 MW13-5 210497	WATER SEAD-13 02/04/94 MW13-6 210498
VOLATILE ORGANICS							
Chloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	NS	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	NS	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	NS	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	NS	10 U	10 U
MTBE	ug/L	NS	NS	NS	NS	NS	NS
HERBICIDES							
2,4-D	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.2 U
2,4-DB	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.2 U
2,4,5-T	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	0.12 U
2,4,5-TP (Silvex)	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	0.12 U
Dalapon	ug/L	2.5 U	2.5 U	2.4 U	NS	2.5 U	2.6 U
Dicamba	ug/L	0.11 U	0.11 U	0.11 U	NS	0.11 U	0.12 U
Dichloroprop	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.2 U
Dinoseb	ug/L	0.54 U	0.54 U	0.52 U	NS	0.55 U	0.57 U
MCPA	ug/L	110 U	110 U	110 U	NS	110 U	120 U
MCPP	ug/L	110 U	110 U	110 U	NS	110 U	120 U
NITROAROMATICS							
HMX	ug/L	NS	NS	NS	NS	NS	NS
RDX	ug/L	NS	NS	NS	NS	NS	NS
1,3,5-Trinitrobenzene	ug/L	NS	NS	NS	NS	NS	NS
1,3-Dinitrobenzene	ug/L	NS	NS	NS	NS	NS	NS
Tetryl	ug/L	NS	NS	NS	NS	NS	NS
2,4,6-Trinitrotoluene	ug/L	NS	NS	NS	NS	NS	NS
4-amino-2,6-Dinitrotoluene	ug/L	NS	NS	NS	NS	NS	NS
2-amino-4,6-Dinitrotoluene	ug/L	NS	NS	NS	NS	NS	NS
2,6-Dinitrotoluene	ug/L	NS	NS	NS	NS	NS	NS
2,4-Dinitrotoluene	ug/L	NS	NS	NS	NS	NS	NS

NOTES:
NS stands for NOT SAMPLED

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 02/03/94 MW13-1 210501	WATER SEAD-13 11/18/93 MW13-2 205063	WATER SEAD-13 02/04/94 MW13-4 210496	WATER SEAD-13 02/04/94 MW13-8 210499 MW13-4DUP	WATER SEAD-13 02/05/94 MW13-5 210497	WATER SEAD-13 02/04/94 MW13-6 210498
SEMIVOLATILE ORGANICS							
Phenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2-Chlorophenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
1,3-Dichlorobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
1,4-Dichlorobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
1,2-Dichlorobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2-Methylphenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,2'-oxybis(1-Chloropropane)	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Methylphenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Hexachloroethane	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Nitrobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Isophorone	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2-Nitrophenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4-Dimethylphenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
bis(2-Chloroethoxy) methane	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4-Dichlorophenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Naphthalene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Chloroaniline	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Hexachlorobutadiene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Chloro-3-methylphenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2-Methylnaphthalene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Hexachlorocyclopentadiene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4,6-Trichlorophenol	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4,5-Trichlorophenol	ug/L	27 U	26 U	25 U	NS	25 U	25 U
2-Chloronaphthalene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2-Nitroaniline	ug/L	27 U	26 U	25 U	NS	25 U	25 U
Dimethylphthalate	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Acenaphthylene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,6-Dinitrotoluene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
3-Nitroaniline	ug/L	27 U	26 U	25 U	NS	25 U	25 U
Acenaphthene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4-Dinitrophenol	ug/L	27 U	26 U	25 U	NS	25 U	25 U
4-Nitrophenol	ug/L	27 U	26 U	25 U	NS	25 U	25 U
Dibenzofuran	ug/L	11 U	11 U	10 U	NS	10 U	10 U
2,4-Dinitrotoluene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Diethylphthalate	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Fluorene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Nitroaniline	ug/L	27 U	26 U	25 U	NS	25 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	27 U	26 U	25 U	NS	25 U	25 U
N-Nitrosodiphenylamine	ug/L	11 U	11 U	10 U	NS	10 U	10 U
4-Bromophenyl-phenylether	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Hexachlorobenzene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Pentachlorophenol	ug/L	27 U	26 U	25 U	NS	25 U	25 U
Phenanthrene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Anthracene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Carbazole	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Di-n-butylphthalate	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Fluoranthene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Pyrene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Butylbenzylphthalate	ug/L	11 U	11 U	10 U	NS	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Benzo(a)anthracene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Chrysene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U	11 U	17	NS	23	10 U
Di-n-octylphthalate	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Benzo(b)fluoranthene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Benzo(k)fluoranthene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Benzo(a)pyrene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Dibenz(a,h)anthracene	ug/L	11 U	11 U	10 U	NS	10 U	10 U
Benzo(g,h,i)perylene	ug/L	11 U	11 U	10 U	NS	10 U	10 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 02/03/94 MW13-1 210501	WATER SEAD-13 11/18/93 MW13-2 205063	WATER SEAD-13 02/04/94 MW13-4 210496	WATER SEAD-13 02/04/94 MW13-8 210499 MW13-4DUP	WATER SEAD-13 02/05/94 MW13-5 210497	WATER SEAD-13 02/04/94 MW13-6 210498
PESTICIDES/PCB							
alpha-BHC	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
beta-BHC	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
delta-BHC	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
gamma-BHC (Lindane)	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Heptachlor	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Aldrin	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Heptachlor epoxide	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Endosulfan I	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Dieldrin	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
4,4'-DDE	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
Endrin	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
Endosulfan II	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
4,4'-DDD	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
Endosulfan sulfate	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
4,4'-DDT	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
Methoxychlor	ug/L	0.54 UJ	0.52 U	0.6 UJ	NS	0.58 U	0.54 U
Endrin ketone	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
Endrin aldehyde	ug/L	0.11 UJ	0.1 U	0.12 UJ	NS	0.12 U	0.11 U
alpha-Chlordane	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
gamma-Chlordane	ug/L	0.054 UJ	0.052 U	0.06 UJ	NS	0.058 U	0.054 U
Toxaphene	ug/L	5.4 UJ	5.2 U	6 UJ	NS	5.8 U	5.4 U
Aroclor-1016	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
Aroclor-1221	ug/L	2.2 UJ	2.1 U	2.4 UJ	NS	2.3 U	2.2 U
Aroclor-1232	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
Aroclor-1242	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
Aroclor-1248	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
Aroclor-1254	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
Aroclor-1260	ug/L	1.1 UJ	1 U	1.2 UJ	NS	1.2 U	1.1 U
METALS							
Aluminum	ug/L	42400	89.6 J	5540	NS	53.1 J	2810
Antimony	ug/L	33.9 J	52.5 U	31.5 J	NS	43 J	52.7 J
Arsenic	ug/L	9.3 J	1.4 J	1.4 U	NS	1.4 U	1.4 U
Barium	ug/L	337	28.7 J	71.2 J	NS	33.5 J	34.3 J
Beryllium	ug/L	2.2 J	0.3 U	0.4 U	NS	0.4 U	0.4 U
Cadmium	ug/L	2.1 U	3.3 U	2.1 U	NS	2.1 U	2.1 U
Calcium	ug/L	181000	592000	182000	NS	105000	81500
Chromium	ug/L	69.4	2.5 U	9.9 J	NS	2.6 U	6.1 J
Cobalt	ug/L	34.6 J	4.9 U	6.7 J	NS	4.4 U	4.4 U
Copper	ug/L	23.3 J	3.7 U	3.3 J	NS	3.1 U	3.1 U
Iron	ug/L	69400	562	8010	NS	75.8 J	4550
Lead	ug/L	34.8	0.6 U	3.1	NS	0.5 U	1.5 J
Magnesium	ug/L	50300	188000	44900	NS	55300	51500
Manganese	ug/L	1120	342	299	NS	143	376
Mercury	ug/L	0.05 J	0.07 UJ	0.04 U	NS	0.04 U	0.04 U
Nickel	ug/L	99.8	5 J	17.5 J	NS	4.6 J	8.6 J
Potassium	ug/L	10100	8690	4460 J	NS	5460	6780
Selenium	ug/L	3.6 J	2.9 J	1.2 J	NS	0.7 U	2.3 J
Silver	ug/L	4.2 U	6.7 U	4.2 U	NS	4.2 U	4.2 U
Sodium	ug/L	9350	17000	9340	NS	14000	7880
Thallium	ug/L	1.2 U	9 U	1.2 U	NS	1.2 U	1.2 U
Vanadium	ug/L	70.8	3.3 U	8.8 J	NS	3.7 U	5.9 J
Zinc	ug/L	143	3.8 J	138	NS	101	50.6
Cyanide	ug/L	5 U	5.1 U	5 U	NS	5 U	5 U
OTHER ANALYSES							
Nitrate/Nitrite-Nitrogen	mg/L	0.01 U	460	0.03	NS	0.12	0.16
Total Petroleum Hydrocarbons	mg/L	NS	NS	NS	NS	NS	NS
Fluoride	mg/L	0.45	0.1	0.3	0.23	0.22	0.28
pH	standard units	7.4	7.17	7.14	NA	7.3	7.72
Specific Conductivity	umhos/cm	380	3150	750	NA	600	400
Turbidity	NTU	18.2	4.2	8.1	NA	195	12.3

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SURFACE WATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 11/03/93 SW13-1 203410	WATER SEAD-13 11/03/93 SW13-2 203411	WATER SEAD-13 11/04/93 SW13-3 203412
VOLATILE ORGANICS				
Chloromethane	ug/L	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U
MTBE	ug/L	NS	NS	NS
HERBICIDES				
2,4-D	ug/L	1.1 U	1.1 U	1.2 U
2,4-DB	ug/L	1.1 U	1.1 U	1.2 U
2,4,5-T	ug/L	0.11 U	0.11 U	0.12 U
2,4,5-TP (Silvex)	ug/L	0.11 U	0.11 U	0.12 U
Dalapon	ug/L	2.4 U	2.4 U	2.6 U
Dicamba	ug/L	0.11 U	0.11 U	0.12 U
Dichloroprop	ug/L	1.1 U	1.1 U	1.2 U
Dinoseb	ug/L	0.51 U	0.52 U	0.56 U
MCPA	ug/L	110 U	110 U	120 U
MCPP	ug/L	110 U	110 U	120 U
NITROAROMATICS				
HMX	ug/L	0.13 U	0.13 UJ	0.13 UJ
RDX	ug/L	0.13 U	0.13 UJ	0.13 UJ
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.13 UJ	0.13 UJ
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 UJ	0.13 UJ
Tetryl	ug/L	0.13 U	0.13 UJ	0.13 UJ
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 UJ	0.13 UJ
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 UJ	0.13 UJ
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 UJ	0.13 UJ
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 UJ	0.13 UJ
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 UJ	0.13 UJ

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SURFACE WATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 11/03/93 SW13-1 203410	WATER SEAD-13 11/03/93 SW13-2 203411	WATER SEAD-13 11/04/93 SW13-3 203412
SEMIVOLATILE ORGANICS				
Phenol	ug/L	10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U
1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U	10 U	10 U
Isophorone	ug/L	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U	10 U	10 U
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U
4-Chloroaniline	ug/L	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	26 U	26 U	25 U
2-Chloronaphthalene	ug/L	10 U	10 U	10 U
2-Nitroaniline	ug/L	26 U	26 U	25 U
Dimethylphthalate	ug/L	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U
3-Nitroaniline	ug/L	26 U	26 U	25 U
Acenaphthene	ug/L	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	26 U	26 U	25 U
4-Nitrophenol	ug/L	26 U	26 U	25 U
Dibenzofuran	ug/L	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U
4-Nitroaniline	ug/L	26 U	26 U	25 U
4,6-Dinitro-2-methylphenol	ug/L	26 U	26 U	25 U
N-Nitrosodiphenylamine	ug/L	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U	10 U	10 U
Pentachlorophenol	ug/L	26 U	26 U	25 U
Phenanthrene	ug/L	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U
Carbazole	ug/L	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	10 U	10 U	10 U
Fluoranthene	ug/L	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SURFACE WATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-13 11/03/93 SW13-1 203410	WATER SEAD-13 11/03/93 SW13-2 203411	WATER SEAD-13 11/04/93 SW13-3 203412
PESTICIDES/PCB				
alpha-BHC	ug/L	0.051 U	0.051 U	0.054 U
beta-BHC	ug/L	0.051 U	0.051 U	0.054 U
delta-BHC	ug/L	0.051 U	0.051 U	0.054 U
gamma-BHC (Lindane)	ug/L	0.051 U	0.051 U	0.054 U
Heptachlor	ug/L	0.051 U	0.051 U	0.054 U
Aldrin	ug/L	0.051 U	0.051 U	0.054 U
Heptachlor epoxide	ug/L	0.051 U	0.051 U	0.054 U
Endosulfan I	ug/L	0.051 U	0.051 U	0.054 U
Dieldrin	ug/L	0.1 U	0.1 U	0.11 U
4,4'-DDE	ug/L	0.1 U	0.1 U	0.11 U
Endrin	ug/L	0.1 U	0.1 U	0.11 U
Endosulfan II	ug/L	0.1 U	0.1 U	0.11 U
4,4'-DDD	ug/L	0.1 U	0.1 U	0.11 U
Endosulfan sulfate	ug/L	0.1 U	0.1 U	0.11 U
4,4'-DDT	ug/L	0.1 U	0.1 U	0.11 U
Methoxychlor	ug/L	0.51 U	0.51 U	0.54 U
Endrin ketone	ug/L	0.1 U	0.1 U	0.11 U
Endrin aldehyde	ug/L	0.1 U	0.1 U	0.11 U
alpha-Chlordane	ug/L	0.051 U	0.051 U	0.054 U
gamma-Chlordane	ug/L	0.051 U	0.051 U	0.054 U
Toxaphene	ug/L	5.1 U	5.1 U	5.4 U
Aroclor-1016	ug/L	1 U	1 U	1.1 U
Aroclor-1221	ug/L	2 U	2 U	2.1 U
Aroclor-1232	ug/L	1 U	1 U	1.1 U
Aroclor-1242	ug/L	1 U	1 U	1.1 U
Aroclor-1248	ug/L	1 U	1 U	1.1 U
Aroclor-1254	ug/L	1 U	1 U	1.1 U
Aroclor-1260	ug/L	1 U	1 U	1.1 U
METALS				
Aluminum	ug/L	3830	2410	162 J
Antimony	ug/L	52.8 U	52.8 U	52.6 U
Arsenic	ug/L	1.2 U	1.2 U	1.2 U
Barium	ug/L	91.6 J	50.4 J	31.8 J
Beryllium	ug/L	0.3 U	0.3 U	0.3 U
Cadmium	ug/L	3.3 U	3.3 U	3.3 U
Calcium	ug/L	75300	61400	73200
Chromium	ug/L	5.4 J	2.5 U	2.5 U
Cobalt	ug/L	4.9 U	4.9 U	4.9 U
Copper	ug/L	6.6 J	3.7 U	3.7 U
Iron	ug/L	5790 J	4310 J	458 J
Lead	ug/L	4.4	7.5	0.8 U
Magnesium	ug/L	14200	12800	13200
Manganese	ug/L	268	296	85.3
Mercury	ug/L	0.07 U	0.07 U	0.07 U
Nickel	ug/L	7.1 J	5.5 J	4.1 U
Potassium	ug/L	7200	4740 J	5240
Selenium	ug/L	1.1 U	1.1 U	1.1 U
Silver	ug/L	6.7 UJ	6.7 UJ	6.7 UJ
Sodium	ug/L	62100	53400	70000
Thallium	ug/L	1.2 U	1.2 U	1.2 U
Vanadium	ug/L	6.2 J	3.3 U	3.3 U
Zinc	ug/L	27.7	15.9 J	3.1 U
Cyanide	ug/L	5 U	5 U	5 U
OTHER ANALYSES				
Nitrate/Nitrite-Nitrogen	mg/L	0.1	0.02	0.04
Total Petroleum Hydrocarbons	mg/L	NS	NS	NS
Fluoride	mg/L	0.37	0.39	0.27
pH	standard units	7.68	7.62	7.51
Specific Conductivity	umhos/cm	400	415	485
Turbidity	NTU	NA	NA	NA

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SEDIMENT ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 0-0.5 11/03/93 SD13-1 203406	SOIL SEAD-13 0-0.5 11/03/93 SD13-4 203409 SD13-1DUP	SOIL SEAD-13 0-0.5 11/03/93 SD13-2 203407	SOIL SEAD-13 0-0.5 11/03/93 SD13-3 203408
VOLATILE ORGANICS					
Chloromethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Bromomethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Vinyl Chloride	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Chloroethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Methylene Chloride	ug/Kg	36 UJ	28 UJ	36 UJ	28 UJ
Acetone	ug/Kg	380 J	110 J	150 J	110 J
Carbon Disulfide	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,1-Dichloroethene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,1-Dichloroethane	ug/Kg	38 UJ	28 UJ	43 UJ	28 UJ
1,2-Dichloroethene (total)	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Chloroform	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,2-Dichloroethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
2-Butanone	ug/Kg	140 J	28 UJ	43 UJ	28 UJ
1,1,1-Trichloroethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Carbon Tetrachloride	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Bromodichloromethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,2-Dichloropropane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
cis-1,3-Dichloropropene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Trichloroethene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Dibromochloromethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,1,2-Trichloroethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Benzene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
trans-1,3-Dichloropropene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Bromoform	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
4-Methyl-2-Pentanone	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
2-Hexanone	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Tetrachloroethene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
1,1,2,2-Tetrachloroethane	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Toluene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Chlorobenzene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Ethylbenzene	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
Styrene	ug/Kg	36 UJ	26 UJ	43 UJ	28 UJ
Xylene (total)	ug/Kg	36 UJ	28 UJ	43 UJ	28 UJ
MTBE	ug/Kg	NS	NS	NS	NS
HERBICIDES					
2,4-D	ug/Kg	150 UJ	120 UJ	160 UJ	130 UJ
2,4-DB	ug/Kg	150 UJ	120 UJ	160 UJ	130 UJ
2,4,5-T	ug/Kg	15 UJ	12 UJ	16 UJ	13 UJ
2,4,5-TP (Silvex)	ug/Kg	15 UJ	12 UJ	16 UJ	13 UJ
Dalapon	ug/Kg	350 UJ	280 UJ	370 UJ	300 UJ
Dicamba	ug/Kg	15 UJ	12 UJ	16 UJ	13 UJ
Dichloroprop	ug/Kg	150 UJ	120 UJ	160 UJ	130 UJ
Dinoseb	ug/Kg	73 UJ	58 UJ	76 UJ	62 UJ
MCPA	ug/Kg	15000 UJ	12000 UJ	16000 UJ	13000 UJ
MCPP	ug/Kg	15000 UJ	12000 UJ	16000 UJ	13000 UJ
NITROAROMATICS					
HMX	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
RDX	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
1,3,5-Trinitrobenzene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
1,3-Dinitrobenzene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
Tetryl	ug/Kg	130 UJ	130 UJ	200 J	130 UJ
2,4,6-Trinitrotoluene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
4-amino-2,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
2-amino-4,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
2,6-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ
2,4-Dinitrotoluene	ug/Kg	130 UJ	130 UJ	130 UJ	130 UJ

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SEDIMENT ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / DEPTH (FEET) / SAMPLE DATE / ES ID / LAB ID / UNITS	SOIL / SEAD-13 / 0-0.5 / 11/03/93 / SD13-1 / 203406	SOIL / SEAD-13 / 0-0.5 / 11/03/93 / SD13-4 / 203409 / SD13-1DUP	SOIL / SEAD-13 / 0-0.5 / 11/03/93 / SD13-2 / 203407	SOIL / SEAD-13 / 0-0.5 / 11/03/93 / SD13-3 / 203408
SEMIVOLATILE ORGANICS					
Phenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
bis(2-Chloroethyl) ether	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2-Chlorophenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
1,3-Dichlorobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
1,4-Dichlorobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
1,2-Dichlorobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2-Methylphenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,2'-oxybis(1-Chloropropane)	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Methylphenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
N-Nitroso-di-n-propylamine	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Hexachloroethane	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Nitrobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Isophorone	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2-Nitrophenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4-Dimethylphenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
bis(2-Chloroethoxy) methane	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4-Dichlorophenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
1,2,4-Trichlorobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Naphthalene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Chloroaniline	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Hexachlorobutadiene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Chloro-3-methylphenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2-Methylnaphthalene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Hexachlorocyclopentadiene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4,6-Trichlorophenol	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4,5-Trichlorophenol	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
2-Chloronaphthalene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2-Nitroaniline	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
Dimethylphthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Acenaphthylene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,6-Dinitrotoluene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
3-Nitroaniline	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
Acenaphthene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4-Dinitrophenol	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
4-Nitrophenol	ug/Kg	2400 UJ	1600 UJ	2400 UJ	6600 UJ
Dibenzofuran	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
2,4-Dinitrotoluene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Diethylphthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Chlorophenyl-phenylether	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Fluorene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Nitroaniline	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
4,6-Dinitro-2-methylphenol	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
N-Nitrosodiphenylamine	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
4-Bromophenyl-phenylether	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Hexachlorobenzene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Pentachlorophenol	ug/Kg	2400 UJ	1800 UJ	2400 UJ	6600 UJ
Phenanthrene	ug/Kg	970 UJ	35 J	990 UJ	2700 UJ
Anthracene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Carbazole	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Di-n-butylphthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Fluoranthene	ug/Kg	69 J	63 J	990 UJ	2700 UJ
Pyrene	ug/Kg	60 J	54 J	990 UJ	2700 UJ
Butylbenzylphthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
3,3'-Dichlorobenzidine	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Benzo(a)anthracene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Chrysene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
bis(2-Ethylhexyl)phthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Di-n-octylphthalate	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Benzo(b)fluoranthene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Benzo(k)fluoranthene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Benzo(a)pyrene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Indeno(1,2,3-cd)pyrene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Dibenz(a,h)anthracene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ
Benzo(g,h,i)perylene	ug/Kg	970 UJ	760 UJ	990 UJ	2700 UJ

SENECA ARMY DEPOT
SEAD-13 EXPANDED SITE INSPECTION
SEDIMENT ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-13 0-0.5 11/03/93 SD13-1 203406	SOIL SEAD-13 0-0.5 11/03/93 SD13-4 203409 SD13-1DUP	SOIL SEAD-13 0-0.5 11/03/93 SD13-2 203407	SOIL SEAD-13 0-0.5 11/03/93 SD13-3 203408
PESTICIDES/PCB					
alpha-BHC	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
beta-BHC	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
delta-BHC	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
gamma-BHC (Lindane)	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Heptachlor	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Aldrin	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Heptachlor epoxide	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Endosulfan I	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Dieldrin	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
4,4'-DDE	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
Endrin	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
Endosulfan II	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
4,4'-DDD	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
Endosulfan sulfate	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
4,4'-DDT	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
Methoxychlor	ug/Kg	50 UJ	39 UJ	52 UJ	42 UJ
Endrin ketone	ug/Kg	9.6 UJ	7.6 UJ	10 UJ	8.2 UJ
Endrin aldehyde	ug/Kg	9.6 UJ	7.8 UJ	10 UJ	8.2 UJ
alpha-Chlordane	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
gamma-Chlordane	ug/Kg	5 UJ	3.9 UJ	5.2 UJ	4.2 UJ
Toxaphene	ug/Kg	500 UJ	390 UJ	520 UJ	420 UJ
Aroclor-1016	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
Aroclor-1221	ug/Kg	200 UJ	150 UJ	200 UJ	170 UJ
Aroclor-1232	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
Aroclor-1242	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
Aroclor-1248	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
Aroclor-1254	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
Aroclor-1260	ug/Kg	96 UJ	76 UJ	100 UJ	82 UJ
METALS					
Aluminum	mg/Kg	14500 J	18200 J	16900 J	17800 J
Antimony	mg/Kg	27.2 UJ	20.6 UJ	31.5 UJ	21.2 UJ
Arsenic	mg/Kg	4.2 R	4.3 R	2.2 R	3.7 R
Barium	mg/Kg	97.2 J	134 J	112 J	162 J
Beryllium	mg/Kg	0.67 J	0.95 J	0.77 J	1 J
Cadmium	mg/Kg	1.7 UJ	1.3 UJ	2 UJ	1.3 UJ
Calcium	mg/Kg	7000 J	5750 J	5780 J	7200 J
Chromium	mg/Kg	21.7 J	26.9 J	23.3 J	26.1 J
Cobalt	mg/Kg	6.7 J	10.8 J	9.1 J	11.3 J
Copper	mg/Kg	16.5 J	20.7 J	18.3 J	20.6 J
Iron	mg/Kg	19400 J	28100 J	21100 J	27200 J
Lead	mg/Kg	18.1 J	25.7 J	25.4 J	8.5 J
Magnesium	mg/Kg	4100 J	4610 J	3980 J	4680 J
Manganese	mg/Kg	235 J	428 J	361 J	424 J
Mercury	mg/Kg	0.03 J	0.06 J	0.09 J	0.02 UJ
Nickel	mg/Kg	24.6 J	30.8 J	25.7 J	31.1 J
Potassium	mg/Kg	2350 J	2210 J	2210 J	2040 J
Selenium	mg/Kg	0.49 J	0.37 J	0.54 UJ	0.42 J
Silver	mg/Kg	3.4 UJ	3.2 J	4 UJ	2.7 UJ
Sodium	mg/Kg	299 J	326 J	292 J	244 J
Thallium	mg/Kg	0.5 UJ	0.35 UJ	0.59 UJ	0.3 UJ
Vanadium	mg/Kg	26.3 J	33.6 J	31.5 J	31.8 J
Zinc	mg/Kg	91 R	111 R	105 R	93.2 R
Cyanide	mg/Kg	1.4 UJ	1.1 UJ	1.4 UJ	1.1 UJ
OTHER ANALYSES					
Nitrate/Nitrite-Nitrogen	mg/Kg	0.09	0.18	0.15	0.05
Total Solids	%W/W	33.8	43.4	32.9	40.1
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS
Fluoride	mg/Kg	188	194	210	270
pH	standard units	NS	NS	NS	NS

SEAD-57

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
	SAMPLE DATE	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93
	ES ID	SS57-1	SS57-1	SS57-2	SS57-2	SS57-3	SS57-3	SS57-4	SS57-4	SS57-5	SS57-5
	LAB ID	202562	206412	202563	206413	202564	206414	202565	206415	202566	206416
COMPOUND	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Bromomethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Vinyl Chloride	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Chloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Methylene Chloride	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Acetone	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Carbon Disulfide	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,1-Dichloroethene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,1-Dichloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,2-Dichloroethene (total)	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Chloroform	ug/Kg	13 U	14 U	12 U	13 U	12 U	7 J	12 U	13 U	14 U	15 U
1,2-Dichloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
2-Butanone	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,1,1-Trichloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Carbon Tetrachloride	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Bromodichloromethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,2-Dichloropropane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
cis-1,3-Dichloropropene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Trichloroethene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Dibromochloromethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
1,1,2-Trichloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Benzene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
trans-1,3-Dichloropropene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Bromoform	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
4-Methyl-2-Pentanone	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
2-Hexanone	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Tetrachloroethene	ug/Kg	2 J	14 U	2 J	13 U	2 J	13 U	12 U	13 U	2 J	15 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Toluene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Chlorobenzene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Ethylbenzene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Styrene	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
Xylene (total)	ug/Kg	13 U	14 U	12 U	13 U	12 U	13 U	12 U	13 U	14 U	15 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	65 U	NS	63 U	NS	64 U	NS	66 U	NS	72 U	NS
2,4-DB	ug/Kg	65 U	NS	63 U	NS	64 U	NS	66 U	NS	72 U	NS
2,4,5-T	ug/Kg	6.5 U	NS	6.3 U	NS	6.4 U	NS	6.6 U	NS	7.2 U	NS
2,4,5-TP (Silvex)	ug/Kg	6.5 U	NS	6.3 U	NS	6.4 U	NS	6.6 U	NS	7.2 U	NS
Dalapon	ug/Kg	160 U	NS	150 U	NS	160 U	NS	160 U	NS	180 U	NS
Dicamba	ug/Kg	6.5 U	NS	6.3 U	NS	6.4 U	NS	6.6 U	NS	7.2 U	NS
Dichloroprop	ug/Kg	65 U	NS	63 U	NS	64 U	NS	66 U	NS	72 U	NS
Dinoseb	ug/Kg	33 U	NS	32 U	NS	32 U	NS	33 U	NS	36 U	NS
MCPA	ug/Kg	6500 U	NS	6300 U	NS	6400 U	NS	6600 U	NS	7200 U	NS
MCPP	ug/Kg	6500 U	NS	6300 U	NS	6400 U	NS	6600 U	NS	7200 U	NS
NITROAROMATICS											
HMX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
RDX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
1,3,5-Trinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
1,3-Dinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
Tetryl	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
2,4,6-Trinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
4-amino-2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
2-amino-4,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS
2,4-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	130 U	NS	130 U	NS

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
	SAMPLE DATE	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93
	ES ID	SS57-1	SS57-1	SS57-2	SS57-2	SS57-3	SS57-3	SS57-4	SS57-4	SS57-5	SS57-5
	LAB ID	202562	206412	202563	206413	202564	206414	202565	206415	202566	206416
	UNITS										
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
bis(2-Chloroethyl) ether	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2-Chlorophenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
1,3-Dichlorobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
1,4-Dichlorobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
1,2-Dichlorobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2-Methylphenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,2'-oxybis(1-Chloropropane)	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Methylphenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
N-Nitroso-di-n-propylamine	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Hexachloroethane	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Nitrobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Isophorone	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2-Nitrophenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4-Dimethylphenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
bis(2-Chloroethoxy) methane	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4-Dichlorophenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
1,2,4-Trichlorobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Naphthalene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Chloroaniline	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Hexachlorobutadiene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Chloro-3-methylphenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2-Methylnaphthalene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Hexachlorocyclopentadiene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4,6-Trichlorophenol	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4,5-Trichlorophenol	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
2-Chloronaphthalene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2-Nitroaniline	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
Dimethylphthalate	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Acenaphthylene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,6-Dinitrotoluene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
3-Nitroaniline	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
Acenaphthene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4-Dinitrophenol	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
4-Nitrophenol	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
Dibenzofuran	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
2,4-Dinitrotoluene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Diethylphthalate	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Chlorophenyl-phenylether	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Fluorene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Nitroaniline	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
4,6-Dinitro-2-methylphenol	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
N-Nitrosodiphenylamine	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
4-Bromophenyl-phenylether	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Hexachlorobenzene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Pentachlorophenol	ug/Kg	1000 U	NS	990 U	NS	1000 U	NS	1000 U	NS	1100 U	NS
Phenanthrene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Anthracene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Carbazole	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Di-n-butylphthalate	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Fluoranthene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Pyrene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Butylbenzylphthalate	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
3,3'-Dichlorobenzidine	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Benzo(a)anthracene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Chrysene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
bis(2-Ethylhexyl)phthalate	ug/Kg	480 U	NS	410 U	NS	420 U	NS	470 U	NS	580 U	NS
Di-n-octylphthalate	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Benzo(b)fluoranthene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Benzo(k)fluoranthene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Benzo(a)pyrene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Indeno(1,2,3-cd)pyrene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Dibenz(a,h)anthracene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS
Benzo(g,h,i)perylene	ug/Kg	420 U	NS	410 U	NS	420 U	NS	430 U	NS	470 U	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
	SAMPLE DATE	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	12/08/93
	ES ID	SS57-1	SS57-1	SS57-2	SS57-2	SS57-3	SS57-3	SS57-4	SS57-4	SS57-5	SS57-5
	LAB ID	202562	206412	202563	206413	202564	206414	202565	206415	202566	206416
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
beta-BHC	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
delta-BHC	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
gamma-BHC (Lindane)	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Heptachlor	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Aldrin	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Heptachlor epoxide	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Endosulfan I	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Dieldrin	ug/Kg	26 J	NS	9.5	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
4,4'-DDE	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
Endrin	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
Endosulfan II	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
4,4'-DDD	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
Endosulfan sulfate	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
4,4'-DDT	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
Methoxychlor	ug/Kg	22 U	NS	21 U	NS	22 U	NS	22 U	NS	24 U	NS
Endrin ketone	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
Endrin aldehyde	ug/Kg	4.3 U	NS	4.1 U	NS	4.2 U	NS	4.3 U	NS	4.7 U	NS
alpha-Chlordane	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
gamma-Chlordane	ug/Kg	2.2 U	NS	2.1 U	NS	2.2 U	NS	2.2 U	NS	2.4 U	NS
Toxaphene	ug/Kg	220 U	NS	210 U	NS	220 U	NS	220 U	NS	240 U	NS
Aroclor-1016	ug/Kg	43 U	NS	41 U	NS	42 U	NS	43 U	NS	47 U	NS
Aroclor-1221	ug/Kg	86 U	NS	84 U	NS	86 U	NS	88 U	NS	95 U	NS
Aroclor-1232	ug/Kg	43 U	NS	41 U	NS	42 U	NS	43 U	NS	47 U	NS
Aroclor-1242	ug/Kg	43 U	NS	41 U	NS	42 U	NS	43 U	NS	47 U	NS
Aroclor-1248	ug/Kg	43 U	NS	41 U	NS	42 U	NS	43 U	NS	47 U	NS
Aroclor-1254	ug/Kg	43 U	NS	41 U	NS	42 U	NS	43 U	NS	47 U	NS
Aroclor-1260	ug/Kg	24 J	NS	41 U	NS	42 U	NS	43 U	NS	27 J	NS
METALS											
Aluminum	mg/Kg	12000	NS	17300	NS	17400	NS	13900	NS	14000	NS
Antimony	mg/Kg	11.9 UJ	NS	11.8 UJ	NS	7.7 UJ	NS	11.2 UJ	NS	11.1 UJ	NS
Arsenic	mg/Kg	4.8 R	NS	4.6 R	NS	5 R	NS	4.2 R	NS	3.9 R	NS
Barium	mg/Kg	82.4	NS	65.8	NS	72.6	NS	168	NS	110	NS
Beryllium	mg/Kg	0.56 J	NS	0.62 J	NS	0.81	NS	0.69 J	NS	0.68 J	NS
Cadmium	mg/Kg	0.74 U	NS	0.74 U	NS	0.48 U	NS	0.7 U	NS	0.69 U	NS
Calcium	mg/Kg	2770	NS	1950	NS	1590	NS	9270	NS	4440	NS
Chromium	mg/Kg	15.7	NS	24.2	NS	24.5	NS	22.5	NS	17.8	NS
Cobalt	mg/Kg	8.4 J	NS	9.6 J	NS	9.9	NS	13.2	NS	5.9 J	NS
Copper	mg/Kg	10.9	NS	18.3	NS	24.8	NS	27.3	NS	19.8	NS
Iron	mg/Kg	19300	NS	28400	NS	29100	NS	26500	NS	18900	NS
Lead	mg/Kg	24	NS	17.7	NS	30.9	NS	23.8	NS	26.3	NS
Magnesium	mg/Kg	2680	NS	4580	NS	4510	NS	4640	NS	3220	NS
Manganese	mg/Kg	592	NS	319	NS	418	NS	628	NS	297	NS
Mercury	mg/Kg	0.06 J	NS	0.04 J	NS	0.06 J	NS	0.04 J	NS	0.08 J	NS
Nickel	mg/Kg	14.3	NS	27.3	NS	29.2	NS	30.9	NS	17.9	NS
Potassium	mg/Kg	892 J	NS	1240	NS	1370	NS	1670	NS	1660	NS
Selenium	mg/Kg	0.26 UJ	NS	0.21 UJ	NS	0.22 UJ	NS	0.26 UJ	NS	0.41 J	NS
Silver	mg/Kg	1.7 J	NS	1.5 UJ	NS	0.98 UJ	NS	1.4 UJ	NS	1.4 UJ	NS
Sodium	mg/Kg	56.7 J	NS	44.5 J	NS	39.2 J	NS	86.1 J	NS	68.6 J	NS
Thallium	mg/Kg	0.28 U	NS	0.23 U	NS	0.24 U	NS	0.28 U	NS	0.34 U	NS
Vanadium	mg/Kg	24.6	NS	28.6	NS	29.4	NS	26.1	NS	24.5	NS
Zinc	mg/Kg	45.2 R	NS	70.6 R	NS	88 R	NS	82.6 R	NS	81.5 R	NS
Cyanide	mg/Kg	0.77 U	NS	0.73 U	NS	0.73 U	NS	0.73 U	NS	0.78 U	NS
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.12	NS	0.13	NS	0.4	NS	1.28	NS	0.39	NS
Total Solids	%W/W	77.2	NS	79.6	NS	78.5	NS	75.7	NS	69.9	NS
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-57 0-0.2 10/26/93 SS57-6 202567	SOIL SEAD-57 0-0.2 12/08/93 SS57-6 206417	SOIL SEAD-57 0-0.2 10/26/93 SS57-7 202568	SOIL SEAD-57 0-0.2 12/08/93 SS57-7 206419	SOIL SEAD-57 0-0.2 10/26/93 SS57-8 202569	SOIL SEAD-57 0-0.2 10/26/93 SS57-8RE 202569	SOIL SEAD-57 0-0.2 12/08/93 SS57-8 206420	SOIL SEAD-57 0-0.2 10/26/93 SS57-9 202570	SOIL SEAD-57 0-0.2 12/08/93 SS57-9 206421	SOIL SEAD-57 0-0.2 12/08/93 SS57-9RE 206421
VOLATILE ORGANICS											
Chloromethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Bromomethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Vinyl Chloride	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Chloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Methylene Chloride	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	12 U	11 U	11 U
Acetone	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Carbon Disulfide	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,1-Dichloroethene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,1-Dichloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Chloroform	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,2-Dichloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
2-Butanone	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,1,1-Trichloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Carbon Tetrachloride	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Bromodichloromethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,2-Dichloropropane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Trichloroethene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Dibromochloromethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
1,1,2-Trichloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Benzene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
trans-1,3-Dichloropropene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Bromoform	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
2-Hexanone	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Tetrachloroethene	ug/Kg	1 J	14 U	11 U	11 U	6 J	NS	12 U	1 J	11 U	11 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Toluene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Chlorobenzene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Ethylbenzene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Styrene	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
Xylene (total)	ug/Kg	13 U	14 U	11 U	11 U	11 U	NS	12 U	11 U	11 U	11 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	65 U	NS	55 U	NS	54 U	NS	NS	54 U	NS	NS
2,4-DB	ug/Kg	65 U	NS	55 U	NS	54 U	NS	NS	54 U	NS	NS
2,4,5-T	ug/Kg	6.5 U	NS	5.5 U	NS	5.4 U	NS	NS	5.4 U	NS	NS
2,4,5-TP (Silvex)	ug/Kg	6.5 U	NS	5.5 U	NS	5.4 U	NS	NS	5.4 U	NS	NS
Dalapon	ug/Kg	160 U	NS	140 U	NS	130 U	NS	NS	130 U	NS	NS
Dicamba	ug/Kg	6.5 U	NS	5.5 U	NS	5.4 U	NS	NS	5.4 U	NS	NS
Dichloroprop	ug/Kg	65 U	NS	55 U	NS	54 U	NS	NS	54 U	NS	NS
Dinoseb	ug/Kg	33 U	NS	28 U	NS	27 U	NS	NS	27 UJ	NS	NS
MCPA	ug/Kg	6500 U	NS	5500 U	NS	5400 U	NS	NS	5400 U	NS	NS
MCPP	ug/Kg	6500 U	NS	5500 U	NS	5400 U	NS	NS	5400 U	NS	NS
NITROAROMATICS											
HMX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
RDX	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
1,3,5-Trinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
1,3-Dinitrobenzene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
Tetryl	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
2,4,6-Trinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
4-amino-2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
2-amino-4,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
2,6-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS
2,4-Dinitrotoluene	ug/Kg	130 U	NS	130 U	NS	130 U	NS	NS	130 U	NS	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
	SAMPLE DATE	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	10/26/93	12/08/93	10/26/93	12/08/93	12/08/93
	ES ID	SS57-6	SS57-6	SS57-7	SS57-7	SS57-8	SS57-8RE	SS57-8	SS57-9	SS57-9	SS57-9RE
	LAB ID	202567	206417	202568	206419	202569	202569	206420	202570	206421	206421
	UNITS										
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
bis(2-Chloroethyl) ether	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2-Chlorophenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
1,3-Dichlorobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
1,4-Dichlorobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
1,2-Dichlorobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2-Methylphenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,2'-oxybis(1-Chloropropane)	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Methylphenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
N-Nitroso-di-n-propylamine	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Hexachloroethane	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Nitrobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Isophorone	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2-Nitrophenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4-Dimethylphenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
bis(2-Chloroethoxy) methane	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4-Dichlorophenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
1,2,4-Trichlorobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Naphthalene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Chloroaniline	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Hexachlorobutadiene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Chloro-3-methylphenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2-Methylnaphthalene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Hexachlorocyclopentadiene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4,6-Trichlorophenol	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4,5-Trichlorophenol	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
2-Chloronaphthalene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2-Nitroaniline	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
Dimethylphthalate	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Acenaphthylene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,6-Dinitrotoluene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
3-Nitroaniline	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
Acenaphthene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4-Dinitrophenol	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
4-Nitrophenol	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
Dibenzofuran	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
2,4-Dinitrotoluene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Diethylphthalate	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Chlorophenyl-phenylether	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Fluorene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Nitroaniline	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
4,6-Dinitro-2-methylphenol	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
N-Nitrosodiphenylamine	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
4-Bromophenyl-phenylether	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Hexachlorobenzene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Pentachlorophenol	ug/Kg	1000 U	NS	880 U	NS	860 U R	870 UJ	NS	860 U	NS	NS
Phenanthrene	ug/Kg	420 U	NS	20 J	NS	360 U R	360 UJ	NS	36 J	NS	NS
Anthracene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Carbazole	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Di-n-butylphthalate	ug/Kg	420 U	NS	18 J	NS	360 U R	360 UJ	NS	35 J	NS	NS
Fluoranthene	ug/Kg	29 J	NS	26 J	NS	360 U R	20 J	NS	56 J	NS	NS
Pyrene	ug/Kg	23 J	NS	20 J	NS	360 U R	360 UJ	NS	49 J	NS	NS
Butylbenzylphthalate	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
3,3'-Dichlorobenzidine	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Benzo(a)anthracene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	24 J	NS	NS
Chrysene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	42 J	NS	NS
bis(2-Ethylhexyl)phthalate	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Di-n-octylphthalate	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Benzo(b)fluoranthene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	25 J	NS	NS
Benzo(k)fluoranthene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	20 J	NS	NS
Benzo(a)pyrene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	20 J	NS	NS
Indeno(1,2,3-cd)pyrene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Dibenz(a,h)anthracene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS
Benzo(g,h,i)perylene	ug/Kg	420 U	NS	360 U	NS	360 U R	360 UJ	NS	350 U	NS	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
	SAMPLE DATE	10/26/93	12/08/93	10/26/93	12/08/93	10/26/93	10/26/93	12/08/93	10/26/93	12/08/93	12/08/93
	ES ID	SS57-6	SS57-6	SS57-7	SS57-7	SS57-8	SS57-6RE	SS57-6	SS57-9	SS57-9	SS57-9RE
	LAB ID	202567	206417	202566	206419	202569	202569	206420	202570	206421	206421
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	2.2 U	NS	1.9 U	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
beta-BHC	ug/Kg	2.2 U	NS	1.9 U	NS	1.8 U	NS	NS	1.8 UJ	NS	NS
delta-BHC	ug/Kg	2.2 U	NS	1.9 U	NS	1.8 U	NS	NS	1.8 UJ	NS	NS
gamma-BHC (Lindane)	ug/Kg	2.2 U	NS	1.9 U	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
Heptachlor	ug/Kg	2.2 U	NS	1.9 U	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
Aldrin	ug/Kg	2.2 U	NS	1.9 U	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
Heptachlor epoxide	ug/Kg	2.2 U	NS	2 J	NS	1.8 U	NS	NS	1.8 UJ	NS	NS
Endosulfan I	ug/Kg	2.2 U	NS	1.9 U	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
Dieldrin	ug/Kg	4.3 U	NS	27 J	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
4,4'-DDE	ug/Kg	2.5 J	NS	4.7 J	NS	32	NS	NS	4.5 J	NS	NS
Endrin	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
Endosulfan II	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
4,4'-DDD	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
Endosulfan sulfate	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
4,4'-DDT	ug/Kg	4.3 U	NS	3.6 U	NS	4.9	NS	NS	3.5 UJ	NS	NS
Methoxychlor	ug/Kg	22 U	NS	19 U	NS	16 U	NS	NS	18 UJ	NS	NS
Endrin ketone	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
Endrin aldehyde	ug/Kg	4.3 U	NS	3.6 U	NS	3.6 U	NS	NS	3.5 UJ	NS	NS
alpha-Chlordane	ug/Kg	2.2 U	NS	16 J	NS	1.6 U	NS	NS	1.8 UJ	NS	NS
gamma-Chlordane	ug/Kg	2.2 U	NS	1.9 U	NS	1.8 U	NS	NS	1.8 UJ	NS	NS
Toxaphene	ug/Kg	220 U	NS	190 U	NS	180 U	NS	NS	180 UJ	NS	NS
Aroclor-1016	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
Aroclor-1221	ug/Kg	87 U	NS	73 U	NS	73 U	NS	NS	72 UJ	NS	NS
Aroclor-1232	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
Aroclor-1242	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
Aroclor-1248	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
Aroclor-1254	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
Aroclor-1260	ug/Kg	43 U	NS	36 U	NS	36 U	NS	NS	35 UJ	NS	NS
METALS											
Aluminum	mg/Kg	13500	NS	12600	NS	3940	NS	NS	10300	NS	NS
Antimony	mg/Kg	12.1 UJ	NS	10.1 UJ	NS	10.1 UJ	NS	NS	10.7 UJ	NS	NS
Arsenic	mg/Kg	122 R	NS	4.2 R	NS	4 R	NS	NS	5.6 R	NS	NS
Barium	mg/Kg	63.7	NS	64.2	NS	25.5 J	NS	NS	56.5	NS	NS
Beryllium	mg/Kg	0.64 J	NS	0.61 J	NS	0.33 J	NS	NS	0.59 J	NS	NS
Cadmium	mg/Kg	0.76 U	NS	0.63 U	NS	0.63 U	NS	NS	0.67 U	NS	NS
Calcium	mg/Kg	2790	NS	24300	NS	213000	NS	NS	104000	NS	NS
Chromium	mg/Kg	16.9	NS	24.3	NS	7.4	NS	NS	20.7	NS	NS
Cobalt	mg/Kg	9.3 J	NS	13.2	NS	7.6 J	NS	NS	10.6	NS	NS
Copper	mg/Kg	17.4	NS	33.4	NS	12	NS	NS	47	NS	NS
Iron	mg/Kg	21700	NS	26400	NS	7540	NS	NS	23000	NS	NS
Lead	mg/Kg	30.2	NS	16.4	NS	9.5	NS	NS	42.4	NS	NS
Magnesium	mg/Kg	3230	NS	6660	NS	11600	NS	NS	9650	NS	NS
Manganese	mg/Kg	464	NS	347	NS	401	NS	NS	356	NS	NS
Mercury	mg/Kg	0.07 J	NS	0.02 J	NS	0.04 U	NS	NS	0.04 J	NS	NS
Nickel	mg/Kg	19.8	NS	46	NS	17.2	NS	NS	38.7	NS	NS
Potassium	mg/Kg	1650	NS	1550	NS	1210	NS	NS	1570	NS	NS
Selenium	mg/Kg	0.31 J	NS	0.16 UJ	NS	0.2 UJ	NS	NS	0.37 J	NS	NS
Silver	mg/Kg	1.5 UJ	NS	1.3 UJ	NS	1.3 UJ	NS	NS	1.4 UJ	NS	NS
Sodium	mg/Kg	46.3 J	NS	119 J	NS	214 J	NS	NS	168 J	NS	NS
Thallium	mg/Kg	0.17 U	NS	0.2 U	NS	2.2 U	NS	NS	0.23 U	NS	NS
Vanadium	mg/Kg	26.2	NS	19	NS	11.2	NS	NS	16.8	NS	NS
Zinc	mg/Kg	64 R	NS	53.4 R	NS	42.1 R	NS	NS	268 R	NS	NS
Cyanide	mg/Kg	0.78 U	NS	0.64 U	NS	0.62 U	NS	NS	0.61 U	NS	NS
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.29	NS	0.09	NS	0.11	NS	NS	0.13	NS	NS
Total Solids	%W/W	77.1	NS	91	NS	91.6	NS	NS	93.1	NS	NS
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	3	3	3	3	3	3	3	3	3	3
	SAMPLE DATE	11/08/93	12/02/93	11/09/93	11/09/93	11/09/93	11/09/93	12/02/93	12/02/93	12/02/93	12/02/93
	ES ID	TP57-1	TP57-2	TP57-3	TP57-3RE	TP57-4	TP57-4RE	TP57-5	TP57-6	TP57-7	TP57-8
	LAB ID	203827	206070	204008	204008	204011	204011	206071	206072	206073	206074
COMPOUND	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Bromomethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Vinyl Chloride	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Chloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Methylene Chloride	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Acetone	ug/Kg	13 U	20	12 U	NS	11 U	NS	15	23	6 J	12 U
Carbon Disulfide	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,1-Dichloroethene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,1-Dichloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,2-Dichloroethene (total)	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Chloroform	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,2-Dichloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
2-Butanone	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,1,1-Trichloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Carbon Tetrachloride	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Bromodichloromethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,2-Dichloropropane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
cis-1,3-Dichloropropene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Trichloroethene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Dibromochloromethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,1,2-Trichloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Benzene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
trans-1,3-Dichloropropene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Bromoform	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
4-Methyl-2-Pentanone	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
2-Hexanone	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Tetrachloroethene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Toluene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Chlorobenzene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Ethylbenzene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Styrene	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
Xylene (total)	ug/Kg	13 U	12 U	12 U	NS	11 U	NS	13 U	12 U	12 U	12 U
MTBE	ug/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HERBICIDES											
2,4-D	ug/Kg	55 U	62 U	56 U R	56 UJ	57 U R	57 UJ	63 U	66 U	60 U	58 U
2,4-DB	ug/Kg	55 U	62 U	56 U R	56 UJ	57 U R	57 UJ	63 U	66 U	60 U	58 U
2,4,5-T	ug/Kg	5.5 U	6.2 U	5.6 U R	5.6 UJ	5.7 U R	5.7 UJ	6.3 U	6.6 U	6 U	5.8 U
2,4,5-TP (Silvex)	ug/Kg	5.5 U	6.2 U	5.6 U R	5.6 UJ	5.7 U R	9.5 J	6.3 U	6.6 U	6 U	5.8 U
Dalapon	ug/Kg	140 U	150 U	140 U R	140 UJ	140 U R	140 UJ	150 U	160 U	150 U	140 U
Dicamba	ug/Kg	5.5 U	6.2 U	5.6 U R	5.6 UJ	5.7 U R	5.7 UJ	6.3 U	6.6 U	6 U	5.8 U
Dichloroprop	ug/Kg	55 U	62 U	56 U R	56 UJ	57 U R	57 UJ	63 U	66 U	60 U	58 U
Dinoseb	ug/Kg	28 U	31 U	28 U R	28 UJ	29 U R	29 UJ	32 U	33 U	30 U	29 U
MCPA	ug/Kg	5500 U	6200 U	5600 U R	10000 J	5700 U R	5700 UJ	6300 U	6600 U	6000 U	5800 U
MCPP	ug/Kg	5500 U	6200 U	5600 U R	5600 UJ	5700 U R	5700 UJ	6300 U	6600 U	6000 U	5800 U
NITROAROMATICS											
HMX	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
RDX	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
1,3,5-Trinitrobenzene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
Tetryl	ug/Kg	130 U	140 U	130 U	NS	130 U	NS	160 U	130 U	130 U	130 U
2,4,6-Trinitrotoluene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
2,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U
2,4-Dinitrotoluene	ug/Kg	130 U	130 U	130 U	NS	130 U	NS	130 U	130 U	130 U	130 U

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	3	3	3	3	3	3	3	3	3	3
	SAMPLE DATE	11/08/93	12/02/93	11/09/93	11/09/93	11/09/93	11/09/93	12/02/93	12/02/93	12/02/93	12/02/93
	ES ID	TP57-1	TP57-2	TP57-3	TP57-3RE	TP57-4	TP57-4RE	TP57-5	TP57-6	TP57-7	TP57-8
	LAB ID	203827	206070	204008	204008	204011	204011	206071	206072	206073	206074
COMPOUND	UNITS										
SEMIVOLATILE ORGANICS											
Phenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
bis(2-Chloroethyl) ether	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2-Chlorophenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
1,3-Dichlorobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
1,4-Dichlorobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
1,2-Dichlorobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2-Methylphenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Methylphenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
N-Nitroso-di-n-propylamine	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Hexachloroethane	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Nitrobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Isophorone	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2-Nitrophenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4-Dimethylphenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
bis(2-Chloroethoxy) methane	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4-Dichlorophenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
1,2,4-Trichlorobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Naphthalene	ug/Kg	360 U	180 J	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Chloroaniline	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Hexachlorobutadiene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Chloro-3-methylphenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2-Methylnaphthalene	ug/Kg	360 U	750 J	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Hexachlorocyclopentadiene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4,6-Trichlorophenol	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4,5-Trichlorophenol	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
2-Chloronaphthalene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2-Nitroaniline	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
Dimethylphthalate	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Acenaphthylene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,6-Dinitrotoluene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
3-Nitroaniline	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
Acenaphthene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4-Dinitrophenol	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
4-Nitrophenol	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
Dibenzofuran	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
2,4-Dinitrotoluene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Diethylphthalate	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Chlorophenyl-phenylether	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Fluorene	ug/Kg	360 U	120 J	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Nitroaniline	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
4,6-Dinitro-2-methylphenol	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
N-Nitrosodiphenylamine	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
4-Bromophenyl-phenylether	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Hexachlorobenzene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Pentachlorophenol	ug/Kg	880 U	4900 U	900 U	NS	900 U	NS	1000 U	1000 U	950 U	930 U
Phenanthrene	ug/Kg	380 U	230 J	370 U	NS	20 J	NS	410 U	430 U	390 U	380 U
Anthracene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Carbazole	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Di-n-butylphthalate	ug/Kg	380 U	390 J	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Fluoranthene	ug/Kg	360 U	2000 U	370 U	NS	34 J	NS	410 U	430 U	390 U	380 U
Pyrene	ug/Kg	360 U	2000 U	370 U	NS	33 J	NS	410 U	430 U	390 U	380 U
Butylbenzylphthalate	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
3,3'-Dichlorobenzidine	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Benzo(a)anthracene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Chrysene	ug/Kg	360 U	2000 U	370 U	NS	25 J	NS	410 U	430 U	390 U	380 U
bis(2-Ethylhexyl)phthalate	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Di-n-octylphthalate	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Benzo(b)fluoranthene	ug/Kg	380 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Benzo(k)fluoranthene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Benzo(a)pyrene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Indeno(1,2,3-cd)pyrene	ug/Kg	380 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Dibenz(a,h)anthracene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U
Benzo(g,h,i)perylene	ug/Kg	360 U	2000 U	370 U	NS	370 U	NS	410 U	430 U	390 U	380 U

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / DEPTH (FEET) / SAMPLE DATE / ES ID / LAB ID / UNITS										
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	LOCATION	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57
	DEPTH (FEET)	3	3	3	3	3	3	3	3	3	3
	SAMPLE DATE	11/08/93	12/02/93	11/09/93	11/09/93	11/09/93	11/09/93	12/02/93	12/02/93	12/02/93	12/02/93
	ES ID	TP57-1	TP57-2	TP57-3	TP57-3RE	TP57-4	TP57-4RE	TP57-5	TP57-6	TP57-7	TP57-8
	LAB ID	203827	206070	204008	204008	204011	204011	206071	206072	206073	206074
COMPOUND	UNITS										
PESTICIDES/PCB											
alpha-BHC	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
beta-BHC	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
delta-BHC	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
gamma-BHC (Lindane)	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Heptachlor	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Aldrin	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Heptachlor epoxide	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Endosulfan I	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Dieldrin	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDE	ug/Kg	9.1	4.1 U	12	NS	20	NS	4.1 U	4.3 U	4 U	3.8 U
Endrin	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
Endosulfan II	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDD	ug/Kg	3.5 J	4.1 U	5.5	NS	8.9	NS	4.1 U	4.3 U	4 U	3.8 U
Endosulfan sulfate	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
4,4'-DDT	ug/Kg	9.6	4.1 U	12	NS	23	NS	4.1 U	4.3 U	4 U	3.8 U
Methoxychlor	ug/Kg	19 U	21 U	19 U	NS	19 U	NS	21 U	22 U	20 U	20 U
Endrin ketone	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
Endrin aldehyde	ug/Kg	3.6 U	4.1 U	3.7 U	NS	3.7 U	NS	4.1 U	4.3 U	4 U	3.8 U
alpha-Chlordane	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
gamma-Chlordane	ug/Kg	1.9 U	2.1 U	1.9 U	NS	1.9 U	NS	2.1 U	2.2 U	2 U	2 U
Toxaphene	ug/Kg	190 U	210 U	190 U	NS	190 U	NS	210 U	220 U	200 U	200 U
Aroclor-1016	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
Aroclor-1221	ug/Kg	74 U	82 U	76 U	NS	76 U	NS	84 U	88 U	80 U	77 U
Aroclor-1232	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
Aroclor-1242	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
Aroclor-1248	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
Aroclor-1254	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
Aroclor-1260	ug/Kg	36 U	41 U	37 U	NS	37 U	NS	41 U	43 U	40 U	38 U
METALS											
Aluminum	mg/Kg	10700	17300	10800	NS	16900	NS	22000	22900	18300	15700
Antimony	mg/Kg	6.4 UJ	4.5 U	8.9 UJ	NS	8.7 UJ	NS	4.3 U	5.8 J	4.9 U	6.5 J
Arsenic	mg/Kg	4.9	9.5	4.8	NS	4.2	NS	9.6	7.5	8.5	4.8
Barium	mg/Kg	58.7	82.7	62.8	NS	90.1	NS	114	174	144	113
Beryllium	mg/Kg	0.56 J	0.81 J	0.61 J	NS	0.91	NS	1.1	1 J	0.87 J	0.77 J
Cadmium	mg/Kg	0.4 U	0.44 U R	0.55 U	NS	0.54 U	NS	0.42 U R	0.53 U R	0.48 U R	0.36 U R
Calcium	mg/Kg	16600	19200	15300	NS	22400	NS	4380	15200	18700	67000
Chromium	mg/Kg	20.5	29.9	20.2	NS	28.9	NS	34.5	30.8	24.2	25
Cobalt	mg/Kg	12.1	13.7	10.4	NS	13.3	NS	19	9.4 J	12.8	12.2
Copper	mg/Kg	34.3	2930 J	32.2	NS	39.2	NS	34.2 J	26.8 J	19.7 J	25.4 J
Iron	mg/Kg	24700	35700	24300	NS	30500	NS	44400	30200	29300	27600
Lead	mg/Kg	28.2	1860	60.9	NS	19.5	NS	23.1	21.9	14.7	14.9
Magnesium	mg/Kg	5050	8930	4920	NS	7890	NS	6860	6640	6060	10000
Manganese	mg/Kg	392	463 J	350	NS	472	NS	550 J	247 J	818 J	500 J
Mercury	mg/Kg	0.03 J	0.06 J	0.05 J	NS	0.05 J	NS	0.05 J	0.04 J	0.05 J	0.03 U
Nickel	mg/Kg	45	51.6	38.1	NS	54.1	NS	52.9	37.3	31.8	40.1
Potassium	mg/Kg	898	2080	935	NS	2110	NS	2210	3250	2190	1910
Selenium	mg/Kg	0.48 J	1.1 J	0.52 J	NS	0.39 J	NS	0.55 J	0.73 J	1.2 J	0.96 J
Silver	mg/Kg	0.81 UJ	0.87 U	1.1 UJ	NS	1.1 UJ	NS	0.84 U	1.1 U	0.96 U	0.72 U
Sodium	mg/Kg	56.9 J	99 J	70.7 J	NS	97.9 J	NS	90.6 J	102 J	82.7 J	136 J
Thallium	mg/Kg	0.3 J	0.27 UJ	0.24 J	NS	0.16 U	NS	1.1 J	0.95 J	0.96 J	0.88 J
Vanadium	mg/Kg	26.9	31.4	28.3	NS	104	NS	37.7	39	32.9	25.4
Zinc	mg/Kg	81.1	1250 J	93.8	NS	120	NS	97.8 J	85.6 J	63.8 J	82.7 J
Cyanide	mg/Kg	0.52 U	0.68 U	0.48 U	NS	0.49 U	NS	0.74 U	0.74 U	0.67 U	0.63 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/Kg	0.4	0.02	0.23	NS	0.51	NS	0.2	0.49	0.46	0.09
Total Solids	%W/W	90.8	81.4	88.2	NS	87.8	NS	80.4	75.9	82.8	85.6
Total Petroleum Hydrocarbons	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoride	mg/Kg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / DEPTH (FEET) / SAMPLE DATE / ES ID / LAB ID / UNITS	SOIL / SEAD-57 / 3 / 12/02/93 / TP57-9 / 206075	SOIL / SEAD-57 / 3 / 12/02/93 / TP57-10 / 206076	SOIL / SEAD-57 / 3 / 11/08/93 / TP57-11 / 203824
VOLATILE ORGANICS				
Chloromethane	ug/Kg	12 U	12 U	11 U
Bromomethane	ug/Kg	12 U	12 U	11 U
Vinyl Chloride	ug/Kg	12 U	12 U	11 U
Chloroethane	ug/Kg	12 U	12 U	11 U
Methylene Chloride	ug/Kg	12 U	12 U	11 U
Acetone	ug/Kg	12 U	4 J	11 U
Carbon Disulfide	ug/Kg	12 U	12 U	11 U
1,1-Dichloroethene	ug/Kg	12 U	12 U	11 U
1,1-Dichloroethane	ug/Kg	12 U	12 U	11 U
1,2-Dichloroethene (total)	ug/Kg	12 U	12 U	11 U
Chloroform	ug/Kg	12 U	12 U	11 U
1,2-Dichloroethane	ug/Kg	12 U	12 U	11 U
2-Butanone	ug/Kg	12 U	12 U	11 U
1,1,1-Trichloroethane	ug/Kg	12 U	12 U	11 U
Carbon Tetrachloride	ug/Kg	12 U	12 U	11 U
Bromodichloromethane	ug/Kg	12 U	12 U	11 U
1,2-Dichloropropane	ug/Kg	12 U	12 U	11 U
cis-1,3-Dichloropropene	ug/Kg	12 U	12 U	11 U
Trichloroethene	ug/Kg	12 U	12 U	11 U
Dibromochloromethane	ug/Kg	12 U	12 U	11 U
1,1,2-Trichloroethane	ug/Kg	12 U	12 U	11 U
Benzene	ug/Kg	12 U	12 U	11 U
trans-1,3-Dichloropropene	ug/Kg	12 U	12 U	11 U
Bromoform	ug/Kg	12 U	12 U	11 U
4-Methyl-2-Pentanone	ug/Kg	12 U	12 U	11 U
2-Hexanone	ug/Kg	12 U	12 U	11 U
Tetrachloroethene	ug/Kg	12 U	12 U	11 U
1,1,2,2-Tetrachloroethane	ug/Kg	12 U	12 U	11 U
Toluene	ug/Kg	12 U	12 U	11 U
Chlorobenzene	ug/Kg	12 U	12 U	11 U
Ethylbenzene	ug/Kg	12 U	12 U	11 U
Styrene	ug/Kg	12 U	12 U	11 U
Xylene (total)	ug/Kg	12 U	12 U	11 U
MTBE	ug/Kg	NS	NS	NS
HERBICIDES				
2,4-D	ug/Kg	58 U	60 UJ	62 U
2,4-DB	ug/Kg	58 U	60 UJ	62 U
2,4,5-T	ug/Kg	5.8 U	6 UJ	6.2 U
2,4,5-TP (Silvex)	ug/Kg	5.8 U	6 UJ	6.2 U
Dalapon	ug/Kg	140 U	150 UJ	150 U
Dicamba	ug/Kg	5.8 U	6 UJ	6.2 U
Dichloroprop	ug/Kg	58 U	60 UJ	62 U
Dinoseb	ug/Kg	29 U	30 UJ	31 U
MCPA	ug/Kg	5800 U	6000 UJ	6200 U
MCPP	ug/Kg	5800 U	6000 UJ	6200 U
NITROAROMATICS				
HMX	ug/Kg	130 U	130 U	130 U
RDX	ug/Kg	130 U	130 U	130 U
1,3,5-Trinitrobenzene	ug/Kg	130 U	130 U	130 U
1,3-Dinitrobenzene	ug/Kg	130 U	130 U	130 U
Tetryl	ug/Kg	180 U	130 U	130 U
2,4,6-Trinitrotoluene	ug/Kg	130 U	130 U	130 U
4-amino-2,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U
2-amino-4,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U
2,6-Dinitrotoluene	ug/Kg	130 U	130 U	130 U
2,4-Dinitrotoluene	ug/Kg	130 U	130 U	130 U

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / DEPTH (FEET) / SAMPLE DATE / ES ID / LAB ID / UNITS	SOIL / SEAD-57 / 3 / 12/02/93 / TP57-9 / 206075	SOIL / SEAD-57 / 3 / 12/02/93 / TP57-10 / 206076	SOIL / SEAD-57 / 3 / 11/08/93 / TP57-11 / 203824
SEMIVOLATILE ORGANICS				
Phenol	ug/Kg	380 U	390 U	410 U
bis(2-Chloroethyl) ether	ug/Kg	380 U	390 U	410 U
2-Chlorophenol	ug/Kg	380 U	390 U	410 U
1,3-Dichlorobenzene	ug/Kg	380 U	390 U	410 U
1,4-Dichlorobenzene	ug/Kg	380 U	390 U	410 U
1,2-Dichlorobenzene	ug/Kg	380 U	390 U	410 U
2-Methylphenol	ug/Kg	380 U	390 U	410 U
2,2'-oxybis(1-Chloropropane)	ug/Kg	380 U	390 U	410 U
4-Methylphenol	ug/Kg	380 U	390 U	410 U
N-Nitroso-di-n-propylamine	ug/Kg	380 U	390 U	410 U
Hexachloroethane	ug/Kg	380 U	390 U	410 U
Nitrobenzene	ug/Kg	380 U	390 U	410 U
Isophorone	ug/Kg	380 U	390 U	410 U
2-Nitrophenol	ug/Kg	380 U	390 U	410 U
2,4-Dimethylphenol	ug/Kg	380 U	390 U	410 U
bis(2-Chloroethoxy) methane	ug/Kg	380 U	390 U	410 U
2,4-Dichlorophenol	ug/Kg	380 U	390 U	410 U
1,2,4-Trichlorobenzene	ug/Kg	380 U	390 U	410 U
Naphthalene	ug/Kg	380 U	390 U	410 U
4-Chloroaniline	ug/Kg	380 U	390 U	410 U
Hexachlorobutadiene	ug/Kg	380 U	390 U	410 U
4-Chloro-3-methylphenol	ug/Kg	380 U	390 U	410 U
2-Methylnaphthalene	ug/Kg	380 U	390 U	410 U
Hexachlorocyclopentadiene	ug/Kg	380 U	390 U	410 U
2,4,6-Trichlorophenol	ug/Kg	380 U	390 U	410 U
2,4,5-Trichlorophenol	ug/Kg	920 U	940 U	990 U
2-Chloronaphthalene	ug/Kg	380 U	390 U	410 U
2-Nitroaniline	ug/Kg	920 U	940 U	990 U
Dimethylphthalate	ug/Kg	380 U	390 U	410 U
Acenaphthylene	ug/Kg	380 U	390 U	410 U
2,6-Dinitrotoluene	ug/Kg	380 U	390 U	410 U
3-Nitroaniline	ug/Kg	920 U	940 U	990 U
Acenaphthene	ug/Kg	380 U	390 U	410 U
2,4-Dinitrophenol	ug/Kg	920 U	940 U	990 U
4-Nitrophenol	ug/Kg	920 U	940 U	990 U
Dibenzofuran	ug/Kg	380 U	390 U	410 U
2,4-Dinitrotoluene	ug/Kg	380 U	390 U	410 U
Diethylphthalate	ug/Kg	380 U	390 U	410 U
4-Chlorophenyl-phenylether	ug/Kg	380 U	390 U	410 U
Fluorene	ug/Kg	380 U	390 U	410 U
4-Nitroaniline	ug/Kg	920 U	940 U	990 U
4,6-Dinitro-2-methylphenol	ug/Kg	920 U	940 U	990 U
N-Nitrosodiphenylamine	ug/Kg	380 U	390 U	410 U
4-Bromophenyl-phenylether	ug/Kg	380 U	390 U	410 U
Hexachlorobenzene	ug/Kg	380 U	390 U	410 U
Pentachlorophenol	ug/Kg	920 U	940 U	990 U
Phenanthrene	ug/Kg	380 U	390 U	410 U
Anthracene	ug/Kg	380 U	390 U	410 U
Carbazole	ug/Kg	380 U	390 U	410 U
Di-n-butylphthalate	ug/Kg	380 U	390 U	410 U
Fluoranthene	ug/Kg	380 U	390 U	410 U
Pyrene	ug/Kg	380 U	390 U	410 U
Butylbenzylphthalate	ug/Kg	380 U	390 U	410 U
3,3'-Dichlorobenzidine	ug/Kg	380 U	390 U	410 U
Benzo(a)anthracene	ug/Kg	380 U	390 U	410 U
Chrysene	ug/Kg	380 U	390 U	410 U
bis(2-Ethylhexyl)phthalate	ug/Kg	380 U	390 U	410 U
Di-n-octylphthalate	ug/Kg	380 U	390 U	410 U
Benzo(b)fluoranthene	ug/Kg	380 U	390 U	410 U
Benzo(k)fluoranthene	ug/Kg	380 U	390 U	410 U
Benzo(a)pyrene	ug/Kg	380 U	390 U	410 U
Indeno(1,2,3-cd)pyrene	ug/Kg	380 U	390 U	410 U
Dibenz(a,h)anthracene	ug/Kg	380 U	390 U	410 U
Benzo(g,h,i)perylene	ug/Kg	380 U	390 U	410 U

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
SOIL ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	SOIL SEAD-57 3 12/02/93 TP57-9 206075		SOIL SEAD-57 3 12/02/93 TP57-10 206076		SOIL SEAD-57 3 11/08/93 TP57-11 203824
PESTICIDES/PCB						
alpha-BHC	ug/Kg	2 U		2 U		2.1 U
beta-BHC	ug/Kg	2 U		2 U		2.1 U
delta-BHC	ug/Kg	2 U		2 U		2.1 U
gamma-BHC (Lindane)	ug/Kg	2 U		2 U		2.1 U
Heptachlor	ug/Kg	2 U		2 U		2.1 U
Aldrin	ug/Kg	2 U		2 U		2.1 U
Heptachlor epoxide	ug/Kg	2 U		2 U		2.1 U
Endosulfan I	ug/Kg	2 U		2 U		2.1 U
Dieldrin	ug/Kg	3.8 U		3.9 U		4.1 U
4,4'-DDE	ug/Kg	3.8 U		3.9 U		4.1 U
Endrin	ug/Kg	3.8 U		3.9 U		4.1 U
Endosulfan II	ug/Kg	3.8 U		3.9 U		4.1 U
4,4'-DDD	ug/Kg	3.8 U		3.9 U		4.1 U
Endosulfan sulfate	ug/Kg	3.8 U		3.9 U		4.1 U
4,4'-DDT	ug/Kg	3.8 U		3.9 U		4.1 U
Methoxychlor	ug/Kg	20 U		20 U		21 U
Endrin ketone	ug/Kg	3.8 U		3.9 U		4.1 U
Endrin aldehyde	ug/Kg	3.8 U		3.9 U		4.1 U
alpha-Chlordane	ug/Kg	2 U		2 U		2.1 U
gamma-Chlordane	ug/Kg	2 U		2 U		2.1 U
Toxaphene	ug/Kg	200 U		200 U		210 U
Aroclor-1016	ug/Kg	38 U		39 U		41 U
Aroclor-1221	ug/Kg	78 U		80 U		83 U
Aroclor-1232	ug/Kg	38 U		39 U		41 U
Aroclor-1242	ug/Kg	38 U		39 U		41 U
Aroclor-1248	ug/Kg	38 U		39 U		41 U
Aroclor-1254	ug/Kg	38 U		39 U		41 U
Aroclor-1260	ug/Kg	38 U		39 U		41 U
METALS						
Aluminum	mg/Kg	10300		12600		14600
Antimony	mg/Kg	3.5 U		3.6 U		11.3 UJ
Arsenic	mg/Kg	8.6		6.8		5.9
Barium	mg/Kg	70.8		97.5		120
Beryllium	mg/Kg	0.49 J		0.55 J		0.81 J
Cadmium	mg/Kg	0.34 U	R	0.35 U	R	0.71 U
Calcium	mg/Kg	84000		33000		22300
Chromium	mg/Kg	16.5		17.1		20.1
Cobalt	mg/Kg	8		8.7		8.8 J
Copper	mg/Kg	22.6 J		22.4 J		21.7
Iron	mg/Kg	19900		20500		24900
Lead	mg/Kg	16.2		10.9		11.3
Magnesium	mg/Kg	27600		6400		5360
Manganese	mg/Kg	323 J		387 J		329
Mercury	mg/Kg	0.02 U		0.03 J		0.04 J
Nickel	mg/Kg	29.8		24.5		25.7
Potassium	mg/Kg	1350		1680		1430
Selenium	mg/Kg	1.1 J		0.61 J		0.46 J
Silver	mg/Kg	0.67 U		0.69 U		1.4 UJ
Sodium	mg/Kg	128 J		93.6 J		93 J
Thallium	mg/Kg	0.91 J		0.21 UJ		0.17 U
Vanadium	mg/Kg	17.9		22.9		27.8
Zinc	mg/Kg	68.5 J		54.1 J		57.9
Cyanide	mg/Kg	0.62 U		0.71 U		0.54 U
OTHER ANALYSES						
Nitrate/Nitrite-Nitrogen	mg/Kg	0.2		0.3		0.7
Total Solids	%W/W	86.1		83.9		81.2
Total Petroleum Hydrocarbons	mg/Kg	NS		NS		NS
Fluoride	mg/Kg	NS		NS		NS
pH	standard units	NS		NS		NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / SAMPLE DATE / ES ID / LAB ID / UNITS	WATER / SEAD-57 / 02/03/94 / MW57-1 / 210260	WATER / SEAD-57 / 02/03/94 / MW57-2 / 210261	WATER / SEAD-57 / 02/03/94 / MW57-3 / 210262	WATER / SEAD-57 / 02/03/94 / MW57-4 / 210263 / MW57-3DUP
VOLATILE ORGANICS					
Chloromethane	ug/L	10 U	10 U	10 U	NS
Bromomethane	ug/L	10 U	10 U	10 U	NS
Vinyl Chloride	ug/L	10 U	10 U	10 U	NS
Chloroethane	ug/L	10 U	10 U	10 U	NS
Methylene Chloride	ug/L	10 U	10 U	10 U	NS
Acetone	ug/L	10 U	10 U	10 U	NS
Carbon Disulfide	ug/L	10 U	10 U	10 U	NS
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	NS
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	NS
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	NS
Chloroform	ug/L	10 U	10 U	10 U	NS
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	NS
2-Butanone	ug/L	10 U	10 U	10 U	NS
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	NS
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	NS
Bromodichloromethane	ug/L	10 U	10 U	10 U	NS
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	NS
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS
Trichloroethene	ug/L	10 U	10 U	10 U	NS
Dibromochloromethane	ug/L	10 U	10 U	10 U	NS
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	NS
Benzene	ug/L	10 U	10 U	10 U	NS
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS
Bromoform	ug/L	10 U	10 U	10 U	NS
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	NS
2-Hexanone	ug/L	10 U	10 U	10 U	NS
Tetrachloroethene	ug/L	10 U	10 U	10 U	NS
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	NS
Toluene	ug/L	10 U	10 U	10 U	NS
Chlorobenzene	ug/L	10 U	10 U	10 U	NS
Ethylbenzene	ug/L	10 U	10 U	10 U	NS
Styrene	ug/L	10 U	10 U	10 U	NS
Xylene (total)	ug/L	10 U	10 U	10 U	NS
MTBE	ug/L	NS	NS	NS	NS
HERBICIDES					
2,4-D	ug/L	1.2 U	1.1 U	1.1 U	NS
2,4-DB	ug/L	1.2 U	1.1 U	1.1 U	NS
2,4,5-T	ug/L	0.12 U	0.11 U	0.11 U	NS
2,4,5-TP (Silvex)	ug/L	0.12 U	0.11 U	0.11 U	NS
Dalapon	ug/L	2.7 U	2.5 U	2.5 U	NS
Dicamba	ug/L	0.12 U	0.11 U	0.11 U	NS
Dichloroprop	ug/L	1.2 U	1.1 U	1.1 U	NS
Dinoseb	ug/L	0.58 U	0.54 U	0.53 U	NS
MCPA	ug/L	120 U	110 U	110 U	NS
MCPP	ug/L	120 U	110 U	110 U	NS
NITROAROMATICS					
HMX	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
RDX	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
Tetryl	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 U

NOTES:
NS stands for NOT SAMPLED

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-57 02/03/94 MW57-1 210260	WATER SEAD-57 02/03/94 MW57-2 210261	WATER SEAD-57 02/03/94 MW57-3 210262	WATER SEAD-57 02/03/94 MW57-4 210263 MW57-3DUP
VOLATILE ORGANICS					
SEMIVOLATILE ORGANICS					
Phenol	ug/L	10 U	10 U	10 U	NS
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U	NS
2-Chlorophenol	ug/L	10 U	10 U	10 U	NS
1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U	NS
1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U	NS
1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U	NS
2-Methylphenol	ug/L	10 U	10 U	10 U	NS
2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	10 U	NS
4-Methylphenol	ug/L	10 U	10 U	10 U	NS
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	10 U	NS
Hexachloroethane	ug/L	10 U	10 U	10 U	NS
Nitrobenzene	ug/L	10 U	10 U	10 U	NS
Isophorone	ug/L	10 U	10 U	10 U	NS
2-Nitrophenol	ug/L	10 U	10 U	10 U	NS
2,4-Dimethylphenol	ug/L	10 U	10 U	10 U	NS
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	10 U	NS
2,4-Dichlorophenol	ug/L	10 U	10 U	10 U	NS
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U	NS
Naphthalene	ug/L	10 U	10 U	10 U	NS
4-Chloroaniline	ug/L	10 U	10 U	10 U	NS
Hexachlorobutadiene	ug/L	10 U	10 U	10 U	NS
4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U	NS
2-Methylnaphthalene	ug/L	10 U	10 U	10 U	NS
Hexachlorocyclopentadiene	ug/L	10 U	10 U	10 U	NS
2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U	NS
2,4,5-Trichlorophenol	ug/L	25 U	25 U	25 U	NS
2-Chloronaphthalene	ug/L	10 U	10 U	10 U	NS
2-Nitroaniline	ug/L	25 U	25 U	25 U	NS
Dimethylphthalate	ug/L	10 U	10 U	10 U	NS
Acenaphthylene	ug/L	10 U	10 U	10 U	NS
2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U	NS
3-Nitroaniline	ug/L	25 U	25 U	25 U	NS
Acenaphthene	ug/L	10 U	10 U	10 U	NS
2,4-Dinitrophenol	ug/L	25 U	25 U	25 U	NS
4-Nitrophenol	ug/L	25 U	25 U	25 U	NS
Dibenzofuran	ug/L	10 U	10 U	10 U	NS
2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U	NS
Diethylphthalate	ug/L	10 U	10 U	10 U	NS
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	10 U	NS
Fluorene	ug/L	10 U	10 U	10 U	NS
4-Nitroaniline	ug/L	25 U	25 U	25 U	NS
4,6-Dinitro-2-methylphenol	ug/L	25 U	25 U	25 U	NS
N-Nitrosodiphenylamine	ug/L	10 U	10 U	10 U	NS
4-Bromophenyl-phenylether	ug/L	10 U	10 U	10 U	NS
Hexachlorobenzene	ug/L	10 U	10 U	10 U	NS
Pentachlorophenol	ug/L	25 U	25 U	25 U	NS
Phenanthrene	ug/L	10 U	10 U	10 U	NS
Anthracene	ug/L	10 U	10 U	10 U	NS
Carbazole	ug/L	10 U	10 U	10 U	NS
Di-n-butylphthalate	ug/L	10 U	10 U	10 U	NS
Fluoranthene	ug/L	10 U	10 U	10 U	NS
Pyrene	ug/L	10 U	10 U	10 U	NS
Butylbenzylphthalate	ug/L	10 U	10 U	10 U	NS
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	10 U	NS
Benzo(a)anthracene	ug/L	10 U	10 U	10 U	NS
Chrysene	ug/L	10 U	10 U	10 U	NS
bis(2-Ethylhexyl)phthalate	ug/L	10 U	10 U	20	NS
Di-n-octylphthalate	ug/L	10 U	10 U	10 U	NS
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	NS
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	NS
Benzo(a)pyrene	ug/L	10 U	10 U	10 U	NS
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	NS
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	NS
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U	NS

SENECA ARMY DEPOT
SEAD-57 EXPANDED SITE INSPECTION
GROUNDWATER ANALYSIS RESULTS

COMPOUND	MATRIX / LOCATION / SAMPLE DATE / ES ID / LAB ID / UNITS	WATER SEAD-57 02/03/94 MW57-1 210260	WATER SEAD-57 02/03/94 MW57-2 210261	WATER SEAD-57 02/03/94 MW57-3 210262	WATER SEAD-57 02/03/94 MW57-4 210263 MW57-3DUP
VOLATILE ORGANICS					
PESTICIDES/PCB					
alpha-BHC	ug/L	0.054 U	0.054 U	0.059 U	NS
beta-BHC	ug/L	0.054 U	0.054 U	0.059 U	NS
delta-BHC	ug/L	0.054 U	0.054 U	0.059 U	NS
gamma-BHC (Lindane)	ug/L	0.054 U	0.054 U	0.059 U	NS
Heptachlor	ug/L	0.054 U	0.054 U	0.059 U	NS
Aldrin	ug/L	0.054 U	0.054 U	0.059 U	NS
Heptachlor epoxide	ug/L	0.054 U	0.054 U	0.059 U	NS
Endosulfan I	ug/L	0.054 U	0.054 U	0.059 U	NS
Dieldrin	ug/L	0.11 U	0.11 U	0.12 U	NS
4,4'-DDE	ug/L	0.11 U	0.11 U	0.12 U	NS
Endrin	ug/L	0.11 U	0.11 U	0.12 U	NS
Endosulfan II	ug/L	0.11 U	0.11 U	0.12 U	NS
4,4'-DDD	ug/L	0.11 U	0.11 U	0.12 U	NS
Endosulfan sulfate	ug/L	0.11 U	0.11 U	0.12 U	NS
4,4'-DDT	ug/L	0.11 U	0.11 U	0.12 U	NS
Methoxychlor	ug/L	0.54 U	0.54 U	0.59 U	NS
Endrin ketone	ug/L	0.11 U	0.11 U	0.12 U	NS
Endrin aldehyde	ug/L	0.11 U	0.11 U	0.12 U	NS
alpha-Chlordane	ug/L	0.054 U	0.054 U	0.059 U	NS
gamma-Chlordane	ug/L	0.054 U	0.054 U	0.059 U	NS
Toxaphene	ug/L	5.4 U	5.4 U	5.9 U	NS
Aroclor-1016	ug/L	1.1 U	1.1 U	1.2 U	NS
Aroclor-1221	ug/L	2.2 U	2.2 U	2.4 U	NS
Aroclor-1232	ug/L	1.1 U	1.1 U	1.2 U	NS
Aroclor-1242	ug/L	1.1 U	1.1 U	1.2 U	NS
Aroclor-1248	ug/L	1.1 U	1.1 U	1.2 U	NS
Aroclor-1254	ug/L	1.1 U	1.1 U	1.2 U	NS
Aroclor-1260	ug/L	1.1 U	1.1 U	1.2 U	NS
METALS					
Aluminum	ug/L	4200	6540	482	NS
Antimony	ug/L	44.7 J	21.6 UJ	35.7 J	NS
Arsenic	ug/L	1.4 U	1.4 U	1.4 U	NS
Barium	ug/L	36.5 J	83.5 J	65.5 J	NS
Beryllium	ug/L	0.4 U	0.63 J	0.4 U	NS
Cadmium	ug/L	2.1 U	3.1 J	2.1 U	NS
Calcium	ug/L	82000	288000	97900	NS
Chromium	ug/L	7.7 J	14.5	3.7 J	NS
Cobalt	ug/L	4.4 U	14.8 J	4.4 U	NS
Copper	ug/L	3.1 U	5.2 J	3.1 U	NS
Iron	ug/L	6360	9260	652	NS
Lead	ug/L	2.1 J	2.2 J	1.1 J	NS
Magnesium	ug/L	11400	36900	21100	NS
Manganese	ug/L	245	327	122	NS
Mercury	ug/L	0.04 U	0.04 U	0.04 U	NS
Nickel	ug/L	8.2 J	18.8 J	4 U	NS
Potassium	ug/L	3860 J	4600 J	2150 J	NS
Selenium	ug/L	0.69 U	2.2 J	0.7 U	NS
Silver	ug/L	4.2 U	4.2 U	4.2 U	NS
Sodium	ug/L	4080 J	8920	5540	NS
Thallium	ug/L	1.2 U	1.2 U	1.2 U	NS
Vanadium	ug/L	7.6 J	9.2 J	4.5 J	NS
Zinc	ug/L	57.4	85.1	51.2	NS
Cyanide	ug/L	5 U	5 U	5 U	NS
OTHER ANALYSES					
Nitrate/Nitrite-Nitrogen	mg/L	0.25	1.13	0.21	NS
Total Petroleum Hydrocarbons	mg/L	NS	NS	NS	NS
Fluoride	mg/L	NS	NS	NS	NS
pH	standard units	7.72	7.23	7.48	NS
Specific Conductance	umhos/cm	255	900	350	NS
Turbidity	NTU	31.6	27.4	8.9	NS

QA/QC

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-4	SEAD-4	SEAD-11	SEAD-11	SEAD-13	SEAD-13	SEAD-13	SEAD-13	SEAD-16	SEAD-17
	SAMPLE DATE	12/06/93	12/05/93	01/24/94	01/24/94	12/07/93	12/16/93	12/17/93	11/03/93	11/17/93	10/27/93
	ES ID	SB4-1.1R	SB4-4.1R	MW11-3R	MW11-3RRE	SB13-7.1R	SB13-9.1R	SB13-10.1R	SD13-1R	MW16-2R	SB17-2.2R
	LAB ID	206266	206143	209336	209336	206404	207030	207185	202956	204986	202504
	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	16	NS	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	4 J	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NS	NS	NA	NS	NS	NS	NS	NS	10 U	NS
HERBICIDES											
2,4-D	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U
2,4-DB	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U
2,4,5-T	ug/L	0.1 U	0.11 U	0.11 U	NS	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.12 U
2,4,5-TP (Silvex)	ug/L	0.1 U	0.11 U	0.11 U	NS	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.12 U
Dalapon	ug/L	2.5 U	2.5 U	2.4 U	NS	2.4 U	2.4 U	2.4 U	2.4 U	2.6 U	2.6 U
Dicamba	ug/L	0.1 U	0.11 U	0.11 U	NS	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.12 U
Dichloroprop	ug/L	1.1 U	1.1 U	1.1 U	NS	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U
Dinoseb	ug/L	0.5 U	0.53 U	0.53 U	NS	0.52 U	0.51 U	0.52 U	0.51 U	0.56 U	0.57 U
MCPA	ug/L	110.0 U	110 U	110 U	NS	110 U	110 U	110 U	110 U	120 U	120 U
MCPP	ug/L	110.0 U	110 U	110 U	NS	110 U	110 U	110 U	110 U	120 U	120 U
NITROAROMATICS											
HMX	ug/L	0.13 U	0.13 U	2.1 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
RDX	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
Tetryl	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 U	0.13 U	0.13 UJ	0.13 U	NS	NS	0.13 U	0.13 UJ	0.13 U

NOTES:
NS stands for NOT SAMPLED
NA stands for NOT ANALYZED
ND stands for NOT DETECTED

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER SEAD-4 12/06/93 SB4-1.1R 206266	WATER SEAD-4 12/05/93 SB4-4.1R 206143	WATER SEAD-11 01/24/94 MW11-3R 209336	WATER SEAD-11 01/24/94 MW11-3RRE 209336	WATER SEAD-13 12/07/93 SB13-7.1R 206404	WATER SEAD-13 12/16/93 SB13-9.1R 207030	WATER SEAD-13 12/17/93 SB13-10.1R 207185	WATER SEAD-13 11/03/93 SD13-1R 202956	WATER SEAD-16 11/17/93 MW16-2R 204986	WATER SEAD-17 10/27/93 SB17-2.2R 202504
SEMIVOLATILE ORGANICS											
Phenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
bis(2-Chloroethyl) ether	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2-Chlorophenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
1,3-Dichlorobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
1,4-Dichlorobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
1,2-Dichlorobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2-Methylphenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,2'-oxybis(1-Chloropropane)	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Methylphenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
N-Nitroso-di-n-propylamine	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Hexachloroethane	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Nitrobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Isophorone	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2-Nitrophenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4-Dimethylphenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
bis(2-Chloroethoxy) methane	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4-Dichlorophenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
1,2,4-Trichlorobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Naphthalene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Chloroaniline	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Hexachlorobutadiene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Chloro-3-methylphenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2-Methylnaphthalene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Hexachlorocyclopentadiene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4,6-Trichlorophenol	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4,5-Trichlorophenol	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
2-Chloronaphthalene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2-Nitroaniline	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
Dimethylphthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Acenaphthylene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,6-Dinitrotoluene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
3-Nitroaniline	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
Acenaphthene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4-Dinitrophenol	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
4-Nitrophenol	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
Dibenzofuran	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
2,4-Dinitrotoluene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Diethylphthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Chlorophenyl-phenylether	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Fluorene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Nitroaniline	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
4,6-Dinitro-2-methylphenol	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
N-Nitrosodiphenylamine	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
4-Bromophenyl-phenylether	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Hexachlorobenzene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Pentachlorophenol	ug/L	26 U	26 U	26 U	NS	26 U	25 U	26 U	26 U	26 U	27 U
Phenanthrene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Anthracene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Carbazole	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Di-n-butylphthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	1 J
Fluoranthene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Pyrene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Butylbenzylphthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
3,3'-Dichlorobenzidine	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(a)anthracene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Chrysene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
bis(2-Ethylhexyl)phthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	13 U
Di-n-octylphthalate	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(b)fluoranthene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(k)fluoranthene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(a)pyrene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Indeno(1,2,3-cd)pyrene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Dibenz(a,h)anthracene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(g,h,i)perylene	ug/L	11 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	11 U

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PESTICIDES/PCB											
alpha-BHC	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
beta-BHC	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
delta-BHC	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
gamma-BHC (Lindane)	ug/L	0.05 UJ	0.056 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
Heptachlor	ug/L	0.05 UJ	0.056 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
Aldrin	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
Heptachlor epoxide	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.058 U	0.05 U	0.054 U	0.058 U
Endosulfan I	ug/L	0.05 UJ	0.056 U	0.052 U	NS	0.05 UJ	0.05 U	0.056 U	0.05 U	0.054 U	0.058 U
Dieldrin	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
4,4'-DDE	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
Endrin	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
Endosulfan II	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
4,4'-DDD	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
Endosulfan sulfate	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
4,4'-DDT	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
Methoxychlor	ug/L	0.5 UJ	0.58 U	0.52 U	NS	0.5 UJ	0.5 U	0.56 U	0.5 U	0.54 U	0.58 U
Endrin ketone	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
Endrin aldehyde	ug/L	0.1 UJ	0.12 U	0.1 U	NS	0.1 UJ	0.1 U	0.11 U	0.1 U	0.11 U	0.12 U
alpha-Chlordane	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.058 U	0.05 U	0.054 U	0.058 U
gamma-Chlordane	ug/L	0.05 UJ	0.058 U	0.052 U	NS	0.05 UJ	0.05 U	0.058 U	0.05 U	0.054 U	0.058 U
Toxaphene	ug/L	5 UJ	5.8 U	5.2 U	NS	5 UJ	5 U	5.6 U	5 U	5.4 U	5.8 U
Aroclor-1016	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
Aroclor-1221	ug/L	2 UJ	2.3 U	2.1 U	NS	2 UJ	2 U	2.2 U	2 U	2.1 U	2.3 U
Aroclor-1232	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
Aroclor-1242	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
Aroclor-1248	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
Aroclor-1254	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
Aroclor-1260	ug/L	1 UJ	1.2 U	1 U	NS	1 UJ	1 U	1.1 U	1 U	1.1 U	1.2 U
METALS											
Aluminum	ug/L	88.1 J	109 J	41.9 U	NS	41.9 U	52 J	41.9 U	44.5 U	44.8 U	44.7 U
Antimony	ug/L	21.6 U	21.5 U	21.5 U	NS	21.5 U	21.5 U	21.5 U	52.3 UJ	52.7 U	52.5 U
Arsenic	ug/L	0.79 U	1.9 J	0.8 U	NS	0.8 U	0.79 U	0.8 U	1.2 U	0.99 U	1 U
Barium	ug/L	3.5 U	3.5 U	3.5 U	NS	3.5 U	3.5 U	3.5 U	1.7 J	0.9 U	1.8 J
Beryllium	ug/L	0.4 U	0.4 U	0.4 U	NS	0.4 U	0.4 U	0.4 U	0.3 U	0.3 U	0.3 U
Cadmium	ug/L	2.1 U	2.1 U	2.1 U	NS	2.1 U	2.1 U	2.1 U	3.3 U	3.3 U	3.3 U
Calcium	ug/L	128 U	184 J	384 J	NS	127 U	127 U	128 U	5250	46.6 J	5800
Chromium	ug/L	4.7 J	2.6 U	2.6 U	NS	2.6 U	2.6 U	2.6 U	2.5 U	2.5 U	2.5 U
Cobalt	ug/L	4.4 U	4.4 U	4.4 U	NS	4.4 U	4.4 U	4.4 U	4.9 U	4.9 U	4.9 U
Copper	ug/L	5.4 J	3.1 U	12.9 J	NS	3.1 U	5.2 J	3.1 U	4.6 J	3.7 U	5.7 J
Iron	ug/L	130	157	5.6 U	NS	43.9 J	40.6 J	12.9 J	27.6	81.7 J	13.3 J
Lead	ug/L	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.65 J	0.6 U	0.8 U
Magnesium	ug/L	115 U	114 U	114 U	NS	114 U	114 U	115 U	340 J	27.4 U	352 J
Manganese	ug/L	3.1 J	4.1 J	1.1 U	NS	1.1 U	1.1 U	1.1 U	0.59 U	1.4 J	0.6 U
Mercury	ug/L	0.08 J	0.07 U	0.04 U	NS	0.04 U	0.04 U	0.04 U	0.07 U	0.07 UJ	0.07 U
Nickel	ug/L	4 U	4 U	4 U	NS	4 U	4 U	4 U	4.1 U	4.1 U	4.2 J
Potassium	ug/L	952 U	949 U	906 U	NS	951 U	950 U	952 U	721 U	727 U	724 U
Selenium	ug/L	0.69 U	0.7 U	0.7 U	NS	0.7 U	0.69 U	0.7 U	1.1 UJ	0.8 U	1.1 U
Silver	ug/L	4.2 U	4.2 U	4.2 U	NS	4.2 U	4.2 U	4.2 U	6.6 UJ	6.7 U	6.7 U
Sodium	ug/L	4100 J	3870 J	1540 J	NS	3980 J	4050 J	3980 J	267 J	3610 J	240 J
Thallium	ug/L	1.2 U	1.2 U	1.2 U	NS	1.2 U	1.2 U	1.2 U	1.2 U	1.8 U	1.2 U
Vanadium	ug/L	3.7 U	3.7 U	3.7 U	NS	3.7 U	3.7 U	3.7 U	3.3 U	3.3 U	3.3 U
Zinc	ug/L	4.9 J	1.9 U	12.1 J	NS	1.9 U	3.7 J	4.1 J	13.9 R	3.1 U	13.1 J
Cyanide	ug/L	5 U	6 U	5 U	NS	5 U	5 U	5 U	5 UJ	5.2 U	8.3 U
OTHER ANALYSES											
Nitrate/Nitrite-Nitrogen	mg/L	0.01 U	0.01 U	0.01	NS	0.01 U	0.01 U	0.01 U	0.02	0.15	0.01
Total Petroleum Hydrocarbons	mg/L	NS	0.39 U	0.37 U	NS	NS	NS	NS	NS	0.44 U	NS
Fluoride	mg/L	NS	NS	NS	NS	NS	NS	NS	0.41 U	0.1	NS
pH	standard units	NS	NS	NS	NS	0.1	0.1 U	0.1 U	0.13	NS	NS

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-17	SEAD-24	SEAD-24	SEAD-24	25	SEAD-25	SEAD-26	SEAD-26	SEAD-45	SEAD-45	DISTILLED WATER
	SAMPLE DATE	10/22/93	11/30/93	11/30/93	10/22/93	02/06/94	12/03/93	11/17/93	10/25/93	10/26/93	11/09/93	01/06/94
	ES ID	SS17-18R	SB24-1.1R	SB24-1.1RRE	SS24-9R	MW25-1R	SB25-2.1R	SB26-2.1R	SS26-3R	SS45-5R	TP45-4R	DDW-01
	LAB ID	202056	205881	205881	202088	210542	206054	204831	202248	202510	204029	207952
COMPOUND	UNITS						RINSATE					
VOLATILE ORGANICS												
Chloromethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	1 J	10 U
Acetone	ug/L	10 U	10 U	NS	10 U	17	10 U	10 U	10 U	10 U	3 J	10 U
Carbon Disulfide	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NS	NS	NS	NS	ND	10 U	ND	NA	NS	NS	NS
HERBICIDES												
2,4-D	ug/L	1.2 U	1.1 U	NS	1.3 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
2,4-DB	ug/L	1.2 U	1.1 U	NS	1.3 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
2,4,5-T	ug/L	0.12 U	0.11 U	NS	0.13 U	0.12 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U
2,4,5-TP (Silvex)	ug/L	0.12 U	0.11 U	NS	0.13 U	0.12 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U
Dalapon	ug/L	2.7 U	2.5 U	NS	2.8 U	2.7 U	2.5 U	2.6 U	2.4 U	2.4 U	2.5 U	2.5 U
Dicamba	ug/L	0.12 U	0.11 U	NS	0.13 U	0.12 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U
Dichloroprop	ug/L	1.2 U	1.1 U	NS	1.3 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
Dinoseb	ug/L	0.57 U	0.54 U	NS	0.61 U	0.57 U	0.53 U	0.57 U	0.52 U	0.11 U	0.53 U	0.54 U
MCPA	ug/L	120 U	110 U	NS	130 U	120 U	110 U	120 U	110 U	110 U	110 U	110 U
MCPP	ug/L	120 U	110 U	NS	130 U	120 U	110 U	120 U	110 U	110 U	110 U	110 U
NITROAROMATICS												
HMX	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
RDX	ug/L	5 J	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3,5-Trinitrobenzene	ug/L	0.13 U	0.29 J	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dinitrobenzene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Tetryl	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	1.1 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
2,4,6-Trinitrotoluene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
4-amino-2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
2-amino-4,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
2,6-Dinitrotoluene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
2,4-Dinitrotoluene	ug/L	0.13 U	0.13 U	NS	0.13 U	0.13 U	0.13 UJ	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-17	SEAD-24	SEAD-24	SEAD-24	25	SEAD-25	SEAD-26	SEAD-26	SEAD-45	SEAD-45	DISTILLED WATER
	SAMPLE DATE	10/22/93	11/30/93	11/30/93	10/22/93	02/06/94	12/03/93	11/17/93	10/25/93	10/26/93	11/09/93	01/06/94
	ES ID	SS17-18R	SB24-1.1R	SB24-1.1RRE	SS24-9R	MW25-1R	SB25-2.1R	SB26-2.1R	SS26-3R	SS45-5R	TP45-4R	DDW-01
	LAB ID	202056	205881	205881	202088	210542	206054	204831	202248	202510	204029	207952
	UNITS						RINSATE					
SEMIVOLATILE ORGANICS												
Phenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
bis(2-Chloroethyl) ether	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
1,2-Dichlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2-Methylphenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Methylphenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Hexachloroethane	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Nitrobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Isophorone	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2-Nitrophenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
bis(2-Chloroethoxy) methane	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4-Dichlorophenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Chloroaniline	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Hexachlorobutadiene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	ug/L	25 U	28 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
2-Chloronaphthalene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
Dimethylphthalate	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
Acenaphthene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
4-Nitrophenol	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
Dibenzofuran	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
2,4-Dinitrotoluene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Diethylphthalate	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
4,6-Dinitro-2-methylphenol	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
N-Nitrosodiphenylamine	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Hexachlorobenzene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	25 U	26 U	NS	25 U	25 U	27 U	26 U	28 U	26 U	26 U	26 U
Phenanthrene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Carbazole	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	1 J	10 U	10 U
Fluoranthene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Butylbenzylphthalate	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	ug/L	10 U	10 U	NS	10 U	10 U	11 U	27	11 U	10 U	10 U	10 U
Di-n-octylphthalate	ug/L	10 U	10 U	NS	10 U	10 U	0.8 J	10 U	11 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	NS	10 U	10 U	11 U	10 U	11 U	10 U	10 U	10 U

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-17	SEAD-24	SEAD-24	SEAD-24	25	SEAD-25	SEAD-26	SEAD-26	SEAD-45	SEAD-45	DISTILLED WATER
	SAMPLE DATE	10/22/93	11/30/93	11/30/93	10/22/93	02/06/94	12/03/93	11/17/93	10/25/93	10/26/93	11/09/93	01/06/94
	ES ID	SS17-18R	SB24-1.1R	SB24-1.1RRE	SS24-9R	MW25-1R	SB25-2.1R	SB26-2.1R	SS26-3R	SS45-5R	TP45-4R	DDW-01
	LAB ID	202056	205881	205881	202088	210542	206054	204831	202248	202510	204029	207952
COMPOUND	UNITS						RINSATE					
PESTICIDES/PCB												
alpha-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
beta-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
delta-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
gamma-BHC (Lindane)	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Heptachlor	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Aldrin	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Heptachlor epoxide	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Endosulfan I	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Dieldrin	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	ug/L	0.54 U	0.54 U	NS	0.56 U	0.61 U	0.54 UJ	0.54 U	0.52 U	0.52 U	0.5 U	0.52 U
Endrin ketone	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
gamma-Chlordane	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Toxaphene	ug/L	5.4 U	5.4 U	NS	5.6 U	6.1 U	5.4 UJ	5.4 U	5.2 U	5.2 U	5 U	5.2 U
Aroclor-1016	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1221	ug/L	2.2 U	2.2 U	NS	2.3 U	2.4 U	2.1 UJ	2.1 U	2.1 U	2.1 U	2 U	2.1 U
Aroclor-1232	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1242	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1248	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1254	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1260	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
METALS												
Aluminum	ug/L	44.5 U	44.6 U	NA	44.9 U	41.6 U	44.9 U	44.8 U	44.7 U	46.7 J	44.6 U	42 U
Antimony	ug/L	52.3 U R	52.4 U	NA	52.8 U	21.4 UJ	52.8 U	52.7 UJ	52.5 U	52.8 U	52.4 U	21.6 U
Arsenic	ug/L	0.99 U	1.4 U	NA	0.89 U	1.4 U	1.4 U	0.89 U	0.99 U	0.99 U	1.2 J	0.8 U
Barium	ug/L	1 J R	1.1 J	NA	0.9 U	3.5 U	0.98 J	1.3 J	4 J	2.6 J	2.9 J	3.5 U
Beryllium	ug/L	0.3 U	0.3 U	NA	0.3 U	0.4 U	0.3 J	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U
Cadmium	ug/L	3.3 U	3.3 U	NA	3.3 U	2.1 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.1 U
Calcium	ug/L	2730 J	7270	NA	74.6 J	302 J	199 J	7390	20400	11500	15400	154 J
Chromium	ug/L	2.5 U	2.5 U	NA	2.5 U	2.6 U	4.1 J	3.9 J	2.5 U	2.5 U	2.5 U	2.6 U
Cobalt	ug/L	4.9 U	4.9 U	NA	4.9 U	4.4 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.4 U
Copper	ug/L	3.7 U	3.8 J	NA	4 J	13 J	3.7 U	5.2 J	4.1 J	6.4 J	4.9 J	4.7 J
Iron	ug/L	33.3	160	NA	15.7 J	19.6 J	103	101	25 J	15.2 J	11.1 J	11.2 J
Lead	ug/L	0.59 U	0.5 U	NA	0.6 U	0.6 J	0.5 U	0.5 U	0.79 U	0.79 U	0.79 U	0.5 U
Magnesium	ug/L	181	443 J	NA	27.5 U	114 U	73 J	467 J	1230 J	704 J	930 J	115 U
Manganese	ug/L	0.87 J	2.3 J	NA	0.6 U	1.1 U	1.7 J	2 J	0.6 U	0.6 U	0.61 J	1.5 U
Mercury	ug/L	0.07 U	0.07 UJ	0.07 UJ	0.07 U	0.04 U	0.07 J	0.07 U	0.07 U	0.07 U	0.07 U	0.04 U
Nickel	ug/L	4.1 U	4.1 U	NA	4.1 U	4 U	9.1 J	4.1 U	5.9 J	4.1 J	4.1 U	4.3 J
Potassium	ug/L	721 U	723 U	NA	726 U	902 U	726 U	727 U	725 U	726 U	723 U	910 U
Selenium	ug/L	1.1 U	1.1 U	NA	1.1 U	0.7 U	1.1 U	1.6 J	1.1 U	1.1 U	1.1 UJ	0.7 U
Silver	ug/L	6.6 U	6.7 U	NA	6.7 U	4.2 U	6.7 U	6.7 UJ	7.3 J	7.1 J	6.7 UJ	4.2 U
Sodium	ug/L	232 J	575 J	NA	171 J	1850 J	4090 J	353 J	740 J	418 J	545 J	197 U
Thallium	ug/L	1.2 U	1.2 U	NA	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 UJ	1.2 U
Vanadium	ug/L	3.3 U	3.3 U	NA	3.3 U	3.7 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.7 U
Zinc	ug/L	55.5	15.1 J	NA	21	10.9 J	5.3 J	15.8 J	25.8	18.8 J	24.6 J	2.1 J
Cyanide	ug/L	8.3 U	5 U	NA	1.3 U	5 U	6 U	5.8 U	8.3 U	8.3 U	5 U	5 U
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen	mg/L	0.03	0.02	NS	0.03	0.01	0.01	0.01	0.01	0.01	0.01	NS
Total Petroleum Hydrocarbons	mg/L	NS	NS	NS	0.47 U	0.43 U	NS	0.37 U	0.39 U	NS	NS	NS
Fluoride	mg/L	NS	0.43 U	NS	NS	0.1	0.41 U	0.11	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
TRIP BLANKS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER 11/01/93 TB11-1 202945	WATER 11/02/93 TB11-2 203214	WATER 11/03/93 TB11-3 203413	WATER 11/15/93 TB11-16 204635	WATER 11/16/93 TB11-16 204659	WATER 11/17/93 TB11-17 204981	WATER 11/18/93 TB11-18 205064	WATER 11/19/93 TB11-19 205060	WATER 11/30/93 TB11-30 205882	WATER 12/05/93 TB12-5 206189
VOLATILE ORGANICS											
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	10 U	10 U	5 J	17	10 U	11 U	10 U	10 U	12 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NS	NS	NS	NS	NS	NA	NA	NA	NS	NS

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
RINSATE BLANKS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION	SEAD-17	SEAD-24	SEAD-24	SEAD-24	25	SEAD-25	SEAD-26	SEAD-26	SEAD-45	SEAD-45	DISTILLED WATER
	SAMPLE DATE	10/22/93	11/30/93	11/30/93	10/22/93	02/06/94	12/03/93	11/17/93	10/25/93	10/26/93	11/09/93	01/06/94
	ES ID	SS17-18R	SB24-1.1R	SB24-1.1RRE	SS24-9R	MW25-1R	SB25-2.1R	SB26-2.1R	SS26-3R	SS45-5R	TP45-4R	DDW-01
	LAB ID	202056	205881	205881	202088	210542	206054	204831	202248	202510	204029	207952
COMPOUND	UNITS						RINSATE					
PESTICIDES/PCB												
alpha-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
beta-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
delta-BHC	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
gamma-BHC (Lindane)	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Heptachlor	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Aldrin	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Heptachlor epoxide	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Endosulfan I	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Dieldrin	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	ug/L	0.54 U	0.54 U	NS	0.56 U	0.61 U	0.54 UJ	0.54 U	0.52 U	0.52 U	0.5 U	0.52 U
Endrin ketone	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	ug/L	0.11 U	0.11 U	NS	0.11 U	0.12 U	0.11 UJ	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
gamma-Chlordane	ug/L	0.054 U	0.054 U	NS	0.056 U	0.061 U	0.054 UJ	0.054 U	0.052 U	0.052 U	0.05 U	0.052 U
Toxaphene	ug/L	5.4 U	5.4 U	NS	5.6 U	6.1 U	5.4 UJ	5.4 U	5.2 U	5.2 U	5 U	5.2 U
Aroclor-1016	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1221	ug/L	2.2 U	2.2 U	NS	2.3 U	2.4 U	2.1 UJ	2.1 U	2.1 U	2.1 U	2 U	2.1 U
Aroclor-1232	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1242	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1248	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1254	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
Aroclor-1260	ug/L	1.1 U	1.1 U	NS	1.1 U	1.2 U	1.1 UJ	1.1 U	1 U	1 U	1 U	1 U
METALS												
Aluminum	ug/L	44.5 U	44.6 U	NA	44.9 U	41.6 U	44.9 U	44.8 U	44.7 U	46.7 J	44.6 U	42 U
Antimony	ug/L	52.3 U R	52.4 U	NA	52.8 U	21.4 UJ	52.8 U	52.7 UJ	52.5 U	52.8 U	52.4 U	21.6 U
Arsenic	ug/L	0.99 U	1.4 U	NA	0.99 U	1.4 U	1.4 U	0.99 U	0.99 U	0.99 U	1.2 J	0.8 U
Barium	ug/L	1 J R	1.1 J	NA	0.9 U	3.5 U	0.98 J	1.3 J	4 J	2.6 J	2.9 J	3.5 U
Beryllium	ug/L	0.3 U	0.3 U	NA	0.3 U	0.4 U	0.3 J	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U
Cadmium	ug/L	3.3 U	3.3 U	NA	3.3 U	2.1 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.1 U
Calcium	ug/L	2730 J	7270	NA	74.6 J	302 J	199 J	7390	20400	11500	15400	154 J
Chromium	ug/L	2.5 U	2.5 U	NA	2.5 U	2.6 U	4.1 J	3.9 J	2.5 U	2.5 U	2.5 U	2.6 U
Cobalt	ug/L	4.9 U	4.9 U	NA	4.9 U	4.4 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.4 U
Copper	ug/L	3.7 U	3.8 J	NA	4 J	13 J	3.7 U	5.2 J	4.1 J	6.4 J	4.9 J	4.7 J
Iron	ug/L	33.3	160	NA	15.7 J	19.6 J	103	101	25 J	15.2 J	11.1 J	11.2 J
Lead	ug/L	0.59 U	0.5 U	NA	0.6 U	0.6 J	0.5 U	0.5 U	0.79 U	0.79 U	0.79 U	0.5 U
Magnesium	ug/L	181	443 J	NA	27.5 U	114 U	73 J	467 J	1230 J	704 J	930 J	115 U
Manganese	ug/L	0.87 J	2.3 J	NA	0.6 U	1.1 U	1.7 J	2 J	0.6 U	0.6 U	0.61 J	1.5 U
Mercury	ug/L	0.07 U	0.07 UJ	0.07 UJ	0.07 U	0.04 U	0.07 J	0.07 U	0.07 U	0.07 U	0.07 U	0.04 U
Nickel	ug/L	4.1 U	4.1 U	NA	4.1 U	4 U	9.1 J	4.1 U	5.9 J	4.1 J	4.1 U	4.3 J
Potassium	ug/L	721 U	723 U	NA	726 U	902 U	726 U	727 U	725 U	726 U	723 U	910 U
Selenium	ug/L	1.1 U	1.1 U	NA	1.1 U	0.7 U	1.1 U	1.6 J	1.1 U	1.1 U	1.1 UJ	0.7 U
Silver	ug/L	6.6 U	6.7 U	NA	6.7 U	4.2 U	6.7 U	6.7 UJ	7.3 J	7.1 J	6.7 UJ	4.2 U
Sodium	ug/L	232 J	575 J	NA	171 J	1850 J	4090 J	353 J	740 J	418 J	545 J	197 U
Thallium	ug/L	1.2 U	1.2 U	NA	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 UJ	1.2 U
Vanadium	ug/L	3.3 U	3.3 U	NA	3.3 U	3.7 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.7 U
Zinc	ug/L	55.5	15.1 J	NA	21	10.9 J	5.3 J	15.8 J	25.8	18.8 J	24.6 J	2.1 J
Cyanide	ug/L	8.3 U	5 U	NA	1.3 U	5 U	6 U	5.8 U	8.3 U	8.3 U	5 U	5 U
OTHER ANALYSES												
Nitrate/Nitrite-Nitrogen	mg/L	0.03	0.02	NS	0.03	0.01	0.01	0.01	0.01	0.01	0.01	NS
Total Petroleum Hydrocarbons	mg/L	NS	NS	NS	0.47 U	0.43 U	NS	0.37 U	0.39 U	NS	NS	NS
Fluoride	mg/L	NS	0.43 U	NS	NS	0.1	0.41 U	0.11	NS	NS	NS	NS
pH	standard units	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
TRIP BLANKS

COMPOUND	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION						SEAD-13				
	SAMPLE DATE	12/06/93	01/26/94	12/07/93	12/15/93	12/16/93	12/17/93	01/06/94	01/20/94	01/22/94	01/23/94
	ES ID	TB12-6	TB12-6	TB12-7	TB12-15	TB12-16	TB12-17	TB1-6	TB1-20	TB1-22	TB1-23
	LAB ID	206275	209414	206422	207100	207032	207189	207953	209095	209262	209263
	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	17	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NS	NA	NS	NS	NS	NS	NS	NA	NA	NA

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
TRIP BLANKS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	WATER 01/24/94 TB1-24 209338	WATER 01/25/94 TB1-25 209342	WATER 02/01/94 TB2-1 210064	WATER 02/02/94 TB2-2 210196	WATER 02/03/94 TB2-3 210264	WATER 02/04/94 TB2-4 210500	WATER 02/05/94 TB2-5 210483	WATER 02/06/94 TB2-6M 210546	WATER 02/11/94 TB2-11 209096
VOLATILE ORGANICS										
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	18	16	19	16	19	10 U	21	24	19
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	4 J	10 U	10 U	10 U	10 U	10 U	10 U	6 J	6 J
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	NA

SENECA ARMY DEPOT
EXPANDED SITE INSPECTION
QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
TRIP BLANKS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	LOCATION						SEAD-13				
	SAMPLE DATE	12/06/93	01/26/94	12/07/93	12/15/93	12/16/93	12/17/93	01/06/94	01/20/94	01/22/94	01/23/94
	ES ID	TB12-6	TB12-8	TB12-7	TB12-15	TB12-18	TB12-17	TB1-6	TB1-20	TB1-22	TB1-23
	LAB ID	206275	209414	206422	207100	207032	207189	207953	209095	209262	209263
COMPOUND	UNITS										
VOLATILE ORGANICS											
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	10 U	17	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MTBE	ug/L	NS	NA	NS	NS	NS	NS	NS	NA	NA	NA

APPENDIX F

TENTATIVELY IDENTIFIED COMPOUNDS

SEAD-11

TENATIVELY IDENTIFIED COMPOUNDS
SEAD - 11

SDG FILE: temp\1E40386 DATE: MATRIX:
ES: SB113-6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113-6	141-78-	ACETIC ACID, ETHYL ESTER	7	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 7

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.1	123-42-2	2-Pentanone, 4-hydroxy-4-met	2300	NJ
B113.1	57-10-3	Hexadecanoic acid	180	NJ
B113.1	630-03-5	Nonacosane	290	NJ
B113.1	630-04-6	Hentriacontane	340	NJ

TOTAL UNKNOWN TICS: 4577
TOTAL TICS 7687

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.1RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4600	NJ
B113.1RE	630-03-5	Nonacosane	190	NJ
B113.1RE	630-04-6	Hentriacontane	160	NJ

TOTAL UNKNOWN TICS: 3000
TOTAL TICS 7950

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.2
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.2	123-42-2	2-Pentanone, 4-hydroxy-4-met	2100	NJ

TOTAL UNKNOWN TICS: 12138
TOTAL TICS 14238

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.2RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.2RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4900	NJ
		TOTAL UNKNOWN TICS:	3338	
		TOTAL TICS	8238	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.6
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.6	123-42-2	2-Pentanone, 4-hydroxy-4-met	1300	NJ
		TOTAL UNKNOWN TICS:	3672	
		TOTAL TICS	4972	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SB113.6RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B113.6RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	4500	NJ
		TOTAL UNKNOWN TICS:	2630	
		TOTAL TICS	7130	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1131
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1131	2531-84-2	Phenanthrene, 2-methyl-	14000	NJ
TP1131	203-64-5	4H-Cyclopenta[def]phenanthre	20000	NJ
TP1131	84-65-1	9,10-Anthracenedione	14000	NJ
TP1131	243-42-5	Benzo[b]naphtho[2,3-d]furan	20000	NJ
TP1131	238-84-6	11H-Benzo[a]fluorene	44000	NJ
TP1131	243-17-4	11H-Benzo[b]fluorene	19000	NJ
TP1131	243-46-9	Benzo[b]naphtho[2,3-d]thioph	17000	NJ
TP1131	192-97-2	Benzo[e]pyrene	10000	NJ
		TOTAL UNKNOWN TICS:	268000	
		TOTAL TICS	426000	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1132
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1132	2531-84-2	Phenanthrene, 2-methyl-	7400	NJ
TP1132	203-64-5	4H-Cyclopenta[def]phenanthre	11000	NJ
TP1132	243-42-5	Benzo[b]naphtho[2,3-d]furan	8700	NJ
TP1132	238-84-6	11H-Benzo[a]fluorene	24000	NJ
TP1132	243-17-4	11H-Benzo[b]fluorene	14000	NJ
TP1132	239-35-0	Benzo[b]naphtho[2,1-d]thioph	9300	NJ
TP1132	192-97-2	Benzo[e]pyrene	61000	NJ
		TOTAL UNKNOWN TICS:	199800	
		TOTAL TICS	335200	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1133
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1133	203-64-5	4H-Cyclopenta[def]phenanthre	16000	NJ
TP1133	243-42-5	Benzo[b]naphtho[2,3-d]furan	14000	NJ
TP1133	238-84-6	11H-Benzo[a]fluorene	35000	NJ
TP1133	243-17-4	11H-Benzo[b]fluorene	17000	NJ
TP1133	239-35-0	Benzo[b]naphtho[2,1-d]thioph	12000	NJ
TP1133	192-97-2	Benzo[e]pyrene	90000	NJ
		TOTAL UNKNOWN TICS:	192000	
		TOTAL TICS	376000	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1141
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1141	2531-84-2	Phenanthrene, 2-methyl-	1900	NJ
TP1141	203-64-5	4H-Cyclopenta[def]phenanthre	2800	NJ
TP1141	243-42-5	Benzo[b]naphtho[2,3-d]furan	2200	NJ
TP1141	1210-12-4	9-Anthracenecarbonitrile	1900	NJ
TP1141	238-84-6	11H-Benzo[a]fluorene	4600	NJ
TP1141	243-17-4	11H-Benzo[b]fluorene	4000	NJ
TP1141	239-35-0	Benzo[b]naphtho[2,1-d]thioph	2900	NJ
TP1141	192-97-2	Benzo[e]pyrene	22000	NJ
		TOTAL UNKNOWN TICS:	39000	
		TOTAL TICS	81300	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1142
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1142	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	NJ
TP1142	2531-84-2	Phenanthrene, 2-methyl-	480	NJ
TP1142	203-64-5	4H-Cyclopenta[def]phenanthre	820	NJ
TP1142	243-42-5	Benzo[b]naphtho[2,3-d]furan	500	NJ
TP1142	238-84-6	11H-Benzo[a]fluorene	1100	NJ
TP1142	243-17-4	11H-Benzo[b]fluorene	1100	NJ
TP1142	239-35-0	Benzo[b]naphtho[2,1-d]thioph	700	NJ
TP1142	192-97-2	Benzo[e]pyrene	5800	NJ
		TOTAL UNKNOWN TICS:	12120	
		TOTAL TICS	27820	

SDG FILE: temp\1F41203 DATE: MATRIX:
ES: TP1143
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1143	123-42-2	2-Pentanone, 4-hydroxy-4-met	2400	NJ
TP1143	630-03-5	Nonacosane	110	NJ
TP1143	192-97-2	Benzo[e]pyrene	220	NJ
TP1143	630-04-6	Hentriacontane	83	NJ
		TOTAL UNKNOWN TICS:	500	
		TOTAL TICS	3313	

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1111
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1111	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2900	BJ
TP1111	629-99-	PENTACOSANE	1900	JX
TP1111	638-68-	TRIACONTANE	1100	JX
		TOTAL UNKNOWN TICS:	23350	
		TOTAL TICS	29250	

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1112
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1112	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
TP1112	629-92-	NONADECANE	490	JX
TP1112	57-10-	HEXADECANOIC ACID	520	JX
TP1112	112-95-	EICOSANE	580	JX
TP1112	629-94-	HENEICOSANE	650	JX
TP1112	629-97-	DOCOSANE	660	JX
TP1112	638-67-	TRICOSANE	710	JX
TP1112	646-31-	TETRACOSANE	650	JX
TP1112	629-99-	PENTACOSANE	990	JX
TP1112	630-01-	HEXACOSANE	980	JX
TP1112	593-49-	HEPTACOSANE	1100	JX
TP1112	630-02-	OCTACOSANE	1300	JX
TP1112	630-03-	NONACOSANE	1500	JX
TP1112	638-68-	TRIACONTANE	1300	JX
TP1112	630-04-	HENTRIACONTANE	1300	JX
TP1112	544-85-	DOTRIACONTANE	810	JX
TP1112	630-05-	TRITRIACONTANE	550	JX

TOTAL UNKNOWN TICS: 6070
TOTAL TICS 23560

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1113
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1113	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3600	BJ
TP1113	630-02-	OCTACOSANE	92	JX
TP1113	630-03-	NONACOSANE	170	JX
TP1113	630-04-	HENTRIACONTANE	140	JX
TP1113	123-28-	PROPANOIC ACID, 3,3'-THIOBIS	250	BJ

TOTAL UNKNOWN TICS: 5688
TOTAL TICS 9940

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1122
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1122	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	36000	BJ
TP1122	132-65-	DIBENZOTHIOPHENE	42000	JX
TP1122	832-71-	PHENANTHRENE, 3-METHYL-	62000	JX
TP1122	2531-84-	PHENANTHRENE, 2-METHYL-	87000	JX
TP1122	613-12-	ANTHRACENE, 2-METHYL-	42000	JX
TP1122	203-64-	4H-CYCLOPENTA[DEF]PHENANTHRE	50000	JX
TP1122	832-69-	PHENANTHRENE, 1-METHYL-	59000	JX
TP1122	612-94-	NAPHTHALENE, 2-PHENYL-	51000	JX
TP1122	84-65-	9,10-ANTHRACENEDIONE	29000	JX
TP1122	243-42-	BENZO[B]NAPHTHO[2,3-D]FURAN	36000	JX
TP1122	238-84-	11H-BENZO[A]FLUORENE	0	JX
TP1122	243-17-	11H-BENZO[B]FLUORENE	68000	JX
TP1122	195-19-	BENZO[C]PHENANTHRENE	32000	JX
TP1122	192-97-	BENZO[E]PYRENE	94000	JX
TP1122	198-55-	PERYLENE	38000	JX

TOTAL UNKNOWN TICS: 271000
TOTAL TICS 997000

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1123
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1123	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	12000	BJ
TP1123	132-65-	DIBENZOTHIOPHENE	750	JX
TP1123	832-71-	PHENANTHRENE, 3-METHYL-	1300	JX
TP1123	2531-84-	PHENANTHRENE, 2-METHYL-	1600	JX
TP1123	613-12-	ANTHRACENE, 2-METHYL-	720	JX
TP1123	203-64-	4H-CYCLOPENTA[DEF]PHENANTHRE	3000	JX
TP1123	612-94-	NAPHTHALENE, 2-PHENYL-	950	JX
TP1123	84-65-	9,10-ANTHRACENEDIONE	1000	JX
TP1123	243-42-	BENZO[B]NAPHTHO[2,3-D]FURAN	780	JX
TP1123	238-84-	11H-BENZO[A]FLUORENE	2300	JX
TP1123	243-17-	11H-BENZO[B]FLUORENE	1300	JX
TP1123	239-35-	BENZO[B]NAPHTHO[2,1-D]THIOPH	720	JX
TP1123	195-19-	BENZO[C]PHENANTHRENE	1100	JX
TP1123	192-97-	BENZO[E]PYRENE	2300	JX
TP1123	198-55-	PERYLENE	780	JX

TOTAL UNKNOWN TICS: 24990
TOTAL TICS 55590

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1112
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1112	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3400	BJ
TP1112	629-92-	NONADECANE	490	JX
TP1112	57-10-	HEXADECANOIC ACID	520	JX
TP1112	112-95-	EICOSANE	580	JX
TP1112	629-94-	HENEICOSANE	650	JX
TP1112	629-97-	DOCOSANE	660	JX
TP1112	638-67-	TRICOSANE	710	JX
TP1112	646-31-	TETRACOSANE	650	JX
TP1112	629-99-	PENTACOSANE	990	JX
TP1112	630-01-	HEXACOSANE	980	JX
TP1112	593-49-	HEPTACOSANE	1100	JX
TP1112	630-02-	OCTACOSANE	1300	JX
TP1112	630-03-	NONACOSANE	1500	JX
TP1112	638-68-	TRIACONTANE	1300	JX
TP1112	630-04-	HENTRIACONTANE	1300	JX
TP1112	544-85-	DOTRIACONTANE	810	JX
TP1112	630-05-	TRITRIACONTANE	550	JX

TOTAL UNKNOWN TICS: 6070
TOTAL TICS 23560

SDG FILE: temp\1F40907 DATE: MATRIX:
ES: TP1113
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1113	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3600	BJ
TP1113	630-02-	OCTACOSANE	92	JX
TP1113	630-03-	NONACOSANE	170	JX
TP1113	630-04-	HENTRIACONTANE	140	JX
TP1113	123-28-	PROPANOIC ACID, 3,3'-THIOBIS	250	BJ

TOTAL UNKNOWN TICS: 5688
TOTAL TICS 9940

SDG FILE: temp\1F40878 DATE: MATRIX:
ES: TP1121
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP1121	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	13000	BJ
TP1121	2531-84-	PHENANTHRENE, 2-METHYL-	890	JX
TP1121	203-64-	4H-CYCLOPENTA[DEF]PHENANTHRE	1600	JX
TP1121	84-65-	9,10-ANTHRACENEDIONE	710	JX
TP1121	243-42-	BENZO[B]NAPHTHO[2,3-D]FURAN	700	JX
TP1121	238-84-	11H-BENZO[A]FLUORENE	1700	JX
TP1121	243-17-	11H-BENZO[B]FLUORENE	820	JX
TP1121	239-35-	BENZO[B]NAPHTO[2,1-D]THIOPHE	820	JX
TP1121	195-19-	BENZO[C]PHENANTHRENE	690	JX
TP1121	27208-37-	CYCLOPENTA[CD]PYRENE	800	JX
TP1121	630-03-	NONACOSANE	1900	JX
TP1121	192-97-	BENZO[E]PYRENE	3800	JX
TP1121	198-55-	PERYLENE	1200	JX
TP1121	630-04-	HENTRIACONTANE	1800	JX

TOTAL UNKNOWN TICS: 6810
TOTAL TICS 37240

SDG FILE: temp\1F40798 DATE: MATRIX:
ES: MW114
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW114	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	12	BJ
MW114	57-10-	HEXADECANOIC ACID	9	BJ
MW114	630-03-	NONACOSANE	4	JX

TOTAL UNKNOWN TICS: 69
TOTAL TICS 94

SEAD-13

TENATIVELY IDENTIFIED COMPOUNDS
SEAD - 13

SDG FILE: temp\1E41202 DATE: MATRIX:
ES: SB1381
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
		TOTAL UNKNOWN TICS:	7	
		TOTAL TICS	7	

SDG FILE: temp\1E40654 DATE: MATRIX:
ES: SB132-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB132-1	75-28-	PROPANE, 2-METHYL-	23	JX
SB132-1	78-78-	BUTANE, 2-METHYL-	15	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	38	

SDG FILE: temp\1E40654 DATE: MATRIX:
ES: SB132-1RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB132-1RE	75-28-	PROPANE, 2-METHYL-	17	JX
SB132-1RE	78-78-	BUTANE, 2-METHYL-	15	JX
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	32	

SDG FILE: temp\1E41315 DATE: MATRIX:
ES: SB1396
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1396	556-67-2	Cyclotetrasiloxane, octameth	9	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	9	

SDG FILE: temp\1E41315 DATE: MATRIX:
ES: SB1397RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1397RE	124-38-9	Carbon dioxide	55	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	55	

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB13710
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B13710	123-42-2	2-Pentanone, 4-hydroxy-4-met	9300	NJ
B13710	119-36-8	Methyl Salicylate w/unknown	100	NJ
B13710	57-10-3	Hexadecanoic acid	200	NJ
B13710	630-03-5	Nonacosane	310	NJ
B13710	630-04-6	Hentriacontane	230	NJ
		TOTAL UNKNOWN TICS:	4010	
		TOTAL TICS	14150	

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB135-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B135-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	9100	BJ
B135-1	57-10-	HEXADECANOIC ACID	230	JX
B135-1	646-31-	TETRACOSANE	86	JX
B135-1	629-99-	PENTACOSANE	270	JX
B135-1	630-01-	HEXACOSANE	340	JX
B135-1	593-49-	HEPTACOSANE	620	JX
B135-1	630-02-	OCTACOSANE	400	JX
B135-1	630-03-	NONACOSANE	1600	JX
B135-1	638-68-	TRIACONTANE	380	JX
B135-1	630-04-	HENTRIACONTANE	440	JX
		TOTAL UNKNOWN TICS:	1515	
		TOTAL TICS	14981	

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB135-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B135-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	9600	BJ
B135-3	629-99-	PENTACOSANE	110	JX
B135-3	630-01-	HEXACOSANE	240	JX
B135-3	593-49-	HEPTACOSANE	340	JX
B135-3	630-02-	OCTACOSANE	340	JX
B135-3	630-03-	NONACOSANE	310	JX
B135-3	638-68-	TRIACONTANE	160	JX
B135-3	630-04-	HENTRIACONTANE	110	JX

TOTAL UNKNOWN TICS: 88
TOTAL TICS 11298

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB135-5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B135-5	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2900	BJ
B135-5	57-10-	HEXADECANOIC ACID	220	JX
B135-5	646-31-	TETRACOSANE	87	JX
B135-5	629-99-	PENTACOSANE	220	JX
B135-5	630-01-	HEXACOSANE	360	JX
B135-5	593-49-	HEPTACOSANE	490	JX
B135-5	630-02-	OCTACOSANE	500	JX
B135-5	630-03-	NONACOSANE	440	JX
B135-5	638-68-	TRIACONTANE	230	JX
B135-5	630-04-	HENTRIACONTANE	160	JX
B135-5	123-28-	PROPANOIC ACID, 3,3'-THIOBIS	80	BJ

TOTAL UNKNOWN TICS: 380
TOTAL TICS 6067

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB13101
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B13101	123-42-2	2-Pentanone, 4-hydroxy-4-met	19000	NJ
B13101	92-52-4	Biphenyl	95000	NJ
B13101	101-84-8	Diphenyl ether	40000	NJ
B13101	115-38-8	Mephobarbital	34000	NJ
B13101	57-10-3	Hexadecanoic acid	17000	NJ
B13101	50-06-6	Phenobarbital	27000	NJ
B13101	593-49-7	Heptacosane	27000	NJ
B13101	630-02-4	Octacosane	23000	NJ

TOTAL UNKNOWN TICS: 448600
TOTAL TICS 730600

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB131010
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B131010	123-42-2	2-Pentanone, 4-hydroxy-4-met	6100	NJ
B131010	593-49-7	Heptacosane	98	NJ
B131010	630-03-5	Nonacosane	430	NJ
B131010	630-04-6	Hentriacontane	350	NJ
B131010	630-05-7	Tritriacontane	100	NJ

TOTAL UNKNOWN TICS: 2737
TOTAL TICS 9815

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB13104
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B13104	123-42-2	2-Pentanone, 4-hydroxy-4-met	6200	NJ

TOTAL UNKNOWN TICS: 5494
TOTAL TICS 11694

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB13105
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
B13105	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ

TOTAL UNKNOWN TICS: 1213
TOTAL TICS 6713

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1311
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1311	123-42-2	2-Pentanone, 4-hydroxy-4-met	7500	NJ
SB1311	57-10-3	Hexadecanoic acid	220	NJ
SB1311	630-03-5	Nonacosane	380	NJ
SB1311	630-04-6	Hentriacontane	340	NJ

TOTAL UNKNOWN TICS: 5067
TOTAL TICS 13507

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1313
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1313	123-42-2	2-Pentanone, 4-hydroxy-4-met	8400	NJ
SB1313	630-03-5	Nonacosane w/phthalate	85	NJ

TOTAL UNKNOWN TICS: 4886
TOTAL TICS 13371

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1314
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1314	123-42-2	2-Pentanone, 4-hydroxy-4-met	7900	NJ
SB1314	630-03-5	Nonacosane w/phthalate	81	NJ

TOTAL UNKNOWN TICS: 7318
TOTAL TICS 15299

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1331
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1331	123-42-2	2-Pentanone, 4-hydroxy-4-met	10000	NJ
SB1331	57-10-3	Hexadecanoic acid	130	NJ
SB1331	630-03-5	Nonacosane	110	NJ

TOTAL UNKNOWN TICS: 10200
TOTAL TICS 20440

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1333
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1333	123-42-2	2-Pentanone, 4-hydroxy-4-met	8500	NJ
SB1333	630-03-5	Nonacosane	420	NJ
SB1333	630-04-6	Hentriacontane	94	NJ

TOTAL UNKNOWN TICS: 2712
TOTAL TICS 11726

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1335
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1335	123-42-2	2-Pentanone, 4-hydroxy-4-met	8300	NJ
SB1335	630-03-5	Nonacosane w/phthalate	77	NJ

TOTAL UNKNOWN TICS: 3259
TOTAL TICS 11636

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1371
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1371	123-42-2	2-Pentanone, 4-hydroxy-4-met	8700	NJ
SB1371	57-10-3	Hexadecanoic acid	200	NJ
SB1371	593-49-7	Heptacosane	90	NJ
SB1371	630-03-5	Nonacosane	510	NJ
SB1371	630-04-6	Hentriacontane	210	NJ

TOTAL UNKNOWN TICS: 2591
TOTAL TICS 12301

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1372
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1372	123-42-2	2-Pentanone, 4-hydroxy-4-met	9500	NJ

TOTAL UNKNOWN TICS: 3083
TOTAL TICS 12583

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1374
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1374	123-42-2	2-Pentanone, 4-hydroxy-4-met	9300	NJ

TOTAL UNKNOWN TICS: 8523
TOTAL TICS 17823

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1381
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1381	123-42-2	2-Pentanone, 4-hydroxy-4-met	9200	NJ
SB1381	544-63-8	Tetradecanoic acid	200	NJ
SB1381	57-10-3	Hexadecanoic acid	350	NJ
SB1381	629-99-2	Pentacosane	97	NJ
SB1381	593-49-7	Heptacosane	220	NJ
SB1381	630-03-5	Nonacosane	1600	NJ
SB1381	630-04-6	Hentriacontane	1200	NJ
SB1381	630-05-7	Tritriacontane	200	NJ

TOTAL UNKNOWN TICS: 4906
TOTAL TICS 17973

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1382
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1382	123-42-2	2-Pentanone, 4-hydroxy-4-met	9200	NJ
SB1382	638-67-5	Tricosane	140	NJ
SB1382	630-03-5	Nonacosane	140	NJ
SB1382	630-04-6	Hentriacontane	110	NJ

TOTAL UNKNOWN TICS: 2168
TOTAL TICS 11758

SDG FILE: temp\1F41202 DATE: MATRIX:
ES: SB1383
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1383	123-42-2	2-Pentanone, 4-hydroxy-4-met	8600	NJ

TOTAL UNKNOWN TICS: 3069
TOTAL TICS 11669

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB132-1
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB132-1	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5400	BJ
SB132-1	57-10-	HEXADECANOIC ACID	150	JX
SB132-1	629-99-	PENTACOSANE	240	JX
SB132-1	630-01-	HEXACOSANE	320	JX
SB132-1	593-49-	HEPTACOSANE	470	JX
SB132-1	630-02-	OCTACOSANE	370	JX
SB132-1	630-03-	NONACOSANE	700	JX
SB132-1	638-68-	TRIACONTANE	300	JX
SB132-1	630-04-	HENTRIACONTANE	410	JX

TOTAL UNKNOWN TICS: 2230
TOTAL TICS 10590

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB132-3
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB132-3	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5400	BJ
SB132-3	629-99-	PENTACOSANE	110	JX
SB132-3	630-01-	HEXACOSANE	180	JX
SB132-3	593-49-	HEPTACOSANE	210	JX
SB132-3	630-02-	OCTACOSANE	190	JX
SB132-3	630-03-	NONACOSANE	280	JX
SB132-3	638-68-	TRIACONTANE W/ UNKNOWN	170	JX
SB132-3	630-04-	HENTRIACONTANE W/ UNKNOWN	170	JX

TOTAL UNKNOWN TICS: 420
TOTAL TICS 7130

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: SB132-5
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB132-5	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4200	BJ
SB132-5	629-78-	HEPTADECANE	110	JX
SB132-5	629-94-	HENEICOSANE	82	JX
SB132-5	629-97-	DOCOSANE	78	JX
SB132-5	638-67-	TRICOSANE	120	JX
SB132-5	629-99-	PENTACOSANE	280	JX
SB132-5	630-01-	HEXACOSANE	350	JX
SB132-5	593-49-	HEPTACOSANE	470	JX
SB132-5	630-02-	OCTACOSANE	400	JX
SB132-5	630-03-	NONACOSANE	620	JX
SB132-5	638-68-	TRIACONTANE	290	JX

TOTAL UNKNOWN TICS: 572
TOTAL TICS 7572

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB131010
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
131010	123-42-2	2-Pentanone, 4-hydroxy-4-met	6100	NJ
131010	593-49-7	Heptacosane	98	NJ
131010	630-03-5	Nonacosane	430	NJ
131010	630-04-6	Hentriacontane	350	NJ
131010	630-05-7	Tritriacontane	100	NJ

TOTAL UNKNOWN TICS: 2737
TOTAL TICS 9815

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1341
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1341	123-42-2	2-Pentanone, 4-hydroxy-4-met	4800	NJ
SB1341	57-10-3	Hexadecanoic acid	290	NJ
SB1341	593-49-7	Heptacosane	100	NJ
SB1341	630-03-5	Nonacosane	790	NJ
SB1341	638-68-6	Triacontane	93	NJ
SB1341	630-04-6	Hentriacontane	900	NJ
SB1341	630-05-7	Tritriacontane	180	NJ

TOTAL UNKNOWN TICS: 790
TOTAL TICS 7943

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1342
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1342	123-42-2	2-Pentanone, 4-hydroxy-4-met	4700	NJ

TOTAL UNKNOWN TICS: 2236
TOTAL TICS 6936

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1343
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1343	123-42-2	2-Pentanone, 4-hydroxy-4-met	4200	NJ

TOTAL UNKNOWN TICS: 2503
TOTAL TICS 6703

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1361
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1361	123-42-2	2-Pentanone, 4-hydroxy-4-met	4400	NJ
SB1361	57-10-3	Hexadecanoic acid	180	NJ
SB1361	593-49-7	Heptacosane	130	NJ
SB1361	630-03-5	Nonacosane	580	NJ
SB1361	630-04-6	Hentriacontane	490	NJ
SB1361	630-05-7	Tritriacontane	170	NJ

TOTAL UNKNOWN TICS: 650
TOTAL TICS 6600

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1363
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1363	123-42-2	2-Pentanone, 4-hydroxy-4-met	5800	NJ

TOTAL UNKNOWN TICS: 1484
TOTAL TICS 7284

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1364
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1364	123-42-2	2-Pentanone, 4-hydroxy-4-met	4700	NJ

TOTAL UNKNOWN TICS: 1184
TOTAL TICS 5884

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1391
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1391	123-42-2	2-Pentanone, 4-hydroxy-4-met	5300	NJ
SB1391	57-10-3	Hexadecanoic acid	240	NJ
SB1391	593-49-7	Heptacosane	98	NJ
SB1391	630-03-5	Nonacosane	570	NJ
SB1391	630-04-6	Hentriacontane	420	NJ

TOTAL UNKNOWN TICS: 2456
TOTAL TICS 9084

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1391R
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1391R	123-42-2	2-Pentanone, 4-hydroxy-4-met	17	NJ
		TOTAL UNKNOWN TICS:	0	
		TOTAL TICS	17	

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1394
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1394	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	NJ
		TOTAL UNKNOWN TICS:	6016	
		TOTAL TICS	11216	

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1396
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1396	123-42-2	2-Pentanone, 4-hydroxy-4-met	5100	NJ
		TOTAL UNKNOWN TICS:	5280	
		TOTAL TICS	10380	

SDG FILE: temp\1F41315 DATE: MATRIX:
ES: SB1397
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SB1397	123-42-2	2-Pentanone, 4-hydroxy-4-met	5200	NJ
SB1397	57-10-3	Hexadecanoic acid	120	NJ
SB1397	630-03-5	Nonacosane	240	NJ
SB1397	630-04-6	Hentriacontane	180	NJ
		TOTAL UNKNOWN TICS:	1193	
		TOTAL TICS	6933	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SD131
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD131	123-42-2	2-Pentanone, 4-hydroxy-4-met	17000	NJ
SD131	593-49-7	Heptacosane	880	NJ
SD131	630-03-5	Nonacosane	4100	NJ
SD131	630-04-6	Hentriacontane	3900	NJ
SD131	630-05-7	Tritriacontane	960	NJ
		TOTAL UNKNOWN TICS:	19660	
		TOTAL TICS	46500	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SD132
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD132	123-42-2	2-Pentanone, 4-hydroxy-4-met	17000	NJ
SD132	57-10-3	Hexadecanoic acid	1100	NJ
SD132	638-67-5	Tricosane	1200	NJ
SD132	629-99-2	Pentacosane	1500	NJ
SD132	1058-61-3	Stigmast-4-en-3-one	1100	NJ
SD132	593-49-7	Heptacosane	2700	NJ
SD132	630-03-5	Nonacosane	9700	NJ
SD132	630-04-6	Hentriacontane	3700	NJ
SD132	59-02-9	Vitamin E	1200	NJ
		TOTAL UNKNOWN TICS:	16370	
		TOTAL TICS	55570	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SD133
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD133	123-42-2	2-Pentanone, 4-hydroxy-4-met	37000	NJ
SD133	638-67-5	Tricosane	860	NJ
SD133	593-49-7	Heptacosane	810	NJ
SD133	630-03-5	Nonacosane	3600	NJ
SD133	630-04-6	Hentriacontane	3200	NJ
SD133	630-05-7	Tritriacontane	700	NJ
		TOTAL UNKNOWN TICS:	17350	
		TOTAL TICS	63520	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SD134
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SD134	123-42-2	2-Pentanone, 4-hydroxy-4-met	14000	NJ
SD134	593-49-7	Heptacosane	520	NJ
SD134	630-03-5	Nonacosane	2700	NJ
SD134	638-68-6	Triacontane	340	NJ
SD134	630-04-6	Hentriacontane	2700	NJ
SD134	630-05-7	Tritriacontane	670	NJ

TOTAL UNKNOWN TICS: 17360
TOTAL TICS 38290

SDG FILE: temp\1F40798 DATE: MATRIX:
ES: MW132
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
MW132	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	13	BJ
MW132	629-99-	PENTACOSANE	3	JX
MW132	630-01-	HEXACOSANE	5	JX
MW132	791-28-	PHOSPHINE OXIDE, TRIPHENYL-	7	JX
MW132	593-49-	HEPTACOSANE	7	JX
MW132	630-02-	OCTACOSANE	6	JX
MW132	630-03-	NONACOSANE	8	JX
MW132	638-68-	TRIACONTANE	5	JX
MW132	630-04-	HENTRIACONTANE	3	JX

TOTAL UNKNOWN TICS: 13
TOTAL TICS 70

SDG FILE: temp\1F40477 DATE: MATRIX:
ES: SW131
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW131	123-42-2	2-Pentanone, 4-hydroxy-4-met	14	NJ
SW131	630-03-5	Nonacosane	3	NJ

TOTAL UNKNOWN TICS: 3
TOTAL TICS 20

SDG FILE: temp\1F40477 DATE: MATRIX:
ES: SW132
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW132	123-42-2	2-Pentanone, 4-hydroxy-4-met	18	NJ
SW132	791-28-6	Phosphine oxide, triphenyl-	2	NJ
SW132	630-03-5	Nonacosane	4	NJ

TOTAL UNKNOWN TICS: 2
TOTAL TICS 26

SDG FILE: temp\1F40477 DATE: MATRIX:
ES: SW133
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SW133	123-42-2	2-Pentanone, 4-hydroxy-4-met	20	NJ

TOTAL UNKNOWN TICS: 4
TOTAL TICS 24

SEAD-57

TENATIVELY IDENTIFIED COMPOUNDS
SEAD - 57

SDG FILE: temp\1E41202 DATE: MATRIX:
ES: SS571
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS571	111-84-2	Nonane	38	NJ

TOTAL UNKNOWN TICS: 0
TOTAL TICS 38

SDG FILE: temp\1E40386 DATE: MATRIX:
ES: SS577
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 21
TOTAL TICS 21

SDG FILE: temp\1E40386 DATE: MATRIX:
ES: SS578
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.

TOTAL UNKNOWN TICS: 12
TOTAL TICS 12

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS571
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS571	123-42-2	2-Pentanone, 4-hydroxy-4-met	7200	NJ
SS571	57-10-3	Hexadecanoic acid	180	NJ
SS571	593-49-7	Heptacosane	120	NJ
SS571	630-03-5	Nonacosane	1400	NJ
SS571	638-68-6	Triacontane	120	NJ
SS571	630-04-6	Hentriacontane	1300	NJ
SS571	630-05-7	Tritriacontane	330	NJ

TOTAL UNKNOWN TICS: 2120
TOTAL TICS 12770

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS572
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS572	123-42-2	2-Pentanone, 4-hydroxy-4-met	6500	NJ
SS572	630-03-5	Nonacosane	560	NJ
SS572	630-04-6	Hentriacontane	520	NJ
SS572	630-05-7	Tritriacontane	140	NJ
		TOTAL UNKNOWN TICS:	291	
		TOTAL TICS	8011	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS573
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS573	123-42-2	2-Pentanone, 4-hydroxy-4-met	6600	NJ
SS573	593-49-7	Heptacosane	820	NJ
SS573	630-03-5	Nonacosane	810	NJ
SS573	630-04-6	Hentriacontane	230	NJ
		TOTAL UNKNOWN TICS:	536	
		TOTAL TICS	8996	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS574
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS574	123-42-2	2-Pentanone, 4-hydroxy-4-met	7100	NJ
SS574	57-10-3	Hexadecanoic acid	110	NJ
SS574	593-49-7	Heptacosane	230	NJ
SS574	630-03-5	Nonacosane	1400	NJ
SS574	638-68-6	Triacontane	130	NJ
SS574	630-04-6	Hentriacontane	1300	NJ
SS574	630-05-7	Tritriacontane	380	NJ
		TOTAL UNKNOWN TICS:	2308	
		TOTAL TICS	12958	

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS575
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS575	123-42-2	2-Pentanone, 4-hydroxy-4-met	7500	NJ
SS575	57-10-3	Hexadecanoic acid	140	NJ
SS575	593-49-7	Heptacosane	220	NJ
SS575	630-03-5	Nonacosane	2200	NJ
SS575	638-68-6	Triacontane w/polycyclic com	330	NJ
SS575	630-04-6	Hentriacontane	2100	NJ
SS575	630-05-7	Tritriacontane	560	NJ

TOTAL UNKNOWN TICS: 2820
TOTAL TICS 15870

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS576
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS576	123-42-2	2-Pentanone, 4-hydroxy-4-met	6700	NJ
SS576	57-10-3	Hexadecanoic acid	230	NJ
SS576	593-49-7	Heptacosane	140	NJ
SS576	630-03-5	Nonacosane	1500	NJ
SS576	638-68-6	Triacontane	170	NJ
SS576	630-04-6	Hentriacontane	2200	NJ
SS576	630-05-7	Tritriacontane	560	NJ

TOTAL UNKNOWN TICS: 2997
TOTAL TICS 14497

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS577
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS577	123-42-2	2-Pentanone, 4-hydroxy-4-met	6200	NJ
SS577	91-64-5	2H-1-Benzopyran-2-one	180	NJ
SS577	57-10-3	Hexadecanoic acid	90	NJ
SS577	593-49-7	Heptacosane	85	NJ
SS577	630-03-5	Nonacosane	900	NJ
SS577	630-04-6	Hentriacontane	920	NJ
SS577	630-05-7	Tritriacontane	180	NJ

TOTAL UNKNOWN TICS: 2817
TOTAL TICS 11372

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS578
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS578	123-42-2	2-Pentanone, 4-hydroxy-4-met	6200	NJ
SS578	122-34-9	1,3,5-Triazine-2,4-diamine,	86	NJ
SS578	593-49-7	Heptacosane	78	NJ
SS578	630-03-5	Nonacosane	700	NJ
SS578	638-68-6	Triacontane	100	NJ
SS578	630-04-6	Hentriacontane	850	NJ
SS578	630-05-7	Tritriacontane	190	NJ

TOTAL UNKNOWN TICS: 1056
TOTAL TICS 9260

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS578RE
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS578RE	123-42-2	2-Pentanone, 4-hydroxy-4-met	8800	NJ
SS578RE	122-34-9	1,3,5-Triazine-2,4-diamine,	120	NJ
SS578RE	593-49-7	Heptacosane	92	NJ
SS578RE	630-03-5	Nonacosane	950	NJ
SS578RE	638-68-6	Triacontane	120	NJ
SS578RE	630-04-6	Hentriacontane	1100	NJ
SS578RE	630-05-7	Tritriacontane	240	NJ

TOTAL UNKNOWN TICS: 3983
TOTAL TICS 15405

SDG FILE: temp\1F40386 DATE: MATRIX:
ES: SS579
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
SS579	123-42-2	2-Pentanone, 4-hydroxy-4-met	5500	NJ
SS579	629-78-7	Heptadecane	84	NJ
SS579	122-34-9	1,3,5-Triazine-2,4-diamine,	650	NJ
SS579	629-92-5	Nonadecane w/unknown	150	NJ
SS579	629-94-7	Heneicosane w/unknown	90	NJ
SS579	629-99-2	Pentacosane	110	NJ
SS579	593-49-7	Heptacosane	100	NJ
SS579	630-03-5	Nonacosane	870	NJ
SS579	638-68-6	Triacontane	180	NJ
SS579	630-04-6	Hentriacontane	1100	NJ
SS579	630-05-7	Tritriacontane	220	NJ

TOTAL UNKNOWN TICS: 977
TOTAL TICS 10031

SDG FILE: temp\1E41115 DATE: MATRIX:
ES: TP576
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP576	60-29-	ETHYL ETHER	6	JX

TOTAL UNKNOWN TICS: 0
TOTAL TICS 6

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP5710
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP5710	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2600	BJ
TP5710	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	160	JX
TP5710	629-97-	DOCOSANE	78	JX
TP5710	638-67-	TRICOSANE	240	JX
TP5710	646-31-	TETRACOSANE	390	JX
TP5710	629-99-	PENTACOSANE	560	JX
TP5710	630-01-	HEXACOSANE	570	JX
TP5710	593-49-	HEPTACOSANE	600	JX
TP5710	630-02-	OCTACOSANE	460	JX
TP5710	630-03-	NONACOSANE	510	JX
TP5710	638-68-	TRIACONTANE	260	JX
TP5710	630-04-	HENTRIACONTANE	200	JX

TOTAL UNKNOWN TICS: 350
TOTAL TICS 6978

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP572
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP572	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	12000	BJ
TP572	1120-21-	UNDECANE	2700	JX
TP572	112-40-	DODECANE	3400	JX
TP572	629-50-	TRIDECANE	4700	JX
TP572	629-59-	TETRADECANE	5100	JX
TP572	629-62-	PENTADECANE	5900	JX
TP572	544-76-	HEXADECANE	5900	JX
TP572	629-78-	HEPTADECANE	6000	JX
TP572	1921-70-	PENTADECANE, 2,6,10,14-TETRA	3800	JX
TP572	593-45-	OCTADECANE	5200	JX
TP572	638-36-	HEXADECANE, 2,6,10,14-TETRAM	2000	JX
TP572	629-92-	NONADECANE	4400	JX
TP572	112-95-	EICOSANE	3500	JX
TP572	629-94-	HENEICOSANE	2800	JX
TP572	629-97-	DOCOSANE	1900	JX
TP572	638-67-	TRICOSANE	1300	JX

TOTAL UNKNOWN TICS: 8300
TOTAL TICS 78900

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP575
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP575	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	4400	BJ
TP575	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	92	JX
TP575	57-10-	HEXADECANOIC ACID	110	JX
TP575	638-67-	TRICOSANE	200	JX
TP575	646-31-	TETRACOSANE	320	JX
TP575	629-99-	PENTACOSANE	440	JX
TP575	630-01-	HEXACOSANE	470	JX
TP575	593-49-	HEPTACOSANE	560	JX
TP575	630-02-	OCTACOSANE	390	JX
TP575	630-03-	NONACOSANE	570	JX
TP575	638-68-	TRIACONTANE	220	JX
TP575	630-04-	HENTRIACONTANE	270	JX

TOTAL UNKNOWN TICS: 522
TOTAL TICS 8564

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP576
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP576	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	2200	BJ
TP576	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	140	JX
TP576	57-10-	HEXADECANOIC ACID	100	JX
TP576	629-97-	DOCOSANE	100	JX
TP576	638-67-	TRICOSANE	300	JX
TP576	646-31-	TETRACOSANE	520	JX
TP576	629-99-	PENTACOSANE	690	JX
TP576	630-01-	HEXACOSANE	710	JX
TP576	593-49-	HEPTACOSANE	760	JX
TP576	506-51-	1-TETRACOSANOL	110	JX
TP576	630-02-	OCTACOSANE	570	JX
TP576	630-03-	NONACOSANE	740	JX
TP576	638-68-	TRIACONTANE	320	JX
TP576	630-04-	HENTRIACONTANE	340	JX
TP576	544-85-	DOTRIACONTANE	96	JX

TOTAL UNKNOWN TICS: 197
TOTAL TICS 7893

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP577
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP577	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3100	BJ
TP577	638-67-	TRICOSANE	130	JX
TP577	646-31-	TETRACOSANE	210	JX
TP577	629-99-	PENTACOSANE	290	JX
TP577	630-01-	HEXACOSANE	320	JX
TP577	593-49-	HEPTACOSANE	340	JX
TP577	630-02-	OCTACOSANE	250	JX
TP577	630-03-	NONACOSANE	310	JX
TP577	638-68-	TRIACONTANE	140	JX
TP577	630-04-	HENTRIACONTANE	140	JX

TOTAL UNKNOWN TICS: 270
TOTAL TICS 5500

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP578
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP578	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3500	BJ
TP578	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	220	JX
TP578	646-31-	TETRACOSANE W/ UNKNOWN	100	JX
TP578	629-99-	PENTACOSANE	140	JX
TP578	630-01-	HEXACOSANE	140	JX
TP578	593-49-	HEPTACOSANE	150	JX
TP578	630-02-	OCTACOSANE	120	JX
TP578	630-03-	NONACOSANE	160	JX
TP578	630-04-	HENTRIACONTANE	77	JX

TOTAL UNKNOWN TICS: 320
TOTAL TICS 4927

SDG FILE: temp\1F41115 DATE: MATRIX:
ES: TP579 LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP579	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	3500	BJ
TP579	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	140	JX
TP579	638-67-	TRICOSANE	99	JX
TP579	646-31-	TETRACOSANE	170	JX
TP579	629-99-	PENTACOSANE	210	JX
TP579	630-01-	HEXACOSANE	220	JX
TP579	593-49-	HEPTACOSANE	240	JX
TP579	630-02-	OCTACOSANE	180	JX
TP579	630-03-	NONACOSANE	230	JX
TP579	638-68-	TRIACONTANE	110	JX
TP579	630-04-	HENTRIACONTANE	110	JX

TOTAL UNKNOWN TICS: 380
TOTAL TICS 5589

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: TP571
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
P571	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5400	BJ
P571	593-49-	HEPTACOSANE	99	JX
P571	630-02-	OCTACOSANE	95	JX
P571	630-03-	NONACOSANE	150	JX
P571	630-04-	HENTRIACONTANE	81	JX
P571	123-28-	PROPANOIC ACID, 3,3'-THIOBIS	73	BJ

TOTAL UNKNOWN TICS: 100
TOTAL TICS 5998

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: TP5711
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
P5711	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	7300	BJ
P5711	593-49-	HEPTACOSANE	82	JX
P5711	630-03-	NONACOSANE	190	JX
P5711	630-04-	HENTRIACONTANE	200	JX
P5711	123-28-	PROPANOIC ACID, 3,3'-THIOBIS	95	BJ

TOTAL UNKNOWN TICS: 360
TOTAL TICS 8227

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: TP573
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP573	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	8500	BJ
TP573	629-62-	PENTADECANE	79	JX
TP573	544-76-	HEXADECANE	87	JX
TP573	74381-40-	PROPANOIC ACID, 2-METHYL-, 1	79	JX
TP573	629-78-	HEPTADECANE	110	JX
TP573	593-45-	OCTADECANE	110	JX
TP573	629-92-	NONADECANE	110	JX
TP573	57-10-	HEXADECANOIC ACID	110	JX
TP573	112-95-	EICOSANE	100	JX
TP573	629-99-	PENTACOSANE W/ 1-DOCOSANOL	130	JX
TP573	506-51-	1-TETRACOSANOL	120	JX
TP573	630-03-	NONACOSANE	460	JX
TP573	506-52-	1-HEXACOSANOL	390	JX
TP573	630-04-	HENTRIACONTANE	390	JX

TOTAL UNKNOWN TICS: 420
TOTAL TICS 11195

SDG FILE: temp\1F40654 DATE: MATRIX:
ES: TP574
LAB:

ESID	CAS NO	COMPOUND	RESULT	QUAL.
TP574	123-42-	2-PENTANONE, 4-HYDROXY-4-MET	5900	BJ
TP574	661-19-	1-DOCOSANOL W/ PENTACOSANE	140	JX
TP574	593-49-	HEPTACOSANE	82	JX
TP574	506-51-	1-TETRACOSANOL	140	JX
TP574	630-03-	NONACOSANE	300	JX
TP574	506-52-	1-HEXACOSANOL	220	JX
TP574	630-04-	HENTRIACONTANE	270	JX
		TOTAL UNKNOWN TICS:	357	
		TOTAL TICS	7409	

APPENDIX G

CONTRACT REQUIRED QUANTITATION LIMITS

TABLE C-2
PARAMETER LIST FOR INORGANIC AND ORGANIC ANALYSES

I. Soil and Sediment Analyses	Preparation Method	Analytical Method	Reporting Limits (ug/Kg)
A. Inorganics (TAL)			
i. Aluminum	NYSDEC CLP	NYSDEC CLP	20,000
ii. Antimony	NYSDEC CLP	NYSDEC CLP	6,000
iii. Arsenic	NYSDEC CLP	NYSDEC CLP	1,000
iv. Barium	NYSDEC CLP	NYSDEC CLP	20,000
v. Beryllium	NYSDEC CLP	NYSDEC CLP	500
vi. Cadmium	NYSDEC CLP	NYSDEC CLP	500
vii. Calcium	NYSDEC CLP	NYSDEC CLP	500,000
viii. Chromium	NYSDEC CLP	NYSDEC CLP	1,000
ix. Cobalt	NYSDEC CLP	NYSDEC CLP	5,000
x. Copper	NYSDEC CLP	NYSDEC CLP	2,500
xi. Iron	NYSDEC CLP	NYSDEC CLP	10,000
xii. Lead	NYSDEC CLP	NYSDEC CLP	300
xiii. Magnesium	NYSDEC CLP	NYSDEC CLP	500,000
xiv. Manganese	NYSDEC CLP	NYSDEC CLP	1,500
xv. Mercury	NYSDEC CLP	NYSDEC CLP	20
xvi. Nickel	NYSDEC CLP	NYSDEC CLP	4,000
xvii. Potassium	NYSDEC CLP	NYSDEC CLP	500,000
xviii. Selenium	NYSDEC CLP	NYSDEC CLP	500
xix. Silver	NYSDEC CLP	NYSDEC CLP	1,000
xx. Sodium	NYSDEC CLP	NYSDEC CLP	500,000
xxi. Thallium	NYSDEC CLP	NYSDEC CLP	1,000
xxii. Vanadium	NYSDEC CLP	NYSDEC CLP	5,000
xxiii. Zinc	NYSDEC CLP	NYSDEC CLP	2,000
xxiv. Cyanide, total	NYSDEC CLP	NYSDEC CLP	1,000
B. Organics			
i. TCL Volatile Organics	NYSDEC CLP	NYSDEC CLP	Table C-3
ii. TCL Semivolatile Organics	NYSDEC CLP	NYSDEC CLP	Table C-4
iii. TCL Pesticide/PCBs	NYSDEC CLP	NYSDEC CLP	Table C-5
iv. Explosives	8330	8330	Table C-6
v. Herbicides	8150	8150	Table C-7
vi. Volatile Organics	-	524.2	Table C-8
C. Other Analytes			
i. Fluoride	Extract[1]	340.2	500 μg/kg
ii. Nitrate	Extract[1]	353.2	100 μg/kg
iii. Total Petroleum Hydrocarbons	418.1	418.1	25 mg/kg

TABLE C-2 (Continued)
PARAMETER LIST FOR INORGANIC AND ORGANIC ANALYSES

			Preparation Method	Analytical Method	Reporting Limits
II.	Groundwater and Surface Water Analyses				(ug/L)
	A.	Inorganics (TAL)			
	1.	Aluminum	NYSDEC CLP	NYSDEC CLP	200
	2.	Antimony	NYSDEC CLP	NYSDEC CLP	60
	3.	Arsenic	NYSDEC CLP	NYSDEC CLP	10
	4.	Barium	NYSDEC CLP	NYSDEC CLP	200
	5.	Beryllium	NYSDEC CLP	NYSDEC CLP	5
	6.	Cadmium	NYSDEC CLP	NYSDEC CLP	5
	7.	Calcium	NYSDEC CLP	NYSDEC CLP	5,000
	8.	Chromium	NYSDEC CLP	NYSDEC CLP	10
	9.	Cobalt	NYSDEC CLP	NYSDEC CLP	50
	10	Copper	NYSDEC CLP	NYSDEC CLP	25
	11.	Iron	NYSDEC CLP	NYSDEC CLP	100
	12.	Lead	NYSDEC CLP	NYSDEC CLP	3
	13.	Magnesium	NYSDEC CLP	NYSDEC CLP	5,000
	14.	Manganese	NYSDEC CLP	NYSDEC CLP	15
	15.	Mercury	NYSDEC CLP	NYSDEC CLP	0.2
	16.	Nickel	NYSDEC CLP	NYSDEC CLP	40
	17.	Potassium	NYSDEC CLP	NYSDEC CLP	5,000
	18.	Selenium	NYSDEC CLP	NYSDEC CLP	5
	19.	Silver	NYSDEC CLP	NYSDEC CLP	10
	20.	Sodium	NYSDEC CLP	NYSDEC CLP	5,000
	21.	Thallium	NYSDEC CLP	NYSDEC CLP	10
	22.	Vanadium	NYSDEC CLP	NYSDEC CLP	50
	23.	Zinc	NYSDEC CLP	NYSDEC CLP	20
	24.	Cyanide, total	NYSDEC CLP	NYSDEC CLP	10
	B.	Organics			
	1.	TCL Volatile Organics	NYSDEC CLP	NYSDEC CLP	Table C-3
	2.	TCL Semivolatile Organics	NYSDEC CLP	NYSDEC CLP	Table C-4
	3.	TCL Pesticide/PCBs	NYSDEC CLP	NYSDEC CLP	Table C-5
	4.	Explosives	8330	8330	Table C-6
	5.	Herbicides	8150	8150	Table C-7
	6.	Volatile Organics	-	524.2	Table C-8
	C.	Other Analytes			
	1.	Nitrate	-	353.2	10
	2.	Fluoride	-	340.2	100
	3.	Total Petroleum Hydrocarbons	418.1	418.1	500
III.	Oil Analyses				
	1.	Oil Fingerprint Identification	NYSDOH Method 310-14	NYSDOH Method 310-14	Not Applicable
	2.	PCBs	8080	8080	1 ug/kg[3]
	3.	Herbicides	8150	8150	Table C-7
IV.	Asbestos			PLM[2]	

1. Mix a known quantity of soil in known volume of water, stir, then filter to form aqueous extract.
2. Polarized light microscopy in EPA 600/M4-82-020.
3. Detection limit is 1 ug PCB per Kg oil for each of the following Aroclors: 1016, 1221, 1232, 1242, 1248, 1254, and 1260.

TABLE C-3
CONTRACT REQUIRED QUANTITATION LIMITS*
FOR VOLATILE ORGANIC COMPOUNDS (VOCs)

	VOCs	Quantitation Limits** Water (ug/L)	Low Soil/Sediment[a] (ug/Kg)
1.	Chloromethane	10	10
2.	Bromomethane	10	10
3.	Vinyl Chloride	10	10
4.	Chloroethane	10	10
5.	Methylene Chloride	10	10
6.	Acetone	10	10
7.	Carbon Disulfide	10	10
8.	1,1-Dichloroethene	10	10
9.	1,1-Dichloroethane	10	10
10.	1,2-Dichloroethene (total)	10	10
11.	Chloroform	10	10
12.	1,2-Dichloroethane	10	10
13.	2-Butanone	10	10
14.	1,1,1-Trichloroethane	10	10
15.	Carbon Tetrachloride	10	10
16.	Bromodichloromethane	10	10
17.	1,2-Dichloropropane	10	10
18.	cis-1,3-Dichloropropene	10	10
19.	Trichloroethene	10	10
20.	Dibromochloromethane	10	10
21.	1,1,2-Trichloroethane	10	10
22.	Benzene	10	10
23.	trans-1,3-Dichloropropene	10	10
24.	Bromoform	10	10
25.	4-Methyl-2-pentanone	10	10
26.	2-Hexanone	10	10
27.	Tetrachloroethene	10	10
28.	Toluene	10	10
29.	1,1,2,2-Tetrachloroethane	10	10
30.	Chlorobenzene	10	10
31.	Ethyl Benzene	10	10
32.	Styrene	10	10
33.	Xylenes (Total)	10	10
	Methyl Tert-Butyl Ether	10	10

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[a] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for volatile TCL Compounds are 125 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight based as required by the contract, will be higher.

TABLE C-4

CONTRACT REQUIRED QUANTITATION LIMITS*
FOR SEMIVOLATILE COMPOUNDS (SVOs)

SVOs		Quantitation Limits** Water (ug/L)	Low Soil/Sediment[a] (ug/Kg)
34.	Phenol	10	330
35.	bis (2-Chloroethyl) ether	10	330
36.	2-Chlorophenol	10	330
37.	1,3-Dichlorobenzene	10	330
38.	1,4-Dichlorobenzene	10	330
39.	1,2-Dichlorobenzene	10	330
40.	2-Methylphenol	10	330
41.	2,2'-oxybis(1-Chloropropane)	10	330
42.	4-Methylphenol	10	330
43.	N-Nitroso-di-n-dipropylamine	10	330
44.	Hexachloroethane	10	330
45.	Nitrobenzene	10	330
46.	Isophorone	10	330
47.	2-Nitrophenol	10	330
48.	2,4-Dimethylphenol	10	330
49.	bis (2-Chloroethoxy) methane	10	330
50.	2,4-Dichlorophenol	10	330
51.	1,2,4-Trichlorobenzene	10	330
52.	Naphthalene	10	330
53.	4-Chloroaniline	10	330
54.	Hexachlorobutadiene	10	330
55.	4-Chloro-3-methylphenol	10	330
56.	2-Methylnaphthalene	10	330
57.	Hexachlorocyclopentadiene	10	330
58.	2,4,6-Trichlorophenol	10	330
59.	2,4,5-Trichlorophenol	25	800
60.	2-Chloronaphthalene	10	330
61.	2-Nitroaniline	25	800
62.	Dimethylphthalate	10	330
63.	Acenaphthylene	10	330
64.	2,6-Dinitrotoluene	10	330
65.	3-Nitroaniline	25	800
66.	Acenaphthene	10	330
67.	2,4-Dinitrophenol	25	800
68.	4-Nitrophenol	25	800
69.	Dibenzofuran	10	330

TABLE C-4 (cont.)

CONTRACT REQUIRED QUANTITATION LIMITS*
FOR SEMIVOLATILE COMPOUNDS (SVOs)

SVOs		Quantitation Limits** Water (ug/L)	Low Soil/Sediment[a] (ug/Kg)
70.	2,4-Dinitrotoluene	10	330
71.	Diethylphthalate	10	330
72.	4-Chlorophenyl-phenyl ether	10	330
73.	Fluorene	10	330
74.	4-Nitroaniline	25	800
75.	4,6-Dinitro-2-methylphenol	25	800
76.	N-nitrosodiphenylamine	10	330
77.	4-Bromophenyl-phenyl ether	10	330
78	Hexachlorobenzene	10	330
79.	Pentachlorophenol	25	800
80.	Phenanthrene	10	330
81.	Anthracene	10	330
82	Carbazole	10	330
83.	Di-n-butylphthalate	10	330
84.	Fluoranthene	10	330
85.	Pyrene	10	330
86.	Butyl benzyl phthalate	10	330
87.	3,3-Dichlorobenzidine	10	330
88.	Benz(a)anthracene	10	330
89.	Chrysene	10	330
90.	bis(2-Ethylhexyl)phthalate	10	330
91.	Di-n-octylphthalate	10	330
92.	Benzo(b)fluoranthene	10	330
93.	Benzo(k)fluoranthene	10	330
94.	Benzo(a)pyrene	10	330
95.	Indeno(1,2,3-cd)pyrene	10	330
96.	Dibenz(a,h)anthracene	10	330
97.	Benzo(g,h,i)perylene	10	330

[a] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for semivolatile TCL Compounds are 60 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight based as required by the contract, will be higher.

TABLE C-5

CONTRACT REQUIRED QUANTITATION LIMITS* FOR PESTICIDES AND POLYCHLORINATED BIPHENYLS (PCBs)

Pesticides/PCBs	Quantitation Limits** Water (ug/L)	Low Soil/Sediment[a] (ug/Kg)
alpha-BHC	0.05	1.7
beta-BHC	0.05	1.7
delta-BHC	0.05	1.7
gamma-BHC (Lindane)	0.05	1.7
Heptachlor	0.05	1.7
Aldrin	0.05	1.7
Heptachlor epoxide	0.05	1.7
Endosulfan I	0.05	1.7
Dieldrin	0.10	3.3
4,4-DDE	0.10	3.3
Endrin	0.10	3.3
Endosulfan II	0.10	3.3
4,4-DDD	0.10	3.3
Endosulfan sulfate	0.10	3.3
4,4-DDT	0.10	3.3
Methoxychlor	0.5	17
Endrin Ketone	0.10	3.3
Endrin aldehyde	0.10	3.3
alpha-Chlordane	0.05	1.7
gamma-Chlordane	0.05	1.7
Toxaphene	5.0	170
Aroclor-1016	1.0	33
Aroclor-1221	2.0	67
Aroclor-1232	1.0	33
Aroclor-1242	1.0	33
Aroclor-1248	1.0	33
Aroclor-1254	1.0	33
Aroclor-1260	1.0	33

[a] Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for pesticide/PCB TCL Compounds are 15 times the individual Low Soil/Sediment CRQL.

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

** Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight based as required by the contract, will be higher.

TABLE C-6
METHOD 8330 QUANTITATION LIMITS
FOR EXPLOSIVES

Compound	Quantitation Limits**	
	Water (ug/L)	Soil/Sediment[a] (ug/Kg)
HMX	0.13	130
RDX	0.13	130
1,3,5-TNB	0.13	130
1,3-DNB	0.13	130
Tetryl	0.13	130
2,4,6-TNT	0.13	130
4-AM-DNT*	0.13	130
2-AM-DNT*	0.13	130
2,6-DNT	0.13	130
2,4-DNT	0.13	130

[a] See Table C-3 for a discussion of Quantitition Limits
** See Table C-3 for a discussion of Soil Quantitation Limits
* Breakdown Degradation Products

TABLE C-7
METHOD 8150 QUANTITATION LIMITS FOR HERBICIDES

Parameter	Quantitation Limits: Water (ug/L)	Quantitation Limits: Soil/Sediment (ug/Kg)
2,4-D	0.94	47
2,4-DB	0.95	48
2,4,5-T	0.095	4.8
2,4,5-TP/Silvex+der.	0.095	4.8
Dicamba (banvel)	0.094	4.7
Dalapon	2.3	120
Dichlorprop	0.94	47
Dinoseb	0.47	24
MCPA	93	4700
MCPP	94	4700

APPENDIX H

RESPONSE TO COMMENTS

COMMENTS BY
ENVIRONMENTAL PROTECTION AGENCY (EPA) - REGION II
THE REVISED DRAFT EXPANDED SITE INSPECTION (ESI)
FOR
THE THREE MODERATE PRIORITY SOLID WASTE
MANAGEMENT UNITS (SWMUS)
SEADs 11, 13 AND 57

General Comments

Comment #1 The figures have been corrected satisfactorily, however, the response discusses the use of variograms and statistical analyses which has not been presented in the text or appendices of the document.

Response #1 As discussed in the Response to Comment #1 for the Draft ESI, variograms were calculated for the data sets of each analyte considered for plotting. All of the variograms produced showed irregular patterns in the variance of the data sets, and did not support data contouring. Therefore, analytical data were presented in the figures as posted values. Because the variograms were not useful data for the report it was not appropriate to include them in the Appendix.

Comment #3 A statement indicating that the results presented in the tables were not corrected for site-specific TOC has not been presented in the footnotes as requested in the original comment.

Response #3 Agreed. A footnote has been added to Tables 4.1-2, 4.2-1, and 4.3-1 indicating that the a TOC content of 1% was used as an estimated value for the purposes of organic analyte concentration reporting.

Comment #10 Following is EPA's response to the issue regarding Antimony and demonstration of compliance to the set ARAR. Please note, acronyms used are defined as follows: IDL-Instrument Detection Limit used in inorganic analytical methods as the lowest concentration able to be quantified within set limits of precision and accuracy; CRDL-Contract Required Detection Limit specified as the reporting limit in the Inorganic Statements of Work for NYSDEC and EPA Contract Lab Program (CLP); and CRQL-Contract Required Quantitation Limit specified in the Organic Statement of Work for NYSDEC and EPA CLP, also the lowest concentration able to be quantified within set limits of precision and accuracy.

With regard to Antimony (Sb), for those results reported as non-detect, ARAR compliance is only demonstrated if the IDL reported is less than the ARARs. It is recommended that a method whose IDL is equal to or below the state and federal groundwater ARAR for Sb be used. This IDL can be achieved by using either GFAA (graphite furnace atomic absorption), ICP, or ICP-MS (Inductively Coupled Plasms-Mass Spectrometry) instruments. These instruments are specified for use in the NYSDEC CLP, EPA SW-846, EPA

MCAWW, and EPA ORD methods. Note, the IDL obtained is laboratory, analyst, and matrix dependent. This logic applies to all metals, that is, the IDL should be specified and compared to the ARAR for compliance determinations.

This principle extends into any future investigation conducted at Seneca Army Depot. The current Generic Installation RI/FS Work Plan should be modified as follows. Appendix C, Chemical Data Acquisition Plan, Section 7.0 should state that SEDA will ensure that the contracted lab will produce data that achieves the established ARARs by utilizing correct analytical methods. Table C-2 currently lists analytical methods per analyte and their corresponding CRDLs for inorganics. However, these CRDLs (and associated IDLs) and CRQLs may change as analytical techniques improve. ARARs may also change as time elapses. Therefore, it is imperative that SEDA evaluate the ARARs and communicate them to the lab upfront in order to select an effective method whose IDLs (for inorganics) and CRQLs (for organics) are equal to or below the ARAR. Barring any unforeseen problems, compliance will then be demonstrated and project quantitative Data Quality Objectives fulfilled.

Effective communication with the laboratory regarding expected sample concentration ranges, required ARARs and thus, necessary IDLs and CRQLs, is essential to producing data of the required quality in a cost effective manner.

Response #10 Agreed. Prior to beginning future RI work at SEDA, we will communicate with the laboratory about expected sample concentration ranges, required ARARs and necesary IDLs and CRQLs. Appendix C, Section 7, of the Generic Installation RI/FS Workplan will be revised to state that SEDA will ensure that the contracted lab will produce data that achieves the established ARARs, if possible.

SEAD-57

Comment #1 The Draft document concluded that, based on the analytical results, a removal action should occur at this site. The Draft Final document states that an RI/FS be conducted to further delineate the extent of contamination at the site. No explanation is provided as to why this change has occurred.

Response #2 After reviewing the ESI document, which recommended a removal action in conjunction with additional limited investigative work to fully define the impacts to the site soils, the Army decided to conduct a RI/FS in order to fully delineate contamination at the site before initiating a removal action.

COMMENTS BY
THE ENVIRONMENTAL PROTECTION AGENCY
(EPA)

COMMENTS BY
ENVIRONMENTAL PROTECTION AGENCY (EPA) - REGION II
THE DRAFT EXPANDED SITE INSPECTION (ESI) REPORT FOR
THE THREE MODERATE PRIORITY SOLID WASTE MANAGEMENT UNITS (SWMUs)
SEAD 11, 13, AND 57

General Comments

Comment #1 Analyte concentration maps in the report were computer contoured. In many areas of the site, the contamination appears to be isolated to a specific area around a structure, rather than uniformly distributed across the area. The software used, however, does not consider isolated realizations (nugget effect) but rather interpolates and extrapolates the data as if they were uniformly distributed across the site. In these instances, such contouring codes are inappropriate and misleading. Due to the limited scope of sampling at many of these sites, it seems as if manual contouring of analytical data is appropriate. This forces one to evaluate the "reasonableness" of the contouring as it is conducted. In instances where the sparsity of data points do not justify contouring, it is acceptable to simply post the analytical result on the figure next to the sampling location.

Response #1 Agreed. All of the analytical data (except those from the soil gas survey at SEAD-11) presented in the figures of Section 4 have only been posted. Statistical analyses of the analytical data for each analyte considered for plotting were performed by calculating variograms of their individual data sets. The variograms showed the variance in the reported data as a function of distance from each individual sample location. All of the variograms produced showed irregular patterns in the variance of the individual data sets, and therefore, did not support data contouring.

Comment #2 The discussion on the nature and extent of contamination should include a section which summarizes the Tentatively Identified Compounds (TICs) which were identified by media at each of the sites. This will allow the reader to better evaluate the appropriateness of the proposed action for each SWMU. Analytical data which are cited in the text should also include any appropriate data validation qualifiers which are included in the data summary.

Response #2 Agreed. Discussions summarizing tentatively identified compounds have been included in Section 4, Nature and Extents of Contamination. Additionally, analytical data which are cited in the text now include any appropriate data validation qualifiers.

Comment #3 The document commonly references reported concentrations to the NYSDEC TAGM. This is useful, however, the TAGM clearly indicates that the values are based on an assumed Total-Organic-Carbon (TOC) content of one percent. It is our understanding that TOC data have not been collected. For clarity, this point should be mentioned in the text and in footnotes on appropriate tables.

Response #3 Agreed. TOC data were not collected as part of this ESI because it was not specified in the original EPA approved workplan. Should further investigations or remedial activities be conducted at SEDA, TOC data will be collected as part of the scope of work.

Comment #4 The groundwater contour maps for the sites should include the date on which the water levels were measured. The text which discusses the hydrogeology of each site should also discuss if significant variation in the water levels occurred between the three rounds of measurements and discuss potential seasonal changes. For sites for which known or suspected source areas are available, it would be useful to identify them on the groundwater contour maps.

Response #4 Agreed. The date on which the water levels were measured has been added to the groundwater contour maps. A review of the available groundwater elevation data indicated that only data collected from monitoring wells MW13-4 and MW13-5, on November 10, 1993 could be used to identify a significant change in groundwater flow direction when compared to the flow direction determined during the April 4, 1994 groundwater level survey. A discussion of this observation was included in the text. No other significant changes in groundwater flow directions could be determined from the well development and the groundwater sampling activities as these data were collected over periods of up to two months.

Comment #5 For sites at which surface and subsurface soil samples were collected and analyzed, the text should discuss these results separately instead of discussing soil results as a whole. Differentiating between surface and subsurface samples will aid in evaluating the necessary scope of any further investigative work at some sites. Also, it would be helpful to segregate data for surface and subsurface samples in the data tables.

Response #5 Agreed. The results of the surface and subsurface soil analyses were revised and discussed as separate media. However, segregation of the analytical results in the data tables in Section 4 would provide no additional contribution to the reader's understanding of the information presented in the text. Therefore, the presentation format of the summary analytical tables has not been modified.

Comment #6 The terms "till"and "overburden" seem to be used interchangeably in the text. These terms are not equivalent and one term should be adopted for clarity, if appropriate.

Response #6 Agreed. The soils overlying bedrock at SEDA are glacial in origin and the term "till"has been adopted, when appropriate, in the text.

Comment #7 Seismic surveys--It is mentioned several times that the seismic surveys identified the direction of groundwater flow at the SWMUs; however no seismic data (cross-sections, etc.) are presented, making it impossible for the reader to verify the results of the surveys.

Response #7 Exception. The water table elevations and bedrock elevations in Tables 3.1-1, 3.2-1, 3.2-2 and 3.3-1 present the results of the seismic data interpretations discussed in the geophysical results sections of this report. These groundwater and bedrock elevations can be utilized to produce cross-sections, however, such cross-sections would have no beneficial interpretive contribution to the data presented in the seismic results tables. Additionally, the reader may verify the seismic survey results by comparing the groundwater flow directions presented in the geophysical results sections of the report to the groundwater flow directions shown in Figures 3.1-4, 3.2-4, and 3.3-5 which are included in the Site Hydrology/Hydrogeology sections of this report.

Comment #8 GPR surveys--The performance of GPR surveys at the three SWMUs investigated in this report appears to have been unnecessary, because little useful data were generated. At SEAD-11, the GPR survey delineated the same landfill boundary that the EM survey already identified. At SEAD-13, the quality of the data collected was poor and the location of the former pits could not be identified. At SEAD-57, test pits excavated in anomalous areas detected by the GPR survey generally failed to find any source of the anomaly.

Response #8 Exception. Although the GPR data collected at the 3 moderate priority AOCs did not provide all of the information anticipated (such as depth of landfill at SEAD-11, or localization and depth of the former IRFNA disposal pits at SEAD-13), GPR surveys are considered by the EPA to be useful field screening tools for profiling the water table and the overburden/bedrock interface, to locate buried objects and/or former disposal areas, and to identify voids and areas of soil subsidence. The performance of GPR surveys as part of the 10 SWMU (and 15 SWMU) data collection efforts has provided very useful data. GPR data acquired during the field surveys has been used for targeting intrusive investigations and in locating definitive landfill (or disposal pit) boundaries in areas where electromagnetic methods identified very high gradients in the EM response.

Comment #9 Groundwater sampling--Page 2-20 states "A low flow purging method was implemented to obtain samples of groundwater that contained the amount of natural turbidity found in groundwater between soil particles [emphasis added]." This statement isn't true. Because considerable drawdown was created in many of the wells during purging/sampling, the velocity of the water entering the well had to be greater than the velocity of groundwater where no such stress is applied. The increased velocity could cause stationary formation material to become mobile and be suspended in the water entering the well; thereby increasing the turbidity. Furthermore, the recommendations for SEAD-11 in Section 7 state that elevated turbidities may have caused elevated readings in some groundwater samples.

Response #9 Agreed. The text on page 2-20 has been revised to explain that the low flow purging method was implemented to obtain groundwater samples with low turbidities. Additionally, a review of the sample turbidities of the groundwater samples collected at SEAD-11 did not substantiate the statement in Section 7 that elevated turbidities may have caused elevated readings in some groundwater samples. This statement has been deleted.

Comment #10 Section 4-Nature and Extent of Contamination - Groundwater Analysis Results Tables - All these tables should be revised to include Federal MCLs and action levels. The "Number Above Criteria" and corresponding text discussions should then be corrected if necessary. The detection limit for antimony is shown to be greater than 50ppb, but the ARAR is 3ppb. An explanation should be given as to why an analytical method was not used that could detect below the criteria values.

Response #10 i) Agreed. The Groundwater Analysis Results tables have been revised to include Federal MCLs and action levels. The "Number Above Criteria" and corresponding text discussions have been corrected where necessary.

Response #10 ii) Exception. The contract required quantitation limit for antimony in groundwater and surface water in the EPA approved workplan was 60 μg/L. The laboratory detection limit for this element is approximately 50 μg/L. Should the EPA require a lower detection limit for this element in future sample analyses, more sensitive laboratory techniques can be utilized.

Comment #11 Intended future use of the sites: Various portions of the text state "The intended future use of the three sites under consideration is as they currently are. The Army has no plans to change the use of this facility or to transfer the ownership." These statements are no longer true. As of February 28, 1995, Secretary of Defense William Perry announced that SEDA is recommended for the 1995 Base Closure list. The text should be updated and revised.

Response #11 Exception. The 1995 Base Close List has not been finalized. Should SEDA be included on the Final 1995 Base Closure List (which will be determined in October, 1995), the Army will re-evaluate the need for additional remedial actions to ensure that human health and the environment are protected under the future post-closure land use scenarios.

General Risk Assessment Comments

Comment #1 While a quantitative exposure pathway analysis is a necessary complement to the evaluation of environmental sampling results in recommending appropriate future actions, many of the exposure route/receptor analyses conducted in Section 5.0 Health and Environmental Concerns are inappropriate and in some cases too general to support the site-specific recommendations for future action.

Response #1 Exception. The objective of this ESI was to determine whether or not a threat existed at the individual AOCs. If it was determined that a threat existed at an individual site, an appropriate remedial action for that site would be recommended based upon the concentrations of hazardous constituents present and an analysis of their potential route/receptor pathways. A review of the exposure route/receptor analyses conducted in Section 5.0, Health and Environmental Concerns, indicated that the constituents identified at elevated concentrations in all 3 moderate priority AOCs posed threats to human health and/or the environment. The pathway analyses performed for SEADs 11 and 13 contributed significantly to the decision to recommend that a remedial investigation be performed at each of these sites. The pathway analysis performed for SEAD-57 contributed to the decision to recommend that a removal action be performed at this site.

Comment #2 Discussion of the environmental sampling results with qualifiers such as "low" is subjective and inappropriate in an analysis of potential human and environmental health risks, particularly since seemingly "low" concentrations of certain chemicals (e.g., PCBs) can still pose health risks. Similarly, "low concentration and/or only a small number of samples exceed their respective TAGMs" are inappropriate bases for dismissing chemicals from consideration as chemicals of potential concern.

Response #2 Agreed. The word "low" is subjective and has been removed from the majority of the text and from all of the text in the discussion of affected media in Section 5 of the report. Additionally, the dismissing of chemicals from consideration as chemicals of potential concern based solely upon small numbers of samples exceeding their respective criteria has been removed from the summary discussions of the environmental sampling results.

Comment #3 Consideration should be given to the potential for human exposure with chemical contaminants in subsurface soil. Such exposure may be possible for utility or construction workers who may have to open shallow trenches in the course of their activities.

Response #3 Exception. A pathway analysis such as human exposure with chemical contaminants in subsurface soils is beyond the scope of this ESI. Complete pathway analyses will be performed as part of the RIs being recommended for 2 of the 3 moderate priority AOCs (SEADs 11 and 13). At the remaining moderate priority AOC, SEAD 57, a Removal Action is being recommended. Completion of this recommended action will eliminate the potential of human exposure to hazardous levels of chemicals of potential concern in subsurface soils at this site.

Comment #4 The source/release mechanism/pathway analyses provided in the Exposure Pathway Summary figures for each site should be reviewed and revised, as appropriated. For example:

- "wind" seems to be the "release mechanism" while "dust" appears to be the potential exposure "pathway"; and

- inadvertent "ingestion" of soil by site workers or visitors is as likely a potential exposure route as "dermal contact" with soil even though "adults do not normally eat soil". Both exposure routes should be considered.

Response #4 Agreed. The source/release mechanism/pathway analyses provided in the Exposure Pathway Summary figures have been revised, as appropriate.

Comment #5 The text should be reviewed and inappropriate terminology corrected. For example, on Page 5-2 it is stated that "Surface water, sediment, and groundwater are secondary release mechanisms". These environmental media may be "sources" or "pathways" but not "release mechanisms".

Response #5 Agreed. The text in Section 5 of the report has been revised and all uses of inappropriate terminology have been corrected.

<u>SEAD-11: OLD CONSTRUCTION DEBRIS LANDFILL</u>

Comment #1 <u>Geophysics</u> - EM-31 Survey: It is difficult to determine what is representative of "background" because few, if any, readings were taken upgradient of the landfill and those that were taken off of the landfill were either close to the northern and southern edges of the landfill or downgradient of the landfill. These areas could potentially be affected by leachate migrating from the landfill (if present) and therefore may not be representative of background conditions. Also, the explanation for the large number of negative conductivities measured across the landfill is unclear.

Response #1 i) Exception. The primary reason that the EM grid was extended beyond the limits of the landfill was to provide a more accurate definition between areas with landfill materials and areas without landfill materials. This goal was achieved by the measurement of apparent ground conductivities to the southeast, south, west, and north of the old construction debris landfill. Additionally, the numerous EM-31 readings acquired in the southeastern portion of the EM grid (approximately 90 measurements) were collected at an upgradient location. The gradual increase in apparent ground conductivity from the southeast portion of the EM grid (approximately 10.5 mS/m) towards the southwest portion of the EM grid (approximately 14 mS/m) appears to reflect natural variations in site soils. This observation is substantiated by the presence of apparent ground conductivities immediately west (and downgradient) of the landfill (approximately 12 mS/m) which are lower than those measured along the western boundary of the EM grid (approximately 14 mSm). This latter observation could be utilized to establish the contention that constituents from the landfill are not migrating into the groundwater downgradient of the site. This topic will be further addressed in the RI study of this site.

Response #1 ii) Agreed. The explanation for the large number of negative conductivities measured across the landfill has been revised.

Comment #2 Figure 3.1-4: The groundwater contours in this figure have been extrapolated beyond what the available data support. The contour lines should not extend to the north or the south beyond imaginary lines connected monitoring wells MW11-2 and MW11-1, and MW11-3 and MW11-1, respectively. An appropriate way to better define the groundwater system in the area of SEAD 11 is to use water level measurements from monitoring well MW4-4, installed at adjacent SEAD 4 (Munitions Washout Facilities Leachfield). The water level measurement from this well should be included on Figure 3.1-4 and its water quality results should be discussed in Section 4 as it is upgradient or cross-gradient from the landfill. The basis for changing the contour spacing in the eastern portion of the site (discussed on Page 3-9) is reasonable. There are portions of the 665 foot groundwater contour which are above the ground surface. This should be modified. It would also be beneficial to identify the approximate extent of the landfill on this figure.

Response #2 i) Agreed. The portions of the groundwater contours which were extrapolated beyond imaginary lines connecting monitoring wells MW11-1 to MW11-2 and MW11-1 to MW11-3 have been deleted. Additionally, those portions of the 665 foot groundwater contour which were above the ground surface have either been deleted or modified. The approximate location of the landfill boundaries has also been included in Figure 3.1-4.

Response #2 ii) Exception. A review of the groundwater level measurements from MW4-4 (located approximately 500 feet east (cross-gradient) and approximately 200 feet north (upgradient) of SEAD 11 showed that the information from this well could not be utilized to refine the groundwater contours in Figure 3.1-4. Additionally, MW4-4 was installed in an area which was identified during the 7 high priority AOC ESI study as being impacted by several inorganic elements including copper, chromium, and zinc. Therefore, inclusion of the water quality results from MW4-4 could not be used for a meaningful discussion of cross-gradient or upgradient groundwater quality at SEAD-11.

Comment #3 Page 3-9, Section 3.1.3,1st Paragraph: The text indicates "that the landfill is responsible for the slight westward bulge in the groundwater contours". It is unclear if ES believes that groundwater mounding has occurred due to increased infiltration in the area of the landfill. It would be useful to explain how the landfill is "responsible".

Response #3 Agreed. Although a groundwater mound may exist beneath the landfill, a review of the available groundwater elevation data, groundwater recharge rates observed during well development and groundwater sampling, and the test pit logs did not support the inclusion of a groundwater mound in the contours of Figure 3.1-3. A straight line interpolation of the available data was used to re-draw the groundwater elevation contours on this figure. It should be noted that the installation of numerous groundwater monitoring wells within the boundaries of the landfill are currently being planned in the RI scoping document being drafted for this site.

Comment #4 Page 3-9, Section 3.1.3, 1st Paragraph: "Most soil" should be "moist soil".

Response #4 Agreed. The typographical error has been corrected.

Comment #5 Page 4-6, Section 4.1.2.2, 1st Paragraph: The text states that "There is no indication that soil gas west and hydrologically downgradient of the landfill has been impacted." The soil gas data generally do indicate higher concentrations in the central portion of the landfill, however, the western extent of soil gas contamination is not defined by the existing data. Low soil gas values do not always support the conclusion that adjacent sampling locations will produce as low or lower values. For example, in the central portion of the landfill there are several locations at which concentrations of less than 1 ppmV were reported. These locations are surrounded by areas with higher soil gas concentrations. A line of soil gas points to the west of the existing data could have clarified this issue. Due to the low topography in this area, it may have not been possible to collect soil gas data.

Response #5 Agreed. The statement "there is no indication that soil gas west and hydrologically downgradient of the landfill has been impacted" has been deleted from the text. Collection of soil gas data to the west of the existing data was not possible due to the low topography and saturated nature of the surface media in this area.

Comment #6 Page 4-6, Section 4.1.3.2, 1st Paragraph: The contour map appears to be for "subsurface and test pit soil samples collected at SEAD-11 and not "surface" samples as indicated. The shallowest soil boring sample (SB11-3.1) is from the 0 to 2 foot interval.

Response #6 Acknowledged. The data presented in the figure which is referenced in Section 4.1.3.2are total SVO concentrations collected from the 0 to 8" depth interval from test pit sample TP11-1 and TP11-2 and from the 0 to 2' depth interval of soil boring sample SB11-3.1 and test pit samples TP11-3 and TP11-4. These depth intervals are not considered as being representative of soils unique to the ground surface. Future surface soil samples which will be collected as part of the remedial investigation of SEAD-11 will be obtained solely from the 0 to 2" depth interval.

Comment #7 Figure 4.1-2: This figure presents computer-contoured, total SVOC data for site soils. The entire map is based on five data points, only one of which is above the NYSDEC soil cleanup TAGM; however, a large area is depicted as being considerable elevated, due to the nature of contouring software. There are no other data that support the existence of such a large area of contamination. If isolated areas of contamination exist (the nuggets effect), such contouring efforts are inappropriate. The figure should identify sample location and depths. It is unclear which data are presented in this figure. The legend should identify the symbols used.

Response #7 Agreed. As stated in General Comments response #1, statistical analyses of the variance in the analytical data, as a function of distance from individual sample points, did not support the contouring of these data. Therefore, the analytical data in Figure 4.1-2 has only been posted. The Remedial Investigation being drafted for this site is utilizing the data presented in this report to locate sampling points which would provide sufficient spatial coverage of the isolated areas of contamination to allow for a more meaningful contouring of the analytical data. Additionally, sample locations and depths have been added to the figure and the legend has been revised to reflect these modifications.

Comment #8 Page 5-5, Section 5.2.3, 1st Paragraph: The analytical results for "13 surface (emphasis added) soil samples" were not presented in Section 4.0 as indicated; this discrepancy should be corrected.

Response #8 Agreed. This typographical error in the 1st paragraph of Section 5.2.3 has been corrected.

Comment #9 Page 5-5, Section 5.2.3, 2nd Paragraph: PCBs were not detected in soils at SEAD-11 as indicated; this discrepancy should be corrected.

Response #9 Agreed. This discrepancy has been corrected.

SEAD-13: INHIBITED RED FUMING NITRIC ACID (IRFNA) DISPOSAL AREA

Comment #1 Page 3-15, Section 3.2.2, 1st Paragraph: Based on the EM-31 survey, the large anomalous zone in the eastern area (Figure 3.2-1) is suspected to be a conductive groundwater plume and "...extends towards the north and northeast, presumably following the direction of groundwater flow." Section 3.2.3, which discusses groundwater flow, states that the flow direction in the eastern area is to the "...west-northwest...". Figure 3.2-4 confirms that flow is to the west-northwest; therefore, the orientation of the apparent plume is not consistent with the observed groundwater flow direction.

Response #1 Agreed. A review of the large conductive EM anomaly suspected of being a conductive groundwater plume indicated that this anomaly originates in the area of the former IRFNA disposal pits and extends towards the west-northwest. This direction is consistent with the presumed groundwater flow direction and the text of Section 3.2.2, 1st paragraph, has been appropriately revised.

Comment #2 Page 3-18, Section 3.2.2.3, 3rd Paragraph: "affect" should be "effect".

Response #2 Agreed. The text of Section 3.2.2.3, 3rd paragraph, has been revised.

Comment #3 Page 3-20, Section 3.2.3, 2nd Paragraph: It is misleading to refer to a "till aquifer". The glacial till is not an aquifer.

Response #3 Agreed. The intent of the text was to characterize the nature of the groundwater in the till portion of the aquifer. The text has been revised to properly qualify the subject of the discussion.

Comment #4 Page 4-16, Section 4.2.2.2: The text should also state that 1,4-Dichlorobenzene also exceeded the associated TAGM value.

Response #4 Agreed. The text of Section 4.2.2.2 has been revised.

Comment #5 Page 4-26, Section 4.2.4.5: A statement should be added regarding the metals levels in the two "downstream" samples relative to the levels detected in the "upstream" sample.

Response #5 Agreed. A statement has been added to section 4.2.4.5 which describes the differences in the metals levels in the two "downstream" samples relative to the levels detected in the "upstream" sample.

Comment #6 Page 5-7, Section 5.3.2.1, 1st Paragraph: The last sentence regarding soil deposition in drainage swales is inconsistent with the statement in the preceding sentence that "...no well developed drainage swales are present..."; this apparent discrepancy should be corrected.

Response #6 Agreed. This discrepancy has been corrected.

Comment #7 Page 5-9, Section 5.3.2.2: The statement that "...ingestion of and dermal contact with soil are not potential exposure pathways..." is unfounded given earlier statements in Section 5.3.1 that "the exact location of the pits are unknown" and "this area primarily contains metals". Consideration should be given to including these pathways as potential exposure pathways of concern.

Response #7 Agreed. These pathways are now considered as potential exposure pathways of concern in Section 5.3.2.2.

<u>SEAD 57: EXPLOSIVE ORDNANCE DISPOSAL AREA</u>

Comment #1 Page 3-23, Section 3.3.2.2, 1st Paragraph. During the EM-31 survey, it would have been helpful to collect background data, in an undisturbed area some distance from the "bermed area" and "shallow depression", to help interpret the results of the surveys conducted within these two areas. If the "...broad conductivity low along the northeast corner of the grid is likely caused by the berm..." (Page 3-23 and Figure 3.3-1), it is unclear why the remainder of the bermed area on which the survey was conducted does not also show low conductivity readings.

Response #1 i) Exception. EM-31 data were collected in those areas of SEAD-57 which were indicated in the EPA approved 10 SWMU workplan. As stated in the 10 SWMU workplan, an EM-31 survey (as well as a GPR survey) was performed to evaluate the potential of buried unexploded ordinance at the site. Knowledge of background apparent ground conductivities and background in-phase response is unnecessary for accomplishing this task.

Response #1 ii) Agreed. The text intended to describe the cause of the "broad conductivity low along the northwest corner of the grid" as resulting from natural variations in the apparent conductivities of the berm soils, and not from a buried metallic object (or multiple buried metallic objects). The text has been appropriately modified.

Comment #2 Figure 4.3-1. This figure depicts copper in surface soils. Essentially the entire contoured area is based on one high reading (2930 mg/kg at TP57-4), the next highest reading in the area is 39 mg/kg (the TAGM recommended soil cleanup level is 25 mg/kg). The contouring program used to create this figure appears to have uniformly distributed the copper concentrations are across the area; however, the data do not support this.

Response #2 Agreed. As stated in General Comments #1, statistical analyses of the variance in the analytical data, as a function of distance from individual sample points, did not support the contouring of these data. Therefore, the analytical data in Figure 4.3-1 have only been posted.

Comment #3 Page 7-2, Section 7.4. The report concludes that the site soils have been affected by heavy metals, particularly copper and lead; however, lead is not discussed in Section 4, Nature and Extent of Contamination. Section 4 does discuss elevated levels of copper and nickel. Levels of these three metals, when above the TAGM cleanup goals, are generally only slightly higher (on the order of a few tens of mg/kg), except at one location (TP57-4), the same location which showed elevated copper. At this location, copper and lead concentrations are at least an order of magnitude higher than TAGM levels. Additionally, this is the only location where lead levels are above the recommended EPA interim soil cleanup level of 400 mg/kg (USEPA, July 14, 1994, Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, OSWER Directive #9355.4-12).

Response #3 Agreed. The text describing the nature and extent of contamination found in the subsurface soils at SEAD-57 now includes a discussion of the elevated concentration of lead in subsurface soil sample TP57-2.

<u>RECOMMENDATIONS FOR FUTURE ACTIONS</u>

<u>SEAD-11: OLD CONSTRUCTION DEBRIS LANDFILL</u>

Comment #1 We concur with the conclusion that an RI/FS should be conducted for this SWMU.

Response #1 Acknowledged. An RI/FS is currently being planned for this site.

Comment #2 The summary of results presented in this section is misleading. Nearly all SVOCs and metals listed in Table 4.1-2 were detected in soils at concentrations above the associated TAGM value, not just the few mentioned in Section 7.2. A more accurate conclusion drawn from the soil results should be included in this section. In addition to iron and sodium, lead was also detected at concentrations above ARARs not TAGMs. The document should be corrected.

Response #2 Agreed. Section 7.2 has been revised and more accurate conclusions have been drawn from the soil and groundwater results.

<u>SEAD-13: INHIBITED RED FUMING NITRIC ACID (IRFNA) DISPOSAL AREA</u>

Comment #1 We concur with the conclusion that an RI/FS should be conducted for this SWMU.

Response #1 Acknowledged. An RI/FS is being planned for this site.

<u>SEAD-57: EXPLOSIVE ORDNANCE DISPOSAL AREA</u>

Comment #1 We concur with the conclusion that a removal action should be performed in conjunction with some additional limited investigative work for this SWMU.

Response #1 Acknowledged. These actions are currently being planned for this site.

Comment #2 The summary of the results presented in this section is misleading. Nearly all metals listed in Table 4.3-1 were detected in soils at concentrations above the associated TAGM value, not just the few mentioned in Section 7.4. A more accurate conclusion drawn from the soil results should be included in this section.

Response #2 Agreed. Section 7.4 has been revised and a more accurate conclusion has been drawn from the soil results.

Comment #3 This section neglected to mention that metals exceeded groundwater ARARs in each well. The text should be revised.

Response #3 Agreed. The text has been revised.

COMMENTS BY

THE NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
(NYSDEC)

AND

THE NEW YORK STATE DEPARTMENT
OF HEALTH
(NYSDOH)

**COMMENTS FROM
THE NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION AND
NEW YORK STATE DEPARTMENT OF HEALTH
ON THE EXPANDED SITE INVESTIGATION REPORT
FOR THE THREE MODERATE PRIORITY AOCS
FOR SEAD-11, 13 AND 57**

Comment #1	Section 1.0 Introduction: The introductory text states that this report describes the investigative activities at the "seven High priority AOCs" while the following list names 5 solid waste management units (SWMUs). This section should properly refer to the three moderate priority SWMUs SEAD 11, 13 and 57. Please correct the errors on this page.
Response #1	Agreed. These typographical errors have been corrected.
Comment #2	Section 1.1.2.2.1: Please show all the features like vertical water and shower pipes on Figure 1.1-13. Also please correct apparent contradiction in Section 1.1.2.2.2 that the exact locations of the pits are unknown.
Response #2	Agreed. Figure 1.1-13 has been revised to include the surface features observed during this ESI. In addition, Section 1.1.2.2.2has been revised to more accurately relate the observed site features to documented site history.
Comment #3	Section 2.2.3Soil Sampling Program: The second paragraph mentions SEAD-4, which is irrelevant with this investigation and should be removed.
Response #3	Agreed. Section 2.2.3has been revised and all mention of SEAD-4 has been removed.
Comment #4	Figure 2.3-3: Please show soil boring SB11-3 on this figure.
Response #4	Agreed. Soil Boring SB11-3 has been added to Figure 2.3-3. It should be noted that soil boring SB11-3 was completed as monitoring well MW11-1.
Comment #5	Figure 2.4-2: It appears that either Duck Pond's boundaries or the surface water/sediment sample location SW/SED 13-1 and SW/SED 13-3 are incorrectly shown. Please correct this apparent discrepancy.
Response #5	Agreed. However, Duck Pond's boundaries, as shown in the figures of this ESI Report, were delineated from observable boundaries during photogrametric analysis. In some instances, these boundaries could only be discerned by the abrupt transition of marsh vegetation to open water. Surface water and sediment samples SW/SD 13-1 and SW/SD 13-3 were collected from within the Duck Pond's boundaries and both were collected at marshy locations where approximately 1 foot of standing water was present among dense wetlands vegetation.

Comment #6 <u>3.1.2.4Test Pitting Program</u>: A total of four test pits were placed at SEAD-11, but this section only describes two test pits, TP-1 and TP-2. Please include details of test pits TP-3 and TP-4 in this section.

Response #6 Agreed. A discussion of test pits TP11-3 and TP11-4 has been included in Section 3.1.2.4.

Comment #7 <u>Section 3 GPR Surveys</u>: This section includes typical GPR surveys only. Please include all GPR profiles in Appendix A.

Response #7 Exception. Due to the format of the GPR data which was produced by the GPR instrument (i.e., continuous strip-charts on electrostatic paper), reproduction of these data is both time consuming and expensive. Inclusion of these data in the report would not contribute to the reader's understanding of the geophysical interpretations presented in Section 3 of this report.

These data are maintained at the Boston office of Parsons Engineering Science, Inc. Should the NYSDEC require them for additional examination, a written request to obtain the original GPR chart data may be submitted to the USACOE, Huntsville division, or these data may be viewed at Parsons ES's Boston office.

Comment #8 <u>Section 5.3.2.2Soil Ingestion and Dermal Contact (SEAD-13)</u>: The potential for human exposure to contaminated soils from this SWMU does exist. If any time in the future this land is developed it is likely that human population would come in contact with subsurface soils due to excavation activities. Additionally, Figure 5.3.1. Exposure Pathway Summary lists human exposure to dust as a pathway that it considered to pose a potential risk.

It is too early in the investigative process to eliminate these exposure pathways from consideration. The soil sampling results from the recommended remedial investigation/feasibility study should be evaluated to determine which exposure pathways warrant evaluation.

Response #8 Agreed. The text in Section 5.3.2.2, Soil Ingestion and Dermal Contact, has been revised to indicate that both ingestion and dermal contact with soil are potential human exposure pathways.

<u>ADDITIONAL COMMENTS</u>

Comment #1 We concur with the Army's recommendation for future work at these sites.

- SEAD 11 - A RI/FS will be conducted to fully define the impacts and the risk posed by the site.
- SEAD 13 - A RI/FS will be conducted to fully define the impacts and the risks posed by the site.

- SEAD 57 - A soil removal action will be conducted in addition to further investigative work designed to define the extent of impact to site soils. The investigative work should also include a EP Tox or TCLP test on a soil sample and one round of groundwater sampling to ensure that metal contamination, particularly lead, is not leaching into the groundwater.

Response #1 Agreed. RI scoping documents are currently being prepared for SEADs 11 and 13. The drafting of a decision document outlining the removal action for SEAD 57 has not been undertaken as of the writing of this response. However, this task will include the evaluation of various testing techniques, such as those mentioned in additional Comment #1, SEAD 57, to determine the presence or absence of hazardous concentrations of contaminants (including metals) in the site media following the removal action.

D#13