N60478.AR.000015
NWS EARLE
5090.3a

Naval Weapons Station Earle
Colts Neck, New Jersey

Interim Report

Confirmation Study to Determine Existence and Possible Migration of Specific Chemicals In Situ

December 1986

WESTON
DESIGNERS CONSULTANTS

TABLE OF CONTENTS

Section	Title	Page
	EXECUTIVE SUMMARY	ES-1
1	INTRODUCTION	1-1
	1.1 Navy Assessment and Control of Installation and Pollutants Program	1-1
	1.2 Purpose of the Problem Confirmation Study	1-1
2	FIELD PROGRAM	2-1
	2.1 Drilling Program	2-1
	2.1.1 Site 2: Ordnance Demilitarization Site	2-2
	2.1.2 Site 3: Landfill Southwest of "F" Group	2-2
	2.1.3 Site 4: Landfill West of "D" Group	2-5
	2.1.4 Site 5: Landfill West of Army Barricades	2-5
	2.1.5 Site 7: Landfill South of "P" Barricades	2-5
	2.1.6 Site 10: Scrap Metal Landfill Near Building S-589	2-9
	2.1.7 Site 11: Contract Ordnance Disposal Area	2-9
	2.1.8 Site 19: Paint Chip and Sludge Disposal Area Adjacent to Building S-34	2-9
	2.1.9 Site 26: Explosive "D" Washout Area (Building GB-1)	2-13
	2.2 Sampling Program	2-13
	2.2.1 Groundwater Quality Sampling Methods	2-18
	2.2.1.1 Monitor Well Purging	2-18
	2.2.1.2 Monitor Well Sample Collection	2-18
	2.2.2 Surface Water Quality Sampling Methods	2-20
	2.2.3 Additional Water Quality Sampling Methods	2-21
	2.2.4 Sediment Quality Sampling Methods	2-21
	2.2.5 Soil Quality Sampling Methods	2-21

0650B

TABLE OF CONTENTS
(continued)

Section		Title	Page
	2.2.6	Sample Handling	2-22
		2.2.6.1 Chain-of-Custody Procedures	2-22
	2.2.7	Quality Assurance	2-22
3	FINDINGS		3-1
3.1	Site 2:	Ordnance Demilitarization Site	3-1
	3.1.1	Geology	3-1
	3.1.2	Hydrogeology	3-1
	3.1.3	Groundwater Quality	3-4
	3.1.4	Surface Water and Sediment Quality	3-4
	3.1.5	Soil Quality	3-12
3.2	Site 3:	Landfill Southwest of "F" Group	3-12
	3.2.1	Geology	3-12
	3.2.2	Hydrogeology	3-12
	3.2.3	Groundwater Quality	3-15
3.3	Site 4:	Landfill West of "D" Group	3-15
	3.3.1	Geology	3-15
	3.3.2	Hydrogeology	3-15
	3.3.3	Groundwater Quality	3-15
	3.3.4	Spring Water Quality	3-19
3.4	Site 5:	Landfill West of Army Barricades	3-19
	3.4.1	Geology	3-19
	3.4.2	Hydrogeology	3-21
	3.4.3	Groundwater Quality	3-21
3.5	Site 7:	Landfill South of "P" Barricades	3-24
	3.5.1	Geology	3-24
	3.5.2	Hydrogeology	3-24
	3.5.3	Groundwater Quality	3-24
3.6	Site 10:	Scrap Metal Landfill Near Building S-589	3-27
	3.6.1	Geology	3-27
	3.6.2	Hydrogeology	3-27
	3.6.3	Groundwater Quality	3-27
	3.6.4	Surface Water and Sediment Quality	3-29
3.7	Site 11:	Contract Ordnance Disposal Area	3-33
	3.7.1	Geology	3-33
	3.7.2	Hydrogeology	3-33
	3.7.3	Groundwater Quality	3-33
	3.7.4	Soil Quality	3-33
3.8	Site 19:	Paint Chip and Sludge Disposal Area	3-36
	3.8.1	Geology	3-36

TABLE OF CONTENTS
(continued)

Section	Title	Page
	3.8.2 Hydrogeology	3-36
	3.8.3 Groundwater Quality	3-36
	3.8.4 Surface Water and Sediment Quality	3-40
	3.8.5 Soil Quality	3-43
	3.9 Site 20: Grit Blasting Area at Building 544	3-43
	3.9.1 Soil Quality	3-43
	3.10 Site 22: Paint Chip Disposal Area	3-47
	3.10.1 Soil Quality	3-47
	3.11 Site 26: Explosive "D" Washout Area at Building GB-1	3-47
	3.11.1 Geology	3-47
	3.11.2 Hydrogeology	3-47
	3.11.3 Groundwater Quality	3-47
4	SIGNIFICANCE OF FINDINGS	4-1
	4.1 Geology	4-1
	4.2 Hydrogeology	4-1
	4.3 Water Quality	4-7
	4.3.1 Site 2: Ordnance Demilitarization Site	4-12
	4.3.2 Site 3: Landfill Southwest of "F" Group	4-13
	4.3.3 Site 4: Landfill West of "D" Group	4-14
	4.3.4 Site 5: Landfill West of Army Barricades	4-15
	4.3.5 Site 7: Landfill South of "P" Barricades	4-15
	4.3.6 Site 10: Scrap Metal Landfill	4-16
	4.3.7 Site 11: Contract Ordnance Disposal Area	4-17
	4.3.8 Site 19: Paint Chip and Sludge Disposal Area	4-17
	4.3.9 Site 26: Explosive "D" Washout Area	4-18
	4.4 Soil Quality	4-18
	4.4.1 Site 2: Ordnance Demilitarization Site	4-18
	4.4.2 Site 10: Scrap Metal Landfill	4-18
	4.4.3 Site 11: Contract Ordnance Disposal Area	4-19

TABLE OF CONTENTS
(continued)

Section		Title	Page
	4.4.4	Site 19: Paint Chip and Sludge Disposal Area	4-19
	4.4.5	Site 20: Grit Blasting Area at Building 544	4-21
	4.4.6	Site 22: Paint Chip Disposal Area	4-21
	4.4.7	Site 26: Explosvie "O" Washout Area	4-21
5	CONCLUSIONS AND RECOMMENDATIONS		5-1
	5.1	Conclusions	5-1
	5.2	Recommendations	5-2
	5.2.1	Site 2: Ordnance Demilitarization Site	5-2
	5.2.2	Site 3: Landfill Southwest of "F" Group	5-2
	5.2.3	Site 4: Landfill West of "D" Group	5-2
	5.2.4	Site 5: Landfill West of Army Barricades	5-3
	5.2.5	Site 7: Landfill South of "P" Barricades	5-3
	5.2.6	Site 10: Scrap Metal Landfill	5-3
	5.2.7	Site 11: Contract Ordnance Disposal Area	5-3
	5.2.8	Site 19: Paint Chip and Sludge Disposal Area	5-3
	5.2.9	Site 20: Grit Blasting Area, Building 544	5-4
	5.2.10	Site 22: Paint Chip Disposal Area, Building D-2	5-4
	5.2.11	Site 26: Explosive "D" Washout Area	5-4
BIBLIOGRAPHY			
APPENDIX A - DRILLING LOGS			
APPENDIX B - WELL CONSTRUCTION SUMMARIES			
APPENDIX C - CHAIN-OF-CUSTODY DOCUMENTATION			
APPENDIX D - ANALYTICAL DATA			
APPENDIX E - COMMENTS			

LIST OF TABLES

Table No.	Title	Page
2-1	Analytical Summary	2-16
3-1	Groundwater Elevations July 1986	3-2
3-2	Detection Limits for Water Samples	3-5
3-3A	Analytical Results for Groundwater Samples Collected in July 1986 - Site 2	3-9
3-3B	Analytical Results for Surface Water Samples Collected in July 1986 - Site 2	3-10
3-3C	Analytical Results for Sediment Samples Collected in July 1986 - Site 2	3-11
3-3D	Analytical Results for Soil Samples Collected in March 1986 - Site 2	3-13
3-4	Analytical Results for Groundwater Samples Collected in July 1986 - Site 3	3-16
3-5A	Analytical Results for Groundwater Samples Collected in July 1986 - Site 4	3-18
3-5B	Analytical Results for Spring Water Samples Collected in July 1986 - Site 4	3-20
3-6	Analytical Results for Groundwater Samples Collected in July 1986 - Site 5	3-23
3-7	Analytical Results for Groundwater Samples Collected in July 1986 - Site 7	3-27
3-8A	Analytical Results for Groundwater Samples Collected in July 1986 - Site 10	3-30
3-8B	Analytical Results for Surface Water Samples Collected in July 1986 - Site 10	3-31
3-8C	Analytical Results for Sediment Samples Collected in July 1986 - Site 10	3-32

LIST OF TABLES
(continued)

Table No.	Title	Page
3-9A	Analytical Results for Groundwater Samples Collected in July 1986 - Site 11	3-35
3-9B	Analytical Results for Soil Samples Collected in March 1986 - Site 11	3-37
3-10A	Analytical Results for Groundwater Samples Collected in July 1986 - Site 19	3-39
3-10B	Analytical Results for Surface Water Samples Collected in July 1986 - Site 19	3-41
3-10C	Analytical Results for Sediment Samples Collected in July 1986 - Site 19	3-42
3-10D	Analytical Results for Soil Samples Collected in July 1986 - Site 19	3-44
3-11	Analytical Results for Soil Samples Collected in March 1986 - Site 20	3-46
3-12	Analytical Results for Soil Samples Collected in March 1986 - Site 22	3-48
3-13	Analytical Results for Groundwater Samples Collected in July 1986 - Site 26	3-50
4-1	Stratigraphic Units of the Northern Atlantic Coastal Plain of New Jersey	4-2
4-2	Drinking Water Guidelines	4-8
4-3	Ranges of Selected Parameters in Natural Soils	4-20

LIST OF FIGURES

Figure No.	Title	Page
2-1	Typical Well Construction	2-3
2-2	Site 2: Ordnance Demilitarization Site Monitor Well and Sampling Locations	2-4
2-3	Site 3: Landfill Southwest of "F" Group Monitor Well Locations	2-6
2-4	Site 4: Landfill West of "D" Group Monitor Well and Sample Locations	2-7
2-5	Site 5: Landfill West of Army Barricades Monitor Well Locations	2-8
2-6	Site 7: Landfill South of "P" Barricades Monitor Well Locations	2-10
2-7	Site 10: Scrap Metal Landfill Near Building 5-589 Monitor Well and Sample Locations	2-11
2-8	Site 11: Contract Ordnance Disposal Area Monitor Well and Sample Locations	2-12
2-9	Site 19: Paint Chip and Sludge Disposal Area Monitor Well and Sample Locations	2-14
2-10	Site 26: Explosive "D" Washout Area Monitor Well Locations	2-15
2-11	Site 20: Grit Blasting Area at Building 544	2-23
2-12	Site 22: Paint Chip Disposal Area	2-24
3-1	Site 2: Ordnance Demilitarization Site Groundwater Flow Map - July 1986	3-3
3-2	Site 3: Landfill Southwest of "F" Group Groundwater Flow Map - July 1986	3-14
3-3	Site 4: Landfill West of "D" Group Groundwater Flow Map - July 1986	3-17
3-4	Site 5: Landfill West of Army Barricades Groundwater Flow Map - July 1986	3-22

LIST OF FIGURES
(continued)

Figure No.	Title	Page
3-5	Site 7: Landfill South of "P" Barricades Groundwater Flow Map - July 1986	3-25
3-6	Site 10: Scrap Metal Landfill Near Building 5-598 Groundwater Flow Map - July 1986	3-29
3-7	Site 11: Contract Ordnance Disposal Area Groundwater Flow Map - July 1986	3-34
3-8	Site 19: Paint Chip and Sludge Disposal Area Groundwater Flow Map - July 1986	3-38
3-9	Site 26: Explosive "D" Washout Area Groundwater Flow Map - July 1986	3-49
4-1	Map of Surficial Geology	4-3
4-2	Base Groundwater Flow Map - July 1986	4-5

EXECUTIVE SUMMARY

The purpose of this Phase II, Step I report is to determine the existence, concentration, and extent of previously identified contaminants of health and environmental concern at Naval Weapons Station Earle.

Twenty-nine groundwater monitoring wells were installed at nine sites located on the main base area and the Waterfront (Sandy Hook) area. The unconsolidated deposits were described according to the Unified Soil Classification System. Following installation, each well was developed and sampled for a predetermined assemblage of analytes. Surface waters and sediments were sampled at three of the sites. Soil samples were collected from soil borings at five sites.

Conclusions

- The shallow unconsolidated deposits consist of a silty fine to coarse quartzose sand, medium glauconitic sand, and clay lenses of the Vincentown, Cohansey, and Kirkwood Formations.
- Groundwater occurs under unconfined conditions and is generally found within 25 feet of the ground.
- The principal direction of groundwater flow is towards the east with components to the north and south. Local variations occur due to interactions with surface water bodies.
- With the exception of pH, no New Jersey or Federal drinking water guidelines were exceeded in any groundwater sample.
- A spring sampled at site 4 did, however, contain fairly high concentrations of petroleum hydrocarbons and total organic carbon as well as the base/neutral organic compound N-nitrosodiphenylamine.
- N-nitrosodiphenylamine was also found in a stream sample at site 10 at high concentrations. This compound is difficult to distinguish from diphenylamine which is used as a stabilizer in nitrocellulose explosives.
- Sediment and soil samples at site 19 contained high levels of petroleum hydrocarbons, acetone, cadmium, lead, and zinc.

SECTION 1

INTRODUCTION

This report is the first interim report for the Phase II, Step 1 field investigation at Naval Weapons Station Earle (NWS Earle) in Monmouth County, New Jersey.

1.1 NAVY ASSESSMENT AND CONTROL OF INSTALLATION AND POLLUTANTS PROGRAM

The Navy Assessment and Control of Installation Pollutants (NACIP) Program was promulgated by OPNAV NOTE 6420, Ser 45/733503 of 11 September 1980, and Marine Corps Order 6280.1 of 30 January 1981. The main objective of the NACIP program is to identify, assess, and control contamination from Navy lands due to past hazardous material operations which pose a threat to human health or the environment. The NACIP program consists of three distinct phases:

- Phase I - Initial Assessment Study (IAS) identifies any possible contamination sources through record searches, personnel interviews, and site visits.
- Phase II - Confirmation Study assesses the impact, or potential for impact, of any contamination to the environment or threat to public health by performing a field investigation that uses both physical and analytical monitoring techniques.
- Phase III - Corrective Measures, if needed, prevents contamination from causing any adverse effects on the environment or public health.

1.2 PURPOSE OF THE PROBLEM CONFIRMATION STUDY

The Confirmation Study is a sequentially phased effort to perform the following:

- Determine the existence, concentration, extent, and rate of migration of previously identified contaminants of health and environmental concern.
- Develop economically feasible alternatives to effect compliance with applicable health and environmental standards, where required.

- Prepare site operation plans.
- Prepare government project documentation with supporting cost estimates for project funding approval.

The sequential efforts of this Confirmation Study are termed steps and include the following:

Step	Description
1A	Verification of existence of contamination.
1B	Characterization of extent and rate of migration of contaminants, geohydrological, geophysical, and other factors.
II	Evaluation of alternatives to achieve compliance, prepare cost estimates, and project effectiveness of alternatives.
III	Preparation of site operation and draft Government project documentation, with cost estimate satisfactory for project funding request.

SECTION 2

FIELD PROGRAM

The Field Program at NWS Earle consisted of the installation and sampling of 29 groundwater monitoring wells, sampling of three surface water bodies and sediments, sampling of two springs, and sampling of shallow soils at various sites.

2.1 DRILLING PROGRAM

Twenty-nine groundwater monitoring wells were installed at NWS Earle for purposes of collecting groundwater quality data. Pilot borings were drilled for each well using 6-inch hollow-stem augers. These borings were completed approximately 15 feet below first occurrence of groundwater. To collect data on stratigraphy, soils in all pilot borings were sampled at 5-foot intervals with a 2-inch diameter, 24-inch long split-spoon sampler using standard penetration techniques as specified by ASTM method No. D-1586. All soil samples collected from the pilot borings were stored for archival purposes. These samples were described according to Munsell soil color charts and the Unified Soil Classification System (see Appendix A for descriptions of individual borings).

During each sampling operation, an HNu Model PI-101 organic vapor photo ionization detector was used to detect any organic vapors emanating from the boring.

Well construction followed New Jersey and EPA prescribed methods. Necessary well permits were obtained from the New Jersey Department of Environmental Protection (DEP) Division of Water Resources. Each monitor well was constructed of 4-inch schedule 40 polyvinylchloride (PVC) flush-threaded pipe with No. 10 (0.010 inch) machine slotted PVC screen. An average of 15 feet of screen was used in each well with a minimum 2 feet of screen above the water table. The casing and screen were steam-cleaned prior to installation.

The annular space around the well screen was filled with No. 2 Ottawa sand from the bottom of the borehole to 2 feet above the top of the screen. Bentonite pellets were used to form a seal approximately 2 feet thick on top of the sand pack. A Portland cement, bentonite grout mixture (6:1 dry weight), was used to complete the seal in the annular space. All monitor wells were

secured by enclosing the PVC riser pipe in a protective steel casing with a locking cap. Figure 2-1 shows the well construction used. Well construction summaries for each well installed are included in Appendix B. Monitor wells were developed after installation by pumping (or bailing) until discharge was free of fine-grained sediments.

Accessibility was limited at a number of monitor well locations; a track-mounted drill rig was used to install nine of the twenty-nine wells. Drill rigs were initially decontaminated by stream cleaning between each site investigated and before leaving NSW Earle.

The 29 monitor wells were installed in groups at each of the nine sites. The following sections detail monitor well placement at each site investigated at NWS Earle. The monitor wells were numbered with the site number and the well number (i.e., well 2-1 is well 1 at site 2).

2.1.1 Site 2: Ordnance Demilitarization Site

This site is currently being used for the demilitarization of ordnance materials on- and off-base. Demilitarization operations are presently employing thermal destruction methods. Some explosive and propellants disposed of at this site include the following: ammonium picrate, trinitrotoluene C-4 (waxed RDX), black powder, and double base propellants (nitroglycerin). Due to the high solubility and toxic nature of the wastes disposed of, and the permeable formations present at the site, it was necessary to install four groundwater monitoring wells around the perimeter of the site, ranging from 19 to 30 feet below ground surface. These wells were installed to provide water quality data and groundwater flow direction data for the shallow sandy aquifer in the area to determine if contaminants, resulting from the demilitarization operations, have migrated into the groundwater. The locations of these four wells are shown in Figure 2-2.

2.1.2 Site 3: Landfill Southwest of "F" Group

This 5-acre landfill received approximately 4,800 tons of refuse over its 9-year period of operation. Wastes disposed of here typically included municipal and industrial wastes, such as glass, paper, plastics, solvents, acids, alcohols, caustics, pesticide containers, paint thinner, and paint. Typical paint used at Earle consists of the following chemical compounds: titanium dioxide, zinc oxides, magnesium silicate, alkyd resin solution, petroleum spirits, lead naphthenate, cobalt naphthenate, manganese naphthenate, and xylene. Due to the possible breakdown of the materials disposed of, and the high

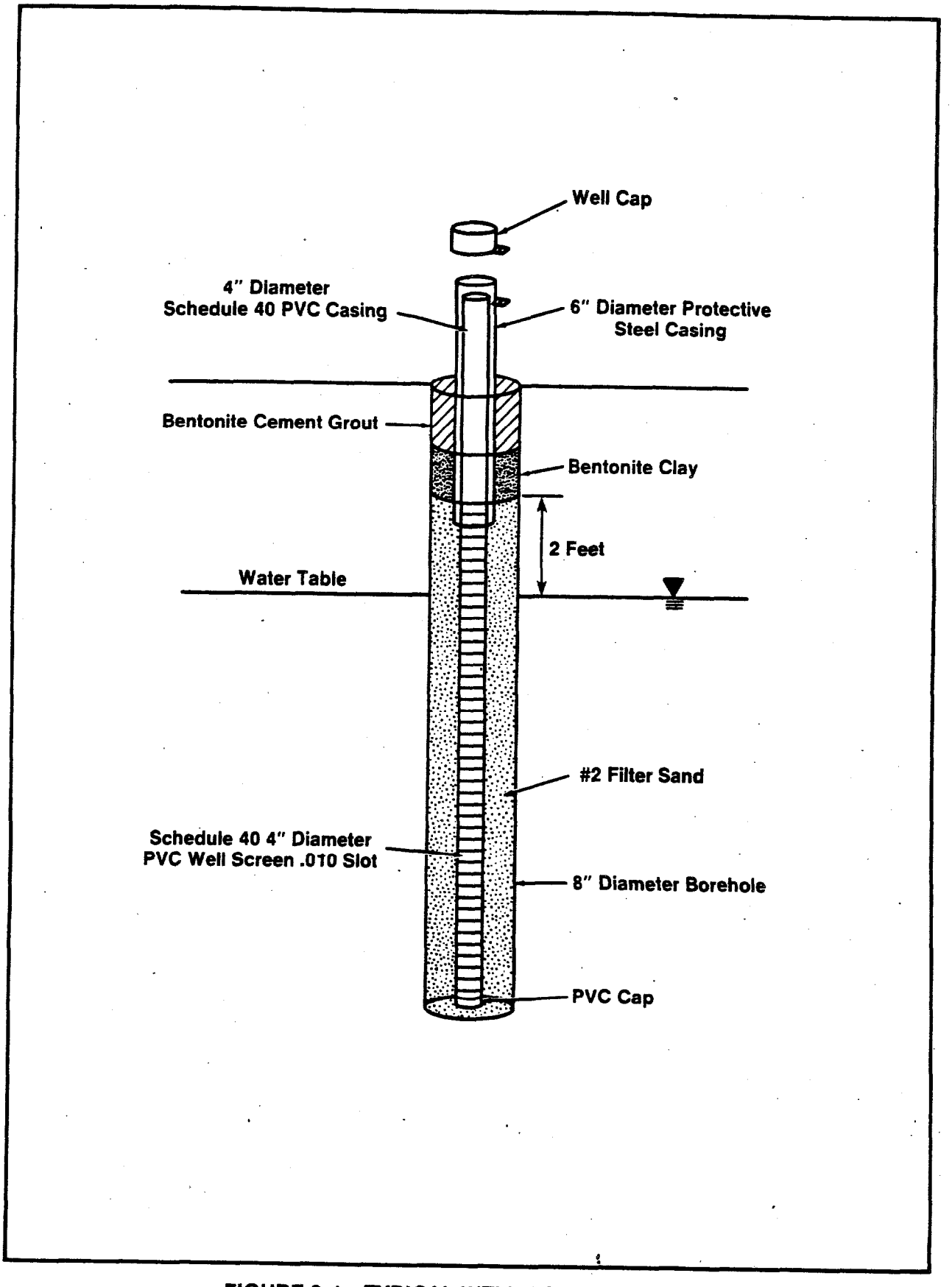

FIGURE 2-1 TYPICAL WELL CONSTRUCTION

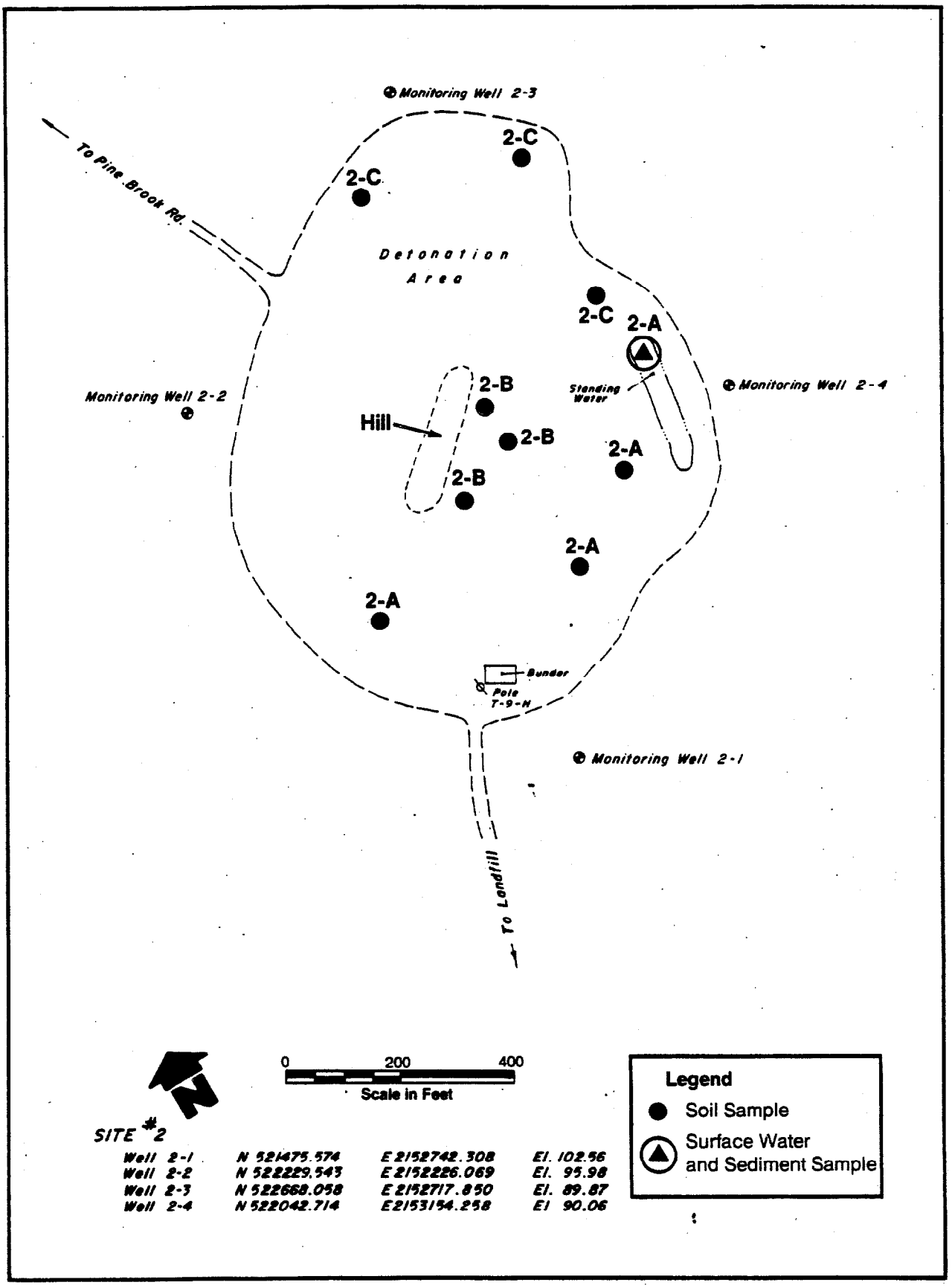

FIGURE 2-2 SITE 2 - ORDNANCE DEMILITARIZATION SITE MONITOR WELL AND SAMPLING LOCATIONS

potential for migration of contaminants into the underlying soil and groundwater, three groundwater monitoring wells were installed approximately 25 feet below surface (see Figure 2-3). These wells were installed to provide data on water quality and groundwater flow direction for the shallow aquifer to determine if contaminants leached from either the municipal or industrial wastes disposed of have migrated into the groundwater.

2.1.3 Site 4: Landfill West of "D" Group

This 5-acre site received approximately 10,200 tons of municipal and industrial wastes, similar to those disposed of at site 3, over a period of 17 years. Disposal methods used at this site included open trench burning of some wastes before burial. Since the depth of these trenches could not be determined from the initial assessment study (I.A.S.), it is assumed that the bottoms of these trenches are very close to the water table, thus posing a high potential for contaminants to migrate into the groundwater. Field activities included the installation of three groundwater monitoring wells, ranging from 18 to 30 feet deep, to provide data on groundwater flow direction and water quality to determine if any contaminants have migrated into the groundwater (see Figure 2-4).

2.1.4 Site 5: Landfill West of Army Barricades

The 6,600 tons of waste disposed of at this 13-acre site over its 10-year period of operation are very similar to the waste described in site 3. Due to the nature of the disposed wastes here and the permeability of the soils underlying the site, four groundwater monitoring wells were installed approximately 30 feet below groundwater surface around the perimeter of the site (see Figure 2-5). These wells were to provide data on groundwater flow direction and water quality for the shallow aquifer to determine if any contaminants have entered the groundwater.

2.1.5 Site 7: Landfill South of "P" Barricades

This site, located near the waterfront area in Leonardo, operated for approximately 12 years and received less than 2,500 tons of refuse per year. Waste disposed of at this 15-acre landfill typically included munitions shipping material (drainage etc.), glass, wood, small amounts of waste paint, solvents, thinners, and some domestic refuse.

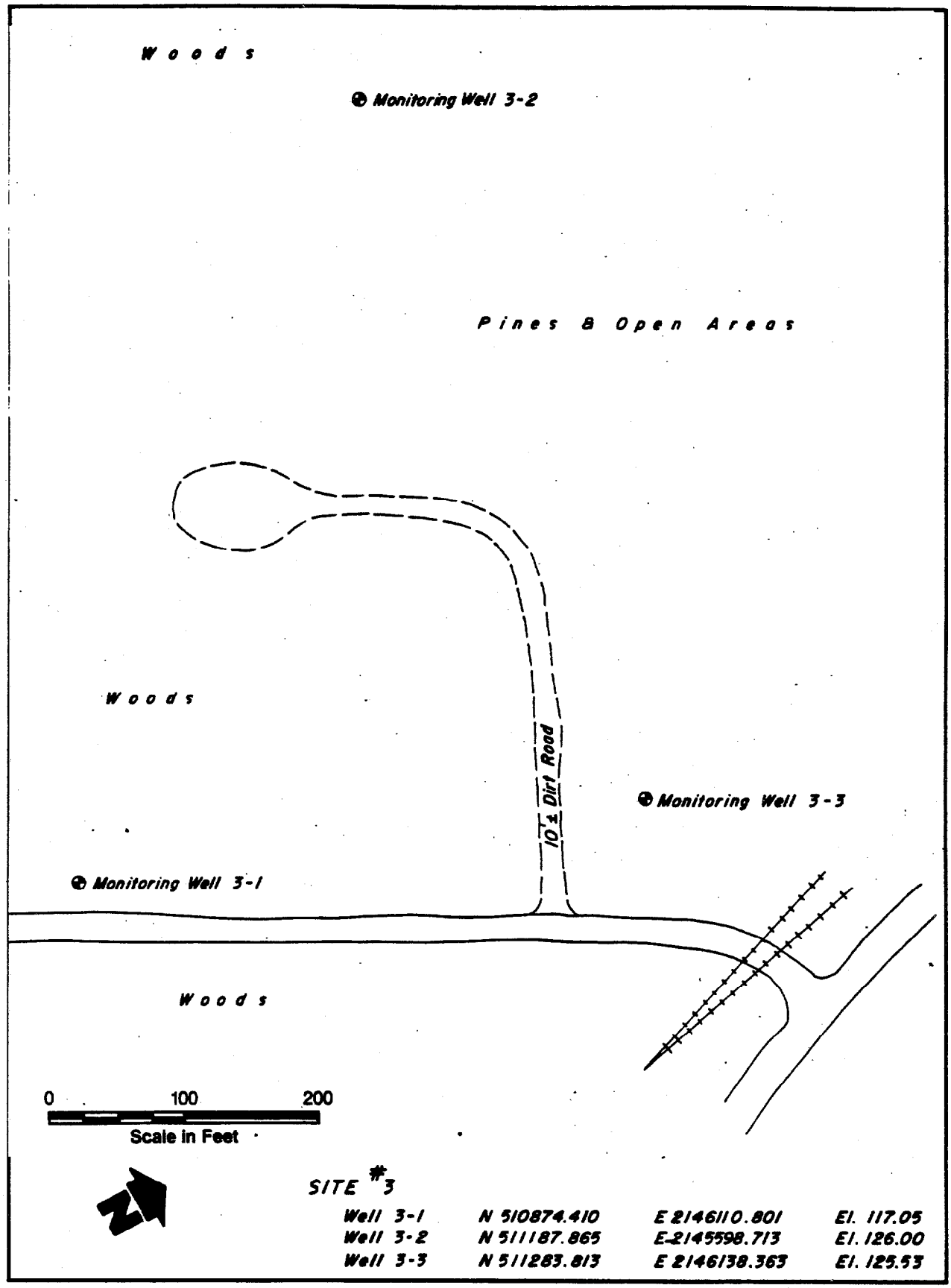

FIGURE 2-3 SITE 3-LANDFILL SOUTHWEST OF "F" GROUP MONITOR WELL LOCATIONS

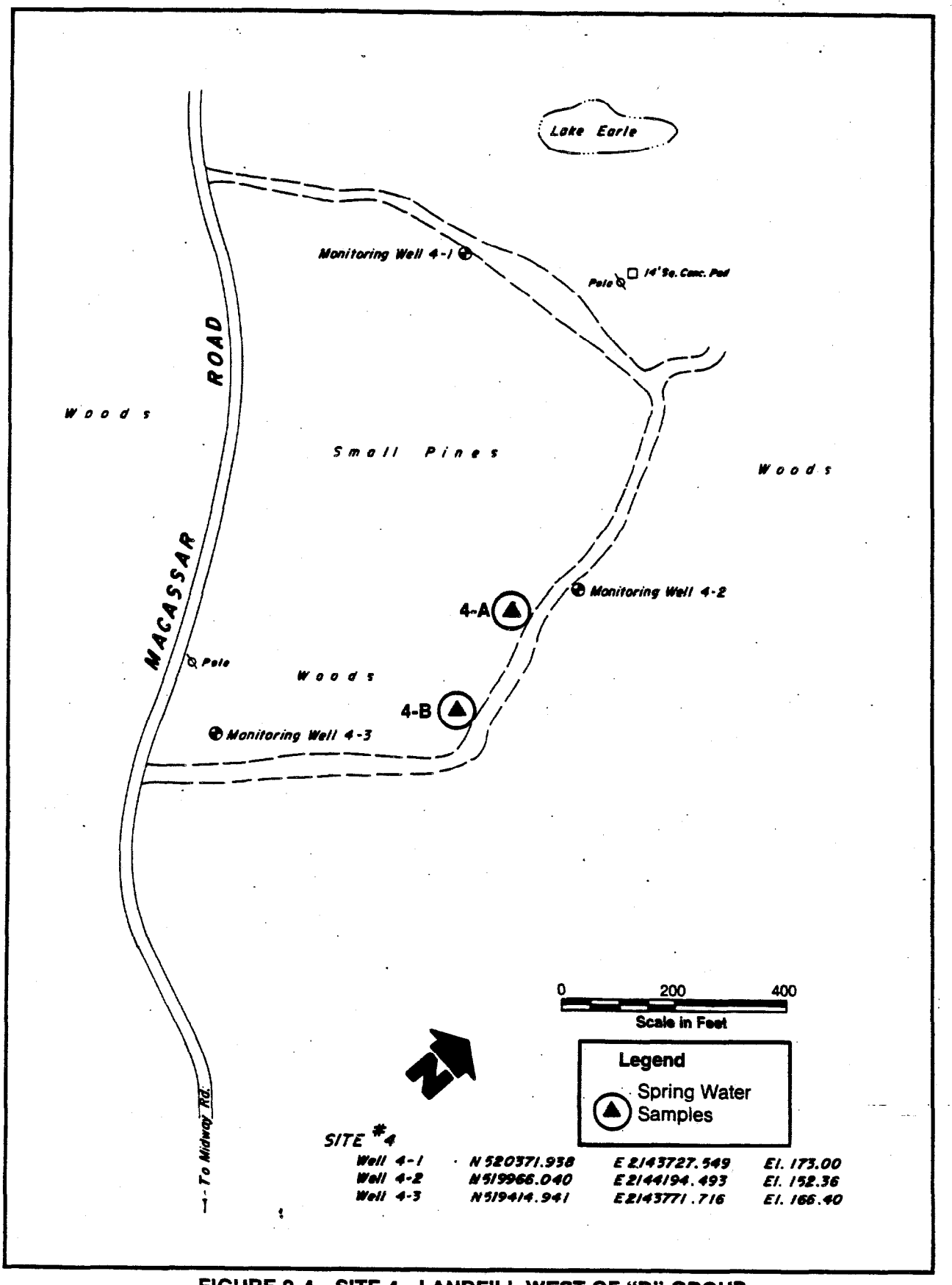

FIGURE 2-4 SITE 4 - LANDFILL WEST OF "D" GROUP MONITOR WELL AND SAMPLE LOCATIONS

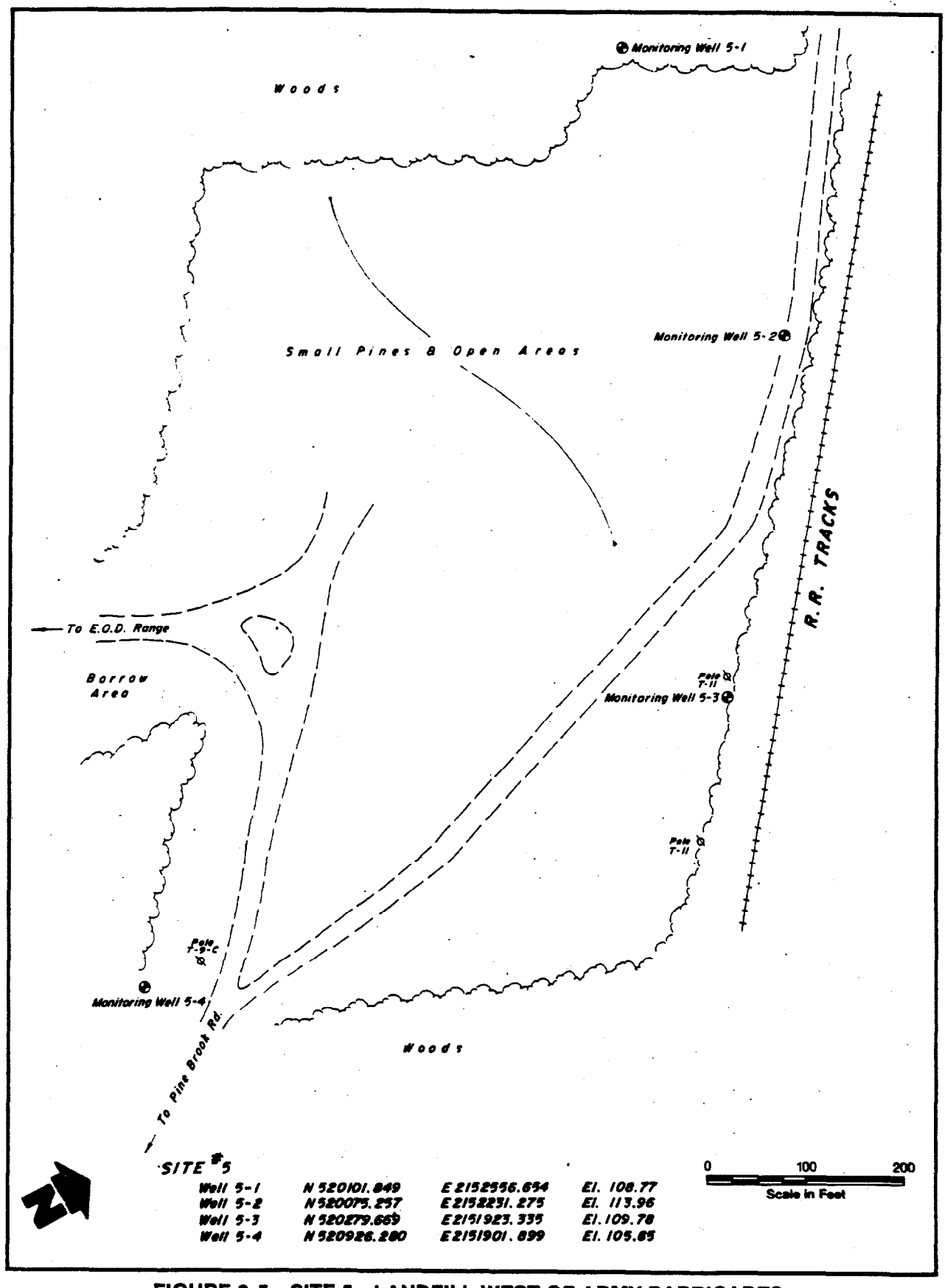

FIGURE 2-5 SITE 5 - LANDFILL WEST OF ARMY BARRICADES MONITOR WELL LOCATIONS

Due to the nature of the disposed waste and the possible migration of contaminants into the shallow sandy aquifer underlying the site and Sandy Hook Bay, three groundwater monitoring wells were installed around the perimeter of the landfill. These wells ranged from 19 to 39 feet deep, and provided data on groundwater quality and flow direction. The locations of these wells are shown in Figure 2-6.

2.1.6 Site 10: Scrap Metal Landfill Near Building S-589

This 2-acre site was used to dispose of aluminum and steel containers and spent shell cases. Paint chips and spent blasting grit from maintenance operations were also disposed of at this site. Due to the possible breakdown of the paint chips and the migration of the degradation products into the groundwater, three groundwater monitoring wells were installed around the perimeter of the landfill (see Figure 2-7) . These wells were installed to provide data on groundwater flow direction and water quality in the shallow aquifer. Wells were completed at depths ranging from 22 to 27.5 feet below ground surface.

2.1.7 Site 11: Contract Ordnance Disposal Area

This 2-acre site was used by an outside contractor to dispose of obsolete ordnance material using some thermal destruction techniques. It was also used as a training area for fire-fighting exercises for approximately 3 years. The exercises were conducted in two unlined pits measuring roughly 30 feet in diameter and 2 feet deep using oil-soaked reject airplanes and vehicles. Any remaining unburned oil was left in the pit and soaked into the soil. The area was secured at a later data (after 1977) by removing the soil and regrading the area. Due to the possibility of the residue wastes resulting from the demilitarization of ordnance materials and the fire-fighting exercises migrating into the groundwater, three groundwater monitoring wells were installed to determine groundwater quality and flow direction in the shallow aquifer underlying the site (see Figure 2-8). Depth of the wells ranged from 18 to 20 feet.

2.1.8 Site 19: Paint Chip and Sludge Disposal Area Adjacent to Building S-34

This site was used for the periodic renovation of depth charges for approximately 20 years. Operations at this site involved the removal of loose paint and rust on the exterior including wire brushing aided by solvent baths, followed by a final wash with water. After reviewing past site disposal practices, the specific quantity of waste residue disposed on- and off-site could not be determined. Due to the possible existence of residue on-site and its migration into the surrounding ground-

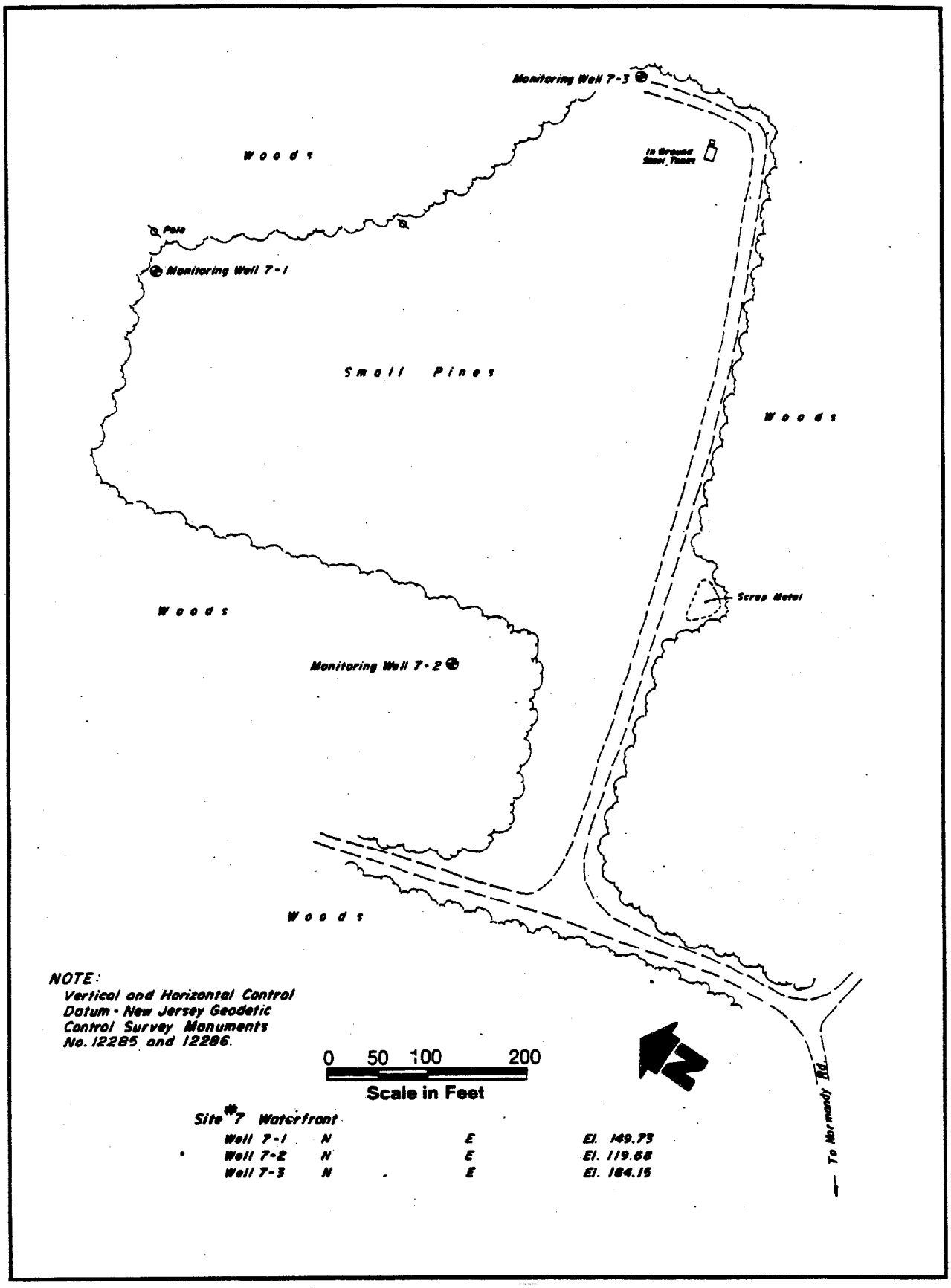

FIGURE 2-6 SITE 7 - LANDFILL SOUTH "P" BARRICADES MONITOR WELL LOCATIONS

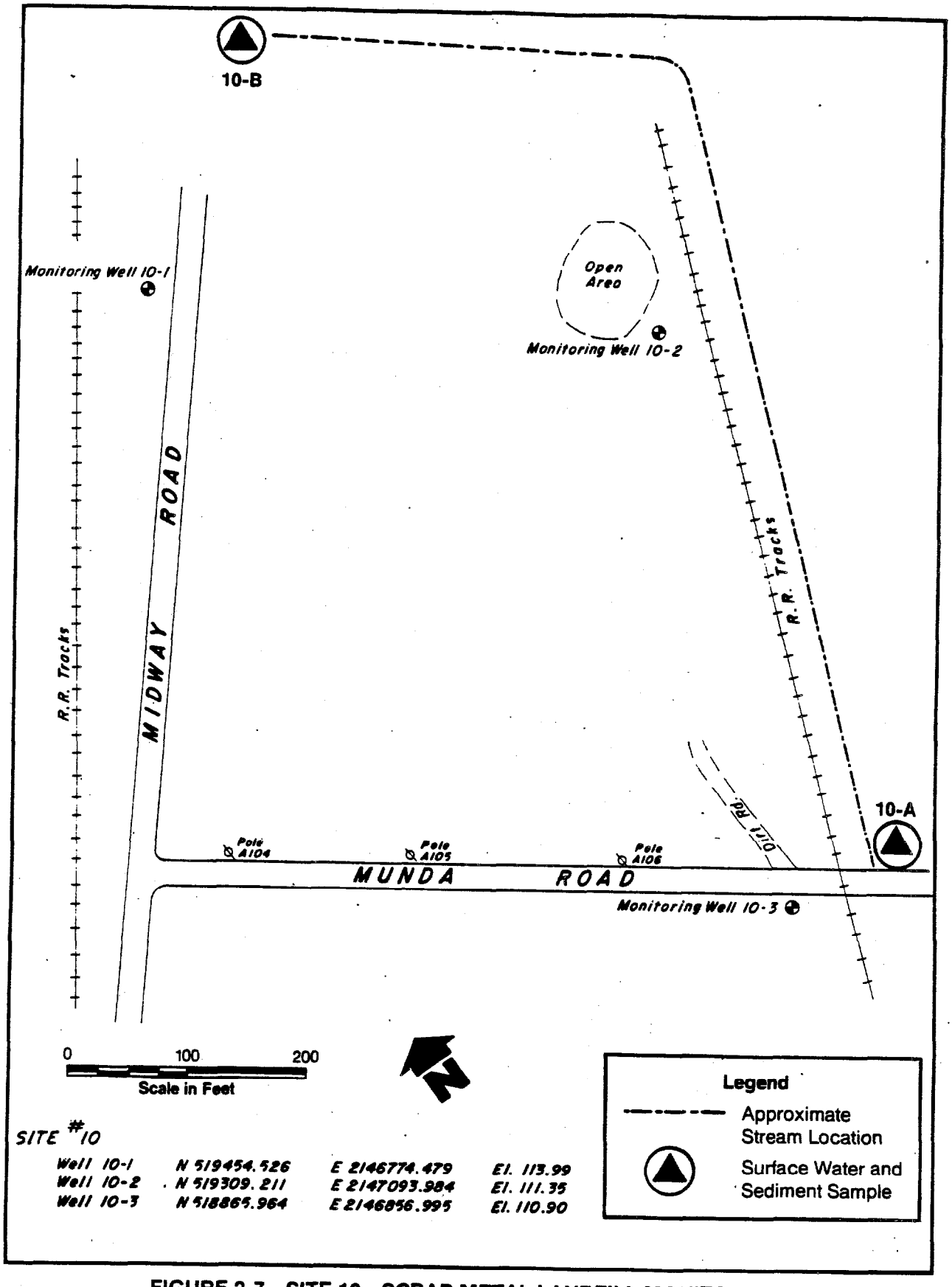

FIGURE 2-7 SITE 10 - SCRAP METAL LANDFILL MONITOR WELL AND SAMPLING LOCATIONS

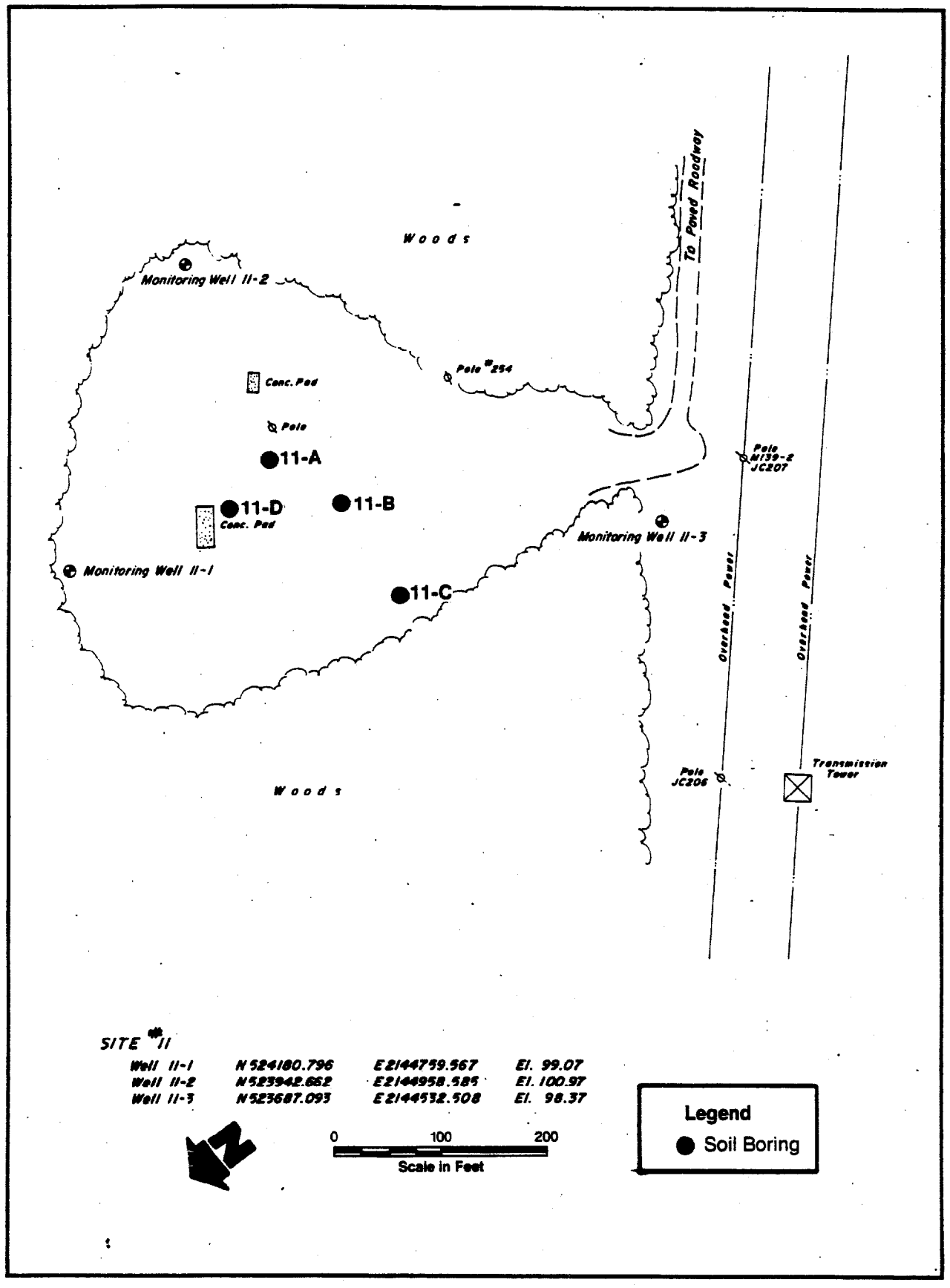

FIGURE 2-8 SITE 11 - CONTRACT ORDNANCE DISPOSAL AREA MONITOR WELL AND SAMPLE LOCATIONS

water and surface water environments, three groundwater monitoring wells were installed around the perimeter of the site. These wells, 24 to 25 feet deep, were installed to provide data on flow and quality of the groundwater in the shallow aquifer. Locations of the wells are shown in Figure 2-9.

2.1.9 Site 26: Explosive "D" Washout Area (Building GB-1)

This site was used for the removal and recovery of ammonium picrate (Explosive "D") from 5-inch shells for 1 year. High-pressure hot water was used to wash out the soluble explosive (1 g in 78 ml of H_2O at 20°C). The discharge containing the explosive compound flowed into a chain of cascading tanks allowing the water to cool and precipitate the ammonium picrate. The discharge from these tanks flowed through an open tile pipeline into an unlined settling basin behind the building. The effluent was then allowed to evaporate from the basin or percolate down into the soil. Because of the high solubility of ammonium picrate at low temperatures, the possibility exists that a dissolving/recrystallization process may have occurred in the soils underlying the settling basin. This process is the result of rainfall or excessive effluent percolating through the soils redissolving ammonium picrate crystals present in the soil, migrating them downward, until the temperature of the solution was lowered or over-saturation occurred, causing the ammonium picrate to recrystallize. The process may continue until the ammonium picrate eventually reaches the groundwater. Field activities included the installation of three groundwater monitoring wells, ranging from 22 to 24 feet deep, around the perimeter of the settling basin to determine the groundwater flow direction and the water quality in the shallow aquifer. Locations of these wells are shown in Figure 2-10.

2.2 SAMPLING PROGRAM

The purpose of the sampling program was to identify the location, concentration, and areal extent of contamination in the hydrogeologic environment. From this information, it is possible to determine the general direction in which contaminants are migrating and their probable origin.

The analytical program followed was outlined in the Plan of Action and Management; it was developed based on the type of waste disposed at each site and the chemical and physical properties of that waste. Table 2-1 lists the parameters analyzed for each site in groundwater, soil, surface water, and sediment samples. The number of quality assurance/quality control samples are also indicated.

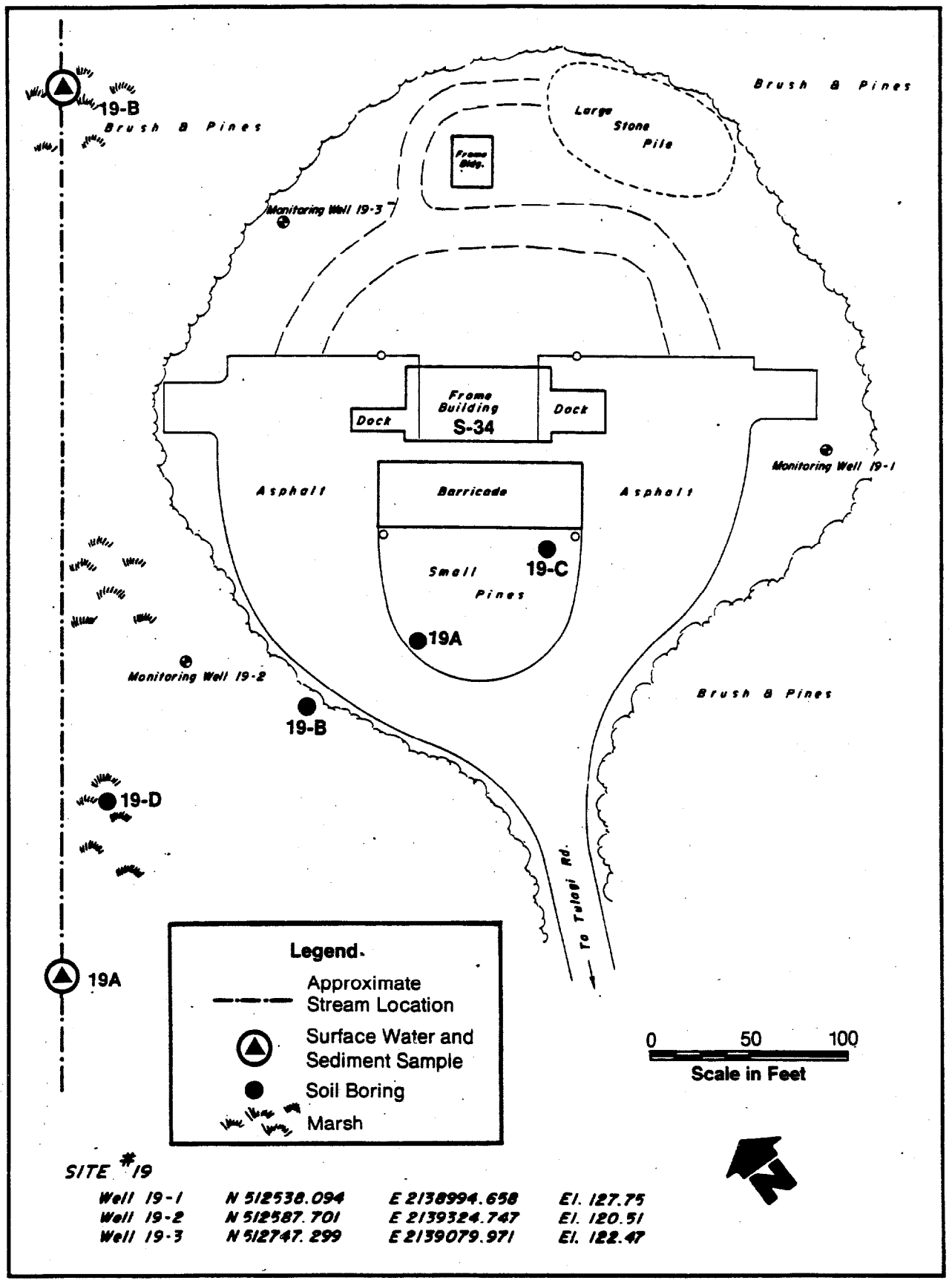

FIGURE 2-9 SITE 19 - PAINT CHIP AND SLUDGE DISPOSAL AREA MONITOR WELL AND SAMPLE LOCATIONS

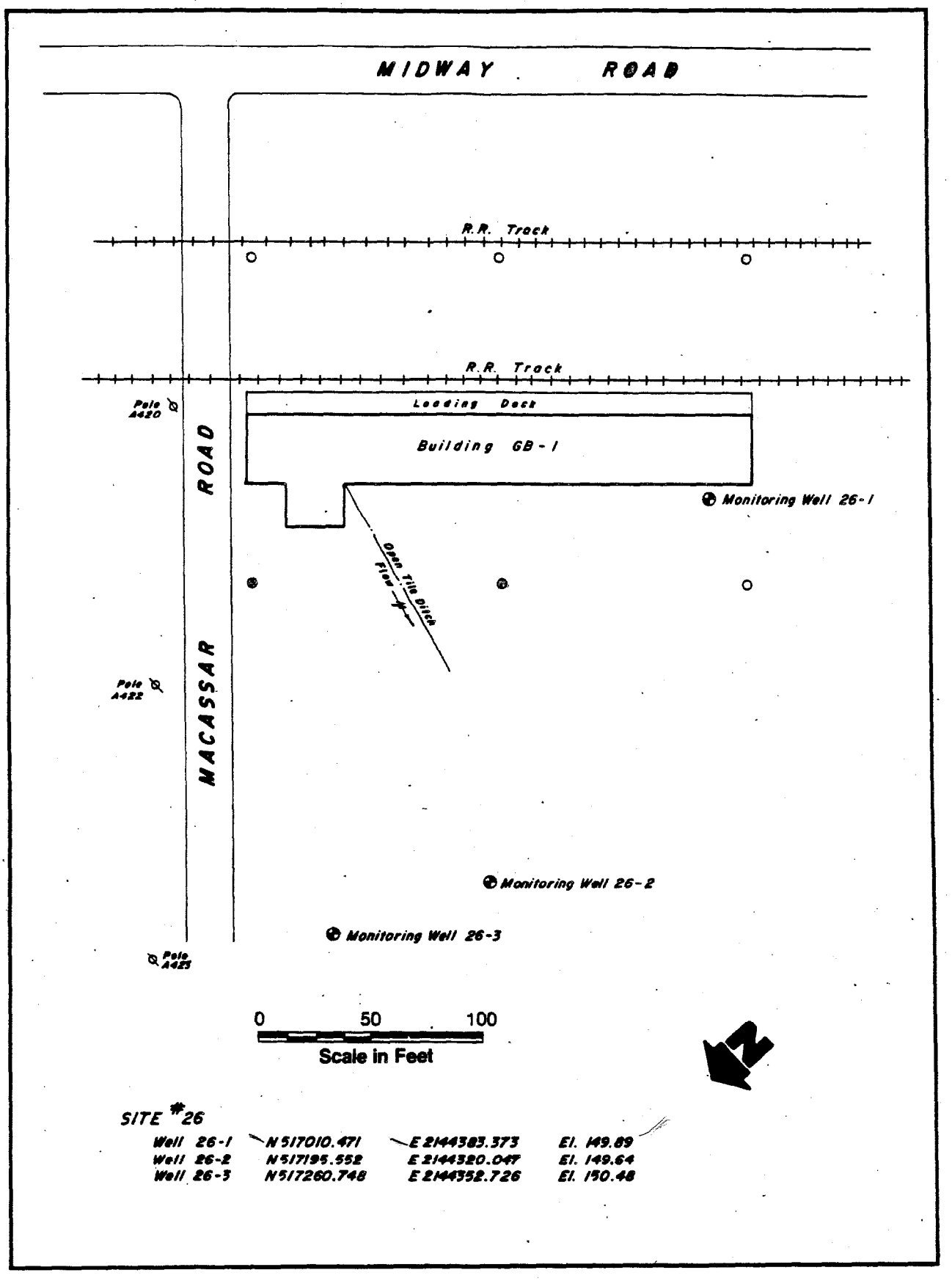

FIGURE 2-10 SITE 26 - EXPLOSIVE "D" WASHOUT AREA MONITOR WELL LOCATIONS

Table 2-1

Analytical Summary

Analyte	Method	Medium	Site I. D. 2	3	4	5	7	10	11	19	20	22	26	QA Blanks	QC Dupli-cates	Total
TOX	SW-9030	Groundwater	4	3	3	4	3	3	3	3	-	-	-	5	3	34
	SW-9030	Surface water	4	-	-	-	-	4	-	4	-	-	-	1	1	14
	SW-9030	Soil	-	-	-	-	-	-	-	-	-	-	-			8
	SW-9030	Sediment	-	-	-	-	-	4	-	4	-	-	-	1	1	10
TOC	EPA 415.2	Groundwater	4	3	3	4	3	3	3	3	-	-	-	5	3	34
	EPA 415.2	Surface water	4	-	-	-	-	4	-	4	-	-	-	1	1	14
Volatile organics and total xylene	FR 624	Groundwater	-	3	3	4	3	3	-	3	-	-	-	4**	2	25
	FR 624	Surface water	-	-	-	-	-	4	-	4	-	-	-	1	1	10
	SOW 9/84	Soil	-	-	-	-	-	-	-	-	-	-	-			8
	SOW 9/84	Sediment	-	-	-	-	-	4	-	4	-	-	-	1	1	10
Oil/grease	EPA 413.1	Groundwater	-	-	-	-	-	-	3	-	-	-	-	3	1	7
	SW-3540	Soil	-	-	-	-	-	-	-	-	-	-	-			8
Petroleum hydrocarbons	EPA 418.1	Groundwater	-	3	3	4	3	3	-	3	-	-	-	4	2	25
	EPA 418.1	Surface water	-	-	-	-	-	4	-	4	-	-	-	1	1	10
	SW-3540	Soil	-	-	-	-	-	-	-	-	-	-	-			24
	SW-3540	Sediment	-	-	-	-	-	4	-	4	-	-	-	1	1	10
Nitrate/nitrate	EPA 353.1	Groundwater	4	3	3	4	3	3	3	3	-	-	-	4	2	34
	EPA 353.1	Surface water	4	-	-	-	-	4	-	4	-	-	-	1	1	14
	EPA 353.1	Soil	-	-	-	-	-	-	-	-	-	-	-			3
	Sample Prep. ASH-SEC 84	Sediment	4	-	-	-	-	-	-	-	-	-	-	1	1	6
Base/neutral Acid compounds	FR-625	Groundwater	4	3	3	4	3	3	3	3	-	-	-	5	3	34
		Surface water	4	-	-	-	-	4	-	4	-	-	-	2	1	14
Priority Pollutant metals (soluble)	EPA-approved for each metal	Groundwater	4	3	3	4	3	3	3	3	-	-	-	5	3	34
		Surface water	4	-	-	-	-	4	-	4	-	-	-	1	1	14
Priority Pollutant Metals (total)	EPA-approved for each	Soil	-	-	-	-	-	-	-	-	-	-	-	1		8
		Sediment	-	-	-	-	-	4	-	4	-	-	-	1		10

0650B

Table 2-1
(continued)

Analyte	Method	Medium	Site I. D. 2	3	4	5	7	10	11	19	20	22	26	QA Blanks	QC Dupli-cates	Total
Pesticides	FR-608	Groundwater	-	3	3	4	3	-	-	-	-	-	-	3	1	17
RDX, HMX, TNT	USATHAMA-8G	Groundwater	4	-	-	-	-	-	3	-	-	-	-	3	1	11
		Surface water	4	-	-	-	-	-	-	-	-	-	-	1	1	6
	USATHAMA-8H	Soil	-	-	-	-	-	-	-	-	-	-	-			3
	USATHAMA-8H	Sediment	4	-	-	-	-	-	-	-	-	-	-	1	1	6
N.G., picric Acid	USATHAMA-HPLC	Groundwater	4	-	-	-	-	-	3	-	-	-	3	3	1	14
		Surface water	2	-	-	-	-	-	3	-	-	-	3	1	1	6
	USATHAMA-HPLC	Soil	-	-	-	-	-	-	3	-	-	-	3			3
		Sediment	2	-	-	-	-	-	-	-	-	-	-	1	1	6
EP toxicity (ZN, Cr, Pb, Ti)	SW-130	Soil	-	-	-	-	-	-	-	-	-	-	-	1	1	18
pH, chloride, specific conductance	EPA-approved	Groundwater	4	3	3	4	3	3	3	3	-	-	-	5	3	34
		Surface water	4	-	-	-	-	4	-	4	-	-	-	1	1	14

**Includes tripblanks

Note: Up to three samples will be collected from well cuttings for full EP toxicity and ignitability analyses.

2.2.1 Groundwater Quality Sampling Methods

2.2.1.1 Monitor Well Purging

Groundwater samples were collected from each monitoring well from 14 to 25 July 1986. All samples were collected approximately 4 months after development. Each well was purged before sampling by either pumping with a submersible pump or bailing with a Teflon bailer to ensure that a representative sample of the aquifer was collected. Monitor well purging followed these guidelines:

- Submersible pumps were decontaminated prior to use in a well by placing them in new, separate garbage cans which were filled with an Alconox solution. Ten to fifteen gallons of the solution were pumped through the pump and attached hose. The cans were then filled with clean water and another 10 to 15 gallons were pumped. A distilled water rinse followed and the decontaminated pumps were transported in the garbage cans to prevent subsequent contamination. Purging bailers were decontaminated using an alconox solution followed by a deionized water rinse.

- Before purging, the depth to water from the measuring point on the well casing was measured and recorded. Measurements of the depth of the well were also recorded.

- The volume of water to be purged was calculated based on the amount of standing water in the well.

- The calculated volume of at least 5 times standing water in the well was purged.

- Equipment was decontaminated as in Step 1 before use in the next well.

2.2.1.2 Monitor Well Sample Collection

Each of the monitor wells was sampled using Teflon bailers. All required sample containers were prepared and supplied by the WESTON laboratory. Any preservatives necessary were added to the bottles at the WESTON laboratory. All deionized water used in decontamination procedures was also obtained from the WESTON laboratory. Sampling activities were conducted for each monitoring well as follows:

- Sampling equipment was placed on a plastic apron. The sample bottles were appropriately labeled at each well location. Groundwater sample numbers corresponded with the monitor well numbers (see Subsection 2.1).

- Teflon bailers were decontaminated by washing with an alconox solution followed by a deionized water rinse. At sites 2 and 11, all sampling equipment was rinsed with an acetone solution and a hexane solution before the final deionized water rinse. All rinse water from sites 2 and 11 was containerized and taken to the station wastewater treatment plant for disposal.

- Nylon cord was used to lower the bailer into the well. A length was cut for each well and was dedicated to a particular well.

- Before purging, any samples to be analyzed for oil and grease were collected. The samples were collected by slowly lowering the bailer into the well to the air-water interface and allowing the bailer to fill with the first 6 inches of water without overflowing.

- All other samples were collected after purging. To collect samples, the bailer was slowly lowered into the well and allowed to fill with water. The first bailer-full was collected just below the water surface and was used for petroleum hydrocarbon analyses.

- Sample bottles for volatile organic compounds were filled after the oil and grease or petroleum hydrocarbon samples were collected. The sample bottles were filled with as little disturbance to the sample as possible so that a miniscus extended above the top of the bottle and the bottle was then inverted to verify that no air bubbles were present in the sample.

- Samples to be analyzed for soluble metals were filtered in the field as soon as possible after collection. Filtering equipment was decontaminated with nitric acid and deionized water.

- Field blanks were collected by pouring deionized water through decontaminated bailers into appropriate sample bottles. Blanks were collected just before the groundwater sample for which they were numbered. For example, 2-1B is a field blank collected just prior to groundwater sample 2-1.

- Temperature, pH, and specific conductivity measurements were made in the field for samples drawn from each well.

- All samples were stored on ice after collection to ensure preservation of sampling integrity during transportation to the lab.

- Chain-of-custody forms were completed for each sample collected.

2.2.2 Surface Water Quality Sampling Methods

Surface water samples were collected from streams and ponds at sites 2, 10, and 19 at the time of monitor well sampling. Two sets of samples were collected over time at each sampling location with the second set collected 5 to 6 hours after the first set. At each site, an attempt was made to collect samples at locations upstream and downstream of the site. Sample analytical parameters are listed on Table 2-1. The samples were collected as follows:

- The sampler stood either on the stream bank or downstream of the sampling location to avoid stirring up sediment or contaminating the sample.

- Bottles were submerged in the stream, if possible, until filled. If preservative had been added to the bottles, then an intermediate bottle was used to fill the sample bottles. The sampler wore butyl gloves which were changed at each sampling location.

- Samples to be analyzed for petroleum hydrocarbons were collected first with the mouth of the collection bottle half submerged in the stream and filled without overflowing.

- Samples for volatile organic compounds analyses were collected after the petroleum hydrocarbon samples. Bottles were filled so that a miniscus extended over the top of the bottle. The cap was screwed on; the bottle was then inverted and inspected for air bubbles.

- Samples to be analyzed for soluble metals were filtered in the field as soon as possible after collection.

At site 2, samples were collected over time from standing water on-site (see Figure 2-2 for sampling locations). An attempt was made to sample the stream located northeast of the site as indicated in the POA and M, but the stream was not flowing at the time of sampling. These samples were labeled 2-A (first hour) and 2-A (sixth hour).

Samples were collected over time at two locations at site 10 (see Figure 2-7 for sample locations). Samplers were labeled 10-A (first hour), 10-A (sixth hour), 10-B (first hour), and 10-B (sixth hour). The 10-A samples were collected upstream of the site; 10-B samples were collected downstream of the site. Samples were also collected over time at two locations at site 19 (see Figure 2-9 for sample locations). Samples were labeled 19-A (first hour), 19-A (sixth hour), 19-B (first hour), and 19-B (sixth hour). The 19-B samples were collected upstream of the site; 19-A samples were collected downstream of the site.

2.2.3 Additional Water Quality Sampling Methods

Two springs were sampled at site 4 concurrent with the monitor well sampling (see Figure 2-4 for sample locations). Each spring was sampled twice, with the second set of samples collected 5 to 6 hours after the first. The samples were labeled 4-A (first hour), 4-A (sixth hour), 4-B (first hour), and 4-B (sixth hour) and were analyzed for the same parameters as the monitor wells at site 4 (see Table 2-1).

The springs were sampled by digging a hole in the soil to collect enough water to submerge the sample bottles. All digging was done using dedicated stainless steel scoops. The samples were then collected by the same procedures as used with surface water samples.

2.2.4 Sediment Quality Sampling Methods

Sediment samples were collected concurrently with the surface water samples at sites 2, 10, and 19 (see Figures 2-2, 2-7, and 2-9 for sample locations). The samples were analyzed for those parameters listed in Table 2-1.

The samples were collected using dedicated stainless steel scoops and spatulas. Samples to be analyzed for volatile organic compounds were collected by filling the sample bottles, leaving as little air space as possible. The samples were labeled identically to the corresponding surface water sample and were also collected overtime at 1- and 6-hour intervals.

2.2.5 Soil Quality Sampling Methods

Soil samples were collected at sites 2, 11, 19, 20, and 22 during January and March 1986 and analyzed for those parameters listed on Table 2-1. The samples collected in January were collected as split-spoon samples. All drillrig accessible locations were sampled at that time. The samples collected in March were collected by hand auger after the soil had thawed. At sites 11, 20, and 22, the samples were collected at discrete

intervals at depths of 0.5 to 1 foot and 2 to 3 feet (see Figures 2-8, 2-11, and 2-12 for sample locations). Samples collected at sites 2 and 19 were composite samples. At site 19, soil from depths 0.5 to 3 feet were composited at each of four sample locations (Figure 2-9). At site 2, three surface soil samples were collected; each was a composite of three grab samples (A, B, and C on Figure 2-2).

2.2.6 Sample Handling

All samples were handled and preserved following state and Federal EPA-prescribed methods to ensure integrity.

2.2.6.1 Chain-of-Custody Procedures

All WESTON field personnel followed U.S. EPA chain-of-custody procedures to ensure preservation of the integrity of all samples. The chain-of-custody record was initiated at the time of sample bottle preparation and followed each bottle and lot through the sequence form bottle preparation through completion of chemical analyses. Completed chain-of-custody forms for each sample are included in Appendix C.

Collected samples were kept under lock and key or visual control at all times until their shipment to the analytical lab. WESTON field samplers acted as sample custodians and document control officers to monitor the location of collected samples and to record vital sample information in the field log books.

2.2.7 Quality Assurance

WESTON field samplers implemented the following quality assurance procedures to ensure that the collection of representative samples and production of highest quality analytical data. Table 2-1 lists the number of QA/QC samples collected at each site by parameter.

- Field blanks were prepared and labeled as discussed in the previous sections. The containers were carried with all other sample containers during that date and were processed with the sample group lot. The deionized water was obtained from the WESTON laboratory. Field blanks were collected every 10 samples or every day, whichever was more frequent.

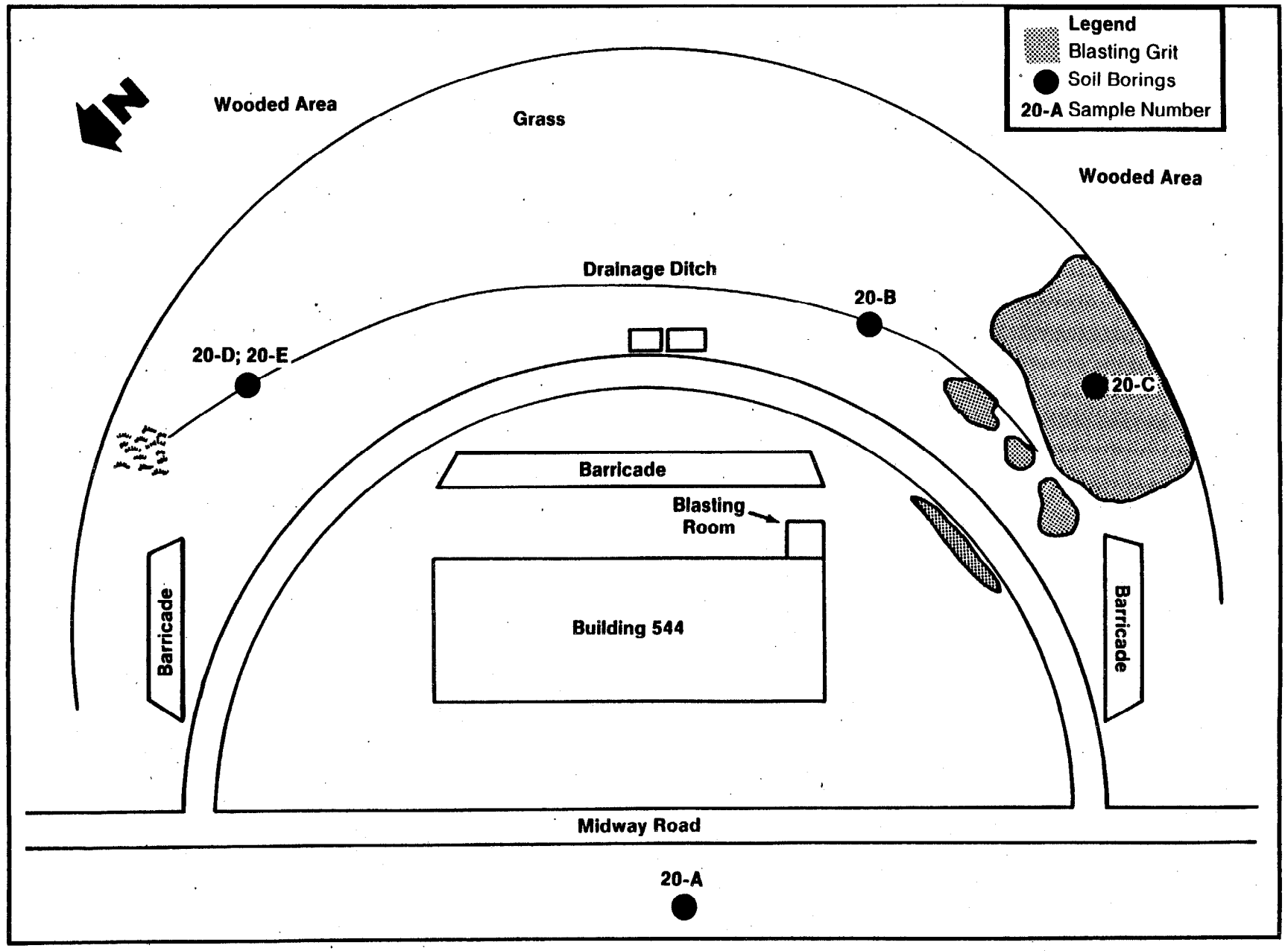

FIGURE 2-11 SITE 20 - GRIT BLASTING AREA AT BUILDING 544

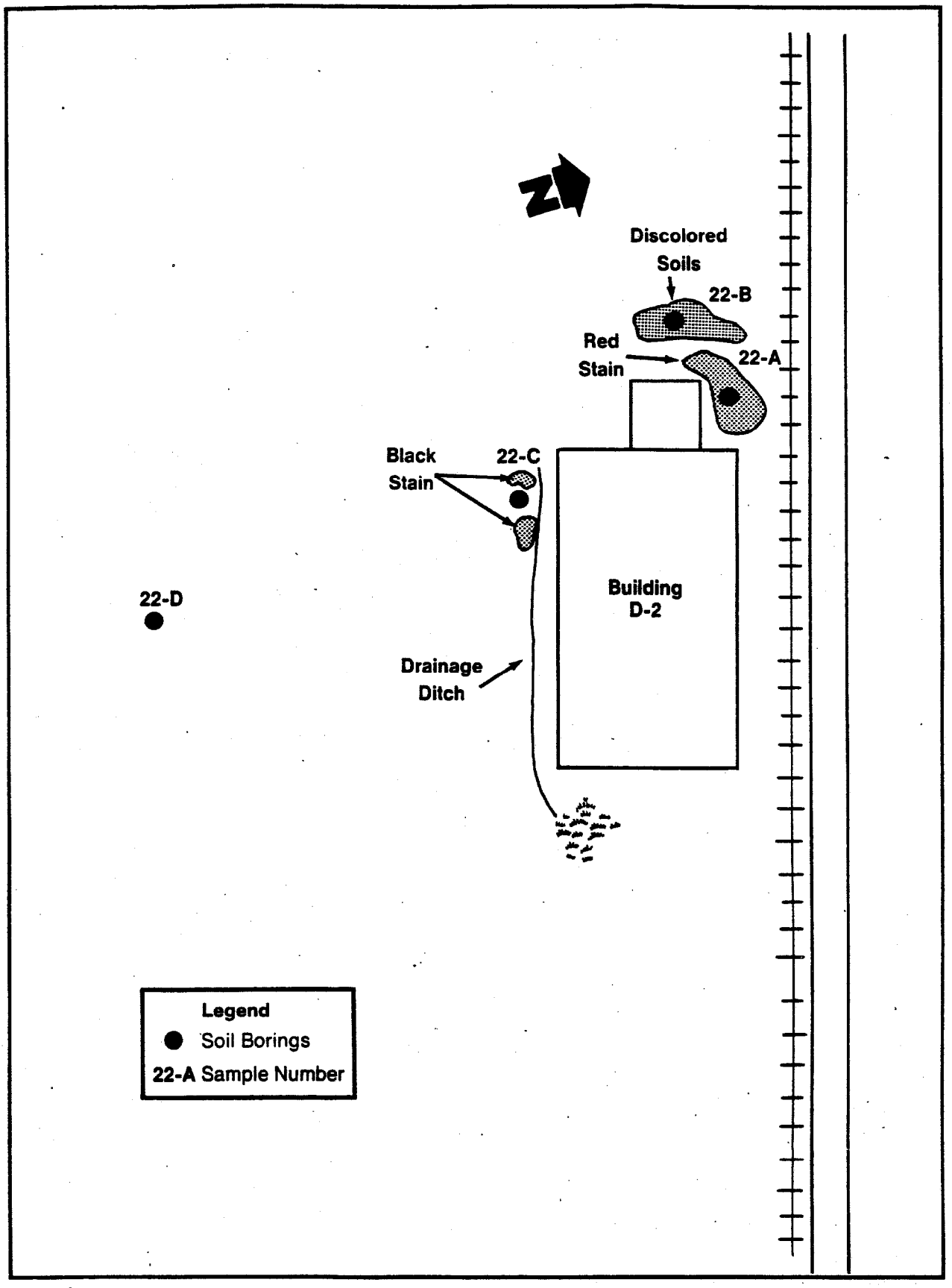

FIGURE 2-12 SITE 22 - PAINT CHIP DISPOSAL AREA

- A set of trip blank samples was prepared for each batch of samples that was transported to the laboratory for analysis. This set of blanks was processed with all other samples present in the batch. Trip blanks were prepared by pouring deionized water directly into a set of clean sample containers, and then placing the blanks in a clean cooler with the remaining samples. Trip blanks were prepared by WESTON laboratory personnel.

- Duplicate samples were collected throughout the sampling program, 1 every 10 samples.

- All equipment used in the sampling process was cleaned thoroughly before and after sampling to minimize possible off-site transport of site contaminants.

- All field analytical instruments, i.e., pH and specific conductivity, were recalibrated after 10 samples or every day, whichever was more frequent. pH paper was used in the event of pH meter malfunction.

The results of analysis of quality control samples are examined by the project scientist for the following reasons:

- Duplicate sample results are examined to determine that the results agree within the accuracy limits of the method for the analysis.

- Field blanks and trip blank samples are examined to ensure that all results are as expected, i.e., generally below the detection limit.

If an unexpected result is encountered several steps are taken to determine if there is a reasonable explanation. Results for laboratory blanks are examined to determine if contamination occurred in the laboratory. Discussion is initiated with laboratory personnel to determine if the laboratory quality control procedures have disclosed an out of control situation. If an adequate and acceptable explanation for the results cannot be obtained, then appropriate corrective action is identified and taken.

SECTION 3

FINDINGS

Pilot borings were drilled and monitor wells were installed during 17 December 1985 to 6 March 1986. Descriptive boring logs are attached in Appendix A. Well construction summaries are included in Appendix B. Soil samples were collected during January and March 1986. Groundwater, surface water, and sediment samples were collected during 14 to 25 July 1986. Chain-of-custody forms for all samples are included in Appendix C and all analytical results are attached in Appendix D. Monitor well elevations and water table elevations are presented in Table 3-1. Detection limits for water standards are shown in Table 3-2. Below is a site-by-site description of geology, hydrogeology and groundwater, surface water, and soil quality.

3.1 SITE 2 - ORDNANCE DEMILITARIZATION SITE

3.1.1 Geology

Based on split spoon samples taken every five feet during drilling of pilot borings for subsequent monitor well installation, the lithology of Site 2 was described as yellowish brown and olive glauconitic medium to coarse sand with trace amounts of silt. Clayey sand and silt (>5 percent) were found in the upper ten feet except at well 2-3 (see Figure 2-2 for location). Descriptive borehole logs are included in Appendix A.

3.1.2 Hydrogeology

Groundwater occurs under water table conditions at Site 2. Saturated materials were encountered within nine to fifteen feet of the surface. Groundwater levels were measured in July 1986 and locations and elevations of the monitor wells were surveyed during October to November 1986. Based on this information (see Table 3-1), a water table map was constructed to determine the direction of groundwater flow in the vicinity of Site 2 (see Figure 3-1). Groundwater flows towards the northeast with a hydraulic gradient of 0.0035. Well 2-3 is directly downgradient of the Site. The groundwater flow direction is toward a branch of Pine Brook and Children's Pond. The stream does not flow all year round and at the time of sampling was dry.

Table 3-1

Groundwater Elevations - July 1986

Well Number	Elevation PVC Casing (ft)	Depth to Water (ft)	Elevation of Groundwater (ft)
2-1	102.56	14.33	88.23
2-2	95.98	9.80	86.18
2-3	89.87	5.65	84.22
2-4	90.06	4.15	85.91
3-1	117.05	21.52	95.53
3-2	126.00	20.83	105.17
3-3	125.53	17.41	108.12
4-1	173.00	20.00	153.00
4-2	152.36	3.10	149.26
4-3	166.40	13.80	152.60
5-1	108.77	17.14	91.63
5-2	113.96	21.83	92.13
5-3	109.78	17.68	92.10
5-4	105.65	14.86	90.79
7-1	149.73	17.23	132.50
7-2	119.68	8.59	111.09
7-3	164.15	21.14	143.01
10-1	113.99	14.83	99.16
10-2	111.35	12.35	99.00
10-3	110.90	11.33	99.57
11-1	99.07	3.28	95.79
11-2	100.97	4.00	96.97
11-3	98.37	9.29	89.08
19-1	127.75	15.41	112.34
19-2	120.51	12.84	107.67
19-3	122.47	14.43	108.04
26-1	149.89	12.26	139.63
26-2	149.64	11.15	138.49
26-3	150.48	11.56	138.92

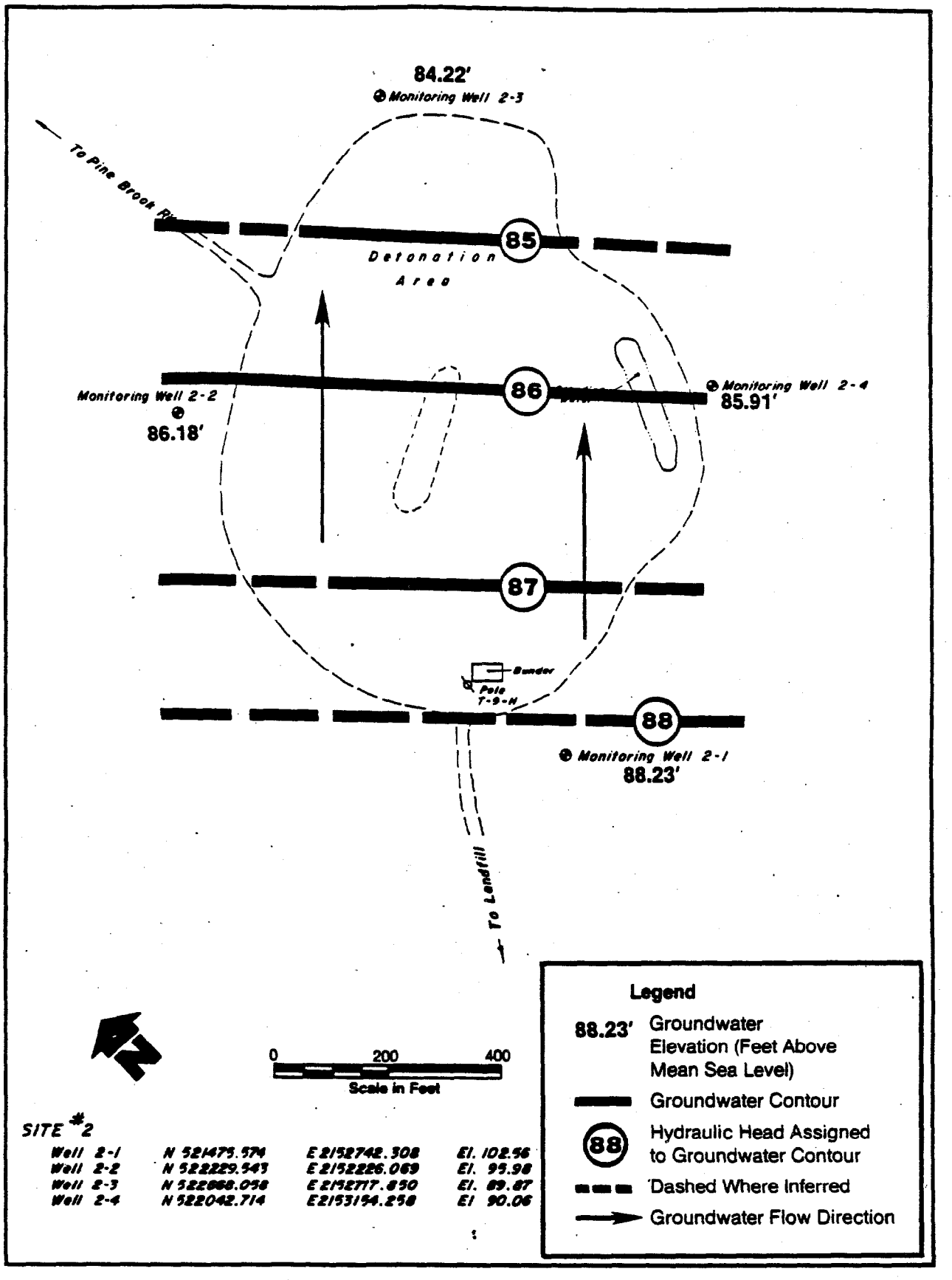

FIGURE 3-1 SITE 2 - ORDNANCE DEMILITARIZATION SITE GROUNDWATER FLOW MAP - JULY 1986

3.1.3 Groundwater Quality

Table 3-2 summarizes detection limits for groundwater samples. Analytical results for groundwater samples collected at Site 2 are summarized in Table 3-3A. Total organic halogens were detected in all Site 2 samples at concentrations which ranged from 18 ug/L to 35 ug/L (samples 2-3 and 2-2, respectively). Concentration of total organic carbon in sample 2-3 was almost double that found in the other wells at Site 2. Nitrate/nitrite was detected in wells 2-3 and 2-4 at 0.70 mg/L and 0.20 mg/L, respectively. No explosives were detected in any of the Site 2 wells. No base neutral or acid extractable organic compounds were detected at this site. Chromium, copper, nickel, silver, and zinc were detected at low levels in sample 2-1 but only zinc was detected in samples 2-2, 2-3, and 2-4. Chromium, copper, and nickel were detected at low levels in the field blank with the decontaminated boiler which was used to collect sample 2-1. Field measured pH ranged from 5.2 at well 2-3 to 7.0 at well 2-2. Laboratory pH measurements were significantly lower than field measurements. Chloride concentrations were low and varied only slightly (5.00 mg/L in sample 2-3 to 8.60 mg/L in sample 2.2). Specific conductance was also fairly low and ranged from 30 umhos in well 2-4 to 40 umhos in the remaining wells at Site 2.

3.1.4 Surface Water and Sediment Quality

Surface water and sediment at a pond at Site 2 was sampled over time (see Figure 2-2 for location). Two samples were collected five hours apart. Analytical results for the samples are summarized in Tables 3-3B and 3-3C. There was no significant change over time in any of the parameters which were analyzed for. Total organic halogens were detected in the surface water samples at concentrations similar to those in the groundwater. No significant differences were found in total organic halogens concentrations between groundwater and surface water. The concentration of total organic carbon in the surface water was about the same as that in well sample 2-3 (4.12 mg/L). Nitrate/nitrite was slightly higher in the surface water (1.0 mg/L) than in the groundwater. Explosives were not detected in either the surface water or sediment samples. No base/neutral or acid extractable organic compounds were detected in the surface water. Chromium, copper, nickel, lead, and zinc were detected at low levels in the surface water. PH was 4.20 in the surface water, slightly lower than in the groundwater. No chloride was detected in the surface water.

TABLE 3-2

Detection Limits for Water Samples

Analyte	Detection Limit (mg/l)
Total Organic Halogens	
Total Organic Carbon	.5
Oil and Grease	.2
Petroleum Hydrocarbons	.2
Nitrate/Nitrite	.1
Chloride	5.
Explosives:	
Nitroglycerin	5.
Picric Acid	4.0 (ug/l)
HMX	1.75 (ug/l)
RDX	1.0 (ug/l)
2,4,6-TNT	1.25 (ug/l)
Soluble Metals:	
Sb	0.01
As	0.01
Be	0.01
Cd	0.0025
Cr	0.01
Cu	0.01
Pb	0.005
Hg	0.5 (ug/l)
Ni	0.01
Se	0.005
Ag	0.0025
Tl	0.01
Zn	0.01

* Unless otherwise noted

TABLE 3-2 (Continued)

Detection Limits for Water Samples

Analyte	Detection Limit (ug/l)
Volatile Organic Compounds	
Chloromethane	10
Bromomethane	10
Vinyl Chloride	10
Chloroethane	10
Methylene Chloride	10
Acetone	10
Carbon Disulfide	10
1,1-Dichloroethene	10
1,1-Dichloroethane	10
Trans-1,2-Dichloroethene	10
Chloroform	10
1,2-Dichloroethane	10
2-Butanone	10
1,1,1-Trichloroethane	10
Carbon Tetrachloride	10
Vinyl Acetate	10
Bromodichloromethane	10
1,2-Dichloropropane	10
Trans-1,3-Dichloropropene	10
Trichloroethene	10
Dibromochloromethane	10
1,1,2-Trichloroethane	10
Benzene	10
cis-1,3-Dichloropropene	10
2-Chloroethylvinylether	10
Bromoform	10
4-Methyl-2-pentanone	10
2-Hexanone	10
Tetrachloroethene	10
1,1,2,2-Tetrachloroethane	10
Toluene	10
Chlorobenzene	10
Ethylbenzene	10
Styrene	10
Total Xylenes	10
Dichlorobenzenes	10
Trichlorofluoromethane	10

Others:

* SEE BNA REPORT

TABLE 3-2 (Continued)

Detection Limits for Water Samples

Analyte	Detection Limit (ug/l)
Base/Neutral/Acid Compounds	
N-Nitrosodimethylamine	10
Phenol	10
bis(2-Chloroethyl)Ether	10
2-Chlorophenol	10
1,3-Dichlorobenzene	10
1,4-Dichlorobenzene	10
1,2-Dichlorobenzene	10
bis(2-Chloroisopropyl)Ether	10
N-Nitroso-di-n-propylamine	10
Hexachloroethane	10
Nitrobenzene	10
Isophorone	10
2-Nitrophenol	10
2,4-Dimethylphenol	10
bis(2-Chloroethoxy)Methane	10
2,4-Dichlorophenol	10
1,2,4-Trichlorobenzene	10
Naphthalene	10
Hexachlororbutadiene	10
4-Chloro-3-methylphenol	10
Hexachlorocyclopentadiene	10
2,4,6-Trichlorophenol	10
2-Chloronaphthalene	10
Dimethyl Phthalate	10
Acenaphthylene	10
Acenaphthene	10
2,4-Dinitrophenol(2)	50
4-Nitrophenol(2)	50
2,4-Dinitrotoluene	10
2,6-Dinitrotoluene	10
Diethyl Phthalate	10
4-Chlorophenyl-phenylether	10
Fluorene	10
4,6-Dinitro-2-methylphenol(2)	50
N-Nitrosodiphenylamine(1)	10
4-Bromophenyl-phenylether	10
Hexachlorobenzene	10
Pentachlorophenol(2)	50
Phenanthrene	10
Anthracene	10
di-n-Butyl Phthalate	10
Fluoranthene	10
Benzidine(2)	50

TABLE 3-2 (Continued)

Detection Limits for Water Samples

Analyte	Detection Limit (ug/l)
Base/Neutral/Acid Compounds	
Pyrene	10
Butyl Benzyl Phthalate	10
3,3'-Dichlorobenzidine(3)	20
Benzo(a)Anthracene	10
bis(2-Ethylhexyl)Phthalate	10
Chrysene	10
di-n-Octyl Phthalate	10
Benzo(b)Fluoranthene	10
Benzo(k)Fluoranthene	10
Benzo(a)Pyrene	10
Indeno(1,2,3-cd)Pyrene	10
Dibenz(a,h)Anthracene	10
Benzo(g,h,i)Perylene	10
Pesticides	
Alpha-BHC	0.05
Beta-BHC	0.05
Delta-BHC	0.05
Gamma-BHC (Lindane)	0.05
Heptachlor	0.05
Aldrin	0.05
Heptachlor Epoxide	0.05
Endosulfan I	0.05
Dieldrin	0.1
4,4'-DDE	0.1
Endrin	0.1
Endosulfan II	0.1
4,4'-DDD	0.1
Endrin Aldehyde	0.1
Endosulfan Sulfate	0.1
4,4'-DDT	0.1
Methoxychlor	0.5
Endrin Ketone	0.1
Chlordane	0.5
Toxaphene	1.0
Aroclor-1016	0.5
Aroclor-1221	0.5
Aroclor-1232	0.5
Aroclor-1242	0.5
Aroclor-1248	0.5
Aroclor-1254	1.0
Aroclor-1260	1.0

TABLE 3-3A

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 2

Analyte	Sample Number 2-1	2-1B	2-2	2-3	2-4
Total Organic Halogens (ug/l)	20.0	1.00	35.0	18.0	27.0
Total Organic Carbon (mg/l)	2.39	1.58	2.25	4.12	2.25
Nitrate/Nitrite (mg/l)	ND	ND	ND	0.70	0.20
Base/Neutral/Acid Compounds (ug/l)	ND	ND	ND	ND	ND
Explosives:					
HMX (ug/l)	ND	ND	ND	ND	ND
RDX (ug/l)	ND	ND	ND	ND	ND
2,4,6-TNT (ug/l)	ND	ND	ND	ND	ND
Nitroglycerin (mg/l)	ND	NR	ND	ND	ND
Picric Acid (ug/l)	ND	ND	ND	ND	ND
Soluble Metals (mg/l):					
Sb	ND	ND	ND	ND	ND
As	ND	ND	ND	ND	ND
Be	ND	ND	ND	ND	ND
Cd	ND	ND	ND	ND	ND
Cr	0.023	0.014	ND	ND	ND
Cu	0.024	0.014	ND	ND	ND
Pb	ND	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND	ND
Ni	0.03	0.04	ND	ND	ND
Se	ND	ND	ND	ND	ND
Ag	0.004	ND	ND	ND	ND
Tl	ND	ND	ND	ND	ND
Zn	0.016	ND	0.03	0.04	0.02
pH (Lab Measured)	5.10	6.10	4.90	4.80	4.90
pH (Field Measured)	5.3	NR	7.0	5.2	6.8
Chloride (mg/l)	7.00	ND	8.60	5.00	7.60
Specific Conductance (umhos)	40.6	1.12	50.1	47.2	38.6
Specific Conductance* (umhos)	40	NR	40	40	30
Temperature (°C)	20	NR	14	16	14

ND Not Detected
NR Analysis Not Requested

* Field Measured

A Duplicate Sample
B Field Blank

TABLE 3-3B

ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED IN JULY 1986

SITE 2

Analyte	Sample Number		
	2-A (1st Hour)	2-A (6th Hour)	2-A BLANK
Total Organic Halogens (ug/l)	40.0	35.0	NR
Total Organic Carbon (mg/l)	4.13	4.13	NR
Nitrate/Nitrite (mg/l)	1.0 (1.0)**	1.0	ND
Base/Neutral/Acid Compounds (ug/l)	ND	ND	NR
Explosives:			
HMX (ug/l)	ND	ND	ND
RDX (ug/l)	ND	ND	ND
2,4,6-TNT (ug/l)	ND	ND	ND
Nitroglycerin (mg/l)	ND	ND	ND
Picric Acid (ug/l)	ND	ND	ND
Soluble Metals (mg/l):			
Sb	ND	ND	NR
As	ND	ND	NR
Be	ND	ND	NR
Cd	ND	ND	NR
Cr	0 .016	0.017	NR
Cu	0.021	0.022	NR
Pb	0.014	0.014	NR
Hg (ug/l)	ND	ND	NR
Ni	0.04	0.04	NR
Se	ND	ND	NR
Ag	ND	ND	NR
Tl	ND	ND	NR
Zn	0.018	0.045	NR
pH (Lab Measured)	4.20	4.20	NR
Chloride (mg/l)	ND	ND	NR
Specific Conductance (umhos)	36.1	35.8	NR

ND Not Detected
NR Analysis Not Requested

** Duplicate Sample

WESTON

TABLE 3-3C

ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED IN JULY 1986

SITE 2

Analyte	Sample Number				
	2-A (1st Hour)	2-A (6th Hour)	2-A DUP	2-A BLANK	Detection Limits
Nitrate/Nitrite (ug/g)	ND	ND	ND	ND	2.0
HMX (ug/g)	ND	ND	ND	ND	1.4
RDX (ug/g)	ND	ND	ND	ND	0.8
2,4,6-TNT (ug/g)	ND	ND	ND	ND	1.0
Nitroglycerin (ug/g)	ND	ND	ND	ND	20.0
Picric Acid (ug/kg)	ND	ND	ND	ND	40.0

ND Not Detected

3.1.5 Soil Quality

Soil samples were collected at Site 2 and analyzed for explosives. Figure 2-2 indicates the sampling locations. Each sample was a composite of three surface soil grab samples. Analytical results for the soil samples collected at Site 2 are summarized in Table 3-3D. No RDX, HMX, or TNT was detected in any of the soil samples. Sample 2-A contained 0.60 mg/L nitrate/nitrite. Sample 2-C contained 3.0 ug/g picric acid.

3.2 SITE 3: LANDFILL SOUTHWEST OF "F" GROUP

3.2.1 Geology

The unconsolidated materials at Site 3 consist mainly of brownish yellow fine sand with coarse sand and gravel occurring to twelve feet below ground. In wells 3-2 and 3-3 (see Figure 2-3 for locations) dark gray silt underlies the sand at a depth of 20 feet. At well 3-1, the silt is interbedded throughout the sand which tends to be finer grained here than elsewhere at the site. Blue green glauconitic medium sand was found at a depth of 25.5 feet in well 3-1. Descriptive borehole logs are included in Appendix A.

3.2.2 Hydrogeology

Groundwater does occur in the shallow sands above the glauconitic sand as evidenced by the moisture encountered while drilling. However, the shallow sands are poor producers and none of the wells at Site 3 sustained pumping during development. Groundwater levels were measured in July 1986 and monitor well locations and elevations were surveyed during October and November 1986. Based on this information (see Table 3-1), a water table map was constructed in the vicinity of Site 3 (see Figure 3-2). Groundwater flows toward the south with a hydraulic gradient of 0.03. Well 3-1 is downgradient of the site. Based on the flow map, groundwater does not flow toward nearby Mingamahone Brook, but rather toward the Manasquan River.

TABLE 3-3D

Analytical Results for Soil Samples Collected in March 1986

SITE 2

Sample Number	Analyte		
	Nitrate/Nitrite (mg/l)	RDX;HMX;TNT (ug/g)	NG/Picric Acid (mg/kg/ug/g)
2-A Composite	.60	ND	ND/ND
2-B Composite	ND	ND	ND/3.0
2-C Composite	ND	ND	ND/ND
Detection Limits	.20	0.7;0.8;0.5	1.0/2.0

ND Not Detected

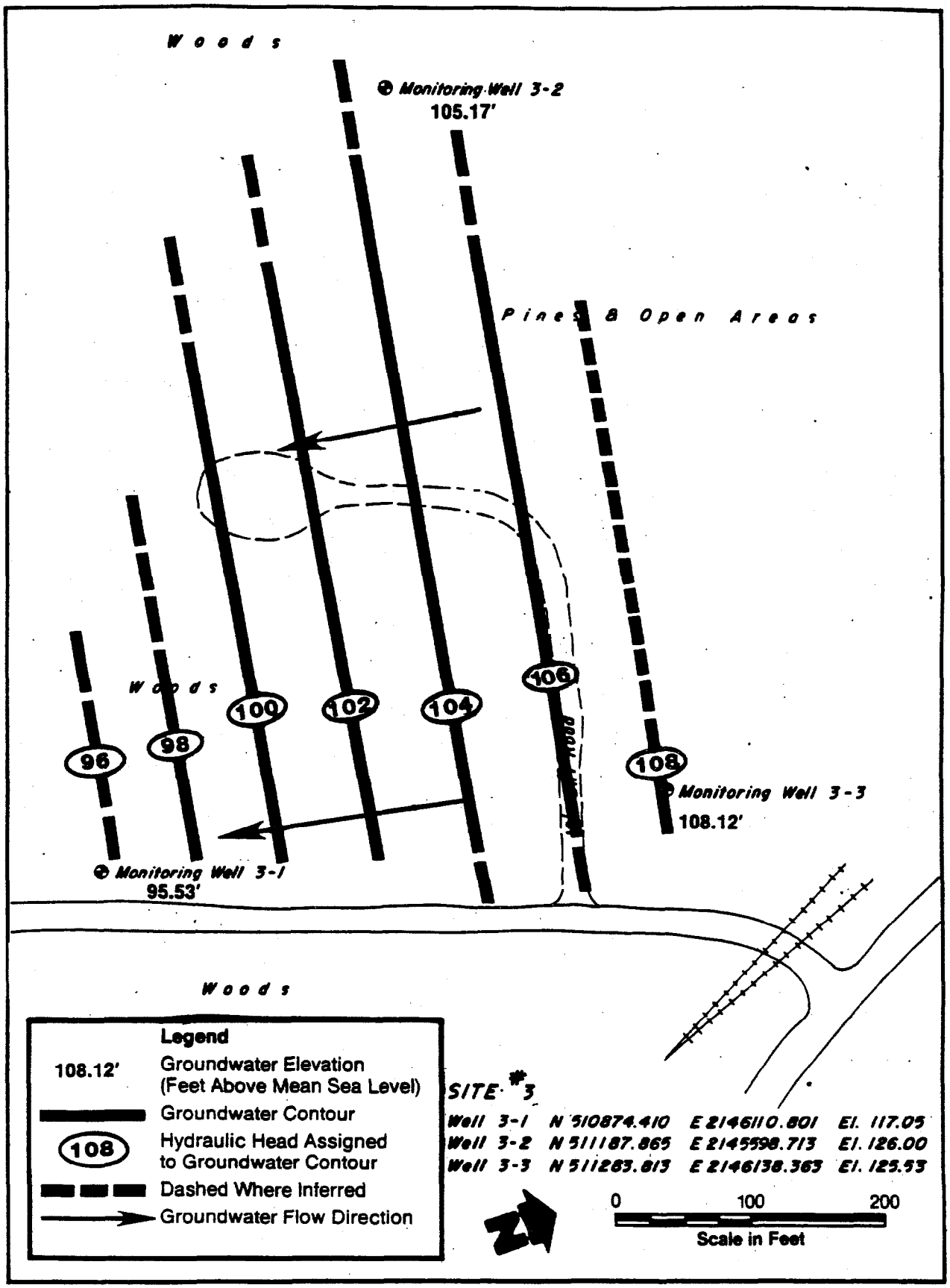

FIGURE 3-2 SITE 3-LANDFILL SOUTHWEST OF "F" GROUP GROUNDWATER FLOW MAP - JULY 1986

3.2.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 3 are summarized in Table 3-4. Concentration of total organic halogens ranged from 12.0 mg/L (sample 3-2) to 35.0 mg/L (duplicate sample 3-3A). Total organic carbon ranged from 3.39 mg/L (sample 3-3A) to 7.10 mg/L (sample 3-1). Petroleum hydrocarbons were detected at a concentration of 1.00 mg/L in sample 3-1. Nitrate/nitrite was detected in sample 3-3 at a concentration of 0.20 mg/L. Copper, chromium, nickel, and zinc were detected at low levels in samples 3-1 and 3-2. Only zinc was detected in sample 3-3 and duplicate sample 3-3A. No metals were detected in the field blank taken before sample 3-3. Neither pesticides nor base/neutral/acid extractable organic compounds were detected at levels above quantification limit at this site. No volatile organic compounds were detected above a quantifiable limit. Field measured pH values ranged from 2.90 (well 3-1) to 4.70 (well 3-3). Chloride concentrations were low and varied from 5.80 to 8.80. Specific conductivity was significantly higher in well 3-1 than in well 3-3 (290 umhos and 40 umhos, respectively).

3.3 SITE 4: LANDFILL WEST OF "D" GROUP

3.3.1 Geology

The shallow unconsolidated deposits at Site 4 consist of brownish yellow to light gray medium sand with small amounts of fine sand, coarse sand, and gravel. In well 4-1 (see Figure 2-4 for location), light gray fine sand and clay was encountered at 30 feet below ground surface. At well 4-2, reddish-yellow clay was encountered at 18 feet below ground surface. Descriptive boring logs are included in Appendix A.

3.3.2 Hydrogeology

Groundwater occurs under water table conditions at Site 4. Saturated materials were encountered within ten to fifteen feet of the surface. Groundwater levels were measured in July 1986 and monitor well locations and elevations were surveyed during October and November 1986. Based on this information (see Table 3-1), a water table map was constructed to determine the direction of groundwater flow in the vicinity of Site 4 (see Figure 3-3). Groundwater flows toward the east at Site 4 with a hydraulic gradient of 0.01. Well 4-2 is downgradient of the site. The principal direction of flow is toward Hockhockson Creek rather than Lake Earle.

3.3.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 4 are summarized in Table 3-5A.

TABLE 3-4

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 3

Analyte	Sample Number 3-1	3-2	3-3	3-3A	3-3B
Total Organic Halogens (ug/l)	28.0	12.0	25.0	35.0	17.0
Total Organic Carbon (mg/l)	7.10	4.44	3.60	3.39	2.15
Volatile Organic Compounds (ug/l)	ND	ND	ND	ND	ND
Petroleum Hydrocarbons (mg/l)	1.00	ND	ND	ND	ND
Pesticides (ug/l)	ND	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	ND	ND	0.20	NR	ND
Base/Neutral/Acid Compounds (ug/l)	ND	ND	ND	ND	ND
Soluble Metals (mg/l):	ND	ND	ND	ND	ND
Sb	ND	ND	ND	ND	ND
As	ND	ND	ND	ND	ND
Be	ND	ND	ND	ND	ND
Cd	0.008	ND	ND	ND	ND
Cr	0.017	0.013	ND	ND	ND
Cu	0.015	0.016	ND	ND	ND
Pb	ND	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND	ND
Ni	0.05	0.05	ND	ND	ND
Se	ND	ND	ND	ND	ND
Ag	ND	ND	ND	ND	ND
Tl	ND	ND	ND	ND	ND
Zn	0.226	0.087	0.11	0.20	ND
pH (Lab Measured)	2.90	3.80	4.70	NR	7.10
pH (Field Measured)	3.9	--	5.5	NR	NR
Chloride (mg/l)	8.80	5.80	7.80	NR	ND
Specific Conductance (umhos)	609	103	54.3	NR	2.48
Specific Conductance* (umhos)	290	100	40	NR	NR
Temperature (°C)	17	18	17	NR	NR

ND Not Detected
NR Analysis Not Requested

* Field Measured

A Duplicate Sample
B Field Blank

WESTON

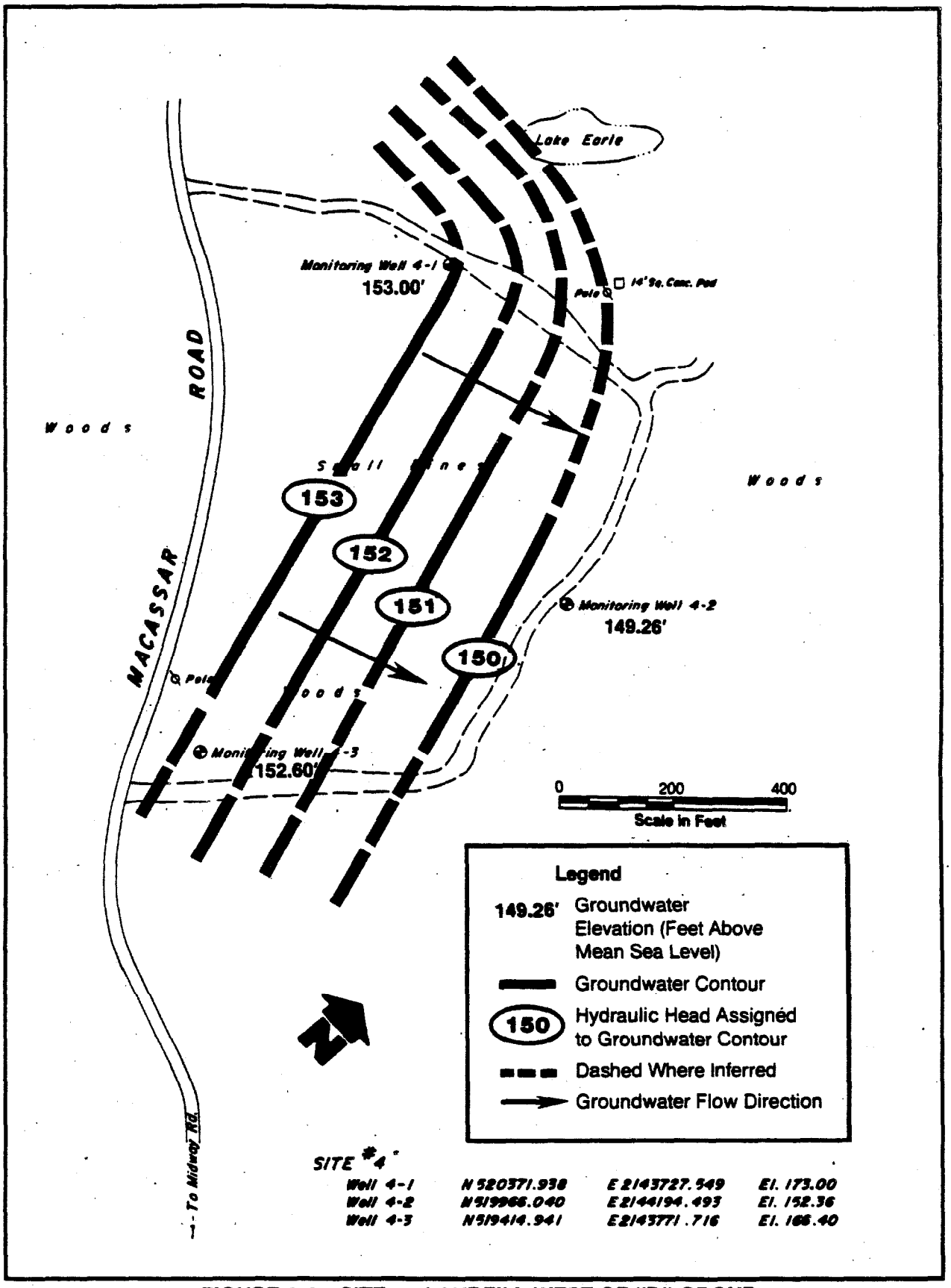

FIGURE 3-3 SITE 4 - LANDFILL WEST OF "D" GROUP GROUNDWATER FLOW MAP - JULY 1986

TABLE 3-5A

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 4

Analyte	Sample Number 4-1	4-2	4-3
Total Organic Halogens (ug/l)	17.0	18.0	17.0
Total Organic Carbon (mg/l)	1.94	4.74	2.15
Volatile Organic Compounds (ug/l)	ND	ND	ND
Petroleum Hydrocarbons (mg/l)	ND	ND	ND
Pesticides (ug/l)	ND	ND	ND
Nitrate/Nitrite (mg/l)	ND	ND	ND
Base/Neutral/Acid Compounds (ug/l):		ND	ND
bis(2-Ethylhexyl)Phthalate	53	ND	ND
Soluble Metals (mg/l):			
Sb	ND	ND	ND
As	ND	ND	ND
Be	ND	ND	ND
Cd	ND	ND	ND
Cr	ND	ND	ND
Cu	ND	ND	ND
Pb	ND	ND	ND
Hg (ug/l)	ND	ND	ND
Ni	ND	ND	ND
Se	ND	ND	ND
Ag	ND	ND	ND
Tl	ND	ND	ND
Zn	0.06	0.03	0.06
pH (Lab Measured)	4.50	6.50	4.50
pH (Field Measured)	5.0	6.0	5.0
Chloride (mg/l)	6.80	6.40	6.40
Specific Conductance (umhos)	77.8	72.3	56.0
Specific Conductance* (umhos)	60	160	40
Temperature (°C)	14	17	14

ND Not Detected

NR Analysis Not Requested

* Field Measured

Total organic halogen concentrations were consistently low among the Site 4 samples. No volatile organic compounds were detected above quantifiable limits. Pesticides, nitrate/nitrite, and petroleum hydrocarbons were not detected in any of the Site 4 samples. Total organic carbon varied from 1.94 mg/L in sample 4-1 to 4.74 mg/L in sample 4-2. The base/neutral extractable organic compound bis (2-Ethylhexyl) Phthalate was detected at a concentration of 53 ug/L in sample 4-1. Zinc was detected in the three Site 4 samples at low levels. Field measured pH ranged from 5.0 to 6.0. Chloride concentrations were low and varied only slightly. Specific conductance ranged from 40 umhos at well 4-3 to 160 umhos at well 4-2.

3.3.4 Spring Water Quality

Two springs located along the fire road at Site 4 (see Figure 2-4 for locations) were sampled over time. Two samples were collected from each spring five hours apart. Analytical results are summarized in Table 3-5B. The only significant difference over time was that at spring sampling location 4A, the base/neutral extractable organic compound N-Nitrosophenylamine was detected at a concentration of 60 ug/L in the second sample collected while none was detected in the first sample collected. Total organic halogen concentration was greater at spring 4-A than in the well samples and in the samples at spring 4-B. Total organic carbon was greater in both spring samples than well samples. In particular, total organic carbon was present at a concentration in order of magnitude greater than in the well samples. No volatile organic compounds were detected above quantifiable limits in either spring sample. Petroleum hydrocarbons were detected in spring 4-A at concentration of 45.8 mg/L (1st sample) and 44.0 mg/L (2nd sample). Chromium, copper, nickel, and zinc were detected in all spring samples at low levels. PH and chloride concentrations were not significantly different in the spring samples as compared to the well samples. Specific conductance was one order of magnitude higher in spring 4-A than in the well water and in spring 4-B.

3.4 SITE 5: LANDFILL WEST OF ARMY BARRICADES

3.4.1 Geology

Based on split spoon samples, the shallow unconsolidated deposits were described as olive and yellow brown medium sand. Well 5-1 (see Figure 2-5 for locations) contained significant coarse sand with little fine sand and silt. Well 5-2 had little fine sand and silt. Well 5-3 had fine sand as well and 10-15 percent silt. Well 5-4 contained high percentages of fine and very coarse sand with smaller amounts of silt. Descriptive well logs are included in Appendix A.

TABLE 3-5B

ANALYTICAL RESULTS FOR SPRING WATER SAMPLES COLLECTED IN JULY 1986

SITE 4

Analyte	Sample Number			
	4-A (1st Hour)	4-A (6th Hour)	4-B (1st Hour)	4-B (6th Hour)
Total Organic Halogens (ug/l)	31.0	26.0	9.00	11.0
Total Organic Carbon (mg/l)	53.4	50.3	8.23	6.38
Volatile Organic Compounds (ug/l)	ND	ND	ND	ND
Petroleum Hydrocarbons (mg/l)	45.8	44.0	ND	ND
Nitrate/Nitrite (mg/l)	ND	ND	ND	ND
Base/Neutral/Acid Compounds (ug/l):				
N-Nitrosodiphenylamine(1)	ND	60	ND	ND
Soluble Metals (mg/l):				
Sb	ND	ND		
As	ND	ND	ND	ND
Be	ND	ND	ND	ND
Cd	ND	ND	ND	ND
Cr	0.012	0.017	0.012	0.014
Cu	0.014	0.014	0.014	0.016
Pb	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND
Ni	0.04	0.04	0.03	0.03
Se	ND	ND	ND	ND
Ag	ND	ND	ND	ND
Tl	ND	ND	ND	ND
Zn	0.017	0.039	0.027	0.018
pH (Lab Measured)	6.70	6.60	4.90	4.80
pH (Field Measured)	NR	NR	NR	NR
Chloride (mg/l)	8.80	9.00	6.00	5.60
Specific Conductance (umhos)	663	653	57.7	55.8
Specific Conductance* (umhos)	NR	NR	NR	NR
Temperature (°C)	NR	NR	NR	NR

ND Not Detected
NR Analysis Not Requested

* Field Measured

3.4.2 Hydrogeology

A zone of perched groundwater was encountered in the first ten feet of drilling across the site with the exception of well 5-4. Below that perched zone saturated materials were encountered at depths of 19 to 25 feet. Based on groundwater levels measured in July 1986, and surveyed monitor well locations and elevations, a water table map was constructed for Site 5 (see Figure 3-4) to determine groundwater flow directions. Groundwater flows to the northeast with a hydraulic gradient of 0.0025. The principal direction of flow is toward a tributary of Pine Brook.

3.4.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 5 are summarized in Table 3-6. Total organic halogens were in order of magnitude higher in sample 5-1 than in samples 5-2, 5-3, and 5-4 (241 mg/L, 68.0 mg/L, 41.0 mg/L, and 29.0 mg/L, respectively). Total organic carbon was low and ranged from 1.18 mg/L to 7.45 mg/L. The volatile organic compounds acetone and 2-butanone were detected in sample 5-1 at concentrations of 110 mg/L and 12 mg/L, respectively. These compounds were present in the field blank collected before sample 5-1 but were below quantifiable limits. Methylene chloride was detected in the field blank at 420 mg/L. Acetone was also detected in sample 5-3 at 12 mg/L. The acid extractable compound pentachlorophenol was detected at quantifiable levels in samples 5-1 and 5-3 (81 mg/L and 150 mg/L, respectively). Petroleum hydrocarbons and pesticides were not detected in any samples collected at Site 5. Nitrate/nitrite was detected at a concentration of 0.20 mg/L in sample 5-3. Zinc was detected at low levels in all the samples. Chromium, copper, and zinc were detected in Sample 5-4 at low levels. PH was fairly consistent, ranging from 4.5 to 5.1 in the field. Laboratory pH values were slightly lower than field pH values. Chloride concentrations ranged from 8.60 mg/L (sample 5-4) to 13.7 mg/L (sample 5-3). Specific conductivity was relatively low and varied from 50 to 80 umhos.

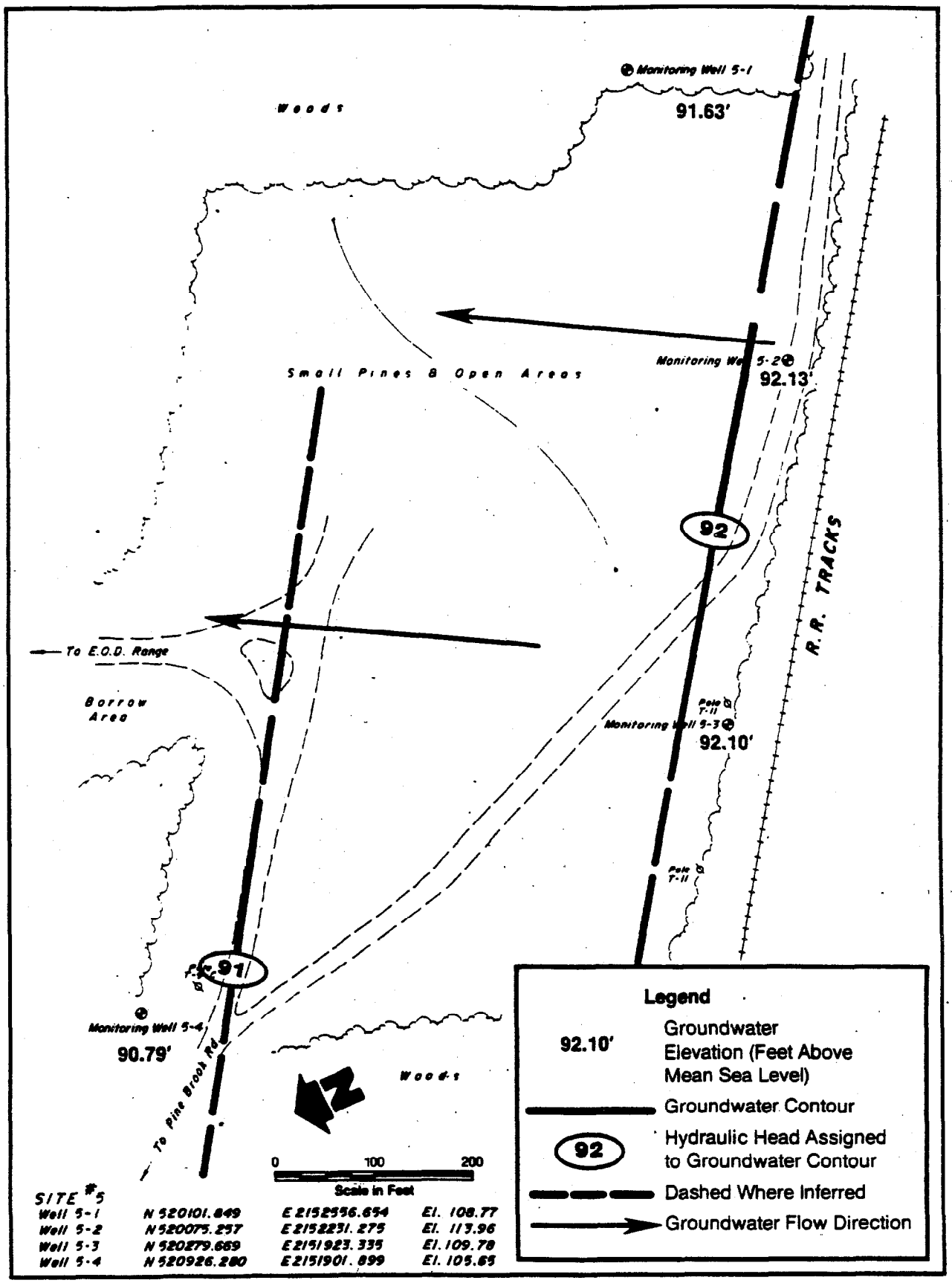

FIGURE 3-4 SITE 5 - LANDFILL WEST OF ARMY BARRICADES GROUNDWATER FLOW MAP - JULY 1985

TABLE 3-6

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 5

Analyte	Sample Number				
	5-1	5-1B	5-2	5-3	5-4
Total Organic Halogens (ug/l)	241	NR	68.0	41.0	29.0
Total Organic Carbon (mg/l)	6.44	NR	1.18	7.45	4.85
Volatile Organic Compounds (ug/l):					
Methylene chloride	8J	420	8J	7J	5J
Acetone	110	5J	6J	12	ND
2-Butanone	12	7J	6J	8J	9J
Petroleum Hydrocarbons (mg/l)	ND	NR	ND	ND	ND
Pesticides (ug/l)	ND	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	ND	NR	ND	.20	ND
Base/Neutral/Acid Compounds (ug/l):					
Pentachlorophenol	81	NR	10J	150	ND
Soluble Metals (mg/l):					
Sb	ND	NR	ND	ND	ND
As	ND	NR	ND	ND	ND
Be	ND	NR	ND	ND	ND
Cd	ND	NR	ND	ND	ND
Cr	ND	NR	ND	ND	0.019
Cu	ND	NR	ND	ND	0.022
Pb	ND	NR	ND	ND	ND
Hg (ug/l)	ND	NR	ND	ND	ND
Ni	ND	NR	ND	ND	0.04
Se	ND	NR	ND	ND	ND
Ag	ND	NR	ND	ND	ND
Tl	ND	NR	ND	ND	ND
Zn	0.017	NR	0.016	0.033	0.035
pH (Lab Measured)	4.25	NR	4.25	4.20	4.40
pH (Field Measured)	5.1	NR	4.5	5.0	5.1
Chloride (mg/l)	10.5	NR	9.80	13.7	8.60
Specific Conductance (umhos)	72.3	NR	68.6	142	76.0
Specific Conductance* (umhos)	50	NR	50	80	70
Temperature (°C)	16	NR	15	16	18

ND Not Detected
NR Analysis Not Requested
J Estimated concentration less than quantification limits but greater than instrument detection limits

* Field Measured

A Duplicate Sample
B Field Blank

3.5 SITE 7: LANDFILL SOUTH OF "P" BARRICADES

3.5.1 Geology

The shallow unconsolidated deposits at wells 7-1 and 7-2 consist of yellowish brown fine sand (to depths of nine to fifteen feet) overlying brown sandy silt (to depths of 19 to 30 feet) overlying black silt (see Figure 2-6 for locations) white and reddish brown medium sand was encountered to 31 feet in well 7-3. Black silt was present below the sand. Descriptive boring logs are induced in Appendix A.

3.5.2 Hydrogeology

Saturated materials were encountered at 4 feet in well 7-2, 25 feet in well 7-1, and 20 feet in well 7-3. Based on groundwater levels measured in July 1986, and surveyed monitor well locations and elevations, a water table map was constructed for Site 7 (see Figure 3-5). Groundwater flows toward the west with a hydraulic gradient of 0.05. Compton Creek is located to the west of Landfill 7. Monitor well 7-2 is downgradient of the landfill done locally.

3.5.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 7 are summarized in Table 3-7. Total organic halogens varied in concentration from 18.0 ug/L to 23.0 ug/L in samples 7-2 and 7-1, respectively.

In the field blank collected with the decontaminated bailer which was then used to collect sample 7-2, 12.0 ug/L total organic halogen was detected. Acetone was detected in samples 7-1, 7-2, and 7-2B at concentrations of 22 ug/L, 380 ug/L, and 141 ug/L, respectively. Methylene chloride was detected at a concentration of 11 ug/L in the field blank. The base/neutral extractable organic compound di-n-Butyl-Phthalate was detected at a concentration of 54 ug/L in sample 7-1. Zinc was detected at low levels in all the samples for Site 7 but not in the field blank. Field measured pH ranged from 5.5 to 6.0 in wells 7-1 and 7-3 respectively. Laboratory measured pH was lower than field measured. Chloride concentration was higher in sample 7-2 than in 7-1 (32.6 and 12.3 mg/L respectively). No chloride was detected in sample 7-3. Specific conductance for wells 7-1 and 7-3 was relatively low.

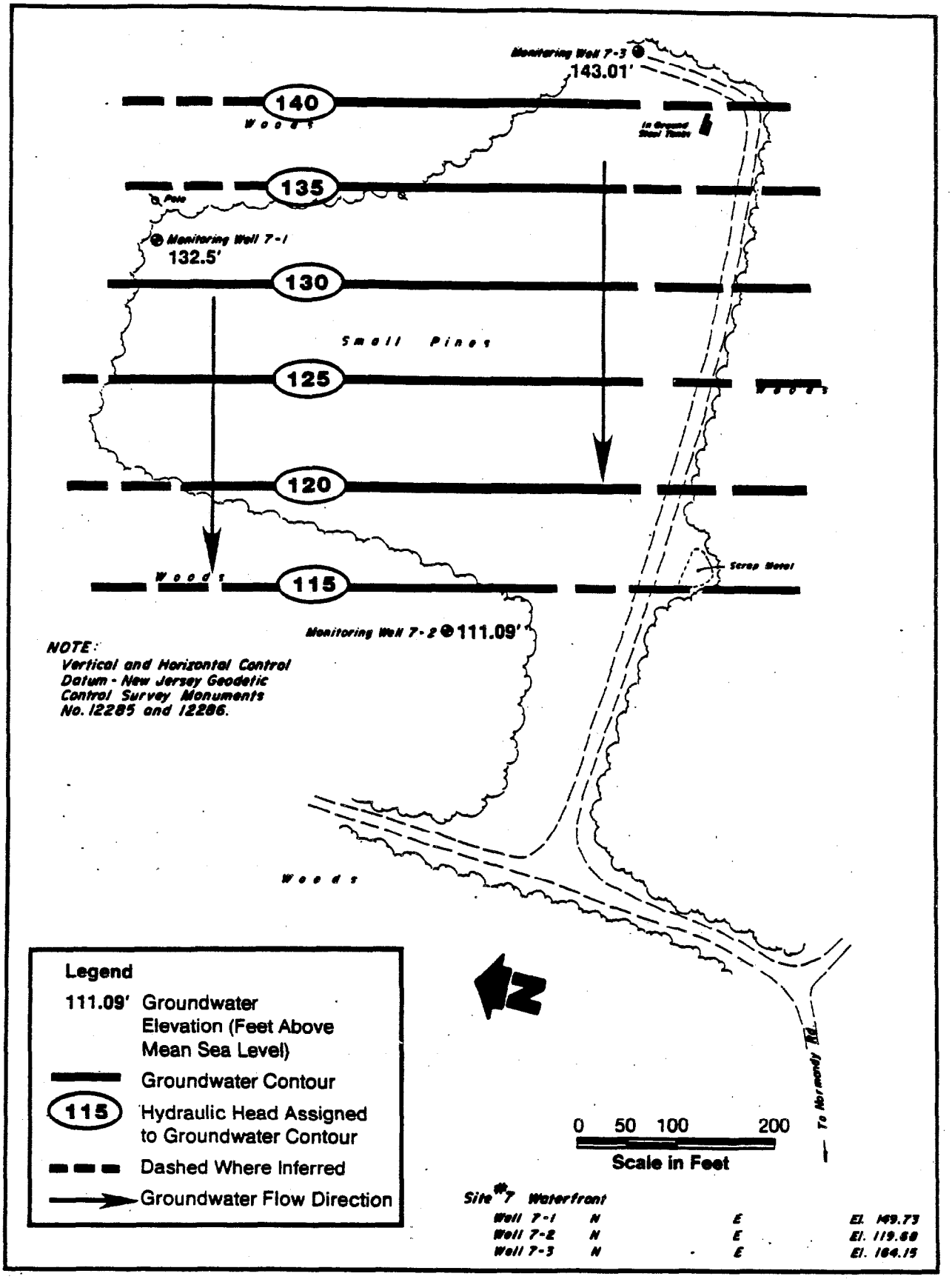

FIGURE 3-5 SITE 7 - LANDFILL SOUTH OF "P" BARRICADES GROUNDWATER FLOW MAP - JULY 1986

TABLE 3-7

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 7

Analyte	Sample Number 7-1	7-2	7-2B	7-3
Total Organic Halogens (ug/l)	23.0	18.0	12.0	18.0
Total Organic Carbon (mg/l)	1.73	6.51	1.42	2.15
Volatile Organic Compounds (ug/l):				
Mehtylene chloride	7J	9J	11	6J
Acetone	22	380	141	ND
Petroleum Hydrocarbons (mg/l)	ND	ND	ND	ND
Pesticides (ug/l)	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	ND	ND	ND	.20
Base/Neutral/Acid Compounds (ug/l):		ND	ND	ND
di-n-Butyl Phthalate	54	ND	ND	ND
Soluble Metals (mg/l):			ND	ND
Sb	ND	ND	ND	ND
As	ND	ND	ND	ND
Be	ND	ND	ND	ND
Cd	ND	ND	ND	ND
Cr	ND	ND	ND	ND
Cu	ND	ND	ND	ND
Pb	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND
Ni	ND	ND	ND	ND
Se	ND	ND	ND	ND
Ag	ND	ND	ND	ND
Tl	ND	ND	ND	ND
Zn	0.03	0.03	ND	0.09
pH (Lab Measured)	4.70	4.20	6.70	4.70
pH (Field Measured)	5.5	--	NR	6.0
Chloride (mg/l)	12.3	32.6	11.1	ND
Specific Conductance (umhos)	63.3	235	1.23	90.6
Specific Conductance* (umhos)	40	--	NR	60
Temperature (°C)	14	--	NR	16

ND Not Detected
NR Analysis Not Requested
J Estimated concentration less than quantif[illegible] tic[illegible] lim[illegible] bu[illegible] rea[illegible]

* Field Measured

A Duplicate Sample
B Field Blank

3.6 SITE 10: SCRAP METAL LANDFILL NEAR BUILDING S-589

3.6.1 Geology

At Site 10, the shallow unconsolidated deposits consists of brownish yellow and olive fine to medium sand with small amounts of silt to depths of 15 to 20 feet. Below these deposits is glauconitic medium sand. Descriptive boring logs are included in Appendix A.

3.6.2 Hydrogeology

Saturated materials were encountered within 13 to 14 feet of the surface. Based on groundwater levels measured in July 1986 and surveyed monitor well locations and elevations, a groundwater flow map was constructed for Site 10 to determine groundwater flow direction (see Figure 3-6).

Groundwater flows toward the northeast with a hydraulic gradient of 0.015. Well 10-2 is downgradient of the site as well as Hockhockson Creek located to the east.

3.6.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 10 are summarized in Table 3-8A. Total organic halogens ranged from 20.0 ug/L in sample 10-3 to 67.0 ug/L in sample 10-1. However, sample 10-2 contained 36.0 ug/L total organic halogens while the duplicate sample 10-2A contained 108 ug/L. Total organic carbon was present at low levels and did not vary significantly. Methylene chloride was detected in samples 10-1 and 10-2A at concentrations of 16 ug/L and 14 ug/L respectively. Acetone was present in sample 10-3 at 10 ug/L and 2-Butanone was also present in sample 10-3 at 11 ug/L. No petroleum hydrocarbons were detected. Nitrate/nitrite was detected at 0.10 mg/L in samples 10-1 and 10-3. Base/neutral/acid extractable organic compounds were not present at quantifiable levels. Cadmium, copper, nickel, and zinc were present at low levels in sample 10-1. Only zinc was present in samples 10-2, 10-2A, and 10-3. pH was fairly consistent at this site ranging from 4.0 to 4.4. Chloride was relatively high in sample 10-1 (20.1 mg/L) as compared to samples 10-2 and 10-2A (8.20 and 8.50 mg/L respectively). Specific conductance was elevated at this site with the highest level at well 10-1 (140 umhos).

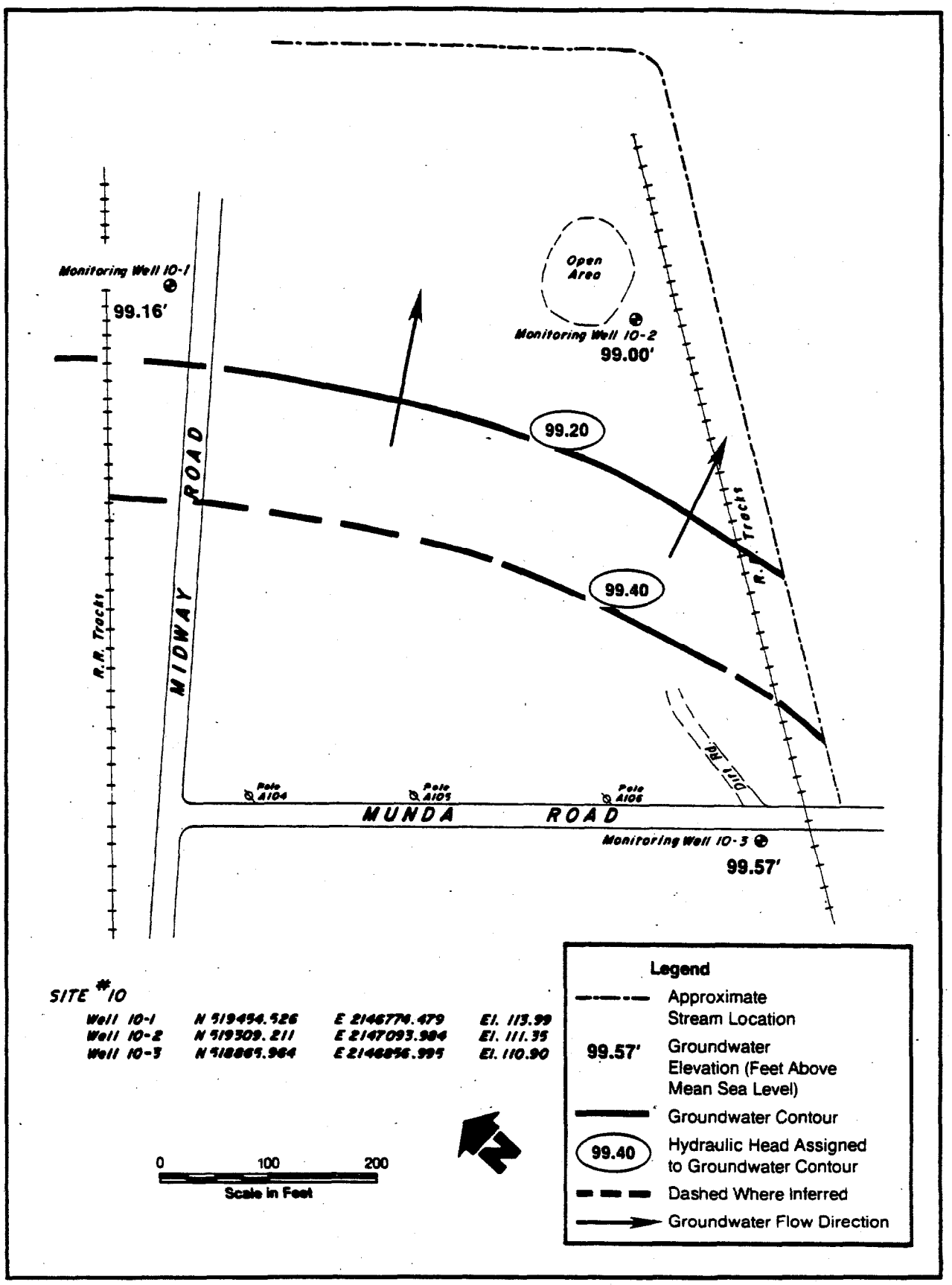

FIGURE 3-6 SITE 10 - SCRAP METAL LANDFILL GROUNDWATER FLOW MAP - JULY 1986

3.6.4 Surface Water and Sediment Quality

Samples of surface water and sediments were collected over time both upstream and downstream of Site 10 (see Figure 2-7 for location). Two samples were collected at each location five hours apart. Analytical results for these samples are included in Tables 3-8B and 3-8C. Concentration of total organic halogens at location 10-A varied from 10.0 ug/L to 15.0 ug/L over time. At location 10-B, concentration of total organic halogens varied from 43.0 ug/L to 29.0 ug/L over time. Total organic carbon was low and did not vary more than 10 percent over time or between sample locations. Neither volatile organic compounds nor petroleum hydrocarbons were detected above quantifiable limits. The base/neutral extractable organic compounds n-nitrosodi-phenylamine and di-n-butyl-phthalate were detected above quantifiable limits in both stream 10-B samples. Sample 10-A (6th) hour was not analyzed for metals. Lead was detected in the first sample collected at location 10-A but not in any of the other samples. Silver was detected in the first sample collected at location 10-B. pH did not vary significantly between the samples but was higher in the stream samples than in the well samples. Chloride concentrations and specific conductance were less in the stream samples than in the well samples. Total organic halogens were not detected in any of the sediment samples at Site 10. Methylene chloride was detected at concentrations of 300 ug/g and 350 ug/g in both 10-A sediment samples. Acetone was detected at concentrations of 760 ug/g and 37 ug/g in the second samples collected at location 10-A and 10-B, respectively. Petroleum hydrocarbons were found at concentrations of 89.9 mg/kg and 91.3 mg/kg in the 10-A samples and 11.2 mg/kg in the first sample collected at location 10-B. Lead was detected in all the sediment samples but was one order of magnitude higher in the 10-A samples than in the 10-B samples. Zinc was detected at 50.3 mg/kg in the first sample collected at location 10-A and 28.8 mg/kg in the first sample collect at location 10-B.

TABLE 3-8A

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 10

Analyte	Sample Number 10-1	10-2	10-2A	10-3
Total Organic Halogens (ug/l)	67.0	36.0	108	20.0
Total Organic Carbon (mg/l)	4.62	5.73	4.92	3.81
Volatile Organic Compounds (ug/l):				
Methylene chloride	16	9J	14	9J
Acetone	ND	7J	ND	10
2-Butanone	ND	10	ND	11
Petroleum Hydrocarbons (mg/l)	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	.10	ND	ND	.10
Base/Neutral/Acid Compounds (ug/l)	ND	ND	ND	ND
Soluble Metals (mg/l):				
Sb	ND	ND	ND	ND
As	ND	ND	ND	ND
Be	ND	ND	ND	ND
Cd	0.006	ND	ND	ND
Cr	ND	ND	ND	ND
Cu	0.03	ND	ND	ND
Pb	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND
Ni	0.014	ND	ND	ND
Se	ND	ND	ND	ND
Ag	ND	ND	ND	ND
Tl	ND	ND	ND	ND
Zn	0.09	1.01	0.82	0.08
pH (Lab Measured)	4.40	4.25	4.30	4.35
pH (Field Measured)	4.4	4.3	NR	4.0
Chloride (mg/l)	20.1	8.20	8.50	11.0
Specific Conductance (umhos)	161	125	122	135
Specific Conductance* (umhos)	140	105	NR	85
Temperature (°C)	13	16	NR	16

ND Not Detected
NR Analysis Not Requested
J Estimated concentration less than quantification limits but greater than instrument detection limits

* Field Measured

A Duplicate Sample
B Field Blank

TABLE 3-8B

ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED IN JULY 1986

SITE 10

Analyte	Sample Number			
	10-A (1st Hour)	10-A (6th Hour)	10-B (1st Hour)	10-B (6th Hour)
Total Organic Halogens (ug/l)	10.0	15.0	43.0	29.0
Total Organic Carbon (mg/l)	3.93	4.03	4.34	4.85
Volatile Organic Compounds (ug/l)	ND	ND	ND	ND
Petroleum Hydrocarbons (mg/l)	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	ND	ND	ND	ND
Base/Neutral/Acid Compounds (ug/l):				
n-nitrosodiphenylamine(1)	ND	ND	31	30
di-n-butyl-phthalate	ND	2J	70	42
Soluble Metals (mg/l):				
Sb	ND	--	ND	ND
As	ND	--	ND	ND
Be	ND	--	ND	ND
Cd	ND	--	ND	ND
Cr	ND	--	ND	ND
Cu	ND	--	ND	ND
Pb	ND	--	ND	ND
Hg (ug/l)	0.3	--	ND	ND
Ni	ND	--	ND	ND
Se	ND	--	ND	ND
Ag	ND	--	0.004	ND
Tl	ND	--	ND	ND
Zn	ND	--	ND	ND
pH (Lab Measured)	6.70	6.70	6.60	6.60
pH (Field Measured)	NR	NR	NR	NR
Chloride (mg/l)	6.80	7.20	7.20	6.80
Specific Conductance (umhos)	74.6	78.8	81.6	81.3
Specific Conductance* (umhos)	NR	NR	NR	NR
Temperature (°C)	NR	NR	NR	NR

ND Not Detected
NR Analysis Not Requested

* Field Measured
-- Sample Not Analyzed

TABLE 3-8C

ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED IN JULY 1986

SITE 10

Analyte	Sample Number 10-A (1st Hour)	10-A (6th Hour)	10-B (1st Hour)	10-B (6th Hour)
Total Organic Halogens (ug/kg)	ND	ND	ND	ND
Volatile Organic Compounds (ug/g):				
Methylene Chloride	300	350	8J	ND
Acetone	760	41J	10J	37
Dilution Factor	6.51	5.58	1.22	2.91
Detection Limit	65	56	12	29
Petroleum Hydrocarbons (mg/kg)	89.9	91.3	11.2	ND
Total Metals (mg/kg):				
Sb	<26.9	<24.2	<13.0	<12.7
As	<5.41	<5.41	<2.57	<2.49
Be	<26.9	<24.2	<13.0	<12.7
Cd	<1.35	<1.21	<0.6	<2.0
Cr	<53.8	<48.3	<25.9	<25.3
Cu	<26.9	<24.2	<13.0	<12.7
Pb	14.9	12.9	3.16	2.94
Hg	<.250	<.250	<.250	<.250
Ni	<23.8	<48.3	<25.9	<25.3
Se	<5.40	<2.7	<1.28	<1.25
Ag	<5.40	<4.8	<2.57	<2.49
Tl	<5.41	<4.83	<2.57	<2.49
Zn	50.3	<24.2	28.8	<12.7

ND Not Detected
NR Analysis Not Requested
J Estimated concentration less than quantification limits but greater than instrument detection limits
Sample detection limits denoted by "<" sign

3.7 SITE 11: CONTRACT ORDNANCE DISPOSAL AREA

3.7.1 Geology

At Site 11, the shallow unconsolidated deposits consist of yellowish brown to light olive brown fine to medium sand. At well location 11-2 (see Figure 2-8 for locations), glauconitic medium sand is interbedded with the yellowish brown find to medium sand. Small amounts of silt were found at this site. Descriptive well logs are included in Appendix A.

3.7.2 Hydrogeology

Saturated materials were encountered within two to seven feet below surface. Groundwater occurs under water table conditions at Site 11. Based on groundwater levels measured in July 1986 and surveyed monitor well locations and elevations, a water table contour map was constructed for Site 11 to determine the direction of flow (see Figure 3-7).

Groundwater flows toward the west with a hydraulic gradient of 0.016. Well 11-3 is downgradient of the site.

3.7.3 Groundwater Quality

Analytical result for groundwater samples collected at Site 11 are summarized in Table 3-9A. Total organic halogen concentrations were elevated in sample 11-1 and 11-3 (202 ug/L and 169 ug/L, respectively). Concentration of total organic carbon was also elevated in samples 11-1 and 11-3 (11.9 mg/L and 7.66 mg/L, respectively). The acid extractable organic compound pentachlorophenol was detected at 120 ug/L in sample 11-1. Neither oil and grease nor explosives were detected in any of the Site 11 wells. However, TNT was detected in the field blank taken before sample 11-2. Nitrate/nitrite was present at a concentration of 0.30 mg/L in sample 11-1. Zinc was detected in all samples as well as the field blank at Site 11 at low levels. pH was fairly consistent for all the samples and ranged from 4.5 to 5.0. Both chloride and specific conductivity values were low.

3.7.4 Soil Quality

Soil samples were collected at Site 11 (see Figure 2-8 for locations) and analyzed for oil and grease. Analytical results are presented in Table 3-9B. At each sampling location, samples were collected at depths of 6 to 9 inches and 2 to 2.5 feet. Oil and grease was detected in all samples. Concentration decreased with depth of sample collection in all cases. The highest concentration was found in sample 11-A which contained 37,300 mg/kg oil and grease at 6 to 9 inches.

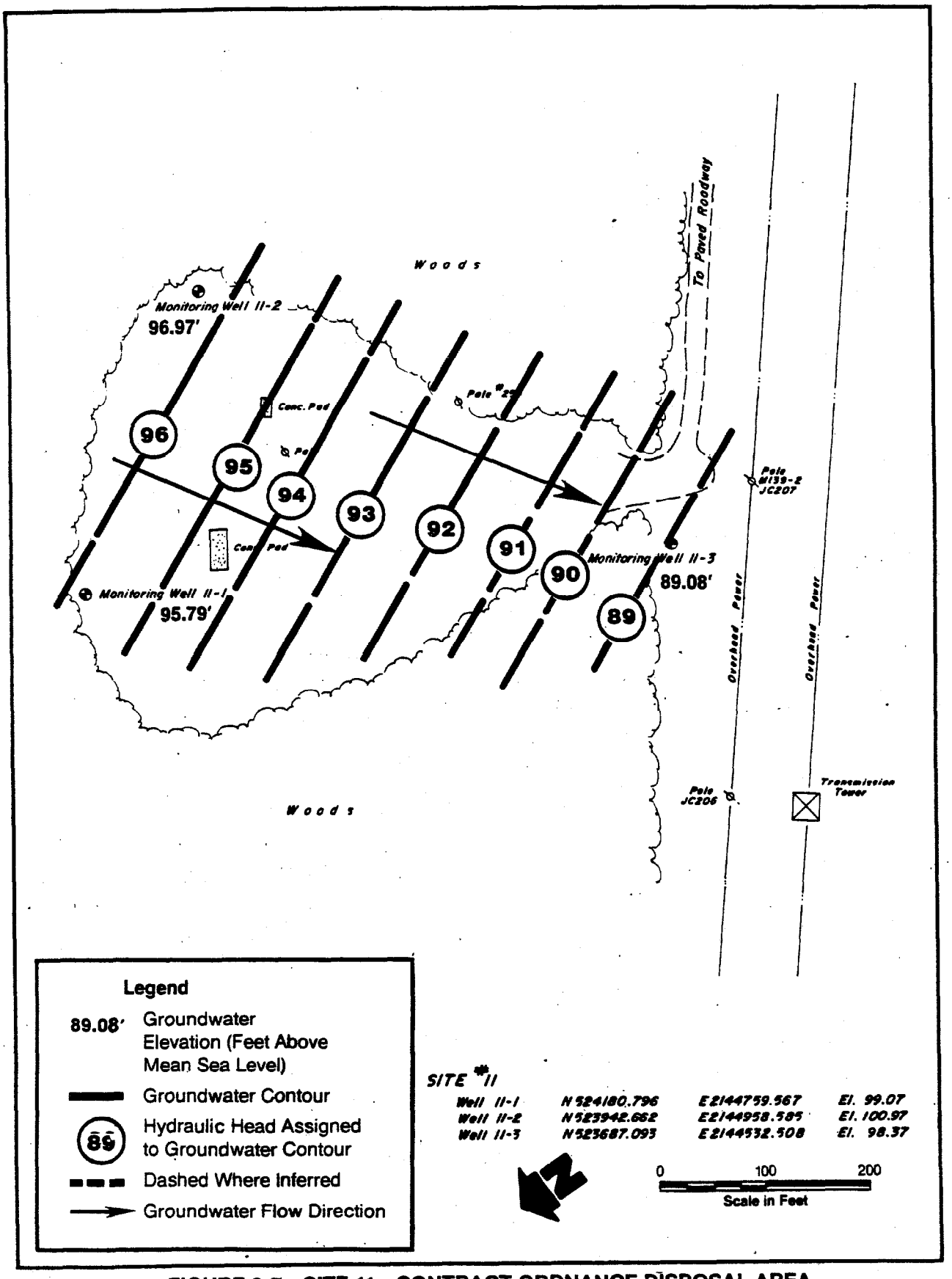

FIGURE 3-7 SITE 11 - CONTRACT ORDNANCE DISPOSAL AREA GROUNDWATER FLOW MAP - JULY 1986

TABLE 3-9A

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 11

Analyte	Sample Number 11-1	11-2	11-2B	11-3	11-3A
Total Organic Halogens (ug/l)	202	60.0	13.0	169	123
Total Organic Carbon (mg/l)	11.9	3.91	.977	7.66	8.77
Base/Neutral/Acid Compounds (ug/l):					
Pentachlorophenol	120	ND	ND	ND	ND
Oil and Grease	ND	ND	ND	ND	ND
Nitrate/Nitrite (mg/l)	.30	ND	ND	ND	ND
Explosives:					
HMX (ug/l)	ND	ND	ND	ND	ND
RDX (ug/l)	ND	ND	ND	ND	ND
2,4,6-TNT (ug/l)	ND	ND	1.85	ND	NR
Nitroglycerin (mg/l)	ND	ND	ND	ND	NR
Picric Acid (ug/l)	ND	ND	ND	ND	ND
Soluble Metals (mg/l):					
Sb	ND	ND	ND	ND	ND
As	ND	ND	ND	ND	ND
Be	ND	ND	ND	ND	ND
Cd	ND	ND	ND	ND	ND
Cr	ND	ND	ND	ND	ND
Cu	ND	ND	ND	ND	ND
Pb	ND	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND	ND
Ni	ND	ND	ND	ND	ND
Se	ND	ND	ND	ND	ND
Ag	ND	ND	ND	ND	ND
Tl	ND	ND	ND	ND	ND
Zn	0.03	0.07	0.010	0.06	0.04
pH (Lab Measured)	4.50	3.95	7.30	4.25	4.95
pH (Field Measured)	5.0	4.5	NR	4.7	NR
Chloride (mg/l)	6.20	9.60	ND	7.60	8.50
Specific Conductance (umhos)	53.6	77.7	1.78	64.6	63.7
Specific Conductance* (umhos)	40	70	NR	50	NR
Temperature (°C)	20	20	NR	18	NR

ND Not Detected
NR Analysis Not Requested

* Field Measured

A Duplicate Sample
B Field Blank

3.8 SITE 19: PAINT CHIP AND SLUDGE DISPOSAL AREA

3.8.1 Geology

The shallow unconsolidated deposits at Site 19 consist of 15 to 20 feet of brownish yellow and olive fine to medium sand with some coarse sand and silt overlying glauconitic medium sand. At 25 to 26 feet, a thin (0.5 foot) brownish yellow silty clay layer is present. Descriptive boring logs are included in Appendix A.

3.8.2 Hydrogeology

Saturated materials were encountered with fifteen feet of the surface. Based on groundwater levels measured in July 1986 and surveyed monitor well locations and elevations, a water table map was constructed for Site 19 to determine groundwater flow direction. (Figure 3-8). Groundwater flows toward the northwest with a hydraulic gradient of 0.015. Wells 19-2 and 19-3 are downgradient of the site and as the small stream located west of the site.

3.8.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 19 are summarized in Table 3-10A. Total organic halogen were detected at concentrations of 50.0 ug/L and 63.0 ug/L (19-3 and 19-1, respectively). Total organic carbon concentration was fairly low and ranged from 4.01 mg/L (sample 19-1) to 6.95 mg/L (sample 19-2). Methylene chloride was detected at 14 ug/L (sample 19-1), 13 ug/L (sample 19-2), and estimated at 8 ug/L for sample 19-3. Acetone was detected at 16 ug/L in sample 19-3; 2-Butanone was present in sample 19-3 at 10 ug/L. Nitrate/nitrite was detected in sample 19-1 at 0.80 mg/L. Neither base/neutral/acid extractable organic compounds nor petroleum hydrocarbons were detected above quantifiable limits.

Cadmium, chromium, lead, and zinc were detected in sample 19-1 at low levels. Cadmium, nickel, and zinc were detected at low levels in sample 19-2. Cadmium and zinc were detected at low levels in sample 19-3. pH was in the range of 4.3 to 4.6. Chloride concentrations ranged from 7.60 mg/L (sample 19-1) to 11.4 mg/L (sample 19-2). Specific conductivity was elevated in well 19-1. Specific conductivity was elevated in well 19-1 (160 umhos).

TABLE 3-9B

Analytical Results for Soil Samples Collected in March 1986

SITE 11

Sample Number	Oil and Grease (Method 413.3) (mg/kg)
11-A	
(6" - 9")	37,300
(2' - 2.5')	76.3
11-B	
(6" - 9")	112
(2' - 2.5')	15.5
11-C	
(6" - 9")	2.60
(2' - 2.5')	1.75
11-D	
(6" - 9")	8.20
(2' - 2.5')	3.70
Detection Limit	1.0

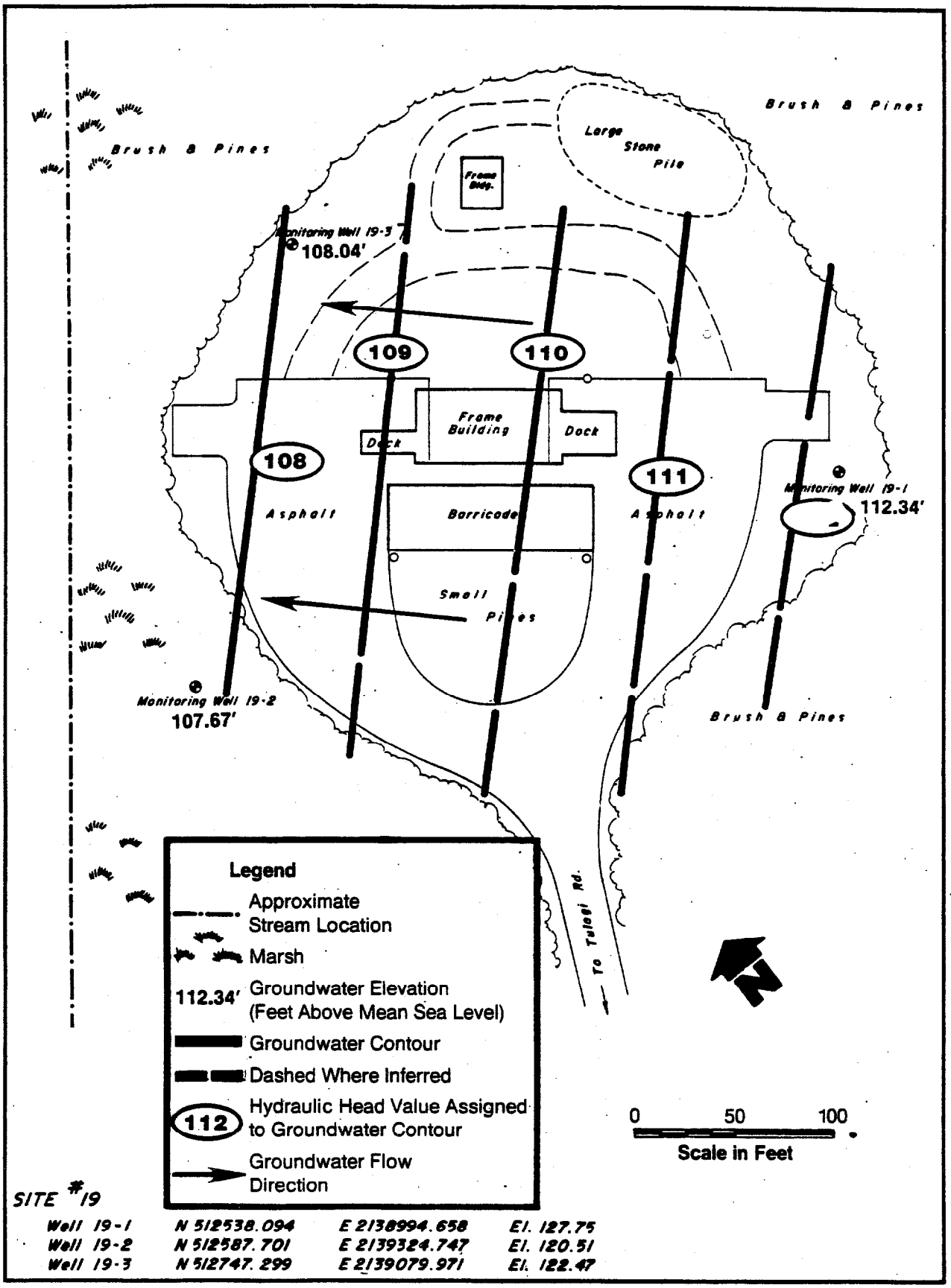

FIGURE 3-8 SITE 19 - PAINT CHIP AND SLUDGE DISPOSAL AREA GROUNDWATER FLOW MAP - JULY 1986

TABLE 3-10A

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 19

Analyte	Sample Number 19-1	19-2	19-3
Total Organic Halogens (ug/l)	63.0	71.0	50.0
Total Organic Carbon (mg/l)	4.01	6.95	4.92
Volatile Organic Compounds (ug/l):			
Methylene chloride	14	13	8J
Acetone	ND	ND	16
2-Butanone	ND	ND	10
Petroleum Hydrocarbons (mg/l)	ND	ND	ND
Nitrate/Nitrite (mg/l)	.80	ND	ND
Base/Neutral/Acid Compounds (ug/l)	ND	ND	ND
Soluble Metals (mg/l):			
Sb	ND	ND	ND
As	ND	ND	ND
Be	ND	ND	ND
Cd	0.007	0.006	0.004
Cr	0.015	ND	ND
Cu	ND	ND	ND
Pb	0.006	ND	ND
Hg (ug/l)	ND	ND	ND
Ni	0.02	0.016	ND
Se	ND	ND	ND
Ag	ND	ND	ND
Tl	ND	ND	ND
Zn	0.09	0.09	0.06
pH (Lab Measured)	3.85	3.95	4.10
pH (Field Measured)	4.3	4.6	4.5
Chloride (mg/l)	7.60	11.4	10.5
Specific Conductance (umhos)	189	103	80.5
Specific Conductance* (umhos)	160	70	60
Temperature (°C)	20	17	17

ND Not Detected
NR Analysis Not Requested
J Estimated concentration less than quantification limits but greater than instrument detection limits

* Field Measured

A Duplicate Sample
B Field Blank

3.8.4 Surface Water and Sediment Quality

Surface water and sediment samples were collected at two locations over time (see Figure 2-9 for locations). Two samples were taken five hours apart at each sampling location. Analytical results for these samples are summarized in Tables 3-10B and 3-10C or sample 19-A the concentration of total organic halogens was 65.0 ug/L for the first sample and 9.00 ug/L for the second sample. The duplicate sample for 19-A (1st hour) contained 29.0 ug/L total organic halogens. Sample 19-B contained 49.0 ug/L (1st hour) and 36.0 ug/L (6th hour). Total organic carbon was elevated for the stream samples. No volatile organic compounds were detected above quantifiable limits. Nitrate/nitrite and base/neutral/acid extractable organic compounds were not detected. Petroleum hydrocarbons were detected at 4.20 mg/L in stream sample 19-B (6th hour). Chromium, copper, nickel, and zinc were detected in 19-A blank. This was a field blank taken by pouring distilled water directly into the sample bottles. pH ranged from 5.20 for sample 19-A to 4.80 for sample 19-B. Chloride concentrations were slightly higher in the stream samples than in the groundwater samples. Specific conductance was fairly low for the stream samples.

Total organic halogens were not detected in the sediment samples. However, acetone was present at 230 ug/kg (sample 19A 6th hour) and 1,200 ug/kg to 730 ug/kg in samples 19-B (1st hour) and 19-B (6th hour), respectively. Methylene chloride was detected at 75 ug/kg in sample 19-A (1st hour) duplicate and at 210 ug/kg in 19-B (1st hour). Methylene chloride was not reported for 19-A (6th hour) and 19-B (6th hour) due to dilutions (see lab reports in Appendix D). Chloroform was present in both stream sediment samples 19-A duplicate and 19-B (1st hour). Toluene and 2-Butanone were present in sediment sample 19-B (1st hour) at 170 ug/kg and 240 ug/kg, respectively. Elevated levels of petroleum hydrocarbons were found in all sediment samples at Site 19. Lead was detected in all sediment samples; the highest levels were in the 19-B samples. Mercury was found at 0.423 mg/kg in sample 19-A (6th hour) only. Elevated silver and zinc concentrations were detected in sample 19-B (1st hour).

TABLE 3-10B

ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED IN JULY 1986

SITE 19

Analyte	Sample Number					
	19-A (1st Hour)	19-A (6th Hour)	19-A Dup	19-A Blank	19-B (1st Hour)	19-B (6th Hour)
Total Organic Halogens (ug/l)	65.0	9.00	29.0	NR	49.0	36.0
Total Organic Carbon (mg/l)	17.3	30.0	17.0	.962	22.6	19.3
Volatile Organic Compounds (ug/l)	ND	ND	ND	ND	ND	ND
Petroleum Hydrocarbons (mg/l)	ND	ND	ND	ND	ND	4.20
Nitrate/Nitrite (mg/l)	ND	ND	ND	ND	ND	ND
Base/Neutral/Acid Compounds (ug/l)	ND	ND	ND	ND	ND	ND
Soluble Metals (mg/l):						
Sb	ND	ND	ND	ND	ND	ND
As	ND	ND	ND	ND	ND	ND
Be	ND	ND	ND	ND	ND	ND
Cd	ND	ND	ND	ND	ND	ND
Cr	0.014	0.016	0.021	0.018	0.014	0.014
Cu	0.018	0.017	0.018	0.019	0.017	0.018
Pb	ND	ND	ND	ND	ND	ND
Hg (ug/l)	ND	ND	ND	ND	ND	ND
Ni	0.03	0.04	0.04	0.04	0.04	0.03
Se	ND	ND	ND	ND	ND	ND
Ag	ND	ND	ND	ND	ND	ND
Tl	ND	ND	ND	ND	ND	ND
Zn	0.027	0.028	0.033	ND	0.122	0.014
pH (Lab Measured)	5.20	5.20	5.10	6.00	4.80	4.80
pH (Field Measured)	NR	NR	NR	NR	NR	NR
Chloride (mg/l)	15.0	13.2	14.6	ND	14.6	13.8
Specific Conductance (umhos)	56.6	53.7	55.6	1.03	61.9	55.2
Specific Conductance* (umhos)	NR	NR	NR	NR	NR	NR
Temperature (°C)	NR	NR	NR	NR	NR	NR

ND Not Detected
NR Analysis Not Requested

* Field Measured

TABLE 3-10C

ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED IN JULY 1986

SITE 19

Analyte	Sample Number 19-A (1st Hour)	19-A (6th Hour)	19-A Dup	19-A Blank	19-B*(1st Hour)	19-B*(6th Hour)
Total Organic Halogens (ug/g)	ND	ND	ND	NR	ND	ND
Volatile Organic Compounds (ug/kg):						
Methylene Chloride	8J	NRP	75	7J (ug/l)	210	NRP
Acetone	7J	230	53	2J	1200	730
Chloroform	ND	ND	25	ND	37	ND
2-Butanone	ND	ND	ND	ND	240	ND
Toluene	ND	2J	ND	ND	170	ND
Dilution Factor	1.46	1.48	1.55	1.0	13.1	11.1
Detection Limit	15	15	16	10	130	110
Petroleum Hydrocarbons (mg/kg)	82.8	14.9	129	ND	445	681
Total Metals (mg/kg):						
Sb	<14.1	<14.4	<13.0	<0.05	<100	<123.5
As	<2.82	<2.89	<2.76	<0.01	<19.9	<25.0
Be	<14.1	<14.4	<13.0	<0.05	<100	<123.5
Cd	<0.7	<0.7	<0.7	<.0025	<5	<6.25
Cr	<28.2	<28.8	<26.0	<0.1	<200	<247.0
Cu	<14.1	<14.4	<13.0	<0.05	<100	<123.5
Pb	5.83	4.65	6.86	<0.005	94.7	96.0
Hg	<.250	0.423	<.250	<.250	<.250	<.250
Ni	<28.2	<28.8	<26.0	<0.1	<200	<247
Se	<1.41	<1.44	<1.38	<0.005	<9.95	<12.5
Ag	<2.82	<2.89	<2.75	<0.01	286	<25.0
Tl	<2.82	<2.89	<2.76	<0.01	<19.9	<25.0
Zn	<14.1	<14.4	<13.0	<0.05	214	<331

ND Not Detected
NR Analysis Not Requested
J Estimated Concentration less than quantification limits but greater than instrument detection limits
NRP Not Reported; see lab report
* Sample 19-B sediment had high water content

3.8.5 Soil Quality

Four soil samples were collected at Site 19. Locations of these samples are indicated on Figure 2-9. Samples were collected as composite samples from depths 0.5 to 3 feet. Analytical results for soil samples collected at Site 19 are summarized in Table 3-10D. Acetone and 2-Butanone were detected at concentrations of 460 and 67 ug/kg respectively in soil sample 19-A. Cadmium, chromium, lead, and zinc were present at concentrations of 26,800 mg/kg, 59.6 mg/kg, 49.5 mg/kg, and 289 mg/kg respectively in soil sample 19-A. Soil sample 19-B also had elevated concentrations of the sample metals - cadmium (31,900 mg/kg), chromium (639 mg/kg), lead (1,560 mg/kg), and zinc (776 mg/kg). Methylene chloride and acetone were detected above quantifiable limits. Soil samples 19-C and 19-D had considerably less amounts of chromium, lead, and zinc. Dichlorobenzenes were present at 18 ug/kg in soil sample 19-C. Petroleum hydrocarbons were detected in soil samples 19-B, 19-C, and 19-D. Soil sample 19-D had particularly high concentrations of petroleum hydrocarbons (751 mg/kg).

3.9 SITE 20: GRIT BLASTING AREA AT BUILDING 544

3.9.1 Soil Quality

Soil samples were taken at discrete intervals at four sampling locations at Site 20 (see Figure 2-11 for locations). Analytical results for soil samples collected at Site 20 are summarized in Table 3-11. Neither petroleum hydrocarbons or EPTOX metals were detected in sample 20-A. Petroleum hydrocarbons were detected at concentrations of 65.7 mg/kg in sample 20-B at a depth of 0.5 to 1 foot and 2.20 mg/kg in sample 20-C at a depth of 0.5 to 1 foot. Lead was detected in sample 20-C at 1.64 mg/L. Samples 20-D and 20-E were collected in July 1986 and were analyzed using graphite furnace atomic absorption which has much lower detection limits than the inductively coupled plasma atomic emission which was used for the other samples. Therefore, no EPTOX metals were detected in samples 20-D or 20-E under the higher detection limits which are appropriate for these analyses.

TABLE 3-10D

Analytical Results for Soil Samples Collected in January 1986

SITE 19

Sample Number	TOX (ug/g)	VOA* (ug/kg)		Analyte Petroleum Hydrocarbons (mg/kg)	Priority Pollutant Metals (mg/kg)	
19-A Composite	.320	Chloromethane	3J	ND	Ag	<.251
		Acetone	460		As	1.53
		2-Butanone	67		Be	<.637
		Dilution Factor	1.3		Cd	26800
		Detection Limit	13		Cr	59.6
					Cu	4.84
					Hg	<.285
					Ni	1.4
					Pb	49.5
					Sb	<.005
					Se	<.637
					Tl	<.251
					Zn	289
19-B Composite	2.15	Chloromethane	4J	751	Ag	<.222
		Methylene Chloride	12		As	4.53
		Acetone	14		Be	<.561
		2-Butanone	7J		Cd	31900
		Dilution Factor	1.1		Cr	639
		Detection Limit	11		Cu	13.5
					Hg	<.300
					Ni	2.5
					Pb	1560
					Sb	.747
					Se	<.637
					Tl	<.222
					Zn	776

ND Not Detected
J Estimated concentration less than quantification limit but greater than instrument detection limit

TABLE 3-10D (Continued)

Analytical Results for Soil Samples Collected in March 1986

SITE 19

Sample Number	TOX (ug/g)	VOA (ug/kg)		Petroleum Hydrocarbons (mg/kg)	Priority Pollutant Metals (mg/kg)	
19-C Composite	ND	Dichlorobenzenes	18	7.60	Ag	1.10
		Dilution Factor	1.1		As	1.51
		Detection Limit	11		Be	<.993
					Cd	<.248
					Cr	69.2
					Cu	5.16
					Hg	<.250
					Ni	<3.97
					Pb	25.5
					Sb	<2.49
					Se	<.493
					Tl	<.993
					Zn	39.2
19-D Composite	ND	ND		2.50	Ag	<.989
		Dilution Factor	1.3		As	1.15
		Detection Limit	13		Be	<.989
					Cd	<.247
					Cr	5.94
					Cu	2.57
					Hg	<.250
					Ni	<3.96
					Pb	7.23
					Sb	<2.49
					Se	<.500
					Tl	<.989
					Zn	6.03

ND Not Detected
J Estimated concentration less than quantification limit but greater than instrument detection limits

TABLE 3-11

Analytical Results for Soil Samples Collected in March 1986

SITE 20

Sample Number	Analyte Petroleum Hydrocarbons (mg/kg)	EPTOX (mg/l) Zn	Cr	Pb	Ti
20-A					
(.5' - 1')	ND	ND	ND	ND	ND
(2.5' - 3')	ND	ND	ND	ND	ND
20-B					
(.5' - 1')	65.7	ND	ND	ND	ND
(2.5' - 3')	ND	ND	ND	ND	ND
20-C					
(.5' - 1')	2.20	ND	ND	1.64	ND
(2.5' - 3')	ND	ND	ND	ND	ND
20-D*					
(.5' - 1')	ND	<.05	<.50	.051	.41
(2.5' - 3')	ND	<.05	<.50	.05	.039
20-E*					
(.5' - 1')	ND	<.05	<.50	.072	<.003
(2.5' - 3')	ND	<.05	<.50	.057	.024
Detection Limits		.50	.50	.50	.50

ND Not Detected

* Samples collected July 1986

3.10 SITE 22: PAINT CHIP DISPOSAL AREA

3.10.1 Soil Quality

Soil samples were taken at discrete intervals at four sampling locations at Site 22 (see Figure 2-12 for locations). Analytical results for soil samples collected at Site 22 are summarized in Table 3-12. No EPTOX metals were detected in any samples collected at Site 22. Petroleum hydrocarbons were detected in samples 22-C and 22-D with increased concentrations at depth. Petroleum hydrocarbons ranged from 4.20 mg/kg to 39.0 mg/kg in sample 22-C and from 6.30 mg/kg to 45.8 mg/kg in sample 22-D.

3.11 SITE 26: EXPLOSIVE "D" WASHOUT AREA, BUILDING GB-1

3.11.1 Geology

The shallow unconsolidated deposits at Site 26 consist of brownish yellow and gray fine to medium sand with some coarse sand. Reddish yellow silty clay was encountered at 26 feet in well 26-1 (see Figure 2-10 for locations) Descriptive boring logs are included in Appendix A.

3.11.2 Hydrogeology

Saturated deposits were encountered within 10 feet of the surface. Based on groundwater levels measured in July 1986 and surveyed monitor well locations and elevations, a water table contour map was constructed for Site 26 to determine the direction of groundwater flow (see Figure 3-9). Groundwater flows toward the south with a hydraulic gradient of 0.0055. The flow direction is toward the Manasquan River.

3.11.3 Groundwater Quality

Analytical results for groundwater samples collected at Site 26 are summarized in Table 3-13. Picric acid was not detected in any samples collected at Site 26. pH ranged from 4.0 to 4.8 and specific conductance was 50 umhos, 60 umhos, and 225 umhos for wells 26-1, 26-2, and 26-3 respectively.

TABLE 3-12

Analytical Results for Soil Samples Collected in March 1986

SITE 22

Sample Number	Analyte Petroleum Hydrocarbons (mg/kg)	EPTOX (mg/kg) Zn	Cr	Pb	Ti
22-A					
(.5' - 1')	ND	ND	ND	ND	ND
(2.5' - 3')		ND	ND	ND	ND
22-B					
(.5' - 1')	ND	ND	ND	ND	ND
(2.5' - 3')		ND	ND	ND	ND
22-C					
(.5' - 1')	4.20	ND	ND	ND	ND
(2' - 2.5')	39.0	ND	ND	ND	ND
22-D					
(.5' - 1')	6.30				
(2' - 2.5')	45.8	ND	ND	ND	ND
		ND	ND	ND	ND
Detection Limits		.50	.50	.50	.50

ND = Not Detected

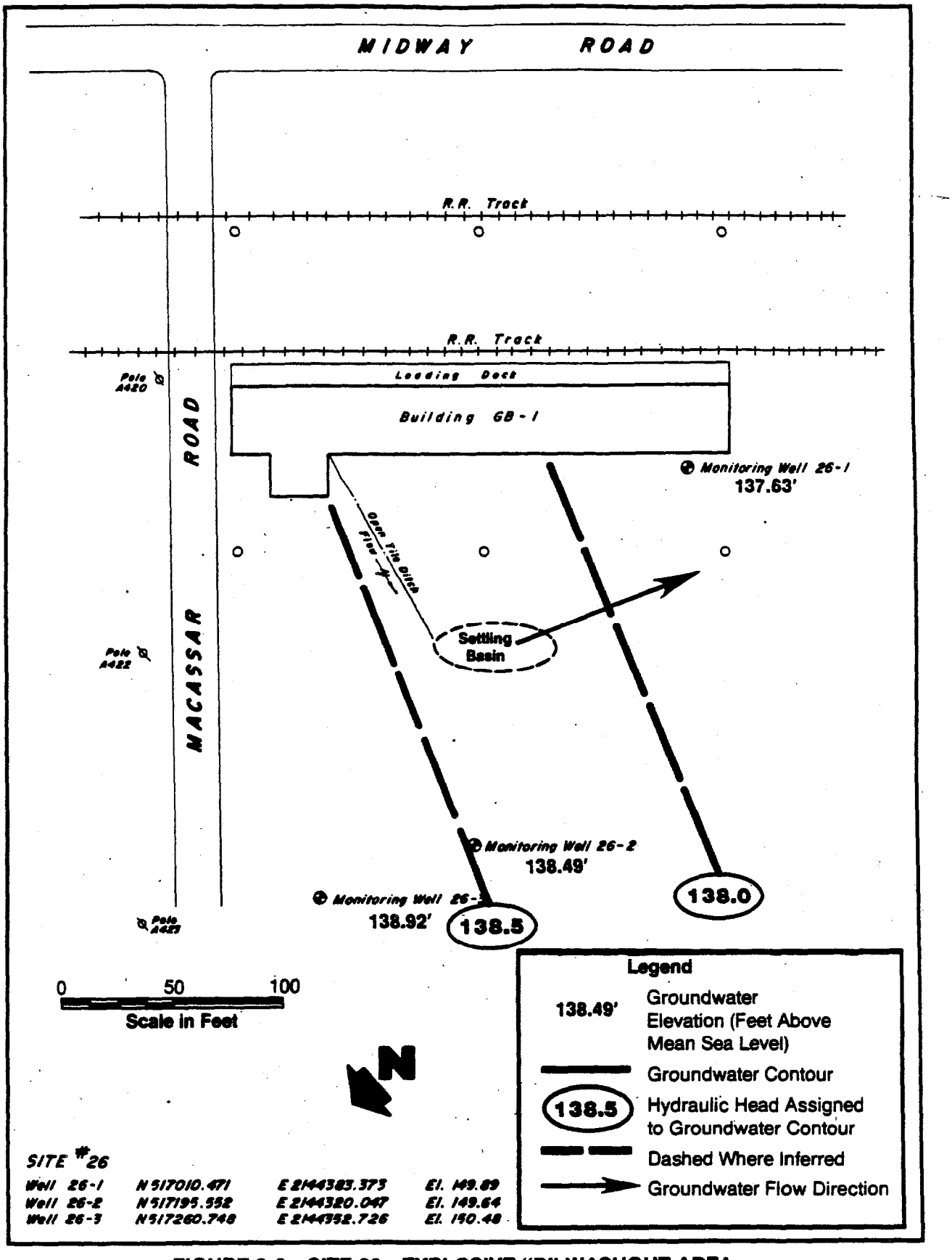

FIGURE 3-9 SITE 26 - EXPLOSIVE "D" WASHOUT AREA GROUNDWATER FLOW MAP - JULY 1986

TABLE 3-13

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED IN JULY 1986

SITE 26

Analyte	Sample Number					
	26-1	26-1B	26-2	26-2A	26-2B	26-3
Picric Acid	ND	ND	ND	ND	ND	ND
Field Measured Parameters:						
pH	4.8	NR	4.0	NR	NR	4.5
Temperature (°C)	18	NR	17	NR	NR	17
Specific Conductance (umhos)	60	NR	225	NR	NR	50

ND Not Detected
NR Analysis Not Requested

A Duplicate Sample
B Field Blank

SECTION 4

SIGNIFICANCE OF FINDINGS

4.1 GEOLOGY

Based on observations of samples from pilot borings drilled for monitor well installation, the shallow unconsolidated deposits at NWS Earle may be divided into three distinct lithologies. Generally, those sites located in the central portion of NWS Earle (Sites 4 and 26) contain brownish yellow and light gray fine to very coarse sand. In the northern portion of the station (Sites 2, 5, and 11), yellowish brown to olive silty fine to coarse-grained sands and glauconitic medium sands are dominant. Yellowish brown and gray very fine to fine sands overlie dark gray silt in the southern portion of the station (Sites 3 and 19). Some glauconitic medium to coarse sands were found under the silt. Thin silty clay to clay lenses were found at some sites. Available literature (Initial Assessment Study, Jablonski, 1968) indicates that the surficial deposits in the vicinity of NWS Earle are the Vincentown Formation, Kirkwood Formation, Hornerstown Sand, and the Cohansey Sand. Each of these formations is described in Table 4-1. The major topographic feature at the base - the Homing Hills - is made up of the Cohansey Sand. Below the Cohansey Sand, the Kirkwood Formation overlies the Vincentown Formation. The boring log descriptions for Sites 2, 5, and 11 are similar to descriptions of the Vincentown Sand. Lithology of Sites 4 and 26 is similar to that of the Cohansey Sand and Sites 3 and 19 appear to be located in the Kirkwood Formation. At site 10, however, pilot borings penetrated surficial deposits which resemble the Kirkwood Formation and glavconitic deposits which resemble the Vincentown Formation at depth. The location of each main base area site within the various formations is shown in Figure 4-1. Site 7, located at the Waterfront Area near Sandy Hook, is situated in primarily brown quartzic sands and black micaceous silt of the Red Banks Sand.

4.2 HYDROGEOLOGY

Based on water levels measured in July 1986 (Table 3-1), the principal direction of groundwater flow at NWS Earle is toward the east with components to the north and south (see Figure 4-2). Groundwater occurs under unconfined conditions and is found within 25 feet of the surface. At Site 5, a localized zone of perched water was observed. The shallow unconfined groundwater generally flows towards the nearest surface water body. Surface water bodies which receive groundwater from the

TABLE 4-1

Stratigraphic Units of the Northern Atlantic Coastal Plain of New Jersey

Era	System	Series	Formation		Maximum Thickness (ft)	Lithology
Cenozoic 0 to 55 million yrs. ago	Quaternary	Holocene Recent	Alluvium		50	Sand, silt, and black mud.
			Beach sand and gravel			Sand, quartz, light-colored, medium-grained, pebbly.
		Pleistocene	Cape May Formation		60	Sand, quartz, light-colored, heterogeneous, clayey, pebbly, glauconitic.
			Pensauken Formation[2]			
			Bridgeton Formation			
	Tertiary	Pliocene (?)	Beacon Hill Gravel		60	Gravel, quartz, light-colored, sandy.
		Pliocene (?) and Miocene(?)	Cohansey Sand		30	Sand, quartz, light-colored, medium- to coarse-grained, pebbly; local clay beds.
		Miocene	Kirkwood Formation		74	Sand, quartz, gray to tan, very fine to medium-grained micaceous, and dark-colored diatomaceous clay.
		Eocene	Shark River Marl		100	Sand, quartz and glauconite, gray, brown, and green, fine- to coarse-grained, clayey, and green silty and sandy clay.
			Rancocas Group	Manasquan Formation		
				Vincentown Formation	130	Sand, quartz, gray and green, fine- to coarse-grained, glauconitic, and brown clayey, very fossiliferous, glauconite and quartz calcarenite.
				Hornerstown Sand	100	Sand, glauconite, green, medium- to coarse-grained, clayey.
Mesozoic 65-225 million yrs. ago	Cretaceous	Upper Cretaceous	Monmouth Group	Tinton Sand and Red Bank Sand undivided	135	Sand, quartz and glauconite, brown and gray, fine- to coarse-grained, clayey, micaceous.
				Navesink Formation	45	Sand, glauconite and quartz, green, black, and brown, medium- to coarse-grained, clayey.
				Mount Laurel Sand	85	Sand, quartz, brown and gray, fine- to coarse-grained, glauconitic.
			Matawan Group	Wenonah Formation	85	Sand, quartz, gran and brown, very fine to fine-grained, glauconitic, micaceous.
				Marshalltown Formation	50	Sand, quartz and glauconite, gray and black, very fine to medium-grained, very clayey.
				Englishtown Formation	150	Sand, quartz, tan and gray, fine- to medium-grained; local clay beds.
				Woodbury Clay	60+	Clay, gray and black, micaceous.
				Merchantville Formation	60+	Clay, gray and black, micaceous glauconitic, silty; locally very fine-grained quartz and glauconite sand.
			Magothy Formation		175	Sand, quartz, light-gray, fine-grained, and dark-gray lignitic clay.
			Raritan Formation		400	Sand, quartz, light-colored, fine- to coarse-grained, pebbly, arkosic, and red, white, and variegated clay.
Pre-Cambrian 600 million - 4.5 billion yrs. ago		Pre-Cretaceous				Precambrian and early Paleozoic crystalline rocks - metamorphic schist and gneiss; locally Triassic basalt, sandstone, and shale.
[illegible]	[illegible]	[illegible]	[illegible]			

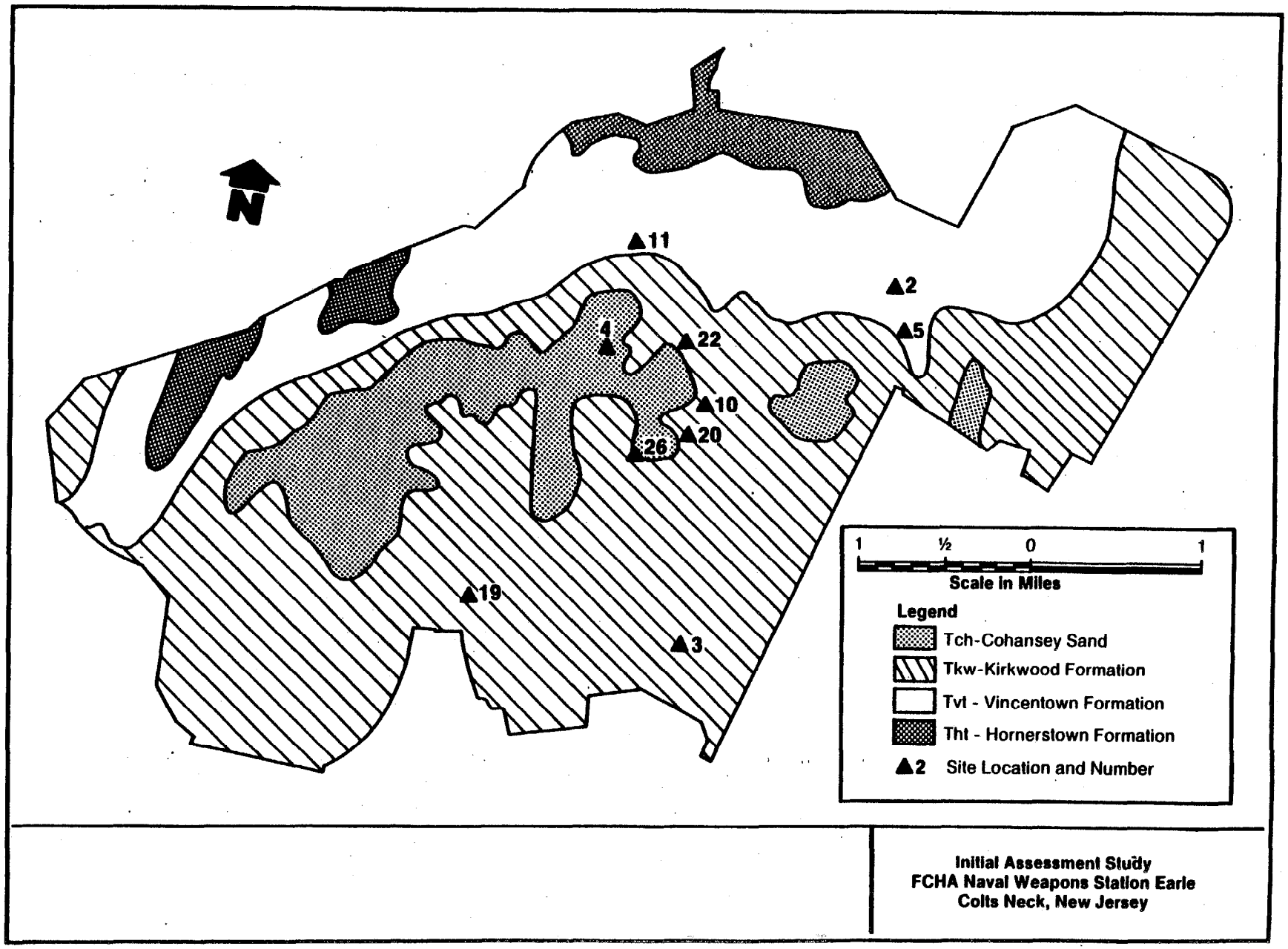

FIGURE 4-1 MAP OF SURFICIAL GEOLOGY

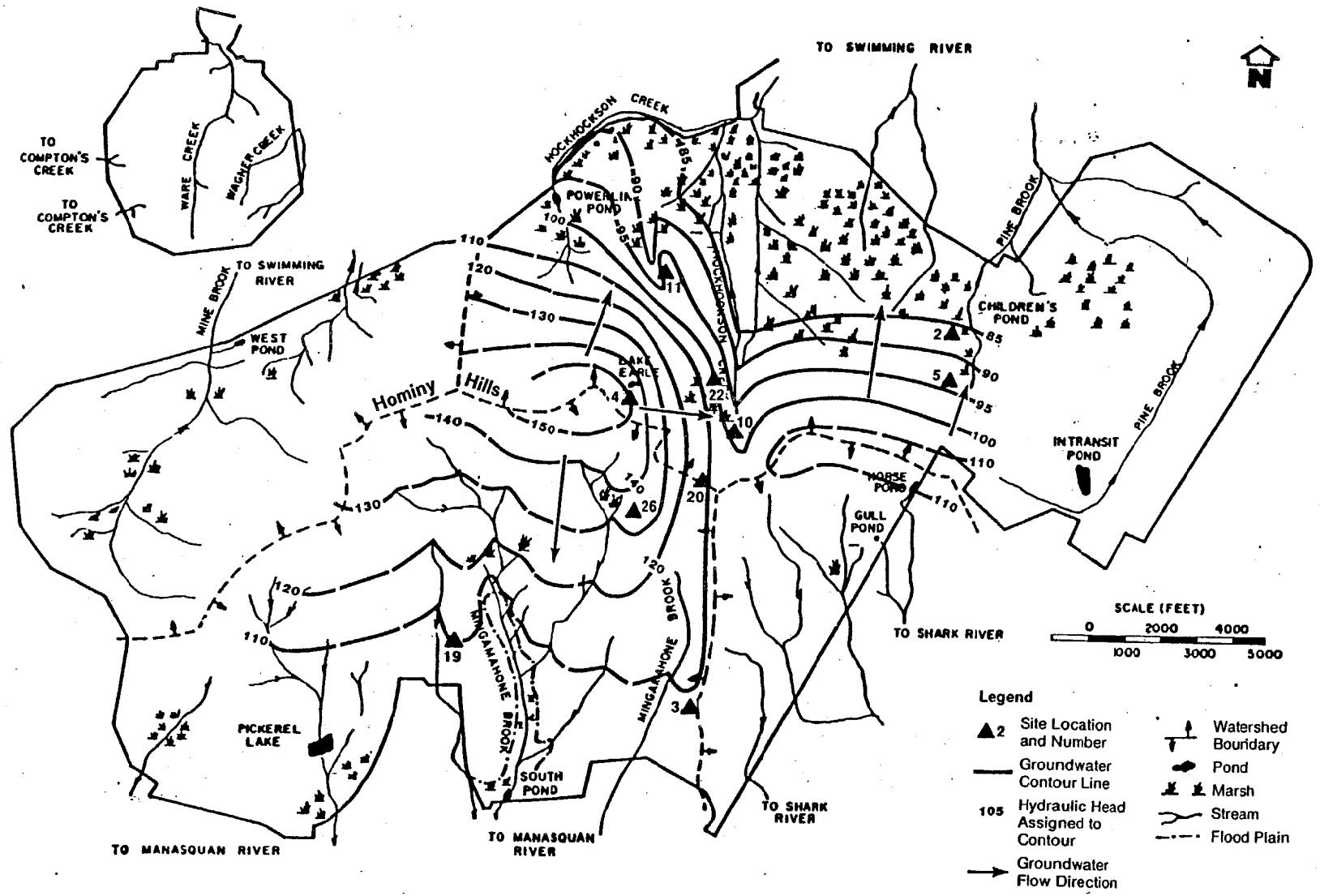

FIGURE 4-2 BASE GROUNDWATER FLOW MAP

sites investigated are PineBrook, Mingamahone Brook. Hockhockson Brook, and Compton Creek. However, at Site 11, groundwater appears to be flowing in the direction opposite than expected. This may be due to a localized perched groundwater zone as yet undetected. Also, at Site 3, due to the proximity to Mingamahone Brook, groundwater flow was expected to flow westward towards the stream. A southward flow was actually observed. Again, this may be due to a locally perched groundwater zone.

4.3 WATER QUALITY

The principal objective of the Phase II Problem Confirmation Study was to assess the impact, or potential for impact, of any contamination of the environment or threat to public health. For each site, parameters which were detected above quantifiable limits were reviewed and compared to the New Jersey and Federal Drinking Water Guidelines presented in Table 4-2.

On 13 November 1985, the U.S. EPA published a set of maximum contaminant levels (MCL's) and recommended maximum contaminant levels (RMCL's) for drinking water, as summarized in Table 4-2.

RMCL's are nonenforceable water quality goals that are set at levels which result in no known or anticipated adverse health effects with an adequate margin of safety. MCL's are enforceable standards that are set as close to RMCL's as possible and are based on health, treatment technologies, cost, and other factors. In the absence of MCL's or RMCL's, 10^{-6} cancer risk criteria, acceptable daily intakes, or medical advisory criteria are reported as guidelines for drinking water in Table 4-2.

A few parameters are not referred to in Table 4-2 and warrant some discussion. Total organic halogen is an indicator of volatile organic compounds. In general, for those sites for which both total organic halogen and volatile organic compounds were analyzed, a concentration above 40 ug/L total organic halogens correlated with volatile organic compounds detected above quantification limits. Total organic carbon is another contaminant indicator. Ranges from 0.1 to 10 mg/L are commonly found in natural groundwaters (Freeze and Cherry, 1979). Total dissolved solids (TDS) are also an indicator parameter. Specific conductance may be compared to (TDS) by the relationship:

$$TDS = A * \text{specific conductance}$$

where A = 0.55 to 0.75 for groundwater.

TABLE 4-2

Drinking Water Guidelines

Primary and Secondary Maximum Contaminant Levels (MCL)

Parameter (mg/l unless noted)	Federal	State
Physical		
Color (units)	15.0	10
Corrosivity	Noncorrosive	*
Odor (threshold no.)	3.0	*
pH (units)	6.5–8.5	
Taste		Narr.[c]
Total dissolved solids	500	*
Turbidity (TU)	1.0	*
Inorganic		
Ammonia		
Chloride	250	*
Cyanide		
Fluoride	1.4–2.4	*
Foaming agents	0.5	*
Hardness		50–250
Nitrate (as N)	10.0	*
Phosphate		
Specific conductance		
Sulfate	250	*
Metals		
Arsenic	0.05	*
Barium	1.0	*
Cadmium	0.01	*
Chromium	0.05	*
Copper	1.0	*
Iron	0.3	*
Lead	0.05	*
Manganese	0.05	*
Mercury	0.002	*
Selenium	0.01	*
Silver	0.05	*
Sodium	M	50
Zinc	5.0	*
Acid Extractables		
Phenols		
Base/Neutrals		
Benzidine		

Parameter (mg/l unless noted)	Federal	State
Pesticides/PCBs		
Aldrin/Dieldrin		
2,4-D	0.1	*
DDT		
Endrin	0.0002	*
Lindane	0.004	*
Methoxychlor	0.1	*
PCBs		
Toxaphene	0.005	*
2,4,5-TP Silvex	0.01	*
Other		
Biochemical oxygen demand		
Chemical oxygen demand		
Oil and Grease		
Petroleum hydrocarbons		
Total organic carbon		
Total organic halogen		
Trihalomethanes	0.1	*
Biological		
Coliform bacteria membrane filter test (#/100 ml) mean	1.0	*
max. allowed (single sample if <20 samples or 5% of all samples)	4.0	*
Radiological		
Beta particle and photon radioactivity (mrem/yr)	4.0	*
Combined Radium 226 and Radium 228 (pCi/l)	5.0	*
Gross alpha (pCi/l)	15.0	*

* Same as federal standard.

[c] Narrative standard.

from: 1985 Guide to State Groundwater Programs and Standards. API Publication No. 4416

TABLE 4-2 (Continued)

Drinking Water Guidelines

Final Recommended Maximum Contaminant Levels
13 November 1985

Contaminant	RMCL (ug/L)
Benzene	0
Vinyl Chloride	0
Carbon Tetrachloride	0
1,2-Dichloroethane	0
Trichloroethylene	0
1,1-Dichloroethylene	7
1,1,1-trichloroethane	200
1,4-dichlorobenzene	750

Proposed Primary Maximum Contaminant Levels
13 November 1985

Contaminant	MCL (ug/L)
Trichloroethene	5.0
Carbon Tetrachloride	5.0
Vinyl Chloride	1.0
1,2-dichloroethane	5.0
Benzene	5.0
1,1-dichloroethene	7.0
1,1,1-trichloroethane	200.0
1,4-dichlorobenzene	750.0

13 November 1985
EPA Federal Register

TABLE 4-2 (Continued)

Drinking Water Guidelines

Proposed Recommended Maximum Contaminant Levels
13 November 1985

Organic Contaminants	RMCL (ug/L)
Acrylamide	0
Alachlor	0
Chlordane	0
DBCP	0
EDB	0
Epichlorohydrin	0
Heptachlor	0
Heptachlor Epoxide	0
PCBs	0
Toxaphene	0
Aldicarb, aldicarb sulfoxide and aldicarb sulfone	9.
Carbofuran	36.0
2,4-D	70.0
1,2-dichlorobenzene	62.0
cis-1,2-dichloroethylene	70.0
trans-1,2-dichloroethylene	70.0
Ethylbenzene	68.0
Lindane	0.2
Methoxychlor	340.0
Monochlorobenzene	60.0
Pentachlorophenol	220.0
Styrene	140.0
Toluene	2000.0
2,4,5-TP	52.0
Xylene	440.0

13 November 1985
EPA Federal Register

TABLE 4-2 (Continued)

Drinking Water Guidelines

Contaminant	10^{-6} Cancer Risk[a]
Methylene Chloride	2.5 mg/l **
bis (2-ethylhexyl)phthalate	15.0 mg/l
di-n-butyl phthalate	34.0 mg/l
n-nitrosodiphenylamine	4.9 ug/l

Contaminant	Acceptable Daily Intake[b]
Acetone	3 mg/day/kg body weight *
2-butanone	20 ug/day/kg body weight
Nickel	0.1 mg/day/kg body weight

Contaminant	Medical Advisory Criteria[c]
TNT	45 ppb
Nitroglycerin	30 ppb
RDX	35 ppb
HMX	None available

* Value available for inhalation only
** Supplied by Bruce Molholt
Region III EPA
a 28 November 1980
EPA Federal Register
b Supplied by Bruce Molholt
Region III EPA
c NAVORDSTA April 11,1985
Ordnance Environmental Support Office
Indian Head, MD

Some unexpected results occurred, and during the review process, discussions were initiated with laboratory personnel concerning these analytical results. Discussion of these results with laboratory personnel led to reexamination of some of the raw data. Conclusions drawn from this reexamination process and the data to which they referred are reported in Appendix E. Any values which were changed as a result are reported in Appendix D.

The presence of methylene chloride and acetone was noted in several field blanks. Methylene chloride was not used in any decontamination procedures. The most likely explanation for this occurrence was that methylene chloride was present in the deionized water from which the field blank was made (see Appendix E). The presence of acetone, however, cannot be explained in the same manner as methylene chloride. Acetone was used in decontamination procedures at Sites 2 and 11. Acetone was detected in field blank 7-2B at a concentration of 141 ug/L. The presence of acetone in this blank cannot be explained by carry-over from decontamination at either Site 2 or 11 because of the sampling order. A field blank collected between samples collected at Sites 2, 11, and 7 was analyzed for volatile organic compounds but no acetone was detected. A trip blank analyzed with Sites 2 and 7 samples contained no detectable acetone. Presently, there is no reasonable explanation available for the presence of acetone in the field blank.

A site-by-site discussion of water quality results follows.

4.3.1 Site 2: Ordnance Demilitarization Site

The following discussion pertains to both groundwater and surface water samples collected at Site 2. Analytical results for groundwater and surface water are summarized in Tables 3-3A and 3-3B. The concentration of total organic halogens was low (less than 40 ug/L), indicating the probable absence of significant concentrations of volatile organic compounds. Total organic carbon was less than 10 mg/L, indicating low potential contaminants in the water. No metals were present at concentrations greater than the drinking water quality guidelines in Table 4-2. Chromium, copper, nickel, and zinc were detected in field blank 2-1B at levels less than specified in the guidelines. Before collecting this field blank, the bailer had been used to collect a sample at Site 7. At Site 7, only zinc was detected. Therefore, the presence of metals in sample 2-1B cannot be explained by incomplete decontamination. The most probable explanation for the presence of these metals in the field blank is that they were leached from the glass storage bottle by the deionized water. The pH at site was mildly acidic (5.2 to 6.8) for groundwater samples. Water quality data are not available for the Vincentown Formation in which Site 2 is

located. Other formations in this area tend to be acidic and a range of pH for the formations in Monmouth County is 3.8 to 8.1 (Jablonski, 1968). Nitrate/nitrite was present at concentrations of 0.70 mg/L and 0.20 mg/L in groundwater samples 2-3 and 2-4, respectively, as well as in surface water samples at 1.0 mg/L. Wells 2-3 and 2-4 are downgradient of the site (see Figure 3-1) and the surface water sample was taken near well 2-4 (see Figure 2-2). It appears that the nitrate/nitrite was picked up by the groundwater and surface water as a result of activities at this site, but the concentration is far below the 10 mg/L allowed for nitrate in drinking water.

4.3.2 Site 3: Landfill Southwest of "F" Group

Analytical results for groundwater samples collected at Site 3 are summarized in Table 3-4. No volatile organic compounds were detected above quantifiable limits in groundwater samples collected at Site 3. No metals were present in any samples collected at Site 3 at levels above those specified by the drinking water guidelines listed in Table 4-2. Petroleum hydrocarbons were present in downgradient well 3-1 at 1.0 mg/L. There are no guidelines for petroleum hydrocarbons analyzed as a lump indicator. However, to the best of WESTON's knowledge, the amount present at Site 3 is small and is therefore regarded as having no significant impact on the water quality. Nitrate/nitrite was present in well 3-3 which is an upgradient well. This indicates that background concentrations may be approximately 0.20 mg/L for nitrate/nitrite. The pH of groundwater at Site 3 was very low - ranging from 3.9 to 5.5 for field measurements and 2.9 to 4.7 for laboratory measurements. The upgradient well 3-3 had the highest pH and the downgradient well 3-1 had the lowest pH. The concentration of metals in groundwater is dependent on pH as well as redox potentials (Freeze and Cherry, 1979). Metals could be complexed with other compounds at this pH and could be affected by an increase in pH.

4.3.3 Site 4:- Landfill West of "D" Group

Analytical results for groundwater and spring water for Site 4 are in Tables 3-5A and 3-5B. No volatile organic compounds or petroleum hydrocarbons were detected in well water above quantifiable limits. No nitrate/nitrite was detected. The base/neutral extractable organic compound bis (2-ethylhexyl) phthalate was found at a concentration of 53 ug/L in well sample 4-1 which is downgradient of the landfill (see Figure 3-3). This concentration is far below the 10^{-6} cancer risk criteria of 15.0 mg/L. Bis (2-ethylhexyl) phthalate is a plasticizer and is found in many things such as trash bags and Tygon tubing. No metals were detected in either the well water or the spring water at levels that exceeded any drinking water quality standards. pH of the well water was 5.0-6.0, within the range of groundwaters in Monmouth County. For both the spring 4-B samples (see Figure 2-4 for locations), no parameters were detected at levels which exceeded any drinking water quality guidelines set forth in Table 4-2. However, spring samples collected at location 4-A, total organic carbon, petroleum hydrocarbons, and specific conductance were elevated. These parameters are general indicators whose elevated concentrations indicate possible existence of contaminant problems. An oily film was observed on the water at spring 4-A. The second sample collected at spring 4-A contained 60 ug/L N-nitrosodiphenylamine. This concentration is in excess of the 10^{-6} cancer risk criterion of 4.9 ug/L. N-nitrosodiphenylamine is an antioxidant and is found in cutting oils. N-nitrosodiphenylamine is virtually analytically indistinguishable from diphenyl-amine which is used as a stabilizer in nitrocellulose explosives. No explosives are believed to have been disposed of at this site. However, 2-nitro diphenylamine is an ingredient in Otto II fuel. Small amounts of fuel waste may have been received at Site 4.

4.3.4 Site 5 - Landfill West of Army Barricades

Analytical results for groundwater samples collected at Site 5 are summarized in Table 3-6. High concentrations of total organic halogens were reported for groundwater samples 5-1 and 5-2, indicating the presence of organic compounds. Acetone was present in sample 5-1 at 110 ug/L, as was 2-butanone at 12 ug/L. Acetone was also detected in sample 5-3 at 12 ug/L. There is no set guideline available for acetone in drinking water. The only acceptable daily intake value available for acetone is for inhalation (personal communication with Richard Brunker and Bruce Molholt, Region III, EPA). For 2-Butanone, the acceptable daily intake (oral) is 20 ug/day/kg body weight. For a 70-kg man, 1,400 ug/day is allowable. This means that if a conservative value of 2 liters of water is consumed per day by a 70-kg man, 700 ug/L is an allowable concentration of 2-butanone in drinking water. The concentration of 2-butanone in groundwater at Site 5 is much lower than this value. A concentration of 420 ug/L of methylene chloride was reported for the field blank 5-1B. The methylene chloride was probably present in the deionized water (see Appendix E). Pentachlorophenol was detected in samples 5-1, 5-2, and 5-3 but the concentrations were far below the drinking water guideline of 220 ug/L. Pentachlorophenol is used as a wood preservative and may have been present in the small amounts of waste wood disposed of here. The Initial Assessment Study indicates that wood preservatives used at the Ordnance Carpenter Shop may have been disposed of at Site 5. No metals were detected in concentrations above drinking water guidelines. Nitrate/nitrite was detected at a concentration of 0.20 mg/L, which is well below the 10 mg/L standard. pH was low (4.5 to 5.1), but within the range for groundwaters in Monmouth County. The boundary of the landfill is thought to coincide with the wooded area to the east and north, the railroad tracks to the south, and the dirt road to the west (see Figure 2-5). A borrow pit is located to the extreme west. From the groundwater flow map, it appears that wells 5-2 and 5-3 are upgradient of the landfill (see Figure 3-4). It is not clear whether the organic concentrations in wells 5-2 and 5-3 are coming from some unidentified source or if there is really mounding of the water table causing these wells to receive groundwaters from the landfill.

4.3.5 Site 7: Landfill South of "P" Barricades

Analytical results for groundwater samples collected at Site 7 are summarized in Table 3-7.

Acetone was detected in samples 7-1, 7-2, and 7-2B at concentrations of 22 ug/L, 380 ug/L, and 141 ug/L, respectively. Well 7-2 is located downgradient of Landfill 7 and contained the highest concentration of acetone. This landfill did receive small amounts of solvents during years of operation. However, due to the high concentration of acetone detected in the field blank 7-2B, the high concentration of acetone may be artifactual from field decontamination or laboratory procedures. The compound di-ni-butyl phthalate was found in Sample 7-1 at a concentration of 54 ug/L. This compound is found in plasticizers and is ubiquitous. The 10^{-6} cancer risk criterion for this compound is 34 mg/L -- much higher than that concentration found in Sample 7-1. No analytes were detected in any samples collected at Site 7 at levels above the drinking water quality standards summarized in Table 4-2.

4.3.6 Site 10: Scrap Metal Landfill

Analytical results for groundwater and surface water samples are shown in Tables 3-8A and 3-8B. Methylene chloride was detected in groundwater samples 10-1 and 10-2 at levels well below drinking water guidelines (Table 4-2). In wells 10-2 and 10-3, 2-butanone was detected at concentrations which were far below recommended levels (see Subsection 4.3.4). Acetone was detected at concentrations near the detection limit in well 10-3. There are no drinking water standards available for acetone but this concentration is considered insignificant. Nitrate/nitrite was detected in wells 10-1 and 10-3 at 0.10 mg/L. Well 10-3 appears to be upgradient of the site which is bounded by Midway and Munda Roads and the railroad tracks to the east. These concentrations appear to be background concentrations of nitrate/nitrite and are well below the guidelines for drinking water. No metals were present in quantities greater than those set forth in drinking water guidelines. pH was low at this site (4.0 to 4.4), but within the range of groundwater in Monmouth County. pH of the stream water at Site 10 was much higher (6.6 to 6.7). No parameters were found to exceed drinking water guidelines (Table 4-2) for the surface water samples at Site 10 except for N-nitrosodiphenylamine, which was detected downstream of Site 10 in sample 10-B at concentrations of 31 ug/L (1st hour sample) and 30 ug/L (6th hour sample). These concentrations exceed the 1984 10^{-6} cancer risk factor of 4.90 ug/L. N-nitrosodiphenylamine is difficult to distinguish analytically from diphenylamine, which is used as a stabilizer for nitrocellulose explosives. This site received spent ammunition cases; therefore, the presence of N-nitrosodiphenylamine is reasonable.

4.3.7 Site 11: Contract Ordnance Disposal Area

Analytical results for groundwater at Site 11 are shown in Table 3-9A. Total organic halogens and total organic carbon concentrations were elevated for samples 11-1 and 11-3. Well 11-3 is located downgradient of the site (see Figure 3-7). Pentachlorophenol was detected at 120 ug/L in sample 11-1; this concentration is below the RMCL of 220 ug/L. Pentachlorophenol is used mainly as a wood preservative and is also used in glue. It was not expected to be of any significance at this site. Volatile organic compounds were not analyzed for at this site. The elevated total organic halogens and total organic carbon indicate that volatile organic compounds may be present. It does not appear that the disposal activities at this site adversely affected the groundwater quality since no explosives, oil, and grease were detected. Nitrate/nitrite was present in well 11-1 at 0.03 mg/L, which is far below the MCL of 10 mg/L. This is probably a background concentration. No metals were detected above concentrations set forth for drinking water guidelines (Table 4-2).

4.3.8 Site 19: Paint Chip and Sludge Disposal Area

Analytical results for groundwater and surface water are shown in Tables 3-10A and 3-10B. No analytes were detected in either groundwater or surface water samples collected at Site 19 at concentrations greater than those recommended for drinking water guidelines (see Table 4-2). Total organic halogens concentration was slightly elevated for groundwater samples 19-1 and 19-3 and surface water sample 19-A (1st hour). Well 19-1 is located upgradient of the site and the concentration of total organic halogens was approximately equal to that in the stream which is located downgradient of the site. Therefore, the past activities at this site appear to have no impact on the concentration of total organic halogens in the water. Nitrate/nitrite was detected only in sample 19-1. The concentration of 0.80 mg/L must be a background concentration. Petroleum hydrocarbons were detected in stream sample 19-B (6th hour) at a concentration of 4.20 mg/L. There are no guidelines for petroleum hydrocarbons in water. There was no oily film observed at this location and this concentration is regarded as insignificant. Concentration of total organic carbon was elevated for the stream samples, as expected for surface waters.

4.3.9 Site 26: Explosive "D" Washout Area

Analytical results for groundwater at Site 26 are shown in Table 3-13. Picric acid was the major analyte of concern at this site but was undetected in any of the groundwater samples collected at this site. Well 26-1 is located downgradient of the open tile drain and settling basin (see Figure 3-9). Effluent traveled along this drain to the settling basin located at the end of the drain. Based on the flow map, there is one well located downgradient of the settling basin in which no picric acid was detected.

4.4 SOIL QUALITY

Analytical results from stream sediment and surface soil samples were reviewed and compared to normal ranges of concentrations of parameters in uncontaminated soils (Table 4-3). Site-by-site discussions of soil quality are presented as follows.

4.4.1 Site 2: Ordnance Demilitarization Site

Analytical results for sediments and soils at Site 2 are shown in Tables 3-3C and 3-3D. Neither explosives or nitrates were detected in the sediment samples collected at the surface water sampling location 2-A (see Figure 2-2). Nitrate/nitrite was detected in surface soil sample 2-A (see Figure 2-2 for sampling locations) at a concentration of 0.60 mg/L which is a fairly low value. Picric acid was detected at surface sample 2-B at a concentration of 3.0 ug/g, which, while not in itself an extremely low value, to the best of WESTON's knowledge is not significant.

4.4.2 Site 10: Scrap Metal Landfill

Analytical results for sediments at Site 10 are shown in Table 3-8C. Metals concentrations in the sediment samples 10-A and 10-B (see Figure 2-7 for sample locations) were all within normal concentration ranges (see Table 4-3). Downstream of Site 10, 11.2 mg/kg petroleum hydrocarbons and 37 ug/g methylene chloride were detected at sampling location 10-B. These values are insignificantly high and these parameters were not detected in the surface water sample. Upstream of Site 10 (sampling location 10-A) the sediments contained 300 to 350 ug/g methylene chloride and up to 760 ug/g acetone. Petroleum hydrocarbons were found at concentrations of 89.9 mg/kg or 91.3 mg/kg. As of March 1986,an action level of 100 ppm petroleum hydrocarbons was acceptable (Stokman and Dime, 1986).

It is unlikely that these concentrations occurred as a result of activities at Site 10. The surface water at this location and the groundwater from nearby well 10-3 do not contain any detectable concentrations of petroleum hydrocarbons or significant quantities of acetone or methylene chloride. It is possible that the compounds found in the sediments upstream of Site 10 came from Site 20. This will be discussed further in the discussion of Site 20.

4.4.3 Site 11: Contract Ordnance Disposal Area

Analytical results for soils at Site 11 are shown in Table 3-9B. Oil and grease was detected in all soil samples collected at Site 11. There are no set guidelines for oil and grease in soils. However, excessive amounts of oil and grease were found at sampling location 11-A (37,300 mg/kg) (see Figure 2-8 for sample locations). The soil at this location was brownish black and had an oil-like odor. Sample 11-B contained a concentration of oil and grease one order of magnitude greater than samples 11-C and 11-D. The concentration of oil and grease attenuated quickly with depth and was significantly reduced at a depth of 2 feet.

4.4.4 Site 19: Paint Chip and Sludge Disposal Area

Analytical results for Site 19 sediment and soil samples are summarized in Tables 3-10C and 3-10D. Elevated acetone concentrations were found in the stream sediments and in soil sample 19-A (see Figure 2-9 for sampling locations). Stream sampling location 19-B was really a marsh-type environment rather than a flowing stream. The sediments had high water and organic matter contents. Elevated concentrations of methylene chloride, chloroform, 2-butanone, and toluene were found. High concentrations of petroleum hydrocarbons (445 to 681 mg/kg) were also detected. Lead and silver were present at sampling location 19-B at concentrations above the normal ranges for soils (see Table 4-3). Petroleum hydrocarbons were detected at levels of 14.9 to 129 mg/kg for sediment samples collected at location 19-A. Mercury was also detected at concentrations greater than normal ranges for sediment sample 19-A. The concentration of mercury present is only slightly elevated (0.423 mg/kg). Mercury is not toxic to plant life below 10 ppm. The only place mercury was reported to have been used was at Building MA-3 where a mercurous mercuric chloride fungicide was used for mine reconditioning. This breaks down into mercuric chloride and metallic mercury in sunlight. Building MA-2 is located approximately 1 mile from Site 19 and does not share the same surface drainage. Soil sample 19-B contained petroleum hydrocarbons in excess of the 100 ppm action level recommended by Stokman and Dime (1986). Concentrations of cadmium, lead,

TABLE 4-3

Ranges of Selected Parameters in Natural Soils

Parameter	Concentration Range (ppm)	Average (ppm)
As	1 - 50	10
Be	0.1 - 40	6
Cd	0.01 - 0.7	0.06
Cr	1 - 1000	100
Cu	2 - 100	30
Pb	2 - 20	10
Hg	0.01 - 0.3	0.03
Ni	5 - 500	--
Se	0.1 - 2	--
Ti	--	0.03
Zn	10 - 300	50

EPA Hazardous Waste Land Treatment
Office Of Solid Waste and Emergency Response
SW - 874 April 1983

and zinc also exceeded normal concentration ranges for soil sample 19-B. Cadmium and lead concentrations were elevated for soil sample 19-A. The lead concentration was elevated in soil sample 19-C. The solvents acetone, 2-butanone, and toluene were expected to be present at Site 19. The metals cadmium, lead, and zinc were also expected to be present. The presence of chloroform and methylene chloride (cleansing agents), mercury, and silver in the sediments at Site 19 was not expected. It is unlikely that these constituents came from the reported activities at Site 19.

4.4.5 Site 20: Grit Blasting Area at Building 544

Analytical results for soil samples collected at Site 20 are summarized in Table 3-11. EPTOX metals detected were present at 100 times concentrations below the 100X drinking water standards criteria. Petroleum hydrocarbons were detected at concentrations below the 100 ppm action level proposed by Stokman and Dime (1986). At Site 20, both acetone and water repellent grease were included in the residual wastes reported in the Initial Assessment Study. Though not detected at or above action levels, the fact that these wastes were generated at Building 554 could account for their presence in the sediments upgradient of Site 10.

4.4.6 Site 22: Paint Chip Disposal Area

Analytical results for soil samples collected at Site 22 are summarized in Table 3-12. No EPTOX metals were detected in the soil samples collected at Site 22. Petroleum hydrocarbons were present but at concentrations lower than the 100 ppm action level suggested by Stokman and Dime (1986).

4.4.7 Site 26: Explosive "O" Washout Area

Analytical results for Site 26 are shown on Table 3-13. Picric acid was not found above detectable limits and field measured parameters were within normal range, although pH was somewhat lower than expected.

BIBLIOGRAPHY

Freeze, R., and J. Cherry. 1979. Groundwater. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. 604 pp. 1979.

Initial Assessment Study - Naval Weapons Station Earle. 1980. Fred C. Hart Associates, Inc., New York, New York.

Jablonski, L. Groundwater. Resources of Monmouth County, USGS Report No. 23, 88 pp., 1968.

Stokman, S.K., and R. Dime. Soil Cleanup Criteria for Selected Petroleum Products in Proceedings of the National Conference on Hazardous Wastes and Hazardous Materials, March 4-6, 1986. Atlanta, Georgia. 1986.

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The following conclusions can be drawn from the preceding discussion of geological, hydrogeological, and chemical conditions encountered during the Phase II, Step 1 field investigation at Naval Weapons Station Earle.

- The shallow unconsolidated deposits consist of silty fine to coarse quartzose sand, medium glauconitic sand, and clay lenses. These deposits are divided into three formations - Vincentown, Cohansey, and Kirkwood.

- Groundwater occurs under unconfined conditions over most of the station and is generally found within 25 feet of the surface. A localized perched zone does exist at Site 5.

- The principal direction of groundwater flow is toward the east with northern and southern components. Local variations occur due to surface water influences. At Sites 3 and 11 groundwater flow direction is contrary to that expected.

- With the exception of pH, no New Jersey or Federal drinking water guidelines were exceeded in any groundwater sample. Except for Site 3, the pH of the groundwater samples is within the normal range of pH for formations in Monmouth County.

- Spring sample 4-A exceeded the 10^{-6} cancer risk criterion for N-nitrosodiphenylamine. An oily film was observed on the water surface and petroleum hydrocarbons were present at fairly high concentrations. Specific conductance and total organic carbon concentration were both elevated.

- Site 10 contained the only surface water sampled in which any analyte was detected at levels exceeding New Jersey or Federal drinking water guidelines. The organic compound N-nitrosodiphenylamine was detected in a stream sample downgradient of Site 10. N-nitrosodiphenylamine is difficult to distinguish from diphenylamine, which is used as a stabilizer in nitrocellulose explosives.

- The low concentrations of volatile organic compounds in groundwater and surface water pose no adverse impact on the environment or public health.

- At Site 19, the stream sediments contained greater than normal concentrations of methylene chloride, chloro- form, 2-butanone, acetone, and toluene, as well as petroleum hydrocarbons, lead, silver, and mercury.

- Soils at Site 19 contained concentrations greater than recommended for petroleum hydrocarbons, acetone, cadmium, lead, and zinc.

5.2 RECOMMENDATIONS

In the plan of action and milestones, it was said that recommendations would be made for the placement of stainless steel wells based on the results of the first round of sampling. Due to the fact that very low concentrations of volatile organic compounds exist in the groundwaters analyzed, installation of stainless steel wells is not recommended. In the event that stainless steel wells are deemed necessary, it is recommended that they be placed at Site 19 which had the highest level of volatile organic compounds.

The following recommendations are put forth on a site-by-site basis as a result of the preceding discussions.

5.2.1 Site 2: Ordnance Demilitarization Site

Resample groundwater and surface water for parameters previously analyzed to confirm the absence of contamination. No further action is anticipated for this site based on the low levels of analytes detected in the groundwater, surface water, sediments, and soil.

5.2.2 Site 3:.Landfill Southwest of "F" Group

The groundwater flow at Site 3, as shown in Figure 3-2, shows that only a small portion of the downgradient area of the site is monitored by the existing wells. The well locations were originally chosen on the assumption that groundwater flow was to the east, however, Figure 3-2 shows that flow is to the south and only Well 3-1 intercepts groundwater downgradient of the site. It is therefore recommended that two additional wells be installed between existing wells 3-1 and 3-2. It is further recommended that following completion of well installation, all five monitor wells be sampled for the same constituents as in this effort.

5.2.3 Site 4: Landfill West of "D" Group

The water quality results at Site 4 indicate the potential for groundwater contamination at this site. It is therefore recommended that two additional monitoring wells be installed: one upgradient and one downgradient of springs 4A and 4B. It is recommended that the additional wells, the existing wells and the two springs be sampled for the same parameters as previously analyzed.

5.2.4 Site 5: Landfill West of Army Barricades

Define landfill boundaries with electromagnetic survey. Install two wells downgradient of landfill 5 to define possible mounding of water table in landfill. One well should be located approximately 500 feet west of well 5-4, the remaining well should be placed approximately 300 feet north of well 5-1. Install shallow well or lysimeter to sample perched water (<10 feet deep) near wells 5-2 and 5-3. Sample all wells for same parameters as previously analyzed.

5.2.5 Site 7: Landfill South of "P" Barricades

Due to the ambiguity of the origin of acetone in samples collected at Landfill 7, all wells at Site 7 will be sampled for volatile organic compounds.

5.2.6 Site 10: No Scrap Metal Landfill

Install one well northeast of well 10-1 upgradient of stream sampling location 10-B to determine if N-nitrosodiphenylamine is present in the groundwater. Sample all wells and the stream for the same parameters as previously analyzed.

5.2.7 Site 11: Contract Ordnance Disposal Area

Due to the high concentrations of total organic halogens, resample all wells and add volatile organic compounds to parameters to be analyzed. Remove top soil in vicinity of soil sample 11-A on the basis of black staining and odor. The initial location of wells at this site was based on the assumption that groundwater flow was to the east. However, as shown on Figure 3-7 flow is to the west. It is therefore recommended that an additional well be installed north of well 11-3 and that this well be sampled as described above for the resampling effort.

5.2.8 Site 19: Paint Chip and Sludge Disposal Area

Determine depth and area of contamination by soil borings in the vicinity of soil sampling locations 19-A, 19-B, and 19-C. Remove all contaminated soil from these locations accordingly. Resample groundwater and surface for parameters previously analyzed.

5.2.9 Site 20: Grit Blasting Area, Building 544

No further action is required at this site due to the low levels of analytes in the soil samples.

5.2.10 Site 22: Paint Chip Disposal Area, Building D-2

No further action is necessary at this site due to low levels of analytes detected in the soil samples.

5.2.11 Site 26: Explosive "D" Washout Area

Resample wells for parameters previously analyzed to confirm the absence of picric acid.

APPENDIX A

DRILLING LOGS

WESTON

DRILLING LOG

WELL NUMBER: 2-1
OWNER: WPNSTA Earle
LOCATION: Ordnance Demilitarization Site
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 30'
SURFACE ELEVATION: 102.56'
WATER LEVEL: 17'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/27/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Olive (5Y 5/4) and yellowish brown (10YR 6/8) silty medium sand
5		111	S_S	5 6 7 9	4'-5.5' Olive (5Y 5/4) and yellowish brown (10YR 6/8) medium to coarse sand with 20% silt, damp, Rec = 18".
10		112	S_S	6 8 9 10	9'-10.5' Olive (5Y 5/4) and yellowish brown (10YR 6/8) medium to coarse sand with 15% silt, slightly wet, Rec = 18".
15		113	S_S	4 5 5 6	14'-14.5' Olive (5Y 5/4) and yellowish brown (10YR 6/8) medium sand, trace silt, wet, Rec = 6".
20		114	S_S	W O R	19'-21' Olive (5Y 5/4) and yellowish brown

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: Z-1
OWNER: WPNSTA Earle
LOCATION: Ordnance Demilitarization Site
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 30'
SURFACE ELEVATION: 102.56'
WATER LEVEL: 17'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 2/27/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20					medium to coarse sand, saturated, Rec. = 24"
		115	S_S	2 5 8 12	24'-25.25' Olive (5Y5/4) fine to coarse sand trace (5%) silt, yellowish red staining (5YR4/6), saturated, Rec = 15".
25					
		116	S_S	8 9 20 21	28'-30' Olive (5Y5/4) medium to coarse sand, saturated, Rec. = 24".
30					

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 2-2
OWNER: WPNSTA - Earle
LOCATION: Ordnance Demilitarization Site
ADDRESS: Colts Neck, New Jersey
TOTAL DEPTH: 20'
SURFACE ELEVATION: 95.98'
WATER LEVEL: 9'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/28/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Yellowish brown (10YR 6/8) becoming olive (5Y 5/4) fine to medium sand with little silt.
5		121	S_S	7 9 8 7	4'-5.5' Olive (5Y 5/4) and yellowish brown (10YR 6/8) fine to medium sand, some (25%) silt, damp, Rec = 18".
10		122	S_S	4 5 7 8	9'-10.5' Olive (5Y 5/4) medium sand, 5% silt, saturated, Rec = 18".
15		123	S_S	4 10 15 22	14'-16' Olive (5Y 5/4) medium sand, 5% silt, saturated, Rec. = 24"
20		124	S_S	6 5 8 13	18'-20' Olive (5Y 5/4) medium sand, saturated, Rec = 24"

* A.S.T.M. D1586

SHEET 1 OF 1

WESTON

DRILLING LOG

WELL NUMBER: 2-3
LOCATION: Ordnance Demilitarization Site
SURFACE ELEVATION: 89.87'
DRILLING COMPANY: J.E. Fritts
DRILLER: WL
LOG BY: AEB

OWNER: WPNSTA Earle
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 24'
WATER LEVEL: 4'
DRILLING METHOD: Auger
DATE DRILLED: 2/21/86
HELPER: RI

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Strong brown (7.5YR 5/8) medium sand
					Water at approximately 4'.
5		108	SS	3 6 9 8	4'-4.5' Strong brown (7.5YR 5/8) with dark reddish brown (5YR 3/4) mottles, medium to coarse sand
					4.5'-5' Olive (5Y 5/4) medium to coarse sand, saturated, Rec. = 12".
10		109	SS	WOR 2 5 7	9'-10.5' Olive (5Y 5/4) medium to coarse sand, saturated, Rec. = 18".
15		110	SS	3 4 5 11	14'-14.5' Olive (5Y 5/4) medium to coarse sand, saturated, Rec. = 6".

* A.S.T.M. D1586

SHEET 1 OF 1

WESTON

DRILLING LOG

WELL NUMBER: 2-4
OWNER: WPNSTA Earle
LOCATION: Ordnance Demilitarization Site
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 19'
SURFACE ELEVATION: 90.06'
WATER LEVEL: 4'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/27/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES: "Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Olive (5Y5/4) to blue green clayey sand. Water at approximately 4'
5		117	S_S	3 4 3 4	4'-5' Olive with blue green mottles clayey fine to medium sand, wet. Rec = 12".
10		118	S_S	W O R 6	9'-11' Light olive brown (2.5Y5/6) medium sand, saturated, Rec = 24"
15		119	S_S	7 9 14 16	14'-16' Olive brown (2.5Y 4/4) medium sand, saturated, Rec = 24"
20		120	S_S	3 9	19'-21" Olive brown (2.5Y 4/4) medium

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 2-4
OWNER: WPNSTA Earle
LOCATION: Ordnance Demilitarization Site
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 19'
SURFACE ELEVATION: 90.06'
WATER LEVEL: 4'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/27/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				14 16	Sand, saturated. Rec = 24".

* ASTM D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-1' OWNER: WPNSTA-EARLE
LOCATION: Landfill Southwest of F Group ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 23'
SURFACE ELEVATION: 117.05' WATER LEVEL: 15'
DRILLING COMPANY: JE Fritts DRILLING METHOD: HSA DATE DRILLED: 1/7/86
DRILLER: WL HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Dark brown (10YR 3/3) fine sand
5		23	SS	2 3 2 4	5'-6' White (10YR 8/1) and brownish yellow (10YR 6/8) very fine sand
					6'-6.25' Very dark grayish brown (10YR 3/2) silty clay, moist, Rec. = 15".
10		24	SS	4 5 8 12	10'-10.75' White (10YR 8/1) and brownish yellow (10YR 6/8) very fine sand.
					10.75'-11' Dark gray (10YR 4/1) silt, moist, Rec. = 12".
15		25	SS	10 18 20 22	15'-15.5' White (10YR 8/1) and brownish yellow (10YR 6/8) very fine sand
					15.5'-16.5' Dark gray (10YR 4/1) silt, moist
					Tip of spoon - brownish yellow (10YR 6/8) fine sand, wet, Rec. = 18".

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-1 OWNER: WPNSTA Earle

LOCATION: Landfill Southwest of F Group ADDRESS: Colts Neck New Jersey

TOTAL DEPTH: 25'

SURFACE ELEVATION: 117.05' WATER LEVEL: 15'

DRILLING COMPANY: JE Fritts DRILLING METHOD: HSA DATE DRILLED: 11/7/86

DRILLER: WL HELPER: RI

LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		26	SS	5 10 16 22	20'-20.5' Brownish yellow (10YR 6/8) fine sand, wet
					20.5'-22' Dark gray (10YR 4/1) silt, Rec = 24".
25		27	SS	5 8 12 16	25'-25.5' Dark gray (10YR 4/1) silt and very dark brown (10YR 2/2) clay
					25.5'-26' Glauconitic sand - medium to coarse, saturated, Rec = 12".

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-2 OWNER: WPNSTA Earle
LOCATION: Landfill Southwest of F Group ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 126.00' WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts DRILLING METHOD: HSA DATE DRILLED: 1/6/86
DRILLER: WL HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	OVA/HNU	INTERVAL (FEET)			DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brownish yellow (10YR 6/8) fine to coarse sand, some gravel.
5		18	SS	3 8 14 18	5'-7' Brownish yellow (10YR 6/8) fine to coarse sand, some gravel (20%) up to 1/2" in diameter, moist, Rec. = 12".
10		19	SS	4 6 7 8	10'-12' Yellow (10YR 7/8) clean, fine sand, moist, Rec = 15".
15		20	SS	2 2 2 5	15'-17' Brown (10YR 5/3) with strong brown (7.5YR 5/8) and white (10YR 8/1) fine sand, saturated.
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-2 OWNER: WPNSTA Earle
LOCATION: Landfill Southwest of F Group ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 126.00' WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts DRILLING METHOD: HSA DATE DRILLED: 1/6/86
DRILLER: WL HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		21	SS	7 10 12 14	20'-22' Dark gray (10YR 4/1) clayey silt to silt, becoming siltier with depth, moist
25		22	SS	7 7 9 13	25'-27' Dark gray (10YR 4/1) silt to silty fine sand, wet.

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-3
OWNER: WPNSTA Earle
LOCATION: Landfill Southwest of F Group
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 23'
SURFACE ELEVATION: 125.53'
WATER LEVEL: 10'
DRILLING COMPANY: J.F. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/25/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					
5		13		9 12 22	5'-6.5' Brownish yellow (10YR 6/6) coarse to fine sand, some gravel (25%), dark gray (10YR 4/1) fine sand mottles.
10		14		10 18 19 20	10'-12' Brownish yellow (10YR 6/6) medium to coarse sand, some gravel (30%), saturated, Rec. = 18".
15		15		3 8 6 3	15'-17' White (10YR 8/1) with pink (5YR 7/3) and brownish yellow (10YR 6/6) very fine sand, saturated, Rec. = 6".
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 3-3
OWNER: WPNSTA Earle
LOCATION: Landfill Southwest of F Group
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 23'
SURFACE ELEVATION: 125.53'
WATER LEVEL: 10'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/25/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		16		2 4 6 6	20'-22' 1" of white (10YR 8/1) and pink (5YR 7/3) very fine sand over dark gray (10YR 4/1) silt with trace sand (5%) and trace clay (5%), moist, Rec. = 23"
25		17		3 6 13 9	25'-27' Dark gray (10YR 4/1) silt with some fine sand to sandy silt, moist, Rec. = 24".
30					

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 4-1
OWNER: WPNSTA-EARLE
LOCATION: landfill west of Dgroup
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 30'
SURFACE ELEVATION: 173.00'
WATER LEVEL: 18'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/8/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brownish yellow (10YR 6/6) medium sand, some coarse sand
5		28	Ss	6 8 11 13	5'-7' Light gray (10YR 7/1) medium sand, some (10%) fine sand, moist, Rec=12".
10		29	Ss	8 15 37 41	10'-12' White (10YR 8/1) and brownish yellow (10YR 6/6) medium sand with 10% fine sand, moist, Rec = 12"
15					15'-17' Brownish yellow (10YR 6/6) medium to coarse sand, trace (5%) gravel becoming strong brown (7.5YR 4/6) medium to coarse sand, moist, Rec = 18"
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 4-1
LOCATION: Landfill west of D Group
SURFACE ELEVATION: 173.00'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/8/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

OWNER: WIPNSTA-EARLE
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 30'
WATER LEVEL: 18'

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		31	SS	11 10 19 21	20'-20.5' 2" strong brown (7.5YR 4/6) medium sand over 4" white (10YR 8/1) very coarse sand and gravel.
					20.5'-21.5' Layered, firm fine to medium sand, trace gravel (5%), saturated, Rec=18"
25		32		WOR 10 23	25'-27' 2" brown (10YR 4/3) medium to fine sand over 16" of white (10YR 8/1) and brownish yellow (10YR 6/1) fine and medium sand / coarser with depth, saturated, Rec=18"
30		33			30'-30.5' Very pale brown (10YR 7/4) fine sand
					30.5'-31' Layered light gray (10YR 7/1) and brownish yellow (10YR 6/6) fine sand.
					31'-31.5' 4" Light gray (10YR 7/1) silt over 2" brownish yellow (10YR 6/2) clay, saturated, Rec=18"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 4-2
LOCATION: Landfill west of D group
SURFACE ELEVATION: 152.36'
OWNER: WPNSTA - EARLE
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 18'
WATER LEVEL: 4'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/9/86
DRILLER: WL
HELPER: RI
LOG BY: AFB

SKETCH MAP

NOTES:
Surface Elevation = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Dark brown (10YR 3/3) becoming brownish yellow (10YR 6/6) medium sand, clean. Glauconitic medium sand layer at ~3'. Soil wet at ~4'.
5		34	SS	10 10 11 22	5'-5.5' Yellow (10YR 7/8) coarse sand with 50% gravel
					5.5'-7' Yellow (10YR 7/8) fine to coarse sand becoming finer with depth, wet. Rec = 20"
10		35	SS	9 11 19 27	10'-12' Yellow (10YR 7/3) fine to medium sand, trace (10%) gravel, saturated, Rec = 20".
15		36	SS	7 6 7 11	15'-16.5' Gray (10YR 7/1) to brownish yellow (10YR 6/6) fine to medium sand, saturated, Rec = 24"
					16.5-17' Reddish yellow (7.5YR 6/8) fine to medium sand
18		37	SS	2 3 3 5	18'-19' Reddish yellow (7.5YR 6/8) clayey silt
					19'-19.4' Light gray (10YR 7/1) very fine sand
20					19.4-20' Reddish yellow (7.5YR 6/8) clay. Saturated. Rec. = 24"

* A.S.T.M. D1586

SHEET 1 OF 1

WESTON

DRILLING LOG

WELL NUMBER: 4-3
LOCATION: Landfill west of D group
SURFACE ELEVATION: 166.40'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/10/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

OWNER: WPNSTA-EARLE
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 25'
WATER LEVEL: 12'

SKETCH MAP

NOTES: "Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brownish yellow (10YR 6/6) fine to medium sand. Light gray (10YR 7/1) at 4.5'.
5		38	SS.	4 7 17 22	5'-5.5' White (10YR 8/1) and brownish yellow (10YR 6/6) fine to medium sand
					5.5'-6' Reddish yellow (7.5YR 6/8) medium to coarse sand
					6'-6.5' White (10YR 8/1) and yellowish red (5YR 5/8) medium to very coarse sand + gravel (5%) moist, Rec = 18"
10		39	SS	15 24 32 30	8.5'-10.5' Layered white (10YR 8/1) and brownish yellow (10YR 6/6) fine to medium sand and coarse sand to gravel alternating, moist, tip of spoon damp, Rec = 18"
15		40		12 24 18 18	13.5'-14' Reddish yellow (7.5YR 6/8) fine to coarse sand, trace (5%) gravel (up to ½")
					14'-15.5' Brownish yellow (10YR 6/6) and yellowish red (5YR 5/8) medium to very coarse sand, 20% gravel, saturated, Rec = 22"
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 4-3
OWNER: WPA/STA - EARLE
LOCATION: Landfill west of D Group
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 25'
SURFACE ELEVATION: 166.40'
WATER LEVEL: 12'
DRILLING COMPANY: JF Faltis
DRILLING METHOD: HSA
DATE DRILLED: 1/10/86
DRILLER: W.L.
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
15					
		41	SS	10 12 32 38	18.5-19' Brownish yellow (10YR 6/6) very coarse sand and gravel (up to 1/2")
20					19-20' Brownish yellow (10YR 6/6) fine to medium sand
					20-20.5' Light gray (10YR 7/1) fine to medium sand, saturated, Rec. = 24"
		42		8 14 19 27	23.5-24' Brownish yellow (10YR 6/6) medium to very coarse sand.
25					24-25' Brownish yellow (10YR 6/6) fine to medium sand, some reddish yellow (7.5YR 6/8) mottles.
					25-25.5' Light gray (10YR 7/1) fine sand, clean, saturated, Rec = 24"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-1 OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricades ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 29'
SURFACE ELEVATION: 108.77' WATER LEVEL: 18'
DRILLING COMPANY: J.E. Fritts DRILLING METHOD: HSA DATE DRILLED: 2/20/86
DRILLER: WL HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES: "Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Dark brown (10YR 3/3) becoming pale brown fine to medium sand.
5		103	SS	4 8 8 10	4-4.3' Olive yellow (2.5Y 6/6) sandy silt. 4.3'-4.9' Olive (5Y 4/4) and olive brown (2.5Y 4/4) medium to coarse sand with some (10%) silt, wet, Rec. = 10"
10		104	SS	18 21 28 36	9'-9.5' Olive (5Y 4/4) and yellowish brown (10YR 6/8) medium to coarse sand with some (10%) silt, damp, Rec. = 6"
15		105	SS	WOR 6 8 13	14'-14.25' Olive (5Y 4/4) and yellowish brown medium to coarse sand with 10% silt, slightly wet, Rec. = 15"

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-1
OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 29'
SURFACE ELEVATION: 108.77'
WATER LEVEL: 18'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 2/20/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		106	Ss	2 6 10 12	19'-21' Olive (5Y 4/4) and olive brown (2.5Y 4/4) fine to coarse sand, saturated, Rec=24"
25		107	Ss	4 10 14 21	24'-26' Olive (5Y 4/4) and olive brown (2.5Y 4/4) fine to coarse sand, saturated, Rec=24"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-2
OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 28'
SURFACE ELEVATION: 113.96'
WATER LEVEL: 18'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/21/86
DRILLER: WL
HELPER: RJ
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-3' Pale brown (10YR 6/3) fine to medium sand.
					3'-4' Strong brown (7.5YR 5/8) fine to medium sand.
5		72	SS	3 1 1	4'-5' Light gray (10YR 7/1) with strong brown (7.5YR 5/8) very fine sand.
					5'-5.25' Dark grayish brown (10YR 4/2) clayey silt.
					5.25'-5.5' Dark grayish brown (10YR 4/2) silty very fine sand, wet to saturated, Rec = 18".
10		73	SS	5 6 9 11	9'-10.5' Strong brown (7.5YR 4/6) medium sand, little fine sand (5%), moist, Rec = 18"
					Water perched above 9'
15		74	SS	3 5 9 10	14'-15.5' Strong brown (7.5YR 4/6) medium sand, trace fine sand, moist. Rec = 18".
20		75	SS	4 6	19'-20.5' Olive (5Y 4/4) medium sand,

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-2
OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 28'
SURFACE ELEVATION: 113.96'
WATER LEVEL: 18'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/21/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				8 12	Saturated, Rec = 18"
25		76	SS	WOR 6 9 12	24'-25.5' Olive (5Y 4/4) clean medium sand, saturated, Rec = 18"
30		77	SS	6 7 13 19	29'-31' Olive brown (2.5Y 4/4) medium sand, trace (10%) fine sand, saturated, Rec = 24"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-3
OWNER: WPNSTA Earle
LOCATION: Landfill West of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 32'
SURFACE ELEVATION: 109.78'
WATER LEVEL: 20'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/13/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Yellowish brown (10YR 6/8) silty sand
5		125	SS	4 2 6 12	5'-5.5' Pale yellow (2.5Y 7/4) very fine sand, 5.5'-6' Light olive brown (2.5Y 5/6) sandy silt, wet, Rec = 12"
10		126	SS	4 3 5 8	10'-11.5' Dark yellowish brown (10YR 4/6) with olive (5Y 4/4) fine to medium sand, 10% silt, damp, Rec = 18"
15		127	SS	4 5 9 13	15'-15.5' Pale yellow (2.5Y 7/4) fine sand 15.5'-16' Dark yellowish brown (10YR 4/6) with olive fine to medium sand, 10% silt, slightly wet, Rec = 12"

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-3
OWNER: WPNSTA Earle
LOCATION: Landfill West of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 32'
SURFACE ELEVATION: 109.78'
WATER LEVEL: 20'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/3/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		128	SS	5 7 9 12	20'-20.5' Dark yellowish brown (10YR 4/6) with olive (5Y 4/4) fine to medium sand, 15-20% silt becoming less silty (to 5% silt) with depth, saturated, Rec. = 6"
25		129	SS	7 8 13 22	25'-25.5' Yellowish brown (10YR 5/6) sandy silt.
					25.5'-26' Olive (5Y 4/4) fine to medium sand, saturated, Rec. = 12"
30		130	SS	7 8 13 22	30'-30.9' Olive (5Y 4/4) and dark yellowish brown (10YR 4/6) fine to medium sand with 10-15% silt, saturated, Rec. = 10"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-4
OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricade
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 27'
SURFACE ELEVATION: 105.65'
WATER LEVEL: 17'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 2/9/86
DRILLER: WL
HELPER: RI
LOG BY: AB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Olive yellow (2.5Y 6/6) to olive brown (2.5Y 4/4) medium to coarse sand.
5		98		2 11 18 22	4'-4.4' Light yellowish brown (2.5Y 6/4) with light gray (10YR 7/1) fine to medium sand.
					4.44'-4.9' Olive yellow (2.5Y 6/6) fine to medium sand.
					4.9'-5.25' Olive (5Y 4/4) fine to medium sand with some (25%) silt. Rec = 15". damp.
10		99		9 25 23 26	9'-9.25' Gray (5Y 5/1) fine to medium sand
					9.25'-9.9' Olive yellow (2.5Y 6/6) fine to medium sand
					9.9'-10.25' Olive (5Y 4/4) and olive brown (2.5Y 4/4) fine to medium sand with little (10%) silt, damp; Rec = 15"
15		100		6 10 15 14	14'-15' Olive (5Y 4/4) and olive brown (2.5Y 4/4) medium to coarse sand, wet. Rec = 12"

* A.S.T.M D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 5-4
OWNER: WPNSTA Earle
LOCATION: Landfill west of Army Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 27'
SURFACE ELEVATION: 105.65'
WATER LEVEL: 17'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 2/19/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		101		6 5 15 19	19'-21' Olive (5Y 4/4) to olive brown (2.5Y 4/4) medium to very coarse sand, saturated. Rec = 24".
25		102		7 9 15	24'-25.5' Olive (5Y 4/4) to olive brown (2.5Y 4/4) medium to very coarse sand, saturated. Rec. = 18".

* A.S.T.M D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 7-1
OWNER: WPNSTA Earle
LOCATION: Landfill South of "P" Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 39'
SURFACE ELEVATION: 149.73
WATER LEVEL: 27'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/4/86
DRILLER: WL
HELPER: RJ
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Yellowish brown (10YR 5/8) clean fine sand.
5		131	SS	6 5 7 12	5'-5.5' Yellowish brown (10YR 5/8) clean fine sand, damp, Rec = 6".
10		132	SS	4 20 15 13	10'-10.5' Yellowish brown (10YR 5/8) clean fine sand
					10.5'-11' Yellowish brown (10YR 5/8) fine sand, 10% silt with dark reddish brown (2.5YR 3/4) mottles, damp, Rec = 12".
15		133	SS	3 2 4 5	15'-16' Brown (7.5YR 5/2) sandy silt - micaceous moist, Rec = 12"

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 7-1
OWNER: WPNSTA Earle
LOCATION: Landfill South of "P" Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 39'
SURFACE ELEVATION: 149.73'
WATER LEVEL: 27'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/4/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		134	SS	3 3 5 13	Brown (7.5YR 5/2) sandy silt with yellowish brown (10YR 5/8) mottles
25		135	SS	2 3 9 17	25'-25.25' Brown sandy silt, saturated. 25.25'-26' Black micaceous silt with some fine quartz sand, dry, Rec = 12"
30		136	SS		30'-30.25' Brown (7.5YR 5/2) sandy silt, saturated. 30.25'-30.5' Black silt, dry, Rec = 12".
35		137	SS	14 19 22 28	35'-36.5' Black silt, wet, Rec = 18".

* A.S.T.M. D1586

SHEET 2 OF 3

WESTON

DRILLING LOG

WELL NUMBER: 7-1
OWNER: WPNSTA Earle
LOCATION: Landfill South of "P" Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 39'
SURFACE ELEVATION: 149.73'
WATER LEVEL: 27'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/4/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
40		138	SS	7 9 12 15	40'-41' Black silt, dry. Rec = 12".

* A.S.T.M. D1586

SHEET 3 OF 3

WESTON

DRILLING LOG

WELL NUMBER: 7-2
OWNER: WPNSTA Earle
LOCATION: Landfill South of "P" Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 19'
SURFACE ELEVATION: 119.68'
WATER LEVEL: 4'
DRILLING COMPANY: J.F. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/5/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES: Surface Elevation = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Yellowish brown (10YR 5/8) fine to medium sand
					Water at approximately 4 feet.
5		139	SS	4 5 7 7	4'-6' Yellowish brown (10YR 5/8) fine to medium sand, clean, saturated.
10		140	SS	2 3 5 6	9'-11' Brown (7.5YR 5/2) with yellowish brown (10YR 5/8) mottles sandy silt, saturated.
					Black silt on augers at 10'.
15		141	SS	5 6 9 11	14'-15.5' Brown (7.5YR 5/2) and yellowish brown (10YR 5/4) silty sand becoming sandy silt at 15', saturated, Rec = 18"
20		142	SS	3 8	19-19.5' Brown (7.5YR 5/2) sandy silt, saturated

* A.S.T.M. D1586

SHEET 1 OF 1

WESTON

DRILLING LOG

WELL NUMBER: 7-2
OWNER: WPNSTA Earle
LOCATION: Landfill South of "P" Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 19'
SURFACE ELEVATION: 119.68'
WATER LEVEL: 4'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 3/5/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				11 13	19.5'-20.5' Black sandy silt, damp. Rec= 18".

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 7-3
OWNER: WPNSTA Earle
LOCATION: Landfill South of P Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 35'
SURFACE ELEVATION: 164.15'
WATER LEVEL: 22'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/24/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' White (10YR 8/1) medium sand.
5		78	SS	8 2 6 9	5'-6' White (10YR 8/1) medium sand, moist, Rec = 12"
10		79	SS	3 2 4 6	10'-11.5' White (10YR 8/1) and reddish yellow (7.5YR 7/8) medium sand, wet, Rec = 18".
15		80	SS	3 4 4 6	15'-16' White (10YR 8/1) medium sand with reddish yellow (7.5YR 7/8) mottling 16'-16.5' Reddish yellow (7.5YR 7/8) medium sand, wet, Rec. = 18"

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 7-3
OWNER: WPNSTA Earle
LOCATION: Landfill South of P Barricades
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 35'
SURFACE ELEVATION: 164.15'
WATER LEVEL: 22'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 11/24/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		81	SS	3 3 5 7	20'-20.7' White (10YR 8/1) medium sand with reddish yellow (7.5YR 7/8) mottles, saturated at tip of spoon, Rec = 8".
25		82	SS	1 2 4 9	25'-26.5' White (10YR 8/1) medium sand with reddish yellow (7.5YR 7/8) mottles, saturated, Rec = 18".
30		83	SS	6 6 11 15	30'-30.5' Reddish yellow (7.5YR 7/8) medium sand. 30.5'-31' Brown (7.5YR 5/2) medium sand 31'-31.5' Black (7.5YN 2/0) Sandy silt, saturated, Rec = 18".
35		84	SS	9 11 13 17	35'-35.5' Reddish yellow (7.5YR 7/8) medium sand 35.5'-35.6' Brown (7.5YR 5/2) medium sand 35.6'-36.5' Black (7.5YN 2/0) silt, saturated, Rec = 18"

* ASTM D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-1
LOCATION: Scrap Metal Landfill
SURFACE ELEVATION: 113.99'
OWNER: WIPUSTA-EARLE
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 27.5'
WATER LEVEL: 15'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/13/86
DRILLER: WL
HELPER: RE
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brownish yellow (10YR 6/6) to pale brown (10YR 6/3) fine to medium sand becoming greenish gray then pale brown
5		43	SS	6 5 3 7	5-6' Pale brown (10YR 6/3) becoming brownish yellow (10YR 6/6) medium sand with 10% fine sand
					6-6.25' Very dark grayish brown medium sand. Some (15%) silt, moist. Rec = 15"
10		44	SS	2 3 3 5	10-10.25' Brownish yellow (10YR 6/8) fine to medium sand (15% fine)
					10.25'-10.5' Brownish yellow (10YR 6/8) with olive (5Y 4/3) fine to medium sand
15		45	SS	3 4 7 10	10.5'-11.5' Olive (5Y 4/3) fine to medium sand, some (20%) silt, moist, Rec = 18"
					15'-15.5' Brownish yellow (10YR 6/8) and olive (5Y 4/3) fine to medium sand (20% fine).
					15.5'-17' Glauconitic medium sand, (bluish) Saturated. Rec = 20"

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-1
OWNER: WPNSTA - EARLE
LOCATION: Scrap metal Land fill
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 27.5'
SURFACE ELEVATION: 113.99'
WATER LEVEL: 15'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 1/13/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		46	SS	W.O.R. 6 9 16	20'-22' Glauconitic medium sand, 10% coarse, 15% fine, saturated, Rec = 20"
25		47		4 2 14 20	25'-27' Glauconitic medium sand, 20% fine sand, 10% coarse sand, saturated, Rec = 24"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-2
OWNER: WPNSTA Earle
LOCATION: Scrap Metal Landfill
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 22'
SURFACE ELEVATION: 111.35'
WATER LEVEL: 12'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/15/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-4' Brown (10YR 5/3) and olive (5Y 4/4) medium sand, some fine sand.
5		53	SS	3 3 4 5	4-4.25' Brown (10YR 5/3) fine to medium sand, some silt.
					4.25'-5.25' Olive (5Y 4/4) fine to medium sand, moist, Rec. = 15"
10		54	SS	2 2 2 5	9'-11' Brownish yellow (10YR 6/8) and olive (5Y 4/4) fine to medium sand (10% fine) and 5% coarse sand, some silt, wet.
15		55	SS	2 3 4 7	14'-16' Brownish yellow (10YR 6/8) with olive (5Y 4/4) fine to medium sand (20% fine), saturated, Rec. = 15".
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-2
OWNER: WPNSTA Earle
LOCATION: Scrap Metal Landfill
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 22'
SURFACE ELEVATION: 111.35'
WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/15/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		56	SS	16 12 17 26	19'-20' Brownish yellow (10YR 6/8) with olive fine to medium sand (20% fine), saturated.
					20'-21' Glauconite (bluish) medium sand, some fine sand, saturated, Rec. = 24"
25					

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-3
OWNER: WPNSTA Earle
LOCATION: Scrap Metal Landfill
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 110.90'
WATER LEVEL: 15
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/14/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-2' Brown (10YR5/3) fine to medium sand.
					2'-5' Dark olive brown glauconitic sand
5		48	SS	3 3 4 4	5'-7' Glauconitic, olive (5Y5/3) medium sand - 5% coarse, 10% fine sand, wet, not saturated, Rec = 18".
10		49	SS	6 8 8 11	10'-12' Brownish yellow (10YR6/8) and olive (5Y5/3) medium sand 5% coarse, 10% fine, some silt, wet, Rec = 18".
15		50	SS	4 5 9 15	15'-16.25' Brownish yellow (10YR6/8) and olive (5Y5/3) medium sand, 5% coarse, 10% fine, some silt.
					16.25-16.75' Glauconitic (blvish) medium sand, clean, saturated, Rec = 20".
20					

*A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 10-3
OWNER: WPNSTA Earle
LOCATION: Scrap Metal Landfill
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 110.90'
WATER LEVEL: 15'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/14/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		51	SS	7 12 17 25	20'-22' Glauconitic medium sand, saturated, Rec = 18"
25		52	SS	5 9 17 23	25'-27' Glauconitic medium sand, saturated, Rec = 18"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-1
OWNER: WPNSTA - EARLE
LOCATION: Contract Ordnance Disposal Area
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 19'
SURFACE ELEVATION: 99.07'
WATER LEVEL: 4'
DRILLING COMPANY: Fritts
DRILLING METHOD: Auger
DATE DRILLED: 12/18/85
DRILLER: WL
HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES: 140 LB. Hammer used for Blow Counts
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					
5		5	SS	3 6 6 8	4'-6' Yellowish brown (10YR5/8) fine to medium sand (20% fine), saturated. Rec. = 12".
					Water coming out of hole while drilling
10		6	SS	2 4 6 8	9'-11' Yellowish brown (10YR5/8) fine to medium sand (10% fine) with olive gray (5Y5/2) staining, trace very coarse sand (5%), saturated.
15		7	SS	4 5 8 8	14'-16' Yellowish brown (10YR5/8) fine to medium sand (10% fine) with olive gray (5Y5/2) very coarse sand mottles, saturated.
20		8	SS	3 4	19'-21' Yellowish brown (10YR5/8) fine to

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-1
OWNER: WPNSTA - EARLE
LOCATION: Contract Ordnance Disposal Area
ADDRESS: COLTS NECK NEW JERSEY
TOTAL DEPTH: 19'
SURFACE ELEVATION: 99.07'
WATER LEVEL: 4'
DRILLING COMPANY: Fritts
DRILLING METHOD: Auger
DATE DRILLED: 12/18/85
DRILLER: WL
HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				7 12	medium sand (20% fine) with strong brown (7.5YR 4/6) mottles, subangular grains, saturated

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-2
OWNER: WPNSTA Earle
LOCATION: WPNSTA-EARLE Contract Ordnance Disposal Area
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 18'
SURFACE ELEVATION: 100.97'
WATER LEVEL: 3'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 12/19/85
DRILLER: WL
HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					
					1'-3' Black (2.5YN2/0) organic and white (10YR8/1) medium sand.
					3'-4' Green glauconitic coarse sand.
5		9	SS	2 2 2 2	4'-6' Very green glauconitic medium sand, trace fine sand (5%), saturated, Rec. = 12"
10		10	SS	3 3 7 8	9'-10' Green glauconitic medium sand, layer of strong brown (7.5YR5/6) fine and medium sand at 10'.
					10'-11' Yellowish brown (10YR5/8) fine and medium sand, saturated, Rec. = 18"
15		11	SS	0 3 7 7	14'-16' Yellowish brown (10YR5/8) medium sand (<5% fine sand) with strong brown (7.5YR5/6) and glauconite mottles, saturated.
20		12	SS	3 5	19'-21' Yellowish brown (10YR5/8) medium

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-2
OWNER: WPNSTA Earle
LOCATION: WPNSTA - EARLE Contract Ordnance Disposal Area
ADDRESS: Colts Neck, New Jersey
TOTAL DEPTH: 18'
SURFACE ELEVATION: 100.97'
WATER LEVEL: 3'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: Auger
DATE DRILLED: 12/19/85
DRILLER: WL
HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				7/9	and fine sand (10% fine sand). At 20' - band of glauconite sand. Strong brown (7.5YR 5/6) mottles at bottom of spoon, saturated.

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-3
OWNER: WPNSTA Earle
LOCATION: WPNSTA - EARLE Contract Ordnance Disposal Area
ADDRESS: Colts Neck, New Jersey
TOTAL DEPTH: 20'
SURFACE ELEVATION: 98.37'
WATER LEVEL: 9'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: Auger
DATE DRILLED: 12/17/85
DRILLER: WL
HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					
5		1	SS	6 9 11 16	4'-6' Light olive brown (2.5Y5/4) medium to coarse Sand, 10% very coarse sand, 15% clay, very moist.
10		2	SS	2 2 4 6	9'-11' Light olive brown (2.5Y5/4) fine to medium sand with strong brown (7.5YR 4/6) mottles, Saturated.
15		3	SS	4 6	14'-16' Light olive brown (2.5Y5/4) fine to medium sand (20% fine sand), Subangular grains, Saturated.
20		4	SS	5 7	19'-21' Light olive brown (2.5Y5/4) fine to

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 11-3 OWNER: WPNSTA Earle
LOCATION: WPNSTA-EARLE ADDRESS: Colts Neck
Contract Ordnance New Jersey
Disposal Area TOTAL DEPTH 20'
SURFACE ELEVATION: 98.37' WATER LEVEL: 9'
DRILLING COMPANY: JEFFITS DRILLING METHOD: Auger DATE DRILLED: 12/17/85
DRILLER: WL HELPER: JB
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				11 13	medium sand (10% fine sand) with strong brown (7.5YR 4/6) mottles, subangular grains
25				—	24-25 Light olive brown (2.5Y 5/4) fine to medium sand (10% fine sand) saturated, subangular grains.

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-1
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal Area adjacent to Bldg. S-34
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 127.75'
WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/16/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brown (10YR 5/3) becoming dark brown (10YR 3/3) silty sand.
5		62	SS	5 3	4'-5' Dark brown (10YR 3/3) silt.
				5 6	5'-6' Light yellowish brown (10YR 6/4) sandy silt with some clay, damp.
10		63	SS	2 3	9'-9.3' Light yellowish brown (10YR 6/4) sandy silt with some clay.
				5 7	9.3'-10' Brownish yellow (10YR 5/8) with olive (5Y 4/4) fine to medium sand, trace coarse, very clean, moist, Rec. = 12".
15		64	SS	2 4	14'-15' Dark brown (7.5YR 4/4) fine to medium sand, trace coarse sand, some silt, very wet, Rec = 12"
				5 8	
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-1
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal Area
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 127.75
WATER LEVEL:
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/16/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		65	SS	1 8 12 14	19'-21' Glauconitic (bluish) fine to medium sand, saturated, Rec=20".
25		66		5 8 14 18	24'-25' Glauconitic fine to medium sand. 25'-25.5' Brownish yellow (10YR 5/4) clay and silt. 25.5'-26' Glauconitic sand (fine to medium) saturated. Rec=24".

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-2
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal Area adjacent to Building S-34
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 128.51'
WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/17/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-3' Dark brown (10YR 3/3) sandy silt.
					3'-5' Light yellowish brown (10YR 5/4) sandy silt.
5		67	Ss	2 1 2 3	5'-5.75' Light yellowish brown (10YR 6/4) and light gray (10YR 7/1) silty sand becoming medium to coarse sand at 5.75'; damp, Rec = 9".
10		68	Ss	2 2 3 5	10'-10.7' Light yellowish brown (10YR 6/4) silty sand.
					10.7'- Olive (5Y 4/4) fine to medium sand damp, Rec = 8".
15		69	Ss	2 3 6 9	15'-15.75' Olive (5Y 4/4) and strong brown (7.5YR 4/6) fine to medium sand, very wet, Rec. = 9".
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-2
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 25'
SURFACE ELEVATION: 120.51'
WATER LEVEL: 12'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/17/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		70	Ss	2 4 3 12	20'-21.25' Glauconitic (bluegreen) fine to medium sand, saturated, Rec=15"
25		71	Ss	6 9 14 24	25'-26.5' Glauconitic fine to medium sand 26.5'-26.75' Yellowish brown silty clay. 26.75-27' Glauconitic fine to medium sand

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-3
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal Area adjacent to Bldg. S-34
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 24'
SURFACE ELEVATION: 122.47'
WATER LEVEL: 14'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/16/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-3' Dark brown (10YR 3/3) fine sand and silt, damp.
					3'-5' Yellowish brown (10YR 5/4) sandy clay, very pliable, damp.
5		57	SS	4 4	4'-4.25' Dark brown (10YR 3/3) fine sand and silt
				5 9	(50%).
					4.25'-5.25' Yellowish brown (10YR 5/4) sandy clay to silty sand, wet, Rec. = 15".
10		58		2 2	9'-9.25' Yellowish brown (10YR 5/4) silty sand
				3 6	9.25'-10.25' Brownish yellow (10YR 6/8) and olive (5Y 4/4) fine to medium sand,
					trace coarse sand, some silt (5-10%) very wet, Rec. = 15"
15		59		5 10	14'-16' Glauconitic (bluish) fine to medium
				17 22	sand, saturated, Rec. = 12"
20					

*A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 19-3
OWNER: WPNSTA Earle
LOCATION: Paint Chip and Sludge Disposal Area
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 24'
SURFACE ELEVATION: 122.47'
WATER LEVEL: 14'
DRILLING COMPANY: J.E. Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/16/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		60	SS	3 4 14 21	19'-21' Glauconitic (bluish) fine to medium sand, saturated, Rec=12".
25		61	SS	8 15 20 26	24'-25' Glauconitic fine to medium sand. 25'-25.3' Yellowish brown (10YR5/4) clay and silt. 25.3'-26' Glauconitic fine to medium sand, saturated, Rec=24".

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26-1
OWNER: WPNSTA Earle
LOCATION: Explosive D Washout Area, Building GB-1
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 24'
SURFACE ELEVATION: 149.89'
WATER LEVEL: 9'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/28/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-3' Dark brown (10YR 3/3) fine to medium Sand
					3'-4' Brownish yellow (10YR 6/6) fine to medium Sand
5		93	SS	6 9 12 12	4'-5.5' Brownish yellow (10YR 6/6) fine sand, damp, Rec = 18".
10		94	SS	8 10 14 18	9'-10' Brownish yellow (10YR 6/6) fine to medium Sand
					10'-10.25' White (10YR 8/1) medium to coarse Sand, wet, Rec = 15"
15		95	SS	6 7 12 18	14'-15.5' Brownish yellow (10YR 6/6) fine Sand, saturated, Rec. = 18".
20		96	SS	WOR 8	19'-21' Brownish yellow (10YR 6/6) fine

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26-1
OWNER: WPNSTA Earle
LOCATION: Explosive D Washout Area, Building GB-1
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 24'
SURFACE ELEVATION: 149.89'
WATER LEVEL: 9'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/28/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20				17 40	Sand with reddish yellow (5YR 5/8) and light gray (10YR 7/1) mottles, saturated, Rec=24"
25		97	Ss	7 5 5 7	24'-25' Brownish yellow (10YR 6/6) fine sand 25'-25.75' Light gray (10YR 7/1) and brownish yellow (10YR 6/6) layered fine sand, 25.75'-26' Reddish yellow (7.5YR 6/8) silty clay, saturated, Rec=24"

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26-2
OWNER: WPNSTA Earle
LOCATION: Explosive D Washout Area, Building GB-1
ADDRESS: Colts Neck, New Jersey
TOTAL DEPTH: 22'
SURFACE ELEVATION: 149.64'
WATER LEVEL: 9'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/27/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Light yellowish brown (10YR 6/4) sand and gravel (up to 2" in diameter).
5		85	SS	9 17 24 20	5'-6' Brownish yellow (10YR 6/6) medium sand with some (10%) gravel.
					6'-6.5' Brownish yellow (10YR 6/6) coarse sand, damp, Rec = 18".
10		86	SS	8 7 9 10	10'-11.5' Brownish yellow (10YR 6/6) coarse sand and 10% gravel, some (20%) medium sand, saturated, Rec = 18".
15		87	SS	WOR 15 16	15'-16.5' Brownish yellow (10YR 6/6) clean fine sand, saturated, Rec. = 18".

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26-2
OWNER: WPNSTA Earle
LOCATION: Explosive D Washout Area Building GB-1
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 22'
SURFACE ELEVATION: 149.64'
WATER LEVEL: 9'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/28/86
DRILLER: WL
HELPER: RT
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		88	SS	WOR 7 7	20'-22' Gray (10YR 7/1) and brownish yellow (10YR 6/6) layered fine sand with strong brown (7.5YR 5/8) mottles, saturated, Rec = 24"
25					

* A.S.T.M. D1586

SHEET 2 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26-3
OWNER: WPNSTA Earle
LOCATION: Explosive D Washout Area Building GB-1
ADDRESS: Colts Neck
TOTAL DEPTH: 22'
SURFACE ELEVATION: 150.48'
WATER LEVEL: 10'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/27/86
DRILLER: WL
HELPER: RI
LOG BY: AEB

SKETCH MAP

NOTES:
"Surface Elevation" = Top of PVC

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0					0-5' Brownish yellow (10YR 6/6) medium to coarse sand.
5		89	SS	2 5 10 9	5'-5.25' Brownish yellow (10YR 6/6) medium sand
					5.25'-6.25' Brownish yellow (10YR 6/6) medium to coarse sand and gravel with red (10R 4/6) staining interspersed.
10		90	SS	5 7 7 9	10'-11' Brownish yellow (10YR 6/6) with reddish yellow (7.5YR 6/8) medium to coarse sand
					11'-11.5' Light gray (10YR 7/2) medium sand, saturated, Rec. = 18".
15		91	SS	4 5 7 7	15'-16' Light gray (10YR 7/2) and brownish yellow (10YR 6/6) fine sand, layered, clean, saturated, Rec = 12"
20					

* A.S.T.M. D1586

SHEET 1 OF 2

WESTON

DRILLING LOG

WELL NUMBER: 26 - 3
OWNER: WPNSTA Earle
LOCATION: Explosive D Washort Area Building GB-1
ADDRESS: Colts Neck New Jersey
TOTAL DEPTH: 22'
SURFACE ELEVATION: 150.48'
WATER LEVEL: 10'
DRILLING COMPANY: JE Fritts
DRILLING METHOD: HSA
DATE DRILLED: 1/27/86
DRILLER: WL
HELPER: RE
LOG BY: AEB

SKETCH MAP

NOTES:

DEPTH (FEET)	GRAPHIC LOG	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS*	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
20		92	SS	WOR 11 16 24	20'-21.5' Brownish yellow (10YR 6/6) and light gray (10YR 7/1) layered, clean fine sand with strong brown (7.5YR 5/6) mottling, saturated. Rec = 18".

* A.S.T.M. D1586

SHEET 2 OF 2

APPENDIX B

WELL CONSTRUCTION SUMMARIES

Well 2-1

Well Construction Summary

Location or Coords: EOD Range

Elevation: Ground Level

Top of Casing 102.56'

Drilling Summary:

Total Depth 30'

Borehole Diameter

Driller J. E. Fritts

Rig Track Rig

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	30'	-	15'	S1
15'	-	GS+2'	C2		-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 30'-13'

Cement 6:1 Portland Cement: Bentonite 12'-GS

Other Bentonite Pellets 13'-12'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/27 1986	0815	2/27 1986	0945
Roller Bit	"	0945	"	1015
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1040	"	1055
Filter Placement:	"	1055	"	1205
Cementing:	"	1315	"	1400
Development:	3/20/86	1423	3/20/86	1427
Other:				
	7/7/86	1000	7/7/86	1425

Well Development:

Screen filled up with fine sand during initial development. Flushed well of sand during final development - pumping sustained at 7 gpm. Pumped 1 hour 10 minutes at 7 gpm after flushing.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 2-2

Well Construction Summary

Location or Coords: EOD Range

Elevation: Ground Level

Top of Casing 95.98'

Drilling Summary:

Total Depth 20'

Borehole Diameter

Driller J.E. Fritts

Rig Track Rig

Bit(s) Hollow Stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log ____ Geophysical Log ____

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	20' -	5'	S1
5' -	GS+2'	C2	-		

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 19-3'

Cement 6:1 Portland Cement: Bentonite 2.5'-GS

Other Bentonite Pellets 3'-2.5'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/28 1986	1240	2/28 1986	1345
Roller Bit	"	1345	"	1415
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1415	"	1425
Filter Placement:	"	1425	"	1515
Cementing:	"	1530	"	1600
Development:	3/20/86	1615	3/20/86	1730
Other:				

Well Development:

Pumped at average rate of 3 gpm until discharge was free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 2-3

Well Construction Summary

Location or Coords: EOD Range

Elevation: Ground Level

Top of Casing 89.87'

Drilling Summary:

Total Depth 24'

Borehole Diameter

Driller J. E. Fritts

Rig Track Rig

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

2'	-	GS+3'	C_1	24'	-	4'	S_1
4'	-	GS+3'	C_2		-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 24'-2.5'

Cement 6:1 Portland Cement: Bentonite 2'-GS

Other Bentonite Pellets 2.5'-2'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/21 1986	0830	2/21 1986	0940
Roller Bit	"	0940	"	1240
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1440	"	1450
Filter Placement:	"	1450	"	1525
Cementing:	"	1525	"	1600
Development:	3/20/86	1545	3/20/86	1715
Other:				

Well Development:

Pumped at average rate of 12 gpm until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 2-4

Well Construction Summary

Location or Coords: EOD Range

Elevation: Ground Level

Top of Casing 90.06'

Drilling Summary:

Total Depth 19'

Borehole Diameter

Driller J. E. Fritts

Rig Track Rig

Bit(s) Hollow Stem Auger

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	19'	-	4'	S1
4'	-	GS+2'	C2		-		

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC

S2

Centralizers

Filter Material No. 2 Ottawa Sand 19'-2.5'

Cement 6:1 Portland Cement: Bentonite 2'-GS

Other Bentonite Pellets 2.5'-2'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/27 1986	1455	2/27 1986	1550
Roller Bit	"	1550	"	1640
Geophys. Logging:				
Casing:				
Install 4" PVC	2/28 1986	0920	2/28 1986	0930
Filter Placement:	"	0930	"	1055
Cementing:	"	1105	"	1135
Development:	3/20/86	1515	3/20/86	1605
Other:				

Well Development:

Pumped at average rate of 9 gpm until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 3-1

Well Construction Summary

Location or Coords: Landfill South-West of F Group

Elevation: Ground Level

Top of Casing 117.05'

Drilling Summary:

Total Depth 23'

Borehole Diameter

Driller J.E. Fritts

Rig Mobile Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid WATER

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	GS+2'	C1	23'	8'	S
8'	GS+2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 23'-6' below GS

Cement 6:1 Portland cement: bentonite 4'-GS

Other Bentonite Pellets 6'-4' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/7/86	0800	1/7/86	1030
Roller Bit	"	1130	"	1200
Geophys. Logging:				
Casing:	"	1200	"	1215
Filter Placement:	"	1215	"	1330
Cementing:	"	1430	"	1500
Development:	3/21/86	0945	3/21/86	1040
Other:				

Well Development:

Pumped 2 minutes at 10 gpm; then 1 gallon every 5 minutes until discharge free of fines

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 3-2

Well Construction Summary

Location or Coords: Landfill South-west of F Group

Elevation: Ground Level _____

Top of Casing 126.00'

Drilling Summary:

Total Depth 25'

Borehole Diameter _____

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/6/86	0940	1/6/86	1040
Roller Bit	"	1040	"	1100
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1100	"	1120
Filter Placement:	"	1120	"	1345
Cementing:	"	1445	"	1545
Development:	3/21/86	0900	3/21/86	1500
Other:				

Well Design:

Basis: Geologic Log X Geophysical Log ____

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	25'	-	10'	S
10'	-	GS+2'	C2		-		

Casing: C1 4" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2 _____

Centralizers _____

Filter Material No. 2 Ottawa Sand 25'-8' below GS

Cement 6:1 Portland cement: bentonite 6'-GS

Other Bentonite Pellets 8'-6' below GS

GS = Ground Surface

Well Development:

Pumped for 5 seconds; went dry. Well had to be bailed.

Comments:

Location _____

Personnel _____

Project _____

WESTON DESIGNERS CONSULTANTS

Well 3-3

Well Construction Summary

Location or Coords: Landfill South-West of F Group

Elevation: Ground Level

Top of Casing 125.53'

Drilling Summary:

Total Depth 23'

Borehole Diameter

Driller J. E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	23' -	8'	S
8' -	GS+2'	C2			

Casing: C1 6" Steel

C2 4" PVC SCH 40

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 23'-6' below GS

Cement 6:1 Portland cement: bentonite. 4'-GS

Other Bentonite Pellets 6'-4' below GS

GS = Ground Surface

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/2/86	1400	1/2/86	1500
Roller Bit	"	1500	"	1530
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1530	"	1600
Filter Placement:	"	1600	"	1715
Cementing:	"	1715	"	1730
Development:	3/21/86	0845	3/21/86	1040
Other:				

Well Development:

Well did not sustain pumping

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 4-1

Well Construction Summary

Location or Coords: Landfill West of D Group

Elevation: Ground Level

Top of Casing 173.00'

Drilling Summary:

Total Depth 30'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	30' -	15'	S
15' -	GS+2'	C2	-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 30' - 12.5' below GS

Cement 6:1 Portland cement: bentonite 10' - GS

Other Bentonite Pellets 12.5' - 10' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/8/86	1440	1/8/86	1515
Roller Bit	"	1515	"	1530
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1530	"	1600
Filter Placement:	"	1600	"	1730
Cementing:	1/9/86	0830	1/9/86	0915
Development:	3/21/86	1410	3/21/86	1600
Other:				

Well Development:

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 4-2

Well Construction Summary

Location or Coords: Landfill West of D Group

Elevation: Ground Level

Top of Casing 152.36'

Drilling Summary:

Total Depth 18'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

2' - GS+3'	C1	18' - 3'	S
3' - GS+2'	C2		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 18' - 2.5' below GS

Cement 6:1 Portland cement: bentonite 2' - GS

Other Bentonite Pellets 2.5' - 2' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/9/86	1350	1/9/86	1500
Roller Bit	"	1500	"	1515
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1515	"	1530
Filter Placement:	"	1530	"	1700
Cementing:	"	1700	"	1715
Development:	3/21/86	1225	3/21/86	1345
Other:				

Well Development:

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 4-3

Well Construction Summary

Location or Coords: Landfill West of D Group

Elevation: Ground Level

Top of Casing 166.40'

Drilling Summary:

Total Depth 25'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	25' -	10'	S
10' -	GS+2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 25'-8' below GS

Cement 6:1 Portland cement: bentonite 6'-GS

Other Bentonite Pellets 8'-6' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/10/86	1015	1/10/86	1145
Roller Bit	"	1315	"	1330
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1330	"	1400
Filter Placement:	"	1400	"	1530
Cementing:	"	1530	"	1550
Development:	3/21/86	1050	3/21/86	1215
Other:				

Well Development:

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 5-1

Well Construction Summary

Location or Coords: Landfill West of Army Barricades

Elevation: Ground Level

Top of Casing 108.77'

Drilling Summary:

Total Depth 29'

Borehole Diameter

Driller J.E. Fritts

Rig Track Rig

Bit(s) Hollow stem Auger; Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	29' -	14'	S
14' -	GS+2'	C2	-		

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 29' - 12'

Cement 6:1 Portland Cement: Bentonite 11' - GS

Other Bentonite Pellets 12' - 11'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/20 1986	0750	2/20 1986	0930
Roller Bit	"	0930	"	1000
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1000	"	1030
Filter Placement:	"	1100	"	1215
Cementing:	"	1315	"	1430
Development:	3/20/86	1100	3/20/86	1155
Other:				

Well Development:

Pumped at average rate of 2.5 gpm until free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 5-2

Well Construction Summary

Location or Coords: Landfill West of Army Barricades

Elevation: Ground Level

Top of Casing 113.96'

Drilling Summary:

Total Depth 28'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	28' -	13'	S
13' -	GS+2'	C2	-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 28' - 11' below GS

Cement 6:1 Portland cement: bentonite 9' - GS

Other Bentonite Pellets 11' - 9' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/21/86	1000	1/21/86	1145
Roller Bit	"	1145	"	1210
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1330	"	1400
Filter Placement:	"	1400	"	1630
Cementing:	"	1630	"	1700
Development:				
Other:				

Well Development:

Well did not sustain pumping
Pumped 2 gallons every 10 minutes

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 5-3

Well Construction Summary

Location or Coords: Landfill West of Army Barricades

Elevation: Ground Level

Top of Casing 109.78

Drilling Summary:

Total Depth 32'

Borehole Diameter

Driller J.E. Fritts

Rig Track Rig

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' - GS+2'	C1	32' - 17'	S1
17' - GS+2'	C2	-	
37' - 32'	C3	-	
-		-	
-		-	
-		-	
-		-	
-		-	

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

C3 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 32'-15'

Cement 6:1 Portland Cement: Bentonite 14'-GS

Other Bentonite Pellets 15'-14'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	3/3/86	0830	3/3/86	1000
Roller Bit	"	1000	"	1225
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1315	"	1330
Filter Placement:	"	1410	"	1525
Cementing:	"	1525	"	1615
Development:	3/20/86	0915	3/20/86	1040
Other:				

Well Development:

Pumped at average rate of 25 gpm until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 5-4

Well Construction Summary

Location or Coords: Landfill West of Army Barricades

Elevation: Ground Level

Top of Casing 105.65'

Drilling Summary:

Total Depth 27'

Borehole Diameter

Driller J.E. Fritts

Rig Track mounted

Bit(s) Hollow Stem Auger; Roller Bit

Drilling Fluid

Surface Casing

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

2'	-	GS+2'	C1	27'	- 12'	S
12'	-	GS+	C2		-	

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 27'-10'

Cement 6:1 Cement:Bentonite 9'-GS

Other Bentonite Pellets 10'-9'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	2/19 1986	0830	2/19 1986	0930
Roller Bit	"	0930	"	1000
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1025	"	1100
Filter Placement:	"	1220	"	1400
Cementing:	"	1400	"	1430
Development:	3/20/86	1200	3/20/86	1345
Other:				

Well Development:

Pumped at average rate of 2.5 gpm until discharge free of fines

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 7-1

Well Construction Summary

Location or Coords: Waterfront

Elevation: Ground Level

Top of Casing 149.73'

Drilling Summary:

Total Depth 39'

Borehole Diameter

Driller J. E. Fritts

Rig Track Rig

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	GS+2'		39'	24'	S1
24'	GS+2'	C1			

Casing: C1 6" Steel Locking

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 39'-22'

Cement 6:1 Portland Cement : Bentonite 21'-GS

Other Bentonite Pellets 22'-21'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	3/4/86	0905	3/4/86	1040
Roller Bit	"	1040	"	1100
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1230	"	1240
Filter Placement:	"	1240	"	1445
Cementing:	"	1615	"	1650
Development:	3/9/86	0915	3/9/86	1050
Other:				

Well Development:

Pumped at average rate of 0.5 gpm. Flow not sustained. Pumped until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 7-2.

Well Construction Summary

Location or Coords: Waterfront

Elevation: Ground Level

Top of Casing 119.68'

Drilling Summary:

Total Depth 19'

Borehole Diameter

Driller J.E. Fritts

Rig Track Rig

Bit(s) Hollow Stem Auger; Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

2.5' - GS+2.5'	C1		19' - 4'	S	
4' - GS+2'	C2				

Casing: C1 6" Steel Locking

C2 4" PVC SCH40

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. Ottawa Sand 19' - 2.5'

Cement 6:1 Portland Cement: Bentonite 2' - GS

Other Bentonite Pellets 2.5' - 2'

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	3/5/86	0800	3/5/86	0920
Roller Bit	"	0920	"	0930
Geophys. Logging:				
Casing:				
Install 4" PVC	"	0930	"	0945
Filter Placement:	"	0945	"	1115
Cementing:	"	1135	"	1150
Development:	3/15/86	1110	3/19/86	1300
Other:				

Well Development:

Pumping sustained at 4gpm. Pumped until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 7-3

Well Construction Summary

Location or Coords: Waterfront

Elevation: Ground Level

Top of Casing 164.15'

Drilling Summary:

Total Depth 35'

Borehole Diameter

Driller J. E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow Stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log ____ Geophysical Log ____

Casing String(s): C=Casing S=Screen

3'	GS+2'	C1	35	20	S
20	GS+2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 35'-18' below GS

Cement 6:1 Portland Cement: Bentonite 16'-GS

Other Bentonite Pellets 18'-16' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/24/86	0800	1/24/86	1000
Roller Bit	"	1015	"	1030
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1030	"	1100
Filter Placement:	"	1220	"	1430
Cementing:	"	1430	"	1530
Development:	3/19/86	0845	3/19/86	1250
Other:				

Well Development:

Pumping not sustained
Pumped approximately 15 gallons per hour.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 10-1

Well Construction Summary

Location or Coords: Scrap Metal Landfill

Elevation: Ground Level

Top of Casing 113.99'

Drilling Summary:

Total Depth 27.5'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	27.5' -	12.5'	S
12.5' -	GS+2'	C2	-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 27.5' - 10.5' below GS

Cement 6:1 Portland Cement : bentonite 9' - GS

Other Bentonite Pellets 10.5' - 9' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/13/86	1215	1/13/86	1350
Roller Bit	"	1350	"	1415
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1415	"	1445
Filter Placement:	"	1445	"	1700
Cementing:	1/14/86	0830	1/14/86	0930
Development:	3/14/86	1115	3/14/86	1330
Other:				

Well Development:

Pumping sustained at 0.75 gpm. Pumped until free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 10-2

Well Construction Summary

Location or Coords: Scrap Metal Landfill

Elevation: Ground Level

Top of Casing 111.35'

Drilling Summary:

Total Depth 22'

Borehole Diameter

Driller J. E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' - GS+2'	C1		22' - 7'	S	
7' - GS+2'	C2				

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 22' - 5' below GS

Cement 6:1 Portland cement: bentonite 4' - GS

Other Bentonite pellets 5' - 4" below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/15/86	0915	1/15/86	1100
Roller Bit	"	1100	"	1130
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1130	"	1200
Filter Placement:	"	1300	"	1415
Cementing:	"	1450	"	1500
Development:	3/14/86	1000	3/14/86	1040
Other:				

Well Development:

Pumped at sustained rate of 4 gpm until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 10-3

Well Construction Summary

Location or Coords: Scrap Metal Landfill

Elevation: Ground Level

Top of Casing 110.90'

Drilling Summary:

Total Depth 25'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	25' -	10'	S
10' -	GS+2'	C2	-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 25'-7' below GS

Cement 6:1 Portland cement: bentonite 6'-GS

Other Bentonite Pellets 7'-6' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/14/86	1020	1/14/86	1125
Roller Bit	"	1125	"	1200
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1340	"	1400
Filter Placement:	"	1400	"	1520
Cementing:	"	1600	"	1630
Development:	3/14/86	0920	3/14/86	0950
Other:				

Well Development:

Pumped at average rate of 7 gpm until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 11-1

Well Construction Summary

Location or Coords: Contract Ordnance Disposal Area

Elevation: Ground Level

Top of Casing 99.07'

Drilling Summary:

Total Depth 19'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-80

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	19'	- 4'	S
4'	-	GS+2'	C2		-	

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottawa Sand 19'-3.5' below GS

Cement 6:1 Portland cement: bentonite 3'-GS

Other Bentonite Pellets 3.5'-3' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	12/18 1985	1300	12/18 1985	1430
Roller Bit	"	1430	"	1530
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1530	"	1600
Filter Placement:	"	1600	"	1800
Cementing:	12/19 1985	1300	12/19 1985	1330
Development:	3/19/86	1505	3/19/86	1615
Other:				

Well Development:

Pumping sustained at 15 gpm. Pumped until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 11-2

Well Construction Summary

Location or Coords: Contract Ordnance Disposal Area

Elevation: Ground Level

Top of Casing 100.97'

Drilling Summary:

Total Depth 18'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-80

Bit(s) Hollowstem Auger; Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

2' -	GS+3'	C1	18' -	3'	S
3' -	GS+3'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC SLOT 10

S2

Centralizers

Filter Material No. 2 Ottawa Sand 18'-2.5' below GS

Cement 6:1 Portland cement: bentonite 2' - GS

Other Bentonite pellets 2.5'-2' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	12/18 1985	1350	12/18 1985	1500
Roller Bit	"	1500	"	1530
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1530	"	1545
Filter Placement:	"	1545	"	1645
Cementing:	"	1645	"	1700
Development:	3/19/86	1605	3/19/86	1730
Other:				

Well Development:

Pumping sustained at 15 gpm. Pumped until discharge free of fines.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 11-3

Well Construction Summary

Location or Coords: Contract Ordnance Disposal Area

Elevation: Ground Level

Top of Casing 98.37'

Drilling Summary:

Total Depth 20'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-80

Bit(s) Hollowstem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	12/17 1985	1230	12/17 1985	1345
Roller Bit	"	1345	"	1600
Geophys. Logging:				
Casing:				
Install 4" PVC	12/18 1985	0900	12/18 1985	0930
Filter Placement:	"	0930	"	1100
Cementing:	"	1100	"	1130
Development:	3/19/86	1445	3/19/86	1550
Other:				

Well Design:

Basis: Geologic Log ✓ Geophysical Log

Casing String(s): C=Casing S=Screen

2'	GSt3'	C1	20'	5'	S
5'	GSt2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 20'-3' below GS

Cement 6:1 Portland cement: bentonite 2.5'-GS

Other Bentonite Pellets 3'-2.5' below GS

Well Development:

Pumping sustained at 5 gpm.

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 19-1

Well Construction Summary

Location or Coords: Paint Chip and Sludge Disposal Area

Elevation: Ground Level

Top of Casing 127.75'

Drilling Summary:

Total Depth 25'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3' -	GS+2'	C1	25' -	10'	S
10' -	GS+2'	C2	-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 25' - 8' below GS

Cement 6:1 Portland cement: bentonite 6' - GS

Other Bentonite Pellets 8' - 6' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/16/86	1330	1/16/86	1450
Roller Bit	"	1450	"	1510
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1510	"	1530
Filter Placement:	"	1530	"	1645
Cementing:	1/20/86	1600	1/20/86	1615
Development:	3/18/86	1520	3/18/86	1615
Other:				

Well Development:

Pumped at average rate of 5gpm

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 19-2

Well Construction Summary

Location or Coords: Paint Chip and Sludge Disposal Area

Elevation: Ground Level _____

Top of Casing 120.51'

Drilling Summary:

Total Depth 24'

Borehole Diameter _____

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) _____

Drilling Fluid _____

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log ____

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	24'	- 9'	S
9'	-	GS+2'	C2		-	
	-				-	
	-				-	
	-				-	
	-				-	
	-				-	
	-				-	

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2 _____

Centralizers _____

Filter Material #2 Ottawa Sand 24'-7' below GS

Cement 6:1 Portland cement: bentonite 5'-GS

Other Bentonite Pellets 7'-5' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/20/86	0900	1/20/86	1005
Roller Bit	"	1005	"	1045
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1045	"	1115
Filter Placement:	"	1305	"	1410
Cementing:	"	1440	"	1515
Development:	3/12/86	1345	3/12/86	1500
Other:				

Well Development:

Pumped at average rate of 9 gpm

Comments:

Location _____

Personnel _____

Project _____

WESTON DESIGNERS CONSULTANTS

Well 19-3

Well Construction Summary

Location or Coords: Paint Chip and Sludge Disposal Area

Elevation: Ground Level

Top of Casing 122.47'

Drilling Summary:

Total Depth 24'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	-	GS+2'	C1	24'	-	9'	S
9'	-	GS+2'	C2		-		

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material #2 Ottowa Sand 24' - 7' below GS

Cement 6:1 Portland cement: bentonite 5' - GS

Other Bentonite pellets 7' - 5' below GS

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/16/86	0900	1/16/86	1025
Roller Bit	"	1025	"	1045
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1045	"	1100
Filter Placement:	"	1100	"	1200
Cementing:	1/20/86	1530	1/20/86	1600
Development:	3/18/86	1405	3/18/86	1550
Other:				

Well Development:

Sustained pumping rate of 15 gpm

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 26-1

Well Construction Summary

Location or Coords: Explosive 'D' Washout Area, Bldg GB-1

Elevation: Ground Level

Top of Casing 149.89'

Drilling Summary:

Total Depth 24'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow Stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	- GS+2'	C1	24'	- 9'	S
9'	- GS+2'	C2		-	

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 24'-7' below GS

Cement 6:1 Portland cement: bentonite 5'-GS

Other Bentonite Pellets 7'-5' below GS

GS= Ground Surface

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/28 1986	1330	1/28 1986	1540
Roller Bit	"	1540	"	1600
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1600	"	1620
Filter Placement:	"	1620	"	1740
Cementing:	1/29/86	0910	1/29/86	0940
Development:	3/13/86	1030	3/13/86	1100
Other:	3/14/86	0830	3/14/86	0920

Well Development:

Pumping not sustained. Pumped 5 gallons every 2 minutes for one hour

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 26-2

Well Construction Summary

Location or Coords: Explosive "D" Washout Area; Bldg GB-1

Elevation: Ground Level

Top of Casing 149.64'

Drilling Summary:

Total Depth 22'

Borehole Diameter

Driller J.E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow Stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log

Casing String(s): C=Casing S=Screen

3'	GS+2'	C1	22'	7'	S
7'	GS+2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2

Centralizers

Filter Material No. 2 Ottawa Sand 22'-5' below GS

Cement 6:1 Portland cement: bentonite 4'-GS

Other Bentonite Pellets 4'-5' below GS

GS = Ground Surface

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/27/1986	1045	1/27/1986	1215
Roller Bit	"	1300	"	1310
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1310	"	1345
Filter Placement:	"	1345	"	1440
Cementing:	"	1520	"	1535
Development:	3/13/86	1100	3/13/86	1650
Other:				

Well Development:

Pumping Not Sustained
Pumped 5 gallons every 2 minutes for one hour

Comments:

Location

Personnel

Project

WESTON DESIGNERS CONSULTANTS

Well 26-3

Well Construction Summary

Location or Coords: Explosive "D" Washout Area, Bldg GB-1

Elevation: Ground Level _____

Top of Casing 150.48'

Drilling Summary:

Total Depth 22'

Borehole Diameter _____

Driller J. E. Fritts

Rig Mobil Drill B-61

Bit(s) Hollow Stem Auger, Roller Bit

Drilling Fluid Water

Surface Casing 6" Steel Locking

Well Design:

Basis: Geologic Log X Geophysical Log _____

Casing String(s): C=Casing S=Screen

3'	GS+2'	C1	22'	7'	S
7'	GS+2'	C2			

Casing: C1 6" Steel

C2 4" SCH 40 PVC

Screen: S1 4" SCH 40 PVC 10 SLOT

S2 _____

Centralizers _____

Filter Material No. 2 Ottawa Sand 22'-5' below GS

Cement 6:1 Portland cement : bentonite 4'-GS

Other Bentonite pellets 5'-4' below GS

GS = Ground Surface

Construction Time Log:

Task	Start Date	Start Time	Finish Date	Finish Time
Drilling:				
HSA	1/27/86	1550	1/27/86	1635
Roller Bit	"	1635	"	1700
Geophys. Logging:				
Casing:				
Install 4" PVC	"	1700	"	1720
Filter Placement:	1/28/86	1000	1/28/86	1130
Cementing:	"	1130	"	1200
Development:	3/4/86	0730	3/4/86	0830
Other:				

Well Development:

Pumping not sustained

Pumped 5 gallons every 2 minutes for one hour.

Comments:

Location _____

Personnel _____

Project _____

WESTON DESIGNERS CONSULTANTS

APPENDIX C

CHAIN-OF-CUSTODY DOCUMENTATION

SAMPLE BOTTLE REQUEST & PREPARATION FORM

WO# 1171-09-02

REQUESTED BY: Amy Borckner

DATE OF REQUEST: 3-11-86

DATE BOTTLES NEEDED: 3-11-86

CLIENT I.D.: Colts Neck

R.F.W. TO DO ANALYSIS: _____

SAMPLING & HANDLING PLAN PREPARED: _____

PRICE QUOTED: _____

SHIP BOTTLES TO:

BOTTLES WILL BE PICKED UP BY: Amy Borckner this afternoon

MATRIX: _____

(TO BE COMPLETED WHEN BOTTLES PREPARED)

NO. SAMPLES FOR EACH PARAMETER	PARAMETERS REQUESTED	NO. BOTTLES PREPARED FOR THIS PARAMETER	BOTTLE SIZE & TYPE	PRESERVATIVE ADDED	DATE BOTTLES PREPARED
	10 gallons Org-Free DI H_2O in Glass				

BOTTLES PREPARED BY: [signature]
DATE: 3-11-86

PREPARED BOTTLES RECEIVED BY: [signature]
DATE: _____

1771-04-02

SAMPLE BOTTLE REQUEST & PREPARATION FORM

REQUESTED BY: DAVE EPPS

DATE OF REQUEST: 2-27-86

DATE BOTTLES NEEDED: 3-14-86

CLIENT I.D.: COLTS NECK

R.F.W. TO DO ANALYSIS: Y

SAMPLING & HANDLING PLAN PREPARED: Y

PRICE QUOTED: Y

SHIP BOTTLES TO:

BOTTLES WILL BE PICKED UP BY: DAVE EPPS

MATRIX: GROUND Water

(TO BE COMPLETED WHEN BOTTLES PREPARED)

NO. SAMPLES FOR EACH PARAMETER	PARAMETERS REQUESTED	NO. BOTTLES PREPARED FOR THIS PARAMETER	BOTTLE SIZE & TYPE	PRESERVATIVE ADDED	DATE BOTTLES PREPARED
34	TOX.	40	250 ml gl. w/ septum cap	cool ✓	
34	TOC.	40	60 ml gl. w/ septum cap	H_2SO_4 ✓	
25	VOA.	50	40 ml gl.	cool ✓	
7	O/G.	10	1 l glass	H_2SO_4 ✓	
25	Pet HC.	30	1 l glass	H_2SO_4 ✓	
34	NO_3-NO_2.	34	250 ml plas	H_2SO_4 ✓	
34	BNA.	68	1 l glass	cool ✓	
17	Pest.	34	1 l glass	cool ✓	
11	EXPL.	22	1 l glass	cool ✓	
14	N.G., Picric Acid	28	1 l glass	cool ✓	
34	pH, Cl, Spcd	34	1 l plas	cool ✓	
34	PP metals	34	1 l plas	HNO_3 ✓	
1	VOA TRIP BLK	2	40 ml vial	cool ✓	
34	empty for filtering	34	1 l plas	cool ✓	

BOTTLES PREPARED BY: _____ DATE: _____

PREPARED BOTTLES RECEIVED BY: _____ DATE: _____

8 1771-09-02

SAMPLE BOTTLE REQUEST & PREPARATION FORM

REQUESTED BY: Dave EPPS
DATE OF REQUEST: 2-27-86
DATE BOTTLES NEEDED: 3-14-86
CLIENT I.D.: COLTS Neck
R.F.W. TO DO ANALYSIS: 4
SAMPLING & HANDLING PLAN PREPARED: 4
PRICE QUOTED: 4

SHIP BOTTLES TO:

BOTTLES WILL BE PICKED UP BY: DAVE EPPS

MATRIX: SURFACE H_2O

(TO BE COMPLETED WHEN BOTTLES PREPARED)

NO. SAMPLES FOR EACH PARAMETER	PARAMETERS REQUESTED	NO. BOTTLES PREPARED FOR THIS PARAMETER	BOTTLE SIZE & TYPE	PRESERVATIVE ADDED	DATE BOTTLES PREPARED
√ 14	TOX	20	250ml gl. Septum cap	cool ~~√~~	
√ 14	TOC	20	60 ml gl. w/ septum cap	H_2SO_4 √	
√ 10	VOA	20	40ml gl.	cool √	
√ 10	Det H.C.	15	1 l glass	H_2SO_4 √	
√ 14	NO_3-NO_2	14	250ml plas.	H_2SO_4 √	
√ 14	BNA	28	1 l glass	cool √	
√ 14	ppmetals	14	1 l plas	HNO_3 √	
√ 6	EXPL.	12	1 l glass	cool √	
√ 6	N.G., Picric Acid	12	1 l glass	cool √	
√ 14	pH, Cl, Spcd	14	1 l plas	cool √	
√ 1	VOA Trip Blk	2	40ml vial	cool √	
√ 14	empty for filtering	14	1 l plas	cool √	

BOTTLES PREPARED BY: [signature]
DATE:

PREPARED BOTTLES RECEIVED BY:
DATE:

1 1 11-04-02

SAMPLE BOTTLE REQUEST & PREPARATION FORM

REQUESTED BY: DAVE EPPS

DATE OF REQUEST: 2-27-86

DATE BOTTLES NEEDED: 3-14-86

CLIENT I.D.: COLTS NECK

R.F.W. TO DO ANALYSIS: 4

SAMPLING & HANDLING PLAN PREPARED: 4

PRICE QUOTED: 4

SHIP BOTTLES TO:

BOTTLES WILL BE PICKED UP BY: DAVE EPPS

MATRIX: SEDIMENT

(TO BE COMPLETED WHEN BOTTLES PREPARED)

NO. SAMPLES FOR EACH PARAMETER	PARAMETERS REQUESTED	NO. BOTTLES PREPARED FOR THIS PARAMETER	BOTTLE SIZE & TYPE	PRESERVATIVE ADDED	DATE BOTTLES PREPARED
10	TOX	15	250ml glass	cool / V	
10	VOA	20	40ml glass	cool / V	
8	O/G	10	250ml gl.	cool / V	extra
10	Pet H.C.	15	250ml gl.	cool / V	
6	NO_3-NO_2	10	250ml gl.	cool / V	
10	PP metals	15	250ml gl.	cool / V	
6	EXPL.	10	250ml gl	cool	
6	NG, Picric Acid	10	250ml gl.	cool	
1	VOA TRIP BLK	2	40ml glass	cool	

BOTTLES PREPARED BY: [signature]
DATE: _____

PREPARED BOTTLES RECEIVED BY: _____
DATE: _____

WO# 1771-09-02

SAMPLE BOTTLE REQUEST & PREPARATION FORM

REQUESTED BY: Dave EPPS

DATE OF REQUEST: 12-11-85

DATE BOTTLES NEEDED: 12-13-85

CLIENT I.D.: Colts Neck, NJ - navy

R.F.W. TO DO ANALYSIS: ✓

SAMPLING & HANDLING PLAN PREPARED: ✓

PRICE QUOTED: ✓

SHIP BOTTLES TO:

BOTTLES WILL BE PICKED UP BY: Dave EPPS 12-13-85

MATRIX: Soil

(TO BE COMPLETED WHEN BOTTLES PREPARED)

NO. SAMPLES FOR EACH PARAMETER	PARAMETERS REQUESTED	NO. BOTTLES PREPARED FOR THIS PARAMETER	BOTTLE SIZE & TYPE	PRESERVATIVE ADDED	DATE BOTTLES PREPARED
2 ✓3	NO_3-NO_2	3 ✓	250ml gl.	~~cool~~	✓
✓3	Nitroglycerine, TNT, RDX, HMX	3	500ml glass	cool	✓
✓8	PPmetals	8 ✓	250ml glass	cool	✓
✓8	TOX	16 ✓	60ml glass	Septum cap	✓
✓8	Total xylene	16 ✓	40ml vial	cool	✓
✓8	O/G	8 ✓	250ml glass	cool	✓
✓8	O/G (413.2)	8 ✓	250ml gl.	cool	✓
~~8~~ 16	EPTOX for Zn, Cr, Pb, titanium	~~8~~ 16 ✓	250ml g.	cool	
16	O/G	16 ✓	250ml gl.	cool	

BOTTLES PREPARED BY: [signature]
DATE: 12/13/85

PREPARED BOTTLES RECEIVED BY: _____
DATE: _____

WESTON

Custody Transfer Record/Lab Work Request

Received By: _____
Date: _____
Assigned to: _____

Client: _____
Client Contact: _____
Phone: _____

RFW Contact: _____
Date Due: _____
Project Number: _____

SAMPLE IDENTIFICATION / ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative								

SPECIAL INSTRUCTIONS: _____

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

RFW 15 [illegible] 2/89

C-6

Chain of Custody Transfer Form / Lab Work Request

Received By
Date
Assigned to

Client
Client Contact
Phone

RFW Contact
Date Due
Project Number

Sample No.	Client ID No.	SAMPLE IDENTIFICATION Description	Date Collected	Container/Preservative	ANALYSES REQUESTED							

SPECIAL INSTRUCTIONS

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

RFW 1031 (Rev 6-93)

C-7

WESTON

Custody Transfer Record/Lab Work Request

Received By: _____ Client: _____ RFW Contact: _____

Date: _____ Client Contact: _____ Date Due: _____

Assigned to: _____ Phone: _____ Project Number: _____

SAMPLE IDENTIFICATION — ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative								
					✓	✓						
						✓						
					✓							
						✓						
					✓							
						✓						
					✓							
						✓						
					✓							
						✓						
					✓							
						✓						
					✓							
						✓						
					✓							
						✓						
						✓						
							✓					
								✓				
									✓			

SPECIAL INSTRUCTIONS: _____

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
			7/12	11:15					

REV 11 [illegible] 04/7/[illegible]

C-8

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____

Date _____ Client Contact _____ Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative								

SPECIAL INSTRUCTIONS

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____

Date _____ Client Contact _____ Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	VOA	Pet HC	EC					
		Trip Blank			✓							
		2-15 Soils	7/10/86			✓	✓					
		2-[illegible]	"			✓	✓					
		2-B Soil	"			✓	✓					
		2-[illegible]	"			✓	✓					
		[illegible]										

SPECIAL INSTRUCTIONS: X Dilute cases

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
	[illegible]	[illegible]	[illegible]	[illegible]					

RFW 18-86-001/A-7/84

C-10

Custody Transfer Record/Lab Work Request

Received By: [illegible]
Date: [illegible]
Affiliation: [illegible]

Client: [illegible]
Client Contact: [illegible]
Phone: [illegible]

RFW Contact: [illegible]
Date Due: [illegible]
Project Number: [illegible]

SAMPLE IDENTIFICATION						ANALYSES REQUESTED							
Sample No.	Client No.	Description	Matrix	Date Collected	Container/Preservative	VOA	TOX	TOC	[illegible]	Bromide	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]	✓							
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]			✓					
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]		✓						
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]				✓				
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]					✓			
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]						✓		
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]							✓	
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]								✓
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]	✓							
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]		✓						
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]			✓					
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]				✓				
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]					✓			
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]						✓		
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]							✓	
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]								✓
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]	✓							
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]		✓						
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]			✓					
[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]				✓				

Matrix:
S - Soil PB - Drum Solids
W - Water DL - Drum Liquids
O - Oil O - Other

Special Instructions: [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					

RFW 21-21-00178-3/86

C-11

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____

Date _____ Client Contact _____ Date Due _____

Assigned To _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Matrix	Date Collected	Container/Preservative	VA	TCL	TIA	[illegible]	PNA	[illegible]	[illegible]	[illegible]
	10-2		W	1/19/92	[illegible]					✓			
	10-2		W	[illegible]	[illegible]						✓		
	10-2		W	[illegible]	[illegible]							✓	
	10-2		W		[illegible]								
	10-2A	[illegible]	W		[illegible]	✓							
	10-2A	[illegible]	W		[illegible]		✓						
	10-2	[illegible]	W		[illegible]			✓					
	10-2A	[illegible]	W		[illegible]				✓				
	10-2A	[illegible]	W		[illegible]					✓			
	10-2A	[illegible]	W		[illegible]						✓		
	10-2A	[illegible]	W		[illegible]							✓	
	10-2A	[illegible]	W		[illegible]								✓
	11-3	[illegible]	W		[illegible]		✓						
	11-3		W		[illegible]								
	11-3		W		[illegible]								
	11-3		W		[illegible]								
	11-3		W		[illegible]					✓			
	11-3		W					✓					
	11-1		W		[illegible]		✓						
	11-1		W		[illegible]			✓					

Matrix:
S- Soil DS- Drum Solids
W- Water DL- Drum Liquids
O- Oil X- Other

Special Instructions: [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					

RFW [illegible] 201/A 2/86

C-12

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____
Date _____ Client Contact _____ Date Due _____
Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	11-1		7/14/16	[illegible]	✓							
	11-1		7/14/16	1C [illegible]		✓						
	11-1		7/14/16	1C [illegible]			✓					
	11-1		7/14/16	1C [illegible]				✓				
	11-1		7/14/16	1C [illegible]					✓			
	11-1		7/14/16	1C [illegible]						✓		
	11-1		7/16/16	1C [illegible]							✓	
	11-1 Blk	[illegible] DI Water	7/16/16	1C [illegible]							✓	
	[illegible]		7/14/16	[illegible]						✓		
	[illegible]		7/14/16	1C [illegible]					✓			
	11-3		7/16/16	1C [illegible]							✓	
	11-3A	Dup of 11-3	[illegible]	[illegible]								✓
	11-2A	Dup of 11-1	[illegible]	[illegible]							✓	
	[illegible]	[illegible]	[illegible]	[illegible]							✓	
	[illegible]	Dup of 11-3	[illegible]	[illegible]						✓		
	[illegible]											
	11-3-A							✓				
	11-3-A			[illegible]			✓					
	11-3-A			[illegible]		✓						
	11-3-A	Dup of 11-3		[illegible]	✓							

SPECIAL INSTRUCTIONS: [illegible] RPK Analy TNT [illegible]
[illegible] by 413.1 [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Analysis	[illegible]	[illegible]	7/[illegible]	[illegible]					

RFW 16-23-001/A-2/85

C-13

RFW Custody Transfer Record/Lab Work Request

Received By: _____ Client: _____ RFW Contact: _____
Date: _____ Client Contact: _____ Date Due: _____
Attention: _____ Phone: _____ Project Number: _____

SAMPLE IDENTIFICATION — ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Matrix	Date Collected	Container/Preservative	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	BNA

Matrix
S - Soil DS - Drum Solids
W - Water DL - Drum Liquids
O - Oil X - Other

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

RFW 3 [illegible] 3/86

C-14

RFW Custody Transfer Record/Lab Work Request

Received By _____ Client [illegible] RFW Contact Amy Brickner - Pass S
Date _____ Client Contact _____ Date Due _____
Attorney _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION						ANALYSES REQUESTED							
Sample No.	Client ID No.	Description	Matrix	Date Collected	Container/Preservative	TPX	NG PHC						
			W	[illegible]	[illegible]	✓	✓						
			W	[illegible]	[illegible]		✓						
			W				✓						
			W				✓						
			W				✓						
			W				✓						
			W				✓						
								✓	✓				
										✓			
											✓		
											✓		
											✓		
												✓	

Matrix:
W - Water SO - Solid
A - Air L - Liquid
O - Other

Special Instructions: [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					

RFW 21-21-MM7A-1/84

C-15

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____

Date _____ Client Contact _____ Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative								
					✓							
								✓				
											✓	
												✓
					✓							
						✓						
							✓					
					✓							
								✓				
	17-2		7/12	12 oz HNO3				✓				
	5-1			1 L pt cool	✓							
	5-1			40 ml pt cool		✓						
	5-1			1 L pt cool								
	5-1			1 L pt HNO3				✓				
	5-1			250 ml pt cool							✓	

SPECIAL INSTRUCTIONS:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Analysis	[illegible]	[illegible]	7/11	1730					

RFW 16-23-001/A-2/95

C-16

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client US NAVY / COLD RECK RFW Contact Amy Blackner + Kiss Sherry

Date _____ Client Contact _____ Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	BNA	VOA	[illegible]	[illegible]	[illegible]	[illegible]	TOX	TOC
	5-1		7/16	Gallon H2SO4								✓
	5-1			1L Amber Glass			✓					
	5-1			250 mL Plastic HNO3						✓		
	5-1			1L R. Plastic					✓			
	5-2		7/16	1L Amber Glass	✓							
	5-2			40 mL Glass		✓						
	5-2			1L Amber Glass H2SO4				✓				
	5-2			250 mL Glass							✓	
	5-2			Gallon Glass								✓
	5-2			1L Amber Glass			✓					
	5-2			250 mL Plastic HNO3						✓		
	5-2			1L R. Plastic HNO3					✓			
	5-3			1L Amber Glass	✓							
	5-3			40 mL Glass		✓						
	5-3			1L Amber Glass H2SO4				✓				
	5-3			250 mL Glass							✓	
	5-3			Gallon Glass H2SO4								✓
	5-3			1L Amber Glass			✓					
	5-3			250 mL Plastic HNO3						✓		
	5-3			1L Plastic HNO3					✓			

SPECIAL INSTRUCTIONS: NOTE 5-1 - 5-2 - 5-3 NEED METALS FILTERED

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Analysis	[illegible]	[illegible]	7/16	1730					

C-17

WESTON Custody Transfer Record/Lab Work Request

Received By _____
Date _____
Assigned to _____

Client USARMY CETS MEOK
Client Contact _____
Phone _____

RFW Contact Amy Brakeman Kris Sheppard
Date Due _____
Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	PST	VOA						
	S-3		7/16	1 1L GLASS Cool	✓							
	S-2		7/16	1 1L GLASS Cool	✓							
	B-1	Blank	7/16	1 1L GLASS Cool	✓							
	S-1	Blank	7/16	40mL GLASS Cool		✓						
	~~S-2~~	~~Blank~~	~~7/16~~	~~1L GLASS Cool~~	~~✓~~							
	S-2A		7/16	40mL GLASS		✓						

SPECIAL INSTRUCTIONS

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Phelipso	[illegible]	[illegible]	7/16	1730					

RFW 10-23-[illegible]/A-2/85

C-18

WESTON

Custody Transfer Record/Lab Work Request

RECEIVED
JUL 21 1986
GEOSCIENCES DEPT

Received by [illegible]
Date [illegible]
Assigned to [illegible]

Client [illegible]
Client Contact [illegible]
Phone [illegible]

RFW Contact [illegible]
Date Due [illegible]
Project Number [illegible]

SAMPLE IDENTIFICATION | ANALYSES REQUESTED

Sample No.	Bottle ID No.	Description	Matrix	Date Collected	Container/Preservative	TOX	TOC	VOA	[illegible]	[illegible]	EWA	Pest	[illegible]	DG [illegible]
[illegible]		[illegible]	W	[illegible]	[illegible]	✓	✓	X	✓	✓	✓		✓	✓
[illegible]		[illegible]				✓	✓	X	✓	✓	✓		✓	✓
[illegible]		[illegible]			[illegible]	✓	✓	X	✓	✓	✓		✓	✓
[illegible]		[illegible]		[illegible]				✓					✓	✓
[illegible]		[illegible]		[illegible]	[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			[illegible] ✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]			✓	✓	✓	✓	✓	✓	✓	✓		
[illegible]		[illegible]						✓						

Item/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]								

C-19

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____
Date _____ Client Contact _____ Date Due _____
Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	Expl	HG Lead	Cd	[illegible]	[illegible]	PST HC		
	2-2		7/18		✓	✓		✓	✓			
	2-2	Blank			✓	✓						
	2-3				✓	✓						
	7-1				~~[illegible]~~					✓		
	7-2									✓		
	5-1	Blank								✓		
	7-3									✓		

SPECIAL INSTRUCTIONS:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]	[illegible]	7/18/96	[illegible]					

REW 10-23-001/A-8/86

C-20

Custody Transfer Record/Lab Work Request

Received By _____
Date _____
Assigned to _____

Client US Navy Cottbeck
Client Contact _____
Phone _____

RFW Contact Amy Lockner
Date Due _____
Project Number 1771-09-02

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	VOA	TOC	TOX	PP Metals	BNA	PP Hg	N.B. N.B.	
		Stream 10-A 1st Hour	7/22/96	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 10-A 1st Hour	"		✓		✓	✓		✓		
		Stream 10-A 6th Hour	"	✓	✓	✓	✓		✓	✓	✓	
		[redacted] 10-A 6th Hour	"		✓	[redacted]	✓	✓		✓		
		Stream 10-B 1st Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 10-B 1st Hour	"		✓		✓	✓		✓		
		Stream 10-B 6th Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 10-B 6th Hour	"		✓		✓	✓		✓		
		Spring 4-A 1st Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Spring 4-A 6th Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Spring 4-B 1st Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Spring 4-B 6th Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Stream 19-A 1st Hour	7/25/96	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 19-A 1st Hour	"		✓		✓	✓		✓		
		Stream 19-A 6th Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 19-A 6th Hour	"		✓		✓	✓		✓		
		Stream 19-B 1st Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 19-B 1st Hour	"		✓		✓	✓		✓		
		Stream 19-B 6th Hour	"	✓	✓	✓	✓	✓	✓	✓	✓	
		Sediment 19-B 6th Hour	"		✓		✓	✓		✓		

SPECIAL INSTRUCTIONS: metals have been field filtered
Drinking Water Standard for Soluble PP Metals

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

C-211

RFW 18-SS-0017A-9/96

WESTON

Custody Transfer Record/Lab Work Request

Received By _____
Date _____
Assigned to _____

Client _____
Client Contact _____
Phone _____

RFW Contact _____
Date Due _____
Project Number _____

SAMPLE IDENTIFICATION / ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative		Tox	TDL	VOA	PAHC	NP	PHA	PHAL	EP
					✓	✓	✓	✓	✓	✓	✓	✓	
			7-24-86		✓	✓	✓	✓	✓	✓	✓	✓	
			7-23-86		✓	✓	✓			✓	✓	✓	✓
				✓						✓			✓
			7-24-86		✓	✓	✓			✓	✓	✓	✓
			7-24-86	✓						✓			✓
					✓	✓	✓			✓	✓	✓	✓
			7-21-86		✓	✓	✓			✓	✓	✓	✓
			7-21-86		✓	✓	✓	✓	✓	✓	✓	✓	
					✓	✓	✓	✓	✓	✓	✓		
			7-23-86			✓		✓	✓				
			7-23-86		✓		✓	✓	✓	✓	✓	✓	
			7-23-86			✓		✓	✓			✓	
			7-23-86		✓					✓			
				✓						✓			✓
				✓						✓			✓
				✓						✓			✓
				✓						✓			

C-22

SPECIAL INSTRUCTIONS

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

RFW 18-23-001/A-8/86

WESTON

Custody Transfer Record/Lab Work Request

004

8607-597-

Received By VL Alvarado
Date 7/8/86
Assigned to

Client US Navy Cal State Lock
Client Contact
Phone

REW Contact Amy Buchanan
Date Due 8/18/86
Project Number 1771-09-02

SAMPLE IDENTIFICATION / ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Matrix	Date Collected	Container/Preservative	TOX	TOC	VOA	GC-BDS	PO4-TOC	BNA	Pest	Spl	DG-Kcr
0010		2-2	W	7/17/86	✓	✓	✓	✓	✓	✓	✓		✓	✓
20		2-3			✓	✓	✓	✓	✓	✓	✓		✓	✓
30		2-4			✓	✓	✓	✓	✓	✓	✓		✓	✓
40		2-2 Blank		7/18/86				✓					✓	✓
50		3-3		7/14/8	✓ ✓	✓	✓	✓	✓	✓	✓	✓		
60		3-3-A			✓ ✓	✓	✓	✓		✓	✓	✓		
70		3-3 Blank			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
80		4-1			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
90		4-2			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
100		4-3			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
110		7-1			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
120		7-2			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
130		7-3			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
140		7-2 Blank			✓ ✓	✓	✓	✓	✓	✓	✓	✓		
150		Trip Blank						✓						

Matrix:
S- Soil
W- Water
O- Oil
DS- Drum Solids
DL- Drum Liquids
X- Other

Special Instructions:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time

REW 21-21-001/A 7/86

WESTON

Custody Transfer Record/Lab Work Request

Received By _____
Date _____
Assigned to _____

Client US Navy Calts NSR
Client Contact _____
Phone _____

RFW Contact Amy Bru [illegible]
Date Due _____
Project Number 1771-09-02

SAMPLE IDENTIFICATION / ANALYSES REQUESTED

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	TCL	TAL	VOA	[illegible]	BNA	[illegible]	[illegible]	[illegible]
	3-3		7/12/96		✓							
	3-3 A	Dup 3-3	"		✓							
	3-3 A	[illegible] 3-3	"			✓						
	3-3A	[illegible] 3	"									✓
	3-3A	Dup 3-3	"					✓				
	3-3	[illegible]	"					✓				
	3-3	[illegible]	"			✓						
	3-3	[illegible]	"		✓							
	3-3	[illegible]	"			✓						
	3-3	[illegible]	"					✓				
	3-3		"				✓					
	3-3 A	Dup 3-3	"				✓					
	3-3	[illegible]	"							✓		
	3-3		"								✓	
	3-3 A	[illegible]	"						✓			
	3-3	[illegible]	"									✓
	3-3		"						✓			
	3-3		"									✓
	3-3 A	Dup 3-3	"						✓			

SPECIAL INSTRUCTIONS: [illegible] TCL, TAL, TNA, VOA, BNA [illegible] Yield [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
[illegible]	[illegible]	[illegible]	7/12/96	1400					

RFW 16-[illegible]017/A-2/85

C-24

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____
Date _____ Client Contact _____ Date Due _____
Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION / **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	PH	[illegible]	[illegible]	[illegible]	[illegible]	TOC	[illegible]	[illegible]
	[illegible]		[illegible]		✓							
	[illegible]		[illegible]		✓							
	[illegible]		[illegible]		✓							
	[illegible]		[illegible]			✓						
	[illegible]		[illegible]			✓						
	[illegible]		[illegible]				✓					
	4-2		[illegible]					✓				
	4-2		[illegible]						✓			
	4-2		[illegible]							✓		
	4-2		[illegible]								✓	
	4-2		[illegible]									✓
	[illegible]		[illegible]				✓					
	[illegible]		[illegible]									
	[illegible]		[illegible]								✓	
	4-3		[illegible]					✓				
	4-3		[illegible]									✓
	4-3		[illegible]				✓					
	4-01		[illegible]							✓		
	4-01		[illegible]						✓			
	[illegible]		[illegible]									✓

SPECIAL INSTRUCTIONS: [illegible]

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Analysis	[illegible]	[illegible]	[illegible]	[illegible]					

RFW 10-29-001/4-2/86

C-25

WESTON

Custody Transfer Record/Lab Work Request

Received By _____ Client _____ RFW Contact _____

Date _____ Client Contact _____ Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION					ANALYSES REQUESTED							
Sample No.	Client ID No.	Description	Date Collected	Container/Preservative	TOX	TOC	VOA	[illegible]	[illegible]	[illegible]	PNA	PCT
1	1-2		7/17/96									✓
	1-3		"						✓			
	1-3		"							✓		
	1-3		"									✓
	4-1		"								✓	
	4-1		"						✓			
	1-1		"					✓				
	1-2		"					✓				
	2-2		↓		✓	✓	✓	✓	✓	✓	✓	
	2-3				✓	✓	✓	✓	✓	✓	✓	
	2-4				✓	✓	✓	✓	✓	✓	✓	
	3-1				✓	✓	✓	✓	✓	✓	✓	✓
	7-1				✓	✓	✓	✓	✓	✓	✓	✓
	7-2				✓	✓	✓	✓	✓	✓	✓	✓
	7-3				✓	✓	✓	✓	✓	✓	✓	✓

SPECIAL INSTRUCTIONS:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
Analysis	[illegible]	[illegible]	7/17	1:40					

RFW 16-23-rh1/A-9/85

C-26

Custody Transfer Rec d/Lab Work Request

Received By _____ Client Contact - Dave, EPPS RFW Contact _____

Date _____ Client ~~Contact~~ Colts Neck, NJ max Date Due _____

Assigned to _____ Phone _____ Project Number _____

SAMPLE IDENTIFICATION **ANALYSES REQUESTED**

Sample No.	Client ID No.	Description	~~Date Collected~~ # Bottles	Container/Preservative								
			3-Glass	250 ml / cool								
			3-Glass	500 ml / cool								
			8-Glass	250 ml / cool								
			16-Glass	60 ml Septum cap / cool								
			16-Vial	40 ml / cool								
			8-Glass	250 ml / cool								
			8-Glass	250 ml / cool								
			16-Glass	250 ml / cool								
			16-Glass	250 ml / cool								

SPECIAL INSTRUCTIONS:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	Time
	[illegible]	Dave EPPS							

RFW 16-23-001/A-2/85

APPENDIX D

ANALYTICAL DATA

WESTON ANALYTICS
Colts Neck: VOA's, BNA's, Pest/PCB's
RFWBN: 8607-451
W.O. #: 1771-09-02

1. The following qualifiers are used on the data summary:

   U - Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

   J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or where the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection 10 ug/l and a concentration of 3 ug/l is calculated, it is reported as 3J.

   BS - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

   BSD - Indicates blank spike duplicate.

   DL - Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

   NA - Not applicable.

   DF - Dilution factor.

   NR - Not required.

2. Samples collected: 7/21-24/86
   VOA's analyzed: 7/26,28,31/86
   BNA's extracted: 7/28/86
   BNA's analyzed: 8/25,29/86
   Pest/PCB's extracted: 7/25/86
   Pest/PCB's analyzed: 8/01/86

APPROVED BY CP Nulton
Carter P. Nulton, Ph.D.
Organic Section Manager
WESTON Analytical Laboratories

1. The following qualifiers are used on the data summary:

U - Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or where the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection 10 ug/l and a concentration of 3 ug/l is calculated, it is reported as 3J.

BS - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD - Indicates blank spike duplicate.

DL - Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA - Not applicable.

DF - Dilution factor.

NR - Not required.

NRP - Not reported; acetone, 2-butanone and methylene chloride are not reported in volatiles analyses which have been diluted for the purpose of bringing other compounds into the calibration range. This is done to avoid confusion resulting from multiplying back round levels of common laboratory contaminants by the dilution factor thereby giving artificially high values. Also, it is noted that the acetone and 2-butanone are contaminants in methanol which is used as a diluting solvent in instances in which dilutions greater than 10-fold are required.

DATE OF REPORT: 11 November 1986

COLTS NECK
METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED July 25, 1986
WO# 1771-09-02

DATE SAMPLES COLLECTED: July 21-24, 1986
SAMPLES COLLECTED BY: Amy Bruckner

R.F.W. NUMBER	CLIENT I.D.	Sb mg/L	As mg/L	Be mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Pb mg/L	Hg ug/L	Ni mg/L	Se mg/L	Ag mg/L	Tl mg/L	Zn mg/L ≠
8607-451-0010	Stream 10-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	0.3	<0.01	<0.005	<0.0025	<0.01	< .01
-0050	Stream 10-B 1st hr.	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	0.004	<0.01	< .01
-0070	Stream 10-B 6th hr.	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	<0.0025	<0.01	< .01
-0090	Spring 4-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.012	0.014	<0.005	<.2	.04	<0.005	<0.0025	<0.01	0.017
-0100	Spring 4-A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.017	0.014	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	0.039
-0110	Spring 4-B 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.012	0.014	<0.005	<.2	0.03	<0.005	<0.0025	<0.01	0.027
-0120	Spring 4-B 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.016	<0.005	<.2	0.03	<0.005	<0.0025	<0.01	0.018
-0130	Stream 19-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.018	<0.005	<.2	0.03	<0.005	<0.0025	<0.01	0.027
-0150	Stream 19-A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.016	0.017	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	0.028
-0170	Stream 19-B 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.017	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	0.122
-0190	Stream 19-B 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.018	<0.005	<.2	0.03	<0.005	<0.0025	<0.01	0.014
-0210	3-1	<0.03	<0.01	<0.01	0.008	0.017	0.015	<0.005	<.2	0.05	<0.005	<0.0025	<0.01	0.226
-0220	3-2	<0.03	<0.01	<0.01	<0.0025	0.013	0.016	<0.005	<.2	0.05	<0.005	<0.0025	<0.01	0.087
-0230	Stream 2-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.016	0.021	0.014	<.2	0.04	<0.005	<0.0025	<0.01	0.018
-0250	Stream 2-A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.017	0.022	0.014	<.2	0.04	<0.005	<0.0025	<0.01	0.045
-0270	2-1	<0.03	<0.01	<0.01	<0.0025	0.023	0.024	<0.005	<.2	0.03	<0.005	<0.0025	<0.01	0.016
-0280	2-1 Blank	<0.03	<0.01	<0.01	<0.0025	0.014	0.014	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	<0.01
-0290	5-4	<0.03	<0.01	<0.01	<0.0025	0.019	0.022	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	0.035
-0300	Stream 19-A Dup	<0.03	<0.01	<0.01	<0.0025	0.021	0.018	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	0.033
-0320	Stream 19-A Blank	<0.03	<0.01	<0.01	<0.0025	0.018	0.019	<0.005	<.2	0.04	<0.005	<0.0025	<0.01	<0.01
	Method Blank	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	<0.0025	<0.01	0.014
	Blank Spike	97%	90%	90%	99%	91%	87%	103%	97%	90%	98%	93%	89%	99%

COMPILED BY: Emily Carfiol
Emily Carfiol
Data Manager
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen
Earl M. Hansen, Ph.D
Manager
WESTON Analytical Laboratories

≠ Corrected for method blank contribution

DATE OF REPORT: 21 October 1986

Colts Neck
Metals Summary Report
for
Samples Received July 25, 1986
WO# 1771-09-02

Date Samples Collected: July 21-24, 1986
Samples Collected by: Amy Bruckner

SAMPLE IDENTIFICATION		ANALYTES(Concentration, mg/kg)												
R.F.W. NUMBER	CLIENT I.D.	Sb	As	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
8607-451-0020	Sed. 10-A 1st hr.	<26.9	<5.41	<26.9	<1.35	<53.8	<26.9	14.9	<.250	<23.8	<5.40	<5.40	<5.41	50.3
-0040	Sed. 10-A 6th hr.	<24.2	<5.41	<24.2	<1.21	<48.3	<24.2	12.9	<.250	<48.3	<2.7	<4.8	<4.83	<24.2
-0060	Sed. 10-B 1st hr.	<13.0	<2.57	<13.0	<0.6	<25.9	<13.0	3.16	<.250	<25.9	<1.28	<2.57	<2.57	28.8
-0080	Sed. 10-B 6th hr.	<12.7	<2.49	<12.7	<2.0	<25.3	<12.7	2.94	<.250	<25.3	<1.25	<2.49	<2.49	<12.7
-0140	Sed. 19-A 1st hr.	<14.1	<2.82	<14.1	<0.7	<28.2	<14.1	5.83	<.250	<28.2	<1.41	<2.82	<2.82	<14.1
-0160	Sed. 19-A 6th hr.	<14.4	<2.89	<14.4	<0.7	<28.8	<14.4	4.65	0.423	<28.8	<1.44	<2.89	<2.89	<14.4
-0180 **	Sed. 19-B 1st hr.	<100.0	<19.9	<100.0	<5	<200.0	<100.0	94.7	<.250	<200	<9.95	286 ≠	<19.9	214
-0200 **	Sed. 19-B 6th hr.	<123.5	<25.0	<123.5	<6.25	<247.0	<123.5	96.0	<.250	<247	<12.5	<25.0	<25.0	<331
-0310	Sed. 19-A Dup.	<13.0	<2.76	<13.0	<0.7	<26.0	<13.0	6.86	<.250	<26.0	<1.38	<2.75	<2.76	<13
-0330	Sed. 19-A Blank *	<0.05	<0.01	<0.05	<.0025	<0.1	<0.05	<0.005	<.250	<0.1	<0.005	<0.01	<0.01	<0.05

≠See duplicate result.

*=report in mg/L

**% solids were 10 and 8% respectively for samples 0180 and 0200.

COMPILED BY Emily Carfioli
Emily Carfioli
Data Manager
WESTON Analytical Laboratories

APPROVED BY Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	BLANK	BS	BSD	10A 6 HR	10B 1 HR	10B 6 HR
	RFW#:	BLANK	BS	BSD	0030	0050	0070
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	2-Fluorophenol:	51 %	57 %	58 %	61 %	42 %	73 %
	Phenol-d5:	29 %	38 %	38 %	38 %	26 %	43 %
	2,4,6-Br3-Phenol:	55 %	89 %	75 %	85 %	55 %	92 %
	Nitrobenzene-d5:	89 %	86 %	98 %	86 %	64 %	89 %
	2-Fluorobiphenyl:	88 %	87 %	92 %	89 %	62 %	89 %
	p-Terphenyl-d14:	103 %	86 %	99 %	97 %	74 %	96 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	30 %	30 %	10 U	2 J	3 J
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	79 %	84 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	75 %	89 %	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	81 %	85 %	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	75 %	87 %	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	81 %	80 %	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	BLANK	BS	BSD	10A 6 HR	10B 1 HR	10B 6 HR
RFW#:	BLANK	BS	BSD	0030	0050	0070
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	80 %	84 %	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	18 %	6 %	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	96 %	88 %	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	31	30
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	25 %	8 %	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	104 %	104 %	2 J	70	42
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	87 %	99 %	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	4A 1 HR	4A 6 HR	4B 1 HR	4B 6 HR	19A 1 HR	19A 6 HR
	RFW#:	0090	0100	0110	0120	0130	0150
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	2-Fluorophenol:	60 %	40 %	45 %	56 %	53 %	50 %
	Phenol-d5:	46 %	33 %	33 %	44 %	31 %	31 %
	2,4,6-Br3-Phenol:	57 %	39 %	62 %	62 %	54 %	62 %
	Nitrobenzene-d5:	38 %	35 %	44 %	67 %	67 %	57 %
	2-Fluorobiphenyl:	34 %	27 %	68 %	73 %	75 %	69 %
	p-Terphenyl-d14:	40 %	31 %	92 %	71 %	89 %	94 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID: RFW#:	4A 1 HR 0090	4A 6 HR 0100	4B 1 HR 0110	4B 6 HR 0120	19A 1 HR 0130	19A 6 HR 0150
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	60	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 J	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	19B 1 HR	19B 6 HR	3-1	3-2	2A 1 HR	2A 6 HR
	RFW#:	0170	0190	0210	0220	0230	0250
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	2-Fluorophenol:	32 %	99 %	43 %	56 %	53 %	48 %
	Phenol-d5:	19 %	58 %	29 %	34 %	33 %	30 %
	2,4,6-Br3-Phenol:	40 %	129 %	50 %	84 %	57 %	68 %
	Nitrobenzene-d5:	38 %	60 %	66 %	46 %	70 %	86 %
	2-Fluorobiphenyl:	52 %	86 %	61 %	68 %	82 %	92 %
	p-Terphenyl-d14:	94 %	116 %	66 %	66 %	128 %	140 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	19B 1 HR	19B 6 HR	3-1	3-2	2A 1 HR	2A 6 HR
RFW#:	0170	0190	0210	0220	0230	0250
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	2 J	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	1 J	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	2-1	2-1 BLK	5-4	19A DUP	19A BLK	10A 1 HR
	RFW#:	0270	0280	0290	0300	0320	0010
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	2-Fluorophenol:	54 %	40 %	51 %	44 %	48 %	53 %
	Phenol-d5:	32 %	25 %	40 %	26 %	27 %	30 %
	2,4,6-Br3-Phenol:	66 %	62 %	59 %	50 %	64 %	56 %
	Nitrobenzene-d5:	65 %	81 %	88 %	64 %	66 %	80 %
	2-Fluorobiphenyl:	69 %	81 %	90 %	78 %	82 %	84 %
	p-Terphenyl-d14:	103 %	90 %	116 %	112 %	100 %	94 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	2-1	2-1 BLK	5-4	19A DUP	19A BLK	10A 1 HR
RFW#:	0270	0280	0290	0300	0320	0010
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	2 J	10 U	1 J	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	1 J	2 J	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	8 J	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0010

SAMPLE DESCRIPTION: 10A-1st hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	404	6J
Unknown	1250	5J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0030

SAMPLE DESCRIPTION: 10A 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(BNA FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	374	8J
Unknown	1235	8J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0050

SAMPLE DESCRIPTION: 10-B 1st hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	369	8J
Unknown	1236	10J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0070

SAMPLE DESCRIPTION: 10B 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS

(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	369	8J
Unknown	1236	10J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0090

SAMPLE DESCRIPTION: 4-A 1st hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	1216	39J
Unknown Hydrocarbon	1280	28J
Unknown Branched Hydrocarbon	1310	29J
Unknown	1323	32J
Unknown	1184	26J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0100

SAMPLE DESCRIPTION: 4-A 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	866	40J
Unknown	1191	41J
Unknown	1299	69J
Unknown	1409	39J
Unknown Organic Acid	2252	61J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0110

SAMPLE DESCRIPTION: 4-B 1st hour

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Molecular Sulfur	1683	21
Unknown Hydrocarbon	1907	13
Unknown	2050	12
Unknown	2182	14
Unknown Hydrocarbon	2307	52

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0120

SAMPLE DESCRIPTION: 4-B 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Molecular Sulfur*	1683	20J
Unknown Hydrocarbon	2306	41J
Unknown	2454	29J
Unknown Hydrocarbon (branched)	2505	23J
Unknown	2537	31J

*CAS# = 10544-50-0

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0150

SAMPLE DESCRIPTION: 19-A 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	2230	9J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0170

SAMPLE DESCRIPTION: 19-B 1st hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	2195	5
Unknown	2208	43
Unknown	2229	71
Unknown	2247	21

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0190

SAMPLE DESCRIPTION: 19B 6th hr.

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	2207	21
Unknown	2228	31
Unknown	2246	15
Unknown Hydrocarbon	2306	6

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0210

SAMPLE DESCRIPTION: 3-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	1355	9J
Unknown	1413	8J
Sulfur*	1684	6J
Unknown	1859	6J
Unknown	2188	5J

*CAS# = 10544-50-0

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0220

SAMPLE DESCRIPTION: 3-2

TENTATIVELY IDENTIFIED COMPOUNDS

(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	1354	12J
Unknown	1413	31J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0280

SAMPLE DESCRIPTION: 2-1 Blank

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	2233	15J
Unknown	2263	14J
Unknown	2267	14J
Benzenedicarboxylic Acid	2331	37J
benzenedicarboxylic Acid	2444	19J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0290

SAMPLE DESCRIPTION: 5-4

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	864	35J
Unknown Branched Hydrocarbon	963	31J
Unknown	1190	27J
Unknown	1297	44J
Unknown	1399	22J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0300

SAMPLE DESCRIPTION: 19-A Dup

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Benzene dicarboxylic Acid	2078	7J
Unknown	2265	24J
Unknown	2330	15J
Unknown	2398	9J
Unknown	2444	8J

DATE OF REPORT: 3 September 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-451-0320

SAMPLE DESCRIPTION: 19-A Blank

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	1907	4J
Unknown Hydrocarbon	1979	6J
Unknown Hydrocarbon	2182	7J
Unknown Hydrocarbon	2245	6J
Unknown	2329	5J

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information	Cust ID:	BLANK	10 A 1 HR	10 A 6 HR	10 B 1 HR	19 A 1 HR	10 B 6 HR
	RFW#:	BLANK	0020	0040	0060	0140	0080
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1	6.51	5.58	1.22	1.46	2.91
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery (%)	Toluene-d8:	92 %	111 %	115 %	120 %	115 %	106 %
	Bromofluorobenzene:	88 %	108 %	100 %	87 %	84 %	96 %
	1,2-Dichloroethane-d4:	102 %	114 %	108 %	100 %	92 %	89 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	65 U	56 U	12 U	15 U	29 U
Bromomethane		10 U	65 U	56 U	12 U	15 U	29 U
Vinyl Chloride		10 U	65 U	56 U	12 U	15 U	29 U
Chloroethane		10 U	65 U	56 U	12 U	15 U	29 U
Methylene Chloride		7 J	300	350	8 J	8 J	29 U
Acetone		7 J	760	41 J	10 J	7 J	37
Carbon Disulfide		10 U	65 U	56 U	12 U	15 U	29 U
1,1-Dichloroethene		10 U	65 U	56 U	12 U	15 U	29 U
1,1-Dichloroethane		10 U	65 U	56 U	12 U	15 U	29 U
Trans-1,2-Dichloroethene		10 U	65 U	56 U	12 U	15 U	29 U
Chloroform		10 U	61 J	50 J	12 U	15 U	29 U
1,2-Dichloroethane		10 U	65 U	56 U	12 U	15 U	29 U
2-Butanone		2 J	27 J	56 U	12 U	15 U	29 U
1,1,1-Trichloroethane		10 U	65 U	56 U	12 U	15 U	29 U
Carbon Tetrachloride		10 U	65 U	56 U	12 U	15 U	29 U
Vinyl Acetate		10 U	65 U	56 U	12 U	15 U	29 U
Bromodichloromethane		10 U	65 U	56 U	12 U	15 U	29 U
1,2-Dichloropropane		10 U	65 U	56 U	12 U	15 U	29 U
Trans-1,3-Dichloropropene		10 U	65 U	56 U	12 U	15 U	29 U
Trichloroethene		10 U	65 U	56 U	12 U	15 U	29 U
Dibromochloromethane		10 U	65 U	56 U	12 U	15 U	29 U
1,1,2-Trichloroethane		10 U	65 U	56 U	12 U	15 U	29 U
Benzene		10 U	65 U	56 U	12 U	15 U	29 U
cis-1,3-Dichloropropene		10 U	65 U	56 U	12 U	15 U	29 U
2-Chloroethylvinylether		10 U	65 U	56 U	12 U	15 U	29 U
Bromoform		10 U	65 U	56 U	12 U	15 U	29 U
4-Methyl-2-pentanone		10 U	65 U	56 U	12 U	15 U	29 U
2-Hexanone		10 U	65 U	56 U	12 U	15 U	29 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	BLANK	10 A 1 HR	10 A 6 HR	10 B 1 HR	19 A 1 HR	10 B 6 HR
RFW#:	BLANK	0020	0040	0060	0140	0080
	fl	fl	fl	fl	fl	fl
Tetrachloroethene.....	10 U	65 U	56 U	12 U	15 U	29 U
1,1,2,2-Tetrachloroethane.....	10 U	65 U	56 U	12 U	15 U	29 U
Toluene.....	10 U	65 U	56 U	12 U	15 U	29 U
Chlorobenzene.....	10 U	65 U	56 U	12 U	15 U	29 U
Ethylbenzene.....	10 U	65 U	56 U	12 U	15 U	29 U
Styrene.....	10 U	65 U	56 U	12 U	15 U	29 U
Total Xylenes.....	10 U	65 U	56 U	12 U	15 U	29 U
Dichlorobenzenes.....	10 U	65 U	56 U	12 U	15 U	29 U
Trichlorofluoromethane.....	10 U	65 U	56 U	12 U	15 U	29 U

Others:

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information	Cust ID:	BLANK	5-4	TRIP BLANK	19 A BLANK	19A BK SED	10 B 6 HR
	RFW#:	BLANK	0290	BLANK	0320	0330	0070
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	Toluene-d8:	96 %	93 %	97 %	94 %	98 %	94 %
	Bromofluorobenzene:	102 %	95 %	96 %	101 %	98 %	96 %
	1,2-Dichloroethane-d4:	88 %	111 %	87 %	83 %	87 %	83 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	2 J	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		5 J	5 J	5 J	6 J	7 J	4 J
Acetone		4 J	10 U	10 U	10 U	2 J	10 U
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Chloroform		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	9 J	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information	Cust ID:	10 B 1 HR	10 A 6 HR	4 B 6 HR	4 B 1 HR	10 A 1 HR	3-2
	RFW#:	0050	0030	0120	0110	0010	0220
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	Toluene-d8:	112 %	101 %	94 %	88 %	85 %	89 %
	Bromofluorobenzene:	113 %	103 %	95 %	94 %	86 %	92 %
	1,2-Dichloroethane-d4:	97 %	89 %	100 %	94 %	91 %	101 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		7 J	4 J	5 J	6 J	4 J	4 J
Acetone		10 U	10 U	10 U	10 U	10 U	4 J
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Chloroform		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	BLANK	5-4	TRIP BLANK	19 A BLANK	19A BK SED	10 B 6 HR
RFW#:	BLANK	0290	BLANK	0320	0330	0070
	fl	fl	fl	fl	fl	fl
Tetrachloroethene.....	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane.....	10 U	10 U	10 U	10 U	10 U	10 U
Toluene.....	10 U	2 J	10 U	1 J	10 U	10 U
Chlorobenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Styrene.....	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes.....	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorobenzenes.....	10 U	*	10 U	*	*	*
Trichlorofluoromethane.....	10 U	10 U	10 U	10 U	10 U	10 U

Others:

* See BNA report.

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	10 B 1 HR	10 A 6 HR	4 B 6 HR	4 B 1 HR	10 A 1 HR	3-2
RFW#:	0050	0030	0120	0110	0010	0220
	fl	fl	fl	fl	fl	fl
Tetrachloroethene	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorobenzenes	*	*	*	*	*	*
Trichlorofluoromethane	10 U	10 U	10 U	10 U	10 U	10 U

Others:

* See BNA report.

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information	Cust ID:	BLANK	19 B 1 HR	19 A 6 HR	19 A DUP	19 B 6 HR	4 A 1 HR
	RFW#:	BLANK	0170	0150	0300	0190	0090
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	Toluene-d8:	90 %	99 %	106 %	104 %	107 %	112 %
	Bromofluorobenzene:	96 %	107 %	115 %	113 %	109 %	125 %
	1,2-Dichloroethane-d4:	97 %	105 %	110 %	109 %	112 %	95 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		5 J	5 J	5 J	5 J	6 J	4 J
Acetone		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U	10 U	2 J
Chloroform		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	BLANK	19 B 1 HR	19 A 6 HR	19 A DUP	19 B 6 HR	4 A 1 HR
RFW#:	BLANK	0170	0150	0300	0190	0090
	fl	fl	fl	fl	fl	fl
Tetrachloroethene.....	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane.....	10 U	10 U	10 U	10 U	10 U	10 U
Toluene.....	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Styrene.....	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes.....	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorobenzenes.....	10 U	*	*	*	*	*
Trichlorofluoromethane.....	10 U	10 U	10 U	10 U	10 U	10 U

Others:

* See BNA report.

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information							
	Cust ID:	3-1	19A 1 HR	19A 1 HR D	4A 6 HR		
	RFW#:	0210	0130	0130 D	0100		
	Matrix:	Water	Water	Water	Water		
	D.F.:	1	1	1	1		
	Units:	ug/l	ug/l	ug/l	ug/l		
Surrogate Recovery (%)	Toluene-d8:	90 %	84 %	85 %	123 %	%	%
	Bromofluorobenzene:	89 %	89 %	85 %	133 %	%	%
	1,2-Dichloroethane-d4:	98 %	105 %	108 %	107 %	%	%
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U		
Bromomethane		10 U	10 U	10 U	10 U		
Vinyl Chloride		10 U	10 U	10 U	10 U		
Chloroethane		10 U	10 U	10 U	10 U		
Methylene Chloride		5 J	3 J	4 J	4 J		
Acetone		2 J	10 U	10 U	10 U		
Carbon Disulfide		10 U	10 U	10 U	10 U		
1,1-Dichloroethene		10 U	10 U	10 U	10 U		
1,1-Dichloroethane		10 U	10 U	10 U	10 U		
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U		
Chloroform		10 U	10 U	10 U	10 U		
1,2-Dichloroethane		10 U	10 U	10 U	10 U		
2-Butanone		10 U	10 U	10 U	10 U		
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U		
Carbon Tetrachloride		10 U	10 U	10 U	10 U		
Vinyl Acetate		10 U	10 U	10 U	10 U		
Bromodichloromethane		10 U	10 U	10 U	10 U		
1,2-Dichloropropane		10 U	10 U	10 U	10 U		
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U		
Trichloroethene		10 U	10 U	10 U	10 U		
Dibromochloromethane		10 U	10 U	10 U	10 U		
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U		
Benzene		10 U	10 U	10 U	10 U		
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U		
2-Chloroethylvinylether		10 U	10 U	10 U	10 U		
Bromoform		10 U	10 U	10 U	10 U		
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U		
2-Hexanone		10 U	10 U	10 U	10 U		

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	3-1	19A 1 HR	19A 1 HR D	4A 6 HR
RFW#:	0210	0130	0130 D	0100
Tetrachloroethene	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U
Toluene	10 U	10 U	10 U	10 U
Chlorobenzene	10 U	10 U	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U
Dichlorobenzenes	*	*	*	*
Trichlorofluoromethane	10 U	10 U	10 U	10 U

Others:

* SEE BNA REPORT

U=Analyzed, not detected. B=Present in blank. NRP=Not Reported
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-451- Client: COLTS NECK

Sample Information	Cust ID:	19 A 6 HR	19 B 1 HR	19 B 6 HR	19 A DUP	BLANK BLANK
	RFW#:	0160	0180	0200	0310	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.48	13.1	11.1	1.55	1
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery (%)	Toluene-d8:	101 %	144 %	100 %	114 %	98 %
	Bromofluorobenzene:	99 %	107 %	74 %	105 %	101 %
	1,2-Dichloroethane-d4:	109 %	106 %	93 %	110 %	89 %
Chloromethane		15 U	130 U	110 U	16 U	10 U
Bromomethane		15 U	130 U	110 U	16 U	10 U
Vinyl Chloride		15 U	130 U	110 U	16 U	10 U
Chloroethane		15 U	130 U	110 U	16 U	10 U
Methylene Chloride		NRP	210	NRP	75	3.7 J
Acetone		230	1200	730	53	5 J
Carbon Disulfide		15 U	130 U	110 U	16 U	10 U
1,1-Dichloroethene		15 U	130 U	110 U	16 U	10 U
1,1-Dichloroethane		15 U	130 U	110 U	16 U	10 U
Trans-1,2-Dichloroethene		15 U	130 U	110 U	16 U	10 U
Chloroform		15 U	37	110 U	25	10 U
1,2-Dichloroethane		15 U	130 U	110 U	16 U	10 U
2-Butanone		15 U	240	110 U	16 U	10 U
1,1,1-Trichloroethane		15 U	130 U	110 U	16 U	10 U
Carbon Tetrachloride		15 U	130 U	110 U	16 U	10 U
Vinyl Acetate		15 U	130 U	110 U	16 U	10 U
Bromodichloromethane		15 U	130 U	110 U	16 U	10 U
1,2-Dichloropropane		15 U	130 U	110 U	16 U	10 U
Trans-1,3-Dichloropropene		15 U	130 U	110 U	16 U	10 U
Trichloroethene		15 U	130 U	110 U	16 U	10 U
Dibromochloromethane		15 U	130 U	110 U	16 U	10 U
1,1,2-Trichloroethane		15 U	130 U	110 U	16 U	10 U
Benzene		15 U	130 U	110 U	16 U	10 U
cis-1,3-Dichloropropene		15 U	130 U	110 U	16 U	10 U
2-Chloroethylvinylether		15 U	130 U	110 U	16 U	10 U
Bromoform		15 U	130 U	110 U	16 U	10 U
4-Methyl-2-pentanone		15 U	130 U	110 U	16 U	10 U
2-Hexanone		15 U	130 U	110 U	16 U	10 U

RFW Batch Number: 8607-451- Client: COLTS NECK

Cust ID:	19 A 6 HR	19 B 1 HR	19 B 6 HR	19 A DUP	BLANK	
RFW#:	0160	0180	0200	0310	BLANK	
	fl	fl	fl	fl	fl	fl
Tetrachloroethene	15 U	130 U	110 U	16 U	10 U	
1,1,2,2-Tetrachloroethane	15 U	130 U	110 U	16 U	10 U	
Toluene	2 J	170	110 U	16 U	10 U	
Chlorobenzene	15 U	130 U	110 U	16 U	10 U	
Ethylbenzene	15 U	130 U	110 U	16 U	10 U	
Styrene	15 U	130 U	110 U	16 U	10 U	
Total Xylenes	15 U	130 U	110 U	16 U	10 U	
Dichlorobenzenes	15 U	130 U	110 U	16 U	10 U	
Trichlorofluoromethane	15 U	130 U	110 U	16 U	10 U	

Others:

* See BNA report.

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

COLT'S NECK 09/11/86

RFWSN	DESCRIPTION	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN
8607-451-0010	STREAM 1A 1STHR	3.93 MG/L	10.0 UG/L
-001K	MATRIX SPIKE		88.0 UG/L
-001K	SPIKE RECOVERY		78.0 %
-0020	SED 10A 1ST HR		<1.0 UG/G
-0030	STREAM 10A 6HR	4.03 MG/L	15.0 UG/L
-0040	SED 10A 6HR		<1.0 UG/G
-0050	STREAM 10B 1HR	4.34 MG/L	43.0 UG/L
-0060	SED 10B 1HR		<1.0 UG/G
-0070	STREAM 10B 6HR	4.85 MG/L	29.0 UG/L
-0080	SED 10B 6HR		<1.0 UG/G
-0090	SPRING 4A 1HR	53.4 MG/L	31.0 UG/L
-0100	SPRING 4A 6HR	50.3 MG/L	26.0 UG/L
-0110	SPRING 4B 1HR	8.23 MG/L	9.00 UG/L
-0120	SPRING 4B 6HR	6.38 MG/L	11.0 UG/L
-0130	STREAM 19A 1HR	17.3 MG/L	65.0 UG/L
-0140	SED 19A 1HR		<1.0 UG/G
-0150	STREAM 19A 6HR	30.0 MG/L	9.00 UG/L
-0160	SED 19A 6HR		<1.0 UG/G
-0170	STREAM 19B 1HR	22.6 MG/L	49.0 UG/L
-0180	SED 19B 1HR		<1.0 UG/G
-0190	STREAM 19B 6HR	19.3 MG/L	36.0 UG/L
-0200	SED 19B 6HR		<1.0 UG/G
-0210	3-1	7.10 MG/L	28.0 UG/L
-021R	REPLICATE		21.0 UG/L
-021S	PRECISION		28.6 %
-0220	3-2	4.44 MG/L	12.0 UG/L
-022K	MATRIX SPIKE		87.0 UG/L
-022K	SPIKE RECOVERY		75.0 %
-0230	STREAM 2A 1HR	4.13 MG/L	40.0 UG/L
-0250	STREAM 2A 6HR	4.13 MG/L	35.0 UG/L
-0270	2-1	2.39 MG/L	20.0 UG/L
-0280	BLANK 2-1	1.58 MG/L	1.00 UG/L
-028R	REPLICATE		2.00 UG/L
-028S	PRECISION		66.7 %
-0290	5-4	4.85 MG/L	29.0 UG/L
-0300	STREAM 19A DUP	17.0 MG/L	29.0 UG/L
-0310	SED 19A DUP		<1.0 UG/G
-031R	REPLICATE		<1.0 UG/G
-031S	PRECISION		NC
-0320	STREAM 19A BLK	.962 MG/L	
-032R	REPLICATE	1.58 MG/L	
-032S	PRECISION	48.6 %	
-0330	SED 19-A BLK		BROKEN UG/L
	METHOD BLANK	<.5 MG/L	<1.0 UG/L
	METHOD SPIKE	5.16 MG/L	
	SPIKE RECOVERY	102 %	

DATE OF REPORT: 09/11/86

CLIENT: COLT'S NECK
DATA SUMMARY REPORT FOR
SAMPLES RECEIVED: 7-25-86
W.O.NUMBER: 1771-09-02

DATE SAMPLE COLLECTED: 7/21-24/86
SAMPLE COLLECTED BY: AMY BRUCKNER

RFWSN	DESCRIPTION	CHLORIDE	PETROLEUM HYDROCARBONS
8607-451-0010	STREAM 1A 1STHR	6.80 MG/L	<.2 MG/L
-0020	SED 10A 1ST HR		89.9 MG/KG
-0030	STREAM 10A 6HR	7.20 MG/L	<.2 MG/L
-0040	SED 10A 6HR		91.3 MG/KG
-0050	STREAM 10B 1HR	7.20 MG/L	<.2 MG/L
-0060	SED 10B 1HR		11.2 MG/KG
-0070	STREAM 10B 6HR	6.80 MG/L	<.2 MG/L
-0080	SED 10B 6HR		<10 MG/KG
-0090	SPRING 4A 1HR	8.80 MG/L	45.8 MG/L
-0100	SPRING 4A 6HR	9.00 MG/L	44.0 MG/L
-010R	REPLICATE	9.00 MG/L	
-010S	PRECISION	.000 %	
-0110	SPRING 4B 1HR	6.00 MG/L	<.2 MG/L
-0120	SPRING 4B 6HR	5.60 MG/L	<.2 MG/L
-0130	STREAM 19A 1HR	15.0 MG/L	<.2 MG/L
-0140	SED 19A 1HR		82.8 MG/KG
-0150	STREAM 19A 6HR	13.2 MG/L	<.2 MG/L
-0160	SED 19A 6HR		14.9 MG/KG
-0170	STREAM 19B 1HR	14.6 MG/L	<.2 MG/L
-0180	SED 19B 1HR		445 MG/KG
-0190	STREAM 19B 6HR	13.8 MG/L	4.20 MG/L
-0200	SED 19B 6HR		681 MG/KG
-0210	3-1	8.80 MG/L	1.00 MG/L
-0220	3-2	5.80 MG/L	<.2 MG/L
-0230	STREAM 2A 1HR	<5.00 MG/L	
-0250	STREAM 2A 6HR	<5.00 MG/L	
-0270	2-1	7.00 MG/L	
-0280	BLANK 2-1	<5.00 MG/L	
-0290	5-4	8.60 MG/L	<.2 MG/L
-0300	STREAM 19A DUP	14.6 MG/L	<.2 MG/L
-0310	SED 19A DUP		129 MG/KG
-0320	STREAM 19A BLK	<5.00 MG/L	<.2 MG/L
-0330	SED 19-A BLK		<.2 MG/L
-0390	20-D 2.5-3.0'		<10 MG/KG
-0400	20-E 2.5-3.0'		<10 MG/KG
-0410	20-D .5-1'		<10 MG/KG
-0420	20-E .5-1'		<10 MG/KG
	METHOD BLANK	<5.00 MG/L	<.2 MG/L
	METHOD SPIKE	24.3 MG/L	<20 MG/KG
	SPIKE RECOVERY	97.2 %	101 %
	METHOD SPIKE		6.76 MG/L
	SPIKE RECOVERY		104 %
	METHOD SPIKE		9.59 MG/L
	SPIKE RECOVERY		101 %
	METHOD SPIKE		9.79 MG/L
	SPIKE RECOVERY		104 %

COLT'S NECK 09/11/86

RFWSN	DESCRIPTION	nitrate nitrite	NITROGLYCERINE
8607-451-0010	STREAM 1A 1STHR	<.2 MG/L	
-0030	STREAM 10A 6HR	<.2 MG/L	
-0050	STREAM 10B 1HR	<.2 MG/L	
-0070	STREAM 10B 6HR	<.2 MG/L	
-0090	SPRING 4A 1HR	<.2 MG/L	
-0100	SPRING 4A 6HR	<.2 MG/L	
-0110	SPRING 4B 1HR	<.2 MG/L	
-0120	SPRING 4B 6HR	<.2 MG/L	
-0130	STREAM 19A 1HR	<.2 MG/L	
-0150	STREAM 19A 6HR	<.2 MG/L	
-0170	STREAM 19B 1HR	<.2 MG/L	
-0190	STREAM 19B 6HR	<.2 MG/L	
-0210	3-1	<.2 MG/L	
-0220	3-2	<.2 MG/L	
-0230	STREAM 2-A 1HR	1 MG/L	<5 MG/L
-0240	SED 2-A 1HR	<2 UG/G	<20 UG/G
-0250	STREAM 2-A 6HR	1 MG/L	<5 MG/L
-0260	SED 2-A 6HR	<2 UG/G	<20 UG/G
-0270	2-1	<.2 MG/L	<5 MG/L
-0280	BLANK 2-1	<.2 MG/L	
-0290	5-4	<.2 MG/L	
-0300	STREAM 19A DUP	<.2 MG/L	
-0320	STREAM 19A BLK	<.2 MG/L	
-0340	STREAM 2-A DUP	1 MG/L	<5 MG/L
-0350	SED 2-A DUP	<2 UG/G	<20 UG/G
-0360	STREAM 2-A BLK	<.2 MG/L	<5 MG/L
-036R	REPLICATE	<.2 MG/L	
-036S	PRECISION	NC	
-0370	SED 2-A BLK	<2 UG/G	<20 UG/G
-037R	REPLICATE		<20 UG/G
-037S	PRECISION		NC
	METHOD BLANK	<.2 MG/L	
	METHOD SPIKE	2 MG/L	
	SPIKE RECOVERY	100 %	

COLT'S NECK 09/11/86

RFWSN	DESCRIPTION	PH	SPECIFIC CONDUCTANCE
8607-451-0010	STREAM 1A 1STHR	6.70 PHU	74.6 UMHOS
-0030	STREAM 10A 6HR	6.70 PHU	78.8 UMHOS
-0050	STREAM 10B 1HR	6.60 PHU	81.6 UMHOS
-0070	STREAM 10B 6HR	6.60 PHU	81.3 UMHOS
-0090	SPRING 4A 1HR	6.70 PHU	663 UMHOS
-0100	SPRING 4A 6HR	6.60 PHU	653 UMHOS
-0110	SPRING 4B 1HR	4.90 PHU	57.7 UMHOS
-0120	SPRING 4B 6HR	4.80 PHU	55.8 UMHOS
-0130	STREAM 19A 1HR	5.20 PHU	56.6 UMHOS
-0150	STREAM 19A 6HR	5.20 PHU	53.7 UMHOS
-015R	REPLICATE	5.10 PHU	
-015S	PRECISION	.000 %	
-0170	STREAM 19B 1HR	4.80 PHU	61.9 UMHOS
-0190	STREAM 19B 6HR	4.80 PHU	55.2 UMHOS
-0210	3-1	2.90 PHU	609 UMHOS
-0220	3-2	3.80 PHU	103 UMHOS
-0230	STREAM 2A 1HR	4.20 PHU	36.1 UMHOS
-0250	STREAM 2A 6HR	4.20 PHU	35.8 UMHOS
-025R	REPLICATE	4.30 PHU	
-025S	PRECISION	2.35 %	
-0270	2-1	5.10 PHU	40.6 UMHOS
-0280	BLANK 2-1	6.10 PHU	1.12 UMHOS
-0290	5-4	4.40 PHU	76.0 UMHOS
-0300	STREAM 19A DUP	5.10 PHU	55.6 UMHOS
-0320	STREAM 19A BLK	6.00 PHU	1.03 UMHOS
	METHOD BLANK		.450 UMHOS
	METHOD SPIKE	7.00 PHU	134 UMHOS
	SPIKE RECOVERY	100 %	97.0 %
	METHOD SPIKE	4.05 PHU	646 UMHOS
	SPIKE RECOVERY	101 %	93.6 %
	METHOD SPIKE	10.0 PHU	1280 UMHOS
	SPIKE RECOVERY	100 %	92.7 %
	METHOD SPIKE	7.00 PHU	
	SPIKE RECOVERY	100 %	
	METHOD SPIKE	4.05 PHU	
	SPIKE RECOVERY	101 %	
	METHOD SPIKE	10.0 PHU	
	SPIKE RECOVERY	100 %	

PREPARED BY Stephanie Dobbs
STEPHANIE DOBBS
DATA MANAGER
WESTON ANALYTICAL LABORATORIES

APPROVED BY Earl M. Hansen
EARL M. HANSEN, PH.D.
MANAGER
WESTON ANALYTICAL LABORATORI

DATE OF REPORT: November 12, 1986

COLT'S NECK

METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED JULY 25, 1986

Date Samples Collected: July 21-24, 1986
Samples Collected by: Amy Bruckner
W.O.#: 1771-09-02

Sample Identification		Analytes (Concentration is mg/L)			
Client I.D.	R.F.W. #	Cr	Pb	Zn	Ti
20-D (2.5' - 3')	8607-451-0430	<.05	<0.5	.050	.039
20-E (2.5' - 3')	8607-451-0440	<.05	<0.5	.057	.024
	Dup.0440	<.05	--	.090	.051
20-D (0.5' - 1')	8607-451-0450	<.05	<0.5	.051	.41
20-E (0.5' - 1')	8607-451-0460	<.05	<0.5	.072	<.003
	Dup.0450	--	<0.5	--	--

COMPILED BY: Emily Carfioli
Emily Carfioli
Data Manager
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen, Ph.D.
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON ANALYTICS
Colts Neck: VOA's, BNA's, Pest/PCB's
RFWBN: 8607-378
W.O. #: 1771-09-02

1. The following qualifiers are used on the data summary:

   U - Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

   J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or where the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection 10 ug/l and a concentration of 3 ug/l is calculated, it is reported as 3J.

   BS - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

   BSD - Indicates blank spike duplicate.

   DL - Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

   NA - Not applicable.

   DF - Dilution factor.

   NR - Not required.

2. Samples collected: 7/14-16/86
   VOA's analyzed: 7/16/86
   BNA's extracted: 7/17/86
   BNA's analyzed: 8/05/86
   Pest/PCB's extracted: 7/17/86
   Pest/PCB's analyzed: 8/14/86

APPROVED BY Carter P. Nulton

Carter P. Nulton, Ph.D.
Organic Section Manager
WESTON Analytical Laboratories

DATE OF REPORT: 11 November 1986

COLTS NECK

METALS SUMMARY REPORT

FOR

SAMPLES RECEIVED July 16, 1986

WO# 1771-09-02

DATE SAMPLES COLLECTED: July 14-16, 1986
SAMPLES COLLECTED BY: A. Bruckner, R. Althouse

R.F.W. NUMBER	CLIENT I.D.	Sb mg/L	As mg/L	Be mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Pb mg/L	Hg ug/L	Ni mg/L	Se mg/L	Ag mg/L	Tl mg/L	Zn mg/L
8607-378-0010	10-1	<0.01	<0.01	<0.01	0.006	<0.01	0.03	<0.005	<.5	0.014	<0.005	<0.0025	<0.01	0.09
-0020	10-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.08
-0030	10-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	1.01
-0040	10-2A	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.82
-0050	11-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.06
-0060	11-1	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.03
-0070	11-3A	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	0.006	<.5	<0.01	<0.005	<0.0025	<0.01	0.04
-0090	11-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.07
-0100	11-2 Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.010
-0110	19-2	<0.01	<0.01	<0.01	0.006	<0.01	<0.01	<0.005	<.5	0.016	<0.005	<0.0025	<0.01	0.09
-0120	19-1	<0.01	<0.01	<0.01	0.007	0.015	<0.01	0.006	<.5	0.02	<0.005	<0.0025	<0.01	0.09
-0130	19-3	<0.01	<0.01	<0.01	0.004	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.06
-0140	5-1	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.017
-0150	5-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.016
-0160	5-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.033
	Method Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	<0.01
	Blank Spike		96%		104%			103%	100%		98%	92%	91%	

Compiled By: Emily Carfiol
Emily Carfiol
Data Manager
WESTON Analytical Laboratories

Approved By: Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON ANALYTICS
PESTICIDE/PCBs IN WATER
COMMERCIAL LIST

RFW Batch Number: 8607-378- Client: COLTS NECK

Sample Information							
	Cust ID:	5-1	5-2	5-3	5-1 BLANK	BLANK	B.S.
	RFW#:	0140	0150	0160	0250	BLANK	B.S.
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate:	Di-n-butylchlorendate:	38 %	57 %	53 %	80 %	107 %	112 %
		fl	fl	fl	fl	fl	fl
Analyte:							
Alpha-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Beta-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Delta-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Gamma-BHC (Lindane)		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	113 %
Heptachlor		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	105 %
Aldrin		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	75 %
Heptachlor Epoxide		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	110 %
4,4'-DDE		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	99 %
Endosulfan II		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin Aldehyde		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan Sulfate		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	127 %
Methoxychlor		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin Ketone		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chlordane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

U=Analyzed,not detected. J=Present below detection limit. B=Present in blank. NR=Not requested.

WESTON ANALYTICS
PESTICIDE/PCBs IN WATER
COMMERCIAL LIST

RFW Batch Number: 8607-378- Client: COLTS NECK

Sample Information							
Cust ID:	B.S.D.						
RFW#:	B.S.D.						
Matrix:	Water	Water	Water	Water	Water	Water	Water
D.F.:	1.00	NA	NA	NA	NA	NA	NA
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate: Di-n-butylchlorendate:	109 %	%	%	%	%	%	%
Analyte:							
Alpha-BHC	0.05 U						
Beta-BHC	0.05 U						
Delta-BHC	0.05 U						
Gamma-BHC (Lindane)	109 %						
Heptachlor	86 %						
Aldrin	72 %						
Heptachlor Epoxide	0.05 U						
Endosulfan I	0.05 U						
Dieldrin	104 %						
4,4'-DDE	0.1 U						
Endrin	94 %						
Endosulfan II	0.1 U						
4,4'-DDD	0.1 U						
Endrin Aldehyde	0.1 U						
Endosulfan Sulfate	0.1 U						
4,4'-DDT	120 %						
Methoxychlor	0.5 U						
Endrin Ketone	0.1 U						
Chlordane	0.5 U						
Toxaphene	1.0 U						
Aroclor-1016	0.5 U						
Aroclor-1221	0.5 U						
Aroclor-1232	0.5 U						
Aroclor-1242	0.5 U						
Aroclor-1248	0.5 U						
Aroclor-1254	1.0 U						
Aroclor-1260	1.0 U						

U=Analyzed,not detected. J=Present below detection limit. B=Present in blank. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: COLTS NECK Page: 1

Sample Information							
Cust ID:	BLANK	5-2	TRIP BLANK	5-1 BLANK	5-1 BLANK	5-2-A
RFW#:	BLANK	0150	0270	0250	0250 DIL	0260
Matrix:	Water	Water	Water	Water	Water	Water
D.F.:	1	1	1	1	10	1
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%) Toluene-d8:	113 %	95 %	111 %	100 %	98 %	110 %
Bromofluorobenzene:	123 %	100 %	114 %	108 %	104 %	122 %
1,2-Dichloroethane-d4:	85 %	70 %	87 %	70 %	68 %	78 %
	fl	fl	fl	fl	fl	fl
Chloromethane	10 U	10 U	10 U	10 U	100 U	10 U
Bromomethane	10 U	10 U	10 U	10 U	100 U	10 U
Vinyl Chloride	10 U	10 U	10 U	10 U	100 U	10 U
Chloroethane	10 U	10 U	10 U	10 U	100 U	10 U
Methylene Chloride	7 J	8 J	10	420	500	8 J
Acetone	9 J	6 J	8 J	5 J	NRP	3 J
Carbon Disulfide	10 U	10 U	10 U	10 U	100 U	10 U
1,1-Dichloroethene	10 U	10 U	10 U	10 U	100 U	10 U
1,1-Dichloroethane	10 U	10 U	10 U	10 U	100 U	10 U
Trans-1,2-Dichloroethene	10 U	10 U	10 U	10 U	100 U	10 U
Chloroform	10 U	10 U	2 J	10 U	100 U	10 U
1,2-Dichloroethane	10 U	10 U	10 U	10 U	100 U	10 U
2-Butanone	6 J	6 J	5 J	7 J	NRP	8 J
1,1,1-Trichloroethane	10 U	10 U	10 U	10 U	100 U	10 U
Carbon Tetrachloride	10 U	10 U	10 U	10 U	100 U	10 U
Vinyl Acetate	10 U	10 U	10 U	10 U	100 U	10 U
Bromodichloromethane	10 U	10 U	10 U	10 U	100 U	10 U
1,2-Dichloropropane	10 U	10 U	10 U	10 U	100 U	10 U
Trans-1,3-Dichloropropene	10 U	10 U	10 U	10 U	100 U	10 U
Trichloroethene	10 U	10 U	10 U	10 U	100 U	10 U
Dibromochloromethane	10 U	10 U	10 U	10 U	100 U	10 U
1,1,2-Trichloroethane	10 U	10 U	10 U	10 U	100 U	10 U
Benzene	10 U	10 U	10 U	10 U	100 U	10 U
cis-1,3-Dichloropropene	10 U	10 U	10 U	10 U	100 U	10 U
2-Chloroethylvinylether	10 U	10 U	10 U	10 U	100 U	10 U
Bromoform	10 U	10 U	10 U	10 U	100 U	10 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	100 U	10 U
2-Hexanone	10 U	10 U	10 U	10 U	100 U	10 U

RFW Batch Number: 8607-378- Client: COLTS NECK

Cust ID:	BLANK	5-2	TRIP BLANK	5-1 BLANK	5-1 BLANK	5-2-A
RFW#:	BLANK	0150	0270	0250	0250 DIL	0260
	fl	fl	fl	fl	fl	fl
Tetrachloroethene	10 U	10 U	10 U	10 U	100 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U	100 U	10 U
Toluene	10 U	10 U	10 U	10 U	100 U	10 U
Chlorobenzene	10 U	10 U	10 U	10 U	100 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U	100 U	10 U
Styrene	10 U	10 U	10 U	10 U	100 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U	100 U	10 U
Dichlorobenzenes	10 U	*	10 U	10 U	100 U	10 U
Trichlorofluoromethane	10 U	10 U	1 J	10 U	100 U	10 U

Others:

* SEE BNA REPORT

U=Analyzed, not detected. B=Present in blank. NRP=Not Reported
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: COLTS NECK

Sample Information							
	Cust ID:	5-3	5-1	19-3	10-3	10-2	BLANK
	RFW#:	0160	0140	0130	0020	0030	BLANK
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	Toluene-d8:	102 %	102 %	105 %	115 %	125 %	79 %
	Bromofluorobenzene:	105 %	114 %	114 %	125 %	138 %	83 %
	1,2-Dichloroethane-d4:	71 %	70 %	72 %	75 %	82 %	93 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		7 J	8 J	8 J	9 J	9 J	12
Acetone		12	110	16	10	7 J	10 U
Carbon Disulfide		10 U	10 U	1 J	2 J	2 J	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Chloroform		10 U	3 J	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		8 J	12	10	11	10	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-378- Client: COLTS NECK

Cust ID:	5-3	5-1	19-3	10-3	10-2	BLANK
RFW#:	0160	0140	0130	0020	0030	BLANK
	fl	fl	fl	fl	fl	fl
Tetrachloroethene.....	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane.....	10 U	10 U	10 U	10 U	10 U	10 U
Toluene.....	10 U	10 U	1 J	10 U	10 U	10 U
Chlorobenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene.....	10 U	10 U	10 U	10 U	10 U	10 U
Styrene.....	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes.....	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorobenzenes.....	*	*	*	*	*	10 U
Trichlorofluoromethane.....	10 U	10 U	10 U	10 U	10 U	10 U

Others:

* SEE BNA REPORT

U=Analyzed, not detected. B=Present in blank. NRP=Not Reported
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: COLTS NECK

Sample Information	Cust ID:	10-1	10-2A	19-2	19-1		
	RFW#:	0010	0040	0110	0120		
	Matrix:	Water	Water	Water	Water		
	D.F.:	1	1	1	1		
	Units:	ug/l	ug/l	ug/l	ug/l		
Surrogate Recovery (%)	Toluene-d8:	75 %	78 %	79 %	78 %	%	%
	Bromofluorobenzene:	81 %	83 %	84 %	83 %	%	%
	1,2-Dichloroethane-d4:	85 %	90 %	91 %	87 %	%	%
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U		
Bromomethane		10 U	10 U	10 U	10 U		
Vinyl Chloride		10 U	10 U	10 U	10 U		
Chloroethane		10 U	10 U	10 U	10 U		
Methylene Chloride		16	14	13	14		
Acetone		10 U	10 U	10 U	10 U		
Carbon Disulfide		3 J	2 J	10 U	10 U		
1,1-Dichloroethene		10 U	10 U	10 U	10 U		
1,1-Dichloroethane		10 U	10 U	10 U	10 U		
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U		
Chloroform		10 U	10 U	10 U	10 U		
1,2-Dichloroethane		10 U	10 U	10 U	10 U		
2-Butanone		10 U	10 U	10 U	10 U		
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U		
Carbon Tetrachloride		10 U	10 U	10 U	10 U		
Vinyl Acetate		10 U	10 U	10 U	10 U		
Bromodichloromethane		10 U	10 U	10 U	10 U		
1,2-Dichloropropane		10 U	10 U	10 U	10 U		
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U		
Trichloroethene		10 U	10 U	10 U	10 U		
Dibromochloromethane		10 U	10 U	10 U	10 U		
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U		
Benzene		10 U	10 U	10 U	10 U		
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U		
2-Chloroethylvinylether		10 U	10 U	10 U	10 U		
Bromoform		10 U	10 U	10 U	10 U		
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U		
2-Hexanone		10 U	10 U	10 U	10 U		

RFW Batch Number: 8607-378- Client: COLTS NECK

Cust ID:	10-1	10-2A	19-2	19-1
RFW#:	0010	0040	0110	0120
Tetrachloroethene	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U
Toluene	1 J	10 U	10 U	2 J
Chlorobenzene	10 U	10 U	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U
Dichlorobenzenes	*	*	*	*
Trichlorofluoromethane	10 U	10 U	10 U	10 U

Others:

* SEE BNA REPORT.

U=Analyzed, not detected. B=Present in blank. NRP=Not Reported
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE PRIORITY POLLUTANT LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK Page: 1

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	BLANK	10-1	10-3	10-2	10-2A	11-3
	RFW#:	BLANK	0010	0020	0030	0040	0050
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1.2
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	2-Fluorophenol:	58 %	53 %	53 %	58 %	54 %	56 %
	Phenol-d5:	31 %	43 %	42 %	41 %	28 %	32 %
	2,4,6-Br3-Phenol:	44 %	75 %	74 %	74 %	63 %	81 %
	Nitrobenzene-d5:	87 %	72 %	75 %	87 %	92 %	76 %
	2-Fluorobiphenyl:	78 %	75 %	72 %	80 %	84 %	90 %
	p-Terphenyl-d14:	111 %	92 %	93 %	97 %	125 %	76 %
		fl	fl	fl	fl	fl	fl
N-Nitrosodimethylamine		10 U	10 U	10 U	10 U	10 U	12 U
Phenol		10 U	10 U	10 U	10 U	10 U	12 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	12 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	12 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	12 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	12 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	12 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	12 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	12 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	12 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	12 U
Isophorone		10 U	10 U	10 U	10 U	10 U	12 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	12 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	12 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	12 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	12 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	12 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	12 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	12 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	12 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	12 U
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	12 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	12 U
Dimethyl Phthalate		10 U	10 U	10 U	10 U	10 U	12 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	12 U
Acenaphthene		10 U	10 U	10 U	10 U	10 U	12 U

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK

Cust ID:	BLANK	10-1	10-3	10-2	10-2A	11-3
RFW#:	BLANK	0010	0020	0030	0040	0050
	fl	fl	fl	fl	fl	fl
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	60 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	60 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	12 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	12 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	12 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	12 U
Fluorene	10 U	10 U	10 U	10 U	10 U	12 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	60 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	12 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	12 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	12 U
Pentachlorophenol(2)	50 U	24 J	50 U	50 U	50 U	60 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	12 U
Anthracene	10 U	10 U	10 U	10 U	10 U	12 U
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	12 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	12 U
Benzidine(2)	50 U	50 U	50 U	50 U	50 U	60 U
Pyrene	10 U	10 U	10 U	10 U	10 U	12 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	12 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	24 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	12 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	10 U	10 U	12 U
Chrysene	10 U	10 U	10 U	10 U	10 U	12 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	12 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	12 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	12 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	12 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	12 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	12 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	12 U

Note 1. Cannot be distinguished from diphenylamine. U=Analyzed,not detected.
J=Present at less than detection limit. NR=Not requested.
B=Present in blank. %=Percent recovery.

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE PRIORITY POLLUTANT LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK Page: 2

Sample Information MDL=10xD.F.,except (2)=50x;(3)=20x	Cust ID:	11-1	BS	BSD	11-3A	11-2	11-2 BLK
	RFW#:	0060	BS	BSD	0070	0090	0100
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	2-Fluorophenol:	55 %	65 %	68 %	60 %	44 %	52 %
	Phenol-d5:	32 %	42 %	43 %	26 %	26 %	28 %
	2,4,6-Br3-Phenol:	66 %	90 %	85 %	80 %	69 %	68 %
	Nitrobenzene-d5:	88 %	96 %	95 %	75 %	46 %	54 %
	2-Fluorobiphenyl:	94 %	103 %	95 %	95 %	66 %	76 %
	p-Terphenyl-d14:	103 %	117 %	107 %	128 %	118 %	108 %
		fl	fl	fl	fl	fl	fl
N-Nitrosodimethylamine		10 U	10 U	10 U	10 U	10 U	10 U
Phenol		10 U	35 %	39 %	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	90 %	94 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	86 %	87 %	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	65 %	61 %	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	85 %	87 %	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	79 %	78 %	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl Phthalate		10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene		10 U	90 %	80 %	10 U	10 U	10 U

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK

Cust ID:	11-1	BS	BSD	11-3A	11-2	11-2 BLK
RFW#:	0060	BS	BSD	0070	0090	0100
	fl	fl	fl	fl	fl	fl
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	10 %	19 %	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	51 %	46 %	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	120	33 %	31 %	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	72 %	68 %	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzidine(2)	50 U	50 U	50 U	50 U	50 U	50 U
Pyrene	10 U	114 %	117 %	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

Note 1. Cannot be distinguished from diphenylamine. U=Analyzed,not detected.
J=Present at less than detection limit. NR=Not requested.
B=Present in blank. %=Percent recovery.

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE PRIORITY POLLUTANT LIST COMPOUNDS

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	19-2	19-1	19-3	5-1	5-2	5-3
	RFW#:	0110	0120	0130	0140	0150	0160
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	2-Fluorophenol:	49 %	60 %	52 %	38 %	31 %	61 %
	Phenol-d5:	38 %	44 %	42 %	24 %	18 %	42 %
	2,4,6-Br3-Phenol:	88 %	92 %	84 %	62 %	55 %	78 %
	Nitrobenzene-d5:	80 %	83 %	92 %	68 %	71 %	67 %
	2-Fluorobiphenyl:	92 %	94 %	98 %	70 %	79 %	89 %
	p-Terphenyl-d14:	102 %	106 %	113 %	79 %	74 %	112 %
		fl	fl	fl	fl	fl	fl
N-Nitrosodimethylamine		10 U	10 U	10 U	10 U	10 U	10 U
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl Phthalate		10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-378- Client: US NAVY COLTS NECK

Cust ID:	19-2	19-1	19-3	S-1	S-2	S-3
RFW#:	0110	0120	0130	0140	0150	0160
	fl	fl	fl	fl	fl	fl
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	20 J	50 U	23 J	81	10 J	150
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzidine(2)	50 U	50 U	50 U	50 U	50 U	50 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

Note 1. Cannot be distinguished from diphenylamine. U=Analyzed,not detected.
J=Present at less than detection limit. NR=Not requested.
B=Present in blank. %=Percent recovery.

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0160

SAMPLE DESCRIPTION: S-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown >C12 Hydrocarbon	2110	12J
Unknown Hydrocarbon	2174	17J
Unknown Hydrocarbon	2235	22J
Unknown Hydrocarbon	2295	18J
Unknown Hydrocarbon	2354	14J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0150

SAMPLE DESCRIPTION: S-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0140

SAMPLE DESCRIPTION: S-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	2112	7J
Unknown Hydrocarbon	2174	9J
Unknown Hydrocarbon	2236	10J
Unknown Hydrocarbon	2296	9J
Unknown Hydrocarbon	2354	6J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0130

SAMPLE DESCRIPTION: 19-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0120

SAMPLE DESCRIPTION: 19-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Molecular Sulfur*	1605	7J

*CAS Number = 10544-50-0

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0110

SAMPLE DESCRIPTION: 19-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Molecular Sulfur	1604	7J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0100

SAMPLE DESCRIPTION: 11-2 Blank

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, ug/L
Unknown	2003	4J
Unknown Hydrocarbon	2131	7J
Unknown Hydrocarbon	2255	9J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0090

SAMPLE DESCRIPTION: 11-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0070

SAMPLE DESCRIPTION: 11-3A

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0060

SAMPLE DESCRIPTION: 11-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	2046	4J
Unknown Hydrocarbon	2111	5J
Unknown Hydrocarbon	2175	6J
Unknown Hydrocarbon	2190	6J
Unknown Hydrocarbon	2410	5J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0050

SAMPLE DESCRIPTION: 11-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	2111	6J
Unknown Hydrocarbon	2173	9J
Unknown Hydrocarbon	2234	12J
Unknown Hydrocarbon	2294	9J
Unknown Hydrocarbon	2351	10J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0040

SAMPLE DESCRIPTION: 10-2A

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0020

SAMPLE DESCRIPTION: 10-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0010

SAMPLE DESCRIPTION: 10-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown Hydrocarbon	2112	6J
Unknown Hydrocarbon	2175	8J
Unknown Hydrocarbon	2236	10J
Unknown Hydrocarbon	2296	8J
Unknown Hydrocarbon	2355	6J

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-0030

SAMPLE DESCRIPTION: 10-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 7 August 1986

DATA SUMMARY FOR: U.S. Navy Colts Neck

R.F.W. NO.: 8607-378-Blank

SAMPLE DESCRIPTION: Lab Blank

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 09/11/86

CLIENT: COLT'S NECK
DATA SUMMARY REPORT FOR
SAMPLES RECEIVED: 7-16-86
W.O.NUMBER: 1771-09-02

DATE SAMPLE COLLECTED: 7/14-16/86
SAMPLE COLLECTED BY:. A.BRUCKNER/R.ALTHOUSE

RFWSN	DESCRIPTION	CHLORIDE	PETROLEUM HYDROCARBONS
8607-378-0010	10-1	20.1 MG/L	<.2 MG/L
-001R	REPLICATE	20.3 MG/L	
-001S	PRECISION	.990 %	
-0020	10-3	11.0 MG/L	<.2 MG/L
-0030	10-2	8.20 MG/L	<.2 MG/L
-0040	10-2-A	8.50 MG/L	<.2 MG/L
-0050	11-3	7.60 MG/L	
-0060	11-1	6.20 MG/L	
-0070	11-3A	8.50 MG/L	
-007R	REPLICATE	8.50 MG/L	
-007S	PRECISION	.000 %	
-0090	11-2	9.60 MG/L	
-0100	11-2 BLANK	<5.00 MG/L	
-0110	19-2	11.4 MG/L	<.2 MG/L
-0120	19-1	7.60 MG/L	<.2 MG/L
-0130	19-3	10.5 MG/L	<.2 MG/L
-0140	5-1	10.5 MG/L	<.2 MG/L
-0150	5-2	9.80 MG/L	<.2 MG/L
-0160	5-3	13.7 MG/L	<.2 MG/L
	METHOD BLANK	<5.00 MG/L	
	METHOD SPIKE	24.5 MG/L	3.68 MG/L
	SPIKE RECOVERY	98.0 %	50.9 %

RFWSN	DESCRIPTION	nitrate nitrite	NITROGLYCERINE
8607-378-0010	10-1	~~<10 MG/L~~	
-0020	10-3	~~<10 MG/L~~	
-0030	10-2	<.1 MG/L	
-0040	10-2-A	<.1 MG/L	
-0050	11-3	<.1 MG/L	<5 MG/L
-0060	11-1	~~<30 MG/L~~	<5 MG/L
-0070	11-3A	<.1 MG/L	
-0090	11-2	<.1 MG/L	<5 MG/L
-0100	11-2 BLK	<.1 MG/L	<5 MG/L
-0110	19-2	<.1 MG/L	
-0120	19-1	~~<80 MG/L~~	
-0130	19-3	<.1 MG/L	
-0140	5-1	<.1 MG/L	
-0150	5-2	<.1 MG/L	
-0160	5-3	~~<20 MG/L~~	
-016R	REPLICATE	~~<20 MG/L~~	
-016S	PRECISION	.000 %	
-0190	26-1		<5 MG/L
-0200	26-2		<5 MG/L
-0210	26-2-A		<5 MG/L
-0220	26-1 BLK		<5 MG/L
-0230	26-2 BLK		<5 MG/L
-0240	26-3		<5 MG/L
	METHOD BLANK	<.1 MG/L	<5 MG/L
	METHOD SPIKE	.2 MG/L	20 MG/L
	SPIKE RECOVERY	100 %	100 %

COLT'S NECK 09/11/86

RFWSN	DESCRIPTION	TOTAL ORGANIC CARBON	OIL AND GREASE BY IR
8607-378-0010	10-1	4.62 MG/L	
-0020	10-3	3.81 MG/L	
-0030	10-2	5.73 MG/L	
-0040	10-2-A	4.92 MG/L	
-0050	11-3	7.66 MG/L	<.2 MG/L
-0060	11-1	11.9 MG/L	<.2 MG/L
-0070	11-3A	8.77 MG/L	
-0080	11-1A		<.2 MG/L
-0090	11-2	3.91 MG/L	<.2 MG/L
-0100	11-2 BLANK	.977 MG/L	<.2 MG/L
-0110	19-2	6.95 MG/L	
-0120	19-1	4.01 MG/L	
-0130	19-3	4.92 MG/L	
-0140	5-1	6.44 MG/L	
-0150	5-2	1.18 MG/L	
-0160	5-3	7.45 MG/L	
-016R	REPLICATE	7.56 MG/L	
-016S	PRECISION	1.47 %	
-0170	11-1 BLANK		<.2 MG/L
-0180	11-3 BLANK		<.2 MG/L
	METHOD BLANK	<.5 MG/L	<.2 MG/L
	METHOD SPIKE	5.03 MG/L	6.78 MG/L
	SPIKE RECOVERY	99.3 %	98.4 %
	METHOD SPIKE		3.00 MG/L
	SPIKE RECOVERY		43.5 %

RFWSN	DESCRIPTION	TOTAL ORGANIC HALOGEN	PH
8607-378-0010	10-1	67.0 UG/L	4.40 PHU
-0020	10-3	20.0 UG/L	4.35 PHU
-0030	10-2	36.0 UG/L	4.25 PHU
-0040	10-2-A	108 UG/L	4.30 PHU
-004R	REPLICATE		4.30 PHU
-004S	PRECISION		.000 %
-0050	11-3	169 UG/L	4.25 PHU
-0060	11-1	202 UG/L	4.50 PHU
-006K	MATRIX SPIKE	720 UG/L	
-006K	SPIKE RECOVERY	104 %	
-0070	11-3A	123 UG/L	4.95 PHU
-007R	REPLICATE		4.95 PHU
-007S	PRECISION		.000 %
-0090	11-2	60.0 UG/L	3.95 PHU
-0100	11-2 BLANK	13.0 UG/L	7.30 PHU
-0110	19-2	71.0 UG/L	3.95 PHU
-0120	19-1	63.0 UG/L	3.85 PHU
-0130	19-3	50.0 UG/L	4.10 PHU
-0140	5-1	241 UG/L	4.25 PHU
-014R	REPLICATE	233 UG/L	
-014S	PRECISION	3.38 %	
-0150	5-2	68.0 UG/L	4.25 PHU
-0160	5-3	41.0 UG/L	4.20 UNITS
	METHOD BLANK	5.00 UG/L	<.1 PHU
	METHOD SPIKE		4.00 PHU
	SPIKE RECOVERY		100 %
	METHOD SPIKE		7.00 PHU
	SPIKE RECOVERY		100 %
	METHOD SPIKE		10.1 PHU
	SPIKE RECOVERY		100 %

COLT'S NECK 09/11/86

RFWSN	DESCRIPTION	SPECIFIC CONDUCTANCE
8607-378-0010	10-1	161 UMHOS
-0020	10-3	135 UMHOS
-0030	10-2	125 UMHOS
-0040	10-2-A	122 UMHOS
-004R	REPLICATE	122 UMHOS
-004S	PRECISION	.410 %
-0050	11-3	64.6 UMHOS
-0060	11-1	53.6 UMHOS
-0070	11-3A	63.7 UMHOS
-0090	11-2	77.7 UMHOS
-0100	11-2 BLANK	1.78 UMHOS
-0110	19-2	103 UMHOS
-0120	19-1	189 UMHOS
-0130	19-3	80.5 UMHOS
-0140	5-1	72.3 UMHOS
-0150	5-2	68.6 UMHOS
-0160	5-3	142 UMHOS
	METHOD BLANK	.559 UMHOS
	METHOD SPIKE	138 UMHOS
	SPIKE RECOVERY	97.9 %
	METHOD SPIKE	672 UMHOS
	SPIKE RECOVERY	95.4 %
	METHOD SPIKE	1350 UMHOS
	SPIKE RECOVERY	95.7 %

PREPARED BY _____
STEPHANIE DOBBS
DATA MANAGER
WESTON ANALYTICAL LABORATORIES

APPROVED BY _____
EARL M. HANSEN, PH.D.
MANAGER
WESTON ANALYTICAL LABORATOR

WESTON

DATE OF REPORT: 11 November 1986

COLT's NECK EXPLOSIVES IN WATER

WESTON I.D.#	CLIENT I.D.	HMX	RDX	2,4,6-TNT
Detection Limits:(ug/liter)		1.75	1.0	1.25
Date Analyzed: 7/18/86				
378-50	11-3	<	<	<
-60	11-1	<	<	<
-70	11-3A	<	<	<
-90	11-2	<	<	<
-100	11-2 Blank	<	<	1.85
-50 Dup	Lab Dup	<	<	<
Blank	Lab Blank	<	<	<
Date Analyzed: 7/24/86				
397-10	2-2	<	<	<
-20	2-3	<	<	<
-30	2-4	<	<	<
-40	2-2 Blank	<	<	<
-10 Dup	Lab Dup	<	<	<
Blank	Lab Blank	<	<	<

SPIKE LEVEL/% RECOVERY

378-2X	3.5/118	2/113	2.5/110
-5X	8.75/104	5/108	6.25/104
-10X	17.5/118	10/118	12.5/93
397-2X	3.5/107	2/91	2.5/97
-5X	8.75/99	5/97	6.25/94
-10X	17.5/102	10/98	12.5/97

COMPILED BY Edward P. McGovern, Ph.D.
Inorganic Section Manager
WESTON Analytical Laboratories

APPROVED BY Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

DATE OF REPORT: 11 November 1986

COLT's NECK EXPLOSVIES IN WATER/SOIL

WESTON I.D.#	CLIENT I.D.	HMX	RDX	2,4,6-TNT
Detection Limits: (Waters-ug/liter)		1.75	1.0	1.25
Date Analyzed: 7/30/86				
451-23	2-A(1st hour)	<	<	<
-25	2-A(6th hour)	<	<	<
-27	2-1	<	<	<
-28	2-1 Blank	<	<	<
-36	2-A Stream Blk	<	<	<
-37	2-A Sed. Blank	<	<	<
-23 Dup	Lab Duplicate	<	<	<
Blank	Lab Blank	<	<	<
	SPIKE LEVEL/% RECOVERY			
2X Spike		3.5/73	2/121	2.5/53
5X Spike		8.75/75	5/110	6.25/85
10X Spike		17.5/98	10/106	12.5/96
Detection Limits: (Soils-ug/gram)		1.4	0.8	1.0
Date Analyzed: 8/1/86				
451-24	2-A(1st hour)	<	<	<
-26	2-A(6th hour)	<	<	<
-35	2-A Dup	<	<	<
Blank	Lab Blank	<	<	<
	SPIKE LEVEL/% RECOVERY			
2X Spike		2.8/99	1.6/94	2/119
10X Spike		14.0/93	8.0/87	10/92
10X Spike Dup		14.0/102	8.0/93	10/101
451-26 MS	Lab Matrix Spike	14.0/95	8.0/93	10/95

COMPILED BY Edward P. McGovern
Edward P. McGovern, Ph.D.
Inorganic Section Manager
WESTON Analytical Laboratories

APPROVED BY Emily C Carfioli for
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON

Date of Report: 24 October 1986

COLT'S NECK PICRIC ACID IN WATERS

Date Analyzed: August 28, 1986

SAMPLE I.D.	CLIENT I.D.	RESULT(ug/Liter)
378-50	11-3	<
-60	11-1	<
-90	11-2	<
-100	11-2 Blank	<
-190	26-1	<
-200	26-2	<
-210	26-2A	<
-220	26-1 Blank	<
-230	26-2 Blank	<
-240	26-3	<
Blank		<
Blank Spike		205.6/63%
Blank Spike Dup		205.6/57%
397-10	2-2	<
-20	2-3	<
-30	2-4	<
-40	2-2 Blank	<
Blank		<
Blank Spike		205.6/84%
Blank Spike Dup		205.6/74%
451-23	Str. 2-A(1st hour)	<
-25	Str. 2-A(6th hour)	<
-27	2-1	<
-28	2-1 Blank	<
-36	Str 2-A Blank	<
Blank		<
Blank Spike		205.6/49%
Blank Spike Dup		205.6/53%
DETECTION LIMIT:		4.0
		ug/kg
451-24	Sed. 2-A(1st hour)	<
-26	Sed. 2-A(6th hour)	<
-35	Sed. 2-A Dup	<
-37	Sed. 2-A Blank	<
Blank		<
Blank Spike(Soil)		205.6/49%
Blank Spike Dup(Soil)		205.6/52%
DETECTION LIMIT:		40.0

WESTON

WESTON Analytics
Colt's Neck: VOA, BNA, Pest/PCB
RFWBN: 8607-397
W.O.#: 1771-09-02

1. The following qualifiers are used on the data summary:

   U - Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

   J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection 10 ug/l and a concentration of 3 ug/l is calculated, it is reported as 3J.

   BS - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

   BSD - Indicates blank spike duplicate.

   DL - Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

   NA - Not applicable.

   DF - Dilution factor.

   NR - Not required.

2. Sample Collected: 7/17,18/86
   VOA's Analyzed: 7/18/86
   BNA's Extracted: 7/23/86
   BNA's Analyzed: 8/5,6/86
   Pest/PCB's Extracted: 7/19/86
   Pest/PCB's Analyzed: 8/1/86

3. The surrogate dibutyl-chlorendate was not added to the Blank Spike Duplicate. However, recoveries of spiked analytes are in the acceptable range (50-150%).

APPROVED BY: Carter P. Nulton

Carter P. Nulton, Ph.D.
Organic Section Manager
WESTON Analytical Laboratories

DATE OF REPORT: 11/11/86

COLT'S NECK

METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED 7/18/86

W.O. #: 1771-09-02

Date Samples Collected: 7/17,18/86
Samples Collected by: A. Bruckner, R. Althouse

RFW#: 8607-397-	Client ID	mg/L Sb	As	Be	Cd	Cr	Cu	Pb	Ni	Se	Ag	Tl	Zn	µg/L Hg
0010	2-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.03	<.2
0020	2-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.04	<.2
0030	2-4	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.02	<.2
0050	3-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.11	<.2
0060	3-3-A	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.20	<.2
0070	3-3Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	<0.01	<.2
0080	4-1	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.06	<.2
0090	4-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.03	<.2
0100	4-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.06	<.2
0110	7-1	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.03	<.2
0120	7-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.03	<.2
0130	7-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.09	<.2
0140	7-2Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	<0.01	<.2
	Method Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	--	<0.01	<0.005	--	<0.01	<0.01	<.2
	Blank Spike	106%	96%	--	104%	--	--	--	--	98%	92%	91%	--	87%

Compiled by: Emily Carfioli
Emily Carfioli
Data Manager

Approved by: Earl M. Hansen, Ph.D.
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information	Cust ID:	BLANK	TRIP BLANK	7-2 BLANK	7-3	7-2	7-1
	RFW#:	BLANK	0150	0140	0130	0120	0110
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	Toluene-d8:	79 %	98 %	101 %	100 %	102 %	91 %
	Bromofluorobenzene:	83 %	114 %	115 %	112 %	113 %	100 %
	1,2-Dichloroethane-d4:	93 %	96 %	96 %	94 %	101 %	92 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		12	7 J	11	6 J	9 J	7 J
Acetone		10 U	10 U	141	10 U	380	22
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	10 U	10 U	10 U	1 J	10 U
Chloroform		10 U	2 J	1 J	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	1 J	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information							
	Cust ID:	4-1					
	RFW#:	0080					
	Matrix:	Water					
	D.F.:	1					
	Units:	ug/l					

Surrogate Recovery (%)							
Toluene-d8:	100 %	%	%	%	%	%	%
Bromofluorobenzene:	115 %	%	%	%	%	%	%
1,2-Dichloroethane-d4:	96 %	%	%	%	%	%	%

	fl	fl	fl	fl	fl	fl
Chloromethane	10 U					
Bromomethane	10 U					
Vinyl Chloride	10 U					
Chloroethane	10 U					
Methylene Chloride	7 J					
Acetone	8 J					
Carbon Disulfide	10 U					
1,1-Dichloroethene	10 U					
1,1-Dichloroethane	10 U					
Trans-1,2-Dichloroethene	10 U					
Chloroform	10 U					
1,2-Dichloroethane	10 U					
2-Butanone	10 U					
1,1,1-Trichloroethane	10 U					
Carbon Tetrachloride	10 U					
Vinyl Acetate	10 U					
Bromodichloromethane	10 U					
1,2-Dichloropropane	10 U					
Trans-1,3-Dichloropropene	10 U					
Trichloroethene	10 U					
Dibromochloromethane	10 U					
1,1,2-Trichloroethane	10 U					
Benzene	10 U					
cis-1,3-Dichloropropene	10 U					
2-Chloroethylvinylether	10 U					
Bromoform	10 U					
4-Methyl-2-pentanone	10 U					
2-Hexanone	10 U					

	Cust ID: 4-1 RFW#: 0080	
Tetrachloroethene	10	U
1,1,2,2-Tetrachloroethane	10	U
Toluene	10	U
Chlorobenzene	10	U
Ethylbenzene	10	U
Styrene	10	U
Total Xylenes	10	U
Dichlorobenzenes		*
Trichlorofluoromethane	10	U

Others:

* SEE BNA REPORT

U=Analyzed, not detected. B=Present in blank. NRP=Not Reported
J=Present at less than detection limit. NR=Not requested.

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information	Cust ID:	4-3	4-2	BLANK	3-3 BLANK	3-3	3-3A
	RFW#:	0100	0090	BLANK	0070	0050	0060
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	Toluene-d8:	89 %	96 %	90 %	104 %	89 %	117 %
	Bromofluorobenzene:	100 %	103 %	95 %	111 %	103 %	110 %
	1,2-Dichloroethane-d4:	88 %	101 %	84 %	85 %	125 %	66 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		6 J	6 J	7 J	6 J	7 J	8 J
Acetone		10 U	10 U	10 U	10 U	6 J	10 U
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,2-Dichloroethene		10 U	2 J	10 U	10 U	10 U	10 U
Chloroform		3 J	10 U	10 U	1 J	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	5 J	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	1 J	10 U	10 U	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Benzene		10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U	10 U
2-Chloroethylvinylether		10 U	10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-397- Client: COLTS NECK

Cust ID:	4-3	4-2	BLANK	3-3 BLANK	3-3	3-3A
RFW#:	0100	0090	BLANK	0070	0050	0060
	fl	fl	fl	fl	fl	fl
Tetrachloroethene	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorobenzenes	*	*	10 U	*	*	*
Trichlorofluoromethane	10 U	10 U	10 U	1 J	1 J	10 U

Others:
* See BNA report.

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0120

SAMPLE DESCRIPTION: 7-2

TENTATIVELY IDENTIFIED COMPOUNDS
(VOA FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Diethyl Ether	365	8J

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	BLANK	B.S.	B.S.D.	2-2	2-3	2-4
	RFW#:	BLANK	B.S.	B.S.D.	0010	0020	0030
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	2-Fluorophenol:	52 %	52 %	53 %	52 %	36 %	43 %
	Phenol-d5:	34 %	34 %	34 %	35 %	24 %	28 %
	2,4,6-Br3-Phenol:	68 %	56 %	49 %	44 %	14 %	20 %
	Nitrobenzene-d5:	86 %	86 %	88 %	74 %	60 %	52 %
	2-Fluorobiphenyl:	82 %	78 %	82 %	74 %	66 %	60 %
	p-Terphenyl-d14:	80 %	78 %	104 %	74 %	56 %	78 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	29 %	28 %	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	74 %	74 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	90 %	88 %	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	74 %	74 %	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	82 %	82 %	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	77 %	76 %	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-397- Client: COLTS NECK

Cust ID:	BLANK	B.S.	B.S.D.	2-2	2-3	2-4
RFW#:	BLANK	B.S.	B.S.D.	0010	0020	0030
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	74 %	80 %	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	13 %	9 %	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	78 %	68 %	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	2 J	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	NF	NF	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	78 %	86 %	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	80 %	108 %	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

RFW Batch Number: 8607-397- Client: COLTS NECK

Cust ID:	3-3	3-3A	3-3 BLANK	4-1	4-2	4-3
RFW#:	0050	0060	0070	0080	0090	0100
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	10 U	53	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	3-3	3-3A	3-3 BLANK	4-1	4-2	4-3
	RFW#:	0050	0060	0070	0080	0090	0100
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1	1	1	1	1	1
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery (%)	2-Fluorophenol:	41 %	37 %	53 %	38 %	61 %	66 %
	Phenol-d5:	26 %	25 %	32 %	26 %	54 %	46 %
	2,4,6-Br3-Phenol:	26 %	34 %	53 %	40 %	57 %	60 %
	Nitrobenzene-d5:	62 %	46 %	76 %	52 %	92 %	80 %
	2-Fluorobiphenyl:	72 %	62 %	80 %	64 %	76 %	84 %
	p-Terphenyl-d14:	68 %	64 %	82 %	58 %	64 %	70 %
		fl	fl	fl	fl	fl	fl
Phenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8607-397- Client: COLTS NECK

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	7-1	7-2	7-3	7-2 BLANK		
	RFW#:	0110	0120	0130	0140		
	Matrix:	WATER	WATER	WATER	WATER		
	D.F.:	1	1	1	1		
	Units:	UG/L	UG/L	UG/L	UG/L		
Surrogate Recovery (%)	2-Fluorophenol:	69 %	91 %	69 %	35 %	%	%
	Phenol-d5:	53 %	71 %	52 %	26 %	%	%
	2,4,6-Br3-Phenol:	44 %	65 %	63 %	25 %	%	%
	Nitrobenzene-d5:	116 %	81 %	82 %	82 %	%	%
	2-Fluorobiphenyl:	112 %	82 %	76 %	56 %	%	%
	p-Terphenyl-d14:	62 %	51 %	44 %	70 %	%	%
		fl	fl	fl	fl	fl	fl
Phenol		10 U	10 U	10 U	10 U		
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U		
2-Chlorophenol		10 U	10 U	10 U	10 U		
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U		
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U		
Benzyl Alcohol		10 U	10 U	10 U	10 U		
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U		
2-Methylphenol		10 U	10 U	10 U	10 U		
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U		
4-Methylphenol		10 U	10 U	10 U	10 U		
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U		
Hexachloroethane		10 U	10 U	10 U	10 U		
Nitrobenzene		10 U	10 U	10 U	10 U		
Isophorone		10 U	10 U	10 U	10 U		
2-Nitrophenol		10 U	10 U	10 U	10 U		
2,4-Dimethylphenol		10 U	10 U	10 U	10 U		
Benzoic Acid(2)		50 U	50 U	50 U	50 U		
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U		
2,4-Dichlorophenol		10 U	10 U	10 U	10 U		
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U		
Naphthalene		10 U	10 U	10 U	10 U		
4-Chloroaniline		10 U	10 U	10 U	10 U		
Hexachlororbutadiene		10 U	10 U	10 U	10 U		
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U		
2-Methylnaphthalene		10 U	10 U	10 U	10 U		
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U		

RFW Batch Number: 8607-397- Client: COLTS NECK

Cust ID:	7-1	7-2	7-3	7-2 BLANK
RFW#:	0110	0120	0130	0140
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U
2-Nitroaniline(2)	50 U	50 U	50 U	50 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U
3-Nitroaniline(2)	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U
4-Nitrophenol(2)	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U
4-Nitroaniline(2)	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine(1)	10 U	1 J	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U
Pentachlorophenol(2)	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U
(di-n-Butyl Phthalate)	(54)	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	1 J	1 J
Chrysene	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0140

SAMPLE DESCRIPTION: 7-2 BLK

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Decane	2007	6J
Decane	2074	8J
Decane	2202	7J
Decane	2263	6J
Benzene	2616	6J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0110

SAMPLE DESCRIPTION: 7-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1086

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0130

SAMPLE DESCRIPTION: 7-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	1561	9J
Unknown	1504	8J
Alkane	2074	8J
Alkane	2202	9J
Unknown	2274	9J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0120

SAMPLE DESCRIPTION: 7-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown	1434	10J
Alkyl Benzenesulfanamide	1561	7J
Unknown	1596	6J
$\geq C_8$ Hydrocarbon	2007	3J
$\geq C_{11}$ Hydrocarbon	2074	4J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0100

SAMPLE DESCRIPTION: 4-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0080

SAMPLE DESCRIPTION: 4-1

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Organic Acid	2080	160J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0090

SAMPLE DESCRIPTION: 4-2

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0070

SAMPLE DESCRIPTION: 3-3 BLK

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0060

SAMPLE DESCRIPTION: 3-3A

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Benzenesulfanamide	1565	4J
Benzene	2280	7J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-Blank

SAMPLE DESCRIPTION: Blank

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown alkane	2011	15J
Unknown alkane	2078	17J
Unknown alkane	2144	16J
Unknown alkane	2207	14J
Unknown	2626	13J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0010

SAMPLE DESCRIPTION: 0805L2075

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
Unknown alkane	2011	11J
Unknown alkane	2079	12J
Unknown alkane	2144	12J
Unknown alkane	2206	11J
Unknown	2625	10J

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0020

SAMPLE DESCRIPTION: 2-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0030

SAMPLE DESCRIPTION: 2-4

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

DATE OF REPORT: 20 August 1986

DATA SUMMARY FOR: Colts Neck

R.F.W. NO.: 8607-397-0050

SAMPLE DESCRIPTION: 3-3

TENTATIVELY IDENTIFIED COMPOUNDS
(B/N/A FRACTION)

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION, µg/L
NONE FOUND		

WESTON ANALYTICS
PESTICIDE/PCBs IN WATER
COMMERCIAL LIST

RFW Batch Number: 8607-397- Client: COLT'S NECK

Sample Information							
Cust ID:	3-3	3-3A	3-3 BK	4-1	4-2	4-3
RFW#:	0050	0060	0070	0080	0090	0100
Matrix:	Water	Water	Water	Water	Water	Water
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate: Di-n-butylchlorendate:	85 %	65 %	74 %	69 %	62 %	35 %
Analyte:	fl	fl	fl	fl	fl	fl
Alpha-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Beta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Delta-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor Epoxide	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin Aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan Sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin Ketone	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chlordane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

U=Analyzed,not detected. J=Present below detection limit. B=Present in blank. NR=Not requested.

WESTON ANALYTICS
PESTICIDE/PCBs IN WATER
COMMERCIAL LIST

RFW Batch Number: 8607-397- Client: COLT'S NECK

Sample Information							
Cust ID:		7-1	7-2	7-3	7-2 BK	BLANK	B.S.
RFW#:		0110	0120	0130	0140	BLANK	B.S.
Matrix:		Water	Water	Water	Water	Water	Water
D.F.:		1.00	1.00	1.00	1.00	1.00	1.00
Units:		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate:	Di-n-butylchlorendate:	38 %	43 %	60 %	75 %	108 %	109 %
Analyte:		fl	fl	fl	fl	fl	fl
Alpha-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Beta-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Delta-BHC		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Gamma-BHC (Lindane)		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	110 %
Heptachlor		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	116 %
Aldrin		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	98 %
Heptachlor Epoxide		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	108 %
4,4'-DDE		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	97 %
Endosulfan II		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin Aldehyde		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan Sulfate		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	124 %
Methoxychlor		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin Ketone		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chlordane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

U=Analyzed,not detected. J=Present below detection limit. B=Present in blank. NR=Not requested.

WESTON ANALYTICS
PESTICIDE/PCBs IN WATER
COMMERCIAL LIST

RFW Batch Number: 8607-397- Client: COLT'S NECK

Sample Information							
Cust ID:	B.S.D.						
RFW#:	B.S.D.						
Matrix:	Water	Water	Water	Water	Water	Water
D.F.:	1.00	NA	NA	NA	NA	NA
Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate: Di-n-butylchlorendate:	0 %	%	%	%	%	%
	fl	fl	fl	fl	fl	fl
Analyte:						
Alpha-BHC	0.05 U					
Beta-BHC	0.05 U					
Delta-BHC	0.05 U					
Gamma-BHC (Lindane)	112 %					
Heptachlor	100 %					
Aldrin	70 %					
Heptachlor Epoxide	0.05 U					
Endosulfan I	0.05 U					
Dieldrin	107 %					
4,4'-DDE	0.1 U					
Endrin	97 %					
Endosulfan II	0.1 U					
4,4'-DDD	0.1 U					
Endrin Aldehyde	0.1 U					
Endosulfan Sulfate	0.1 U					
4,4'-DDT	125 %					
Methoxychlor	0.5 U					
Endrin Ketone	0.1 U					
Chlordane	0.5 U					
Toxaphene	1.0 U					
Aroclor-1016	0.5 U					
Aroclor-1221	0.5 U					
Aroclor-1232	0.5 U					
Aroclor-1242	0.5 U					
Aroclor-1248	0.5 U					
Aroclor-1254	1.0 U					
Aroclor-1260	1.0 U					

U=Analyzed,not detected. J=Present below detection limit. B=Present in blank. NR=Not requested.

DATE OF REPORT: 09/15/86

CLIENT: COLT'S NECK
DATA SUMMARY REPORT FOR
SAMPLES RECEIVED: 7-18-86
W.O.NUMBER: 1771-09-02
DATE SAMPLE COLLECTED: 7/17-18/86
SAMPLE COLLECTED BY:. A.BRUCKNER/R.ALTHOUS

RFWSN	DESCRIPTION	CHLORIDE	PETROLEUM HYDROCARBONS
8607-397-0010	2-2	8.60 MG/L	
-0020	2-3	5.00 MG/L	
-0030	2-4	7.60 MG/L	
-0050	3-3	7.80 MG/L	<.2 MG/L
-0060	3-3		<.2 MG/L
-0070	3-3 BLANK	<5.00 MG/L	<.2 MG/L
-0080	4-1	6.80 MG/L	<.2 MG/L
-0090	4-2	6.40 MG/L	<.2 MG/L
-0100	4-3	6.40 MG/L	<.2 MG/L
-0110	7-1	12.3 MG/L	<.2 MG/L
-011R	REPLICATE	12.5 MG/L	
-011S	PRECISION	1.61 %	
-0120	7-2	32.6 MG/L	<.2 MG/L
-0130	7-3	11.1 MG/L	<.2 MG/L
-0140	7-2 BLANK	<5.00 MG/L	<.2 MG/L
	METHOD BLANK	<5.00 MG/L	<.2 MG/L
	METHOD SPIKE	24.1 MG/L	3.50 MG/L
	SPIKE RECOVERY	96.4 %	72.2 %
	METHOD SPIKE		3.94 MG/L
	SPIKE RECOVERY		81.2 %

RFWSN	DESCRIPTION	nitrate nitrite	NITROGLYCERINE
8607-397-0010	2-2	<.1 MG/L	<5 MG/L
-0020	2-3	.70 MG/L	<5 MG/L
-0030	2-4	.20 MG/L	<5 MG/L
-0040	2-2 BLK		<5 MG/L
-0060	3-3	.20 MG/L	
-0070	3-3 BLANK	<.1 MG/L	
-0080	4-1	<.1 MG/L	
-0090	4-2	<.1 MG/L	
-0100	4-3	<.1 MG/L	
-0110	7-1	<.1 MG/L	
-0120	7-2	<.1 MG/L	
-0130	7-3	.20 MG/L	
-0140	7-2 BLANK	<.1 MG/L	
-014R	REPLICATE	<.1 MG/L	
-014S	PRECISION	NC	
	METHOD BLANK	<.1 MG/L	<5 MG/L
	METHOD SPIKE	2 MG/L	20 MG/L
	SPIKE RECOVERY	100 %	100 %

CCLT'S NECK 09/15/86

RFWSN	DESCRIPTION	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN
8607-397-0010	2-2	2.25 MG/L	35.0 UG/L
-0020	2-3	4.12 MG/L	18.0 UG/L
-0030	2-4	2.25 MG/L	27.0 UG/L
-0050	3-3	3.60 MG/L	25.0 UG/L
-0060	3-3	3.39 MG/L	35.0 UG/L
-0070	3-3 BLANK	2.15 MG/L	17.0 UG/L
-0080	4-1	1.94 MG/L	17.0 UG/L
-0090	4-2	4.74 MG/L	18.0 UG/L
-0100	4-3	2.15 MG/L	17.0 UG/L
-0110	7-1	1.73 MG/L	23.0 UG/L
-0120	7-2	6.51 MG/L	18.0 UG/L
-0130	7-3	2.15 MG/L	18.0 UG/L
-0140	7-2 BLANK	1.42 MG/L	12.0 UG/L
-014R	REPLICATE	1.42 MG/L	
-014S	PRECISION	.000 %	
	METHOD BLANK	<.5 MG/L	3.00 UG/L
	METHOD SPIKE	5.06 MG/L	
	SPIKE RECOVERY	101 %	

RFWSN	DESCRIPTION	PH	SPECIFIC CONDUCTANCE
8607-397-0010	2-2	4.90 UNITS	50.1 UMHOS
-0020	2-3	4.80 UNITS	47.2 UMHOS
-0030	2-4	4.90 UNITS	38.6 UMHOS
-0050	3-3	4.70 UNITS	54.3 UMHOS
-0070	3-3 BLANK	7.10 UNITS	2.48 UMHOS
-0080	4-1	4.50 UNITS	77.8 UMHOS
-0090	4-2	6.50 UNITS	72.3 UMHOS
-009R	REPLICATE	6.50 UNITS	
-009S	PRECISION	.000 %	
-0100	4-3	4.50 UNITS	56.0 UMHOS
-0110	7-1	4.70 UNITS	63.3 UMHOS
-0120	7-2	4.20 UNITS	235 UMHOS
-0130	7-3	4.70 UNITS	90.6 UMHOS
-0140	7-2 BLANK	6.70 UNITS	1.23 UMHOS
-014R	REPLICATE		1.23 UMHOS
-014S	PRECISION		.000 %
	METHOD BLANK		.60 UMHOS
	METHOD SPIKE	7.00 UNITS	140 UMHOS
	SPIKE RECOVERY	100 %	101 %
	METHOD SPIKE		675 UMHOS
	SPIKE RECOVERY		97.7 %
	METHOD SPIKE		1330 UMHOS
	SPIKE RECOVERY		96.7 %

PREPARED BY Steph Dobbs
STEPHANIE DOBBS
DATA MANAGER
WESTON ANALYTICAL LABORATORIES

APPROVED BY Earl M. Hansen
EARL M. HANSEN, PH.D.
MANAGER
WESTON ANALYTICAL LABORATORIE

WESTON Analytics
Colts Neck VOA's in Soil
W.O. #1771-09-02
RFW #8603-747

1. The following qualifiers are used on the data summary:

   U - Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

   J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection 10 µg/l and a concentration of 3 µg/l is calculated, it is reported as 3J.

   NA - Not applicable.

2. Samples were:

   collected: 3/21/86
   analyzed: 3/28/86

   All holding times were met.

DATE OF REPORT: 05/05/86

CLIENT: COLT'S NECK
DATA SUMMARY REPORT FOR
SAMPLES RECEIVED: 3-24-86
W.O.NUMBER: 1771-09-02

DATE SAMPLE COLLECTED: 3/19-21/86
SAMPLE COLLECTED BY:. AMY BRUCKNER

RFWSN	DESCRIPTION	AG MG/KG	AS MG/KG	BE MG/KG	CD MG/KG	CR MG/KG	CR MG/L	CU MG/KG
8603-747-0010	19-C COMPOSITE	1.10	1.51	<.993	<.248	69.2		5.16
-001K	MATRIX SPIKE		5.06					
-001K	SPIKE RECOVERY		88.8%					
-001R	REPLICATE		1.06					
-001S	PRECISION		35.0%					
-0020	19-D	<.989	1.15	<.989	<.247	5.94		2.57
-002K	MATRIX SPIKE	2.07		4.52	.544	25.4		27.0
-002K	SPIKE RECOVERY	93%		86.4%	108%	97.3%		97.7%
-002R	REPLICATE	<.991		<.991	<.248	6.25		2.78
-002S	PRECISION	NC		NC	NC	5.09%		7.85%
-0210	LEACHATE 20-C						<.50	
-0220	LEACHATE 20-C						<.50	
-0230	LEACHATE 22-C						<.50	
-0240	LEACHATE 22-D						<.50	
-0250	LEACHATE 22-C						<.50	
-025K	MATRIX SPIKE						4.43	
-025K	SPIKE RECOVERY						88.6%	
-025R	REPLICATE						<.50	
-025S	PRECISION						NC	
-0260	LEACHATE 22-D						<.50	
-0270	BLANK						<.50	
	METHOD BLANK	<1.00	<1.00	<1.00	<.250	<2.50	<.50	2.60
	METHOD BLANK	<1.00	<1.00	<1.00	<.250	<2.50	<.50	<2.50
	METHOD SPIKE	1.96	4.73	4.50	.572	18.6	4.42	26.0
	SPIKE RECOVERY	88%	118%	90.0%	114%	93.0%	88.4%	104%
	METHOD SPIKE	1.87	5.23	4.40	.542	18.7	4.34	26.1
	SPIKE RECOVERY	84%	131%	88.0%	108%	93.5%	86.8%	104%

RFWSN	DESCRIPTION	HG UG/G	NI MG/KG	PB MG/KG	PB MG/L	SB MG/KG	SE MG/KG	TI MG/
8603-747-0010	19-C COMPOSITE	<.250	<3.97	25.5				
-001K	MATRIX SPIKE					<2.49	<.493	
-001K	SPIKE RECOVERY					7.75	.886	
-001R	REPLICATE					62.2%	87.6%	
-001S	PRECISION					<2.47	<.482	
-0020	19-D	<.250	<3.96	7.23		NC	NC	
-002K	MATRIX SPIKE		45.4	20.6		<2.49	<.500	
-002K	SPIKE RECOVERY		90.8%	267%				
-002R	REPLICATE		<3.97	6.42				
-002S	PRECISION		NC	11.9%				
-0210	LEACHATE 20-C				1.64			<.50
-0220	LEACHATE 20-C				<.50			<.50
-0230	LEACHATE 22-C				<.50			<.50
-0240	LEACHATE 22-D				<.50			<.50
-0250	LEACHATE 22-C				<.50			<.50
-025K	MATRIX SPIKE				4.40			4.51
-025K	SPIKE RECOVERY				86.4%			88.6%
-025R	REPLICATE				<.50			<.50
-025S	PRECISION				NC			NC
-0260	LEACHATE 22-D				<.50			<.50
-0270	BLANK				<.50			<.50
	METHOD BLANK	<.250	<4.00	<.500	<.50	<2.50	<.500	<.50
	METHOD BLANK		<4.00	<.500	<.50	<2.50	<.500	<.50
	METHOD SPIKE	2.49	44.8	4.89	4.23	11.9	.940	4.65
	SPIKE RECOVERY	99.6%	89.6%	97.8%	84.6%	119%	94.0%	93.0%
	METHOD SPIKE		45.3	5.12	4.37	12.5	.960	4.61
	SPIKE RECOVERY		90.6%	102%	87.4%	125%	96.0%	92.2%

RFWSN	DESCRIPTION	TL MG/KG	ZN MG/KG	ZN MG/L
8603-747-0010	19-C COMPOSITE	<.993	39.2	
-0020	19-D	<.989	6.03	
-002K	MATRIX SPIKE	4.61	52.1	
-002K	SPIKE RECOVERY	92.2%	92.1%	
-002R	REPLICATE	<.991	5.45	
-002S	PRECISION	NC	10.1%	
-0210	LEACHATE 20-C			<.50
-0220	LEACHATE 20-C			<.50
-0230	LEACHATE 22-C			<.50
-0240	LEACHATE 22-D			<.50
-0250	LEACHATE 22-C			<.50
-025K	MATRIX SPIKE			4.11
-025K	SPIKE RECOVERY			81.8%
-025R	REPLICATE			<.50
-025S	PRECISION			NC
-0260	LEACHATE 22-D			<.50
-0270	BLANK			<.50
	METHOD BLANK	<1.00	4.80	<.50
	METHOD BLANK	<1.00	4.10	<.50
	METHOD SPIKE	5.02	50.5	4.10
	SPIKE RECOVERY	100%	101%	82.0%
	METHOD SPIKE		49.7	3.95
	SPIKE RECOVERY		99.4%	79.0%

RFWSN	DESCRIPTION	PETROLIUM HYDROCARBONS
8603-747-0010	19-C COMPOSITE	7.6 MG/KG
-0020	19-D	2.5 MG/KG
-0030	20-C 2.0-2.5'	<1.0 MG/KG
-0040	20-C .5-1'	2.2 MG/KG
-0050	22-C .5-1'	4.2 MG/KG
-0060	22-D 2-2.5'	45.8 MG/KG
-0180	22-C 2-5.5'	39.0 MG/KG
-0190	22-D .5-1'	6.3 MG/KG
	METHOD BLANK	<1.0 MG/KG
	METHOD SPIKE	1.86 MG/KG
	SPIKE RECOVERY	95.7%
	METHOD SPIKE	1.99 MG/KG
	SPIKE RECOVERY	96.1%

RFWSN	DESCRIPTION	nitrate nitrite	OIL AND GREASE BY IR
8603-747-0070	11-A 6-9"		37,300 MG/KG
-0080	11-A 2-2.5'		76.3 MG/KG
-0090	11-B 6-9"		112 MG/KG
-0100	11-B 2-2.5'		15.5 MG/KG
-0110	11-C 2-2.5'		1.75 MG/KG
-0120	11-C 6-9"		2.6 MG/KG
-0130	11-D 2-2.5'		3.7 MG/KG
-0140	11-D 6-9"		8.2 MG/KG
-0150	2-A COMPOSITE	.60 MG/L	
-0160	2-B COMPOSITE	<.2 MG/L	
-0170	2-C COMPOSITE	<.2 MG/L	
	METHOD BLANK	<.2 MG/L	<1.0 MG/KG
	METHOD SPIKE	2.1 MG/L	1.70 MG
	SPIKE RECOVERY	105 %	82.1 %
	METHOD SPIKE		1.76 MG
	SPIKE RECOVERY		85.0 %

RFWSN	DESCRIPTION	TOTAL ORGANIC HALOGEN	NITROGLYCERINE
8603-747-0010	19-C COMPOSITE	<.1 UG/G	
-0020	19-D	<.1 UG/G	
-0150	2-A COMPOSITE		<1.0 MG/KG
-0150	DUPLICATE		<1.0 MG/KG
-0160	2-B COMPOSITE		<1.0 MG/KG
-0170	2-C COMPOSITE		<1.0 MG/KG
	METHOD BLANK	<.1 UG/G	
	METHOD SPIKE	.76 UG/G	
	SPIKE RECOVERY	72.4 %	
	METHOD SPIKE	.88 UG/G	
	SPIKE RECOVERY	83.8 %	

PREPARED BY Stephanie Dobbs
STEPHANIE DOBBS
DATA MANAGER
WESTON ANALYTICAL LABORATORIES

APPROVED BY Earl M. Hansen
EARL M. HANSEN, PH.D.
MANAGER
WESTON ANALYTICAL LABORATORI

DATE OF REPORT: April 10, 1986
DATE OF RECEIPT: March 24, 1986

COLTS NECK
EXPLOSIVES IN SOIL SUMMARY REPORT

		ANALYTE CONCENTRATION (µg/g)								
RFW NO.	CLIENT I.D.	HMX	RDX	1,3,5 TNB	1,3 DNB	NB	TETRYL	2,4,6 TNT	2,6 DNT	2,4 DNT
DETECTION LIMITS:		0.7	0.8	0.6	0.6	0.6	1.6	0.5	1.2	1.2
8603-747-0150	2-A	<	<	<	<	<	<	<	<	<
-0160	2-B									
-0170	2-C									
BLANK										

	SPIKE LEVEL (µg/g) (% RECOVERY)								
BLANK SPIKE	7(91)	4(89)	3(64)	3(91)	3(117)	4(82)	5(88)	3(89)	3(89)
BLANK SPIKE DUP	7(87)	4(86)	3(64)	3(88)	3(67)	4(77)	5(84)	3(84)	3(89)

COMPILED BY: Edward P. McGovern
Edward P. McGovern, Ph.D.
Senior Project Scientist
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON

DATE OF REPORT: 14 April 1986

.s Neck Explosives Analysis

SAMPLE DE RFW#	ITIFIER	ANALYTE CONCENTRATION (ug/g) Picric Acid
8603-747-0150	ite	<2.0
8603-747-0160	ite	3.0
8603-747-0170	ite	<2.0
Blank		<2.0
DETECTION LIMIT:		2.0

	Spike level (% Recovery)
Blank Spike	65.8(81)
Blank Spike Dupl	65.8(87)

COMPILED BY Edwarrn, Ph.D.
Seniocientist
WESTOl Laboratories

APPROVED BY Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON ANALYTICS
GC/MS DATA SUMMARY
VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8603-747- Client: COLTS NECK

Sample Information							
	Cust ID:	NA	19-C	19-D			
	RFW#:	BLANK	0010	0020			
	Matrix:	SOIL	SOIL	SOIL			
	D.F.:	1	1.1	1.3	NA	NA	NA
	Units:	UG/KG	UG/KG				
Surrogate Recovery (%)	Toluene-d8:	118 %	95 %	94 %	%	%	%
	Bromofluorobenzene:	123 %	84 %	82 %	%	%	%
	1,2-Dichloroethane-d4:	110 %	81 %	80 %	%	%	%
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	11 U	13 U			
Bromomethane		10 U	11 U	13 U			
Vinyl Chloride		10 U	11 U	13 U			
Chloroethane		10 U	11 U	13 U			
Methylene Chloride		7 J	11 U	13 U			
Acetone		10 U	11 U	13 U			
Carbon Disulfide		10 U	11 U	13 U			
1,1-Dichloroethene		10 U	11 U	13 U			
1,1-Dichloroethane		10 U	11 U	13 U			
Trans-1,2-Dichloroethene		10 U	11 U	13 U			
Chloroform		10 U	11 U	13 U			
1,2-Dichloroethane		10 U	11 U	13 U			
2-Butanone		10 U	11 U	13 U			
1,1,1-Trichloroethane		10 U	11 U	13 U			
Carbon Tetrachloride		10 U	11 U	13 U			
Vinyl Acetate		10 U	11 U	13 U			
Bromodichloromethane		10 U	11 U	13 U			
1,2-Dichloropropane		10 U	11 U	13 U			
Trans-1,3-Dichloropropene		10 U	11 U	13 U			
Trichloroethene		10 U	11 U	13 U			
Dibromochloromethane		10 U	11 U	13 U			
1,1,2-Trichloroethane		10 U	11 U	13 U			
Benzene		10 U	11 U	13 U			
cis-1,3-Dichloropropene		10 U	11 U	13 U			
2-Chloroethylvinylether		10 U	11 U	13 U			
Bromoform		10 U	11 U	13 U			
4-Methyl-2-pentanone		10 U	11 U	13 U			
2-Hexanone		10 U	11 U	13 U			

RFW Batch Number: 8603-747- Client: COLTS NECK

Cust ID:	NA	19-C	19-D
RFW#:	BLANK	0010	0020
Tetrachloroethene	10 U	11 U	13 U
1,1,2,2-Tetrachloroethane	10 U	11 U	13 U
Toluene	10 U	11 U	13 U
Chlorobenzene	10 U	11 U	13 U
Ethylbenzene	10 U	11 U	13 U
Styrene	10 U	11 U	13 U
Total Xylenes	10 U	11 U	13 U
Dichlorobenzenes	10 U	18	13 U
Trichlorofluoromethane	10 U	11 U	13 U

Others:
TENTATIVELY IDENTIFIED COMPOUNDS NONE FOUND

U=Analyzed, not detected. B=Present in blank.
J=Present at less than detection limit. NR=Not requested.

DATE OF REPORT: 04/30/86

CLIENT: COLT'S NECK
DATA SUMMARY REPORT FOR
SAMPLES RECEIVED: 2-6-86
W.O.NUMBER: 1771-09-02
DATE SAMPLE COLLECTED: 1-29-86
SAMPLE COLLECTED BY:. AMY BRUCKNER

RFWSN	DESCRIPTION	AG MG/KG	AS MG/KG	BE MG/KG	CD MG/KG	CR MG/KG	CR MG/L
8602-559-0090	19-A COMP	<.251	1.53	<.637	26800	59.6	
-009K	MATRIX SPIKE			7.64		84.0	
-009K	SPIKE RECOVERY			120%		122%	
-009R	REPLICATE					65.2	
-009S	PRECISION					8.97%	
-0100	19-B	<.222	4.53	<.561	31900	639	
-0110	LEACHATE 22-B						<.50
-0120	LEACHATE 20-A						<.50
-0130	LEACHATE 20-A						<.50
-0140	LEACHATE 22-B						<.50
-0150	LEACHATE 20-B						<.50
-0160	LEACHATE 20-B						<.50
-0170	LEACHATE 22-A						<.50
-0180	LEACHATE 22-A						<.50
	METHOD BLANK			<.500			<.50
	METHOD BLANK			<.500			
	METHOD SPIKE			6.1		31.0	
	SPIKE RECOVERY			122%		71%	
	METHOD SPIKE			6.00		76.3	
	SPIKE RECOVERY			120%		253%	

RFWSN	DESCRIPTION	CU MG/KG	HG UG/G	NI MG/KG	PB MG/KG	PB MG/L	SB MG/KG	SE MG/KG
8602-559-0090	19-A COMP	4.84	<.285	1.4	49.5		<.005	<.637
-009K	MATRIX SPIKE	37.7		68.5				
-009K	SPIKE RECOVERY	131%		168%				
-0100	19-B	13.5	<.300	2.5	1560		.747	<.637
-0110	LEACHATE 22-B					<.50		
-011K	MATRIX SPIKE					<.50		
-011K	SPIKE RECOVERY					*		
-0120	LEACHATE 20-A					<.50		
-0130	LEACHATE 20-A					<.50		
-0140	LEACHATE 22-B					<.50		
-0150	LEACHATE 20-B					<.50		
-0160	LEACHATE 20-B					<.50		
-0170	LEACHATE 22-A					<.50		
-0180	LEACHATE 22-A					<.50		
	METHOD BLANK	<2.50		<4		<.50	<.005	
	METHOD BLANK	<2.50		<4				
	METHOD SPIKE	27.2		42.8		<.50		
	SPIKE RECOVERY	109%		107%		*		
	METHOD SPIKE	28.2		67.8				
	SPIKE RECOVERY	113%		170%				

* SPIKED TOO LOW RELATIVE TO SAMPLE CONCENTRATION

COLT'S NECK 04/30/86

RFWSN	DESCR	TI IG/L	TL MG/KG	ZN MG/KG	ZN MG/L
8602-559-0090	19-A		<.251	289	
-009K	MATRIX			344	
-009K	SPIKE RE			*	
-0100	19-		<.222	776	
-0110	LEACHAT	.50			<.50
-0120	LEACHAT	.50			<.50
-0130	LEACHAT	.50			<.50
-0140	LEACHAT	.50			<.50
-0150	LEACHAT	.50			<.50
-0160	LEACHAT	.50			<.50
-0170	LEACHAT	.50			<.50
-0180	LEACHAT	.50			<.50
	METHOD	.50			<.50
	METHOD	.50		<2.00	
	METHOD			23.5	
	SPIKE RE			118%	
	METHOD			26.5	
	SPIKE RE			133%	

* SPIKED TOO LOW RELATIVE TO SAMPLE CONCENTRATION

RFWSN	DESCR	OIL AND GREASE BY IR	TOTAL ORGANIC HALOGEN
8602-559-0010	22-B 2	<2.0 MG/KG	
-0020	20-A 2	<2.0 MG/KG	
-0030	20-A .	<2.0 MG/KG	
-0040	22-B .	<2.0 MG/KG	
-0050	20-B 2	<2.0 MG/KG	
-0060	20-B	65.7 MG/KG	
-0070	22-A .	<2.0 MG/KG	
-0080	22-	<2.0 MG/KG	
-0090	19-	<2.0 MG/KG	.320 UG/G
-0100	19-	[illegible] MG/KG	2.15 UG/G
-010K	MATRIX		2.89 UG/G
-010K	SPIKE RE		74.8 %
	METHOD	<2.0 MG/KG	<.1 UG/G
	METHOD	236 MG/KG	
	SPIKE RE	112 %	

PREPARED BY Stephanie I
STEPHANIE I
DATA MANAGE
WESTON ANALYTICAL LABORATORIES

APPROVED BY Earl M. Hansen
EARL M. HANSEN, PH.D.
MANAGER
WESTON ANALYTICAL LABORATORIES

ROY F. WESTON
ORGANIC ANALYSIS DATA SUMMARY
VOLATILE PRIORITY POLLUTANT COMPOUNDS
EPA METHOD 624

CLIENT: US NAVY COLTS NECK
SAMPLE DESC: Composite 19-A
RFW #: 8602-559-0090
DATE COLLECTED: January 29, 1986
DATE ANALYZED: February 6, 1986

GCMS FILE NAME: 0206W002762
MATRIX: Soil
UNITS: ug/kg DETECTION LIMIT: 13
DILUTION FACTOR: 1.3
WEIGHT: 4.775 gm % MOISTURE: 21.5

SURROGATE RECOVERY:

1,1-DICHLOROETHANE d_4	86
TOLUENE d_8	105
p-BROMOFLUOROBENZENE	137

TARGET COMPOUNDS:

CHLOROMETHANE	3J	2-CHLOROETHYL VINYL ETHER	ND
BROMOMETHANE	ND	BROMOFORM	
VINYL CHLORIDE		TETRACHLOROETHYLENE	
CHLOROETHANE		1,1,2,2-TETRACHLOROETHANE	
METHYLENE CHLORIDE		TOLUENE	
TRICHLOROFLUOROMETHANE		CHLOROBENZENE	
1,1-DICHLOROETHYLENE		ETHYLBENZENE	
1,1-DICHLOROETHANE		DICHLOROBENZENES	*
TRANS-1,2-DICHLOROETHYLENE		OTHERS:	
CHLOROFORM		ACETONE	460
1,2-DICHLOROETHANE		2-BUTANONE	67
1,1,1-TRICHLOROETHANE		XYLENES	ND
CARBON TETRACHLORIDE			
BROMODICHLOROMETHANE			
1,2-DICHLOROPROPANE			
TRANS-1,3-DICHLOROPROPYLENE			
TRICHLOROETHYLENE			
DIBROMOCHLOROMETHANE			
1,1,2-TRICHLOROETHANE			
BENZENE			
CIS-1,3-DICHLOROPROPYLENE			

COMMENT: * See BNA report

ND = NOT DETECTED
NR = NOT REQUESTED
J = PRESENT AT LESS THAN DETECTION LIMIT

DATE: February 19, 1986

APPROVED BY: Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

ROY F. WESTON
ORGANIC ANALYSIS DATA SUMMARY
VOLATILE PRIORITY POLLUTANT COMPOUNDS
EPA METHOD 624

CLIENT: US Navy Colts Neck
SAMPLE DESC: Composite 19-B
RFW #: 8602-559-0100
DATE COLLECTED: January 29, 1986
DATE ANALYZED: February 06, 1986

GCMS FILE NAME: 0206W002763
MATRIX: Soil
UNITS: ug/kg DETECTION LIMIT: 11
DILUTION FACTOR: 1.1
WEIGHT: 4.910 gm % MOISTURE: 10.9

SURROGATE RECOVERY:

1,1-DICHLOROETHANE d_4	85
TOLUENE d_8	103
p-BROMOFLUOROBENZENE	130

TARGET COMPOUNDS:

CHLOROMETHANE	4J
BROMOMETHANE	ND
VINYL CHLORIDE	
CHLOROETHANE	
METHYLENE CHLORIDE	12
TRICHLOROFLUOROMETHANE	ND
1,1-DICHLOROETHYLENE	
1,1-DICHLOROETHANE	
TRANS-1,2-DICHLOROETHYLENE	
CHLOROFORM	
1,2-DICHLOROETHANE	
1,1,1-TRICHLOROETHANE	
CARBON TETRACHLORIDE	
BROMODICHLOROMETHANE	
1,2-DICHLOROPROPANE	
TRANS-1,3-DICHLOROPROPYLENE	
TRICHLOROETHYLENE	
DIBROMOCHLOROMETHANE	
1,1,2-TRICHLOROETHANE	
BENZENE	
CIS-1,3-DICHLOROPROPYLENE	

2-CHLOROETHYL VINYL ETHER	ND
BROMOFORM	
TETRACHLOROETHYLENE	
1,1,2,2-TETRACHLOROETHANE	
TOLUENE	
CHLOROBENZENE	
ETHYLBENZENE	
DICHLOROBENZENES	*
OTHERS:	
Acetone	14
2-Butanone	7J
Xylenes	ND

COMMENT: *see BNA report

ND = NOT DETECTED
NR = NOT REQUESTED
J = PRESENT AT LESS THAN DETECTION LIMIT

DATE: February 19, 1986

APPROVED BY: Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

ROY F. WESTON
ORGANIC ANALYSIS DATA SUMMARY
VOLATILE PRIORITY POLLUTANT COMPOUNDS
EPA METHOD 624

CLIENT: US NAVY COLTS NECK
GCMS FILE NAME: 0206W002745
SAMPLE DESC: Lab Soil Blank
MATRIX: Soil
RFW #: 8602-559-Blank
UNITS: ug/kg DETECTION LIMIT: 10
DATE COLLECTED: N/A
DILUTION FACTOR: 1.0
DATE ANALYZED: February 6, 1986
WEIGHT: 5.0 gm % MOISTURE: N/A

SURROGATE RECOVERY:

1,1-DICHLOROETHANE d_4	76
TOLUENE d_8	88
p-BROMOFLUOROBENZENE	111

TARGET COMPOUNDS:

CHLOROMETHANE	ND	2-CHLOROETHYL VINYL ETHER	ND
BROMOMETHANE		BROMOFORM	
VINYL CHLORIDE		TETRACHLOROETHYLENE	
CHLOROETHANE		1,1,2,2-TETRACHLOROETHANE	
METHYLENE CHLORIDE	1J	TOLUENE	
TRICHLOROFLUOROMETHANE	ND	CHLOROBENZENE	
1,1-DICHLOROETHYLENE		ETHYLBENZENE	
1,1-DICHLOROETHANE		DICHLOROBENZENES	
TRANS-1,2-DICHLOROETHYLENE		OTHERS:	
CHLOROFORM		Xylenes	ND
1,2-DICHLOROETHANE			
1,1,1-TRICHLOROETHANE			
CARBON TETRACHLORIDE			
BROMODICHLOROMETHANE			
1,2-DICHLOROPROPANE			
TRANS-1,3-DICHLOROPROPYLENE			
TRICHLOROETHYLENE			
DIBROMOCHLOROMETHANE			
1,1,2-TRICHLOROETHANE			
BENZENE			
CIS-1,3-DICHLOROPROPYLENE			

COMMENT:

ND = NOT DETECTED
NR = NOT REQUESTED
J = PRESENT AT LESS THAN DETECTION LIMIT

DATE: February 19, 1986

APPROVED BY: Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

PPENDIX E

COMMENTS

Inter-Office Memorandum

WESTON
MANAGERS DESIGNERS/CONSULTANTS

TO: ~~Amy Bruckner~~
cc: Kass Sheedy

RECEIVED
NOV 14 1986
GEOSCIENCES DEPT

FROM: Ed McGovern

DATE: 11 November 1986

PROJECT:

W.O. NO.:

SUBJECT: EXPLOSIVES/METALS RESULTS FOR COLTS NECK
RFW BATCHES 8607-451, 397, 378

ACTION:

Both the Explosives and Metals analytical results and raw data were reviewed to resolve questions concerning some of the reported values. The metals results will be addressed first.

RFW Number 8607-451

Silver (Ag): Only one sample 8607-451-0050 (stream 10-B 1st hr.) has a result greater than the detection limit (0.0025 mg/L). All other silver results are <0.0025 mg/L. The error appears to have been transcriptional.

Chromium and Copper (Cr and Cu): All method blanks (digested laboratory water blanks) and calibration blanks (acidified laboratory water) concentrations were less than the stated detection limit. The low but measurable values in the sample blanks (2-1 blank and stream 19-A blank) cannot be explained.

Nickel (Ni): The method preparation blank concentration was <0 .01 mg/L. One calibration blank exhibited a concentration of 0.01 mg/L, all others were less than the detection limit 0.01 mg/L. Subtraction of the calibration blank value from the determined sample concentrations would not reduce their concentrations to less than the detection limit. The measured value although small cannot be explained by either preparation blank contamination or calibration blank contribution.

Zinc (Zn): The zinc preparation blanks exhibited concentrations of 0.017 and 0.014 mg/L respectively. These levels when subtracted from the sample blanks reduce their concentrations to less than the detection limit of 0.01 mg/L. The calibration blanks were all less than the detection limit. This preparation blank contribution will affect the values for some of the other samples. The accompanying tables reflect these changes.

2,4,6 - TNT. The retension window for HMX was 3.58 ± 0.09 minutes. The response assigned to HMX occured at 3.90 minutes which is outside the HMX retention window. A revised analytical report accompanies this memo. The retention window for 2,4,6 - TNT is 10.41 ± 0.33 minutes. The retention time of the analyte assigned to 2,4,6 - TNT in the chromatogram of the sample occured at 10.41 minutes. THis is a correct retention time, however visual inspection of the chromatogram indicates the response at 10.41 minutes does not have the characteristic shape of the analyte response observed in standards. Therefore the material was quantified as the analyte 2,4,6 - TNT but it must be noted that the identification is tenuous, for the reason mentioned above.

RFW Number 8607-378

Chromium (Cr) and Nickel (Ni): The method blanks for both elements are less than 0.01 mg/L. Calibration blanks bracketing sample numbers 8607-378-0110 through 8607-378-0160 are within acceptable limits (<0.01 mg/L), however, the calibration blanks associated with sample numbers 8607-378-0010 through 8607-378-0100 have concentrations of 0.016 and 0.034 for Chromium and Nickel respectively. This indicates the associated measured sample concentrations are biased high by those amounts respectively. Subtraction of those values from the sample values for Chromium and Nickel respectively will bring all sample values except 378-0010 Nickel to less than 0.01 mg/L.

Zinc (Zn): All method and continuing calibration blanks are less than 0.01 mg/L. The low blank (11-2 blank) value (0.01 mg/L) cannot be directly attributed to either blank contamination or calibration bias.
The attached tables reflect corrected values for Cr and Ni.

RFW Number 8607-397

Chromium (Cr): All method blank concentrations were less than 0.01 mg/L; however, calibration blank concentrations were between 0.019 and 0.016 mg/L. Measured sample concentrations could therefore be biased high by those values. Reduction of all sample concentrations by calibration blank contribution would place all sample concentrations at less than 0.01 mg/L.

Nickel (Ni): All method blank concentrations were less than 0.01 mg/L, however calibration blank concentrations ranged from 0.032 to 0.034 mg/L. Measured sample concentrations could be biased high by those values. Reduction of all sample and blank concentrations by the calibration blank contribution would reduce the sample concentrations to less than 0.01 mg/L.

Zinc (Zn): All method and calibration blank concentrations were less than 0.01 mg/L. The associated sample values cannot be explained as due to high method or calibration blank contribution.

EXPLOSIVE RESULTS FOR RFW BATCHES 8607-451 AND 378.

Raw data for sample 8607-451-0028 (2-1 blank) was examined. The retention window established for HMR was 3.63±0.02 minutes. The response assigned to HMX in the blank was observed at 3.67 minutes. This is outside the analyte window and should not have been assigned to HMX. A corrected table accompanies this memo.

Raw data for sample 8607-378-0010 (11-2 blank) was examined for both HMX and

DATE OF REPORT: 16 September 1986

COLTS NECK
METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED July 25, 1986
WO# 1771-09-02

DATE SAMPLES COLLECTED: July 21-24, 1986
SAMPLES COLLECTED BY: Amy Bruckner

R.F.W. NUMBER	CLIENT I.D.	Sb mg/L	As mg/L	Be mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Pb mg/L	Hg µg/L	Ni mg/L	Se mg/L	Ag mg/L	Tl mg/L	Zn mg/L
8607-451-0010	Stream 10-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	0.3	<0.01	<0.005	<0.0025	<0.01	0.015
-0050	Stream 10-B 1st hr.	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	0.004	<0.01	0.016
-0070	Stream 10-B 6th hr	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	0.004	<0.01	0.016
-0090	Spring 4-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.012	0.014	<0.005	<.2	.04	<0.005	0.004	<0.01	0.033
-0100	Spring 4-A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.017	0.014	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.055
-0110	Spring 4-B 1st hr.		<0.01	<0.01	<0.0025	0.012	0.014	<0.005	<.2	0.03	<0.005	0.004	<0.01	0.043
-0120	Spring 4-B 6th hr.		<0.01	<0.01	<0.0025	0.014	0.016	<0.005	<.2	0.03	<0.005	0.004	<0.01	0.034
-0130	Stream 19-A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.018	<0.005	<.2	0.03	<0.005	0.004	<0.01	0.043
-0150	Stream 19-A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.016	0.017	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.044
-0170	Stream 19-B 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.017	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.138
-0190	Stream 19-B 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.014	0.018	<0.005	<.2	0.03	<0.005	0.004	<0.01	0.030
-0210	3-1	<0.03	<0.01	<0.01	0.008	0.017	0.015	<0.005	<.2	0.05	<0.005	0.004	<0.01	0.242
-0220	3-2	<0.03	<0.01	<0.01	<0.0025	0.013	0.016	<0.005	<.2	0.05	<0.005	0.004	<0.01	0.103
-0230	Stream 2A 1st hr.	<0.03	<0.01	<0.01	<0.0025	0.016	0.021	0.014	<.2	0.04	<0.005	0.004	<0.01	0.064
-0250	Stream 2A 6th hr.	<0.03	<0.01	<0.01	<0.0025	0.017	0.022	0.014	<.2	0.04	<0.005	0.004	<0.01	0.061
-0270	2-1	<0.03	<0.01	<0.01	<0.0025	0.023	0.024	<0.005	<.2	0.03	<0.005	0.004	<0.01	0.032
-0280	2-1 Blank	<0.03	<0.01	<0.01	<0.0025	0.014	0.014	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.015
-0290	5-4	<0.03	<0.01	<0.01	<0.0025	0.019	0.022	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.051
-0300	Stream 19-A Dup	<0.03	<0.01	<0.01	<0.0025	0.021	0.018	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.039
-0320	Stream 19-A Blank	<0.03	<0.01	<0.01	<0.0025	0.018	0.019	<0.005	<.2	0.04	<0.005	0.004	<0.01	0.015
	Method Blank	<0.03	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.2	<0.01	<0.005	0.004	<0.01	0.014
	Blank Spike	97%	90%	90%	99%	91%	87%	103%	97%	90%	98%	93%	89%	99%

COMPILED BY Cindy Carfolofo
Stephanie Dobbs
Data Manager
WESTON Analytical Laboratories

APPROVED BY
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

DATE OF REPORT: 16 September 1986

COLTS NECK
METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED July 16, 1986
WO# 1771-09-02

DATE SAMPLES COLLECTED: July 14-16, 1986
SAMPLES COLLECTED BY: A. Bruckner, R. Althouse

R.F.W. NUMBER	CLIENT I.D.	Sb mg/L	As mg/L	Be mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Pb mg/L	Hg ug/L	Ni mg/L	Se mg/L	Ag mg/L	Tl mg/L	Zn mg/L
8607-378-0010	10-1	<0.01	<0.01	<0.01	0.006	0.016	0.03	<0.005	<.5	0.05	<0.005	<0.0025	<0.01	0.09
-0020	10-3	<0.01	<0.01	<0.01	<0.0025	0.013	<0.01	<0.005	<.5	0.03	<0.005	<0.0025	<0.01	0.08
-0030	10-2	<0.01	<0.01	<0.01	<0.0025	0.019	<0.01	<0.005	<.5	0.03	<0.005	<0.0025	<0.01	1.01
-0040	10-2A	<0.01	<0.01	<0.01	<0.0025	0.019	<0.01	<0.005	<.5	0.02	<0.005	<0.0025	<0.01	0.82
-0050	11-3	<0.01	<0.01	<0.01	<0.0025	0.012	<0.01	<0.005	<.5	0.03	<0.005	<0.0025	<0.01	0.06
-0060	11-1	<0.01	<0.01	<0.01	<0.0025	0.019	<0.01	<0.005	<.5	0.02	<0.005	<0.0025	<0.01	0.03
-0070	11-3A	<0.01	<0.01	<0.01	<0.0025	0.019	<0.01	0.006	<.5	0.03	<0.005	<0.0025	<0.01	0.04
-0090	11-2	<0.01	<0.01	<0.01	<0.0025	0.019	<0.01	<0.005	<.5	0.04	<0.005	<0.0025	<0.01	0.07
-0100	11-2 Blank	<0.01	<0.01	<0.01	<0.0025	0.018	<0.01	<0.005	<.5	0.04	<0.005	<0.0025	<0.01	0.010
-0110	19-2	<0.01	<0.01	<0.01	0.006	<0.01	<0.01	<0.005	<.5	0.016	<0.005	<0.0025	<0.01	0.09
-0120	19-1	<0.01	<0.01	<0.01	0.007	0.015	<0.01	0.006	<.5	0.02	<0.005	<0.0025	<0.01	0.09
-0130	19-3	<0.01	<0.01	<0.01	0.004	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.06
-0140	5-1	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.017
-0150	5-2	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.016
-0160	5-3	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	0.033
	Method Blank	<0.01	<0.01	<0.01	<0.0025	<0.01	<0.01	<0.005	<.5	<0.01	<0.005	<0.0025	<0.01	<0.01
	Blank Spike		96%		104%			103%	100%		98%	92%	< 91%	

COMPILED BY C.C. Cafiero for
Stephanie Dobbs
Data Manager
WESTON ANALYTICAL LABORATORIES

APPROVED BY Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON ANALYTICAL LABORATORIES

DATE OF REPORT: 9/15/86

COLT'S NECK

METALS SUMMARY REPORT
FOR
SAMPLES RECEIVED 7/18/86

W.O.#: 1771-09-02

Date Samples Collected: 7/17,18/86
Samples Collected by: A. Bruckner, R. Althouse

RFW#: 8607-397-	Client ID	Sb	As	Be	Cd	Cr	Cu	Pb	Ni	Sr	Ag	Tl	Zn	Hg
		mg/L												µg/L
0010	2-2	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.03	<.2
0030	2-4	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.02	<.2
0050	3-3	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	<0.005	0.011	<0.005	<0.0025	<0.01	0.11	<.2
0060	3-3-A	<0.01	<0.01	<0.01	0.0025	< 0.01	<0.01	<0.005	0.011	<0.005	<0.0025	<0.01	0.20	<.2
0070	3-3 Blank	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	<0.005	0.011	<0.005	<0.0025	<0.01	<0.01	<.2
0080	4-1	<0.01	<0.01	<0.01	< 0.0025	0.010	<0.01	<0.005	0.011	<0.005	<0.0025	<0.01	0.06	<.2
0090	4-2	<0.01	<0.01	<0.01	< 0.0025	0.011	<0.01	<0.005	0.011	<0.005	<0.0025	<0.01	0.03	<.2
0100	4-3	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	<0.005	<0.01	<0.005	<0.0025	<0.01	0.06	<.2
0110	7-1	<0.01	<0.01	<0.01	< 0.0025	0.011	<0.01	<0.005	0.015	<0.005	<0.0025	<0.01	0.03	<.2
0120	7-2	<0.01	<0.01	<0.01	< 0.0025	0.013	<0.01	<0.005	0.012	<0.005	<0.0025	<0.01	0.03	<.2
0130	7-3	<0.01	<0.01	<0.01	< 0.0025	0.013	<0.01	<0.005	0.03	<0.005	<0.0025	<0.01	0.09	<.2
0140	7-2 Blank	<0.01	<0.01	<0.01	< 0.0025	0.014	<0.01	<0.005	0.02	<0.005	<0.0025	<0.01	<0.01	<.2
	Method Blank	<0.01	<0.01	<0.01	< 0.0025	< 0.01	<0.01	--	<0.01	<0.005	--	<0.01	<0.01	<.2
	Blank Spike	106%	96%	--	104%	--	--	--	--	98%	92%	91%	--	87%

COMPILED BY: Emily Carfioli for
Stephanie Dobbs
Data Manager
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen
Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

WESTON

DATE OF REPORT: 10 September 1986

COLT's NECK EXPLOSVIES IN WATER/SOIL

WESTON I.D.#	CLIENT I.D.	HMX	RDX	2,4,6-TNT
Detection Limits: (Waters-ug/liter)		1.75	1.0	1.25
Date Analyzed: 7/30/86				
451-23	2-A(1st hour)	<	<	<
-25	2-A(6th hour)	<	<	<
-27	2-1	<	<	<
-28	2-1 Blank	2.71	<	<
-36	2-A Stream Blk	<	<	<
-37	2-A Sed. Blank	<	<	<
-23 Dup	Lab Duplicate	<	<	<
Blank	Lab Blank	<	<	<
	SPIKE LEVEL/% RECOVERY			
2X Spike		3.5/73	2/121	2.5/53
5X Spike		8.75/75	5/110	6.25/85
10X Spike		17.5/98	10/106	12.5/96
Detection Limits: (Soils-ug/gram)		1.4	0.8	1.0
Date Analyzed: 8/1/86				
451-24	2-A(1st hour)	<	<	<
-26	2-A(6th hour)	<	<	<
-35	2-A Dup	<	<	<
Blank	Lab Blank	<	<	<
	SPIKE LEVEL/% RECOVERY			
2X Spike		2.8/99	1.6/94	2/119
10X Spike		14.0/93	8.0/87	10/92
10X Spike Dup		14.0/102	8.0/93	10/101
451-26 MS	Lab Matrix Spike	14.0/95	8.0/93	10/95

COMPILED BY: Edward P. McGovern, Ph.D.
Inorganic Section Manager
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories

DATE OF REPORT: 10 September 1986

COLT's NECK EXPLOSIVES IN WATER

WESTON I.D.#	CLIENT I.D.	HMX	RDX	2,4,6-TNT
Detection Limits: (ug/liter)		1.75	1.0	1.25
Date Analyzed: 7/18/86				
378-50	11-3	<	<	<
-60	11-1	<	<	<
-70	11-3A	<	<	<
-90	11-2	<	<	<
-100	11-2 Blank	4.63	<	1.85
-50 Dup	Lab Dup	<	<	<
Blank	Lab Blank	<	<	<
Date Analyzed: 7/24/86				
397-10	2-2	<	<	<
-20	2-3	<	<	<
-30	2-4	<	<	<
-40	2-2 Blank	<	<	<
-10 Dup	Lab Dup	<	<	<
Blank	Lab Blank	<	<	<
	SPIKE LEVEL/% RECOVERY			
378-2X		3.5/118	2/113	2.5/110
-5X		8.75/104	5/108	6.25/104
-10X		17.5/118	10/118	12.5/93
397-2X		3.5/107	2/91	2.5/97
-5X		8.75/99	5/97	6.25/94
-10X		17.5/102	10/98	12.5/97

COMPILED BY: Edward P. McGovern, Ph.D.
Inorganic Section Manager
WESTON Analytical Laboratories

APPROVED BY: Earl M. Hansen, Ph.D.
Manager
WESTON Analytical Laboratories