United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 413
Main Post-East Area

NJDEP UST Registration No. 90010-30
DICAR No. 96-11-20-1000-58

January 2000

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 413

MAIN POST-EAST AREA
NJDEP UST REGISTRATION NO. 90010-30
DICAR NO. 96-11-20-1000-58

JANUARY 2000

PREPARED FOR:

UNITED STATES ARMY, FORT MONMOUTH, NEW JERSEY
DIRECTORATE OF PUBLIC WORKS
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UST Closure

On November 19, 1996, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) closure procedures at the Main Post-East area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0090010-30 (Fort Monmouth ID No. 413), was located northeast of Building 413. UST No. 0090010-30 was a 1,080 gallon #2 fuel oil UST.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual.* The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation.* Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST. Stained soil was observed at the north end of the tank, adjacent to the fill port. The NJDEP hotline was notified and the case was assigned DICAR No. 96-11-20-1000-58. Approximately 47 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area. Soil samples, which were collected after the removal of the potentially contaminated soil, contained non-detectable levels of TPHC. Groundwater was encountered at 6.0 feet below ground surface and sheen was observed on groundwater.

All post excavation soil samples collected from the UST excavation at Building 413 contained TPHC concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 milligrams per kilogram (mg/kg) (N.J.A.C. 7:26D and revisions dated February 3, 1994). Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and certified clean fill. The excavation site was then restored to its original condition.

In response to the observation of sheen on groundwater, two (2) groundwater samples were collected at Building 413. On October 16, 1999, and December 4, 1999, Building 413 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). All groundwater analytical results were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

No further action is proposed in regard to the closure and site assessment of UST No. 90010-30 at Building 413.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 90010-30, was closed at Building 413 at the Main Post-East area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on November 19, 1996. Refer to the site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 1,080-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 90010-30 complied with all applicable Federal, State, and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP approved Decommissioning/Closure Plan were posted onsite for inspection. The decommissioning activities were conducted by DPW personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 90010-30 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 90010-30 are included in Appendices A and B, respectively.

After removal of the potentially contaminated soil, the site was assessed. Based on inspecting the UST, field screening of remaining subsurface soils, and reviewing analytical results of soil samples and groundwater samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping.

This UST Closure and Site Investigation Report has been prepared by Versar, to assist the U.S. Army DPW in complying with the NJDEP regulations. The applicable NJDEP regulations at the date of closure were the *Interim Closure Requirements for Underground Storage Tank Systems* (N.J.A.C. 7:14B-1 et seq. October 1990 and revisions dated November 1, 1991).

This report was prepared using information collected at the time of closure. Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling and groundwater investigation, are presented in the final section of this report.

1.2 SITE DESCRIPTION

Building 413 is located in the Main Post-East area of the Fort Monmouth Army Base. UST No. 0090010-30 was located northeast of Building 413 and appurtenant copper piping ran approximately fifteen (15) feet west from the excavation to Building 413. A site map is provided on Figure 2.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 413. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area. A geological map is provided on Figure 1A.

Regional Geology

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. More than 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapecza, 1990).

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine

grained sand with abundant clay, mica, and glauconite.

The Tinton sand conformably overlies the Red Bank Sand and ranges from a clayey medium to very coarse grained feldspathic quartz and glauconite sand to a glauconitic coarse sand. The color varies from dark yellowish orange or light brown to moderate brown and from light olive to grayish olive. Glauconite may constitute 60 to 80 percent of the sand fraction in the upper part of the unit (Minard, 1969). The upper part of the Tinton is often highly oxidized and iron oxide encrusted (Minard).

Hydrogeology

The water table aquifer in the Main Post area is identified as part of the "composite confining units," or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths of 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Due to the proximity of the Atlantic Ocean to Fort Monmouth, shallow groundwater may be tidally influenced and may flow toward creeks and brooks as the tide goes out, and away from creeks and brooks as the tide comes in. However, an abundance of clay lenses and sand deposits were noted in borings installed throughout Fort Monmouth. Therefore, the direction of shallow groundwater should be determined on a case-by-case basis.

Shallow groundwater is locally influenced within the Main Post area by the following factors:

- tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
- topography
- nature of the fill material within the Main Post area
- presence of clay and silt lenses in the natural overburden deposits
- local groundwater recharge areas (i.e., streams, lakes)

Due to the fluvial nature of the overburden deposits (i.e., sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis. This is consistent with lithologies observed in borings installed within the Main Post area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of gravel silt and/or clay.

Building 413 is located approximately 300 feet south of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 413 is anticipated to be to the north.

1.3 HEALTH AND SAFETY

Before, during, and after all decommissioning activities, hazards at the work site which may have posed a threat to the Health and Safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized. All areas, which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- The contractor performing the closure prior to excavation activities identified all underground obstructions (utilities, etc.).
- All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- All excavated soils were visually examined and screened with an OVA for evidence of contamination. Potentially contaminated soils were identified and logged during closure activities.
- Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged separately from all soil and recycled in accordance with all applicable regulations and laws.
- A Sub-Surface Evaluator from the DPW was present during all site assessment activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 200 gallons of liquid from the UST and its associated piping were transported by Lionetti Oil Recovery Company to Lionetti Oil Recovery Company, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were noted in the UST during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. Stained soil was observed at the north end of the tank, adjacent to the fill port. Approximately 47 cubic yards of potentially contaminated soil were removed from the excavated area and transported to the Main Post petroleum contaminated soil holding area. Soil screening was also performed along the piping associated with the UST. No contamination was noted anywhere along the piping length. Soil samples, which were collected after the removal of the potentially contaminated soil, contained non-detectable levels of TPHC. Groundwater was encountered at 6.0 feet below ground surface and sheen was observed on groundwater. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported in compliance with all applicable regulations and laws. Please refer to Appendix D for the UST Disposal Certificate and Appendix G for photographs of the tank.

The UST was labeled prior to transport with the following information:

- Site of origin
- Contact person
- NJDEP UST Facility ID number
- Former contents
- Destination site
- Date

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and TPHC analysis results from the post-excavation soil samples, approximately 47 cubic yards of potentially contaminated soil were removed from the UST excavation. All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Groundwater was encountered at 6.0 feet below ground surface and sheen was observed on groundwater.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed and carried out by U.S. Army DPW personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEP Certified Sub-Surface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP document *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. The Fort Monmouth DPW Environmental Office maintains all records of the Site Investigation activities.

The following Parties participated in Closure and Site Investigation Activities:

- Project Manager: Eugene Lesinski
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (732) 532-6224
  NJDEP Certification No.: 14537

- Analytical Laboratory: U.S.Army Fort Monmouth Environmental laboratory
  Contact Person: Daniel K. Wright
  Phone Number: (908) 532-4359
  NJDEP Company Certification No.: 13461

- Hazardous Waste Hauler: Lorco Petroleum Services
  Contact Person: Don Taguinot
  Phone Number: (908) 721-0900

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Approximately 47 cubic yards of potentially petroleum contaminated soil were removed from the excavated area and transported to the Fort Monmouth petroleum contaminated soil holding area. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 6.0 feet below ground surface and sheen was observed on groundwater.

2.3 SOIL SAMPLING

On November 27, 1996, following the removal of the UST and associated piping, post-excavation soil samples A, B, C, D, E, F, and DUP D were collected from a total of six (6) locations of the UST excavation. Piping samples A and B were collected at a depth of 1.0 feet bgs. Sidewall samples C, D, E, and DUP D were collected at a depth of 5.5 feet bgs. Excavation floor sample F was collected at a depth of 7.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

On December 4, 1996, following the removal of potentially contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, and DUP C were collected from a total of five (5) locations of the UST excavation. Sidewall samples A, B, C, D, and DUP C were collected at a depth of 5.5 feet bgs. Excavation floor sample E was collected at a depth of 7.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

DPW personnel in accordance with the NJDEP Technical Requirements and the NJDEP Field Sampling Procedures Manual performed the site assessment. A summary of sampling activities including parameters analyzed is provided in Table 1. The post-excavation soil samples were collected using NJDEP *Field Sampling Procedures Manual* (1992) standard sampling procedures. Following soil sampling activities, the samples were chilled and delivered to U.S. Army Fort Monmouth Environmental Laboratory located in Fort Monmouth, New Jersey, for analysis.

2.4 GROUNDWATER SAMPLING

On October 16,1999, and December 4, 1999, Building 413 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). Sampling and analysis were performed in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements For Site Remediation*. Refer to Appendix F for the field sampling documentation.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated piping, post-excavation soil samples were collected on November 27, 1996, and December 4, 1996 from a total of eleven (11) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on November 27, 1996, and December 4, 1996, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Soil samples, which were collected after the removal of the potentially contaminated soil, contained non-detectable levels of TPHC.

3.2 GROUNDWATER SAMPLING RESULTS

No compounds were detected in the sample collected from Building 413 on October 16, 1999, and December 4, 1999.

A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria is provided in Table 3 and the groundwater sampling locations are shown on Figure 5. The analytical data package is provided in Appendix F. The full data package, including quality control, is on file at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey.

Groundwater samples collected on October 16, 1999, and December 4,1999, were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

3.3 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 413 were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on the post-excavation sampling results, soil with TPHC concentrations exceeding the NJDEP soil cleanup criteria for total organic contaminants of 10,000 mg/kg, do not exist in the former location of the UST or associated piping.

Based on the analytical results of the groundwater samples collected at Building 413 on October 16, 1999, and December 4, 1999, groundwater quality at Building 413 was either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

No further action is proposed in regard to the closure and site assessment of UST No. 90010-30 at Building 413.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 413, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	11/27/96	12/2/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	11/27/96	12/2/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	11/27/96	12/2/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	11/27/96	12/2/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	11/27/96	12/2/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
F	11/27/96	12/2/96	Soil	Post-excavation	TPHC	OQA-QAM-025
DUPD	11/27/96	12/2/96	Soil	Post-excavation	TPHC	OQA-QAM-025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 413, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUPC	12/4/96	12/4/96	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 413, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Sampling Method**
4860.01	10/16/99	10/19/99	Aqueous	Groundwater	VOCs, SVOCs	PPNDP
4984.01	12/4/99	12/9/99	Aqueous	Groundwater	VOCs, SVOCs	PPNDP

Note:
*VOCs: Volatile Organic Compounds plus 15 tentatively identified compounds
*SVOCs: Semivolatile organic compounds plus 15 tentatively identified compounds
**PPNDP: Passively Placed Narrow Diameter Point

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 413, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/1.0=	2224.1	11/27/96	12/2/96	Total Solid	--	--	90.9 %	--	--
				TPHC	200	yes	ND	10,000	No
B/1.0=	2224.2	11/27/96	12/2/96	Total Solid	--	--	80.1 %	--	--
				TPHC	200	Yes	ND	10,000	No
C/5.5=	2224.3	11/27/96	12/2/96	Total Solid	--	--	83.2 %	--	--
				TPHC	200	Yes	ND	10,000	No
D/5.5=	2224.4	11/27/96	12/2/96	Total Solid	--	--	88.2 %	--	--
				TPHC	200	yes	ND	10,000	No
E/5.5=	2224.5	11/27/96	12/2/96	Total Solid	--	--	81.6 %	--	--
				TPHC	200	yes	ND	10,000	No
F/7.5=	2224.6	11/27/96	12/2/96	Total Solid	--	--	81.8 %	--	--
				TPHC	200	yes	ND	10,000	No
DUPD/5.5=	2224.7	11/27/96	12/2/96	Total Solid	--	--	87.9 %	--	--
				TPHC	200	yes	ND	10,000	No

Note:

* Total Solid results are expressed as a percentage.

** NJDEP Residential Direct Contact soil cleanup criteria for total organics

ND Not detected above stated method detection limit

TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 413, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/5.5=	2235.1	12/4/96	12/4/96	Total Solid	--	--	87.0 %	--	--
				TPHC	200	yes	ND	10,000	No
B/8.5=	2235.2	12/4/96	12/4/96	Total Solid	--	--	87.2 %	--	--
				TPHC	200	Yes	ND	10,000	No
C/5.5=	2235.3	12/4/96	12/4/96	Total Solid	--	--	87.8 %	--	--
				TPHC	200	Yes	ND	10,000	No
D/5.5=	2235.4	12/4/96	12/4/96	Total Solid	--	--	85.1 %	--	--
				TPHC	200	yes	ND	10,000	No
E/8.5=	2235.5	12/4/96	12/4/96	Total Solid	--	--	84.5 %	--	--
				TPHC	200	Yes	ND	10,000	No
DUPC/5.5=	2235.6	12/4/96	12/4/96	Total Solid	--	--	86.1 %	--	--
				TPHC	200	Yes	ND	10,000	No

Note:

* Total Solid results are expressed as a percentage.

** NJDEP Residential Direct Contact soil cleanup criteria for total organics

ND Not detected above stated method detection limit

TPHC Total Petroleum Hydrocarbons

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.01(413)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolein	1.85	Not Detected	--	50	no
107131	Acrylonitrile	2.78	Not Detected	--	50	no
75650	tert-Butyl alcohol	8.52	Not Detected	--	nle	no
1634044	Methyl-tert-Butyl ether	0.16	Not Detected	--	nle	no
108203	Di-isopropyl ether	0.25	Not Detected	--	nle	no
	Dichlorodifluoromethane	1.68	Not Detected	--	nle	no
74-87-3	Chloromethane	1.16	Not Detected	--	30	no
75-01-4	Vinyl Chloride	1.06	Not Detected	--	5	no
74-83-9	Bromomethane	1.10	Not Detected	--	10	no
75-00-3	Chloroethane	1.01	Not Detected	--	nle	no
75-69-4	Trichlorofluoromethane	0.50	Not Detected	--	nle	no
75-35-4	1, 1-Dichloroethene	0.24	Not Detected	--	2	no
67-64-1	Acetone	1.36	Not Detected	--	700	no
75-15-0	Carbon Disulfide	0.46	Not Detected	--	nle	no
75-09-2	Methylene Chloride	0.24	Not Detected	--	2	no
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected	--	100	no
75-35-3	1,1-Dichloroethane	0.12	Not Detected	--	70	no
108-05-4	Vinyl Acetate	0.78	Not Detected	--	nle	no
78-93-3	2-Butanone	0.62	Not Detected	--	300	no
156-59-2	cis-1,2-Dichloroethene	0.17	Not Detected	--	10	no
67-66-3	Chloroform	0.30	Not Detected	--	6	no
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected	--	30	no
56-23-5	Carbon Tetrachloride	0.47	Not Detected	--	2	no
71-43-2	Benzeze	0.23	Not Detected	--	1	no
107-06-2	1,2-Dichloroethane	0.18	Not Detected	--	2	no
79-01-6	Trichloroethene	0.23	Not Detected	--	1	no
78-87-5	1, 2-Dichloropropane	0.40	Not Detected	--	1	no
75-27-4	Bromodichloromethane	0.55	Not Detected	--	1	no
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected	--	nle	no
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected	--	nle	no

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.01(413)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
108-10-1	4-Methyl-2-Pentanone	0.59	Not Detected	--	400	no
108-88-3	Toluene	0.37	Not Detected	--	1000	no
10061-02-6	trans-1,3-Dichloropropene	0.87	Not Detected	--	nle	no
79-00-5	1,1,2-Trichloroethane	0.48	Not Detected	--	3	no
127-18-4	Tetrachloroethene	0.32	Not Detected	--	1	no
591-78-6	2-Hexanone	0.71	Not Detected	--	nle	no
126-48-1	Dibromochloromethane	0.86	Not Detected	--	10	no
108-90-7	Chlorobenzene	0.39	Not Detected	--	4	no
100-41-4	Ethylbenzene	0.65	Not Detected	--	700	no
1330-20-7	m+p-Xylenes	1.14	Not Detected	--	nle	no
1330-20-7	o-Xylene	0.62	Not Detected	--	nle	no
100-42-5	Styrene	0.56	Not Detected	--	100	no
75-25-2	Bromoform	0.70	Not Detected	--	4	no
79-34-5	1,1,2,2-Tetrachloroethane	0.47	Not Detected	--	2	no
541-73-1	1,3-Dichlorobenzene	0.55	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	0.57	Not Detected	--	75	no
95-50-1	1,2-Dichlorobenzene	0.64	Not Detected	--	600	no

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.02(Field Dup)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolein	1.85	Not Detected	--	50	no
107131	Acrylonitrile	2.78	Not Detected	--	50	no
75650	tert-Butyl alcohol	8.52	Not Detected	--	nle	no
1634044	Methyl-tert-Butyl ether	0.16	Not Detected	--	nle	no
108203	Di-isopropyl ether	0.25	Not Detected	--	nle	no
	Dichlorodifluoromethane	1.68	Not Detected	--	nle	no
74-87-3	Chloromethane	1.16	Not Detected	--	30	no
75-01-4	Vinyl Chloride	1.06	Not Detected	--	5	no
74-83-9	Bromomethane	1.10	Not Detected	--	10	no
75-00-3	Chloroethane	1.01	Not Detected	--	nle	no
75-69-4	Trichlorofluoromethane	0.50	Not Detected	--	nle	no
75-35-4	1, 1-Dichloroethene	0.24	Not Detected	--	2	no
67-64-1	Acetone	1.36	Not Detected	--	700	no
75-15-0	Carbon Disulfide	0.46	Not Detected	--	nle	no
75-09-2	Methylene Chloride	0.24	Not Detected	--	2	no
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected	--	100	no
75-35-3	1,1-Dichloroethane	0.12	Not Detected	--	70	no
108-05-4	Vinyl Acetate	0.78	Not Detected	--	nle	no
78-93-3	2-Butanone	0.62	Not Detected	--	300	no
156-59-2	cis-1,2-Dichloroethene	0.17	Not Detected	--	10	no
67-66-3	Chloroform	0.30	Not Detected	--	6	no
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected	--	30	no
56-23-5	Carbon Tetrachloride	0.47	Not Detected	--	2	no
71-43-2	Benzeze	0.23	Not Detected	--	1	no
107-06-2	1,2-Dichloroethane	0.18	Not Detected	--	2	no
79-01-6	Trichloroethene	0.23	Not Detected	--	1	no
78-87-5	1, 2-Dichloropropane	0.40	Not Detected	--	1	no
75-27-4	Bromodichloromethane	0.55	Not Detected	--	1	no
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected	--	nle	no
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected	--	nle	no

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.02(Field Dup)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
108-10-1	4-Methyl-2-Pentanone	0.59	Not Detected	--	400	no
108-88-3	Toluene	0.37	Not Detected	--	1000	no
10061-02-6	trans-1,3-Dichloropropene	0.87	Not Detected	--	nle	no
79-00-5	1,1,2-Trichloroethane	0.48	Not Detected	--	3	no
127-18-4	Tetrachloroethene	0.32	Not Detected	--	1	no
591-78-6	2-Hexanone	0.71	Not Detected	--	nle	no
126-48-1	Dibromochloromethane	0.86	Not Detected	--	10	no
108-90-7	Chlorobenzene	0.39	Not Detected	--	4	no
100-41-4	Ethylbenzene	0.65	Not Detected	--	700	no
1330-20-7	m+p-Xylenes	1.14	Not Detected	--	nle	no
1330-20-7	o-Xylene	0.62	Not Detected	--	nle	no
100-42-5	Styrene	0.56	Not Detected	--	100	no
75-25-2	Bromoform	0.70	Not Detected	--	4	no
79-34-5	1,1,2,2-Tetrachloroethane	0.47	Not Detected	--	2	no
541-73-1	1,3-Dichlorobenzene	0.55	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	0.57	Not Detected	--	75	no
95-50-1	1,2-Dichlorobenzene	0.64	Not Detected	--	600	no

Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.01(413)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.83	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.91	Not Detected	--	20	no
62-53-3	Aniline	1.63	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	1.28	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	1.19	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	1.02	Not Detected	--	75	no
100-51-6	Benzyl alcohol	1.02	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	1.13	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	1.39	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	1.50	Not Detected	--	20	no
67-72-1	Hexachloroethane	0.97	Not Detected	--	10	no
98-95-3	Nitrobenzene	1.01	Not Detected	--	10	no
78-59-1	Isophorone	1.21	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	1.75	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	1.22	Not Detected	--	9	no
91-20-3	Naphthalene	1.27	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.09	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.71	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	1.08	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	1.32	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	1.01	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.79	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.52	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.96	Not Detected	--	nle	no

Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.01(413)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.81	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	0.79	Not Detected	--	nle	no
83-32-9	Acenaphthene	1.10	Not Detected	--	400	no
132-64-9	Dibenzofuran	1.00	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	0.87	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.62	Not Detected	--	5000	no
86-73-7	Fluorene	0.99	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	1.10	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	1.05	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.01	Not Detected	--	20	no
103-33-3	Azobenzene	0.67	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	0.76	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	0.94	Not Detected	--	10	no
85-01-8	Phenanthrene	1.23	Not Detected	--	nle	no
120-12-7	Anthracene	1.12	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	1.70	Not Detected	--	900	no
206-44-0	Fluoranthene	1.64	Not Detected	--	300	no
92-87-5	Benzidine	4.18	Not Detected	--	50	no
129-00-0	Pyrene	1.25	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.05	Not Detected	--	100	no
56-55-3	Benzo[a]anthracene	1.19	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.75	Not Detected	--	60	no
218-01-9	Chrysene	1.38	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.74	Not Detected	--	30	no
117-84-0	Di-n-octylphthalate	1.44	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.25	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.29	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	1.05	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	0.83	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	0.64	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	0.84	Not Detected	--	nle	no

Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.02(Field Dup)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.83	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.91	Not Detected	--	20	no
62-53-3	Aniline	1.63	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	1.28	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	1.19	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	1.02	Not Detected	--	75	no
100-51-6	Benzyl alcohol	1.02	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	1.13	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	1.39	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	1.50	Not Detected	--	20	no
67-72-1	Hexachloroethane	0.97	Not Detected	--	10	no
98-95-3	Nitrobenzene	1.01	Not Detected	--	10	no
78-59-1	Isophorone	1.21	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	1.75	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	1.22	Not Detected	--	9	no
91-20-3	Naphthalene	1.27	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.09	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.71	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	1.08	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	1.32	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	1.01	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.79	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.52	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.96	Not Detected	--	nle	no

Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 10/16/99 Location: 413 Lab Sample ID: 4860.02(Field Dup)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.81	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	0.79	Not Detected	--	nle	no
83-32-9	Acenaphthene	1.10	Not Detected	--	400	no
132-64-9	Dibenzofuran	1.00	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	0.87	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.62	Not Detected	--	5000	no
86-73-7	Fluorene	0.99	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	1.10	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	1.05	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.01	Not Detected	--	20	no
103-33-3	Azobenzene	0.67	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	0.76	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	0.94	Not Detected	--	10	no
85-01-8	Phenanthrene	1.23	Not Detected	--	nle	no
120-12-7	Anthracene	1.12	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	1.70	Not Detected	--	900	no
206-44-0	Fluoranthene	1.64	Not Detected	--	300	no
92-87-5	Benzidine	4.18	Not Detected	--	50	no
129-00-0	Pyrene	1.25	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.05	Not Detected	--	100	no
56-55-3	Benzo[a]anthracene	1.19	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.75	Not Detected	--	60	no
218-01-9	Chrysene	1.38	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.74	Not Detected	--	30	no
117-84-0	Di-n-octylphthalate	1.44	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.25	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.29	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	1.05	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	0.83	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	0.64	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	0.84	Not Detected	--	nle	no

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 12/4/99 Location: 413 Lab Sample ID: 4984.01(413-1)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolein	1.85	Not Detected	--	50	no
107131	Acrylonitrile	2.78	Not Detected	--	50	no
75650	tert-Butyl alcohol	8.52	Not Detected	--	nle	no
1634044	Methyl-tert-Butyl ether	0.16	Not Detected	--	nle	no
108203	Di-isopropyl ether	0.25	Not Detected	--	nle	no
	Dichlorodifluoromethane	1.68	Not Detected	--	nle	no
74-87-3	Chloromethane	1.16	Not Detected	--	30	no
75-01-4	Vinyl Chloride	1.06	Not Detected	--	5	no
74-83-9	Bromomethane	1.10	Not Detected	--	10	no
75-00-3	Chloroethane	1.01	Not Detected	--	nle	no
75-69-4	Trichlorofluoromethane	0.50	Not Detected	--	nle	no
75-35-4	1, 1-Dichloroethene	0.24	Not Detected	--	2	no
67-64-1	Acetone	1.36	Not Detected	--	700	no
75-15-0	Carbon Disulfide	0.46	Not Detected	--	nle	no
75-09-2	Methylene Chloride	0.24	Not Detected	--	2	no
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected	--	100	no
75-35-3	1,1-Dichloroethane	0.12	Not Detected	--	70	no
108-05-4	Vinyl Acetate	0.78	Not Detected	--	nle	no
78-93-3	2-Butanone	0.62	Not Detected	--	300	no
156-59-2	cis-1,2-Dichloroethene	0.17	Not Detected	--	10	no
67-66-3	Chloroform	0.30	Not Detected	--	6	no
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected	--	30	no
56-23-5	Carbon Tetrachloride	0.47	Not Detected	--	2	no
71-43-2	Benzeze	0.23	Not Detected	--	1	no
107-06-2	1,2-Dichloroethane	0.18	Not Detected	--	2	no
79-01-6	Trichloroethene	0.23	Not Detected	--	1	no
78-87-5	1, 2-Dichloropropane	0.40	Not Detected	--	1	no
75-27-4	Bromodichloromethane	0.55	Not Detected	--	1	no
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected	--	nle	no
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected	--	nle	no

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 12/4/99 Location: 413 Lab Sample ID: 4984.01(413-1)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
108-10-1	4-Methyl-2-Pentanone	0.59	Not Detected	--	400	no
108-88-3	Toluene	0.37	Not Detected	--	1000	no
10061-02-6	trans-1,3-Dichloropropene	0.87	Not Detected	--	nle	no
79-00-5	1,1,2-Trichloroethane	0.48	Not Detected	--	3	no
127-18-4	Tetrachloroethene	0.32	Not Detected	--	1	no
591-78-6	2-Hexanone	0.71	Not Detected	--	nle	no
126-48-1	Dibromochloromethane	0.86	Not Detected	--	10	no
108-90-7	Chlorobenzene	0.39	Not Detected	--	4	no
100-41-4	Ethylbenzene	0.65	Not Detected	--	700	no
1330-20-7	m+p-Xylenes	1.14	Not Detected	--	nle	no
1330-20-7	o-Xylene	0.62	Not Detected	--	nle	no
100-42-5	Styrene	0.56	Not Detected	--	100	no
75-25-2	Bromoform	0.70	Not Detected	--	4	no
79-34-5	1,1,2,2-Tetrachloroethane	0.47	Not Detected	--	2	no
541-73-1	1,3-Dichlorobenzene	0.55	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	0.57	Not Detected	--	75	no
95-50-1	1,2-Dichlorobenzene	0.64	Not Detected	--	600	no

Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 12/4/99 Location: 413 Lab Sample ID: 4984.01(413-1)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.83	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.91	Not Detected	--	20	no
62-53-3	Aniline	1.63	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	1.28	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	1.19	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	1.02	Not Detected	--	75	no
100-51-6	Benzyl alcohol	1.02	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	1.13	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	1.39	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	1.50	Not Detected	--	20	no
67-72-1	Hexachloroethane	0.97	Not Detected	--	10	no
98-95-3	Nitrobenzene	1.01	Not Detected	--	10	no
78-59-1	Isophorone	1.21	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	1.75	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	1.22	Not Detected	--	9	no
91-20-3	Naphthalene	1.27	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.09	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.71	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	1.08	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	1.32	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	1.01	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.79	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.52	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.96	Not Detected	--	nle	no

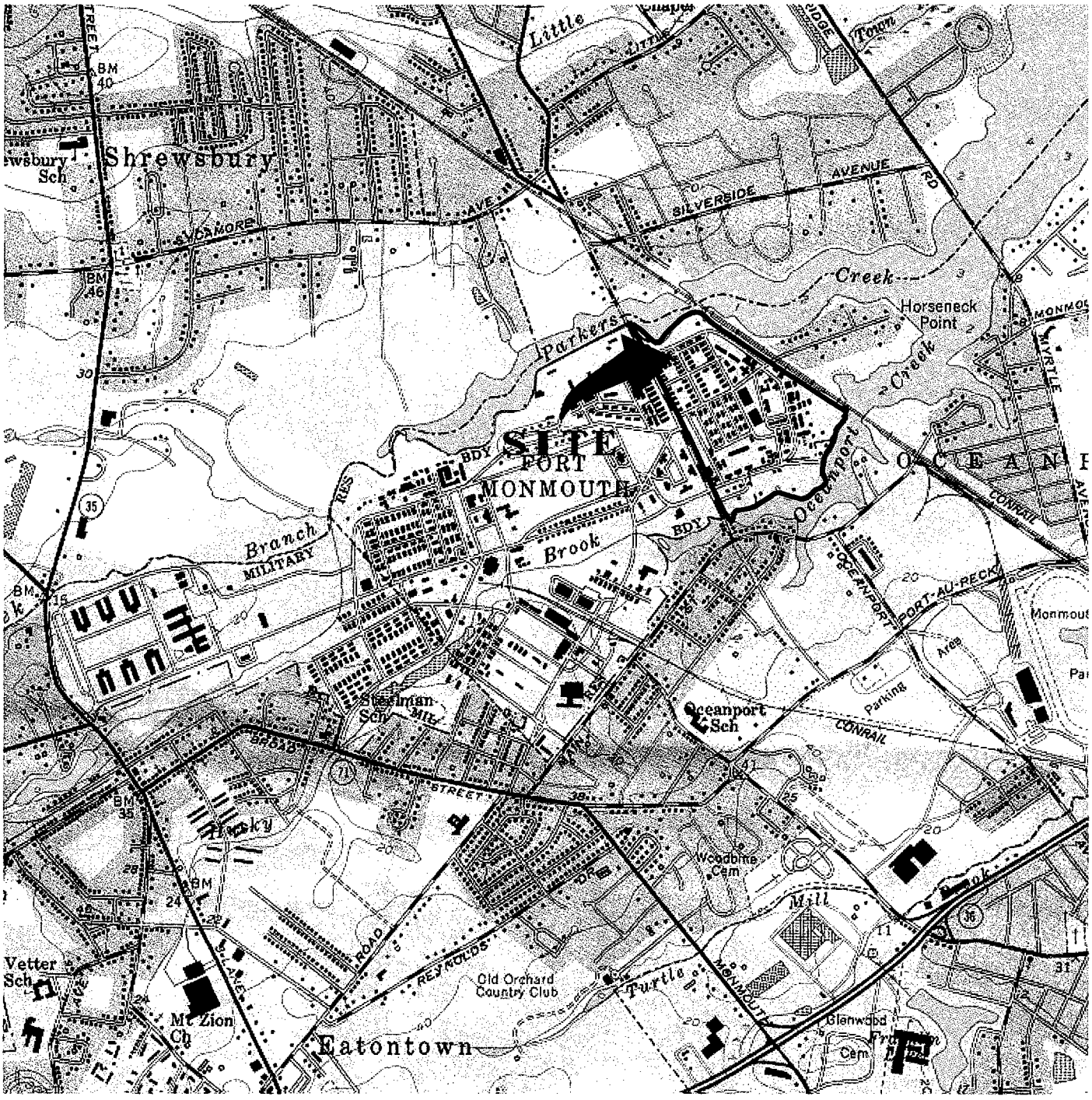
Table 3
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

Date Sampled: 12/4/99 Location: 413 Lab Sample ID: 4984.01(413-1)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.81	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	0.79	Not Detected	--	nle	no
83-32-9	Acenaphthene	1.10	Not Detected	--	400	no
132-64-9	Dibenzofuran	1.00	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	0.87	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.62	Not Detected	--	5000	no
86-73-7	Fluorene	0.99	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	1.10	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	1.05	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.01	Not Detected	--	20	no
103-33-3	Azobenzene	0.67	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	0.76	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	0.94	Not Detected	--	10	no
85-01-8	Phenanthrene	1.23	Not Detected	--	nle	no
120-12-7	Anthracene	1.12	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	1.70	Not Detected	--	900	no
206-44-0	Fluoranthene	1.64	Not Detected	--	300	no
92-87-5	Benzidine	4.18	Not Detected	--	50	no
129-00-0	Pyrene	1.25	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.05	Not Detected	--	100	no
56-55-3	Benzo[a]anthracene	1.19	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.75	Not Detected	--	60	no
218-01-9	Chrysene	1.38	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.74	Not Detected	--	30	no
117-84-0	Di-n-octylphthalate	1.44	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.25	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.29	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	1.05	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	0.83	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	0.64	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	0.84	Not Detected	--	nle	no

FIGURES



LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW JERSEY

QUADRANGLE LOCATION

Mapped, edited and published by the Geological Survey

FIGURE 1

LOCATION MAP
Building 413
Main-Post East
Fort Monmouth Army Base
Monmouth County, NJ

VERSAR
Engineers, Managers, Scientists, & Planners
Bristol, PA

Scale: 1" = 2000'	Date: NOV 1996

Geologic Map of New Jersey

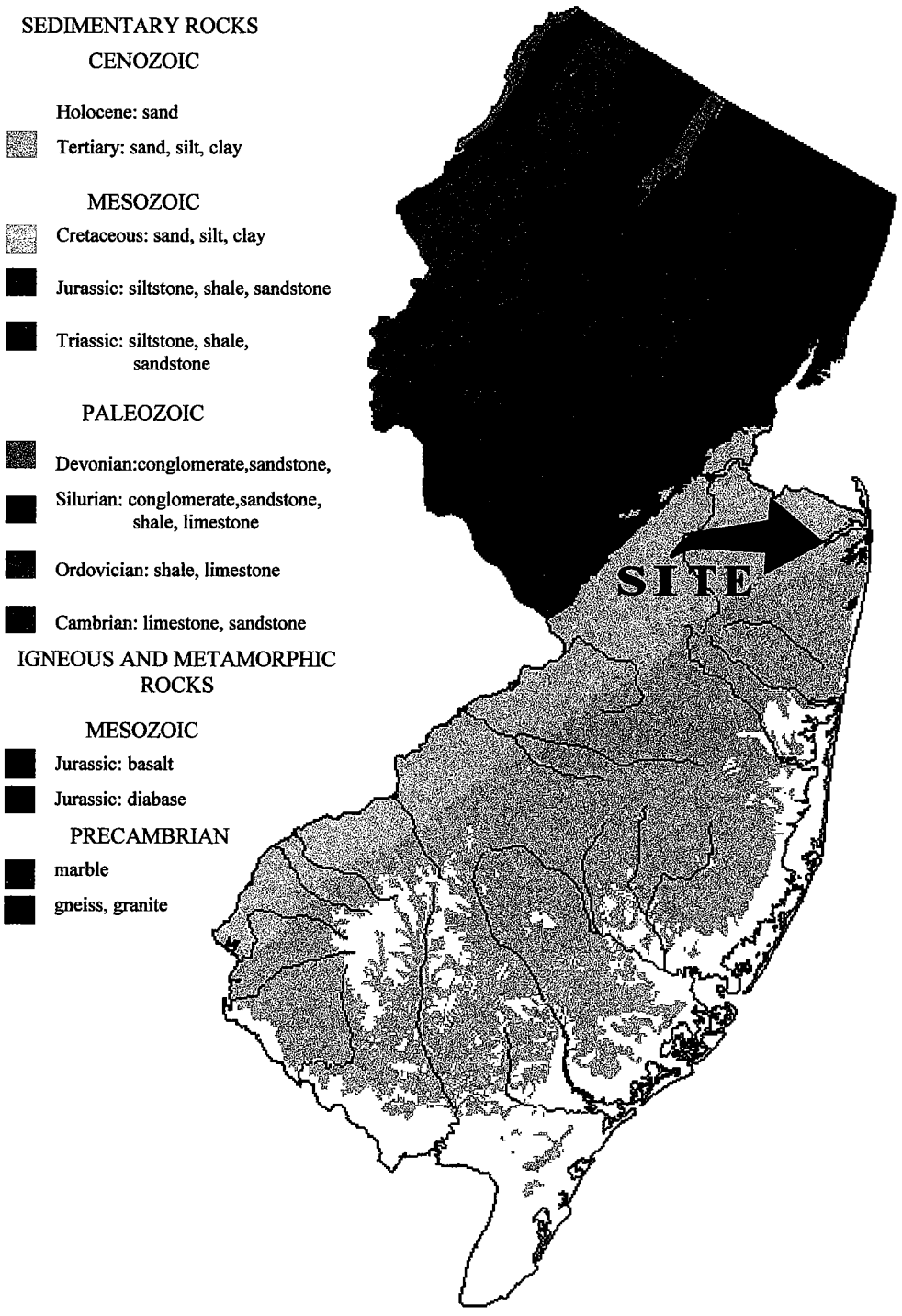


FIGURE 1A
GEOLOGICAL MAP
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, Pennsylvania

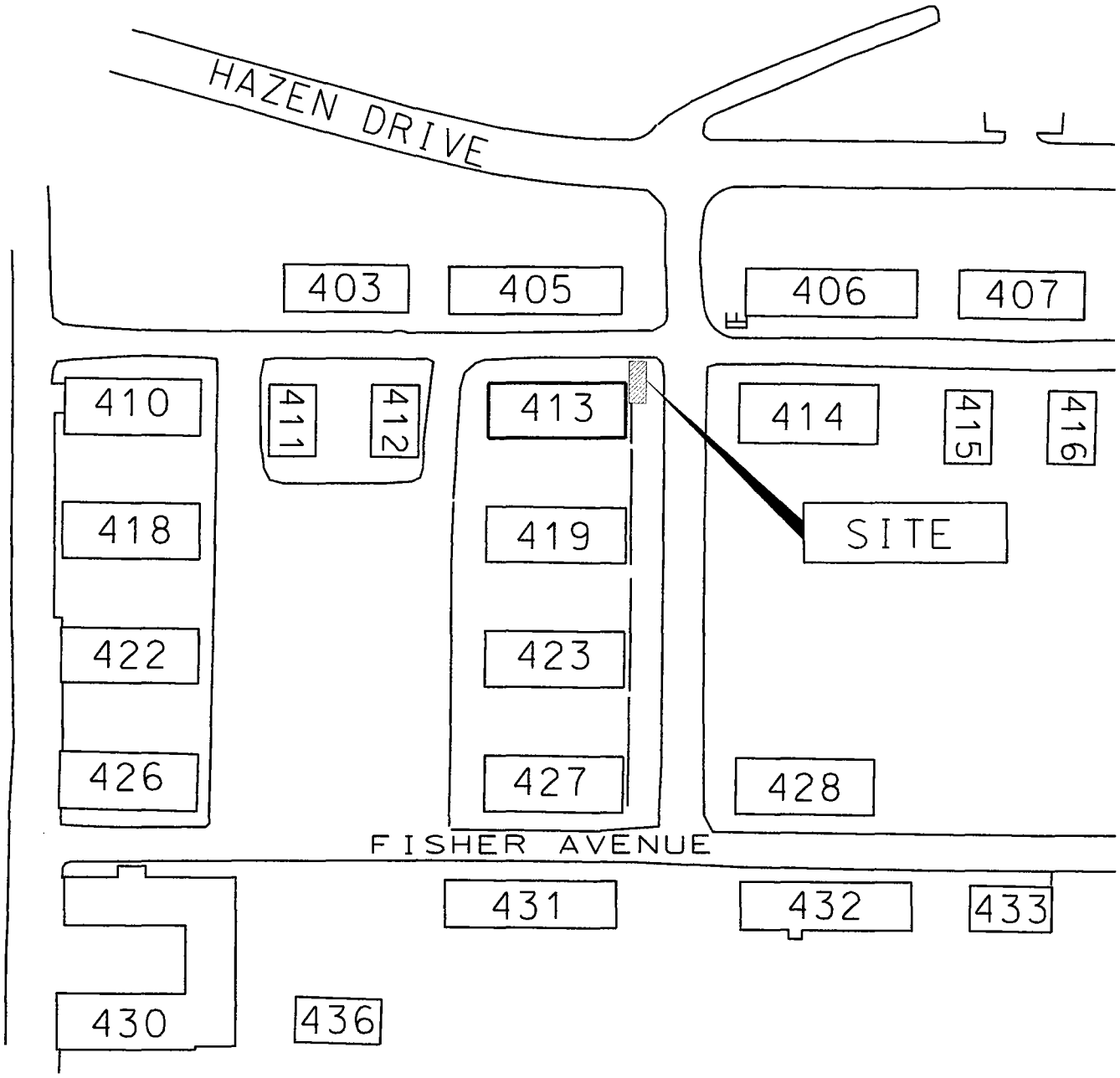


FIGURE 2
SITE MAP
BUILDING 413
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=100'

DATE: NOV 1996

413 2429 FIG2

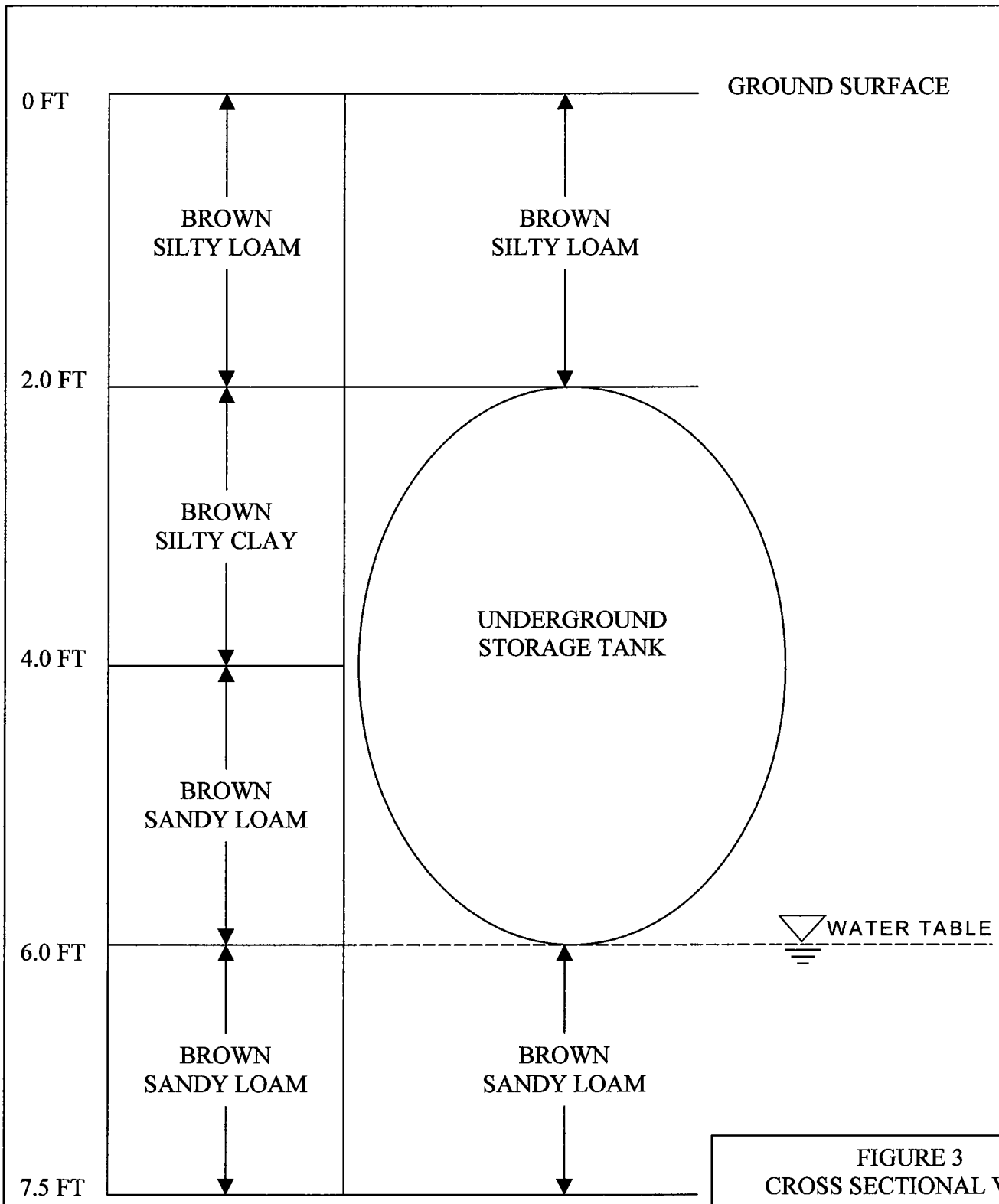
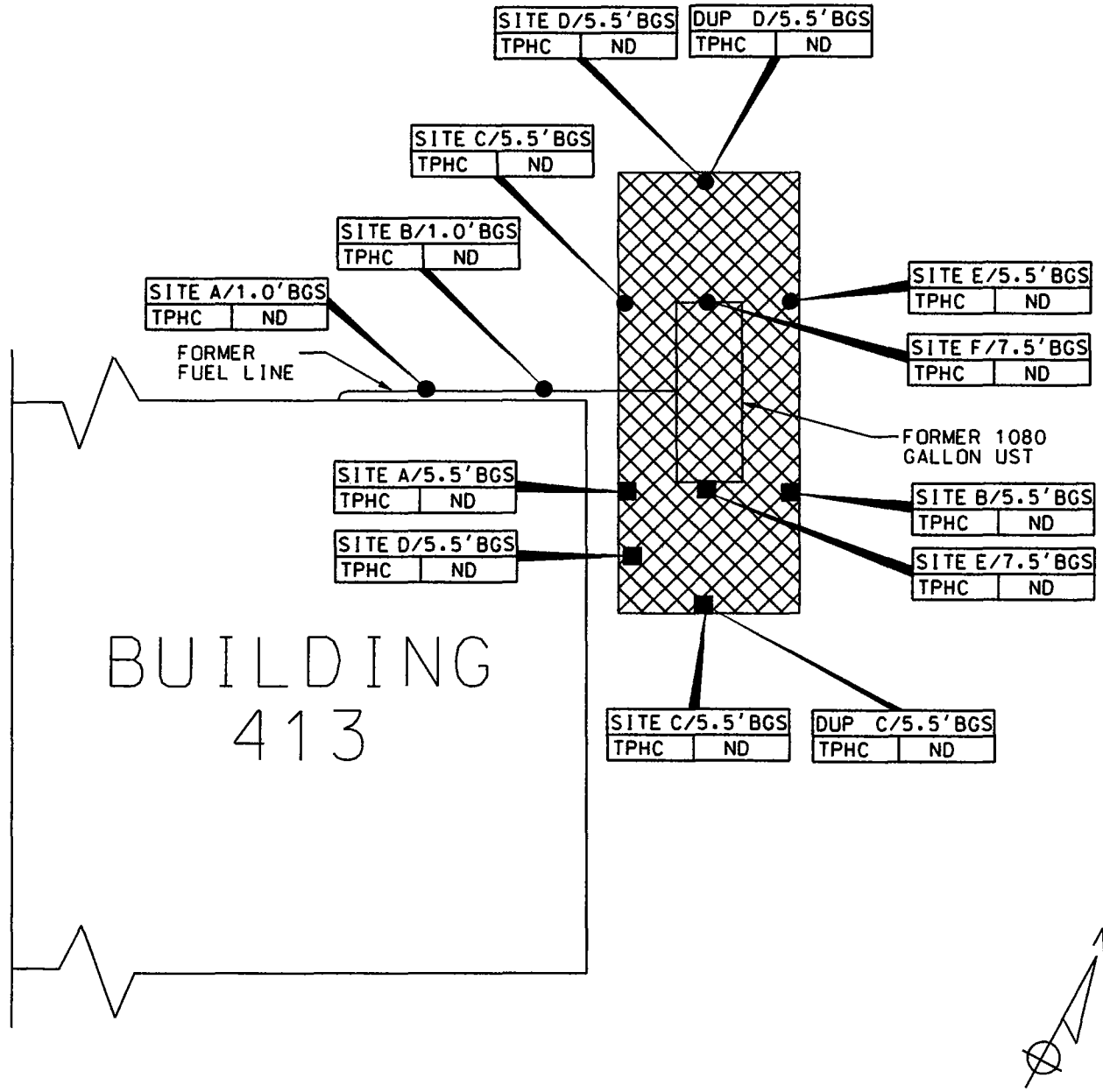


FIGURE 3
CROSS SECTIONAL VIEW
BUILDING 413
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, Pennsylvania

SCALE: NTS | DATE: NOV 1996



LEGEND

- ● SOIL SAMPLE LOCATION (NOVEMBER 27, 1996)
- ■ SOIL SAMPLE LOCATION (DECEMBER 4, 1996)
- LIMIT OF EXCAVATION (DECEMBER 4, 1996)

NOTES:

1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE

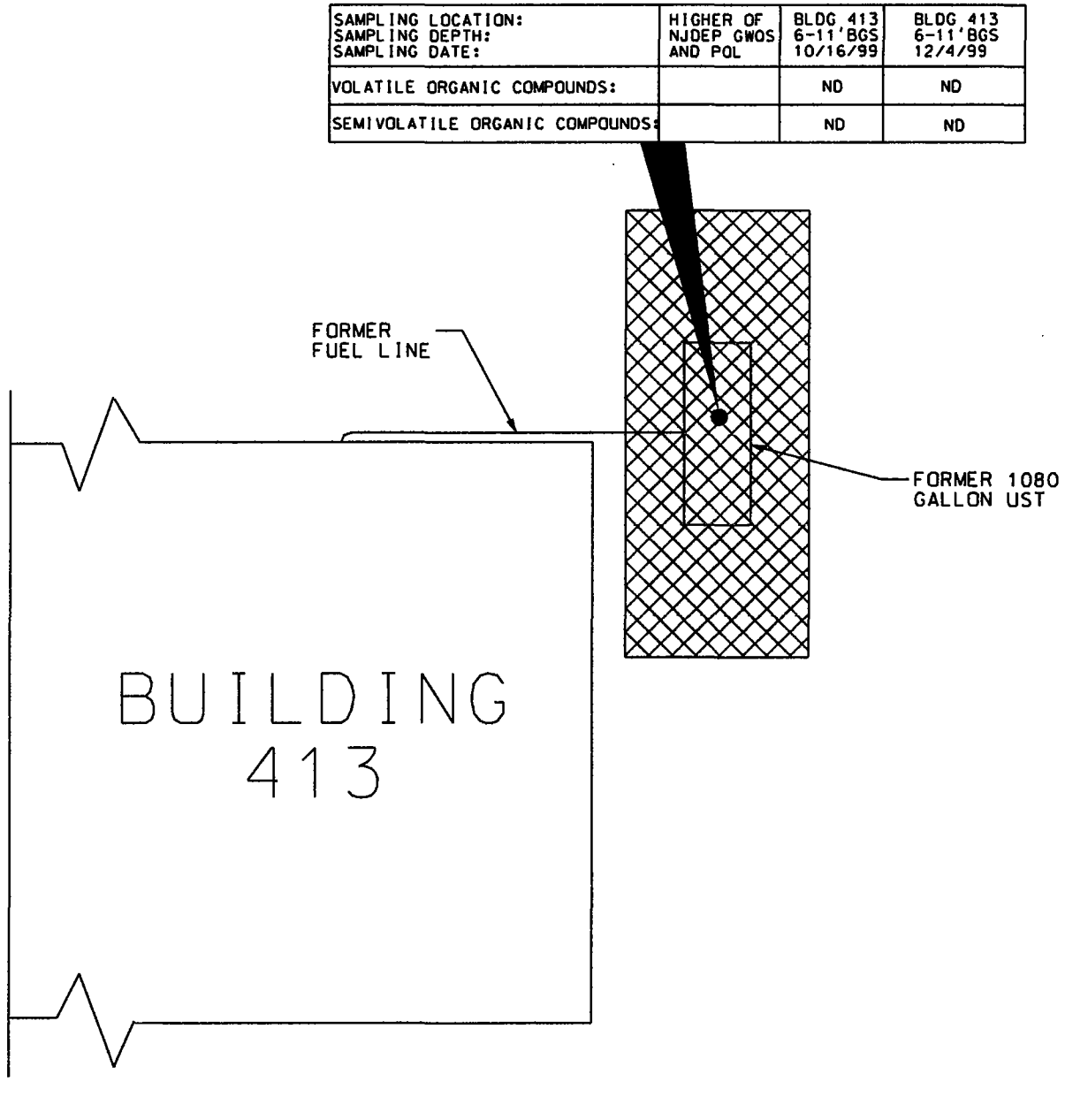
FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 413
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=10' | DATE: NOV 1996

413 2429 FIG4

SAMPLING LOCATION: SAMPLING DEPTH: SAMPLING DATE:	HIGHER OF NJDEP GWQS AND POL	BLDG 413 6-11'BGS 10/16/99	BLDG 413 6-11'BGS 12/4/99
VOLATILE ORGANIC COMPOUNDS:		ND	ND
SEMIVOLATILE ORGANIC COMPOUNDS:		ND	ND



LEGEND

● GROUNDWATER SAMPLE LOCATION
(OCTOBER 16, 1999 AND NOVEMBER 4, 1999)

LIMIT OF EXCAVATION
(DECEMBER 4, 1996)

NOTES:

1. ND=INDICATES COMPOUND NOT DETECTED
2. NLE= NO LIMIT ESTABLISHED
3. ALL RESULTS IN UG/L
4. BGS = BELOW GROUND SURFACE

FIGURE 5
GROUNDWATER SAMPLING MAP
BUILDING 413
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=10' | DATE: NOV 1996

413 FIGS

APPENDIX A

NJDEP-STANDARD REPORTING FORM

State of New Jersey
Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
CN 028
Trenton, NJ 08625-0029

ATTN: UST Program
(609) 984-3156

For State Use Only

Date Rec'd. _____
Auth. _____
Routing _____
UST NO. _____

STANDARD REPORTING FORM
for reporting activities at an UST facility:

___ General Facility Information Changes
_X_ Closure (Abandonment or Removal)
___ Temporary Closure
___ Change in Service
___ Sale or Transfer
___ Substantial Modification
___ Financial Responsibility
___ Address Change Only

Check ONLY One Type of Activity – Complete Form For That Activity

(More than one tank can be listed per activity)

• • • NOTE • • • ALL NEW tank installations at existing registered facilities must submit a Registration Questionnaire for the new tanks.

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire): U.S. ARMY - FORT MONMOUTH
DPW - BUILDING 173
FORT MONMOUTH NJ 07703
ATTN: EUGENE W. LESINSKI

2. Facility name and location (if different from above): _____

3. Contact person for this activity: GENE LESINSKI
Telephone Number: (908) 532-0989

4. The identification number of the affected tank as it appears in Question Number 12 on the Registration Questionnaire: 30
BLDG 413

5. Registration Number (if known): UST - 0090010

6. For GENERAL FACILITY INFORMATION changes (address, telephone, contact person, etc. – supply NEW information only):

a. Facility name: _____
b. Facility location: _____
c. Owner's mailing address: _____
_____
_____ NJ _____
_____
d. Block: _____ Lot: _____
e. Contact person (facility operator): _____
f. Contact telephone number: (_____) _____ - _____
g. Other (Specify): _____

(OVER)

7. For CLOSURE (abandonment or removal – check all that apply):
   a. ☐ Abandonment Date: ____/____/____ Case No: _____
   Attach the necessary implementation schedule (3 copies) and all documentation needed for abandonment per N.J.A.C. 7:14B-9.1 (d).
   b. ☒ Removal Date: 11/19/96 Case No. 96-11-20-1000-58
   Attach the necessary implementation schedule (3 copies).

8. For CHANGES IN HAZARDOUS SUBSTANCES STORED (check all that apply):
   a. ☐ Temporary Closure (12 month maximum time – see N.J.A.C. 7:14B-9.1(b)). Remove all hazardous substances; leave tank in place.
   b. ☐ Change in service from a regulated substance to a non-regulated substance. Tank must be cleaned and site assessment performed per N.J.A.C. 7:14B-9.1(e).
   c. ☐ Changes in service from one regulated hazardous substance to another regulated hazardous substance.

   Tank No. _____ Old _____ New _____
   Tank No. _____ Old _____ New _____
   Tank No. _____ Old _____ New _____
   (Attach additional sheets if more space is needed)

9. For TRANSFER OF OWNERSHIP: Effective Date: ____/____/____
   a. New Owner (operator) _____
   b. New Facility Name _____
   _____
   _____ NJ _____
   _____
   County
   c. Closing Attorney _____ Tele: (____) _____ – _____

10. For SUBSTANTIAL MODIFICATIONS (to include any retrofitted activity – e.g. the addition of spill/overfill protection, monitoring systems, cathodic protection, etc.):
   a. Type of Modification _____ Date: ____/____/____
   b. * NOTE * Substantial modifications require a permit under N.J.A.C. 7:14B-10.

11. For changes in FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):
   a. Policy Type: ☐ d. Company/Carrier: ☐
   b. Policy Number: ☐ e. Expiration Date: ☐
   c. Other: ☐
   _____
   _____
   _____
   (Specify)

NOTE: ALL appropriate and applicable permits, licenses and certificates required by the above activity(ies) from any local, state and/or federal agencies must be obtained separately from this notification.

CERTIFICATION

"This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that facility (N.J.A.C. 7:14B-2.3 (a) 1)."

"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment."

Signature: James Ott

Name (print or type): JAMES OTT

Title: DIRECTOR - DEPT OF PUBLIC WORKS Date: 1/29/97

APPENDIX B

SITE ASSESSMENT SUMMARY

(12/97) **New Jersey Department of Environmental Protection**

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

A. Facility Name : U.S. Army Fort Monmouth New Jersey

Facility Street Address : Directorate of Public Works Building 173

Municipality: Oceanport County : Monmouth

Block: Lot(s): Telephone Number : 732-532-6224

B. Owner (RP)'s Name:

Street Address: City :

State: Zip: Telephone Number :

C. (Check as appropriate)

___ Site Investigation Report (SIR) $500 Fee

___ Remedial Investigation Report (RIR) $1000 Fee

_X_ NA – Federal Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
- UST Registration Number : 90010-30 (7 digits)
- Incident Report Number 96 – 11 – 20 – 1000 – 58 (10 or 12 digits)

___–___–___–_____–___

- Tank Closure Number : Federal Case Manager

E. Certification by the Subsurface Evaluator:

The attached report conforms to the specific reporting requirements of N.J.A.C. 7:26E .....Yes No

Name: Eugene Lesinski Signature: See signed subsurface removal log UST Cert. No.: 14537

Firm: U.S. Army Fort Monmouth Firm's UST Cert. Number: NA-U.S. Army

Firm Address: Directorate of Public Works Building 173 City: Fort Monmouth

State: NJ Zip: 07703 Telephone Number : 732-532-6224

(NOTE: Certification numbers required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.)

F. Certification by the Responsible Party(ies) of the Facility:

The following certification shall be signed [according to the requirements of N.J.A.C. 7:14B-1.7(b)]as follows:

1. For a Corporation by a person authorized by a resolution of the board of directors to sign the document. A copy of the resolution, certified as a true copy by the secretary of the corporation, shall be submitted along with the certification; or
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

Name (Print or Type): James Ott Title: Directorate of Public Works

Signature: James Ott

Company Name: U.S. Army Fort Monmouth Date: 7/31/00

TS ARMY, SELFM-PW-TV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 413 REG.#: 0090010 - 30 CLOSURE#: N/A

DATE: 11-19-96 TOA: ~1300 TOD: 1500

GOV. SSE: Lesiuski NJDEP CERT.#: 0014537

REMOVAL CONTRACTOR: ~~SAI Inc~~ TVS

CLOSURE SUPERVISOR: DeMartinis NJDEP CERT.#: _____

WEATHER: Partly Cloudy - 50°F

ACTIVITY	YES / NO
THE SUPERVISOR (CLOSURE CERT.) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E.G. 29CFR)	Y
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	N/A
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
A DISCHARGE WAS REPORTED TO THE NJDEP (609-292-7172), CASE# 96-11-20-1008-58	Y
PHOTOS HAVE UST#, BLDG. #, DATE, TIME, NAME OF SSE AND DESCR. WRITTEN ON BACK	Y
GROUNDWATER WAS ENCOUNTERED AT 6.0 FEET BG, A SHEEN (WAS/WAS NOT) OBSERVED ON GW	Y
IF OVA/Hnu WAS USED: WAS IT CAL. AND FOUND TO BE OPERATIONAL (cal. data on COC)	N/A
IF SAMPLES WERE TAKEN: COC, SCALED SITE MAP (VERT. SOIL HORIZONS AND PLOT PLAN)	
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM, 1992	Y
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7:26E-3.6 et seq.	Y
ALL PETROL. CONT. SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER)	N/A
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	N
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY: (CIRCLE EACH) SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ. WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE MAP (SAMPLING), SRF-CLOSURE, CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS(IN YDS^3), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	N

CHECK ALL BOXES, LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3 and 7:26 et seq.. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment.

SIGNATURE: _____ DATE: 11-19-96

APPENDIX C

WASTE MANIFEST

10191

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NJ3210020597 | Manifest Document No. 377 | 2. Page 1 of 1

GENERATOR

3. Generator's Name and Mailing Address
U.S. ARMY COMMUNICATIONS ELECTRONICS COMMAND
MAIN POST C/O JOSEPH FALLON BLDG 173 ATTN:SELFM-PW-EV
4. Generator's Phone (FORT)MONMOUTH NJ 07703 (908)532-6223

5. Transporter 1 Company Name: LIONETTI OIL RECOVERY CO INC.
6. US EPA ID Number: NJD084044064
(908)721-0900

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
LIONETTI OIL RECOVERY CO INC
RUNYON & CHEESEQUAKE ROADS
OLD BRIDGE NJ 08857
10. US EPA ID Number: NJD084044064

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (908)721-0900

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. PETROLEUM OIL (petrooleum OIL) COMBUSTIBLE LIQUID UN 1270 PG III	001	TT	X1000	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
T,L PETROLEUM OIL 50%
WATER 50%

E. Handling Codes for Wastes Listed Above
T04-FILTRATION

15. Special Handling Instructions and Additional Information
DECAL# 73623
24 HOUR EMERGENCY RESPONSE #(908)721-0900
ERG#128 DEXSIL TEST KIT RESULTS <1000 PPM

Tracking Purposes Only

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
EUGENE LESINSKI	Eugene Lesinski	11	19	96

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
DON TAGUINOT	Don Taguinot	11	19	96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
PAUL J. AMADIO		11	19	96

12-BLS-C5 Rev. 4/94

ORIGINAL – RETURN TO GENERATOR

APPENDIX D

UST DISPOSAL CERTIFICATE

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

CHAIN-OF-CUSTODY

P.O. #: PWS-07

Project #:	Sampler: Gary DiMartinis - TVS	Date / Time 11-27-96 0900	Analysis Parameters	Start:
Customer: GENE LESINSKI SELFM-PW-EV	Site Name: BUILDING #413			Finish:
Phone: (908) 532-0989				Preservation Method

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	% Solids	Munsel	OVA	Remarks
2224-01	11-27-96 0907	413-A (Piping Run @ 10')	SOIL	1	X	X	X	ND	*
02	0912	413-B						ND	* = SAMPLES
03	1003	413-C (SIDEWALL @ 5.5')						ND	KEPT BELOW
04	0954	413-D						ND	4°C.
05	1014	413-E						ND	
06	0923	413-F (EXC. FLOOR @ 7.5')						ND	
07	---	413-DUP (FIELD DUPLICATE)						—	

NOTE: OVA CALIBRATED TO 95 PPM METER READING W/ 95 PPM CH4 & ZERO (0) AIR BY G. DiMartinis @ 0914

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
Gary DiMartinis	11-27-96 1125	Scott Graham 11-27-96	HAND on 11-27-96 (SERIAL # A53117)
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. DEDICATED SAMPLING TOOLS USED. SEE PROJECT FILE FOR SAMPLING LOCATIONS

Environmental Laboratory

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab. ID #: 2224.1-7
Sample Rec'd: 11/27/96
Analysis Start: 12/02/96
Analysis Comp: 12/04/96

Analysis: OQA-QAM-025
Matrix: Soil
Analyst: S. Wegeman
Ext. Meth: Shake

NJDEP UST Reg.#:
Closure #:
DICAR #:
Location #: Bldg. 413

Lab ID	Description	OVA	%Solid	MDL (mg/Kg)	Surrogates % Recovery	Result (mg/Kg)
2224.1	413 - A (Piping Run @ 1.0')	ND	90.9	200	92.9 / 101.3	ND
2224.2	413 - B (Piping Run @ 1.0')	ND	80.1	200	94.0 / 105.0	ND
2224.3	413 - C (Sidewall @ 5.5')	ND	83.2	200	109.2 / 118.9	ND
2224.4	413 - D (Sidewall @ 5.5')	ND	88.2	200	101.0 / 109.9	ND
2224.5	413 - E (Sidewall @ 5.5')	ND	81.6	200	92.9 / 103.2	ND
2224.6	413 - F (Exc. Floor @ 7.5')	ND	81.8	200	102.2 / 109.2	ND
2224.7	413 - Dup. (Field Duplicate)	NA	87.9	200	95.3 / 101.1	ND
	Method Blank	NA	100	200	95.5 / 107.2	ND

QC: 2224.7MS=105.2%, 2224.7MSD=102.2%, RPD=2.9%
QC Limits: Surrogate: 50% - 165%
MS/MSD: not established RPD: not established

Notes: ND = Not Detected, MDL = Method Detection Limit
NA = Not Applicable
* = Matrix Interference

Daniel K. Wright
Laboratory Director

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab. ID #: 2224.1-.7
Sample Rec'd: 11/27/96
Analysis Start: 12/02/96
Analysis Comp: 12/02/96

Analysis: Munsel

Lab ID#	Soil Color
2224.1	10YR 5/6 Yellowish brown
2224.2	10YR 5/6 Yellowish brown
2224.3	10YR 6/8 Brownish yellow
2224.4	10YR 7/8 Yellow
2224.5	5G 5/1 Greenish gray
2224.6	5GY 4/1 Dark greenish gray
2224.7	2.5YR 6/8 Olive yellow

Daniel K. Wright
Laboratory Director

Methodology Summary

Aqueous Methodologies:	Ref 1	Ref 2	Ref 3	Ref 5
BNA, Pesticides/PCB's Extraction		3510/3520		
AA/ICP Sample Preparation	200.7			
Furnace Sample Preparation	200.0			
Mercury Sample Preparation	245.1			
Haxavalent Chromium Sample Preparation	218.5			
Clean-up		3610/3620/3630 3640/3660		
Organochlorine Pesticide and PCB by GC			608	505
Herbicides by GC			362	515.1
Purgeable Organics by GC/MS			624	524.2
Base/Neutral, Acids by GC/MS			625	525
2,3,7,8-TCDD by GC/MS			613/625	
BTEX			602	502.2
EDB/DBCP by Microextraction				504.1

Non-Aqueous Methodologies:	
BNA, Pesticides/PCB's Extraction	3550
AA/ICP Sample Preparation	3050
Furnace Sample Preparation	3020/3030/3050
Mercury Sample Preparation	7471
Clean-up	3610/3620/3630 3640/3660
GC, GC/MS:	
Purgeable Organics	8240/8021
Base/Neutral and Acid Extractables	8270
Organophosphorus Pesticides	8140
Organochlorine Pesticide and PCB by GC	8080
BTEX	8020
Halogenated Purgeable Organics	8010
Total Petroleum Hydrocarbon **	

Ref 1. USEPA-600/4-79-020, Methods for Chemical Analysis of Water and Waste

Ref 2. USEPA SW846, Test Methods for Evaluating Solid Waste, Third Edition

Ref 3. Federal Register 40 CFR Part 136, Vol. 49, No. 209: Test Parameters for the Analysis of Pollutants.

Ref 4. Federal Register Vol. 51, No. 216, Friday, 11/7/86, pp. 40643-40652

Ref 5. Method for the Determination of Organic Compounds in Drinking Water, EPA 500/4-88/039, Dec. 1988.

Ref 6. Standard Methods for the Examination of Water and Wastewater, 18th Ed.

** NJDEP OQA-QAM-025-10/91: Quantitation of Semi-Volatile Petroleum Products in Water, Soil, Sediment and Sludge

PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Method Detection Limits provided.	__	✓
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank.	✓	__
3. Matrix Spike Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	__	✓
4. Duplicate Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	__	✓
5. IR Spectra submitted for standards, blanks, & samples	NA	
6. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.	__	✓
7. Analysis holding time met.	__	✓

(If not met, list number of days exceeded for each sample)

Additional Comments:

Laboratory Authentication Statement

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analysis. I have personally examined the information contained in this report, and to the best of my knowledge, I believe that the submitted information is true, accurate, complete, and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.

Daniel K. Wright
Laboratory Manager

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

CHAIN-OF-CUSTODY

P.O. #: PWS-07

Project #:

Customer: GENE LESINSKI SELFM-PW-EV

Phone: (908) 532-0989

Sampler: Gary DiMartinis - TVS

Site Name: BUILDING #413

Date / Time: 12-4-96 1330

Analysis Parameters: TPHC & Solids, Munsel, OVA

Start:

Finish:

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	OVA	Remarks	Preservation Method
22351	12-4-96 1031	413-A (SIDEWALL @ 5.5')	SOIL	1	ND		*
-2	1039	413-B			ND	* = SAMPLES	
-3	1043	413-C			ND	KEPT BELOW	
-4	1056	413-D			ND	4°C.	
-5	1001	413-E (EXC. FLOOR @ 7.5')			ND		
-6	—	413 DUP (FIELD DUPLICATE)			—		

NOTE: OVA CALIBRATED TO 95 PPM METER READING W/ 95 PPM CH4 & ZERO (0) AIR BY G. DiMartinis @ 0946

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
	12/4/96 1308	12-4-96	HAND ON 12/4/96 (SERIAL #A52114)
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. DEDICATED SAMPLING TOOLS USED. SEE PROJECT FILE FOR SAMPLING LOCATIONS

Environmental Laboratory

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab. ID #: 2235.1-6
Sample Rec'd: 12/04/96
Analysis Start: 12/04/96
Analysis Comp: 12/05/96

Analysis: OQA-QAM-025
Matrix: Soil
Analyst: S. Wegeman
Ext. Meth: Shake

NJDEP UST Reg.#:
Closure #:
DICAR #:
Location #: Bldg. 413

Lab ID	Description	OVA	%Solid	MDL (mg/Kg)	Surrogates % Recovery	Result (mg/Kg)
2235.1	413 - A (Sidewall @ 5.5')	ND	87.0	200	104.7 / 107.4	ND
2235.2	413 - B (Sidewall @ 5.5')	ND	87.2	200	101.5 / 108.4	ND
2235.3	413 - C (Sidewall @ 5.5')	ND	87.8	200	88.9 / 101.8	ND
2235.4	413 - D (Sidewall @ 5.5')	ND	85.1	200	98.8 / 113.1	ND
2235.5	413 - E (Exc. Floor @ 7.5')	ND	84.5	200	102.0 / 110.5	ND
2235.6	413 - DUP (Field Duplicate)	ND	86.1	200	98.7 / 107.7	ND
	Method Blank	NA	100	200	106.9 / 108.4	ND

QC: 2235.6MS=101.5%, 2235.6MSD=109.4%, RPD=7.5%
QC Limits: Surrogate: 50% - 165%
MS/MSD: not established RPD: not established

Notes: ND = Not Detected, MDL = Method Detection Limit
NA = Not Applicable
* = Matrix Interference

Daniel K. Wright
Laboratory Director

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab. ID #: 2235.1-.6
Sample Rec'd: 12/04/96
Analysis Start: 12/05/96
Analysis Comp: 12/05/96

Analysis: Munsel

Lab ID#	Soil Color
2235.1	7.5YR 4/6 Strong brown
2235.2	7.5YR 3/6 Dark brown
2235.3	7.5YR 4/5 Strong brown
2235.4	7.5YR 5/4 Brown
2235.5	7.5YR 4/3 Brown
2235.6	7.5YR 4/4 Brown

Daniel K. Wright
Laboratory Director

Methodology Summary

Aqueous Methodologies:	Ref 1	Ref 2	Ref 3	Ref 5
BNA, Pesticides/PCB's Extraction		3510/3520		
AA/ICP Sample Preparation	200.7			
Furnace Sample Preparation	200.0			
Mercury Sample Preparation	245.1			
Haxavalent Chromium Sample Preparation	218.5			
Clean-up		3610/3620/3630 3640/3660		
Organochlorine Pesticide and PCB by GC			608	505
Herbicides by GC			362	515.1
Purgeable Organics by GC/MS			624	524.2
Base/Neutral, Acids by GC/MS			625	525
2,3,7,8-TCDD by GC/MS			613/625	
BTEX			602	502.2
EDB/DBCP by Microextraction				504.1

Non-Aqueous Methodologies:	
BNA, Pesticides/PCB's Extraction	3550
AA/ICP Sample Preparation	3050
Furnace Sample Preparation	3020/3030/3050
Mercury Sample Preparation	7471
Clean-up	3610/3620/3630 3640/3660
GC, GC/MS:	
Purgeable Organics	8240/8021
Base/Neutral and Acid Extractables	8270
Organophosphorus Pesticides	8140
Organochlorine Pesticide and PCB by GC	8080
BTEX	8020
Halogenated Purgeable Organics	8010
Total Petroleum Hydrocarbon **	

Ref 1. USEPA-600/4-79-020, Methods for Chemical Analysis of Water and Waste

Ref 2. USEPA SW846, Test Methods for Evaluating Solid Waste, Third Edition

Ref 3. Federal Register 40 CFR Part 136, Vol. 49, No. 209: Test Parameters for the Analysis of Pollutants.

Ref 4. Federal Register Vol. 51, No. 216, Friday, 11/7/86, pp. 40643-40652

Ref 5. Method for the Determination of Organic Compounds in Drinking Water, EPA 500/4-88/039, Dec. 1988.

Ref 6. Standard Methods for the Examination of Water and Wastewater, 18th Ed.

** NJDEP OQA-QAM-025-10/91: Quantitation of Semi-Volatile Petroleum Products in Water, Soil, Sediment and Sludge

PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Method Detection Limits provided.	__	✓
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank.	✓	__
3. Matrix Spike Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	__	✓
4. Duplicate Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	__	✓
5. IR Spectra submitted for standards, blanks, & samples	NA	
6. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.	__	✓
7. Analysis holding time met.	__	✓

(If not met, list number of days exceeded for each sample)

Additional Comments:

Laboratory Authentication Statement

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analysis. I have personally examined the information contained in this report, and to the best of my knowledge, I believe that the submitted information is true, accurate, complete, and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.

Daniel K. Wright
Laboratory Manager

APPENDIX F

GROUNDWATER ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-6224 FAX: (732) 532-6263
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
CERTIFICATIONS: NJDEP #13461, NYSDOH #11699

ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

Bldg. 413

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Bldg. 413	4860.01	Aqueous	16-Oct-99 10:10	10/16/99

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, BN+15

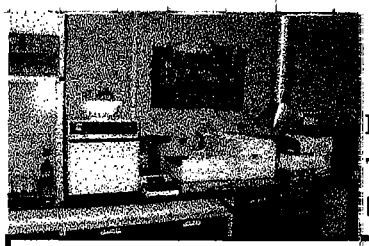
ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

4-7-00

Daniel Wright/Date
Laboratory Director

Table of Contents

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:appleby@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: C. APPLEBY / VERSAR
Phone #: 26623
( )DERA (✓)OMA ( )Other:_____

Project No:
Location: BLDG. 413

Samplers Name / Company: MARK LAURA - TVS - PWS07

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	VOA+15	XYLENE	BN+15						Comments: / Remarks / Preservation Method
* 4860 1	413 - 6-10'	10-16-99	1010	AQ.	3	X	X	X						HCL/<4oc
" 2	FIELD DUP 6-10'	"	—	"	"	X	X	X						" "

NO INSTR.

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	10-18-99 745	[signature]			
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
		[signature]			

Report Type: ( )Full, ( )Reduced, (X)Standard, ( )Screen / non-certified
Turnaround time: (X)Standard 3 wks, ( )Rush ____ Days, ( )ASAP Verbal ____ Hrs.

Remarks: * SHARED TRIP/FIELD BLANK W/ BLDG. 412 10-16-99

200900

print legibly

Coc.xls9/29/99

METHODOLOGY SUMMARY

Methodology Summary

EPA Method 624
Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5 ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA Method 3510/8270
Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to a measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene Chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate Yes, No, N/A

1. Chromatograms labeled/Compounds identified (Field samples and method blanks) — yes

2. Retention times for chromatograms provided — yes

3. GC/MS Tune Specifications

   a. BFB Meet Criteria — yes
   b. DFTPP Meet Criteria — yes

4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series — yes

5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — yes

6. GC/MS Calibration requirements

   a. Calibration Check Compounds Meet Criteria — yes
   b. System Performance Check Compounds Meet Criteria — yes

7. Blank Contamination – If yes, List compounds and concentrations in each blank: — NO

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

8. Surrogate Recoveries Meet Criteria — yes

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

   If not met, were the calculations checked and the results qualified as "estimated"? _____

9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) — yes

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria — YES
(If not met, list those compounds, which fall outside the acceptable range)

    a. VOA Fraction_____
    b. B/N Fraction_____
    c. Acid Fraction_____

11. Extraction Holding Time Met — YES

If not met, list the number of days exceeded for each sample:_____

12. Analysis Holding Time Met — YES

If not met, list the number of days exceeded for each sample:_____

Additional Comments:

Laboratory Manager:_____ Date: 4-7-00

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 4860 Site: Bldg. 413

	Date	Hold Time
Date Sampled	10/16/99	NA
Receipt/Refrigeration	10/18/99*	NA
Extractions		
1. Base Neutrals	10/19/99	7 Days
Analyses		
1. Volatile Organics	10/25/99	14 Days
2. Base Neutrals	10/22,23/99	40 Days

* Samples taken on Saturday 10/16/99, and refrigerated.
Received by laboratory on Monday 10/18/99.

VOLATILE ORGANICS

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

Definition of Qualifiers

MDL	: Method Detection Limit
J	: Compound identified below detection limit
B	: Compound in both sample and blank
D	: Results from dilution of sample
U	: Compound searched for but not detected
E	: Compound exceeds calibration limit

Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File	**VC001059.D**	Sample Name	**Vblk35**
Operator	**Skelton**	Field ID	**Vblk35**
Date Acquired	**25 Oct 1999 12:01 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6 2-Sept-9

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

10/27/99 3:21 PM

C:\HPCHEM\Custrpt\Volatile\624fy99.crt

000012

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Vblk35**

Lab Name: FMETL NJDEP#: 13461

Project: 100004 Case No.: 4860 Location: 413 SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: Vblk35

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001059.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: not dec. _____ Date Analyzed: 10/25/99

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File	**VC001065.D**	Sample Name	**4860.01**
Operator	**Skelton**	Field ID	**413**
Date Acquired	**25 Oct 1999 4:30 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6 2-Sept-9

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: 413

Lab Name: FMETL NJDEP#: 13461

Project: 100004 Case No.: 4860 Location: 413 SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 4860.01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001065.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: not dec. Date Analyzed: 10/25/99

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File	**VC001066.D**	Sample Name	**4860.02**
Operator	**Skelton**	Field ID	**Field Dup**
Date Acquired	**25 Oct 1999 5:12 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6 2-Sept-9

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Field Dup**

Lab Name: FMETL NJDEP#: 13461

Project: 100004 Case No.: 4860 Location: 413 SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 4860.02

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001066.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: not dec. Date Analyzed: 10/25/99

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

BASE NEUTRAL

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	**BN03996.D**	Sample Name	**Sblk312**
Operator	**Bhaskar**	Misc Info	**Sblk312 A 991019**
Date Acquired	**22-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91	ug/L	
62-53-3	Aniline			not detected	NLE	1.63	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.39	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80	ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97	ug/L	
78-59-1	Isophorone			not detected	100	1.01	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22	ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79	ug/L	
83-32-9	Acenaphthene			not detected	400	1.10	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62	ug/L	
86-73-7	Fluorene			not detected	300	0.99	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23	ug/L	
120-12-7	Anthracene			not detected	2000	1.12	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70	ug/L	
206-44-0	Fluoranthene			not detected	300	1.64	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**BN03996.D**	Sample Name	**Sblk312**
Operator	**Bhaskar**	Misc Info	**Sblk312 A 991019**
Date Acquired	**22-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4.18	ug/L	
129-00-0	Pyrene			not detected	200	1.25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.75	ug/L	
218-01-9	Chrysene			not detected	20	1.38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.64	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.84	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
PQL= Practical Quantitation Limit

MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID: **Sblk312**

Lab Name: FMETL Lab Code 13461

Project: Bldg.413 Case No.: 4860 Location: 413 SDG No:

Matrix: (soil/water) WATER Lab Sample ID: Sblk312

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN03996.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: decanted: (Y/N) N Date Extracted: 10/19/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/22/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	28.11	22	J
2.	unknown	29.08	30	J
3.	unknown	29.27	19	J

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	**BN03999.D**	Sample Name	**4860.01**
Operator	**Bhaskar**	Misc Info	**413**
Date Acquired	**23-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91	ug/L	
62-53-3	Aniline			not detected	NLE	1.63	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.39	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80	ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97	ug/L	
78-59-1	Isophorone			not detected	100	1.01	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22	ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79	ug/L	
83-32-9	Acenaphthene			not detected	400	1.10	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62	ug/L	
86-73-7	Fluorene			not detected	300	0.99	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23	ug/L	
120-12-7	Anthracene			not detected	2000	1.12	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70	ug/L	
206-44-0	Fluoranthene			not detected	300	1.64	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**BN03999.D**	Sample Name	**4860.01**
Operator	**Bhaskar**	Misc Info	**413**
Date Acquired	**23-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4.18	ug/L	
129-00-0	Pyrene			not detected	200	1.25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.75	ug/L	
218-01-9	Chrysene			not detected	20	1.38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.64	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.84	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
PQL= Practical Quantitation Limit

MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID: **413**

Lab Name: FMETL Lab Code 13461

Project: Bldg.413 Case No.: 4860 Location: 413 SDG No: _____

Matrix: (soil/water) WATER Lab Sample ID: 4860.01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN03999.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: _____ decanted: (Y/N) N Date Extracted: 10/19/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/23/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	**BN04000.D**	Sample Name	**4860.02**
Operator	**Bhaskar**	Misc Info	**Field Dupe**
Date Acquired	**23-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91	ug/L	
62-53-3	Aniline			not detected	NLE	1.63	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.39	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80	ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97	ug/L	
78-59-1	Isophorone			not detected	100	1.01	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22	ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79	ug/L	
83-32-9	Acenaphthene			not detected	400	1.10	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62	ug/L	
86-73-7	Fluorene			not detected	300	0.99	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23	ug/L	
120-12-7	Anthracene			not detected	2000	1.12	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70	ug/L	
206-44-0	Fluoranthene			not detected	300	1.64	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**BN04000.D**	Sample Name	**4860.02**
Operator	**Bhaskar**	Misc Info	**Field Dupe**
Date Acquired	**23-Oct-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4.18	ug/L	
129-00-0	Pyrene			not detected	200	1.25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.75	ug/L	
218-01-9	Chrysene			not detected	20	1.38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.64	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.84	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
PQL= Practical Quantitation Limit
MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID: **Field Dupe**

Lab Name: FMETL Lab Code 13461

Project: Bldg.413 Case No.: 4860 Location: 413 SDG No:

Matrix: (soil/water) WATER Lab Sample ID: 4860.02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04000.D

Level: (low/med) LOW Date Received: 10/18/99

% Moisture: decanted: (Y/N) N Date Extracted: 10/19/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/23/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project: Bldg.413 Case No.: 4860 Location: 413 SDG No:

Lab File ID: BN03660.D DFTPP Injection Date: 9/1/99

Instrument ID: SVoa#1 DFTPP Injection Time: 14:09

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	38.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	52.2
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	25.0 - 75.0% of mass 198	40.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	17.7
365	Greater than 0.75% of mass 198	1.7
441	Present, but less than mass 443	9.4
442	40.0 - 110.0% of mass 198	60.1
443	15.0 - 24.0% of mass 442	12.1 (20.2)2

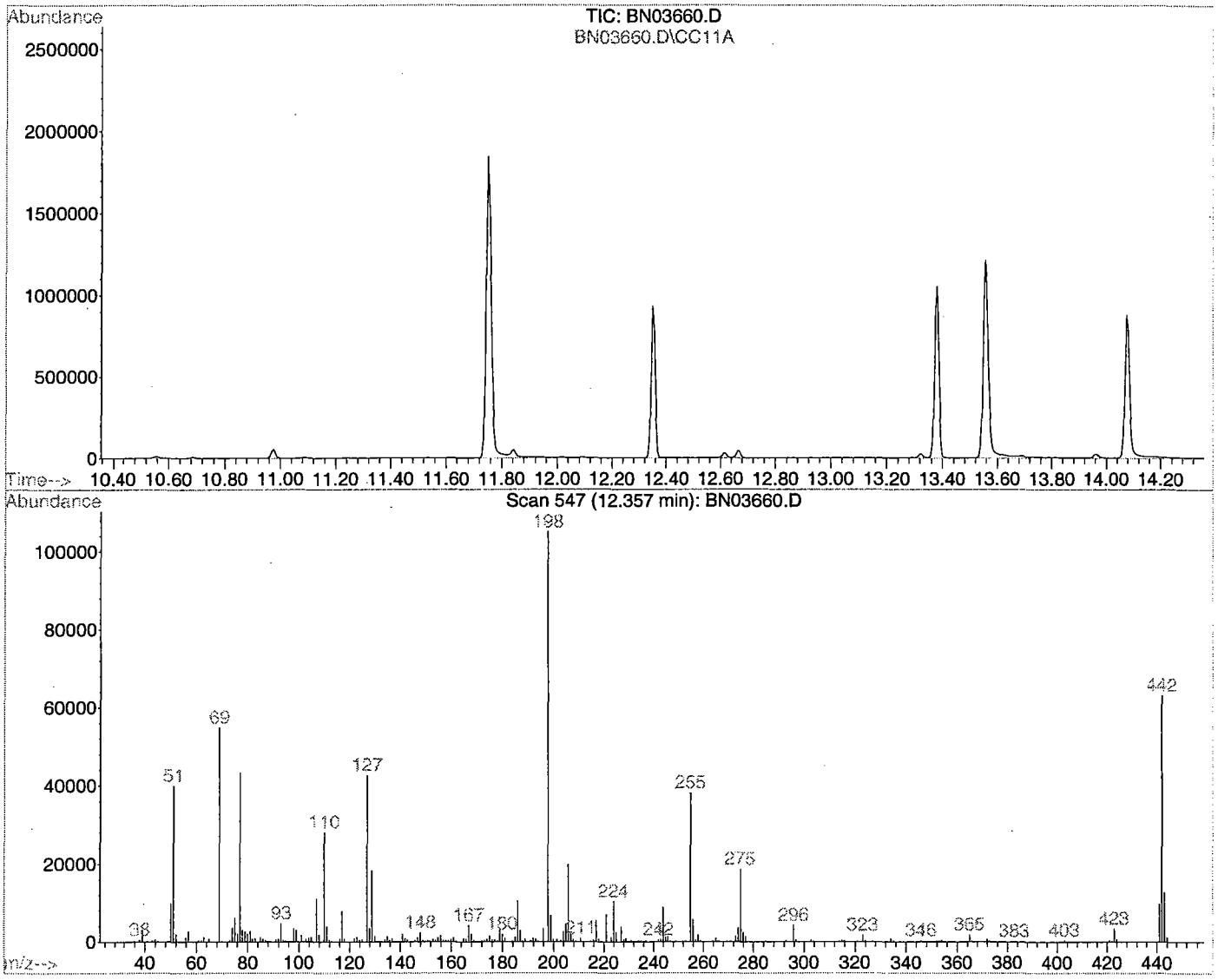
1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field ID:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD120	120 PPM CAL	BN03661.D	9/1/99	14:39
02	SSTD080	80 PPM CAL	BN03662.D	9/1/99	15:26
03	SSTD050	50 PPM CAL	BN03663.D	9/1/99	16:13
04	SSTD020	20 PPM CAL	BN03664.D	9/1/99	17:03
05	SSTD010	10 PPM CAL	BN03665.D	9/1/99	17:53

DFTPP

Data File : C:\HPCHEM\1\DATA\990901\BN03660.D Vial: 99
Acq On : 1 Sep 1999 2:09 pm Operator: Bhaskar
Sample : DFTPP TUNE Inst : GC/MS Ins
Misc : 50 NG Multiplr: 1.00
MS Integration Params: RTEINT.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M62536.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 547

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.0	39936	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	52.2	54864	PASS
70	69	0.00	2	0.4	213	PASS
127	198	40	60	40.5	42608	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	105120	PASS
199	198	5	9	6.4	6765	PASS
275	198	10	30	17.7	18616	PASS
365	198	1	100	1.7	1802	PASS
441	443	1	99	77.1	9834	PASS
442	198	40	100	60.1	63200	PASS
443	442	17	23	20.2	12753	PASS

000046

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package and in the main body of the report.

1. **Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted** ✓
2. **Table of Contents submitted** ✓
3. **Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted** ✓
4. **Document paginated and legible** ✓
5. **Chain of Custody submitted** ✓
6. **Samples submitted to lab within 48 hours of sample collection** ✓
7. **Methodology Summary submitted** ✓
8. **Laboratory Chronicle and Holding Time Check submitted** ✓
9. **Results submitted on a dry weight basis** ✓
10. **Method Detection Limits submitted** ✓
11. **Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP** ✓

Laboratory Manager or Environmental Consultant's Signature _____

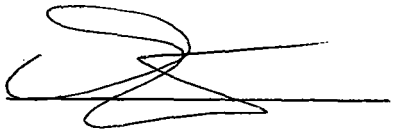
Date 4/7/00

Laboratory Certification #13461

*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance.

Laboratory Authentication Statement

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW-846 for Solid Waste Analysis. I have personally examined the information contained in this report and to the best of my knowledge, I believe that the submitted information is true, accurate, complete and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.



Daniel K. Wright
Laboratory Manager

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-6224 FAX: (732) 532-6263
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
CERTIFICATIONS: NJDEP #13461, NYSDOH #11699

ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

Bldg. 413

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
413-1 6-11'	4984.01	Aqueous	04-Dec-99 09:00	12/06/99

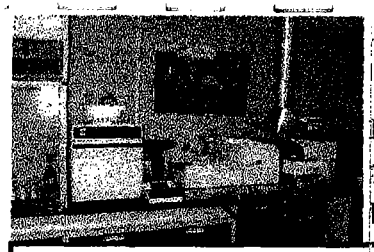
ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, BN+15

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

4-8-00
Daniel Wright/Date
Laboratory Director

Table of Contents

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:appleby@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: D. DESAI
Phone #: X21470
( )DERA (X)OMA ( )Other: _____

Project No:
Location: BLDG. 413

Samplers Name / Company: Mark Lauza

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	VOA+15	XYLENE	BN+15						Comments: Remarks / Preservation Method
4984. 1	413-1 6-11'	12-14-99	0900	AQ	3	X	X	X						4°C/HCl

Analysis Parameters

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Mark Lauza	12/14/99 730	J. Desai			
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified
Turnaround time: ( )Standard 3 wks, (X)Rush 10 Days, ( )ASAP Verbal ___ Hrs.

Remarks: SHARED T.B + F.B. W/ BLDG 412

200030

print legibly

Coc.xls9/15/99

METHODOLOGY SUMMARY

Method Summary

EPA Method 624
Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5-ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA Method 3510/8270
Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

CONFORMANCE
NON-CONFORMANC
SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate
Yes, No, N/A

1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks) — Yes

2. Retention times for chromatograms provided — Yes

3. GC/MS Tune Specifications

   a. BFB Meet Criteria — Yes
   b. DFTPP Meet Criteria — Yes

4. GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series — Yes

5. GC/MS Calibration - Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — yes

6. GC/MS Calibration Requirements

   a. Calibration Check Compounds Meet Criteria — Yes
   b. System Performance Check Compounds Meet Criteria — Yes

7. Blank Contamination - If yes, List compounds and concentrations in each blank: — NO

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction _____

8. Surrogate Recoveries Meet Criteria — Yes

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction _____

   If not met, were the calculations checked and the results qualified as "estimated"? ____

9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria — Yes
   (If not met, list those compounds and their recoveries, which fall outside the acceptable range)

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction _____

GC/MS Analysis Conformance/Non-Conformance Summary (cont.)

Indicate
Yes,
No,
N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria — Yes
    (If not met, list those compounds, which fall outside the acceptable range)
    a. VOA Fraction_____
    b. B/N Fraction_____
    c. Acid Fraction_____

11. Extraction Holding Time Met — Yes

    If not met, list number of days exceeded for each sample: ___
    _____
    _____

12. Analysis Holding Time Met — Yes

    If not met, list number of days exceeded for each sample: ___
    _____
    _____

Additional Comments:
_____
_____
_____

Laboratory Manager _____ Date: 4-8-00

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 4984 Site: Bldg. 413

	Date	Hold Time
Date Sampled	12/04/99	NA
Receipt/Refrigeration	12/04/99	NA
Extractions		
1. Base Neutral	12/06/99	14 days
Analyses		
1. Volatile Organics	12/06,07/99	14 days
2. Base Neutral	12/07/99	40 days

* Samples collected and refrigerated 12/04/99, Laboratory received the samples on Monday 12/06/99.

VOLATILE ORGANICS

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

Definition of Qualifiers

MDL	: Method Detection Limit
J	: Compound identified below detection limit
B	: Compound in both sample and blank
D	: Results from dilution of sample
U	: Compound searched for but not detected
E	: Compound exceeds calibration limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Vblk38**

Lab Name: FMETL NJDEP#: 13461

Project: 100004 Case No.: 4984 Location: 413 SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: Vblk38

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001406.D

Level: (low/med) LOW Date Received: 12/6/99

% Moisture: not dec. Date Analyzed: 12/6/99

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File	**VC001425.D**	Sample Name	**4984.01**
Operator	**Skelton**	Field ID	**413-1**
Date Acquired	**7 Dec 1999 4:38 am**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6 2-Sept-9

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **413-1**

Lab Name: FMETL NJDEP#: 13461

Project: 100004 Case No.: 4984 Location: 413 SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 4984.01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001425.D

Level: (low/med) LOW Date Received: 12/6/99

% Moisture: not dec. Date Analyzed: 12/7/99

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

BASE NEUTRAL

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	**BN04072.D**	Sample Name	**Sblk325**
Operator	**Bhaskar**	Misc Info	**Sblk325 A 991206**
Date Acquired	**7-Dec-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91	ug/L	
62-53-3	Aniline			not detected	NLE	1.63	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.39	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80	ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97	ug/L	
78-59-1	Isophorone			not detected	100	1.01	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22	ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79	ug/L	
83-32-9	Acenaphthene			not detected	400	1.10	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62	ug/L	
86-73-7	Fluorene			not detected	300	0.99	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23	ug/L	
120-12-7	Anthracene			not detected	2000	1.12	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70	ug/L	
206-44-0	Fluoranthene			not detected	300	1.64	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**BN04072.D**	Sample Name	**Sblk325**
Operator	**Bhaskar**	Misc Info	**Sblk325 A 991206**
Date Acquired	**7-Dec-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4.18	ug/L	
129-00-0	Pyrene			not detected	200	1.25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.75	ug/L	
218-01-9	Chrysene			not detected	20	1.38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.64	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.84	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
PQL= Practical Quantitation Limit

MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID: **Sblk325**

Lab Name: FMETL Lab Code 13461

Project: 100004 Case No.: 4984 Location: Bld.413 SDG No:

Matrix: (soil/water) WATER Lab Sample ID: Sblk325

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04072.D

Level: (low/med) LOW Date Received: 12/6/99

% Moisture: decanted: (Y/N) N Date Extracted: 12/6/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	**BN04085.D**	Sample Name	**4984.01**
Operator	**Bhaskar**	Misc Info	**413-1**
Date Acquired	**7-Dec-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91	ug/L	
62-53-3	Aniline			not detected	NLE	1.63	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.39	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80	ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97	ug/L	
78-59-1	Isophorone			not detected	100	1.01	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22	ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79	ug/L	
83-32-9	Acenaphthene			not detected	400	1.10	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62	ug/L	
86-73-7	Fluorene			not detected	300	0.99	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23	ug/L	
120-12-7	Anthracene			not detected	2000	1.12	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70	ug/L	
206-44-0	Fluoranthene			not detected	300	1.64	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**BN04085.D**	Sample Name	**4984.01**
Operator	**Bhaskar**	Misc Info	**413-1**
Date Acquired	**7-Dec-99**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4.18	ug/L	
129-00-0	Pyrene			not detected	200	1.25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.75	ug/L	
218-01-9	Chrysene			not detected	20	1.38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.64	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.84	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
PQL= Practical Quantitation Limit

MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID: **413-1**

Lab Name: FMETL Lab Code 13461

Project: 100004 Case No.: 4984 Location: Bld.413 SDG No:

Matrix: (soil/water) WATER Lab Sample ID: 4984.01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04085.D

Level: (low/med) LOW Date Received: 12/6/99

% Moisture: decanted: (Y/N) N Date Extracted: 12/6/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	23.04	4	J

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 100004 Case No.: 4984 Location Bld.413 SDG No.:

Lab File ID: BNA03321.D DFTPP Injection Date: 10/27/99

Instrument ID: BNA#2 DFTPP Injection Time: 9:32

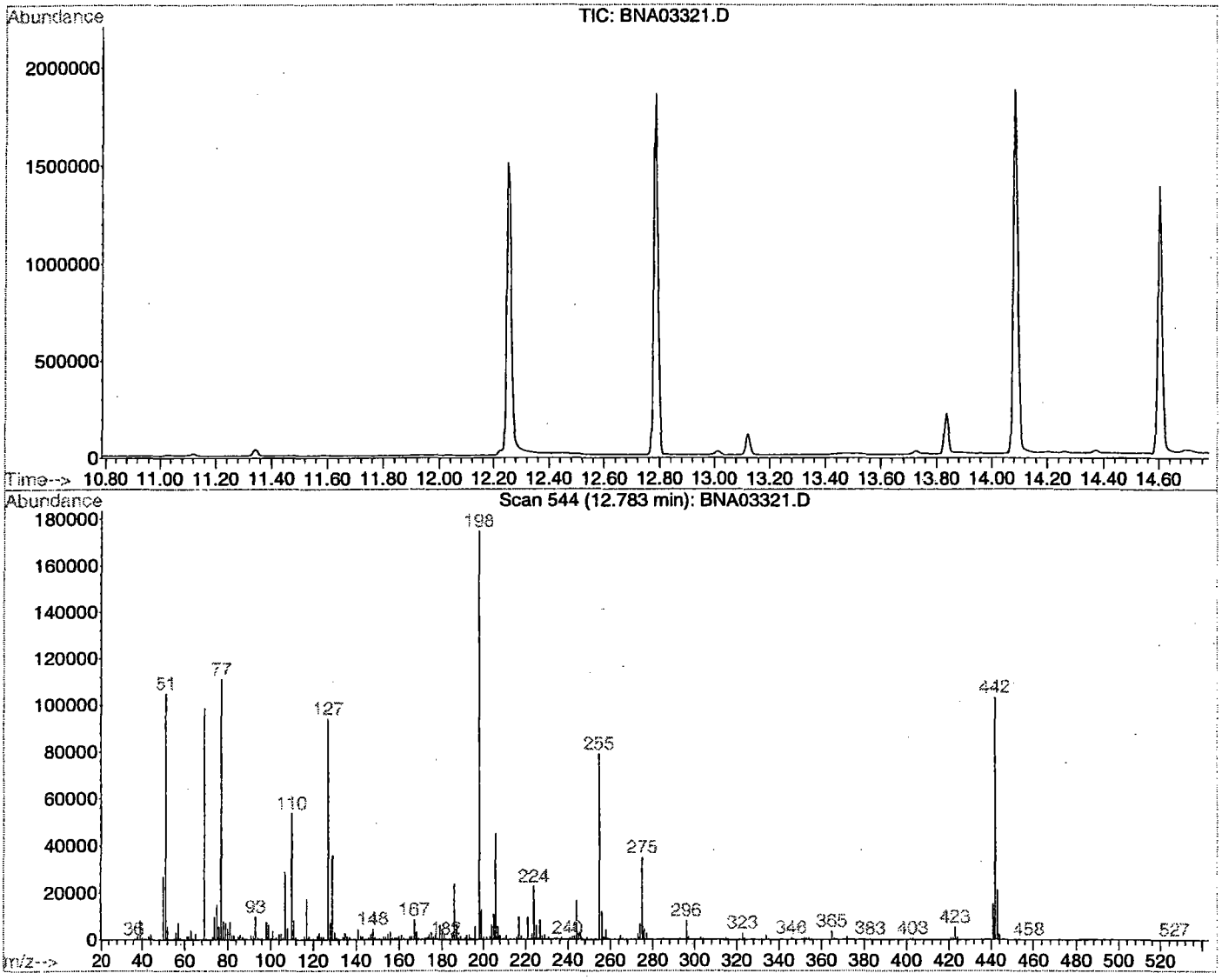
m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	60.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	56.4
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	25.0 - 75.0% of mass 198	53.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	19.9
365	Greater than 0.75% of mass 198	2.0
441	Present, but less than mass 443	8.7
442	40.0 - 110.0% of mass 198	59.1
443	15.0 - 24.0% of mass 442	12.0 (20.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50 PPM CAL	BNA03325.D	10/27/99	12:40
02	4871.04DUP	4871.04DUP	BNA03332.D	10/27/99	18:28
03	4871.04MS	4871.04MS	BNA03333.D	10/27/99	19:17

Data File : C:\HPCHEM\1\DATA\991027\BNA03321.D Vial: 99
Acq On : 27 Oct 1999 9:32 am Operator: Bhaskar
Sample : DFTPP TUNE Inst : GC BNA 2
Misc : 50NG/2UL Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M262534.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 544

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	60.0	104832	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	56.4	98600	PASS
70	69	0.00	2	0.6	593	PASS
127	198	40	60	53.8	94000	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	174720	PASS
199	198	5	9	7.1	12479	PASS
275	198	10	30	19.9	34848	PASS
365	198	1	100	2.0	3527	PASS
441	443	1	99	72.0	15134	PASS
442	198	40	100	59.1	103184	PASS
443	442	17	23	20.4	21008	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project: 100004 Case No.: 4984 Location: Bld.413 SDG No:

Lab File ID: BN04064.D DFTPP Injection Date: 11/29/99

Instrument ID: SVoa#1 DFTPP Injection Time: 13:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	48.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	59.4
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	25.0 - 75.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	15.3
365	Greater than 0.75% of mass 198	1.4
441	Present, but less than mass 443	6.7
442	40.0 - 110.0% of mass 198	41.9
443	15.0 - 24.0% of mass 442	8.2 (19.6)2

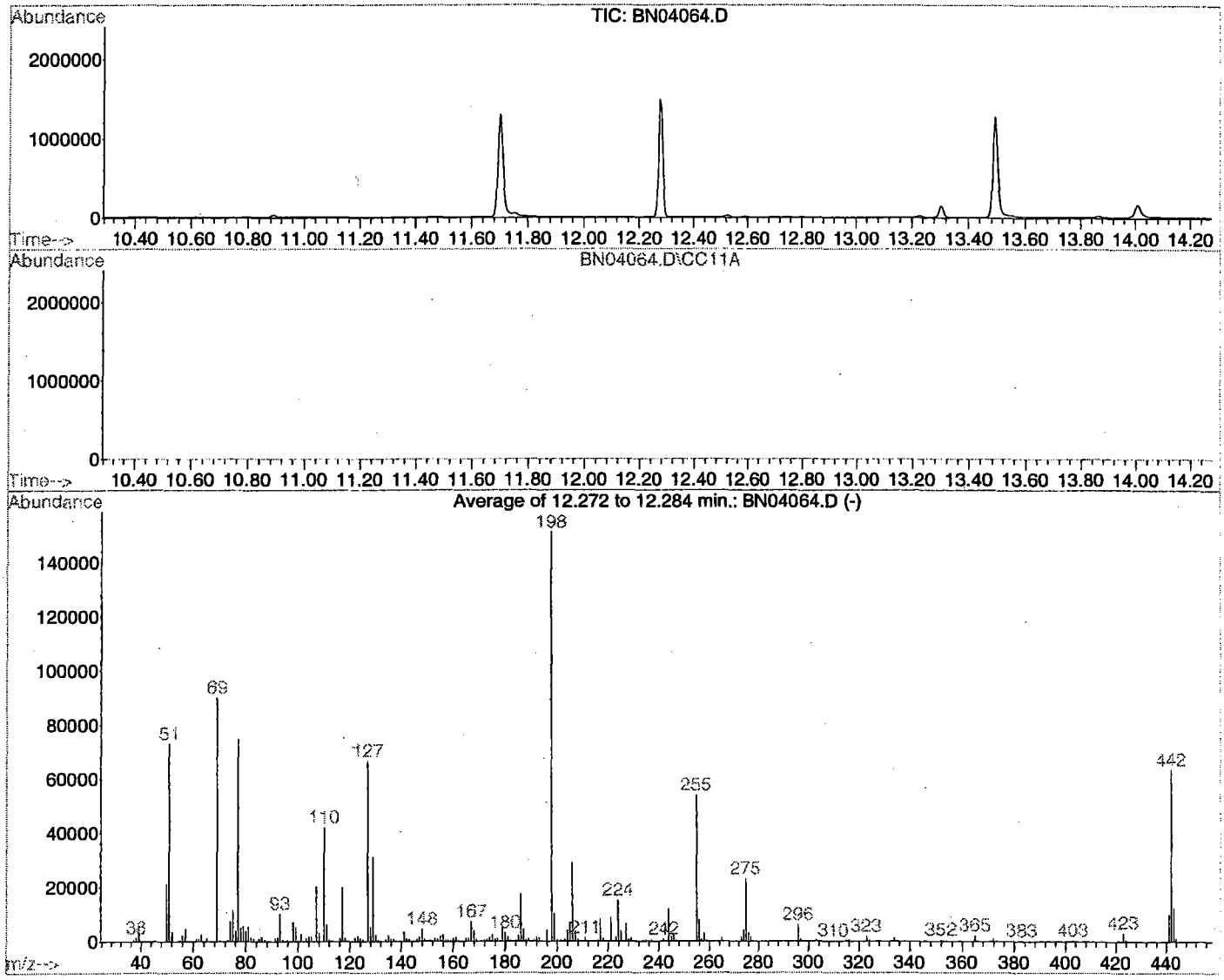
1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field ID:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD120	120 PPM CAL	BN04065.D	11/29/99	13:47
02	SSTD080	80 PPM CAL	BN04066.D	11/29/99	14:37
03	SSTD050	50 PPM CAL	BN04067.D	11/29/99	15:21
04	SSTD020	20 PPM CAL	BN04068.D	11/29/99	16:06
05	SSTD010	10 PPM CAL	BN04069.D	11/29/99	16:52

DFTPP

Data File : C:\HPCHEM\1\DATA\991129\BN04064.D Vial: 99
Acq On : 29 Nov 1999 1:16 pm Operator: Bhaskar
Sample : DFTPP TUNE Inst : GC/MS Ins
Misc : 50 NG/2UL Multiplr: 1.00
MS Integration Params: RTEINT.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M62538.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Average of 12.272 to 12.284 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	48.2	73005	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	59.4	90010	PASS
70	69	0.00	2	0.5	426	PASS
127	198	40	60	44.0	66547	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	151413	PASS
199	198	5	9	6.8	10318	PASS
275	198	10	30	15.3	23106	PASS
365	198	1	100	1.4	2185	PASS
441	443	1	99	81.1	10084	PASS
442	198	40	100	41.9	63450	PASS
443	442	17	23	19.6	12433	PASS

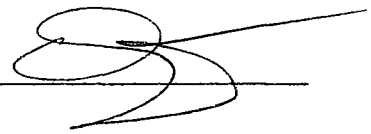
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package and in the main body of the report.

1. Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted ✓
2. Table of Contents submitted ✓
3. Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted ✓
4. Document paginated and legible ✓
5. Chain of Custody submitted ✓
6. Samples submitted to lab within 48 hours of sample collection ✓
7. Methodology Summary submitted ✓
8. Laboratory Chronicle and Holding Time Check submitted ✓
9. Results submitted on a dry weight basis ✓
10. Method Detection Limits submitted ✓
11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP ✓

Laboratory Manager or Environmental Consultant's Signature 

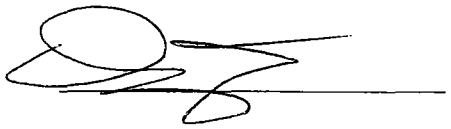
Date 4/6/00

Laboratory Certification #13461

*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance.

Laboratory Authentication Statement

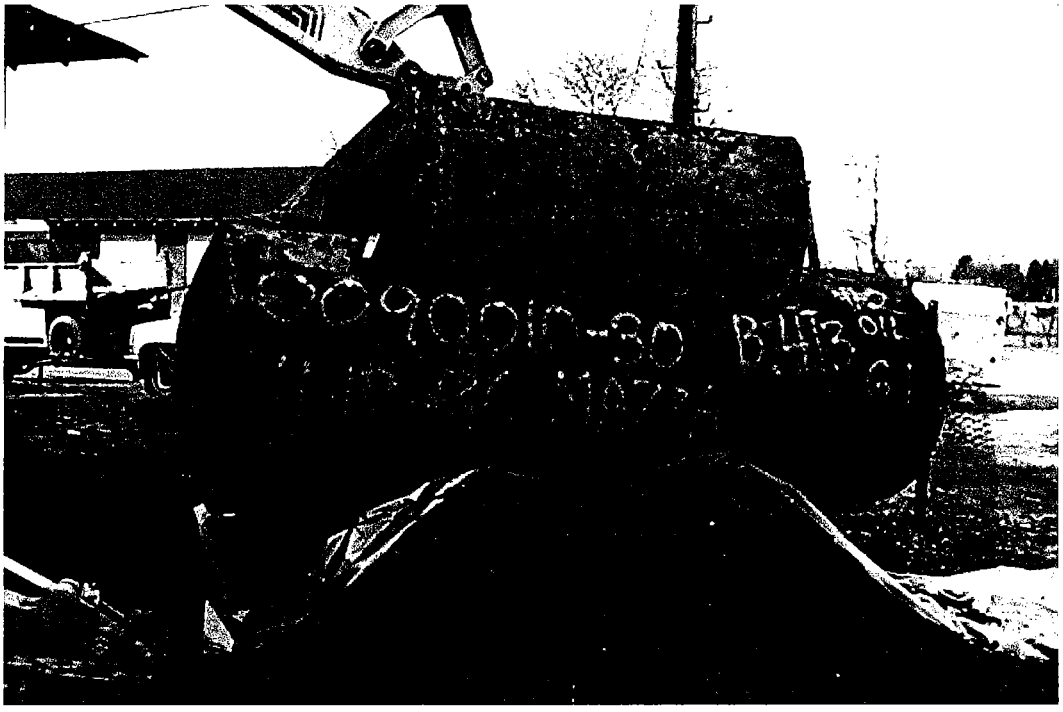
I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW-846 for Solid Waste Analysis. I have personally examined the information contained in this report and to the best of my knowledge, I believe that the submitted information is true, accurate, complete and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.



Daniel K. Wright
Laboratory Manager

APPENDIX G

PHOTOGRAPHS



NOVEMBER 19, 1996

PHOTOGRAPHIC LOG

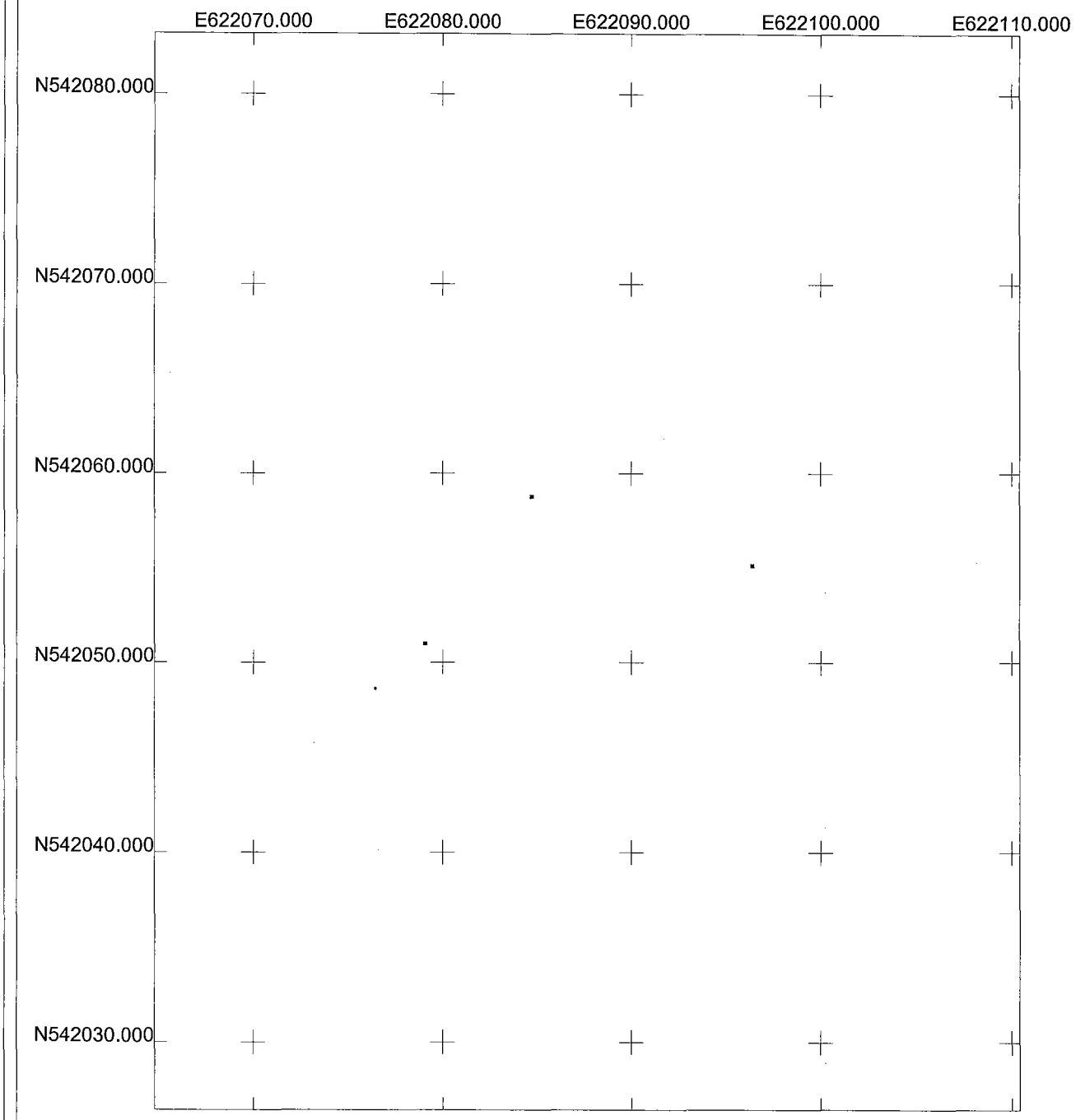
UST NO. 90010-30

Building 413
Main Post-East
Fort Monmouth

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, PA

APPENDIX H

ELECTRONIC DATA DELIVERABLES



Bldg. 413 UST Ground Water Sample GPS Map

US State Plane 1983
New Jersey (NY East) 2900
NAD 1983 (Conus)

N

Scale 1:100
0 12.50
US Survey Feet

r070713b.cor
7/7/2000
Pathfinder Office
Trimble

BLDG. 413 UST GROUND WATER SAMPLE GPS POSITION & COORDINATES

US STATE PLANE 1983 NJ (NY EAST) 2900 NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

POSITION / DESC.	Y COORD. (NORTHING)	X COORD. (EASTING)
413 GW	542051.025	622079.033

(GW denotes Ground Water)

REFERENCE POINTS

POSITION / DESC.	Y COORD. (NORTHING)	X COORD. (EASTING)
WATER VALVE ACCESS	542058.792	622084.69
STORM GRATE	542055.155	622096.357