

United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

***Building 905
Main Post-West Area***

**NJDEP UST Registration No. 81533-145
Dicar No. 97-06-24-1325-26**

MARCH 2001

**UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT**

BUILDING 905

**MAIN POST-WEST AREA
NJDEP UST REGISTRATION NO. 81533-145**

MARCH 2001

PREPARED FOR:

**UNITED STATES ARMY, FORT MONMOUTH, NEW JERSEY
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NJ 07703**

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EXECUTIVE SUMMARY

UST Closure

On June 24, 1997, 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-West area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081533-145 (Fort Monmouth ID No. 905), was located west of Building 905. UST No. 0081533-145 was a 1,000-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 or punctures. Numerous holes were noted in the UST. Soils at the location of the holes were dark in color and appeared to be contaminated. Based on the inspection of the UST, Directorate of Public Works (DPW) concluded that a discharge was associated with this UST. The NJDEP hotline was notified and the case was assigned DICAR No. 97-06-24-1325-26. Approximately 216 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 TPHC concentrations ranging from non-detect to 983.10 mg/kg, except for sample E (October 29, 1997) that had a TPHC concentration of 1,444.27 mg/kg. A VOA analysis (EPA Method 8260) was completed on sample E and all known compounds searched for in the analysis were not detected. Three tentatively identified compounds were detected below the method detection limit. Groundwater was encountered at a depth of 5.0 feet bgs and sheen was observed on groundwater.

All post excavation soil samples collected from the UST excavation at Building 905 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 potentially contaminated soil near the shallow water table, two (2) groundwater samples were collected at Building 905. On December 4, 2000, and January 17, 2001, Building 905 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. 81533-145 at Building 905.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81533-145, was closed at Building 905 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on June 24, 1997. 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 1,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 81533-145 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. 81533-145 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. 81533-145 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 905 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-145 was located west of Building 905. 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 905. 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 905 is located approximately 600 feet south of Husky Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 905 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 250 gallons of liquid from the UST and its associated piping were pumped directly into a Lionetti Oil Recovery truck where it was then transported to Lionetti Oil Recovery Co., Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, NJ. Refer to Appendix C for a copy of 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. Numerous holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. Soils were stained and appeared to be contaminated. Soil samples, which were collected after the removal of the potentially contaminated soil, contained TPHC concentrations ranging from non-detect to 983.10 mg/kg, except for sample E (October 29, 1997) that had a TPHC concentration of 1,444.27 mg/kg. A VOA analysis (EPA Method 8260) was completed on sample E and all known compounds searched for in the analysis were not detected. Three tentatively identified compounds were detected below the method detection limit. Groundwater was encountered at a depth of 5.0 feet bgs and sheen was observed on groundwater.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported in compliance with all applicable regulations and laws to Mazza & Sons, Inc., Recycling Division. 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 216 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 5.0 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:

- Subsurface Evaluator: Dinker Desai
Employer: U.S. Army, Fort Monmouth
Phone Number: (732) 532-1475
NJDEP Certification No.: 10173
- 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: Richard Dirienzo
Phone Number: (908) 721-0900

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using visual observations to identify potentially contaminated material. Soil excavated from around the tank exhibited evidence of potential contamination. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 5.0 feet below ground surface and sheen was observed on groundwater.

2.3 SOIL SAMPLING

On June 27, 1997, following the removal of the UST and associated piping, post-excavation soil samples A, B, C, D, E, F, G, H, and DUP A were collected from a total of eight (8) locations of the UST excavation. Sidewall samples A, B, C, F, and DUP A were collected at a depth of 6.0 feet bgs. Samples D, E, G, and H were collected along the excavation floor at a depth of 9.0 feet bgs. All samples were analyzed for TPHC and total solids.

On October 23, 1997, following the removal of 138 cubic yards of potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, F, and DUP B were collected from a total of six (6) locations of the UST excavation. Samples A, B, C, D, and DUP B were collected along the excavation floor at a depth of 9.0 feet bgs. Sidewall samples E and F were collected at a depth of 6.5 feet bgs. All samples were analyzed for TPHC and total solids.

On October 23, 1997, following the removal of 42 cubic yards of potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, F, G, H, I, J, K, L, and DUP K were collected from a total of twelve (12) locations of the UST excavation. Samples A and B were collected along the excavation floor at a depth of 9.0 feet bgs. Sidewall samples C, D, E, F, G, H, I, J, K, L, and DUP K were collected at a depth of 6.5 feet bgs. All samples were analyzed for TPHC and total solids.

On October 29, 1997, following the removal of 24 cubic yards of potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, and DUP A were collected from a total of five (5) locations of the UST excavation. Sample A was collected along the excavation floor at a depth of 9.0 feet bgs. Sidewall samples B, C, D, E, and DUP A were collected at a depth of 6.5 feet bgs. All samples were analyzed for TPHC and total solids. Based on preliminary TPHC results, a VOA analysis (EPA Method 8260) was completed on sample E.

On November 3, 1997, following the removal of 12 cubic yards of potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, F, G, and DUP C were collected from a total of seven (7) locations of the UST excavation. Samples A and B were collected along the excavation floor at a depth of 9.0 feet bgs. Sidewall samples C, D, E, F, and DUP C were collected at a depth of 6.5 feet bgs. Geoprobe boring sample G was collected at a depth of 6.5 feet bgs. All samples were analyzed for TPHC and total solids.

On November 18, 2000, three (3) geoprobe soil samples were collected from the excavated area to verify the effectiveness of the soil excavation activities. The samples were collected at a depth of 6.5 feet bgs. All samples were analyzed for TPHC and total solids.

U.S. Army 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 December 4, 2000, and January 4, 2001, Building 905 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 between June 26, 1997, and November 18, 2000 from a total of forty-one (41) locations. All samples were analyzed for TPHC and total solids. In addition, sample E was analyzed for VOA. 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 VOA analysis for sample E as compared to the NJDEP residential direct contact soil cleanup criteria and is included as Table 3. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected between June 26, 1997, and November 18, 2000, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria.

3.2 GROUNDWATER SAMPLING RESULTS

No compounds were detected in the sample collected from Building 905 on December 4, 2000.

The sample collected from Building 905 on January 17, 2001, contained butylbenzylphthalate at a concentration of 3.56 ug/l and bis(2-ethylhexyl)phthalate at a concentration of 2.87 ug/l. No other compounds were detected.

A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria is provided in Table 4 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 December 4, 2000, and January 17, 2001, 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 905 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 905 on December 4, 2000, and January 17, 2001, groundwater quality at Building 905 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. 81533-145 at Building 905.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
**A	6/26/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**B	6/26/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**C	6/26/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**F	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
G	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
H	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**DUP A	6/27/97	6/30/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

- * TPHC Total Petroleum Hydrocarbons
 ** Sample location was further remediated and resampled

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

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Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**E	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
F	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP B	10/23/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

** Sample location was further remediated and resampled

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 3 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**C	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**E	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**F	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
G	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
H	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
I	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**J	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
K	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**L	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP K	10/24/97	10/24/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

** Sample location was further remediated and resampled

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 4 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	10/29/97	10/31/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	10/29/97	10/31/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	10/29/97	10/31/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	10/29/97	10/31/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	10/29/97	10/31/97	Soil	Post-Excavation	TPHC,VOA	OQA-QAM-025
DUP A	10/29/97	10/31/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE.1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 5 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**F	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**G	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP C	11/3/97	11/4/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

** Sample location was resampled

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 6 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
B1	11/18/00	11/20/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
B2	11/18/00	11/20/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
B3	11/18/00	11/20/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP B1	11/18/00	11/20/00	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 7 of 7

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Sampling Method**
5890.01	12/4/00	12/4/00	Aqueous	Groundwater	VOCs, SVOCs	PPNDP
221	1/17/01	1/18/01	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 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 6

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/6.0' =	2753.01	6/26/97	6/30/97	Total Solid	--	--	81.89 %	--	--
				TPHC	188	yes	297.64	10,000	No
***B/6.0' =	2753.02	6/26/97	6/30/97	Total Solid	--	--	77.87 %	--	--
				TPHC	197	Yes	1018.98	10,000	No
***C/6.0' =	2753.03	6/26/97	6/30/97	Total Solid	--	--	77.48 %	--	--
				TPHC	197	Yes	937.50	10,000	No
D/9.0' =	2753.04	6/27/97	6/30/97	Total Solid	--	--	72.09 %	--	--
				TPHC	209	yes	ND	10,000	No
E/9.0' =	2753.05	6/27/97	6/30/97	Total Solid	--	--	72.28 %	--	--
				TPHC	208	yes	ND	10,000	No
***F/6.0' =	2753.06	6/27/97	6/30/97	Total Solid	--	--	77.40 %	--	--
				TPHC	198	yes	9094.46	10,000	No
G/9.0' =	2753.07	6/27/97	6/30/97	Total Solid	--	--	72.03 %	--	--
				TPHC	217	yes	ND	10,000	No
H/9.0' =	2753.08	6/27/97	6/30/97	Total Solid	--	--	71.95 %	--	--
				TPHC	206	yes	ND	10,000	No
***DUPA/6.0' =	2753.09	6/27/97	6/30/97	Total Solid	--	--	79.77 %	--	--
				TPHC	194	yes	1030.62	10,000	No

Note:

- * Total Solid results are expressed as a percentage.
- ** NJDEP Residential Direct Contact soil cleanup criteria for total organics
- *** Sample location was further remediated and resampled
- ND Not detected above stated method detection limit
- TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 BUILDING 905, MAIN POST-WEST AREA
 FORT MONMOUTH, NEW JERSEY

Page 2 of 6

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/9.0' =	3095.01	10/23/97	10/24/97	Total Solid	--	--	72.33 %	--	--
				TPHC	215	yes	ND	10,000	No
B/9.0' =	3095.02	10/23/97	10/24/97	Total Solid	--	--	75.19 %	--	--
				TPHC	206	Yes	ND	10,000	No
C/9.0' =	3095.03	10/23/97	10/24/97	Total Solid	--	--	72.33 %	--	--
				TPHC	208	Yes	ND	10,000	No
D/9.0' =	3095.04	10/23/97	10/24/97	Total Solid	--	--	70.65 %	--	--
				TPHC	213	yes	ND	10,000	No
***E/6.5' =	3095.05	10/23/97	10/24/97	Total Solid	--	--	79.18 %	--	--
				TPHC	190	yes	1021.13	10,000	No
F/6.5' =	3095.06	10/23/97	10/24/97	Total Solid	--	--	77.65 %	--	--
				TPHC	194	yes	983.10	10,000	No
DUPB/9.0' =	3095.08	10/23/97	10/24/97	Total Solid	--	--	73.21 %	--	--
				TPHC	203	yes	ND	10,000	No

Note:

- * Total Solid results are expressed as a percentage.
 ** NJDEP Residential Direct Contact soil cleanup criteria for total organics
 *** Sample location was further remediated and resampled
 ND Not detected above stated method detection limit
 TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 3 of 6

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/9.0' =	3105.01	10/24/97	10/24/97	Total Solid	--	--	71.33 %	--	--
				TPHC	219	yes	ND	10,000	No
B/9.0' =	3105.02	10/24/97	10/24/97	Total Solid	--	--	70.75 %	--	--
				TPHC	214	Yes	ND	10,000	No
***C/6.5' =	3105.03	10/24/97	10/24/97	Total Solid	--	--	80.62 %	--	--
				TPHC	186	Yes	4397.79	10,000	No
D/6.5' =	3105.04	10/24/97	10/24/97	Total Solid	--	--	85.79 %	--	--
				TPHC	172	yes	ND	10,000	No
***E/6.5' =	3105.05	10/24/97	10/24/97	Total Solid	--	--	78.58 %	--	--
				TPHC	195	yes	3441.19	10,000	No
***F/6.5' =	3105.06	10/24/97	10/24/97	Total Solid	--	--	72.27 %	--	--
				TPHC	216	yes	2764.43	10,000	No
G/6.5' =	3105.07	10/24/97	10/24/97	Total Solid	--	--	81.04 %	--	--
				TPHC	189	yes	859.80	10,000	No
H/6.5' =	3105.08	10/24/97	10/24/97	Total Solid	--	--	79.84 %	--	--
				TPHC	192	Yes	906.56	10,000	No
I/6.5' =	3105.09	10/24/97	10/24/97	Total Solid	--	--	79.37 %	--	--
				TPHC	197	Yes	789.24	10,000	No
***J/6.5' =	3105.10	10/24/97	10/24/97	Total Solid	--	--	80.35 %	--	--
				TPHC	194	yes	1792.48	10,000	No
K/6.5' =	3105.11	10/24/97	10/24/97	Total Solid	--	--	76.21 %	--	--
				TPHC	197	yes	815.19	10,000	No
***L/6.5' =	3105.12	10/24/97	10/24/97	Total Solid	--	--	79.09 %	--	--
				TPHC	197	yes	4197.73	10,000	No
DUPK/6.5' =	3105.14	10/24/97	10/24/97	Total Solid	--	--	76.98 %	--	--
				TPHC	195	yes	526.84	10,000	No

Note:

* Total Solid results are expressed as a percentage.

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

*** Sample location was further remediated and resampled

ND Not detected above stated method detection limit

TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 BUILDING 905, MAIN POST-WEST AREA
 FORT MONMOUTH, NEW JERSEY

Page 4 of 6

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/9.0' =	3119.01	10/29/97	10/31/97	Total Solid	--	--	71.96 %	--	--
				TPHC	217	yes	ND	10,000	No
B/6.5' =	3119.02	10/29/97	10/31/97	Total Solid	--	--	73.75 %	--	--
				TPHC	211	Yes	ND	10,000	No
C/6.5' =	3119.03	10/29/97	10/31/97	Total Solid	--	--	80.12 %	--	--
				TPHC	189	Yes	ND	10,000	No
D/6.5' =	3119.04	10/29/97	10/31/97	Total Solid	--	--	75.19 %	--	--
				TPHC	203	yes	ND	10,000	No
E/6.5' =	3119.05	10/29/97	10/31/97	Total Solid	--	--	78.03 %	--	--
				TPHC	191	yes	1444.27	10,000	No
DUPA/9.0' =	3119.06	10/29/97	10/31/97	Total Solid	--	--	73.19 %	--	--
				TPHC	201	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 905, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Page 5 of 6

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/9.0' =	3138.01	11/3/97	11/4/97	Total Solid	--	--	70.67 %	--	--
				TPHC	217	yes	ND	10,000	No
B/9.0' =	3138.02	11/3/97	11/4/97	Total Solid	--	--	70.70 %	--	--
				TPHC	220	Yes	ND	10,000	No
C/6.5' =	3138.03	11/3/97	11/4/97	Total Solid	--	--	91.07 %	--	--
				TPHC	172	Yes	ND	10,000	No
D/6.5' =	3138.04	11/3/97	11/4/97	Total Solid	--	--	90.56 %	--	--
				TPHC	173	yes	ND	10,000	No
E/6.5' =	3138.05	11/3/97	11/4/97	Total Solid	--	--	86.10 %	--	--
				TPHC	171	yes	ND	10,000	No
***F/6.5' =	3138.06	11/3/97	11/4/97	Total Solid	--	--	84.65 %	--	--
				TPHC	177	yes	1037.24	10,000	No
***G/6.5' =	3138.07	11/3/97	11/4/97	Total Solid	--	--	83.65 %	--	--
				TPHC	181	yes	12084.06	10,000	Yes
DUPC/6.5' =	3138.08	11/3/97	11/4/97	Total Solid	--	--	87.62 %	--	--
				TPHC	171	yes	ND	10,000	No

Note:

- * Total Solid results are expressed as a percentage.
- ** NJDEP Residential Direct Contact soil cleanup criteria for total organics
- *** Sample location was resampled
- ND Not detected above stated method detection limit
- TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 BUILDING 905, MAIN POST-WEST AREA
 FORT MONMOUTH, NEW JERSEY

Page 6 of 6

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
B1/6.5' =	5862.01	11/18/00	11/20/00	Total Solid	--	--	86.34 %	--	--
				TPHC	180	yes	ND	10,000	No
B2/6.5' =	5862.02	11/18/00	11/20/00	Total Solid	--	--	79.67 %	--	--
				TPHC	194	Yes	531.07	10,000	No
B3/6.5' =	5862.03	11/18/00	11/20/00	Total Solid	--	--	86.82 %	--	--
				TPHC	177	Yes	ND	10,000	No
DUPB1/6.5' =	5862.04	11/18/00	11/20/00	Total Solid	--	--	85.64 %	--	--
				TPHC	179	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: FMETLNJDEP # 13461Matrix: (soil/water) SOILDate Sampled: 10/29/97Location: 905Lab Sample ID: 3119.05(SAMPLE E)

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

CAS NO.	PARAMETER	MDL	QUALIFIER	RESIDENTIAL	NON-RESIDENTIAL
107028	Acrolein	2000	U	NA	NA
107131	Acrylonitrile	2000	U	1000	5000
75650	tert-Butyl alcohol	3700	U	NA	NA
1634044	Methyl-tert-Butyl ether	850	U	NA	NA
108203	Di-isopropyl ether	570	U	NA	NA
	Dichlorodifluoromethane	1100	U	NA	NA
74-87-3	Chloromethane	280	U	520000	1000000(d)
75-01-4	Vinyl Chloride	850	U	2000	7000
74-83-9	Bromomethane	570	U	79000	1000000(d)
75-00-3	Chloroethane	850	U	NA	NA
75-69-4	Trichlorofluoromethane	570	U	NA	NA
75-35-4	1, 1-Dichloroethene	280	U	8000	150000
67-64-1	Acetone	570	U	1000000(d)	1000000(d)
75-15-0	Carbon Disulfide	280	U	NA	NA
75-09-2	Methylene Chloride	5600	U	49000	210000
156-60-5	trans-1,2-Dichloroethene	570	U	1000000(d)	1000000(d)
75-35-3	1,1-Dichloroethane	280	U	570000	1000000(d)
108-05-4	Vinyl Acetate	850	U	NA	NA
78-93-3	2-Butanone	850	U	1000000(d)	1000000(d)
156-59-2	cis-1,2-Dichloroethene	280	U	79000	1000000(d)
67-66-3	Chloroform	280	U	19000(k)	28000(k)
75-55-6	1,1,1-Trichloroethane	280	U	NA	NA
56-23-5	Carbon Tetrachloride	570	U	2000(k)	4000(k)
71-43-2	Benzeze	280	U	3000	13000
107-06-2	1,2-Dichloroethane	570	U	6000	24000

Table 3
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) SOILDate Sampled: 10/29/97Location: 905Lab Sample ID: 3119.05(SAMPLE E)

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

CAS NO.	PARAMETER	MDL	QUALIFIER	RESIDENTIAL	NON- RESIDENTIAL
79-01-6	Trichloroethene	280	U	23000	54000(k)
78-87-5	1, 2-Dichloropropane	280	U	10000	43000
75-27-4	Bromodichloromethane	280	U	11000(g)	46000(g)
110-75-8	2-Chloroethyl vinyl ether	570	U	NA	NA
10061-01-5	cis-1,3-Dichloropropene	280	U	NA	NA
108-10-1	4-Methyl-2-Pentanone	570	U	1000000(d)	1000000(d)
108-88-3	Toluene	280	U	1000000(d)	1000000(d)
10061-02-6	trans-1,3-Dichloropropene	570	U	NA	NA
79-00-5	1,1,2-Trichloroethane	570	U	22000	420000
127-18-4	Tetrachloroethene	280	U	4000(k)	6000(k)
591-78-6	2-Hexanone	570	U	NA	NA
126-48-1	Dibromochloromethane	570	U	NA	NA
108-90-7	Chlorobenzene	280	U	37000	680000
100-41-4	Ethylbenzene	570	U	1000000(d)	1000000(d)
1330-20-7	m+p-Xylenes	850	U	NA	NA
1330-20-7	o-Xylene	570	U	NA	NA
100-42-5	Styrene	570	U	23000	97000
75-25-2	Bromoform	570	U	86000	370000
79-34-5	1,1,2,2-Tetrachloroethane	570	U	34000	70000(k)
541-73-1	1,3-Dichlorobenzene	850	U	5100000	10000000(c)
106-46-7	1,4-Dichlorobenzene	850	U	570000	10000000(c)
95-50-1	1,2-Dichlorobenzene	850	U	5100000	10000000(c)

SOIL CLEANUP CRITERIA (MG/KG)

(LAST REVISED-7/11/96)

- (A) CRITERIA ARE HEALTH BASED USING AN INCIDENTAL INGESTION EXPOSURE PATHWAY EXCEPT WHERE NOTED BELOW.**
- (B) CRITERIA ARE SUBJECT TO CHANGE BASED ON SITE SPECIFIC FACTORS (E.G., AQUIFER CLASSIFICATION, SOIL TYPE, NATURAL BACKGROUND, ENVIRONMENTAL IMPACTS, ETC.)**
- (C) HEALTH BASED CRITERION EXCEEDS THE 10,000 MG/KG MAXIMUM FOR TOTAL ORGANIC CONTAMINANTS.**
- (D) HEALTH BASED CRITERION EXCEEDS THE 1000 MG/KG MAXIMUM FOR TOTAL VOLATILE ORGANIC CONTAMINANTS**
- (E) CLEANUP STANDARD PROPOSAL WAS BASED ON NATURAL BACKGROUND.**
- (F) HEALTH BASED CRITERION IS LOWER THAN ANALYTICAL LIMITS; CLEANUP CRITERION BASED ON PRACTICAL QUANTITATION LEVEL.**
- (G) CRITERION HAS BEEN RECALCULATED BASED ON NEW TOXICOLOGICAL DATA.**
- (H) THE IMPACT TO GROUND WATER VALUES FOR INORGANIC CONSTITUENTS WILL BE DEVELOPED BASED UPON SITE SPECIFIC CHEMICAL AND PHYSICAL PARAMETERS.**
- (I) ORIGINAL CRITERION WAS INCORRECTLY CALCULATED AND HAS BEEN RECALCULATED.**
- (J) TYPOGRAPHICAL ERROR.**
- (K) CRITERIA BASED ON INHALATION EXPOSURE PATHWAY, WHICH YIELDED A MORE STRINGENT CRITERION THAN THE INCIDENTAL INGESTION EXPOSURE PATHWAY.**
- (L) NEW CRITERION DERIVED USING METHODOLOGY IN THE BASIS AND BACKGROUND DOCUMENT.**
- (M) CRITERION BASED ON ECOLOGICAL (PHYTOTOXICITY) EFFECTS.**
- (N) LEVEL OF THE HUMAN HEALTH BASED CRITERION IS SUCH THAT EVALUATION FOR POTENTIAL ENVIRONMENTAL IMPACTS ON A SITE BY SITE BASIS IS RECOMMENDED.**

- (O) LEVEL OF THE CRITERION IS SUCH THAT EVALUATION FOR POTENTIAL ACUTE EXPOSURE HAZARD IS RECOMMENDED.**
- (P) CRITERION BASED ON THE USEPA INTEGRATED EXPOSURE UPTAKE BIOKINETIC (IEUBK) MODEL UTILIZING THE DEFAULT PARAMETERS. THE CONCENTRATION IS CONSIDERED TO PROTECT 95% OF TARGET POPULATION (CHILDREN) AT A BLOOD LEVEL OF 10 UG/DL.**
- (Q) CRITERIA WAS DERIVED FROM A MODEL DEVELOPED BY THE SOCIETY FOR ENVIRONMENTAL GEOCHEMISTRY AND HEALTH (SEGH) AND WAS DESIGNED TO BE PROTECTIVE FOR ADULTS IN THE WORKPLACE.**
- (R) INSUFFICIENT INFORMATION AVAILABLE TO CALCULATE IMPACT TO GROUND WATER CRITERIA.**

Table 4
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 12/4/00Location: 905Lab Sample ID: 5890.01(Bldg 905)

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 4
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 12/4/00Location: 905Lab Sample ID: 5890.01(Bldg 905)

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 4
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 12/4/00Location: 905Lab Sample ID: 5890.01(Bldg 905)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.54	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.69	Not Detected	--	20	no
62-53-3	Aniline	1.85	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	0.63	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	0.62	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	0.58	Not Detected	--	75	no
100-51-6	Benzyl alcohol	0.62	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	0.65	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	0.57	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	0.64	Not Detected	--	20	no
67-72-1	Hexachloroethane	0.34	Not Detected	--	10	no
98-95-3	Nitrobenzene	0.51	Not Detected	--	10	no
78-59-1	Isophorone	0.45	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	0.48	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	0.54	Not Detected	--	9	no
91-20-3	Naphthalene	0.72	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.78	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.43	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	0.55	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	0.76	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	0.53	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.79	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.04	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.70	Not Detected	--	nle	no

Table 4
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 12/4/00Location: 905Lab Sample ID: 5890.01(Bldg 905)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.92	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	1.93	Not Detected	--	nle	no
83-32-9	Acenaphthene	0.62	Not Detected	--	400	no
132-64-9	Dibenzofuran	0.73	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	1.41	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.54	Not Detected	--	5000	no
86-73-7	Fluorene	0.98	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	0.86	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	2.96	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.44	Not Detected	--	20	no
103-33-3	Azobenzene	1.00	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	1.28	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	1.08	Not Detected	--	10	no
85-01-8	Phenanthrene	1.73	Not Detected	--	nle	no
120-12-7	Anthracene	1.85	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	2.49	Not Detected	--	900	no
206-44-0	Fluoranthene	1.48	Not Detected	--	300	no
92-87-5	Benzidine	2.15	Not Detected	--	50	no
129-00-0	Pyrene	1.53	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.24	Not Detected	--	100	no
56-55-3	Benzo[a]anthracene	2.68	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.60	Not Detected	--	60	no
218-01-9	Chrysene	1.14	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.34	Not Detected	--	30	no
117-84-0	Di-n-octylphthalate	1.44	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.32	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.15	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	2.43	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	2.24	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	1.94	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	2.04	Not Detected	--	nle	no

Table 4
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/17/01Location: 905Lab Sample ID: 221(Bldg 905)

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	Benzene	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 4
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/17/01Location: 905Lab Sample ID: 221 (Bldg 905)

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 4
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/17/01Location: 905Lab Sample ID: 221(Bldg 905)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.54	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.69	Not Detected	--	20	no
62-53-3	Aniline	1.85	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	0.63	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	0.62	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	0.58	Not Detected	--	75	no
100-51-6	Benzyl alcohol	0.62	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	0.65	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	0.57	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	0.64	Not Detected	--	20	no
67-72-1	Hexachloroethane	0.34	Not Detected	--	10	no
98-95-3	Nitrobenzene	0.51	Not Detected	--	10	no
78-59-1	Isophorone	0.45	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	0.48	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	0.54	Not Detected	--	9	no
91-20-3	Naphthalene	0.72	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.78	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.43	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	0.55	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	0.76	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	0.53	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.79	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.04	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.70	Not Detected	--	nle	no

Table 4
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/17/01Location: 905Lab Sample ID: 221(Bldg 905)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.92	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	1.93	Not Detected	--	nle	no
83-32-9	Acenaphthene	0.62	Not Detected	--	400	no
132-64-9	Dibenzofuran	0.73	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	1.41	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.54	Not Detected	--	5000	no
86-73-7	Fluorene	0.98	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	0.86	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	2.96	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.44	Not Detected	--	20	no
103-33-3	Azobenzene	1.00	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	1.28	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	1.08	Not Detected	--	10	no
85-01-8	Phenanthrene	1.73	Not Detected	--	nle	no
120-12-7	Anthracene	1.85	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	2.49	Not Detected	--	900	no
206-44-0	Fluoranthene	1.48	Not Detected	--	300	no
92-87-5	Benzidine	2.15	Not Detected	--	50	no
129-00-0	Pyrene	1.53	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.24	3.56 ug/L	--	100	no
56-55-3	Benzo[a]anthracene	2.68	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.60	Not Detected	--	60	no
218-01-9	Chrysene	1.14	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.34	2.87 ug/L	--	30	no
117-84-0	Di-n-octylphthalate	1.44	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.32	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.15	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	2.43	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	2.24	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	1.94	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	2.04	Not Detected	--	nle	no

FIGURES

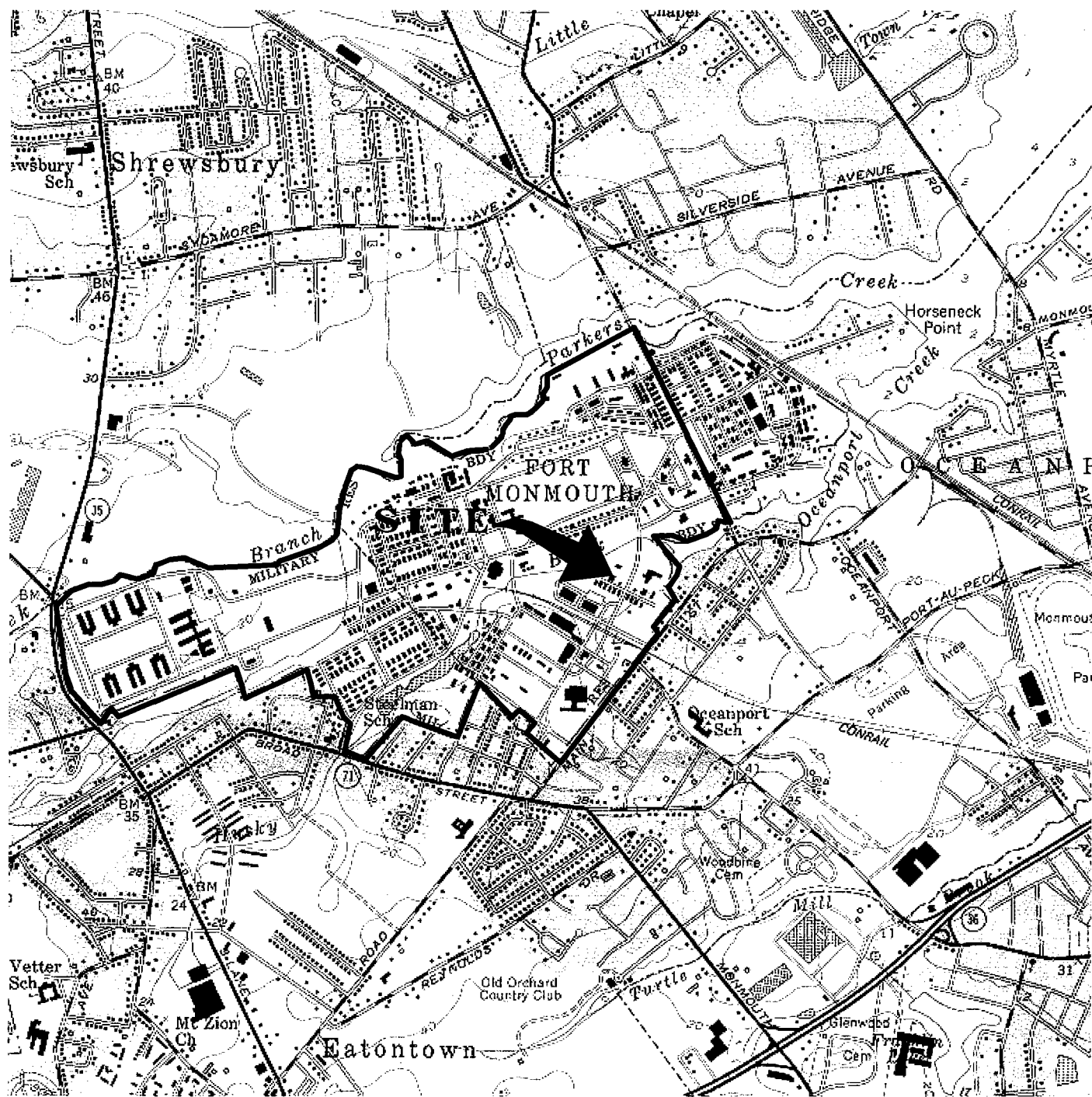


FIGURE 1

LOCATION MAP
 Building 905
 Main-Post West
 Fort Monmouth Army Base
 Monmouth County, NJ

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

Scale: 1" = 2000'

Date: June 1997

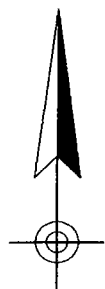
LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822



QUADRANGLE LOCATION

Geologic Map of New Jersey

SEDIMENTARY ROCKS

CENOZOIC

- Holocene: sand
- Tertiary: sand, silt, clay

MESOZOIC

- Cretaceous: sand, silt, clay
- Jurassic: siltstone, shale, sandstone
- Triassic: siltstone, shale, sandstone

PALEOZOIC

- Devonian: conglomerate, sandstone,
- Silurian: conglomerate, sandstone, shale, limestone
- Ordovician: shale, limestone
- Cambrian: limestone, sandstone

IGNEOUS AND METAMORPHIC ROCKS

MESOZOIC

- Jurassic: basalt
- Jurassic: diabase

PRECAMBRIAN

- marble
- gneiss, granite

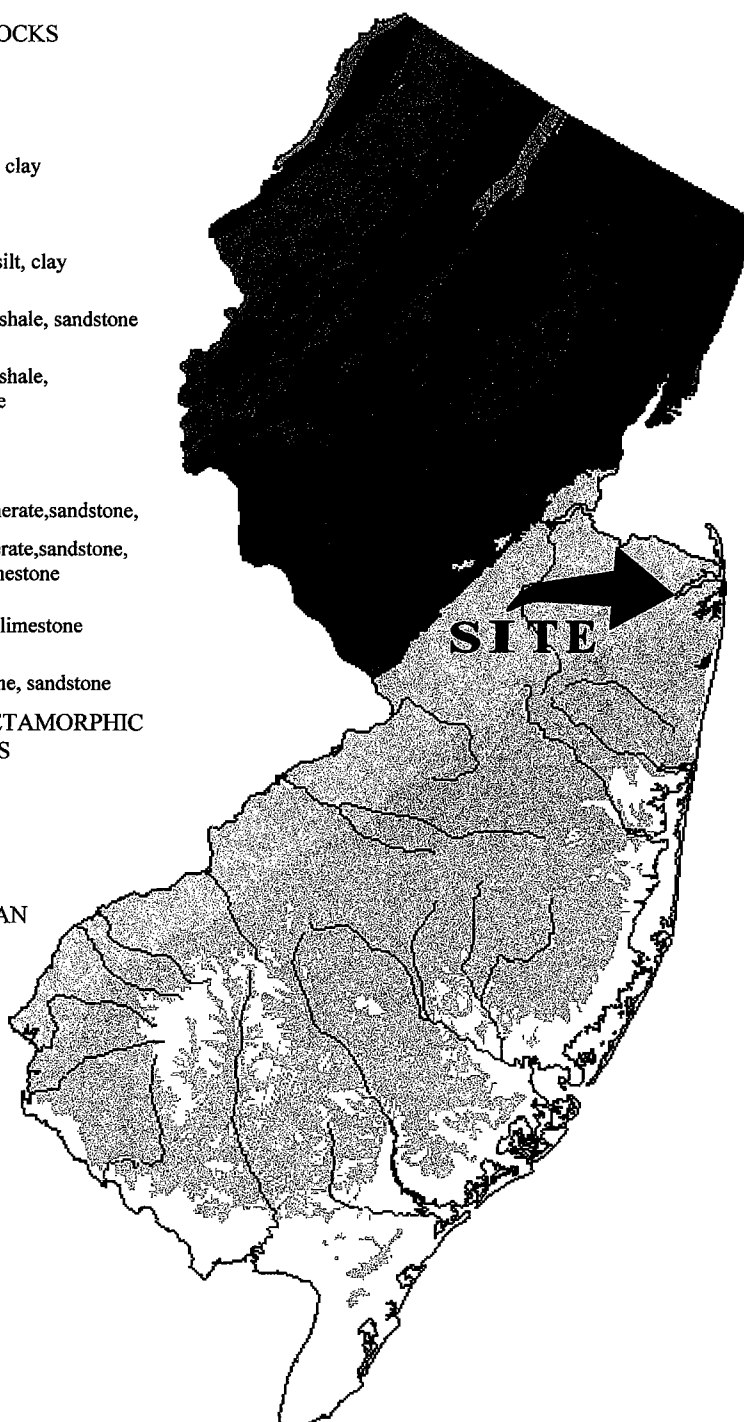


FIGURE 1A
GEOLOGICAL MAP
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, Pennsylvania

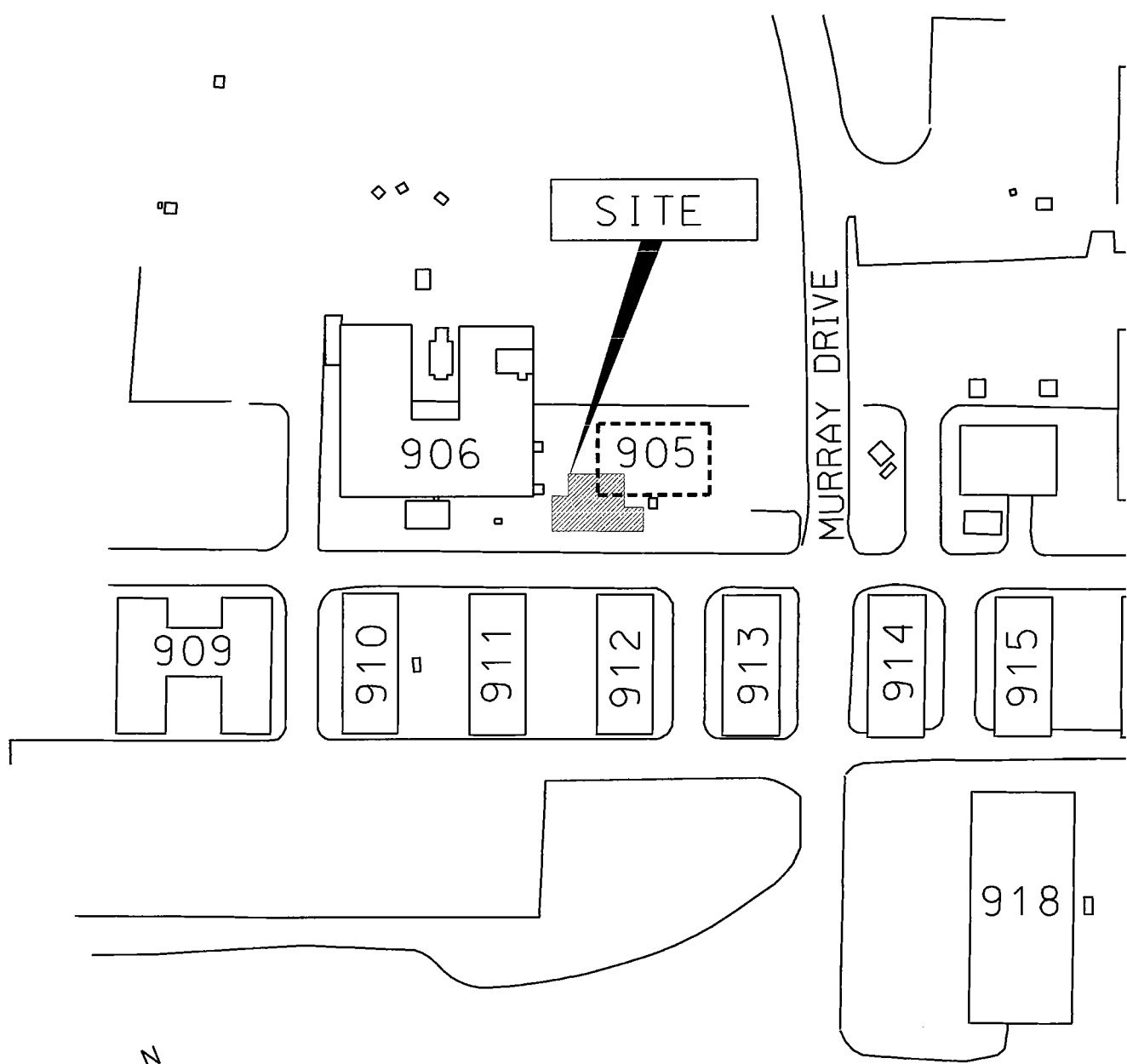
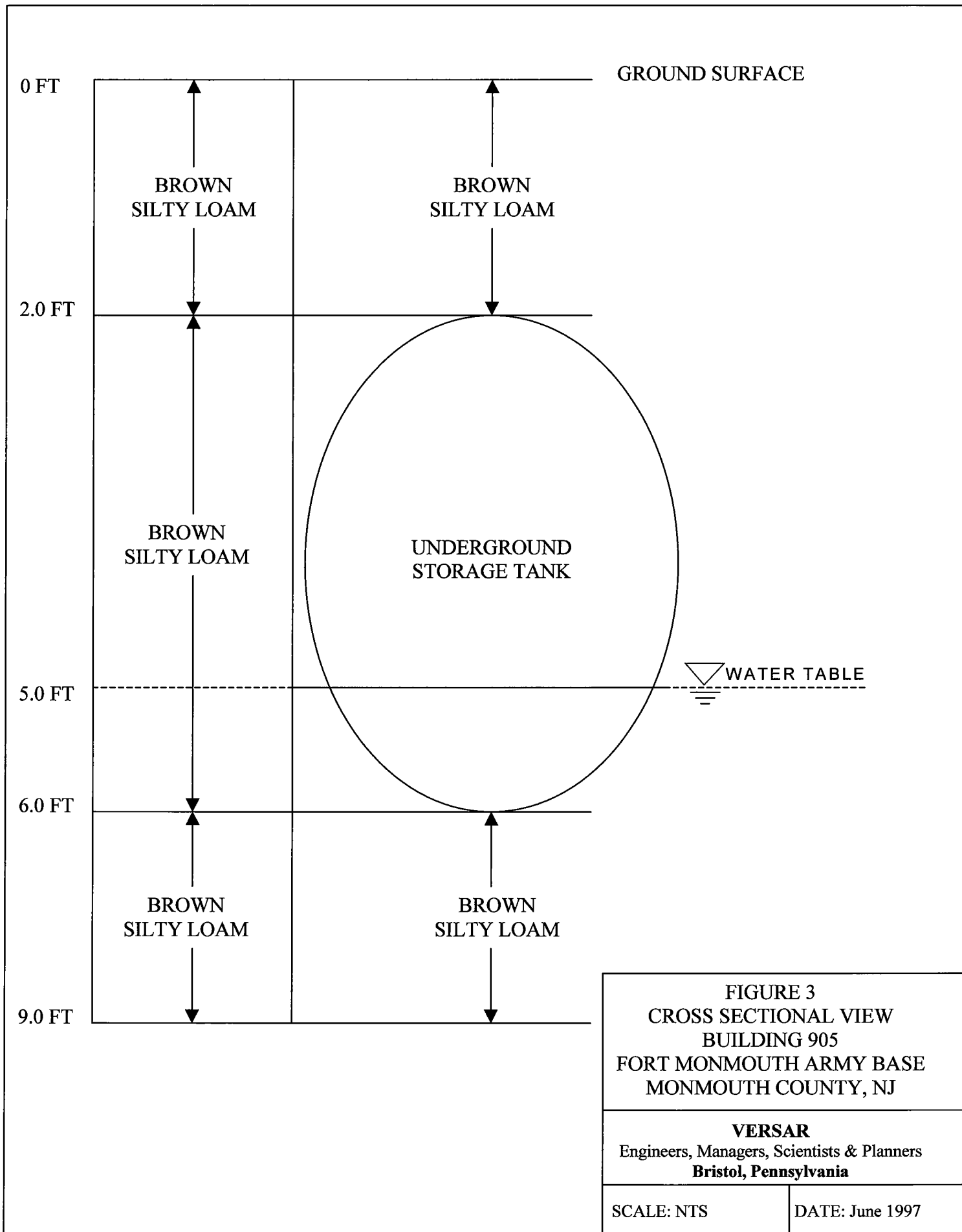


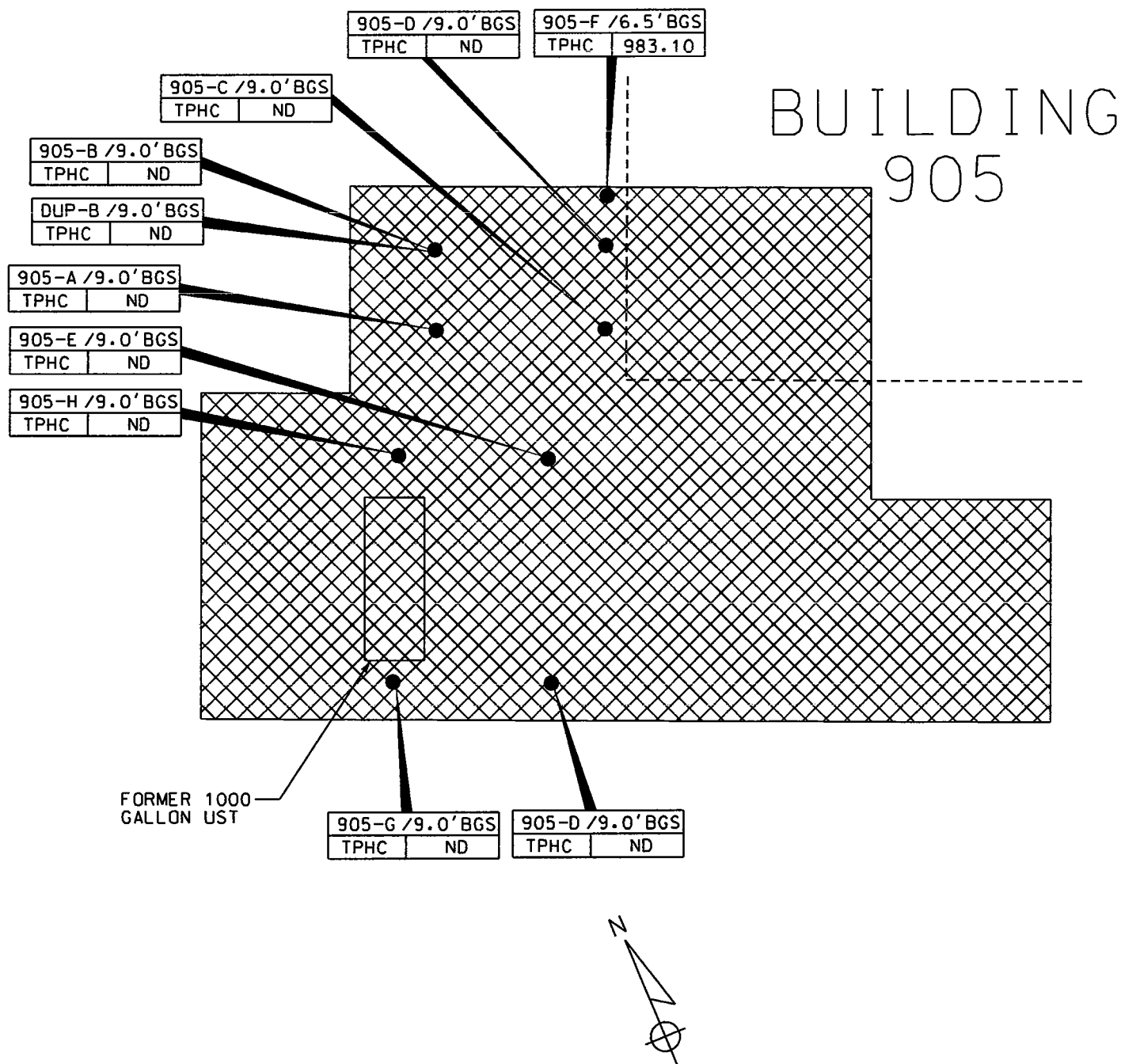
FIGURE 2
SITE MAP
BUILDING 905
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: JUNE 1997





LEGEND

- SOIL SAMPLE LOCATION (JUNE 26, 1997)
- SOIL SAMPLE LOCATION (OCTOBER 23, 1997)
- ▨ LIMIT OF EXCAVATION (NOVEMBER 3, 1997)

NOTES:

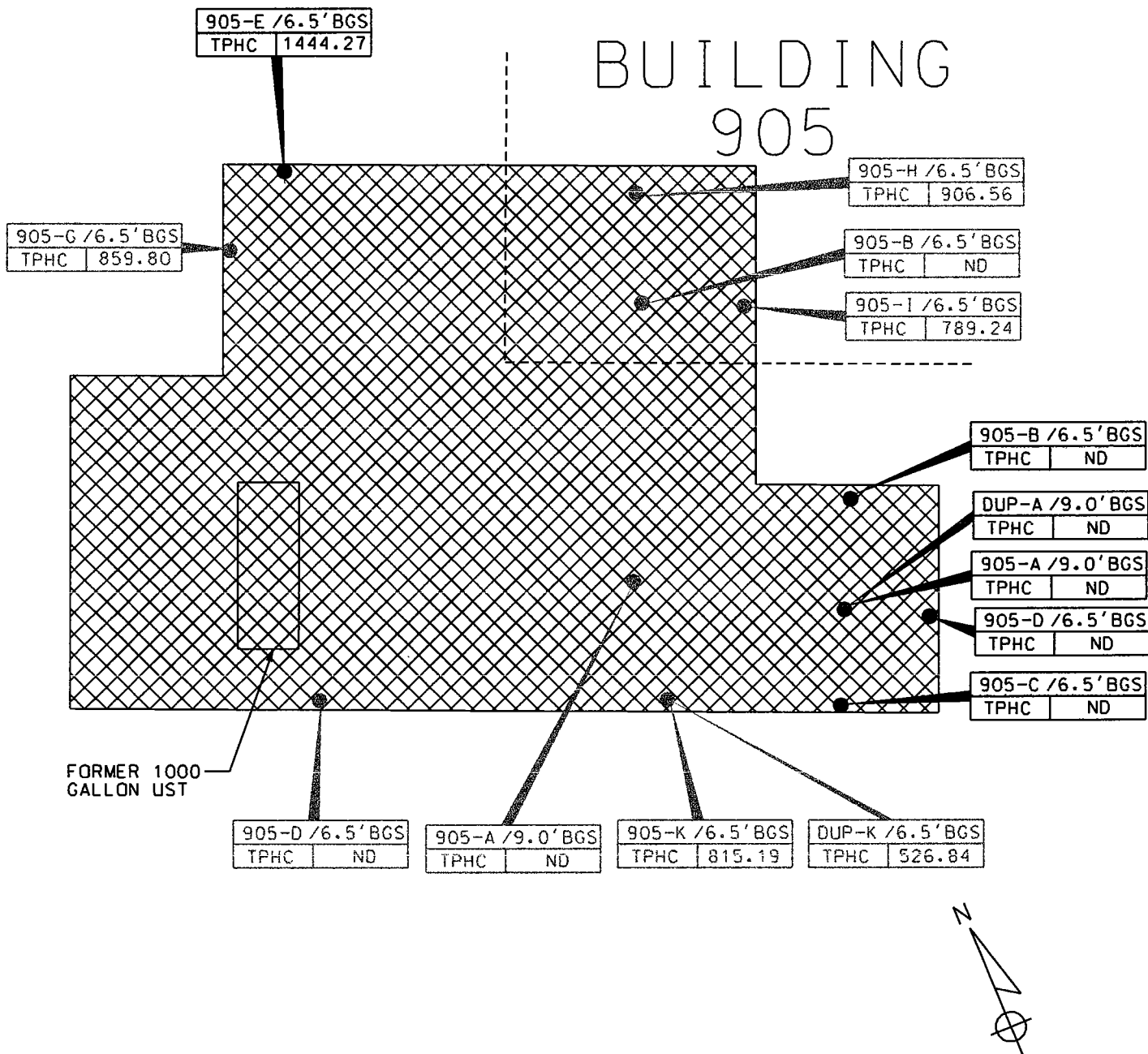
1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE

FIGURE 4A
SOIL SAMPLING LOCATION MAP
BUILDING 905
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: JUNE 1997



LEGEND

- SOIL SAMPLE LOCATION (OCTOBER 24, 1997)
- SOIL SAMPLE LOCATION (OCTOBER 29, 1997)
- ▤ LIMIT OF EXCAVATION (NOVEMBER 3, 1997)

NOTES:

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

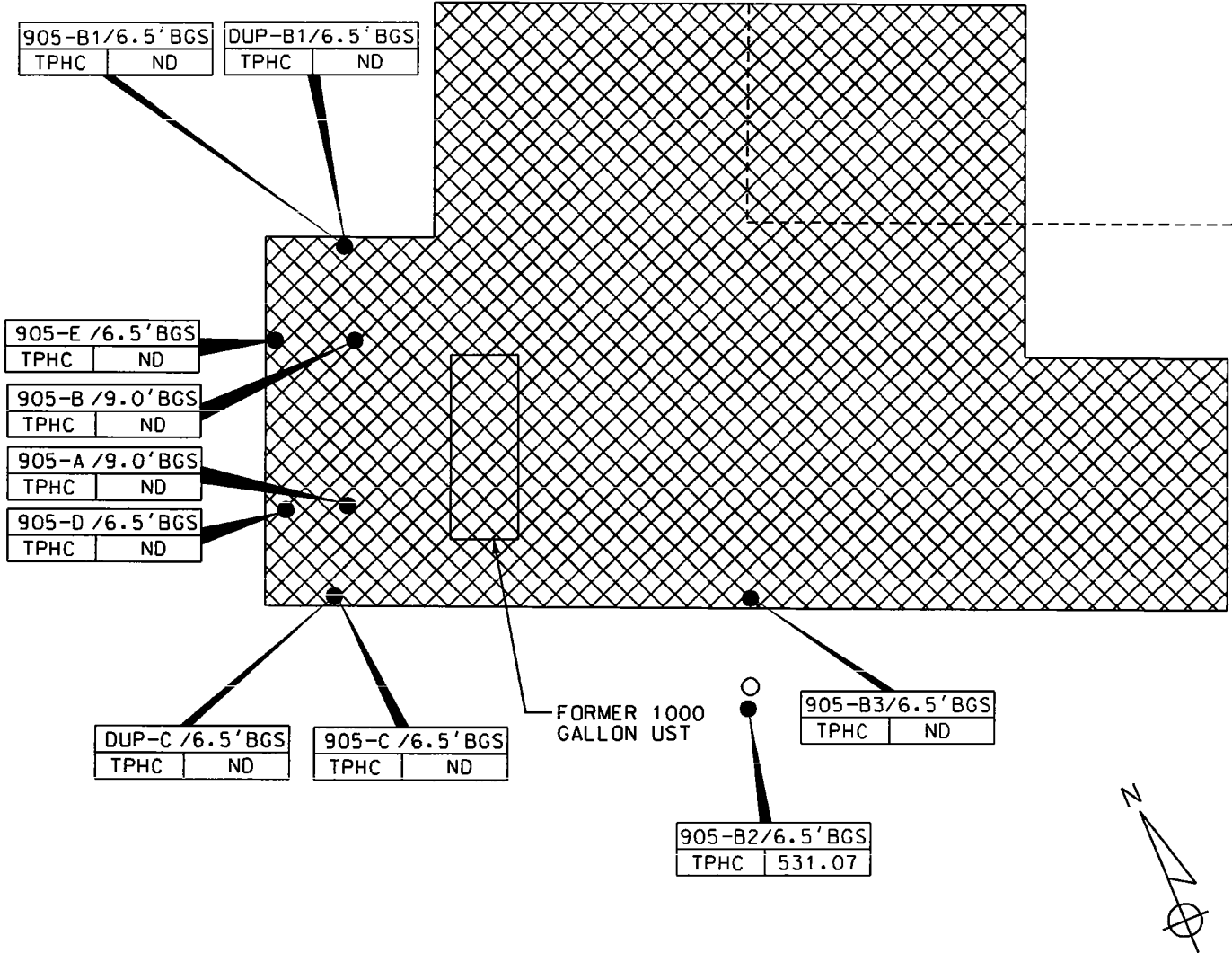
FIGURE 4B
SOIL SAMPLING LOCATION MAP
BUILDING 905
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: JUNE 1997

BUILDING 905



LEGEND

- SOIL SAMPLE LOCATION (NOVEMBER 3, 1997)
- SOIL SAMPLE LOCATION (NOVEMBER 18, 2000)
- ▨ LIMIT OF EXCAVATION (NOVEMBER 3, 1997)

NOTES:

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

FIGURE 4C
SOIL SAMPLING LOCATION MAP
BUILDING 905
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: JUNE 1997

BUILDING 905

FORMER 1000
GALLON UST

SAMPLING LOCATION: SAMPLING DEPTH: SAMPLING DATE:	HIGHER OF NJDEP GWQS AND POL	BLDG 905 9.5' BGS 12/4/00	BLDG 905 9.5' BGS 1/17/01
VOLATILE ORGANIC COMPOUNDS:		ND	ND
SEMIVOLATILE ORGANIC COMPOUNDS:			
BUTYLBENZYLPHTHALATE:	100	ND	3.56
BIS(2-ETHYLHEXYL)PHTHALATE:	30	ND	2.87



LEGEND

- GROUNDWATER SAMPLE LOCATION
(DECEMBER 4, 2000 AND JANUARY 17, 2000)
- ▤ LIMIT OF EXCAVATION
(NOVEMBER 3, 1997)

NOTES:

1. ND=INDICATES COMPOUND NOT DETECTED
2. ALL RESULTS IN UG/L
3. BGS = BELOW GROUND SURFACE
4. SEE TABLE 4 FOR NJDEP GROUNDWATER QUALITY CRITERIA

FIGURE 5
GROUNDWATER SAMPLING MAP
BUILDING 905
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: JUNE 1997

APPENDIX A

NJDEP-STANDARD REPORTING FORM



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

ATTN: UST Program
(609) 984-3156

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

STANDARD REPORTING FORM
for reporting activities at an UST facility:

- | | |
|--|---|
| ☒ General Facility Information Changes | ☐ Sale or Transfer |
| ☒ Closure (Abandonment or Removal) | ☐ Substantial Modification |
| ☐ Temporary Closure | ☐ Financial Responsibility |
| ☐ Change in Service | ☐ 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:

BLDG 905

145

5. Registration Number (if known):

UST -

0081533

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)

a. ☐ Abandonment Date: / /

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: 6/24/97 Case No. 97-6-24-1325-26

Attach the necessary Implementation schedule (3 copies).

OPER # 17

B. 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. <u> </u>	Old <u> </u>	New <u> </u>
Tank No. <u> </u>	Old <u> </u>	New <u> </u>
Tank No. <u> </u>	Old <u> </u>	New <u> </u>

(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/overflow 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 an 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 the facility (N.J.A.C. 7:14B-23 (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: 7/5/97

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

☒ NA - Federal
Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
- UST Registration Number : 81533-145 (7 digits)
- Incident Report Number 97 - 06 - 24 - 1325 - 26 (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: Dinker Desai Signature: _____ UST Cert. No.: 10173

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:

- 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
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- 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: _____

Company Name: U.S. Army Fort Monmouth

Date: 5/18/02

APPENDIX C

WASTE MANIFEST



RD. 1, BOX 5A - OLD BRIDGE, NJ 08857

NON-HAZARDOUS
WASTE MANIFEST

1. Generator's US EPA ID No.

NJ-32100-2059705-417

Manifest
Document No.2. Page 1
of 1

NHZ 005417

3. Generator's Name and Mailing Address

U.S. Army Communications Electronics Command
main Post c/o Joseph Fillion Bldg. 173
ATTN: SELF-M-PW-EV Fort Monmouth, N.J. 07703

4. Generator's Phone (908) 532-0989

5. Transporter 1 Company Name
LIONETTI OIL RECOVERY CO INC6. US EPA ID Number
NJ D 0 8 4 0 4 4 0 6 4A. Transporter's Phone
908 721-0900

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

LIONETTI OIL RECOVERY CO INC DBA LORCO PETROLEUM SVCS
RUNYON&CHEESEQUAKE RDS
OLD BRIDGE, NJ 08857

10. US EPA ID Number

NJ D 0 8 4 0 4 4 0 6 4

C. Facility's Phone

908 721-0900

11. Waste Shipping Name and Description

a. PETROLEUM OIL (PETROLEUM OIL)
COMBUSTIBLE LIQUID UN1270 PGIII12. Containers
No. Type

0 0 1 T T

13. Total
Quantity

X 1125 G

14. Unit
Wt/Vol

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

T, L PETROLEUM OIL 80 %
WATER 20 %

E. Handling Codes for Wastes Listed Above

T04 FILTRATION

15. Special Handling Instructions and Additional Information

24 HR EMERGENCY RESPONSE (908) 721-0900
DECAL # 3632 ERG # 128 DEXSIL TEST KIT RESULTS 4,000 PPM
MANIFEST USED FOR 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

EUGENE W LESINSKI

Signature

Eugene W Lesinski 06/25/97

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Richard Dierenzo

Signature

Richard Dierenzo 06/25/97

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

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

R. C. C. Bell

Signature

R. C. C. Bell 06/25/97

Month Day Year

ORIGINAL - RETURN TO GENERATOR

APPENDIX D

UST DISPOSAL CERTIFICATE

Customer

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
96-1262
Bldg. 905

Project # 2753
Date Rec. 06/27/97
Date Comp. 07/03/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

PHC Conformance/Non-conformance Summary Report

- | | <u>No</u> | <u>Yes</u> |
|--|-----------|------------|
| 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

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: GENE LESINSKI-DPW		Project No: 96-1262		Analysis Parameters							Comments:		
Phone #: 20989		Location: B. 905									* = SAMPLES KEPT BELOW 4°C.		
() DERA (X) OMA () Other:													
Samplers Name / Company: GARY DiMARTINIS-TUS				Sample #									
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles	TPHC	LO SOLIDS	MUNSELL	UO ₂ +15	(TO BE DETERMINED)	OVA	Remarks / Preservation Method	
2753.01	905-A	6/26/97	1115	SOIL	1	X	X	X	X		1	SIDE WALL @ 6.0' *	
02	905-B		1110								2		
03	905-C		1524								10		
04	905-D	6/27/97	1037								ND	EXC. FLOOR @ 9.0'	
05	905-E		1004								ND		
06	905-F		1320								6	SIDE WALL @ 6.0'	
07	905-G		1352								ND	EXC. FLOOR @ 9.0'	
08	905-H		1345								ND		
09	905-DUP											FIELD DUPLICATE	
NOTE: OVA (#A52114) CALIBRATED w/ 95ppm CH ₄ & ZERO (0) AIR @ 1100 HRS. ON 6/26/97 by G. DiMARTINIS - OVA CALIBRATION CHECKED @ 0945 HRS. ON 6/27/97.													
Relinquished by (signature):		Date/Time:		Received by (signature):		Date/Time:		Received by (signature):					
<i>[Signature]</i>		6/27/97 1545		<i>[Signature]</i>									
Relinquished by (signature):		Date/Time:		Received by (signature):		Date/Time:		Received by (signature):					
Report Type: () Full, (X) Reduced, () Standard, () Screen / non-certified						Remarks:							
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal 24 Hrs.						DEDICATED SAMPLING TOOLS USED.							

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 1/21/96



Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 905

Project # 3095
Date Rec. 10/23/97
Date Comp. 10/26/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

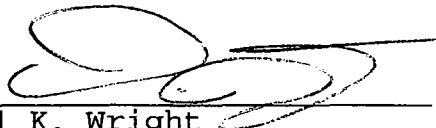
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

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

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: DPLW-ENV				Project No: 96-1262 98-0001		Analysis Parameters						Comments:	
Phone #:				Location: B. 905								* = SAMPLES KEPT BELOW 4°C.	
() DERA (X) OMA () Other:													
Samplers Name / Company: GARY DiMARTINIS - TUS				Sample #								Remarks / Preservation Method	
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles	TPHC	06 Solids	MUNSELL					
3095.01	905-A	10-23-97	0921	Soil	1	X	X	X				ND	EXC. FLOOR @ 9.0' *
.02	B		0925									ND	
.03	C		0929									ND	
.04	D		0933									ND	
.05	E		0937									5	SIDE WALL @ 6.5'
.06	F		0941									8	
.07	ES		1042									50	EXC. SOIL (CONTAM.)
.08	DUP		—									—	FIELD DUPLICATE
NOTE: OVA (#A52114) CALIBRATED w/95 ppm CH4 + ZERO (0) AIR @ 0900 HRS ON 10-23-97 by G. DiMARTINIS.													
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):			
<i>[Signature]</i>		10-23-97 1419		<i>[Signature]</i>									
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						Remarks:							
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal Hrs.						DEDICATED SAMPLING TOOLS USED.							

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.

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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 12/3/97

Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 905

Project # 3105
Date Rec. 10/24/97
Date Comp. 10/25/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

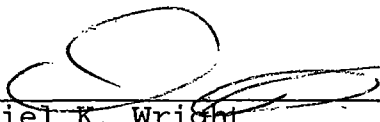
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

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

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: DPLW-ENV		Project No: 98-0001		Analysis Parameters								Comments:		
Phone #:		Location: B. 905										* = SAMPLES KEPT BELOW 4°C.		
() DERA (X) OMA () Other:														
Samplers Name / Company: GARY DIMARTINIS- TUS				Sample #										
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles	TPH	SOB	Manganese					OVA	Remarks / Preservation Method
3105.01	905-A	10-24-97	1148	SOIL	1	X	X	X					ND	EXC. FLOOR @ 9.0' *
3105.02	B		1151										ND	↓
3105.03	C		1212										5	SIDE WALL @ 6.5'
3105.04	D		1217										ND	
3105.05	E		1221										4	
3105.06	F		1226										3	
3105.07	G		1231										ND	
3105.08	H		1236										3	
3105.09	I		1158										8	
3105.10	J		1155										3	
3105.11	K		1208										2	
3105.12	L		1204										10	
3105.13	ES		0951										ND	EXC. SOIL (CLEAN)
3105.14	DUP	↓	—	↓	↓	↓	↓	↓					—	FIELD DUPLICATE ↓
Relinquished by (signature):		Date/Time:	Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):					
<i>[Signature]</i>		10-24-97 1500	<i>[Signature]</i>											
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					Remarks:									
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal Hrs.					DEDICATED SAMPLING TOOLS USED.									

NOTE: OVA (#A52114) CALIBRATED W/ 95 ppm CHL & ZERO (W) AIR @ 0945 HRS. ON 10-24-97 by E. DiMatteo.

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 12/3/97



Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 905

Project # 3119
Date Rec.10/30/97
Date Comp.10/31/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

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

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: DPW - ENV		Project No: 98-0001		Analysis Parameters						Comments:		
Phone #:		Location: B. 905								* = SAMPLES KEPT BELOW 4°C.		
() DERA (X) OMA () Other:												
Samplers Name / Company: GARY DIMARTINIS - TUS				Sample #							Remarks / Preservation Method	
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles	TPHC	OL Solids	Munzell	UOA +15		OVA	
3119.01	905-A	10-29-97	1501	Soil	1	X	X	X		15.02	NO	EXC. FLOOR @ 9.0'*
02	B		1505		1					15.11	NO	SIDE WALL @ 6.5'
03	C		1508							15.30	NO	
04	D		1511							15.38	NO	
05	E		1517		2				X	15.90	3	
06	DUP		—		1					15.95	MS 15.72	FIELD DUPLICATE
07	TB		—	METHANOL					X	MS 15.72	MS 15.72	TRIP BLANK
NOTE: OVA (#AS2114) CALIBRATED w/ 95 ppm CH ₄ & ZERO (0) AIR @ 1445 hrs. on 10-29-97 by G. DIMARTINIS.												
NOTE: SAMPLE "E" IS AT THE LOCATION OF FORMER SAMPLE 905-E COLLECTED ON 10/23/97.												
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):		
		10-30-97 0814										
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						Remarks: DEDICATED SAMPLING TOOLS USED.						
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal Hrs.												

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 9/22/96

Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Volatiles - EPA Method 8260
98-0001
Bldg. 905

Project # 3119
Date Rec. 10/30/97
Date Compl. 11/10/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method 8260

Gas Chromatographic Determination of Volatiles in Soil

A 50uL volume of Methanol Samples soil is added to 5mL aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system.

Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent solid, methanol volume and concentration.

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate
Yes, No, N/A

- | | |
|---|-------------|
| 1. Chromatograms Labeled/Compounds Identified
(Field Samples and Method Blanks) | <u>Y</u> |
| 2. Retention times for chromatograms provided | <u>Y</u> |
| 3. GC/MS Tune Specifications | |
| a. BFB Meet Criteria | <u>Y</u> |
| b. DFTPP Meet Criteria | <u> </u> |
| 4. GC/MS Tuning Frequency - Performed every 24 hours for 600
series and 12 hours for 8000 series | <u>Y</u> |
| 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 | <u>Y</u> |
| 6. GC/MS Calibration Requirements | |
| a. Calibration Check Compounds Meet Criteria | <u>Y</u> |
| b. System Performance Check Compounds Meet Criteria | <u>Y</u> |
| 7. Blank Contamination - If yes, List compounds and concentrations in each blank: | <u>N</u> |
| a. VOA Fraction _____ | |
| b. B/N Fraction _____ | |
| c. Acid Fraction _____ | |
| 8. Surrogate Recoveries Meet Criteria | <u>Y</u> |
| 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"? | |
| <u> </u> | |
| 9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria
(If not met, list those compounds and their recoveries which fall
outside the acceptable range) | <u>Y</u> |
| 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

(If not met, list those compounds which fall outside the acceptable range)

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

Y

11. Extraction Holding Time Met

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

Y

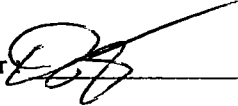
12. Analysis Holding Time Met

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

Y

Additional Comments:

Laboratory Manager



Date:

1-20-98

Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: DPW - ENV		Project No: 98-0001		Analysis Parameters								Comments:			
Phone #:		Location: B. 905		TPHC OL SOLIDS MUNSTC UOATIS OVA								* = SAMPLES KEPT BELOW 4°C.			
() DERA (X) OMA () Other:				Samplers Name / Company: GARY D'MARTINIS - TUS		Sample #									
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles	Remarks / Preservation Method									
3119.01	905-A	10-29-97	1501	SOIL	1	X	X	X					ND	EXC. FLOOR @ 9.0'*	
02	B		1505										ND	SIDE WALL @ 6.5'	
03	C		1508										ND		
04	D		1511										ND		
05	E		1517		2				X				3		
06	DUP		—		1								—	FIELD DUPLICATE	
07	TB		—	METHANOL					X				—	TRIP BLANK	
NOTE: OVA (#AS2114) CALIBRATED w/ 95 ppm CH₄ & ZERO (0) AIR @ 1445 hrs. ON 10-29-97 by G. D'MARTINIS. NOTE: SAMPLE "E" IS AT THE LOCATION OF FORMER SAMPLE 905-E COLLECTED ON 10/23/97.															
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):					
		10-30-97 0814													
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						Remarks: DEDICATED SAMPLING TOOLS USED.									
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal Hrs.															

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.

Daily Blank

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: Daily Blank

Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02393.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 0 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

71-43-2	Benzene	250	U
108-88-3	Toluene	250	U
100-41-4	Ethylbenzene	500	U
1330-20-7	m+p-Xylenes	750	U
1330-20-7	o-Xylene	500	U
107028	Acrolein	1800	U
107131	Acrylonitrile	1800	U
75650	tert-Butyl alcohol	3200	U
1634044	Methyl-tert-Butyl ether	750	U
108203	Di-isopropyl ether	500	U
	Dichlorodifluoromethane	1000	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl Chloride	750	U
74-83-9	Bromomethane	500	U
75-00-3	Chloroethane	750	U
75-69-4	Trichlorofluoromethane	500	U
75-35-4	1,1-Dichloroethene	250	U
67-64-1	Acetone	500	U
75-15-0	Carbon Disulfide	250	U
75-09-2	Methylene Chloride	500	U
156-60-5	trans-1,2-Dichloroethene	500	U
75-35-3	1,1-Dichloroethane	250	U
108-05-4	Vinyl Acetate	750	U
78-93-3	2-Butanone	750	U
	cis-1,2-Dichloroethene	250	U
67-66-3	Chloroform	250	U
75-55-6	1,1,1-Trichloroethane	250	U
56-23-5	Carbon Tetrachloride	500	U
107-06-2	1,2-Dichloroethane	500	U
79-01-6	Trichloroethene	250	U
78-87-5	1,2-Dichloropropane	250	U
75-27-4	Bromodichloromethane	250	U
110-75-8	2-Chloroethyl vinyl ether	500	U
10061-01-5	cis-1,3-Dichloropropene	250	U
108-10-1	4-Methyl-2-Pentanone	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
79-00-5	1,1,2-Trichloroethane	500	U
127-18-4	Tetrachloroethene	250	U
591-78-6	2-Hexanone	500	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.

Daily Blank

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Daily Blank

Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02393.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 0 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/KG	Q
126-48-1	Dibromochloromethane		500	U
108-90-7	Chlorobenzene		250	U
100-42-5	Styrene		500	U
75-25-2	Bromoform		500	U
79-34-5	1,1,2,2-Tetrachloroethane		500	U
541-73-1	1,3-Dichlorobenzene		750	U
106-46-7	1,4-Dichlorobenzene		750	U
95-50-1	1,2-Dichlorobenzene		750	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.:

905-E

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 3119.05

Sample wt/vol: 11.3 (g/ml) G Lab File ID: V02398.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 21.97 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

71-43-2	Benzene	280	U
108-88-3	Toluene	280	U
100-41-4	Ethylbenzene	570	U
1330-20-7	m+p-Xylenes	850	U
1330-20-7	o-Xylene	570	U
107028	Acrolein	2000	U
107131	Acrylonitrile	2000	U
75650	tert-Butyl alcohol	3700	U
1634044	Methyl-tert-Butyl ether	850	U
108203	Di-isopropyl ether	570	U
	Dichlorodifluoromethane	1100	U
74-87-3	Chloromethane	280	U
75-01-4	Vinyl Chloride	850	U
74-83-9	Bromomethane	570	U
75-00-3	Chloroethane	850	U
75-69-4	Trichlorofluoromethane	570	U
75-35-4	1,1-Dichloroethene	280	U
67-64-1	Acetone	570	U
75-15-0	Carbon Disulfide	280	U
75-09-2	Methylene Chloride	570	U
156-60-5	trans-1,2-Dichloroethene	570	U
75-35-3	1,1-Dichloroethane	280	U
108-05-4	Vinyl Acetate	850	U
78-93-3	2-Butanone	850	U
	cis-1,2-Dichloroethene	280	U
67-66-3	Chloroform	280	U
75-55-6	1,1,1-Trichloroethane	280	U
56-23-5	Carbon Tetrachloride	570	U
107-06-2	1,2-Dichloroethane	570	U
79-01-6	Trichloroethene	280	U
78-87-5	1,2-Dichloropropane	280	U
75-27-4	Bromodichloromethane	280	U
110-75-8	2-Chloroethyl vinyl ether	570	U
10061-01-5	cis-1,3-Dichloropropene	280	U
108-10-1	4-Methyl-2-Pentanone	570	U
10061-02-6	trans-1,3-Dichloropropene	570	U
79-00-5	1,1,2-Trichloroethane	570	U
127-18-4	Tetrachloroethene	280	U
591-78-6	2-Hexanone	570	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.

905-E

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 3119.05

Sample wt/vol: 11.3 (g/ml) G Lab File ID: V02398.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 21.97 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

126-48-1	Dibromochloromethane	570	U
108-90-7	Chlorobenzene	280	U
100-42-5	Styrene	570	U
75-25-2	Bromoform	570	U
79-34-5	1,1,2,2-Tetrachloroethane	570	U
541-73-1	1,3-Dichlorobenzene	850	U
106-46-7	1,4-Dichlorobenzene	850	U
95-50-1	1,2-Dichlorobenzene	850	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.

905-TB

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 3119.07

Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02397.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 0 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/KG	Q
71-43-2	Benzene	250	U	U
108-88-3	Toluene	250	U	U
100-41-4	Ethylbenzene	500	U	U
1330-20-7	m+p-Xylenes	750	U	U
1330-20-7	o-Xylene	500	U	U
107028	Acrolein	1800	U	U
107131	Acrylonitrile	1800	U	U
75650	tert-Butyl alcohol	3200	U	U
1634044	Methyl-tert-Butyl ether	750	U	U
108203	Di-isopropyl ether	500	U	U
	Dichlorodifluoromethane	1000	U	U
74-87-3	Chloromethane	250	U	U
75-01-4	Vinyl Chloride	750	U	U
74-83-9	Bromomethane	500	U	U
75-00-3	Chloroethane	750	U	U
75-69-4	Trichlorofluoromethane	500	U	U
75-35-4	1,1-Dichloroethene	250	U	U
67-64-1	Acetone	500	U	U
75-15-0	Carbon Disulfide	250	U	U
75-09-2	Methylene Chloride	500	U	U
156-60-5	trans-1,2-Dichloroethene	500	U	U
75-35-3	1,1-Dichloroethane	250	U	U
108-05-4	Vinyl Acetate	750	U	U
78-93-3	2-Butanone	750	U	U
	cis-1,2-Dichloroethene	250	U	U
67-66-3	Chloroform	250	U	U
75-55-6	1,1,1-Trichloroethane	250	U	U
56-23-5	Carbon Tetrachloride	500	U	U
107-06-2	1,2-Dichloroethane	500	U	U
79-01-6	Trichloroethene	250	U	U
78-87-5	1,2-Dichloropropane	250	U	U
75-27-4	Bromodichloromethane	250	U	U
110-75-8	2-Chloroethyl vinyl ether	500	U	U
10061-01-5	cis-1,3-Dichloropropene	250	U	U
108-10-1	4-Methyl-2-Pentanone	500	U	U
10061-02-6	trans-1,3-Dichloropropene	500	U	U
79-00-5	1,1,2-Trichloroethane	500	U	U
127-18-4	Tetrachloroethene	250	U	U
591-78-6	2-Hexanone	500	U	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID.

905-TB

Lab Name: FMETL NJDEP # 13461

Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 3119.07

Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02397.D

Level: (low/med) MED Date Received: 10/30/97

% Moisture: not dec. 0 Date Analyzed: 11/10/97

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

126-48-1	Dibromochloromethane	500	U
108-90-7	Chlorobenzene	250	U
100-42-5	Styrene	500	U
75-25-2	Bromoform	500	U
79-34-5	1,1,2,2-Tetrachloroethane	500	U
541-73-1	1,3-Dichlorobenzene	750	U
106-46-7	1,4-Dichlorobenzene	750	U
95-50-1	1,2-Dichlorobenzene	750	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

Daily Blank

Lab Name: FMETL NJDEP # 13461
Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: Daily Blank
Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02393.D
Level: (low/med) MED Date Received: 10/30/97
% Moisture: not dec. 0 Date Analyzed: 11/10/97
GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

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

CAS NO.	COMPOUND	RT	EST. CONC.	Q
---------	----------	----	------------	---

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

905-E

Lab Name: FMETL NJDEP # 13461
Project: 980001 Case No.: 3119 Location: B.905 SDG No.:
Matrix: (soil/water) SOIL Lab Sample ID: 3119.05
Sample wt/vol: 11.3 (g/ml) G Lab File ID: V02398.D
Level: (low/med) MED Date Received: 10/30/97
% Moisture: not dec. 21.97 Date Analyzed: 11/10/97
GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Number TICs found: 3

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1. 015869-94-0	Octane, 3,6-dimethyl-	29.90	1600	JN
2.	unknown	30.34	1800	J
3.	unknown	31.98	1600	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

905-TB

Lab Name: FMETL NJDEP # 13461
Project: 980001 Case No.: 3119 Location: B.905 SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 3119.07
Sample wt/vol: 10.0 (g/ml) G Lab File ID: V02397.D
Level: (low/med) MED Date Received: 10/30/97
% Moisture: not dec. 0 Date Analyzed: 11/10/97
GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q
---------	----------	----	------------	---

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

	Indicate* Yes, No, N/A
1. Cover Page, Title Page listing Lab Certification #, facility name & address, & data of report submitted	<u>Y</u>
2. Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted	<u>Y</u>
3. Summary Table cross-referencing field ID #'s vs. Lab ID #'s Lab ID's submitted	<u>Y</u>
4. Document bound, paginated and legible	<u>Y</u>
5. Chain of Custody submitted	<u>Y</u>
6. Samples submitted to lab within 48 hours of sample collection	<u>Y</u>
7. Methodology Summary submitted	<u>Y</u>
8. Results submitted on a dry weight basis	<u>Y</u>
9. Method Detection Limits	<u>Y</u>
10. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	<u>Y</u>

Laboratory Manager of Environmental Consultant's Signature

Date 1/22/20



Laboratory Certification # 13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 905

Project # 3138
Date Rec.11/04/97
Date Comp.11/04/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

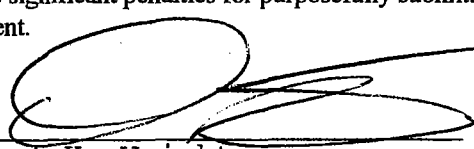
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

PHC Conformance/Non-conformance Summary Report

	<u>No</u>	<u>Yes</u>
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

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: DPW - ENV		Project No: 98-0001		Analysis Parameters						Comments:			
Phone #:		Location: B. 905								* = SAMPLES KEPT BELOW 4°C.			
() DERA (X) OMA () Other:													
Samplers Name / Company: GARY DIMARTINIS - TUS				Sample Type	# bottles	TPHC	TO SOLIDS	MUNICIPAL				OLVA	Remarks / Preservation Method
Lab Sample I.D.	Sample Location	Date	Time										
313B.01	905-A	11-3-97	1555	SOIL	1	X	X	X				NO	EXC. FLOOR @ 9.0' *
.02	B		1552									NO	↓
.03	C		1608									NO	SIDEWALL @ 6.5'
.04	D		1600									NO	↓
.05	E		1558									NO	↓
.06	F		1542									2	↓
.07	G		1605									10	BURING (6.5')
.08	DUP		—									—	FIELD DUPLICATE ↓
NOTE: OLVA (#AS2114) CALIBRATED W/ 95 ppm CH₄ + ZERO (O₂) AIR @ 1530 HRS. ON 11/3/97 by G. DIMARTINIS													
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):			
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						Remarks:							
Turnaround time: () Standard 4 wks, (X) Rush Days, (X) ASAP Verbal Hrs.						DEDICATED SAMPLING TOOLS USED.							

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

Client : U.S. Army Lab. ID # : 3138
DPW. SELFM-PW-EV Date Rec'd: 04-Nov-97
Bldg. 173 Analysis Start: 04-Nov-97
Ft. Monmouth, NJ 07703 Analysis Complete: 04-Nov-97

Analysis: OQA-QAM-025 UST Reg. #:
Matrix: Soil Closure #:
Analyst: D.DEINHARDT DICAR #:
Ext. Meth: Shake Location #: B.905

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3138.01	905-A	1.00	15.35	70.67	217	ND
3138.02	905-B	1.00	15.09	70.70	220	ND
3138.03	905-C	1.00	15.02	91.07	172	ND
3138.04	905-D	1.00	14.99	90.56	173	ND
3138.05	905-E	1.00	15.96	86.10	171	ND
3138.06	905-F	1.00	15.69	84.65	177	1037.24
3138.07	905-G	1.00	15.51	83.65	181	12084.06
3138.08	DUP	1.00	15.72	87.62	171	ND
METHOD BLANK	4-Nov-97	1.00	15.00	100.00	157	ND

ND = Not Detected

MDL = Method Detection Limit


Daniel K. Wright
Laboratory Director

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 12/24/97



Laboratory Certification #13461

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

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. 905

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
905-B1- 6.5'	5862.01	Soil	18-Nov-00 07:27	11/20/00
905-B2- 6.5'	5862.02	Soil	18-Nov-00 07:39	11/20/00
905-B3- 6.5'	5862.03	Soil	18-Nov-00 07:47	11/20/00
DUP.	5862.04	Soil	18-Nov-00	11/20/00

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
TPHC, %SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

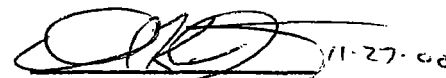

Daniel Wright/Date
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a orbital shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

TPHC Conformance/Non-conformance Summary Report

- | | Indicate
Yes, No, N/A |
|---|--------------------------|
| 1. Method Detection Limits provided. | <u>yes</u> |
| 2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank.

_____ | <u>NO</u> |
| 3. Matrix Spike Results Summary Meet Criteria
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).

_____ | <u>yes</u> |
| 4. Duplicate Results Summary Meet Criteria
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).

_____ | <u>yes</u> |
| 5. IR Spectra submitted for standards, blanks and samples. | <u>NA</u> |
| 6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted. | <u>yes</u> |
| 7. Analysis holding time met.
(If not met, list number of days exceeded for each sample).

_____ | <u>yes</u> |

Additional comments: _____



Laboratory Manager

11-27-00

Date

000002



Tel (732)532-4359 Fax (732)532-6263 EMail:wrightd@mail1.monmouth.army.mil

Chain of Custody Record

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

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

Project # : 5862
Location : Bldg.905
UST Reg. # :

Analysis : OQA-QAM-025
Matrix : Soil
Inst. ID. : GC TPHC INST. #1
Column Type : RTX-5, 0.32mm ID, 30M
Injection Volume : 1uL

Date Received : 18-Nov-00
Date Extracted : 20-Nov-00
Extraction Method : Shake
Analysis Complete : 21-Nov-00
Analyst : B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
5862.01	905-B1	1.00	15.12	86.34	180	ND
5862.02	905-B2	1.00	15.19	79.67	194	531.07
5862.03	905-B3	1.00	15.32	86.82	177	ND
5862.04	Dupe	1.00	15.31	85.64	179	ND
METHOD BLANK	TBLK439	1.00	15.00	100.00	157	ND

ND = Not Detected

MDL = Method Detection Limit

000004

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 11/27/00

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 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 Monitoring Program

Bldg. 905

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
905-GW	5890.01	Aqueous	04-Dec-00 14:25	12/04/00

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

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

 12-13-00
Daniel Wright/Date
Laboratory Director

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CHAIN OF CUSTODY

NJDEP Certification #13461

Chain of Custody Record

[illegible]

METHOD 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 is concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 5890

Site: Bldg. 905

	Date	Hold Time
Date Sampled	12/04/00	NA
Receipt/Refrigeration	12/04/00	NA
Extractions		
1. BN	12/05/00	7 days
Analyses		
1. Volatile Organics	12/04,05/00	14 days
2. BN	12/06,07/00	40 days

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 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

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

Indicate
Yes, No, N/A

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

yes

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

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: 12-13-00

VOLATILE ORGANICS

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

Data File **VB008932.D**
 Operator **Skelton**
 Date Acquired **4 Dec 2000 1:05 pm**

Sample Name **Vblk262**
 Field ID **Vblk262**
 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	
75718	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	
75-34-3	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	
156-59-2	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
71-55-6	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	
124-48-1	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	
00-00-0	m+p-Xylenes			not detected	nle	1.14 ug/L	
95-47-6	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

Lab ID.

Vb1k262

Lab Name: FMETL Project: 01-0004
NJDEP#: 13461 Case No.: 5890 Location: 905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: Vb1k262
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB008932.D
Level: (low/med) LOW Date Received: 12/4/00
% Moisture: not dec. Date Analyzed: 12/4/00
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/LNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
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Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File **VB008960.D**
 Operator **Skelton**
 Date Acquired **5 Dec 2000 8:04 am**

Sample Name **5890.01**
 Field ID **905-GW**
 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	
75718	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	
75-34-3	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	
156-59-2	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
71-55-6	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	
124-48-1	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	
00-00-0	m+p-Xylenes			not detected	nle	1.14 ug/L	
95-47-6	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

Lab ID.

905-GW

Lab Name: FMETL Project: 01-0004
NJDEP#: 13461 Case No.: 5890 Location: 905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 5890.01
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB008960.D
Level: (low/med) LOW Date Received: 12/4/00
% Moisture: not dec. Date Analyzed: 12/5/00
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/LNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
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BASE NEUTRALS

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

Data File Name **BN04715.D**
 Operator **Bhaskar**
 Date Acquired **6-Dec-00**

Sample Name **Sblk444**
 Misc Info **Sblk444 A 001205**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.54 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.69 ug/L	
62-53-3	Aniline			not detected	NLE	1.85 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.63 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.62 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.58 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.62 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.65 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.57 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.64 ug/L	
67-72-1	Hexachloroethane			not detected	10	0.34 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.51 ug/L	
78-59-1	Isophorone			not detected	100	0.45 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.48 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.54 ug/L	
91-20-3	Naphthalene			not detected	NLE	0.72 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.78 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.43 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.55 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	0.76 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.53 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.04 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.70 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.92 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.93 ug/L	
83-32-9	Acenaphthene			not detected	400	0.62 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.73 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	1.41 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.54 ug/L	
86-73-7	Fluorene			not detected	300	0.98 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.86 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.96 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.44 ug/L	
103-33-3	Azobenzene			not detected	NLE	1.00 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.28 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.08 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.73 ug/L	
120-12-7	Anthracene			not detected	2000	1.85 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	2.49 ug/L	
206-44-0	Fluoranthene			not detected	300	1.48 ug/L	

Semi-Volatile Analysis Report

Page 2

Data File Name **BN04715.D**
 Operator **Bhaskar**
 Date Acquired **6-Dec-00**

Sample Name **Sblk444**
 Misc Info **Sblk444 A 001205**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
92-87-5	Benzidine			not detected	50	2.15 ug/L	
129-00-0	Pyrene			not detected	200	1.53 ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.24 ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	2.68 ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.60 ug/L	
218-01-9	Chrysene			not detected	20	1.14 ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.34 ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44 ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.32 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.15 ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	2.43 ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	2.24 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	1.94 ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	2.04 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

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:

Sblk444

Lab Name: FMETL Lab Code 13461
Project: 01-0004 Case No.: 5890 Location: Bl.905 SDG No: _____
Matrix: (soil/water) WATER Lab Sample ID: Sblk444
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04715.D
Level: (low/med) LOW Date Received: 12/4/00
% Moisture: _____ decanted: (Y/N) N Date Extracted: 12/5/00
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/6/00
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name **BN04734.D**
 Operator **Bhaskar**
 Date Acquired **7-Dec-00**

Sample Name **5890.01**
 Misc Info **905-GW**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.54 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.69 ug/L	
62-53-3	Aniline			not detected	NLE	1.85 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.63 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.62 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.58 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.62 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.65 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.57 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.64 ug/L	
67-72-1	Hexachloroethane			not detected	10	0.34 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.51 ug/L	
78-59-1	Isophorone			not detected	100	0.45 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.48 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.54 ug/L	
91-20-3	Naphthalene			not detected	NLE	0.72 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.78 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.43 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.55 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	0.76 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.53 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.79 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.04 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.70 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.92 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.93 ug/L	
83-32-9	Acenaphthene			not detected	400	0.62 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.73 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	1.41 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.54 ug/L	
86-73-7	Fluorene			not detected	300	0.98 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.86 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.96 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.44 ug/L	
103-33-3	Azobenzene			not detected	NLE	1.00 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.28 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.08 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.73 ug/L	
120-12-7	Anthracene			not detected	2000	1.85 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	2.49 ug/L	
206-44-0	Fluoranthene			not detected	300	1.48 ug/L	

Semi-Volatile Analysis Report

Page 2

Data File Name **BN04734.D**
 Operator **Bhaskar**
 Date Acquired **7-Dec-00**

Sample Name **5890.01**
 Misc Info **905-GW**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
92-87-5	Benzidine			not detected	50	2.15 ug/L	
129-00-0	Pyrene			not detected	200	1.53 ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.24 ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	2.68 ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.60 ug/L	
218-01-9	Chrysene			not detected	20	1.14 ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.34 ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44 ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.32 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.15 ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	2.43 ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	2.24 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	1.94 ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	2.04 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:

905-GW

Lab Name: FMETL Lab Code 13461
Project: 01-0004 Case No.: 5890 Location: Bl.905 SDG No: _____
Matrix: (soil/water) WATER Lab Sample ID: 5890.01
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04734.D
Level: (low/med) LOW Date Received: 12/4/00
% Moisture: _____ decanted: (Y/N) N Date Extracted: 12/5/00
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/00
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000084-69-5	1,2-Benzenedicarboxylic acid, bis	23.60	4	JN

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 12/13/00

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.

A handwritten signature in black ink, appearing to read 'D.K. Wright', with a long horizontal line extending to the right.

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:IJO# 01-0001

Bldg. 905

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
Bldg. 905 9.5'	221	Aqueous	17-Jan-01 10:55	01/17/01

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

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

 2-6-01
Daniel Wright/Date
Laboratory Director

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CHAIN OF CUSTODY

000001



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- CONFORMANCE SUMMARY

000005

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
b. DFTPP Meet Criteria

yes
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
b. System Performance Check Compounds Meet Criteria

yes
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
(If not met, list those compounds, which fall outside the acceptable range)

yes

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

11. Extraction Holding Time Met

yes

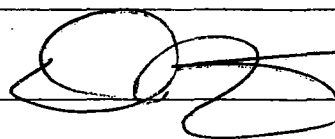
If not met, list the number of days exceeded for each sample: _____

12. Analysis Holding Time Met

yes

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

Additional Comments:

Laboratory Manager: 

Date: 2-6-01

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 221

Site: Bldg. 905

	Date	Hold Time
Date Sampled	01/17/01	NA
Receipt/Refrigeration	01/17/01	NA
Extractions		
1. BN	01/18/01	7 days
Analyses		
1. Volatile Organics	01/19/01	14 days
2. BN	01/24,25/01	40 days

000009

VOLATILE ORGANICS

000010

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461

Definition of Qualifiers

MDL	:	Method Detection Limit
J	:	Compound identified below detection limit
B	:	Compound found in blank
D	:	Results are from a dilution of the sample
U	:	Compound searched for but not detected
E	:	Compound exceeds calibration limit
PQL	:	Practical Quantitation Limit
NLE	:	No limit established
RT	:	Retention time

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

Data File **VC004743.D**
 Operator **Skelton**
 Date Acquired **19-Jan-01**

Sample Name **MB**
 Field ID **MB**
 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	
75718	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	
75-34-3	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	
156594	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 97

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:

MB 010119

Lab Name: FMETL NJDEP#: 13461
Project: 010001 Case No.: 221 Location: 905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: MB
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC004743.D
Level: (low/med) LOW Date Received: 1/17/01
% Moisture: not dec. Date Analyzed: 1/19/01
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/LNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
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Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification Number #13461

Data File **VC004754.D**
 Operator **Skelton**
 Date Acquired **19-Jan-01**

Sample Name **221**
 Field ID **Bldg905**
 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	
75718	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	
75-34-3	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	
156594	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 97

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:

Bldg905

Lab Name: FMETL NJDEP#: 13461
Project: 010001 Case No.: 221 Location: 905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 221
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC004754.D
Level: (low/med) LOW Date Received: 1/17/01
% Moisture: not dec. Date Analyzed: 1/19/01
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
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BASE NEUTRALS

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

Data File Name **BNA04856.D**
 Operator **Bhaskar**
 Date Acquired **24-Jan-01**

Sample Name **MB-250**
 Misc Info **MB-010118**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.54 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.69 ug/L	
62-53-3	Aniline			not detected	NLE	1.85 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.63 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.62 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.58 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.62 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.65 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.57 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.64 ug/L	
67-72-1	Hexachloroethane			not detected	10	0.34 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.51 ug/L	
78-59-1	Isophorone			not detected	100	0.45 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.48 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.54 ug/L	
91-20-3	Naphthalene			not detected	NLE	0.72 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.78 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.43 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.55 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	0.76 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.53 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.04 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.04 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.70 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.92 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.93 ug/L	
83-32-9	Acenaphthene			not detected	400	0.62 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.73 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	1.41 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.54 ug/L	
86-73-7	Fluorene			not detected	300	0.98 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.86 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.96 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.44 ug/L	
103-33-3	Azobenzene			not detected	NLE	1.00 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.28 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.08 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.73 ug/L	
120-12-7	Anthracene			not detected	2000	1.85 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	2.49 ug/L	
206-44-0	Fluoranthene			not detected	300	1.48 ug/L	

Semi-Volatile Analysis Report

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Data File Name **BNA04856.D**
 Operator **Bhaskar**
 Date Acquired **24-Jan-01**

Sample Name **MB-250**
 Misc Info **MB-010118**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
92-87-5	Benzidine			not detected	50	2.15 ug/L	
129-00-0	Pyrene			not detected	200	1.53 ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.24 ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	2.68 ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.60 ug/L	
218-01-9	Chrysene			not detected	20	1.14 ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.34 ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44 ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.32 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.15 ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	2.43 ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	2.24 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	1.94 ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	2.04 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:

MB-250

Lab Name: FMETL Lab Code 13461
Project: 01-0001 Case No.: 221 Location: BI.905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: MB-250
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA04856.D
Level: (low/med) LOW Date Received: 1/17/01
% Moisture: decanted: (Y/N) N Date Extracted: 1/18/01
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 1/24/01
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

Number TICs found: 2 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	7.11	15	J
2.	unknown	33.96	140	J

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

Data File Name **BNA04871.D**
 Operator **Bhaskar**
 Date Acquired **25-Jan-01**

Sample Name **221**
 Misc Info **Bldg.905**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.54 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.69 ug/L	
62-53-3	Aniline			not detected	NLE	1.85 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.63 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.62 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.58 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.62 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.65 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.57 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.64 ug/L	
67-72-1	Hexachloroethane			not detected	10	0.34 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.51 ug/L	
78-59-1	Isophorone			not detected	100	0.45 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.48 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.54 ug/L	
91-20-3	Naphthalene			not detected	NLE	0.72 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.78 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.43 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.55 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	0.76 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.53 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.04 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.04 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.70 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.92 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.93 ug/L	
83-32-9	Acenaphthene			not detected	400	0.62 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.73 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	1.41 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.54 ug/L	
86-73-7	Fluorene			not detected	300	0.98 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.86 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.96 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.44 ug/L	
103-33-3	Azobenzene			not detected	NLE	1.00 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.28 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.08 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.73 ug/L	
120-12-7	Anthracene			not detected	2000	1.85 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	2.49 ug/L	
206-44-0	Fluoranthene			not detected	300	1.48 ug/L	

Semi-Volatile Analysis Report

Page 2

Data File Name **BNA04871.D**
 Operator **Bhaskar**
 Date Acquired **25-Jan-01**

Sample Name **221**
 Misc Info **Bldg.905**
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
92-87-5	Benzidine			not detected	50	2.15 ug/L	
129-00-0	Pyrene			not detected	200	1.53 ug/L	
85-68-7	Butylbenzylphthalate	26.54	93925	3.56 ug/L	100	1.24 ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	2.68 ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.60 ug/L	
218-01-9	Chrysene			not detected	20	1.14 ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate	27.94	110089	2.87 ug/L	30	1.34 ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.44 ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.32 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.15 ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	2.43 ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	2.24 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	1.94 ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	2.04 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:

Bldg.905

Lab Name: FMETL Lab Code 13461
Project: 01-0001 Case No.: 221 Location: Bl.905 SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 221
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA04871.D
Level: (low/med) LOW Date Received: 1/17/01
% Moisture: decanted: (Y/N) N Date Extracted: 1/18/01
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 1/25/01
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

Number TICs found: 2 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	7.11	6	J
2. 001921-70-6	Pentadecane, 2,6,10,14-tetramet	19.99	4	JN

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 2/6/01

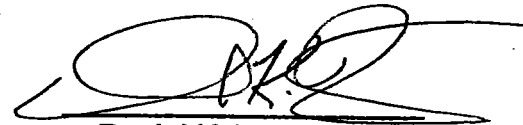
Laboratory Certification #13461

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

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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