

**United States Army**  
Fort Monmouth, New Jersey

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**Underground Storage Tank  
Closure and Site Investigation  
Report**

***Building 289  
Main Post-West Area***

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**NJDEP UST Registration No. 81533-63  
Dicar No. 94-09-02-1455-00**

**April 2000**

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

**BUILDING 289**

**MAIN POST-WEST AREA  
NJDEP UST REGISTRATION NO. 81533-63**

**APRIL 2000**

**PREPARED FOR:**

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

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289.DOC

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>iv</b>
<b>1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES</b>	<b>1</b>
<b>1.1 OVERVIEW</b>	<b>1</b>
<b>1.2 SITE DESCRIPTION</b>	<b>2</b>
<b>1.2.1 Geological/Hydrogeological Setting</b>	<b>2</b>
<b>1.3 HEALTH AND SAFETY</b>	<b>4</b>
<b>1.4 REMOVAL OF UNDERGROUND STORAGE TANK</b>	<b>4</b>
<b>1.4.1 General Procedures</b>	<b>4</b>
<b>1.4.2 Underground Storage Tank Excavation and Cleaning</b>	<b>4</b>
<b>1.5 UNDERGROUND STORAGE TANK         TRANSPORTATION AND DISPOSAL</b>	<b>5</b>
<b>1.6 MANAGEMENT OF EXCAVATED SOILS</b>	<b>5</b>
<b>2.0 SITE INVESTIGATION ACTIVITIES</b>	<b>6</b>
<b>2.1 OVERVIEW</b>	<b>6</b>
<b>2.2 FIELD SCREENING/MONITORING</b>	<b>6</b>
<b>2.3 SOIL SAMPLING</b>	<b>7</b>
<b>2.4 GROUNDWATER SAMPLING</b>	<b>7</b>
<b>3.0 CONCLUSIONS AND RECOMMENDATIONS</b>	<b>8</b>
<b>3.1 SOIL SAMPLING RESULTS</b>	<b>8</b>
<b>3.2 GROUNDWATER SAMPLING RESULTS</b>	<b>8</b>
<b>3.3 CONCLUSIONS AND RECOMMENDATIONS</b>	<b>9</b>

## TABLE OF CONTENTS (CONTINUED)

### TABLES

<b>Table 1</b>	<b>Summary of Post-Excavation Sampling Activities</b>
<b>Table 2</b>	<b>Post-Excavation Soil Sampling Results</b>
<b>Table 3</b>	<b>Groundwater Sampling Results</b>

### FIGURES

<b>Figure 1</b>	<b>Site Location Map</b>
<b>Figure 1A</b>	<b>Geological Map</b>
<b>Figure 2</b>	<b>Site Map</b>
<b>Figure 3</b>	<b>Cross Sectional View</b>
<b>Figure 4</b>	<b>Soil Sampling Location Map</b>
<b>Figure 5</b>	<b>Groundwater Sampling Location Map</b>

### APPENDICES

<b>Appendix A</b>	<b>NJDEP Standard Reporting Form</b>
<b>Appendix B</b>	<b>Site Assessment Summary</b>
<b>Appendix C</b>	<b>Waste Manifest</b>
<b>Appendix D</b>	<b>UST Disposal Certificate</b>
<b>Appendix E</b>	<b>Soil Analytical Data Package</b>
<b>Appendix F</b>	<b>Groundwater Analytical Data Package</b>
<b>Appendix G</b>	<b>Photographs</b>
<b>Appendix H</b>	<b>Electronic Data Deliverables</b>

## EXECUTIVE SUMMARY

### UST Closure

On September 2, 1994, 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. 0081533-63 (Fort Monmouth ID No. 289), was located east of Building 289. UST No. 0081533-63 was a 1,000-gallon #2 fuel oil UST. The fill port was located directly above the tank.

### 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. Numerous holes were noted in the UST. Soils at the location of the holes were dark in color and appeared to be contaminated. The NJDEP hotline was notified and the case was assigned DICAR No. 94-09-02-1455-00. Approximately 130 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 12.80 mg/kg to 450.00 mg/kg. Groundwater was not encountered.

All post excavation soil samples collected from the UST excavation at Building 289 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 and the potential of groundwater contamination, two (2) groundwater samples were collected at Building 289. On December 3, 1999, and January 28, , Building 289 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. 81533-63 at Building 289.

# 1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

## 1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81533-63, was closed at Building 289 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on September 2, 1994. 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. 81533-63 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. 81533-63 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. 81533-63 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 289 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-63 was located east of Building 289 and appurtenant piping ran approximately three (3) feet west to Building 289. The fill port area was located directly above the tank. 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 289. 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 (Zapeczka, 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 Zapeczka, 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 289 is located approximately 400 feet south of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 289 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 85 gallons of liquid from the UST and its associated piping were pumped directly into a Freehold Cartage truck where it was then transported to Lionetti Oil Recovery Co., Inc. 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 at the location of the holes were dark in color and appeared to be contaminated. Approximately 130 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 12.80 mg/kg to 450.00 mg/kg. Groundwater was not encountered. See Figure 3 for a cross-sectional view of the excavated area.

### **1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL**

The tank was transported in compliance with all applicable regulations and laws to Mazza and Sons, Inc., Metal Recyclers. 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 130 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 not encountered.

## 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: (908) 532-0989  
NJDEP Certification No.: 0010173
- 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: Freehold Cartage  
Contact Person: Bill Burr  
Phone Number: (908) 462-1001  
NJDEP Company Certification No.: 52265

### 2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank exhibited evidence of potential contamination. OVA readings taken during the assessment were non-detect. Approximately 130 cubic yards of potentially petroleum contaminated soil were removed from the excavated area and transported to the Fort Monmouth petroleum contaminated soil holding area. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was not encountered.

## 2.3 SOIL SAMPLING

On September 13, 1994, following the removal of the UST and associated piping, post-excavation soil samples A, B, C, D, E, F, G (DUP F), and H were collected from a total of seven (7) locations of the UST excavation. Sidewall samples A, B, C, D, E, F, and G (DUP F) were collected at a depth of 5.5 feet bgs. Piping sample I was collected along the former piping length of the excavation, which was approximately five (5) feet in length. The piping sample was collected at a depth of 2.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

On September 22, 1994, following the removal of potentially contaminated soil from the excavated area, post-excavation soil samples E1 and H1 were collected from a total of two (2) locations of the UST excavation. Sidewall sample E1 was collected at a depth of 5.5 feet bgs and piping sample H1 was collected at a depth of 3.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (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 3, 1999, and January 28, 2000, Building 289 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). Sampling and analysis were performed in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements For Site Remediation*. Refer to Appendix F for the field sampling documentation.

## **3.0 CONCLUSIONS AND RECOMMENDATIONS**

### **3.1 SOIL SAMPLING RESULTS**

To evaluate soil conditions following removal of the UST and associated piping, post-excavation soil samples were collected on September 13, 1994, and September 22, 1994 from a total of nine (9) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on September 13, 1994, and September 22, 1994, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Soil samples, which were collected after the removal of the potentially contaminated soil, contained TPHC concentrations ranging from 12.80 mg/kg to 450.00 mg/kg.

### **3.2 GROUNDWATER SAMPLING RESULTS**

The sample collected from Building 289 on December 3, 1999, contained chloromethane at a concentration of 4.17 ug/l. No other compounds were detected.

No compounds were detected in the sample collected from Building 289 on January 28, 2000.

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

Groundwater samples collected on December 3, 1999, and January 28, 2000, 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. 81533-63 at Building 289.

### **3.3 CONCLUSIONS AND RECOMMENDATIONS**

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 289 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 289 on December 3, 1999, and January 28, 2000, groundwater quality at Building 289 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. 81533-63 at Building 289.

**TABLES**

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
BUILDING 289, MAIN POST-WEST AREA  
FORT MONMOUTH, NEW JERSEY

Page 1 of 3

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Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
B	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
C	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
D	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
E	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
F	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
G(DUPF)	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1
H	9/13/94	9/14/94	Soil	Post-Excavation	TPHC	418.1

Note:

\* TPHC Total Petroleum Hydrocarbons



TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
 BUILDING 289, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 2 of 3

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
E1	9/22/94	9/23/94	Soil	Post-Excavation	TPHC	418.1
H1	9/22/94	9/23/94	Soil	Post-Excavation	TPHC	418.1

Note:

\* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES  
 BUILDING 289, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 3 of 3

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Sampling Method**
4978.03	12/3/99	12/6/99	Aqueous	Groundwater	VOCs, SVOCs	PPNDP
5127.03	1/28/00	2/1/00	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 289, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 1 of 2

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/5.5' =	1642.1	9/13/94	9/14/94	Total Solid	--	--	84.00 %	--	--
				TPHC	6.6	yes	51.10	10,000	No
B/5.5' =	1642.2	9/13/94	9/14/94	Total Solid	--	--	84.00 %	--	--
				TPHC	6.6	Yes	23.40	10,000	No
C/5.5' =	1642.3	9/13/94	9/14/94	Total Solid	--	--	94.00 %	--	--
				TPHC	6.6	Yes	21.00	10,000	No
D/5.5' =	1642.4	9/13/94	9/14/94	Total Solid	--	--	75.00 %	--	--
				TPHC	6.6	yes	163.00	10,000	No
***E/5.5' =	1642.5	9/13/94	9/14/94	Total Solid	--	--	90.00 %	--	--
				TPHC	6.6	yes	1280.00	10,000	No
F/5.5' =	1642.6	9/13/94	9/14/94	Total Solid	--	--	80.00 %	--	--
				TPHC	6.6	yes	24.60	10,000	No
G(DUPF)/5.5' =	1642.7	9/13/94	9/14/94	Total Solid	--	--	81.00 %	--	--
				TPHC	6.6	Yes	12.80	10,000	No
***H/2.0' =	1642.8	9/13/94	9/14/94	Total Solid	--	--	99.00 %	--	--
				TPHC	6.6	yes	1520.00	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 289, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 2 of 2

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
E1/5.5' =	1649.1	9/22/94	9/23/94	Total Solid TPHC	-- 6.6	-- yes	96.00 % 18.40	-- 10,000	-- No
H1/3.0' =	1649.2	9/22/94	9/23/94	Total Solid TPHC	-- 6.6	-- Yes	91.00 % 450.00	-- 10,000	-- No

## Note:

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

Table 3  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 12/3/99 Location: 289 Lab Sample ID: 4978.03(Bldg 289)

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	5.57 ug/L	--	30	no
75-01-4	Vinyl Chloride	1.06	Not Detected	--	5	no
74-83-9	Bromomethane	1.10	Not Detected	--	10	no
75-00-3	Chloroethane	1.01	Not Detected	--	nle	no
75-69-4	Trichlorofluoromethane	0.50	Not Detected	--	nle	no
75-35-4	1, 1-Dichloroethene	0.24	Not Detected	--	2	no
67-64-1	Acetone	1.36	Not Detected	--	700	no
75-15-0	Carbon Disulfide	0.46	Not Detected	--	nle	no
75-09-2	Methylene Chloride	0.24	Not Detected	--	2	no
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected	--	100	no
75-35-3	1,1-Dichloroethane	0.12	Not Detected	--	70	no
108-05-4	Vinyl Acetate	0.78	Not Detected	--	nle	no
78-93-3	2-Butanone	0.62	Not Detected	--	300	no
156-59-2	cis-1,2-Dichloroethene	0.17	Not Detected	--	10	no
67-66-3	Chloroform	0.30	Not Detected	--	6	no
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected	--	30	no
56-23-5	Carbon Tetrachloride	0.47	Not Detected	--	2	no
71-43-2	Benzeze	0.23	Not Detected	--	1	no
107-06-2	1,2-Dichloroethane	0.18	Not Detected	--	2	no
79-01-6	Trichloroethene	0.23	Not Detected	--	1	no
78-87-5	1, 2-Dichloropropane	0.40	Not Detected	--	1	no
75-27-4	Bromodichloromethane	0.55	Not Detected	--	1	no
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected	--	nle	no
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected	--	nle	no

Table 3  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 12/3/99 Location: 289 Lab Sample ID: 4978.03(Bldg 289)

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

Table 3  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 12/3/99 Location: 289 Lab Sample ID: 4978.03(Bldg 289)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	2.03	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	1.01	Not Detected	--	20	no
62-53-3	Aniline	1.81	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	1.42	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	1.34	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	1.32	Not Detected	--	75	no
100-51-6	Benzyl alcohol	1.13	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	1.25	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	1.54	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	0.89	Not Detected	--	20	no
67-72-1	Hexachloroethane	1.67	Not Detected	--	10	no
98-95-3	Nitrobenzene	1.08	Not Detected	--	10	no
78-59-1	Isophorone	1.12	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	1.34	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	1.35	Not Detected	--	9	no
91-20-3	Naphthalene	1.41	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.21	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.79	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	1.20	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	1.47	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	1.12	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.88	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.69	Not Detected	--	7000	no
208-96-8	Acenaphthylene	1.07	Not Detected	--	nle	no

Table 3  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 12/3/99 Location: 289 Lab Sample ID: 4978.03(Bldg 289)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.90	Not Detected	--	nle	no
99-09-2	3-Nitroaniline	0.88	Not Detected	--	nle	no
83-32-9	Acenaphthene	1.22	Not Detected	--	400	no
132-64-9	Dibenzofuran	1.11	Not Detected	--	nle	no
121-14-2	2,4-Dinitrotoluene	0.97	Not Detected	--	10	no
84-66-2	Diethylphthalate	1.80	Not Detected	--	5000	no
86-73-7	Fluorene	1.10	Not Detected	--	300	no
7005-72-3	4-Chlorophenyl-phenylether	1.22	Not Detected	--	nle	no
100-01-6	4-Nitroaniline	1.17	Not Detected	--	nle	no
86-30-6	n-Nitrosodiphenylamine	1.12	Not Detected	--	20	no
103-33-3	Azobenzene	0.74	Not Detected	--	nle	no
101-55-3	4-Bromophenyl-phenylether	0.84	Not Detected	--	nle	no
118-74-1	Hexachlorobenzene	1.04	Not Detected	--	10	no
85-01-8	Phenanthrene	1.37	Not Detected	--	nle	no
120-12-7	Anthracene	1.24	Not Detected	--	2000	no
84-74-2	Di-n-butylphthalate	1.89	Not Detected	--	900	no
206-44-0	Fluoranthene	1.82	Not Detected	--	300	no
92-87-5	Benzidine	4.64	Not Detected	--	50	no
129-00-0	Pyrene	1.39	Not Detected	--	200	no
85-68-7	Butylbenzylphthalate	1.17	Not Detected	--	100	no
56-55-3	Benzo[a]anthracene	1.32	Not Detected	--	10	no
91-94-1	3,3'-Dichlorobenzidine	1.94	Not Detected	--	60	no
218-01-9	Chrysene	1.53	Not Detected	--	20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1.93	Not Detected	--	30	no
117-84-0	Di-n-octylphthalate	1.60	Not Detected	--	100	no
205-99-2	Benzo[b]fluoranthene	1.39	Not Detected	--	10	no
207-08-9	Benzo[k]fluoranthene	1.43	Not Detected	--	2	no
50-32-8	Benzo[a]pyrene	1.17	Not Detected	--	20	no
193-39-5	Indeno[1,2,3-cd]pyrene	0.92	Not Detected	--	20	no
53-70-3	Dibenz[a,h]anthracene	0.71	Not Detected	--	20	no
191-24-2	Benzo[g,h,i]perylene	0.93	Not Detected	--	nle	no



Table 3  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 1/28/00 Location: 289 Lab Sample ID: 5127.03(Bldg 289)

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

Table 3  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER  
 Date Sampled: 1/28/00 Location: 289 Lab Sample ID: 5127.03(Bldg 289)

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

Table 3  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/28/00Location: 289Lab Sample ID: 5127.03(Bldg 289)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1.83	Not Detected	--	nle	no
62-75-9	N-nitroso-dimethylamine	0.91	Not Detected	--	20	no
62-53-3	Aniline	1.63	Not Detected	--	nle	no
111-44-4	bis(2-Chloroethyl)ether	1.28	Not Detected	--	10	no
541-73-1	1,3-Dichlorobenzene	1.21	Not Detected	--	600	no
106-46-7	1,4-Dichlorobenzene	1.19	Not Detected	--	75	no
100-51-6	Benzyl alcohol	1.02	Not Detected	--	nle	no
95-50-1	1,2-Dichlorobenzene	1.13	Not Detected	--	600	no
108-60-1	bis(2-chloroisopropyl)ether	1.39	Not Detected	--	300	no
621-64-7	n-Nitroso-di-n-propylamine	0.80	Not Detected	--	20	no
67-72-1	Hexachloroethane	1.50	Not Detected	--	10	no
98-95-3	Nitrobenzene	0.97	Not Detected	--	10	no
78-59-1	Isophorone	1.01	Not Detected	--	100	no
111-91-1	bis(2-Chloroethoxy)methane	1.21	Not Detected	--	nle	no
120-82-1	1,2,4-Trichlorobenzene	1.22	Not Detected	--	9	no
91-20-3	Naphthalene	1.27	Not Detected	--	nle	no
106-47-8	4-Chloroaniline	1.09	Not Detected	--	nle	no
87-68-3	Hexachlorobutadiene	0.71	Not Detected	--	1	no
91-57-6	2-Methylnaphthalene	1.08	Not Detected	--	nle	no
77-47-4	Hexachlorocyclopentadiene	1.32	Not Detected	--	50	no
91-58-7	2-Chloronaphthalene	1.01	Not Detected	--	nle	no
88-74-4	2-Nitroaniline	0.96	Not Detected	--	nle	no
131-11-3	Dimethylphthalate	1.52	Not Detected	--	7000	no
208-96-8	Acenaphthylene	0.96	Not Detected	--	nle	no

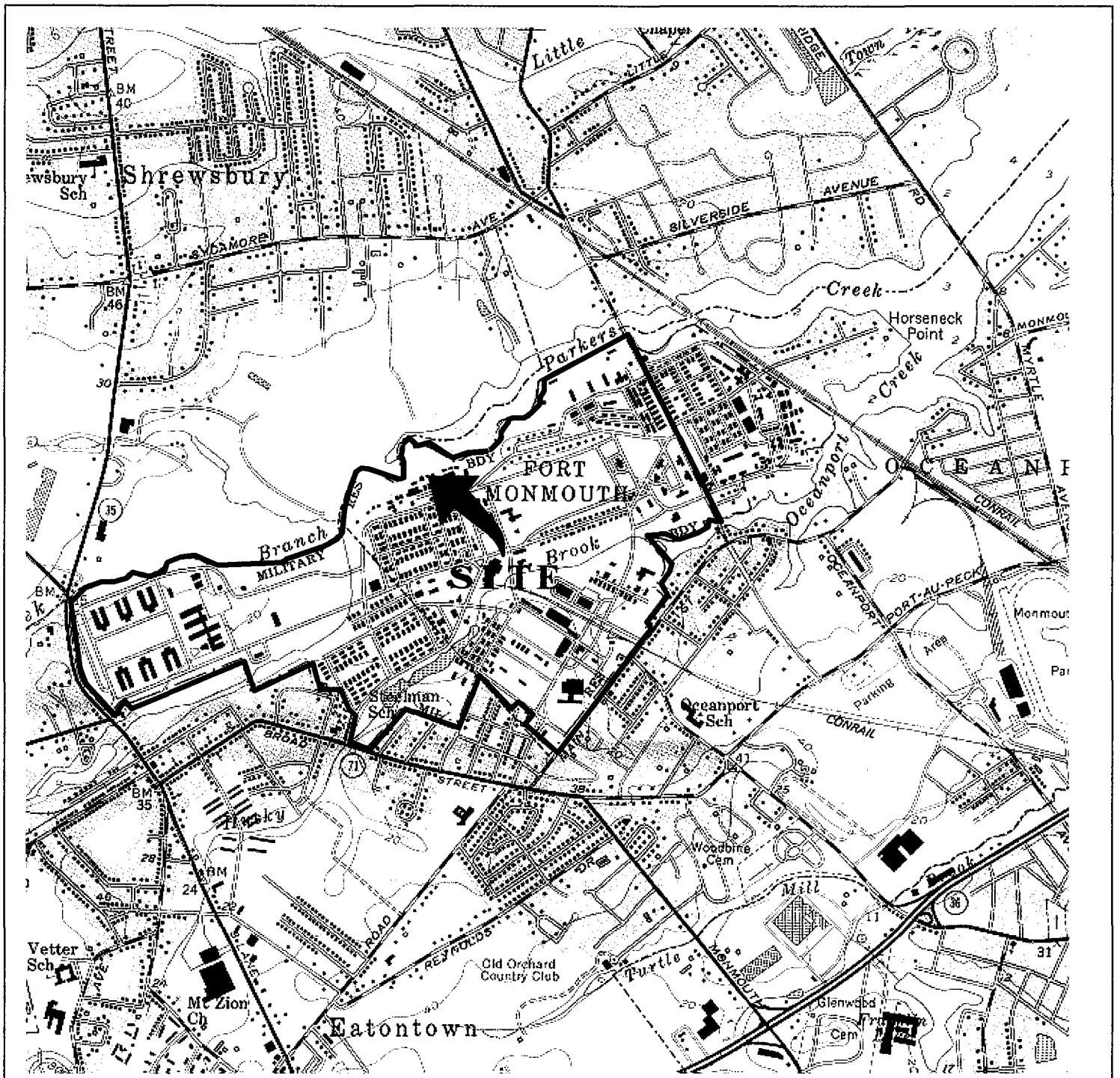
Table 3  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name: FMETLNJDEP # 13461Matrix: (soil/water) WATERDate Sampled: 1/28/00Location: 289Lab Sample ID: 5127.03(Bldg 289)

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

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## FIGURES



**FIGURE 1**

**LOCATION MAP**  
 Building 289  
 Main-Post West  
 Fort Monmouth Army Base  
 Monmouth County, NJ

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

Scale: 1" = 2000'

Date: SEPT 1994

**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

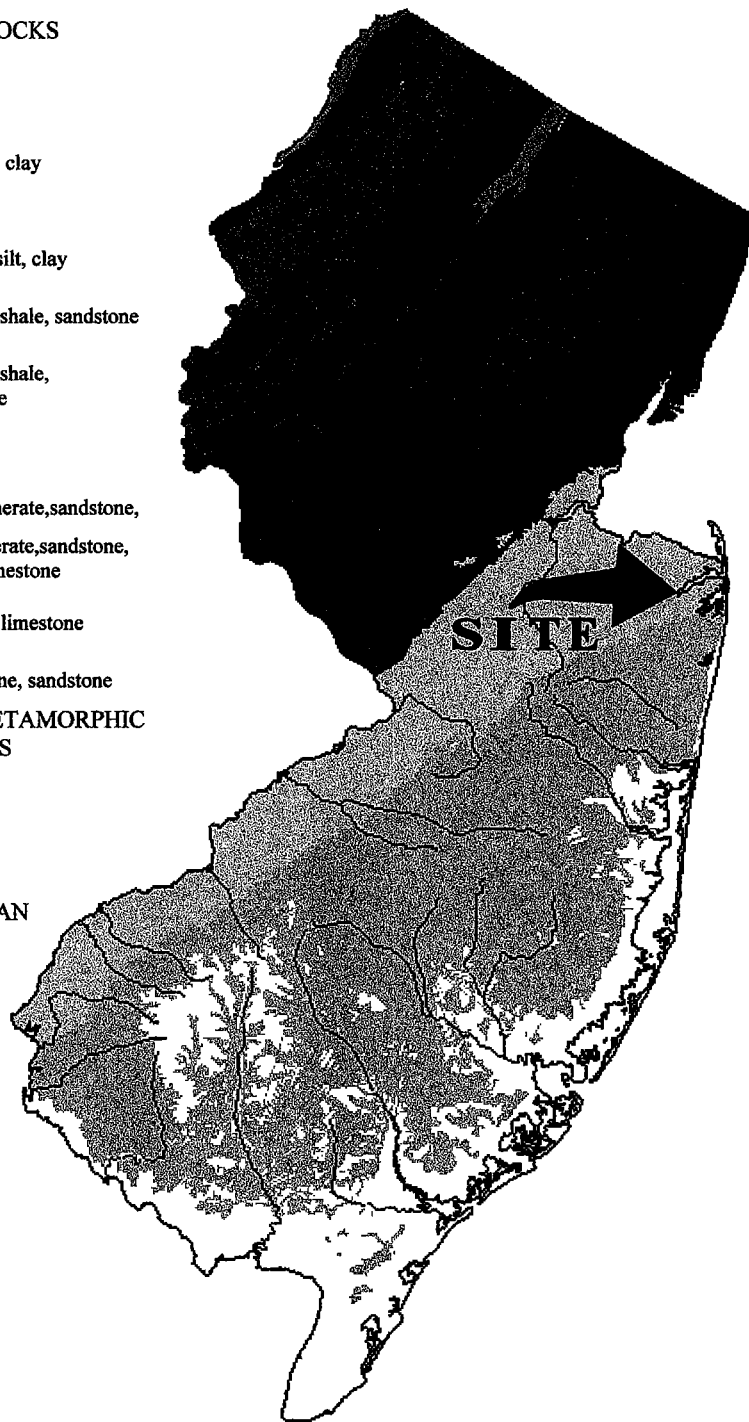
## IGNEOUS AND METAMORPHIC ROCKS

### MESOZOIC

- Jurassic: basalt
- Jurassic: diabase

### PRECAMBRIAN

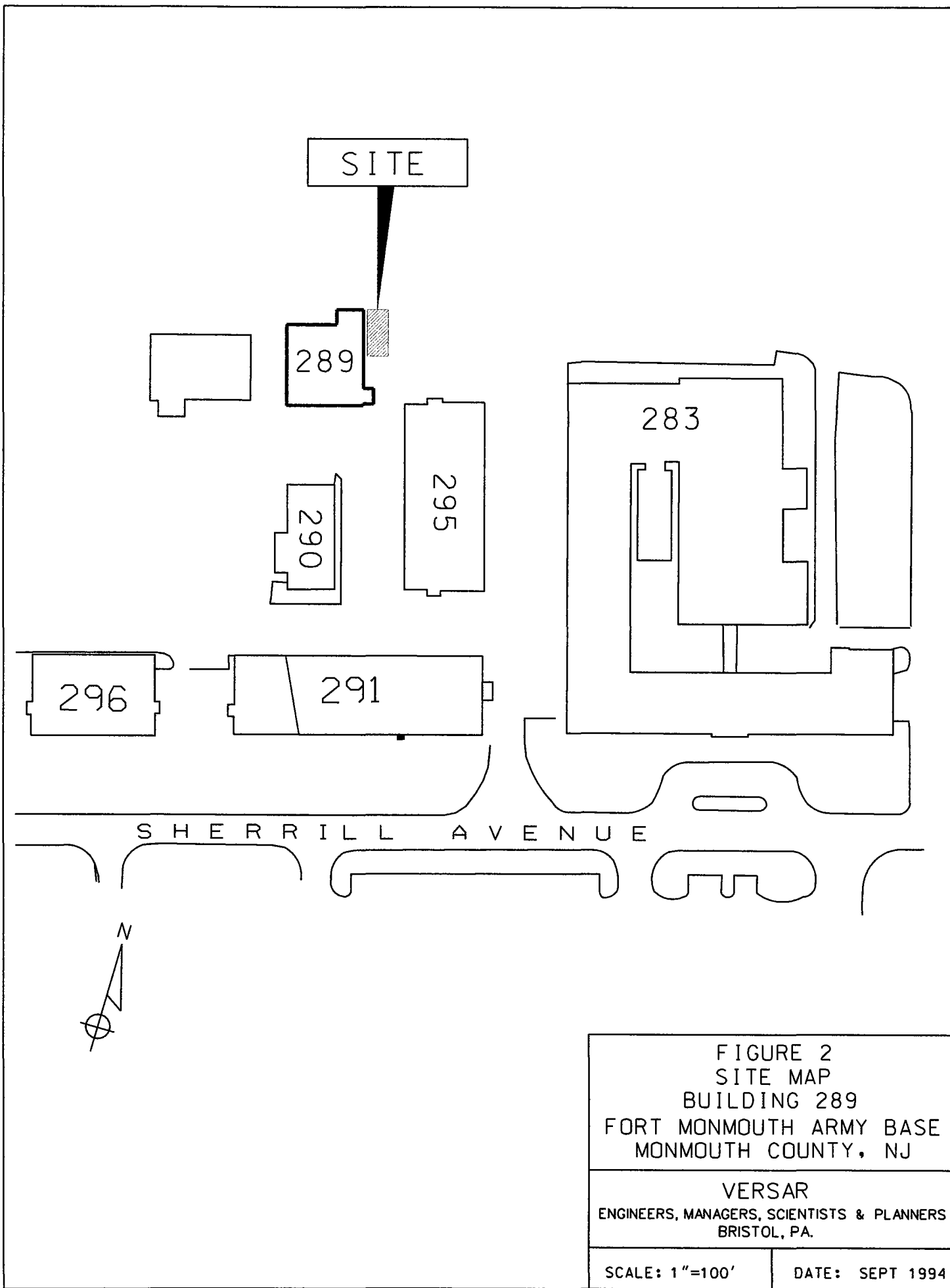
- marble
- gneiss, granite



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

**VERSAR**  
 Engineers, Managers, Scientists & Planners  
 Bristol, Pennsylvania

289 FIG2





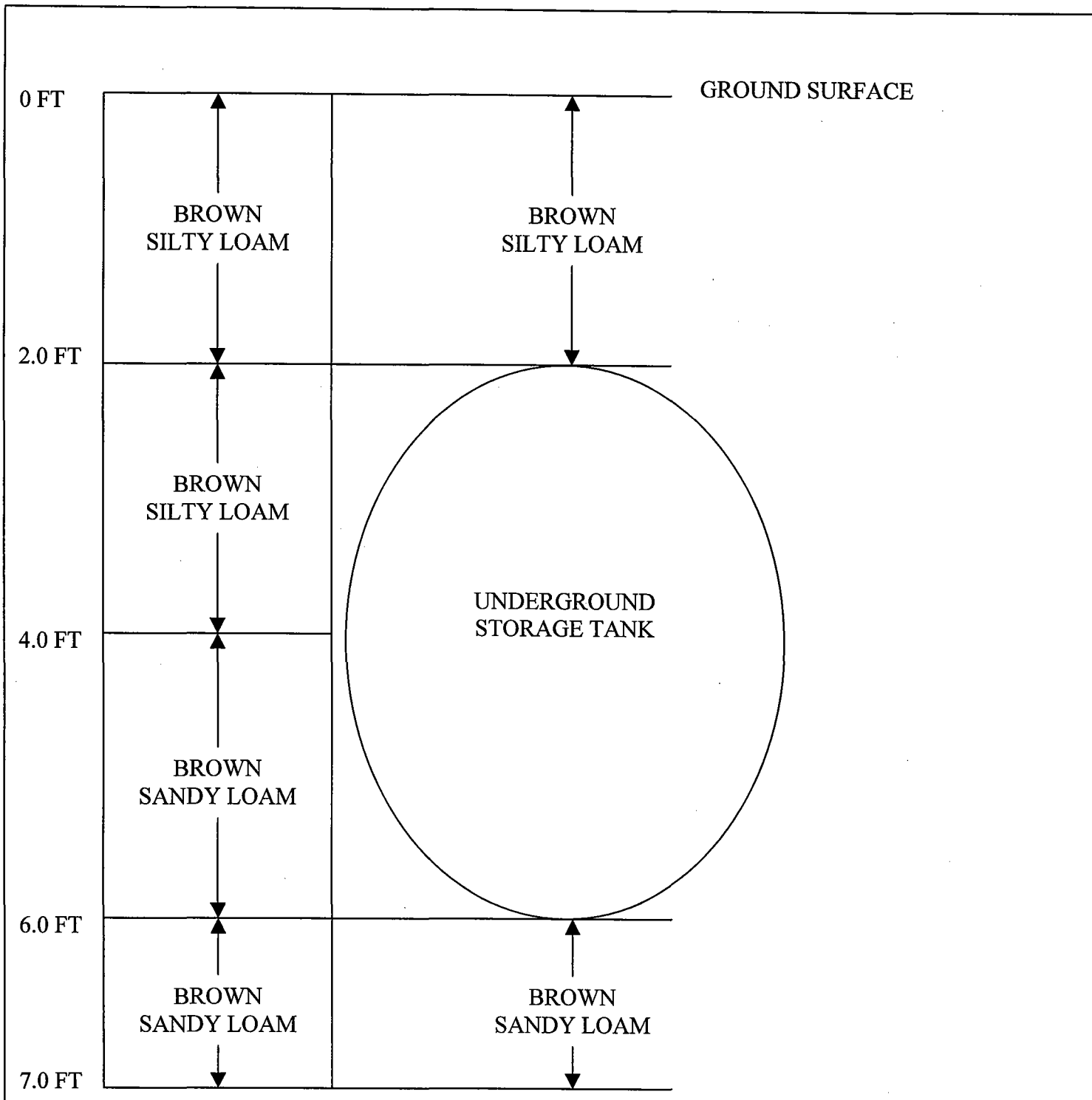


FIGURE 3  
 CROSS SECTIONAL VIEW  
 BUILDING 289  
 FORT MONMOUTH ARMY BASE  
 MONMOUTH COUNTY, NJ

**VERSAR**  
 Engineers, Managers, Scientists & Planners  
 Bristol, Pennsylvania

SCALE: NTS

DATE: Sept. 1994

BUILDING  
289

SITE C/5.5' BGS  
TPHC 21.0

SITE D/5.5' BGS  
TPHC 163.0

SITE H1/3.0' BGS  
TPHC 450

FORMER  
FEEDLINE

FORMER  
FUEL LINE

SITE B/5.5' BGS  
TPHC 23.4

SITE E1/5.5' BGS  
TPHC 18.4

FORMER 1000  
GALLON UST

SITE A/5.5' BGS  
TPHC 51.5

SITE F/5.5' BGS  
TPHC 24.6

SITE G/5.5' BGS  
TPHC 12.8



**LEGEND**

- SOIL SAMPLE LOCATION (SEPTEMBER 13, 1994)
- SOIL SAMPLE LOCATION (SEPTEMBER 22, 1994)
- ▣ LIMIT OF EXCAVATION (SEPTEMBER 22, 1994)

**NOTES:**

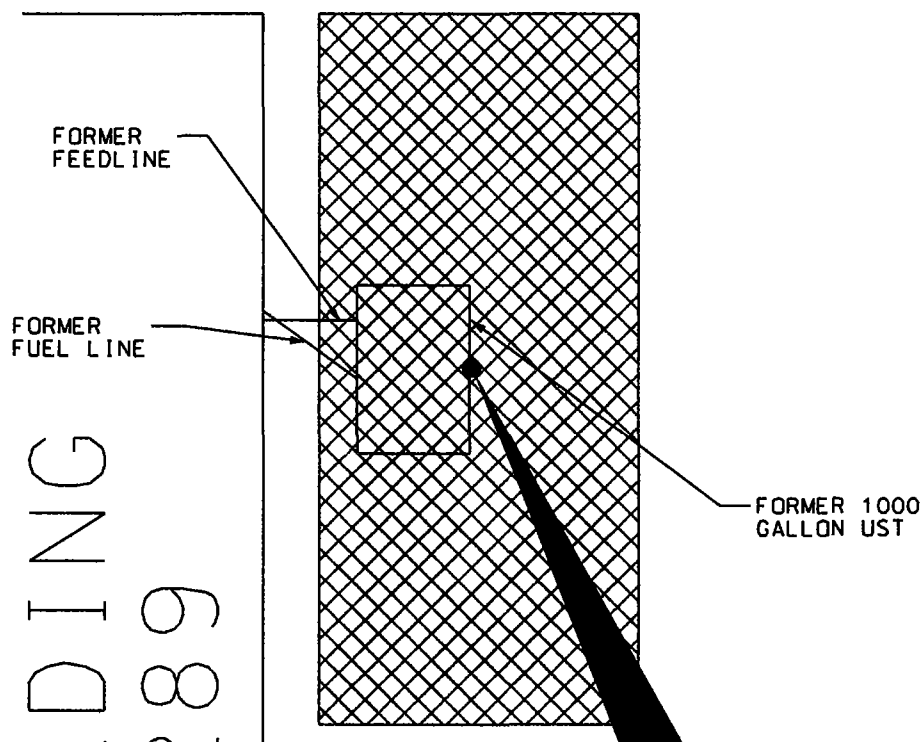
1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE

FIGURE 4  
SOIL SAMPLING LOCATION MAP  
BUILDING 289  
FORT MONMOUTH ARMY BASE  
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: SEPT 1994



SAMPLING LOCATION: SAMPLING DEPTH: SAMPLING DATE:	HIGHER OF NJDEP GWOS AND POL	BLDG 289 8-13' BGS 12/3/99	BLDG 289 8-13' BGS 1/28/00
VOLATILE ORGANIC COMPOUNDS:			
CHLOROMETHANE:	30 UG/L	4.17 UG/L	ND
SEMIVOLATILE ORGANIC COMPOUNDS:		ND	ND



**LEGEND**

- GROUNDWATER SAMPLE LOCATION  
(DECEMBER 3, 1999 AND JANUARY 28, 2000)
- ▨ LIMIT OF EXCAVATION  
(SEPTEMBER 22, 1994)

**NOTES:**

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

**FIGURE 5**  
GROUNDWATER SAMPLING MAP  
BUILDING 289  
FORT MONMOUTH ARMY BASE  
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'      DATE: SEPT 1994

289 FIG5

**APPENDIX A**

**NJDEP-STANDARD REPORTING FORM**



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

ATTN: UST Program  
(609) 984-3156

For State Use Only

Date Rec'd. \_\_\_\_\_  
Auth. \_\_\_\_\_  
Routing \_\_\_\_\_  
UST NO. \_\_\_\_\_

STANDARD REPORTING FORM  
for reporting activities at an UST facility:

- |  |   |
|--|---|
| <input type="checkbox"/> General Facility Information Changes        | <input type="checkbox"/> Sale or Transfer         |
| <input checked="" type="checkbox"/> Closure (Abandonment or Removal) | <input type="checkbox"/> Substantial Modification |
| <input type="checkbox"/> Temporary Closure                           | <input type="checkbox"/> Financial Responsibility |
| <input type="checkbox"/> Change in Service                           | <input type="checkbox"/> 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  
DEH Bldg. 167, DEPT. OF PUBLIC -  
Fort Monmouth NJ 07703 works  
ATTN: Charles Appleby

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

\_\_\_\_\_

3. Contact person for this activity:

DINKER M. DESAI  
Telephone Number: (908) 532-1475

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

BLDG 289 63

5. Registration Number (if known):

UST- 81533

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

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

(OVER)

7. For CLOSURE (abandonment or removal - check all that apply):

a.  Abandonment Date:     /    /     Case No:     

Attach the necessary implementation schedule (3 copies) and all documentation needed for abandonment per N.J.A.C. 7:14B-9.1 (d).

b.  Removal Date: 9/2/94 Case No. TMS C-93-3180

Attach the necessary implementation schedule (3 copies). DIR # 94-9-2-1455-00

8. For CHANGES IN HAZARDOUS SUBSTANCES STORED (check all that apply):

a.  Temporary Closure (12 month maximum time - see N.J.A.C. 7:14B-9.1(b)). Remove all hazardous substances; leave tank in place.

b.  Change in service from a regulated substance to a non-regulated substance. Tank must be cleaned and site assessment performed per N.J.A.C. 7:14B-9.1(e).

c.  Changes in service from one regulated hazardous substance to another regulated hazardous substance.

Tank No. _____	Old _____	New _____
Tank No. _____	Old _____	New _____
Tank No. _____	Old _____	New _____

(Attach additional sheets if more space is needed)

9. For TRANSFER OF OWNERSHIP: Effective Date:     /    /    

a. New Owner (operator) \_\_\_\_\_

b. New Facility Name \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ NJ \_\_\_\_\_  
\_\_\_\_\_ County

c. Closing Attorney \_\_\_\_\_ Tele: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

10. For SUBSTANTIAL MODIFICATIONS (to include any retrofitted activity - e.g. the addition of spill/overfill protection, monitoring systems, cathodic protection, etc.):

a. Type of Modification \_\_\_\_\_ Date:     /    /    

b. \* NOTE \* Substantial modifications require a permit under N.J.A.C. 7:14B-10.

11. For changes in FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):

- a. Policy Type:
- b. Policy Number:
- c. Other:
- d. Company/Carrier:
- e. Expiration Date:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Specify)

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

CERTIFICATION

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

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

Signature: *James Ott*

Name (print or type): JAMES OTT

Title: Acting Director  
Directorate of Public Works

Date: 9/6/94

**APPENDIX B**  
**SITE ASSESSMENT SUMMARY**

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

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

Facility Street Address : Directorate of Public Works Building 173

Municipality: Oceanport County : Monmouth

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

B. Owner (RP)'s Name:

Street Address: City :

State: Zip: Telephone Number :

C. (Check as appropriate)

- Site Investigation Report (SIR) \$500 Fee
Remedial Investigation Report (RIR) \$1000 Fee

X NA - Federal Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
UST Registration Number : 81533-63 (7 digits)
Incident Report Number 94 - 09 - 02 - 1455 - 00 (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:

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

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

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

Signature: [Handwritten Signature]

Company Name: U.S. Army Fort Monmouth

Date: 9/4/00



**APPENDIX C**  
**WASTE MANIFEST**



**State of New Jersey  
Department of Environmental Protection and Energy  
Hazardous Waste Regulation Program  
Manifest Section  
CN 421, Trenton, NJ 08625-0421**

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

Form Approved. OMB No. 2050-0039. Expires 9-30-94

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NJ100131211261164		Manifest Document No. 1097275		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Main Post, c/o James Shirghio, Bldg 2504 ATTN: SELSH-DL-EM-MS, Fort Monmouth, NJ 07703				A. State Manifest Document Number <b>NJA 1907275</b>		B. State Generator's ID (Gen. Site Address) Main Post Ft Monmouth NJ			
4. Generator's Phone (908) 532-6324		5. Transporter 1 Company Name Freenold Cartage, Inc.		6. US EPA ID Number NJ100131211261164		C. State Trans. ID-NJDEPE S 2265		Decal No. 55464	
7. Transporter 2 Company Name		8. US EPA ID Number		9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857		10. US EPA ID Number NJ100131211261164		D. Transporter's Phone (908) 462-1001	
9. Designated Facility Name and Site Address		10. US EPA ID Number		E. State Trans. ID-NJDEPE		Decal No.		F. Transporter's Phone ( )	
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, HM UN 1270 PG III)		12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		Waste No.	
a.	X Petroleum Oil N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	9 91 TT		2052 G		6 X		7 2 2	
b.	X Petroleum Oil N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	9 01 TT		0020 G		6 X		7 2 2	
c.	X Petroleum Oil N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	0 91 TT		0085 G		6 X		7 2 2	
d.	X Petroleum Oil N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	0 19 TT		01265 G		6 X		7 2 2	
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above					
a. Petroleum Oil 70 X		Petroleum Oil 70 X		70 X		70 X		104-Filtration 104-Filtration	
a. T.L. Water 30 X		T.L. Water 30 X		30 X		30 X		104-Filtration 104-Filtration	
b. Petroleum Oil 70 X		Petroleum Oil 70 X		70 X		70 X		104-Filtration 104-Filtration	
b. T.L. Water 30 X		T.L. Water 30 X		30 X		30 X		104-Filtration 104-Filtration	
15. Special Handling Instructions and Additional Information NOT REGULATED BY EPA. REGULATED AS HAZARDOUS WASTE IN NJ 24 HOUR EMERGENCY RESPONSE PHONE: 201-427-2881 NJ DECAL# 55464									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name DIANE M. DESHA				Signature <i>[Signature]</i>				Month Day Year 09 01 94	
17. Transporter 1 Acknowledgment of Receipt of Materials Printed/Typed Name Bill Burr				Signature <i>[Signature]</i>				Month Day Year 09 01 94	
18. Transporter 2 Acknowledgment of Receipt of Materials Printed/Typed Name				Signature				Month Day Year	
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name VIPAL JAGIAN									
Signature <i>[Signature]</i>				Month Day Year 09 02 94					

**APPENDIX D**

**UST DISPOSAL CERTIFICATE**

Fort Monmouth  
 Eatontown, NJ  
 Tank #    Cust #  
 289    0081533-63  
 293    0081533-66

**MAZZA & SONS, INC.**

Metal Recyclers  
 Auto and Truck  
 3230 Shaffo Rd.  
 Tinton Falls, NJ  
 (908) 922-9292

NO. \_\_\_\_\_

DATE 19 Sept 94

Customer's Name Cate inc 103 Godwin Ave Marlton PA NJ  
 Address \_\_\_\_\_

B12y 289-0081533-63  
 B12y 293-0081533-66

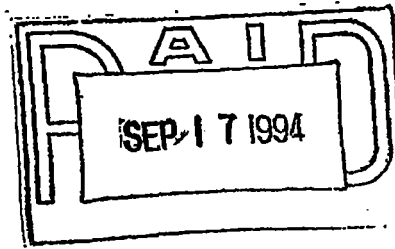
Make of Autos

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Tires ~~\_\_\_\_\_~~  
 Tank \_\_\_\_\_  
 Price: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

37560 LB @

35180 LB @

2380



Weight      Price

Cast Iron		
Steel	47.60	
Lt. Iron		
Copper #1		
Copper #2		
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT:		

Weigher \_\_\_\_\_ Customer Don Ellis

**APPENDIX E**

**SOIL ANALYTICAL DATA PACKAGE**

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

Client: U.S. Army  
 DPW, SELFM-PW-EV  
 Bldg. 167  
 Ft. Monmouth, NJ 07703

Lab. ID #: 1642.1-.8  
 Sample Rec'd: 09/13/94  
 Analysis Start: 09/14/94  
 Analysis Comp: 09/14/94

Analysis: 418.1 (TPH)  
 Matrix: Soil  
 Analyst: S. Hubbard  
 Ext. Meth: Sonc.

NJDEPE UST Reg.#: 0081533-63  
 Closure #: C93-3180  
 DICAR #: 94-9-21455-00  
 Location #: Bldg. 289

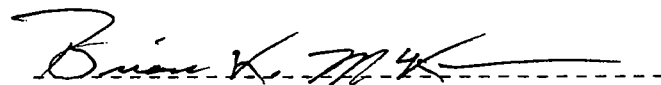
Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1642.1	Site A, Sidewall SE. OVA= ND	84	51.1	6.6
1642.2	Site B, Sidewall E. OVA= ND	84	23.4	6.6
1642.3	Site C, Sidewall NE. OVA= ND	94	21.0	6.6
1642.4	Site D, Sidewall NW. OVA= ND	75	163.	6.6
1642.5	Site E, Sidewall W. OVA= 3.	90	1280.	6.6
1642.6	Site F, Sidewall SW. OVA= ND	80	24.6	6.6
1642.7	Site G, Dup OVA= ND	81	12.8	6.6
1642.8	Site H, Pipe OVA= ND	99	1520.	6.6
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit

\* = Silica Gel Added, NA = Not Applicable

1641.3dup= 98% 1641.3s= 61% 1641.3sd= 63% RPD= 3.2%

Cal Chk = 97%



Brian K. McKee  
 Laboratory Director

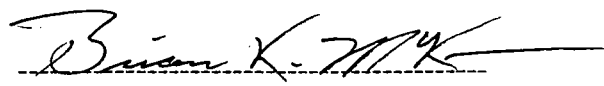
**Report of Analysis**  
**U.S. Army, Fort Monmouth Environmental Laboratory**  
**NJDEPE Certification # 13461**

Client: U.S. Army  
DPW, SELFM-PW-EV  
Bldg. 167  
Ft. Monmouth, NJ 07703

Lab. ID #: 1642.1-8  
Sample Rec'd: 09/13/94  
Analysis Start: 09/14/94  
Analysis Comp: 09/14/94

Analysis: Munsel

Lab ID#	Soil Color
1642.1	5Y 4/3 Olive
1642.2	5Y 4/3 Olive
1642.3	5Y 5/6 Olive
1642.4	5Y 4/3 Olive
1642.5	5Y 4/3 Olive
1642.6	5Y 4/3 Olive
1642.7	2.5Y 5/6 Light Olive Brown
1642.8	2.5Y 4/4 Olive Brown

  
\_\_\_\_\_  
Brian K. McKee  
Laboratory Director

# U.S. ARMY FORT MONMOUTH

P.O. #: PWS-07 TPHC

Chain of Custody

clear 94-9-21455-00

Project #: C93-3180		Sampler: <i>General suite</i>		Date / Time: <i>9/13/94 0950</i>		Analysis Parameters			Start:		
Customer: <i>D. Desai DPW-Enviro</i>		Site Name: <i>BLDG 289 81533-63 C93-3180</i>		<i>APCAR 9492145500</i>		<i>TIME Soils method</i>			<i>ANAL</i>		
Phone: <i>X 21475</i>											
Lab Sample ID Number		Customer Sample Location/ID Number		Sample Matrix	# of Bottles	<i>TIME Soils method</i>			<i>ANAL</i>		
Date/Time											
<i>1642.1</i>	<i>9/13</i>	<i>11-38</i>	<i>Site A - School (SE)</i>	<i>Soil</i>	<i>1</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>	<i>End - ground</i>	
<i>.2</i>	<i>"</i>	<i>11-34</i>	<i>Site B " East</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>	<i>&lt;4°</i>	
<i>.3</i>	<i>"</i>	<i>11-30</i>	<i>Site C " NE</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>		
<i>.4</i>	<i>"</i>	<i>11-41</i>	<i>Site D " Northwest</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>		
<i>.5</i>	<i>"</i>	<i>11-45</i>	<i>Site E " East</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>3</i>	<i>H-vet</i>	
<i>.6</i>	<i>"</i>	<i>11-49</i>	<i>Site F " South (SW)</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>	<i>was used</i>	
<i>.7</i>	<i>"</i>	<i>11-51</i>	<i>Site G (dup) " Sun</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>	<i>SN# 270136</i>	
<i>.8</i>	<i>"</i>	<i>11-55</i>	<i>Site H (Pipe)</i>	<i>↓</i>	<i>↓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>ND</i>		
Relinquished By (signature)			Date / Time		Received By (signature)			Shipped By:			
<i>[Signature]</i>			<i>9/13 14-30</i>		<i>[Signature]</i>			<i>Hand</i>			
Relinquished By (signature)			Date / Time		Received for Lab by (signature):			Date / Time			
<i>[Signature]</i>			<i>9/13 14-30</i>		<i>[Signature]</i>			<i>9/13/94 1430</i>			
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. <i>Site map attached</i>											



PHC Conformance/Non-conformance Summary Report

No Yes

1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank

2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)

3. IR Spectra submitted for standards, blanks, & samples

4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.

5. Extraction holding time met. (If not met, list number of days exceeded for each sample)

6. Analysis holding time met. (If not met, list number of days exceeded for each sample)

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.

Project #1642

  
Brian K. McKee  
Laboratory Manager

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

Client: U.S. Army  
 DPW, SELFM-PW-EV  
 Bldg. 167  
 Ft. Monmouth, NJ 07703

Lab. ID #: 1649.1-.2  
 Sample Rec'd: 09/22/94  
 Analysis Start: 09/23/94  
 Analysis Comp: 09/23/94

Analysis: 418.1 (TPH)  
 Matrix: Soil  
 Analyst: S. Hubbard  
 Ext. Meth: Sonc.

NJDEPE UST Reg.#: 81533-63  
 Closure #: C93-3180  
 DICAR #:  
 Location #: Bldg. 289

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1649.1	Site E1 OVA=	96	18.4	6.6
1649.2	Site H1 FEEDLINE OVA=	91	* 450.	6.6
M. Bl.	Method Blank	100	ND	3.3

**Notes:** ND = Not Detected, MDL = Method Detection Limit  
 \* = Silica Gel Added, NA = Not Applicable  
 BATCH dup= 80% BATCH s= 84% BATCH sd= 82% RPD= 2.4%  
 Cal Chk = 104%

*Brian K. McKee*  
 -----  
 Brian K. McKee  
 Laboratory Director

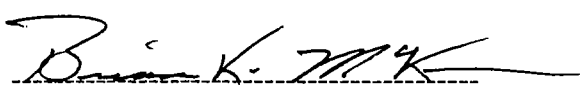
**Report of Analysis**  
**U.S. Army, Fort Monmouth Environmental Laboratory**  
**NJDEPE Certification # 13461**

Client: U.S. Army  
 DPW, SELFM-PW-EV  
 Bldg. 167  
 Ft. Monmouth, NJ 07703

Lab. ID #: 1649.1-.2  
 Sample Rec'd: 09/22/94  
 Analysis Start: 09/23/94  
 Analysis Comp: 09/23/94

Analysis: Munsel

Lab ID#	Soil Color
1649.1	2.5Y 5/4 Light Olive Brown
1649.2	2.5Y 4/3 Olive Brown



Brian K. McKee  
 Laboratory Director

# U.S. ARMY FORT MONMOUTH

P.O. #: *PWS-07 TPHC*

Chain of Custody

Project #: <i>C93-3180</i>		Sampler: <i>Geopel/ull</i>		Date / Time: <i>9/22/94 10900</i>		Analysis Parameters		Start:		
Customer: <i>Dunker Desert</i>		Site Name: <i>B409 289</i>		<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> <i>TPHC %S Munsels</i> </div>		<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> <i>TPHC %S Munsels</i> </div>		Finish:		
Phone: <i>(908) 532-4167</i>		<i>81533 - 63 C93-3180</i>						Preservation Method		
Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC %S Munsels		Remarks			
<i>1649.1</i>	<i>9/22 10-30</i>	<i>Site E<sub>1</sub></i>	<i>soil</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>pretreated 64°</i>		
<i>XJ-2</i>	<i>11 10-36</i>	<i>H1-(feedline)</i>	<i>11</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
								<i>OVA calibrated with zero rev Methane 95 ppm Pres. -82</i>		
								<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> <i>Second Round Sampling</i> </div>		
Relinquished By (signature)		Date / Time		Received By (signature)		Shipped By:				
<i>[Signature]</i>		<i>9/22 11-45</i>		<i>[Signature]</i>						
Relinquished By (signature)		Date / Time		Received for Lab by (signature):		Date / Time				
<i>[Signature]</i>		<i>9/22 11-45</i>		<i>[Signature]</i>		<i>9/22/94 1145</i>				
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. <i>Map attached</i>										

**Environmental Laboratory**

Certification Number 12461

PHC Conformance/Non-conformance Summary Report

No Yes

1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank

2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)

3. IR Spectra submitted for standards, blanks, & samples

4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.

5. Extraction holding time met. (If not met, list number of days exceeded for each sample)

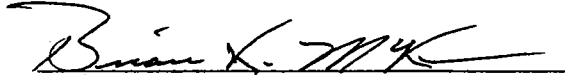
6. Analysis holding time met. (If not met, list number of days exceeded for each sample)

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.

Project #1649

  
Brian K. McKee  
Laboratory Manager

**APPENDIX F**

**GROUNDWATER ANALYTICAL DATA PACKAGE**

# FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-6224 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



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

## Bldg. 289

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Trip Blank	4978.01	Aqueous	03-Dec-99	12/03/99
Field Blank	4978.02	Aqueous	03-Dec-99 10:50	12/03/99
Bldg. 289	4978.03	Aqueous	03-Dec-99 10:59	12/03/99

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

ENCLOSURE:  
CHAIN OF CUSTODY  
RESULTS

  
Daniel Wright/Date  
Laboratory Director

4-8'00

## Table of Contents

<u>Section</u>	<u>Pages</u>
Chain of Custody	1-2
Methodology Summary	3-4
Conformance/Non-Conformance Summary	5-7
Laboratory Chronicle	8-9
Volatile Organics	10-11
Analytical Results Summary	12-19
Tune Results Summary	20-21
Method Blank Results Summary	22
Calibration Summary	23
Surrogate Recovery Summary	24
MS/MSD Results Summary	25-26
Internal Standard Area & RT Summary	27
Chromatograms	28-35
Base Neutrals	36
Analytical Results Summary	37-45
Tune Results Summary	46-51
Method Blank Results Summary	52
Calibration Summary	53-56
Surrogate Recovery Summary	57-58
MS/MSD Results Summary	59-62
Internal Standard Area & RT Summary	63-66
Chromatograms	67-72
Laboratory Deliverables Checklist	73
Laboratory Authentication Statement	74



**CHAIN  
OF  
CUSTODY**

**000001**

# Fort Monmouth Environmental Testing Laboratory

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

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

NJDEP Certification #13461

## Chain of Custody Record

Customer: <u>D. D'ABBI</u>		Project No:		Analysis Parameters						Comments:  HCL / 4°C	
Phone #: <u>21475</u>		Location: <u>UST Bldg 289</u>		VOTIS	Xylene	BNPIS					
( ) DERA (X) OMA ( ) Other: _____		<u>1st Rnd</u>									
Samplers Name / Company: <u>Craig McCormack, TVS</u>				Sample #							
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles						Remarks / Preservation Method
<u>4978</u> .01	<u>Trip</u>	<u>12/3/99</u>	<u>0735</u>	<u>AQ</u>	<u>3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
.02	<u>FB</u>	↓	<u>1050</u>	↓	<u>3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<u>03</u>	<u>Bldg 289</u>	↓	<u>1059</u>	↓	<u>3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Relinquished by (signature): <u>Craig McCormack</u>		Date/Time: <u>12/3/99 1000</u>	Received by (signature): <u>[Signature]</u>		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, ( ) Reduced, (X) Standard, ( ) Screen / non-certified					Remarks: <u>Shims dye from 977 same date.</u> <u>cpm</u>						
Turnaround time: (X) Standard 3 wks, ( ) Rush _____ Days, ( ) ASAP Verbal _____ Hrs.											

000002

# **METHODOLOGY SUMMARY**

**000003**

## 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.

000004

**CONFORMANCE  
NON-CONFORMANC  
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 yes
  - b. DFTPP Meet Criteria yes
- 4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series yes
- 5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series yes
- 6. GC/MS Calibration requirements
  - a. Calibration Check Compounds Meet Criteria yes
  - b. System Performance Check Compounds Meet Criteria yes
- 7. Blank Contamination – If yes, List compounds and concentrations in each blank: NO
  - a. VOA Fraction \_\_\_\_\_
  - b. B/N Fraction \_\_\_\_\_
  - c. Acid Fraction \_\_\_\_\_
- 8. Surrogate Recoveries Meet Criteria yes

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

  - a. VOA Fraction \_\_\_\_\_
  - b. B/N Fraction \_\_\_\_\_
  - c. Acid Fraction \_\_\_\_\_

If not met, were the calculations checked and the results qualified as "estimated"? \_\_\_\_\_
- 9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria yes

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

  - a. VOA Fraction \_\_\_\_\_
  - b. B/N Fraction \_\_\_\_\_
  - c. Acid Fraction \_\_\_\_\_

**GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY 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 \_\_\_\_\_

11. Extraction Holding Time Met

yes

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

\_\_\_\_\_

\_\_\_\_\_

12. Analysis Holding Time Met

yes

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

\_\_\_\_\_

\_\_\_\_\_

Additional Comments:

\_\_\_\_\_

\_\_\_\_\_

Laboratory Manager: \_\_\_\_\_

Date: 4-8-00

000007

# **LABORATORY CHRONICLE**

**000008**



# Laboratory Chronicle

Lab ID: 4978

Site: Bldg. 289

	Date	Hold Time
Date Sampled	12/03/99	NA
Receipt/Refrigeration	12/03/99	NA
Extractions		
1. Base Neutral	12/06/99	14 days
Analyses		
1. Volatile Organics	12/06,07/99	14 days
2. Base Neutral	12/07/99	40 days

000009

# **VOLATILE ORGANICS**

**000010**

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY  
NJDEPE # 13461**

**Definition of Qualifiers**

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

**000011**

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

Data File **VC001406.D**  
 Operator **Skelton**  
 Date Acquired **6 Dec 1999 4:03 pm**

Sample Name **Vblk38**  
 Field ID **Vblk38**  
 Sample Multiplier **1**

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

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

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:

Vblk38

Lab Name: FMETL NJDEP#: 13461  
Project: 100004 Case No.: 4978 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: Vblk38  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001406.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/6/99  
GC Column: RTX502 ID: 0.25 (mm) Dilution Factor: 1.0  
Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:

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

Number TICs found: 0

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

Data File **VC001433.D**  
 Operator **Skelton**  
 Date Acquired **7 Dec 1999 10:39 am**

Sample Name **4978.01**  
 Field ID **Trip Blank**  
 Sample Multiplier **1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane	4.72	187180	5.57 ug/L	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: \_\_\_\_\_

**Trip Blank**

Lab Name: FMETL NJDEP#: 13461  
Project: 100004 Case No.: 4978 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 4978.01  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001433.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/7/99  
GC Column: RTX502 ID: 0.25 (mm) Dilution Factor: 1.0  
Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:

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

Number TICs found: 0

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

Data File **VC001434.D**  
 Operator **Skelton**  
 Date Acquired **7 Dec 1999 11:19 am**

Sample Name **4978.02**  
 Field ID **Field Blank**  
 Sample Multiplier **1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane	4.72	102829	2.96 ug/L	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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



1E

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:

**Field Blank**

Lab Name: FMETL NJDEP#: 13461  
Project: 100004 Case No.: 4978 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 4978.02  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001434.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/7/99  
GC Column: RTX502 ID: 0.25 (mm) Dilution Factor: 1.0  
Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:

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

Number TICs found: 0

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

Data File **VC001435.D**  
 Operator **Skelton**  
 Date Acquired **7 Dec 1999 11:59 am**

Sample Name **4978.03**  
 Field ID **Bldg289**  
 Sample Multiplier **1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane	4.71	152459	4.17 ug/L	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:

**Bldg289**

Lab Name: FMETL NJDEP#: 13461  
Project: 100004 Case No.: 4978 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 4978.03  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VC001435.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/7/99  
GC Column: RTX502 ID: 0.25 (mm) Dilution Factor: 1.0  
Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
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# BASE NEUTRAL

000036

## Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name **BN04072.D**  
 Operator **Bhaskar**  
 Date Acquired **7-Dec-99**

Sample Name **Sblk325**  
 Misc Info **Sblk325 A 991206**  
 Sample Multiplier **1**

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

000037

**Semi-Volatile Analysis Report**  
**Page 2**

Data File Name **BN04072.D**  
Operator **Bhaskar**  
Date Acquired **7-Dec-99**

Sample Name **Sblk325**  
Misc Info **Sblk325 A 991206**  
Sample Multiplier **1**

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

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

**Qualifiers**

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

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

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:

**Sblk325**

Lab Name: FMETL Lab Code 13461  
Project: UST Case No.: 4978 Location: Bld.289 SDG No: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: Sblk325  
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04072.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 12/6/99  
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/99  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: \_\_\_\_\_

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 **BN04079.D**  
 Operator **Bhaskar**  
 Date Acquired **7-Dec-99**

Sample Name **4978.02**  
 Misc Info **Field Blank**  
 Sample Multiplier **1**

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



## Semi-Volatile Analysis Report Page 2

Data File Name **BN04079.D**  
 Operator **Bhaskar**  
 Date Acquired **7-Dec-99**

Sample Name **4978.02**  
 Misc Info **Field Blank**  
 Sample Multiplier **1**

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

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

### Qualifiers

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET Field ID:  
TENTATIVELY IDENTIFIED COMPOUNDS

**Field Blank**

Lab Name: FMETL Lab Code 13461  
Project: UST Case No.: 4978 Location: Bld.289 SDG No: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 4978.02  
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BN04079.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 12/6/99  
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/99  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: \_\_\_\_\_

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 **BN04080.D**  
 Operator **Bhaskar**  
 Date Acquired **7-Dec-99**

Sample Name **4978.03**  
 Misc Info **Bldg.289**  
 Sample Multiplier **1.11**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	2.03 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	1.01 ug/L	
62-53-3	Aniline			not detected	NLE	1.81 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.42 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.34 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.32 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.13 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.25 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	1.54 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.89 ug/L	
67-72-1	Hexachloroethane			not detected	10	1.67 ug/L	
98-95-3	Nitrobenzene			not detected	10	1.08 ug/L	
78-59-1	Isophorone			not detected	100	1.12 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.34 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.35 ug/L	
91-20-3	Naphthalene			not detected	NLE	1.41 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.21 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.79 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.20 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.47 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.12 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.88 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.69 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	1.07 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.90 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.88 ug/L	
83-32-9	Acenaphthene			not detected	400	1.22 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.11 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.97 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.80 ug/L	
86-73-7	Fluorene			not detected	300	1.10 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.22 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.17 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.12 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.74 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.84 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.04 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.37 ug/L	
120-12-7	Anthracene			not detected	2000	1.24 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.89 ug/L	
206-44-0	Fluoranthene			not detected	300	1.82 ug/L	

**Semi-Volatile Analysis Report**  
**Page 2**

Data File Name **BN04080.D**  
Operator **Bhaskar**  
Date Acquired **7-Dec-99**

Sample Name **4978.03**  
Misc Info **Bldg.289**  
Sample Multiplier **1.11**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
92-87-5	Benizidine			not detected	50	4.64 ug/L	
129-00-0	Pyrene			not detected	200	1.39 ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.17 ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.32 ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.94 ug/L	
218-01-9	Chrysene			not detected	20	1.53 ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.93 ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.60 ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.39 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.43 ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.17 ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.92 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.71 ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.93 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.289**

Lab Name: FMETL Lab Code 13461  
Project: UST Case No.: 4978 Location: Bld.289 SDG No: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 4978.03  
Sample wt/vol: 900 (g/ml) ML Lab File ID: BN04080.D  
Level: (low/med) LOW Date Received: 12/3/99  
% Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 12/6/99  
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/7/99  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: \_\_\_\_\_

CONCENTRATION UNITS:

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
------------	---------------	----	------------	---

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461  
 Project: UST Case No.: 4978 Location: Bld.289 SDG No: \_\_\_\_\_  
 Lab File ID: BN04070.D DFTPP Injection Date: 12/7/99  
 Instrument ID: SVoa#1 DFTPP Injection Time: 8:38

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 ( 0.0)1
69	Mass 69 Relative abundance	56.6
70	Less than 2.0% of mass 69	0.3 ( 0.6)1
127	25.0 - 75.0% of mass 198	43.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	15.7
365	Greater than 0.75% of mass 198	1.5
441	Present, but less than mass 443	6.4
442	40.0 - 110.0% of mass 198	42.7
443	15.0 - 24.0% of mass 442	7.9 ( 18.4)2

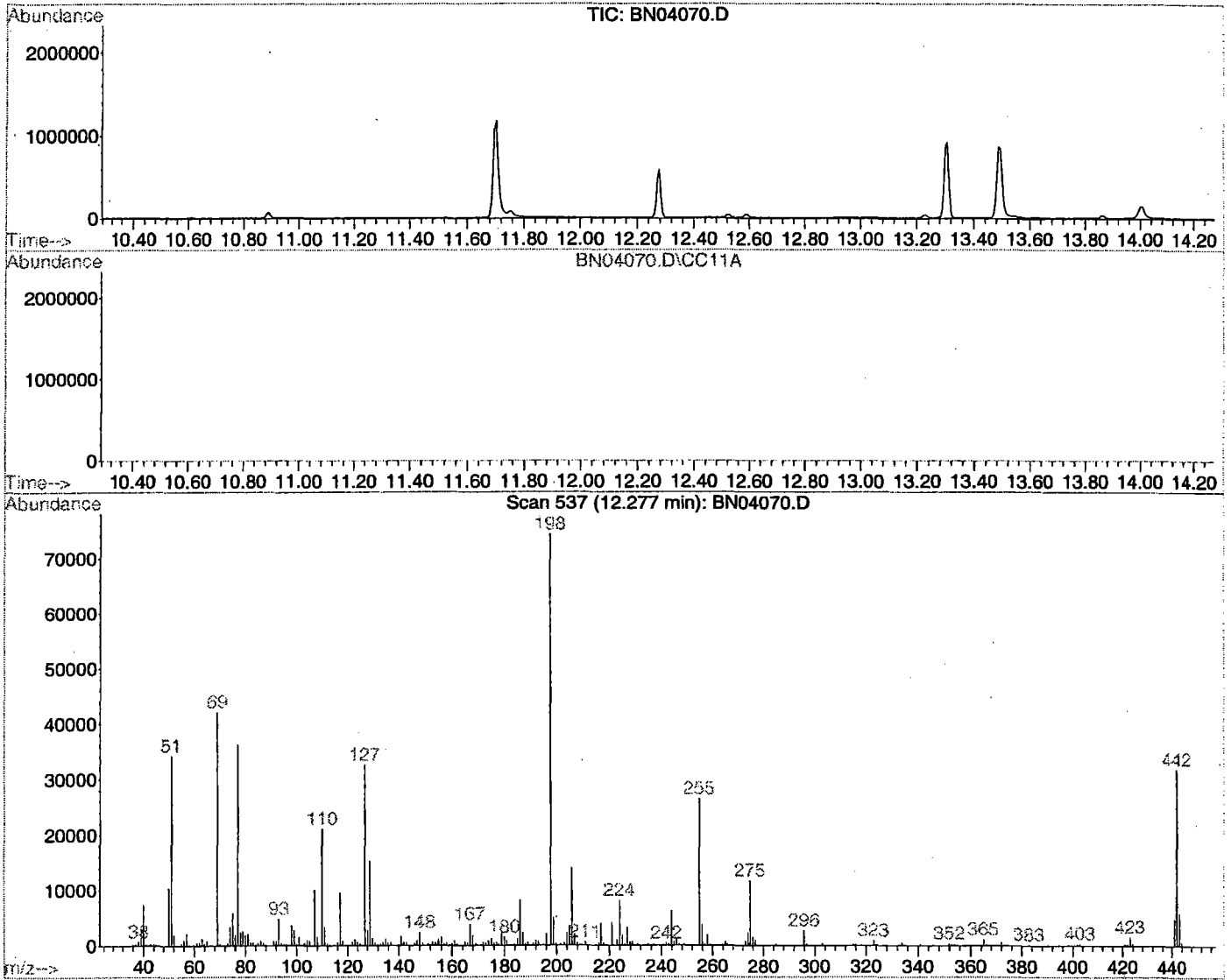
1-Value is % mass 69

2-Value is % mass 442

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

	Field ID:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	DAILY CAL	BN04071.D	12/7/99	9:08
02	SBLK325	SBLK325	BN04072.D	12/7/99	9:54
03	FIELD BLANK	4978.02	BN04079.D	12/7/99	15:15
04	BLDG.289	4978.03	BN04080.D	12/7/99	15:59

Data File : C:\HPCHEM\1\DATA\991207\BN04070.D Vial: 99  
 Acq On : 7 Dec 1999 8:38 am Operator: Bhaskar  
 Sample : DFTPP TUNE Inst : GC/MS Ins  
 Misc : 50 NG/2UL Multiplr: 1.00  
 MS Integration Params: RTEINT.P GC Integration Params: rteint2.p  
 Method : C:\HPCHEM\1\METHODS\M62538.M (RTE Integrator)  
 Title : BNA Calibration



Spectrum Information: Scan 537

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	46.0	34272	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	56.6	42152	PASS
70	69	0.00	2	0.6	251	PASS
127	198	40	60	43.7	32560	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	74456	PASS
199	198	5	9	6.6	4940	PASS
275	198	10	30	15.7	11725	PASS
365	198	1	100	1.5	1125	PASS
441	443	1	99	81.3	4763	PASS
442	198	40	100	42.7	31808	PASS
443	442	17	23	18.4	5859	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461  
 Project 100004 Case No.: 4978 Location Bld.289 SDG No.: \_\_\_\_\_  
 Lab File ID: BNA03321.D DFTPP Injection Date: 10/27/99  
 Instrument ID: BNA#2 DFTPP Injection Time: 9:32

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

1-Value is % mass 69

2-Value is % mass 442

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

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



Data File : C:\HPCHEM\1\DATA\991027\BNA03321.D

Vial: 99

Acq On : 27 Oct 1999 9:32 am

Operator: Bhaskar

Sample : DFTPP TUNE

Inst : GC BNA 2

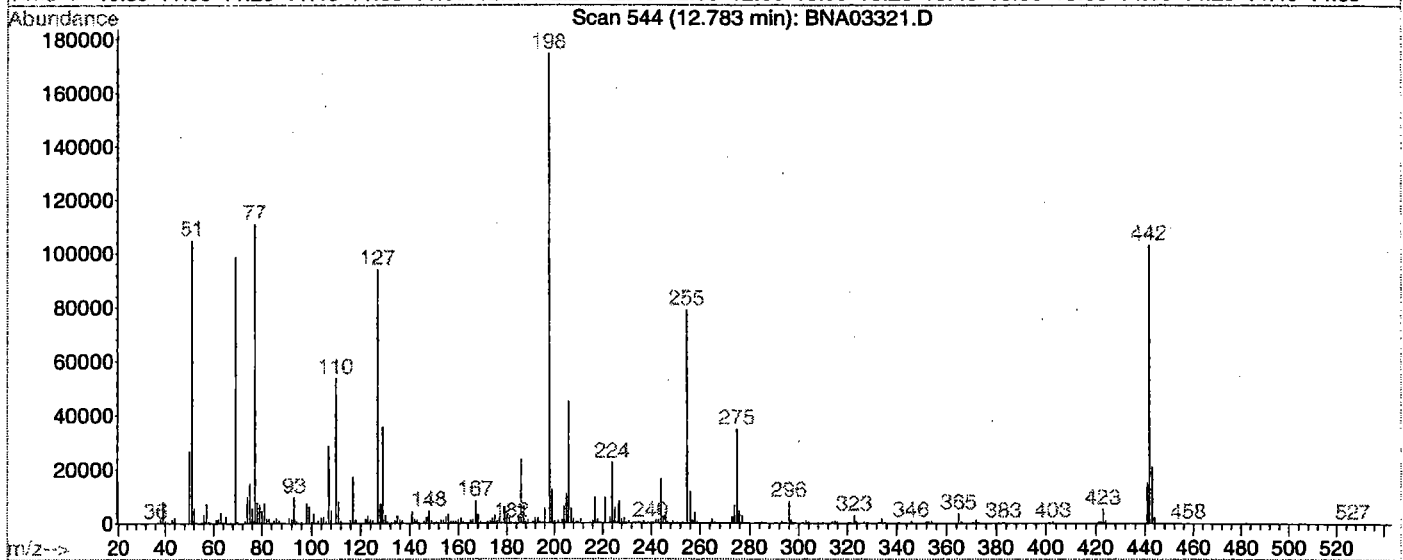
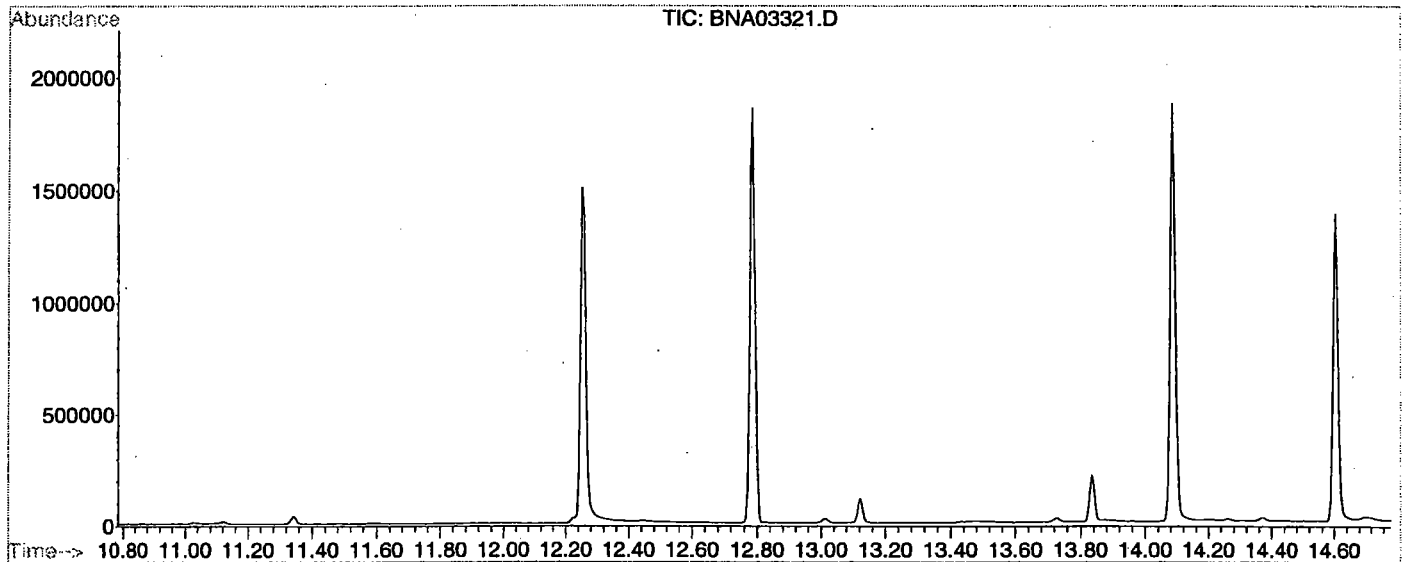
Misc : 50NG/2UL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M262534.M (RTE Integrator)

Title : BNA Calibration



## Spectrum Information: Scan 544

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

# LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature

Date 4/18/00

Laboratory Certification #13461

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

000073

## 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

006074

# 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. 289

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Trip Blank	5127.01	Aqueous	28-Jan-00	01/28/00
Field Blank	5127.02	Aqueous	28-Jan-00 10:45	01/28/00
289-1 8-13'	5127.03	Aqueous	28-Jan-00 11:15	01/28/00
Field Dup. 8-13'	5127.04	Aqueous	28-Jan-00	01/28/00

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

ENCLOSURE:  
CHAIN OF CUSTODY  
RESULTS

  
Daniel Wright/Date  
Laboratory Director

## Table of Contents

<u>Section</u>	<u>Pages</u>
Chain of Custody	1-2
Methodology Summary	3-4
Conformance/Non-Conformance Summary	5-7
Laboratory Chronicle	8-9
Volatile Organics	10-11
Analytical Results Summary	12-21
Tune Results Summary	22-25
Method Blank Results Summary	28
Calibration Summary	26-27
Surrogate Recovery Summary	29
MS/MSD Results Summary	30-31
Internal Standard Area & RT Summary	32
Chromatograms	33-42
Base Neutrals	43
Analytical Results Summary	44--55
Tune Results Summary	56-63
Method Blank Results Summary	64
Calibration Summary	65-70
Surrogate Recovery Summary	71
MS/MSD Results Summary	72-75
Internal Standard Area & RT Summary	76-81
Chromatograms	82-92
Laboratory Deliverables Checklist	93
Laboratory Authentication Statement	94

# CHAIN OF CUSTODY

000001



# Fort Monmouth Environmental Testing Laboratory

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

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

NJDEP Certification #13461

## Chain of Custody Record

Customer: <b>D. DESAI</b>		Project No:		Analysis Parameters							Comments:		
Phone #: <b>821475</b>		Location: <b>BLDG. 289</b>		V O L A T I S	X Y L E N E	B N + 15							
( ) DERA (X) OMA ( ) Other: _____		Samplers Name / Company: <b>MARU LAURA - TVS - PWS 07</b>					Sample #						
Lab Sample ID.	Sample Location	Date	Time	Type	bottles							Remarks / Preservation Method	
<b>5127</b>	<b>1 TRIP BLANK</b>	<b>1-28-00</b>	<b>-</b>	<b>AQ.</b>	<b>2</b>	<b>X</b>						<b>HCC</b>	
	<b>2 FIELD BLANK</b>	<b>"</b>	<b>1045</b>	<b>"</b>	<b>3</b>	<b>X</b>	<b>X</b>	<b>X</b>				<b>HCC-240c</b>	
	<b>3 289-1 - 8-13'</b>	<b>"</b>	<b>1115</b>	<b>"</b>	<b>2</b>	<b>X</b>	<b>X</b>	<b>X</b>				<b>" "</b>	
	<b>4 FIELD DUP - "</b>	<b>"</b>	<b>-</b>	<b>"</b>	<b>2</b>	<b>X</b>	<b>X</b>	<b>X</b>				<b>" "</b>	
Relinquished by (signature): <b>M. Desai</b>		Date/Time: <b>1-28-00 1125</b>	Received by (signature): <b>J. [Signature]</b>		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: (X) Standard 3 wks, ( ) Rush Days, ( ) ASAP Verbal Hrs.													

200002

# **METHODOLOGY SUMMARY**

**000003**



## 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 yes
  - b. DFTPP Meet Criteria yes
  
4. GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series yes
  
5. GC/MS Calibration - Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series yes
  
6. GC/MS Calibration Requirements
  - a. Calibration Check Compounds Meet Criteria yes
  - b. System Performance Check Compounds Meet Criteria yes
  
7. Blank Contamination - If yes, List compounds and concentrations in each blank: NO
  - a. VOA Fraction \_\_\_\_\_
  - b. B/N Fraction \_\_\_\_\_
  - c. Acid Fraction NA \_\_\_\_\_
  
8. Surrogate Recoveries Meet Criteria yes

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

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

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

\_\_\_\_\_
  
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) yes
  - a. VOA Fraction \_\_\_\_\_
  - b. B/N Fraction \_\_\_\_\_
  - c. Acid Fraction NA \_\_\_\_\_

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


Indicate  
Yes,  
No,  
N/A

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

11. Extraction Holding Time Met yes  
If not met, list number of days exceeded for each sample: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. Analysis Holding Time Met yes  
If not met, list number of days exceeded for each sample: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Laboratory Manager :  Date: 5-8-00

# LABORATORY CHRONICLE

000008

# Laboratory Chronicle

Lab ID: 5127

Site: Bldg. 289

	Date	Hold Time
Date Sampled	01/28/00	NA
Receipt/Refrigeration	01/28/00	NA
Extractions		
1. Base Neutral	02/01/00	14 days
Analyses		
1. Volatile Organics	02/04/00	14 days
2. Base Neutral	02/04/00	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 is in Both Sample and Blank**
- D : Results are from a Dilution of the Sample**
- U : Compound Searched for but not Detected**
- E : Compound Exceeds Calibration Limit**

**000011**



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

Data File **VB005723.D**  
 Operator **Skelton**  
 Date Acquired **4 Feb 2000 11:02 am**

Sample Name **Vblk173**  
 Field ID **Vblk173**  
 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	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

Vblk173

Lab Name: FMETL Project: 100004  
NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: Vblk173  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB005723.D  
Level: (low/med) LOW Date Received: 1/28/00  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 2/4/00  
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/L

Number 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 **VB005724.D**  
 Operator **Skelton**  
 Date Acquired **4 Feb 2000 12:01 pm**

Sample Name **5127.01**  
 Field ID **Trip Blank**  
 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	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform	16.46	76928	2.18 ug/L	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

**Trip Blank**

Lab Name: FMETL Project: 100004  
NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 5127.01  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB005724.D  
Level: (low/med) LOW Date Received: 1/28/00  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 2/4/00  
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/L

Number 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 **VB005725.D**  
 Operator **Skelton**  
 Date Acquired **4 Feb 2000 12:41 pm**

Sample Name **5127.02**  
 Field ID **Field Blank**  
 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	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform	16.45	70254	1.98 ug/L	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-79

**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.

Field Blank

Lab Name: FMETL Project: 100004  
NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 5127.02  
Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB005725.D  
Level: (low/med) LOW Date Received: 1/28/00  
% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 2/4/00  
GC Column: RTX502 ID: 0.25 (mm) Dilution Factor: 1.0  
Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:

Number TICs found: 0

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

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 **VB005726.D**  
 Operator **Skelton**  
 Date Acquired **4 Feb 2000 1:22 pm**

Sample Name **5127.03**  
 Field ID **289-1**  
 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	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

**289-1**

Lab Name: FMETL Project: 100004  
 NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
 Matrix: (soil/water) WATER Lab Sample ID: 5127.03  
 Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB005726.D  
 Level: (low/med) LOW Date Received: 1/28/00  
 % Moisture: not dec. \_\_\_\_\_ Date Analyzed: 2/4/00  
 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/L

Number 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 **VB005727.D**  
 Operator **Skelton**  
 Date Acquired **4 Feb 2000 2:02 pm**

Sample Name **5127.04**  
 Field ID **Field Dup**  
 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	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

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

**Qualifiers**

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

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

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

Field Dup

Lab Name: FMETL Project: 100004  
 NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
 Matrix: (soil/water) WATER Lab Sample ID: 5127.04  
 Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB005727.D  
 Level: (low/med) LOW Date Received: 1/28/00  
 % Moisture: not dec. \_\_\_\_\_ Date Analyzed: 2/4/00  
 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 ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project: 100004  
 NJDEP#: 13461 Case No.: 5127 Location: 289 SDG No.: \_\_\_\_\_  
 Lab File ID: VB005473.D BFB Injection Date: 1/14/00  
 Instrument ID: GCMS#2 BFB Injection Time: 15:36  
 GC Column: RTX502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.6
75	30.0 - 66.0% of mass 95	49.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 ( 0.0)1
174	50.0 - 120.0% of mass 95	68.3
175	4.0 - 9.0% of mass 174	4.7 ( 6.9)1
176	93.0 - 101.0% of mass 174	65.3 ( 95.7)1
177	5.0 - 9.0% of mass 176	4.5 ( 6.9)2

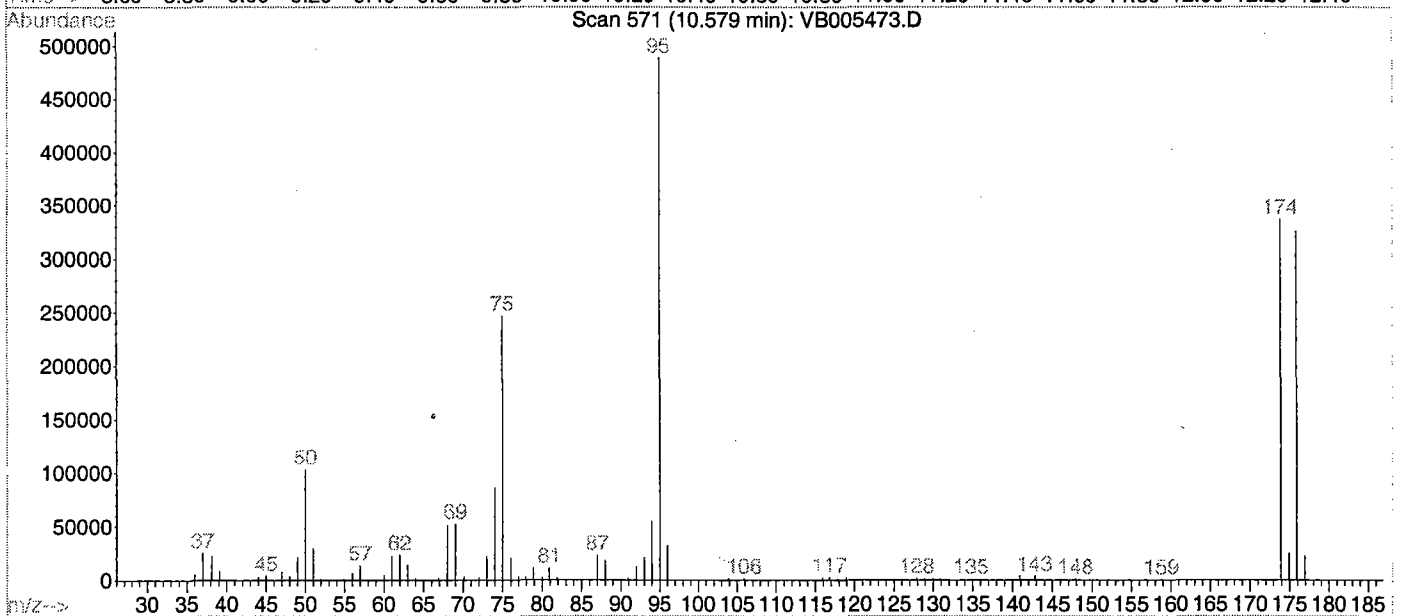
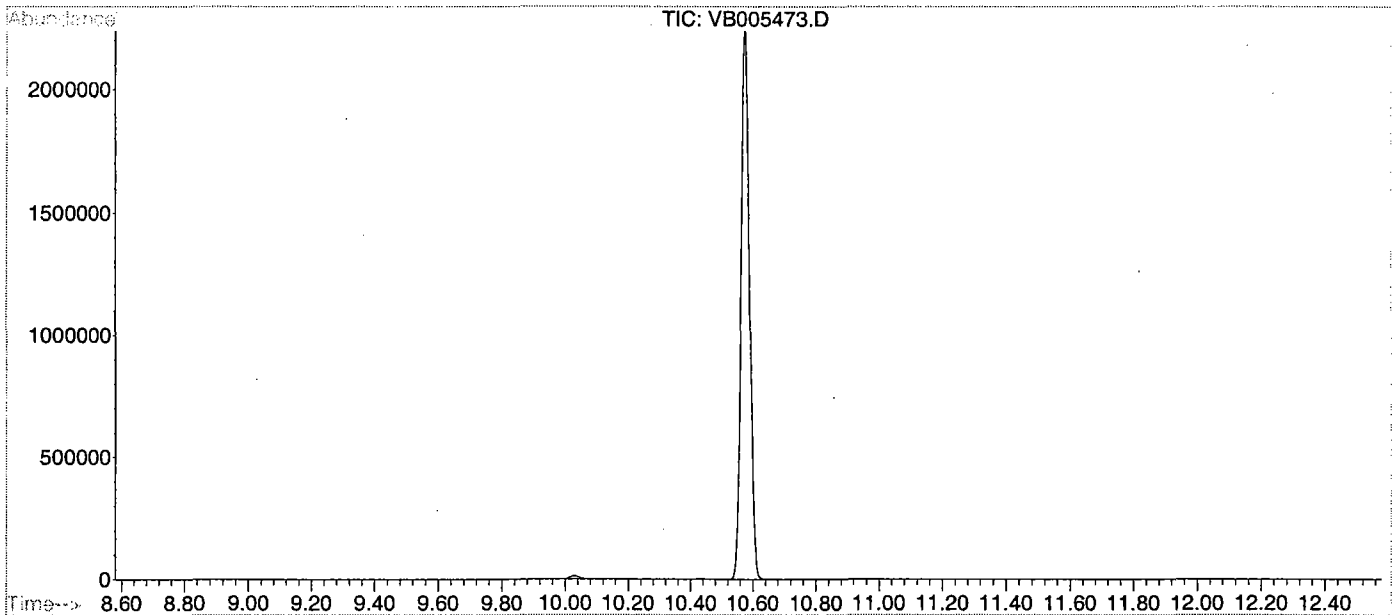
1-Value is % mass 174

2-Value is % mass 176

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

	Lab ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD100	VSTD100	VB005474.D	1/14/00	16:22
02	VSTD050	VSTD050	VB005475.D	1/14/00	17:01
03	VSTD020	VSTD020	VB005476.D	1/14/00	17:40
04	VSTD010	VSTD010	VB005477.D	1/14/00	18:19
05	VSTD005	VSTD005	VB005478.D	1/14/00	18:58

Data File : C:\HPCHEM\1\DATA\JAN2000\000114\VB005473.D Vial: 1  
 Acq On : 14 Jan 2000 3:36 pm Operator: Skelton  
 Sample : BFB Tune Inst : GC VOA 2  
 Misc : BFB Tune Multiplr: 1.00  
 MS Integration Params: RTEINT.P  
 Method : C:\HPCHEM\1\METHODS\M262445.M (RTE Integrator)  
 Title : Volatile Organics by GC/MS Method 624/8260/TCLP



Spectrum Information: Scan 571

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.2	103488	PASS
75	95	30	60	50.5	247168	PASS
95	95	100	100	100.0	489024	PASS
96	95	5	9	6.6	32152	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	68.9	337024	PASS
175	174	5	9	7.4	25008	PASS
176	174	95	101	96.7	325888	PASS
177	176	5	9	6.8	22112	PASS

**BASE  
NEUTRAL**

**000043**

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

Data File Name **BNA03593.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **Sblk340**  
 Misc Info **Sblk340 A 000201**  
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91 ug/L	
62-53-3	Aniline			not detected	NLE	1.63 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13 ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	1.39 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80 ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97 ug/L	
78-59-1	Isophorone			not detected	100	1.01 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22 ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.96 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79 ug/L	
83-32-9	Acenaphthene			not detected	400	1.10 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62 ug/L	
86-73-7	Fluorene			not detected	300	0.99 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23 ug/L	
120-12-7	Anthracene			not detected	2000	1.12 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70 ug/L	
206-44-0	Fluoranthene			not detected	300	1.64 ug/L	

## Semi-Volatile Analysis Report

### Page 2

Data File Name **BNA03593.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **Sblk340**  
 Misc Info **Sblk340 A 000201**  
 Sample Multiplier **1**

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

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

#### Qualifiers

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

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

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

**Sblk340**

Lab Name: FMETL Lab Code 13461  
Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: Sblk340  
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA03593.D  
Level: (low/med) LOW Date Received: 1/28/00  
% Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 2/1/00  
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/4/00  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7

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 **BNA03597.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.02**  
 Misc Info **Field Blank**  
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91 ug/L	
62-53-3	Aniline			not detected	NLE	1.63 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13 ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	1.39 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80 ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97 ug/L	
78-59-1	Isophorone			not detected	100	1.01 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22 ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.96 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79 ug/L	
83-32-9	Acenaphthene			not detected	400	1.10 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62 ug/L	
86-73-7	Fluorene			not detected	300	0.99 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01 ug/L	
103-33-3	Azobenzene			not detected	NLE	9.67 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23 ug/L	
120-12-7	Anthracene			not detected	2000	1.12 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70 ug/L	
206-44-0	Fluoranthene			not detected	300	1.64 ug/L	

## Semi-Volatile Analysis Report

### Page 2

Data File Name **BNA03597.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.02**  
 Misc Info **Field Blank**  
 Sample Multiplier **1**

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

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

#### Qualifiers

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

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

Page 2 of 2

**000048**

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Field Blank

Lab Name: FMETL Lab Code 13461  
 Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
 Matrix: (soil/water) WATER Lab Sample ID: 5127.02  
 Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA03597.D  
 Level: (low/med) LOW Date Received: 1/28/00  
 % Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 2/1/00  
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/4/00  
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
 GPC Cleanup: (Y/N) N pH: 7

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 **BNA03598.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.03**  
 Misc Info **289-1**  
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91 ug/L	
62-53-3	Aniline			not detected	NLE	1.63 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13 ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	1.39 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80 ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97 ug/L	
78-59-1	Isophorone			not detected	100	1.01 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22 ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.96 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79 ug/L	
83-32-9	Acenaphthene			not detected	400	1.10 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62 ug/L	
86-73-7	Fluorene			not detected	300	0.99 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23 ug/L	
120-12-7	Anthracene			not detected	2000	1.12 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70 ug/L	
206-44-0	Fluoranthene			not detected	300	1.64 ug/L	

**Semi-Volatile Analysis Report**  
**Page 2**

Data File Name **BNA03598.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.03**  
 Misc Info **289-1**  
 Sample Multiplier **1**

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

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

**Qualifiers**

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

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

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

289-1

Lab Name: FMETL Lab Code 13461  
Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
Matrix: (soil/water) WATER Lab Sample ID: 5127.03  
Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA03598.D  
Level: (low/med) LOW Date Received: 1/28/00  
% Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 2/1/00  
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/4/00  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7

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 **BNA03599.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.04**  
 Misc Info **Field Dup.**  
 Sample Multiplier **1**

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	1.83 ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.91 ug/L	
62-53-3	Aniline			not detected	NLE	1.63 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1.28 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.21 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	1.19 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1.02 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	1.13 ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	1.39 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.80 ug/L	
67-72-1	Hexachloroethane			not detected	10	1.50 ug/L	
98-95-3	Nitrobenzene			not detected	10	0.97 ug/L	
78-59-1	Isophorone			not detected	100	1.01 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1.21 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	1.22 ug/L	
91-20-3	Naphthalene			not detected	NLE	1.27 ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.09 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.71 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.08 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.32 ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	1.01 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.96 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1.52 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.96 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.81 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79 ug/L	
83-32-9	Acenaphthene			not detected	400	1.10 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	1.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.87 ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.62 ug/L	
86-73-7	Fluorene			not detected	300	0.99 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.10 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.05 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.01 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.67 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.94 ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.23 ug/L	
120-12-7	Anthracene			not detected	2000	1.12 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.70 ug/L	
206-44-0	Fluoranthene			not detected	300	1.64 ug/L	

**Semi-Volatile Analysis Report**  
**Page 2**

Data File Name **BNA03599.D**  
 Operator **Bhaskar**  
 Date Acquired **4-Feb-00**

Sample Name **5127.04**  
 Misc Info **Field Dup.**  
 Sample Multiplier **1**

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

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

**Qualifiers**

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

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



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

**Field Dup.**

Lab Name: FMETL Lab Code 13461  
 Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
 Matrix: (soil/water) WATER Lab Sample ID: 5127.04  
 Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA03599.D  
 Level: (low/med) LOW Date Received: 1/28/00  
 % Moisture: \_\_\_\_\_ decanted: (Y/N) N Date Extracted: 2/1/00  
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/4/00  
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
 GPC Cleanup: (Y/N) N pH: 7

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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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461  
 Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
 Lab File ID: BNA03523.D DFTPP Injection Date: 1/10/00  
 Instrument ID: BNA#2 DFTPP Injection Time: 15:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	45.9
68	Less than 2.0% of mass 69	0.7 ( 1.7)1
69	Mass 69 Relative abundance	42.9
70	Less than 2.0% of mass 69	0.6 ( 1.4)1
127	25.0 - 75.0% of mass 198	52.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	8.4
275	10.0 - 30.0% of mass 198	23.9
365	Greater than 0.75% of mass 198	2.1
441	Present, but less than mass 443	14.9
442	40.0 - 110.0% of mass 198	81.8
443	15.0 - 24.0% of mass 442	18.5 ( 22.6)2

1-Value is % mass 69

2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	DAILY CAL	BNA03524.D	1/10/00	15:36
02	5079.03DUP	5079.03DUP	BNA03537.D	1/11/00	1:41

Data File : C:\HPCHEM\1\DATA\000110\BNA03523.D

Vial: 99

Acq On : 10 Jan 2000 3:06 pm

Operator: Bhaskar

Sample : DFTPP TUNE

Inst : GC BNA 2

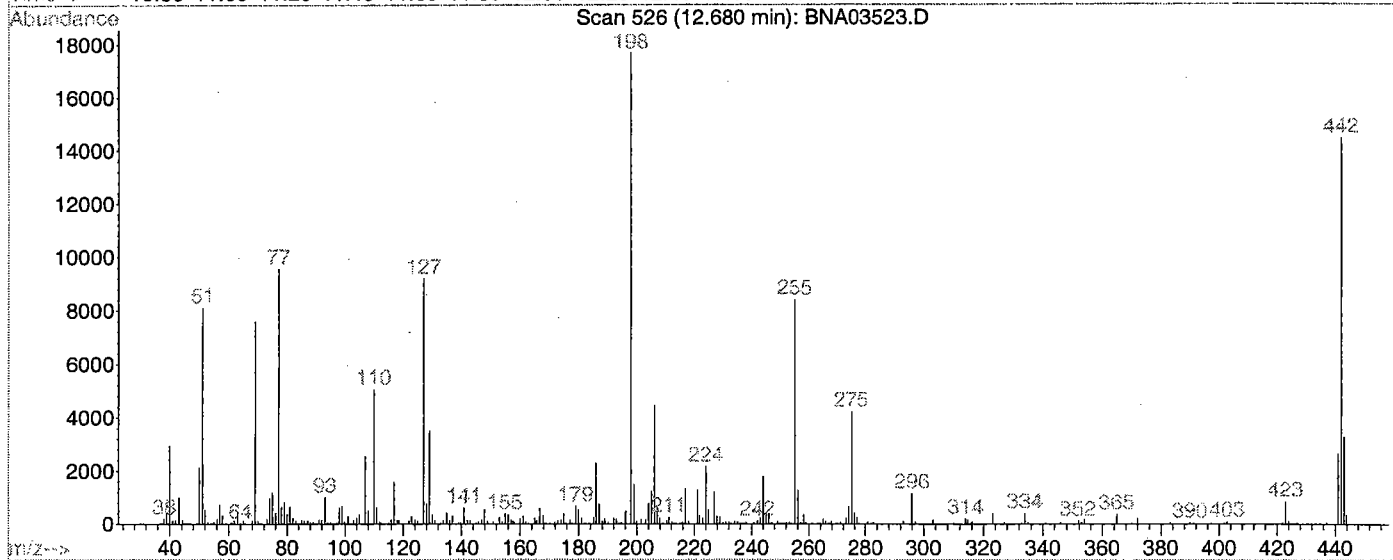
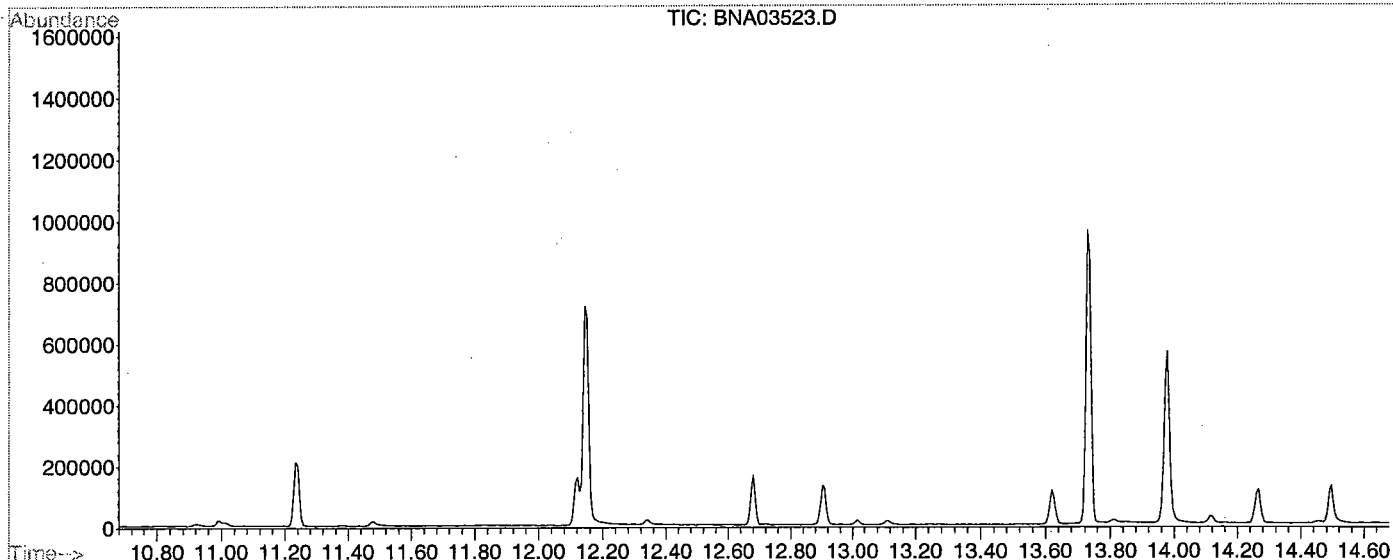
Misc : 50 NG/2UL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M262536.M (RTE Integrator)

Title : BNA Calibration



Spectrum Information: Scan 526

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	45.9	8105	PASS
68	69	0.00	2	1.7	129	PASS
69	198	0.00	100	42.9	7582	PASS
70	69	0.00	2	1.4	107	PASS
127	198	40	60	52.1	9200	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	17672	PASS
199	198	5	9	8.4	1487	PASS
275	198	10	30	23.9	4225	PASS
365	198	1	100	2.1	369	PASS
441	443	1	99	80.3	2625	PASS
442	198	40	100	81.8	14459	PASS
443	442	17	23	22.6	3271	PASS

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461  
 Project 100004 Case No.: 5127 Location Bl.289 SDG No.: \_\_\_\_\_  
 Lab File ID: BNA03569.D DFTPP Injection Date: 1/24/00  
 Instrument ID: BNA#2 DFTPP Injection Time: 10:31

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	56.1
68	Less than 2.0% of mass 69	0.0 ( 0.0)1
69	Mass 69 Relative abundance	49.1
70	Less than 2.0% of mass 69	0.3 ( 0.6)1
127	25.0 - 75.0% of mass 198	51.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	22.9
365	Greater than 0.75% of mass 198	2.7
441	Present, but less than mass 443	13.1
442	40.0 - 110.0% of mass 198	90.1
443	15.0 - 24.0% of mass 442	16.9 ( 18.8)2

1-Value is % mass 69

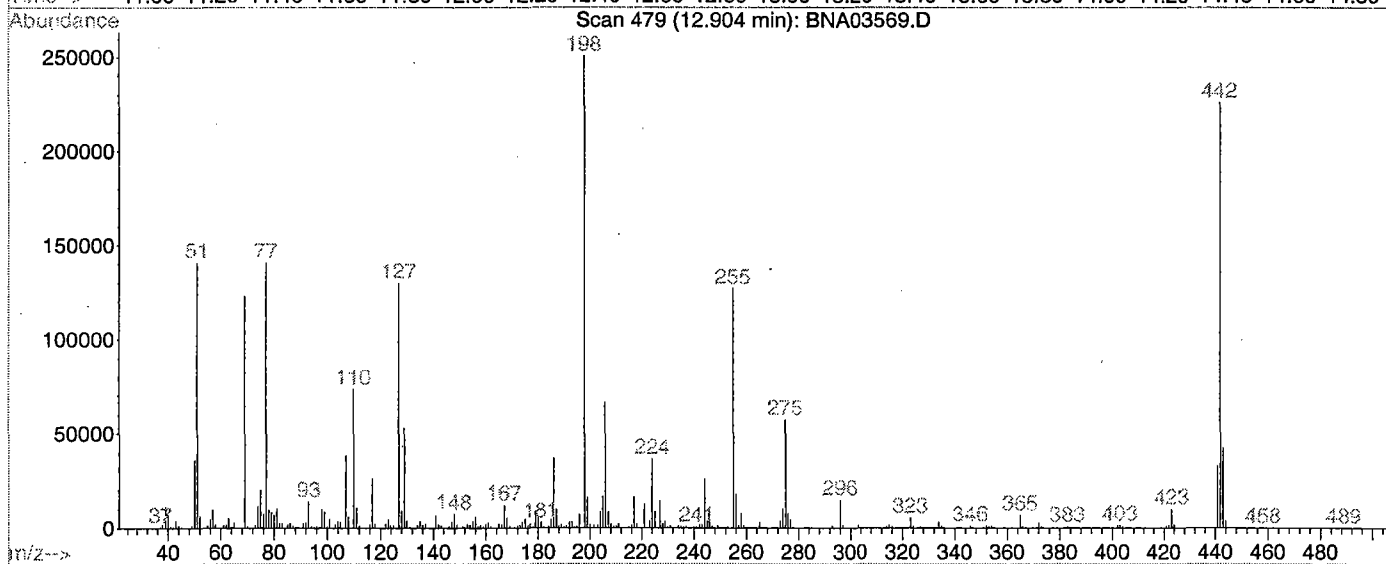
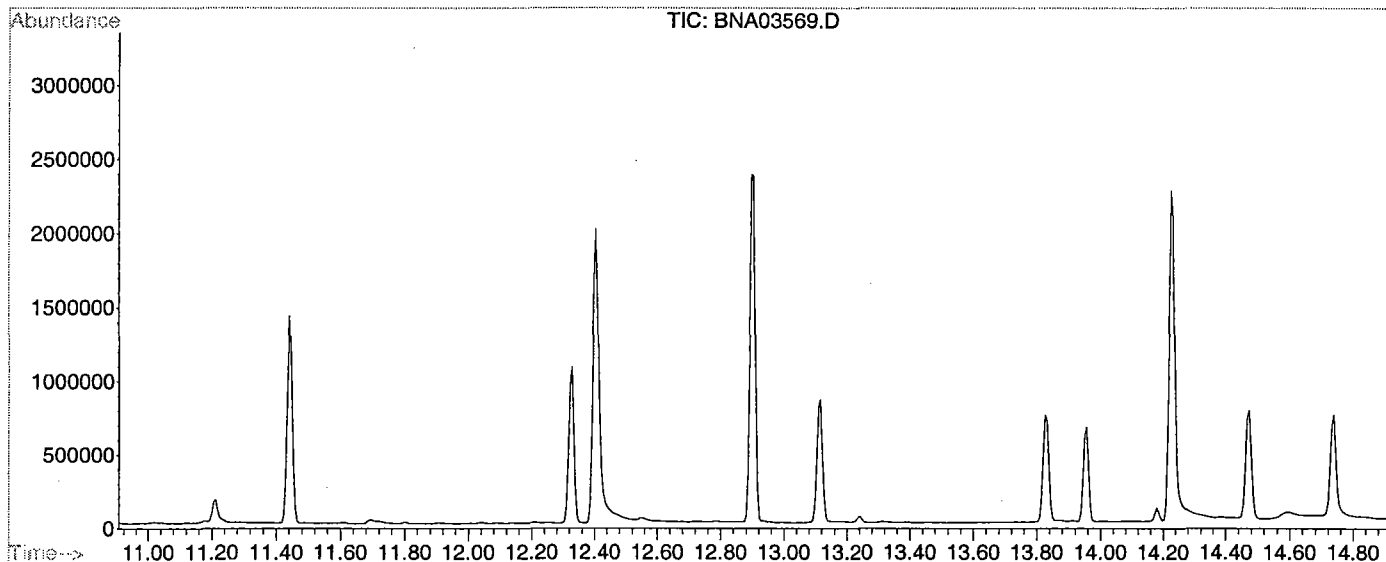
2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50 PPM CAL	BNA03570.D	1/24/00	11:02
02	SSTD080	80 PPM CAL	BNA03571.D	1/24/00	12:03
03	SSTD120	120 PPM CAL	BNA03572.D	1/24/00	12:54
04	SSTD020	20 PPM CAL	BNA03573.D	1/24/00	13:42
05	SSTD010	10 PPM CAL	BNA03574.D	1/24/00	14:30

Data File : C:\HPCHEM\1\DATA\000124\BNA03569.D  
 Acq On : 24 Jan 2000 10:31 am  
 Sample : DFTPP TUNE  
 Misc : 50 NG/2UL  
 MS Integration Params: RTEINT.P  
 Method : C:\HPCHEM\1\METHODS\M262536.M (RTE Integrator)  
 Title : BNA Calibration

Vial: 99  
 Operator: Bhaskar  
 Inst : GC BNA 2  
 Multiplr: 1.00



Spectrum Information: Scan 479

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	56.1	140864	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.1	123200	PASS
70	69	0.00	2	0.6	773	PASS
127	198	40	60	51.8	129976	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	250944	PASS
199	198	5	9	6.5	16328	PASS
275	198	10	30	22.9	57400	PASS
365	198	1	100	2.7	6900	PASS
441	443	1	99	77.3	32848	PASS
442	198	40	100	90.1	226112	PASS
443	442	17	23	18.8	42496	PASS

# LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

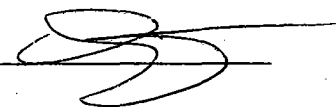
The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements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

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

- 1. Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted
- 2. Table of Contents submitted
- 3. Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted
- 4. Document paginated and legible
- 5. Chain of Custody submitted
- 6. Samples submitted to lab within 48 hours of sample collection
- 7. Methodology Summary submitted
- 8. Laboratory Chronicle and Holding Time Check submitted
- 9. Results submitted on a dry weight basis  NA
- 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 5/16/02



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.

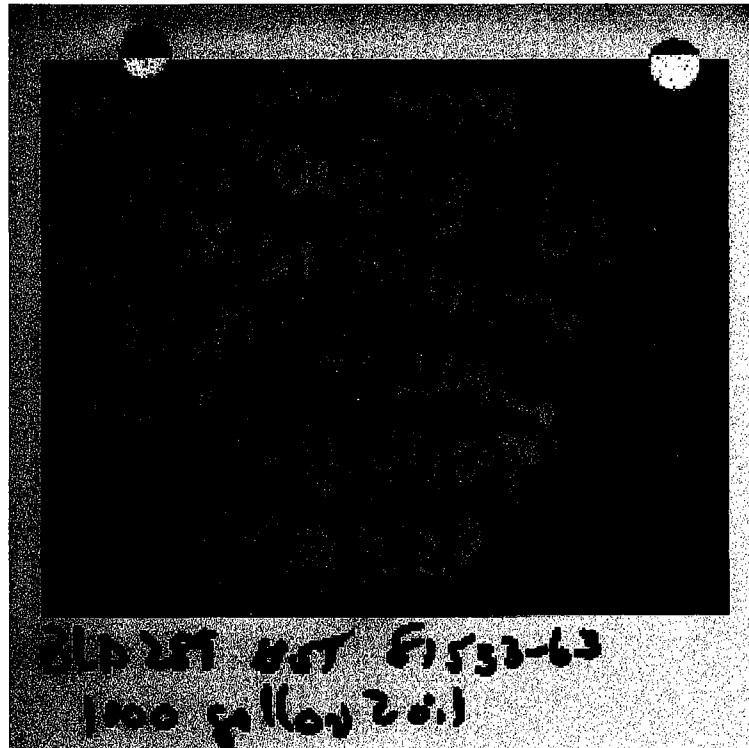


Daniel K. Wright  
Laboratory Manager

000094

**APPENDIX G**  
**PHOTOGRAPHS**





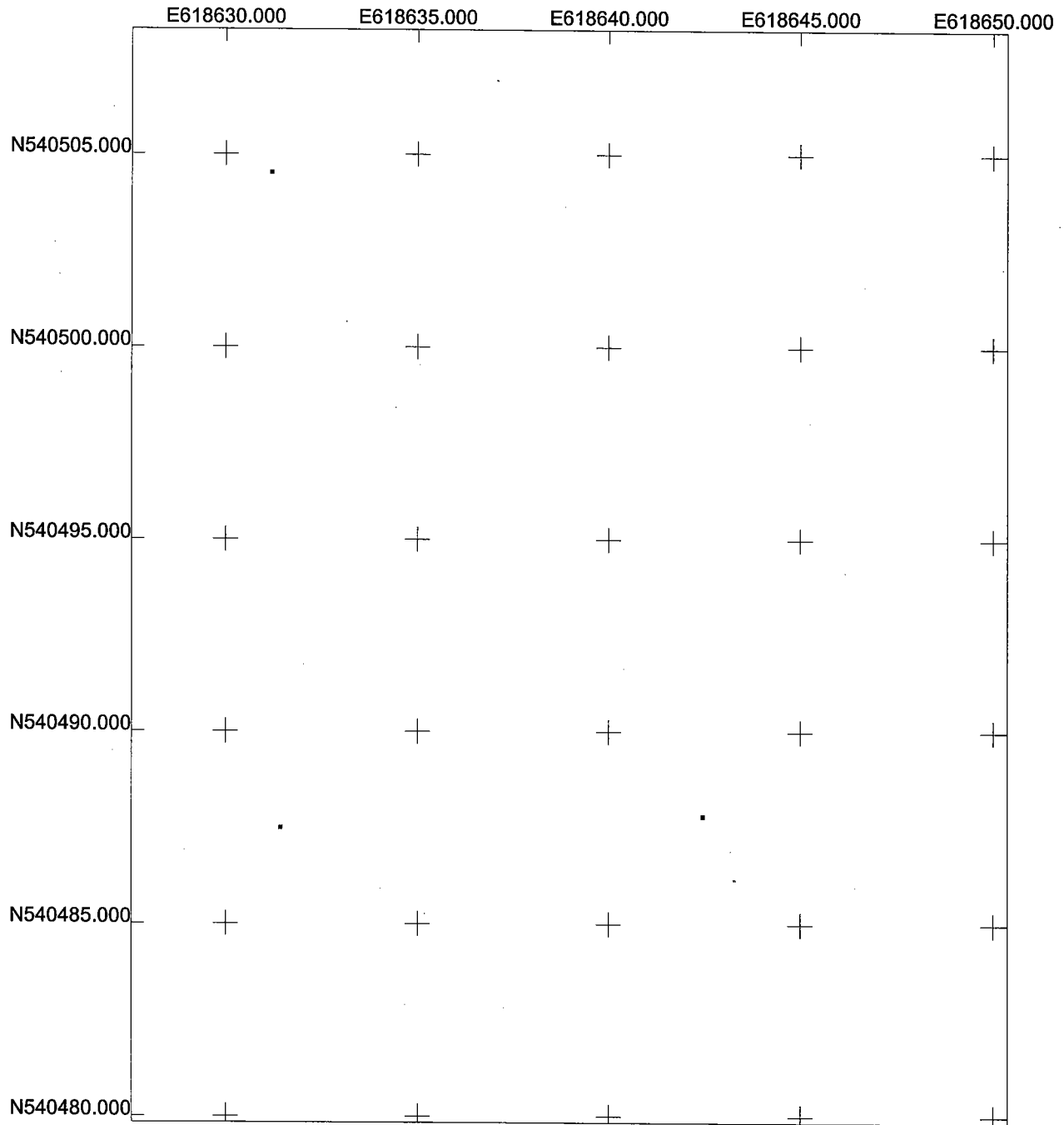
**SEPTEMBER 2 , 1994**  
**PHOTOGRAPHIC LOG**

**UST NO. 81533-63**

**Building 289**  
**Main Post-West**  
**Fort Monmouth**

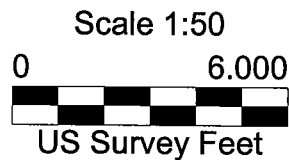
**VERSAR**  
**Engineers, Managers, Scientists & Planners**  
**Bristol, PA**

**APPENDIX H**  
**ELECTRONIC DATA DELIVERABLES**



# Bldg. 289 UST Ground Water Sample GPS Map

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



r051315d.cor  
5/17/2000  
Pathfinder Office  
 **Trimble**

**BLDG. 289 UST GROUND WATER SAMPLE GPS POSITION & COORDINATES**

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

( IN US SURVEY FEET )

**SAMPLE POINT**

<b><u>POSITION / DESC.</u></b>	<b><u>Y COORD. ( NORTHING )</u></b>	<b><u>X COORD. ( EASTING )</u></b>
289 GW	540487.831	618642.448

( GW denotes Ground Water )

**REFERENCE POINTS**

<b><u>POSITION / DESC.</u></b>	<b><u>Y COORD. ( NORTHING )</u></b>	<b><u>X COORD. ( EASTING )</u></b>
GAS METER	540487.518	618631.412
BLDG. 289 CORNER	540504.533	618631.174