

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

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

***Building 491  
Main Post-East Area***

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**NJDEP UST Registration No. 90010-71  
Dicar No. 94-07-27-1804-20**

**May 2001**

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

**BUILDING 491**

**MAIN POST-EAST AREA  
NJDEP UST REGISTRATION NO. 90010-71  
DICAR NO. 94-07-27-1804-20**

**MAY 2001**

**PREPARED FOR:**

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

**PREPARED BY:**

***Versar* INC.  
2558 PEARL BUCK ROAD  
SUITE 1  
BRISTOL, PA 19007**

**PROJECT NO. 4936-127**

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## EXECUTIVE SUMMARY

### UST Closure

On July 27, 1994, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) underground storage tank closure procedures at the Main Post-East area of the U S Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No 90010-71 (Fort Monmouth ID No 491), was located southwest of Building 491. UST No 90010-71 was a 275-gallon diesel UST.

### Site Assessment

The site assessment was performed by U S Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N J A.C. 7 26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7.26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. Numerous holes were noted in the UST. Soils at the location of the holes were dark in color and appeared to be contaminated. Based on the inspection of the UST, Directorate of Public Works (DPW) concluded that a discharge was associated with this UST. The NJDEP hotline was notified and the case was assigned DICAR No 94-07-27-1804-20. Groundwater was encountered at 4.0 feet below ground surface and no sheen was observed.

Soil samples, which were collected after the removal of the potentially contaminated soil, contained TPHC concentrations ranging from 58.20 mg/kg to 654.23 mg/kg, except for samples 3 and DUP 3 that had a TPHC concentration of 2,012.75 mg/kg and 1,998.32 mg/kg. A VOA analysis (EPA Method 8260) was completed on both samples and all known compounds searched for in the analysis were below the NJDEP residential direct contact soil cleanup criteria.

All post excavation soil samples collected from the UST excavation at Building 491 contained TPHC concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 milligrams per kilogram (mg/kg) (N J A.C. 7 26D and revisions dated February 3, 1994). Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and certified clean fill. The excavation site was then restored to its original condition.

In response to the observation of potentially contaminated soil near the shallow water table, two (2) groundwater samples were collected at Building 491. On February 28, 2001, and March 31, 2001, Building 491 was sampled for volatile organic compounds calibrated

for xylene plus 15 tentatively identified compounds (VOCs), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOCs) All groundwater analytical results were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC)

No further action is proposed in regard to the closure and site assessment of UST No. 90010-71 at Building 491

## **1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES**

### **1.1 OVERVIEW**

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No 90010-71, was closed at Building 491 at the Main Post-East area of U S Army Fort Monmouth, Fort Monmouth, New Jersey on July 27, 1997. Refer to the site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP on September 7, 1993. The UST was a steel 275-gallon tank containing diesel.

Decommissioning activities for UST No 90010-71 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. DPW personnel who are registered and certified by the NJDEP for performing UST closure activities conducted the decommissioning activities. Closure of UST No 90010-71 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM). The NJDEP Closure Approval Letter and signed Site Assessment Summary form for UST No 90010-71 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-BUST regulations. The applicable NJDEP-BUST 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 491 is located in the Main Post-East area of the Fort Monmouth Army Base. UST No 90010-71 was located southwest of Building 491 and appurtenant copper piping ran approximately ten- (10) feet northwest from the UST to an emergency generator. 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 491. 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.



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 491 is located approximately 600 feet north of Oceanport Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 491 is anticipated to be to the south.

### **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

### **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 Freehold Cartage, Inc transported approximately 50 gallons of liquid from the UST and its associated piping to Lionetti Oil Recovery Company, Inc facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey Refer to Appendix C for the waste manifest

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP regulations After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes Numerous holes were observed during the inspection by the Sub-Surface Evaluator Soils surrounding the UST were screened visually for evidence of contamination Potentially contaminated soils were observed Soil samples, which were collected after the removal of the potentially contaminated soil, contained TPHC concentrations ranging from 58.20 mg/kg to 654.23 mg/kg, except for samples 3 and DUP 3 that had a TPHC concentration of 2,012.75 mg/kg and 1,998.32

mg/kg. A VOA analysis (EPA Method 8260) was completed on both samples and all known compounds searched for in the analysis were below the NJDEP residential direct contact soil cleanup criteria. Groundwater was encountered at 4.0 feet below ground surface and no sheen was observed. See Figure 3 for a cross-sectional view of the excavated area.

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

The steel tank was transported in compliance with all applicable regulations and laws to Mazza & Sons, Inc., Recycling Division. Please refer to Appendix D for the UST Disposal Certificate and Appendix G for photographs of the tank.

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

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

## **1.6 MANAGEMENT OF EXCAVATED SOILS**

All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Groundwater was encountered at 4.0 feet below ground surface and no sheen was observed.

## **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-BUST document *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure The Fort Monmouth DPW Environmental Office maintains all records of the Site Investigation activities

The following Parties participated in Closure and Site Investigation Activities:

- Subsurface Evaluator: Dinker Desai  
Employer: U S. Army, Fort Monmouth  
Phone Number: (732) 532-6224  
NJDEP Certification No : 10173
- Analytical Laboratory U S.Army Fort Monmouth Environmental Laboratory  
Contact Person: Daniel K Wright  
Phone Number: (732) 532-4359  
NJDEP Company Certification No 13461
- Hazardous Waste Hauler: Freehold Cartage  
Contact Person: Paulo Medeiros  
Phone Number: (732) 462-1001

### **2.2 FIELD SCREENING/MONITORING**

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using visual observations to identify potentially contaminated material. Soil excavated from around the tank exhibited evidence of potential contamination. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 4.0 feet below ground surface and no sheen was observed.

### **2.3 SOIL SAMPLING**

On August 1, 1994, following the removal of the UST and associated piping, post-excavation soil samples A, B, C, D, E, and F (DUP E) were collected from a total of five (5) locations of the UST excavation. Sample A was collected along the excavation floor at a depth of 6.0 feet bgs. Sidewall samples B, C, D, E, and F (DUP E) were collected at a

depth of 5.5 feet bgs. All samples were analyzed for TPHC and total solids.

On February 9, 2001, three (3) geoprobe soil samples were collected along the former piping run to verify the effectiveness of the soil excavation activities. Samples 1, 2, 3, and DUP 3 were collected at a depth of 2.0 feet bgs. All samples were analyzed for TPHC and total solids. Based on preliminary TPHC results, a VOA analysis (EPA Method 8260) was completed on samples 3 and DUP 3.

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 February 28, 2001, and March 31, 2001, Building 491 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOCs), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOCs). 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 August 1, 1994, and February 9, 2001 from a total of eight (8) 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 VOA analysis for samples 3 and DUP 3 were compared to the NJDEP residential direct contact soil cleanup criteria and are included as Table 3. The analytical data package is provided in Appendix E.

All post-excavation soil samples that were collected after the removal of the potentially contaminated soil contained TPHC concentrations ranging from 58.20 mg/kg to 654.23 mg/kg, except for samples 3 and DUP 3 that had a TPHC concentration of 2,012.75 mg/kg and 1,998.32 mg/kg. A VOA analysis (EPA Method 8260) was completed on both samples and all known compounds searched for in the analysis were below the NJDEP residential direct contact soil cleanup criteria.

#### **3.2 GROUNDWATER SAMPLING RESULTS**

No compounds were detected in the sample collected from Building 491 on February 28, 2001.

The sample collected from Building 491 on March 31, 2001, contained acetone at a concentration of 5.27 ug/l and 2-butanone at a concentration of 2.88 ug/l. No other compounds were detected.

A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria is provided in Table 4 and the groundwater sampling locations are shown on Figure 5. The analytical data package is provided in Appendix F. The full data package, including quality control is on file at U.S. Army Fort Monmouth located in Fort Monmouth, New Jersey.

Groundwater samples collected on February 28, 2001, and March 31, 2001, were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

### **3.3 CONCLUSIONS AND RECOMMENDATIONS**

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 491 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 491 on February 28, 2001, and March 31, 2001, groundwater quality at Building 491 was either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC)

No further action is proposed in regard to the closure and site assessment of UST No 90010-71 at Building 491

## TABLES



TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
BUILDING 491, MAIN POST-EAST AREA  
FORT MONMOUTH, NEW JERSEY

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| Sample ID | Date of Collection | Date Analysis Started | Matrix | Sample Type     | Analytical Parameters* | NJDEP Method |
|-----------|--------------------|-----------------------|--------|-----------------|------------------------|--------------|
| A         | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |
| B         | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |
| C         | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |
| D         | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |
| E         | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |
| F (DUP E) | 8/1/94             | 8/8/94                | Soil   | Post-Excavation | TPHC                   | 418 1        |

Note

\* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
BUILDING 491, MAIN POST-EAST AREA  
FORT MONMOUTH, NEW JERSEY

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| Sample ID | Date of Collection | Date Analysis Started | Matrix | Sample Type     | Analytical Parameters* | Sample Method |
|-----------|--------------------|-----------------------|--------|-----------------|------------------------|---------------|
| 1         | 2/9/01             | 2/12/01               | Soil   | Post-Excavation | TPHC                   | Geoprobe      |
| 2         | 2/9/01             | 2/12/01               | Soil   | Post-Excavation | TPHC                   | Geoprobe      |
| 3         | 2/9/01             | 2/12/01               | Soil   | Post-Excavation | TPHC, VOCs             | Geoprobe      |
| DUP 3     | 2/9/01             | 2/12/01               | Soil   | Post-Excavation | TPHC, VOCs             | Geoprobe      |

Note

\* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES  
BUILDING 491, MAIN POST-EAST AREA  
FORT MONMOUTH, NEW JERSEY

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| Sample ID | Date of Collection | Date Analysis Started | Matrix  | Sample Type | Analytical Parameters* | Sampling Method** |
|-----------|--------------------|-----------------------|---------|-------------|------------------------|-------------------|
| 1093      | 2/28/01            | 2/28/01               | Aqueous | Groundwater | VOCs, SVOCs            | PPNDP             |
| 16025 01  | 3/31/01            | 4/1/01                | Aqueous | Groundwater | VOCs, SVOCs            | PPNDP             |

## Note

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

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS  
 BUILDING 491, MAIN POST-EAST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 1 of 2

| Sample ID/<br>Depth | Sample<br>Laboratory ID | Sample<br>Date | Analysis<br>Date | Analytical<br>Parameters | Method<br>Detection<br>Limit<br>(mg/kg) | Compound<br>of<br>Concern | Results<br>(mg/kg) * | NJDEP<br>Soil Cleanup<br>Criteria **<br>(mg/kg) | Exceeds<br>Cleanup<br>Criteria |
|---------------------|-------------------------|----------------|------------------|--------------------------|-----------------------------------------|---------------------------|----------------------|-------------------------------------------------|--------------------------------|
| A/6 0' =            | 1595 1                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 87 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 603 00               | 10,000                                          | No                             |
| B/5 5' =            | 1595 2                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 91 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 331 00               | 10,000                                          | No                             |
| C/5 5' =            | 1595 3                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 87 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 58 20                | 10,000                                          | No                             |
| D/5 5' =            | 1595 4                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 88 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 77 80                | 10,000                                          | No                             |
| C/5 5' =            | 1595 5                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 87 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 120 00               | 10,000                                          | No                             |
| D/5 5' =            | 1595 6                  | 8/1/04         | 8/8/94           | Total Solid              | --                                      | --                        | 88 00 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 6 6                                     | yes                       | 129 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  
 -- Not Applicable

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS  
 BUILDING 491, MAIN POST-EAST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 2 of 2

| Sample ID/<br>Depth | Sample<br>Laboratory ID | Sample<br>Date | Analysis<br>Date | Analytical<br>Parameters | Method<br>Detection<br>Limit<br>(mg/kg) | Compound<br>of<br>Concern | Results<br>(mg/kg) * | NJDEP<br>Soil Cleanup<br>Criteria **<br>(mg/kg) | Exceeds<br>Cleanup<br>Criteria |
|---------------------|-------------------------|----------------|------------------|--------------------------|-----------------------------------------|---------------------------|----------------------|-------------------------------------------------|--------------------------------|
| 1/ 2 0' =           | 717                     | 9/2/01         | 9/12/01          | Total Solid              | --                                      | --                        | 69.95 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 220                                     | yes                       | 287.69               | 10,000                                          | No                             |
| 2/ 2 0' =           | 718                     | 9/2/01         | 9/12/01          | Total Solid              | --                                      | --                        | 80.04 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 193                                     | yes                       | 654.23               | 10,000                                          | No                             |
| 3/ 2 0' =           | 719                     | 9/2/01         | 9/12/01          | Total Solid              | --                                      | --                        | 82.05 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 189                                     | yes                       | 2,012.75             | 10,000                                          | No                             |
| DUP 3/ 2 0' =       | 720                     | 9/2/01         | 9/12/01          | Total Solid              | --                                      | --                        | 80.87 %              | --                                              | --                             |
|                     |                         |                |                  | TPHC                     | 192                                     | yes                       | 1,998.32             | 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

## VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) SOIL  
 Date Sampled 2/9/01 Location 491 Lab Sample ID 718 (Sample 3)

CONCENTRATION UNITS  
(ug/L or ug/Kg)

| CAS NO   | PARAMETER                | MDL  | QUALIFIER | RESIDENTIAL | NON-RESIDENTIAL |
|----------|--------------------------|------|-----------|-------------|-----------------|
| 107028   | Acrolein                 | 860  | U         | NA          | NA              |
| 107131   | Acrylonitrile            | 860  | U         | 1000        | 5000            |
| 75650    | tert-Butyl alcohol       | 1600 | U         | NA          | NA              |
| 1634044  | Methyl-tert Butyl ether  | 370  | U         | NA          | NA              |
| 108203   | Di-isopropyl ether       | 240  | U         | NA          | NA              |
|          | Dichlorodifluoromethane  | 490  | U         | NA          | NA              |
| 74-87-3  | Chloromethane            | 120  | U         | 520000      | 1000000(d)      |
| 75-01-4  | Vinyl Chloride           | 370  | U         | 2000        | 7000            |
| 74-83-9  | Bromomethane             | 240  | U         | 79000       | 1000000(d)      |
| 75-00-3  | Chloroethane             | 370  | U         | NA          | NA              |
| 75-69-4  | Trichlorofluoromethane   | 240  | U         | NA          | NA              |
| 75-35-4  | 1,1-Dichloroethane       | 120  | U         | 8000        | 150000          |
| 67-64-1  | Acetone                  | 240  | U         | 1000000(d)  | 1000000(d)      |
| 75-15-0  | Carbon Disulfide         | 120  | U         | NA          | NA              |
| 75-09-2  | Methylene Chloride       | 240  | U         | 49000       | 210000          |
| 156-60-5 | trans-1,2-Dichloroethene | 240  | U         | 1000000(d)  | 1000000(d)      |
| 75-35-3  | 1,1-Dichloroethane       | 120  | U         | 570000      | 1000000(d)      |
| 108-05-4 | Vinyl Acetate            | 370  | U         | NA          | NA              |
| 78-93-3  | 2-Butanone               | 2400 |           | 1000000(d)  | 1000000(d)      |
| 156-59-2 | cis-1,2-Dichloroethene   | 120  | U         | 79000       | 1000000(d)      |
| 67-66-3  | Chloroform               | 120  | U         | 19000(k)    | 28000(k)        |
| 75-35-6  | 1,1,1-Trichloroethane    | 120  | U         | NA          | NA              |
| 56-23-5  | Carbon Tetrachloride     | 240  | U         | 2000(k)     | 4000(k)         |
| 71-43-2  | Benzene                  | 120  | U         | 3000        | 13000           |
| 107-06-2 | 1,2-Dichloroethane       | 240  | U         | 6000        | 24000           |

## VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) SOIL  
 Date Sampled 2/9/01 Location 491 Lab Sample ID 719 (Sample 3)

CONCENTRATION UNITS  
(ug/L or ug/Kg)

| CAS NO     | PARAMETER                 | MDL | QUALIFIER | RESIDENTIAL | NON-RESIDENTIAL |
|------------|---------------------------|-----|-----------|-------------|-----------------|
| 79-01-6    | Trichloroethene           | 120 | U         | 23000       | 54000(k)        |
| 78-87-5    | 1,2-Dichloropropane       | 120 | U         | 10000       | 43000           |
| 75-27-4    | Bromodichloromethane      | 120 | U         | 11000(g)    | 46000(g)        |
| 110-75-8   | 2-Chloroethyl vinyl ether | 240 | U         | NA          | NA              |
| 10061-01-5 | cis-1,3-Dichloropropene   | 120 | U         | NA          | NA              |
| 108-10-1   | 4-Methyl-2-Pentanone      | 240 | U         | 1000000(d)  | 1000000(d)      |
| 108-88-3   | Toluene                   | 120 | U         | 1000000(d)  | 1000000(d)      |
| 10061-02-6 | trans-1,3-Dichloropropene | 240 | U         | NA          | NA              |
| 79-00-5    | 1,1,2-Trichloroethane     | 240 | U         | 22000       | 42000           |
| 127-18-4   | Tetrachloroethene         | 120 | U         | 4000(k)     | 6000(k)         |
| 591-78-6   | 2-Hexanone                | 240 | U         | NA          | NA              |
| 126-48-1   | Dibromochloromethane      | 240 | U         | NA          | NA              |
| 108-90-7   | Chlorobenzene             | 120 | U         | 37000       | 68000           |
| 100-41-4   | Ethylbenzene              | 240 | U         | 1000000(d)  | 1000000(d)      |
| 1330-20-7  | m+p-Xylenes               | 370 | U         | NA          | NA              |
| 1330-20-7  | o-Xylene                  | 240 | U         | NA          | NA              |
| 100-42-5   | Styrene                   | 240 | U         | 23000       | 97000           |
| 75-25-2    | Bromoform                 | 240 | U         | 86000       | 370000          |
| 79-34-5    | 1,1,2,2-Tetrachloroethane | 240 | U         | 34000       | 70000(k)        |
| 541-73-1   | 1,3-Dichlorobenzene       | 370 | U         | 5100000     | 10000000(c)     |
| 106-46-7   | 1,4-Dichlorobenzene       | 370 | U         | 570000      | 10000000(c)     |
| 95-50-1    | 1,2-Dichlorobenzene       | 370 | U         | 5100000     | 10000000(c)     |

## VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) SOIL  
 Date Sampled 2/9/01 Location 491 Lab Sample ID 720(Sample DUP 3)

CONCENTRATION UNITS  
(ug/L or ug/Kg)

| CAS NO   | PARAMETER                | MDL  | QUALIFIER | RESIDENTIAL | NON-RESIDENTIAL |
|----------|--------------------------|------|-----------|-------------|-----------------|
| 107028   | Acrolein                 | 840  | U         | NA          | NA              |
| 107131   | Acrylonitrile            | 840  | U         | 1000        | 5000            |
| 75650    | tert-Butyl alcohol       | 1600 | U         | NA          | NA              |
| 1634044  | Methyl-tert-Butyl ether  | 360  | U         | NA          | NA              |
| 108203   | Di-isopropyl ether       | 240  | U         | NA          | NA              |
|          | Dichlorodifluoromethane  | 480  | U         | NA          | NA              |
| 74-87-3  | Chloromethane            | 120  | U         | 520000      | 1000000(d)      |
| 75-01-4  | Vinyl Chloride           | 360  | U         | 2000        | 7000            |
| 74-83-9  | Bromomethane             | 240  | U         | 79000       | 1000000(d)      |
| 75-00-3  | Chloroethane             | 360  | U         | NA          | NA              |
| 75-69-4  | Trichlorofluoromethane   | 240  | U         | NA          | NA              |
| 75-35-4  | 1,1-Dichloroethene       | 120  | U         | 8000        | 150000          |
| 67-64-1  | Acetone                  | 240  | U         | 1000000(d)  | 1000000(d)      |
| 75-15-0  | Carbon Disulfide         | 120  | U         | NA          | NA              |
| 75-09-2  | Methylene Chloride       | 340  | U         | 49000       | 210000          |
| 156-60-5 | trans-1,2-Dichloroethene | 240  | U         | 1000000(d)  | 1000000(d)      |
| 75-35-3  | 1,1-Dichloroethane       | 120  | U         | 570000      | 1000000(d)      |
| 108-05-4 | Vinyl Acetate            | 360  | U         | NA          | NA              |
| 78-93-3  | 2-Butanone               | 2600 |           | 1000000(d)  | 1000000(d)      |
| 156-59-2 | cis-1,2-Dichloroethene   | 120  | U         | 79000       | 1000000(d)      |
| 67-66-3  | Chloroform               | 120  | U         | 19000(k)    | 28000(k)        |
| 75-55-6  | 1,1,1-Trichloroethane    | 120  | U         | NA          | NA              |
| 56-23-5  | Carbon Tetrachloride     | 240  | U         | 2000(k)     | 4000(k)         |
| 71-43-2  | Benzene                  | 120  | U         | 3000        | 13000           |
| 107-06-2 | 1,2-Dichloroethane       | 240  | U         | 6000        | 24000           |



## VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) SOIL  
 Date Sampled 2/9/01 Location 491 Lab Sample ID 720(Sample DUP 3)

CONCENTRATION UNITS  
(ug/L or ug/Kg)

| CAS NO     | PARAMETER                 | MDL | QUALIFIER | RESIDENTIAL | NON-RESIDENTIAL |
|------------|---------------------------|-----|-----------|-------------|-----------------|
| 79-01-6    | Trichloroethene           | 120 | U         | 23000       | 54000(k)        |
| 78-87-5    | 1,2-Dichloropropane       | 120 | U         | 10000       | 43000           |
| 75-27-4    | Bromodichloromethane      | 120 | U         | 11000(g)    | 46000(g)        |
| 110-75-8   | 2-Chloroethyl vinyl ether | 240 | U         | NA          | NA              |
| 10061-01-5 | cis-1,3-Dichloropropene   | 120 | U         | NA          | NA              |
| 108-10-1   | 4-Methyl-2-Pentanone      | 240 | U         | 1000000(d)  | 1000000(d)      |
| 108-88-3   | Toluene                   | 120 | U         | 1000000(d)  | 1000000(d)      |
| 10061-02-6 | trans-1,3-Dichloropropene | 240 | U         | NA          | NA              |
| 79-00-5    | 1,1,2-Trichloroethane     | 240 | U         | 22000       | 42000           |
| 127-18-4   | Tetrachloroethene         | 120 | U         | 4000(k)     | 6000(k)         |
| 591-78-6   | 2-Hexanone                | 240 | U         | NA          | NA              |
| 126-48-1   | Dibromochloromethane      | 240 | U         | NA          | NA              |
| 108-90-7   | Chlorobenzene             | 120 | U         | 37000       | 68000           |
| 100-41-4   | Ethylbenzene              | 240 | U         | 1000000(d)  | 1000000(d)      |
| 1330-20-7  | m+p-Xylenes               | 360 | U         | NA          | NA              |
| 1330-20-7  | o-Xylene                  | 240 | U         | NA          | NA              |
| 100-42-5   | Styrene                   | 240 | U         | 23000       | 97000           |
| 75-25-2    | Bromoform                 | 240 | U         | 86000       | 370000          |
| 79-34-5    | 1,1,2,2-Tetrachloroethane | 240 | U         | 34000       | 70000(k)        |
| 541-73-1   | 1,3-Dichlorobenzene       | 360 | U         | 510000      | 1000000(c)      |
| 106-46-7   | 1,4-Dichlorobenzene       | 360 | U         | 570000      | 1000000(c)      |
| 95-50-1    | 1,2-Dichlorobenzene       | 360 | U         | 510000      | 1000000(c)      |

## **SOIL CLEANUP CRITERIA (MG/KG)**

**(LAST REVISED-7/11/96)**

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

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

Table 4  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 2/28/01 Location 491 Lab Sample ID 1093(Bldg 491)

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

Table 4  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 2/28/01 Location 491 Lab Sample ID 1093(Bldg 491)

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

Table 4  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 2/28/01 Location 491 Lab Sample ID 1093(Bldg 491)

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

Table 4  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled. 2/28/01 Location 491 Lab Sample ID 1093(Bldg 491)

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

Table 4  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 3/31/01 Location 491 Lab Sample ID 16025 01(Bldg 491)

| CAS NO     | COMPOUND NAME             | MDL<br>(ug/L) | RESULTS      | QUALIFIER | REGULATORY<br>LEVEL(ug/L) | EXCEEDS<br>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          | 5.27 ug/L    | --        | 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          | 2.88 ug/L    | --        | 300                       | no                  |
| 156-59-2   | cis-1,2-Dichloroethene    | 0.17          | Not Detected | --        | 10                        | no                  |
| 67-66-3    | Chloroform                | 0.30          | Not Detected | --        | 6                         | no                  |
| 75-55-6    | 1,1,1-Trichloroethane     | 0.23          | Not Detected | --        | 30                        | no                  |
| 56-23-5    | Carbon Tetrachloride      | 0.47          | Not Detected | --        | 2                         | no                  |
| 71-43-2    | Benzene                   | 0.23          | Not Detected | --        | 1                         | no                  |
| 107-06-2   | 1,2-Dichloroethane        | 0.18          | Not Detected | --        | 2                         | no                  |
| 79-01-6    | Trichloroethene           | 0.23          | Not Detected | --        | 1                         | no                  |
| 78-87-5    | 1,2-Dichloropropane       | 0.40          | Not Detected | --        | 1                         | no                  |
| 75-27-4    | Bromodichloromethane      | 0.55          | Not Detected | --        | 1                         | no                  |
| 110-75-8   | 2-Chloroethyl vinyl ether | 0.65          | Not Detected | --        | nle                       | no                  |
| 10061-01-5 | cis-1,3-Dichloropropene   | 0.69          | Not Detected | --        | nle                       | no                  |



Table 4  
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 3/31/01 Location 491 Lab Sample ID 16025 01(Bldg 491)

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

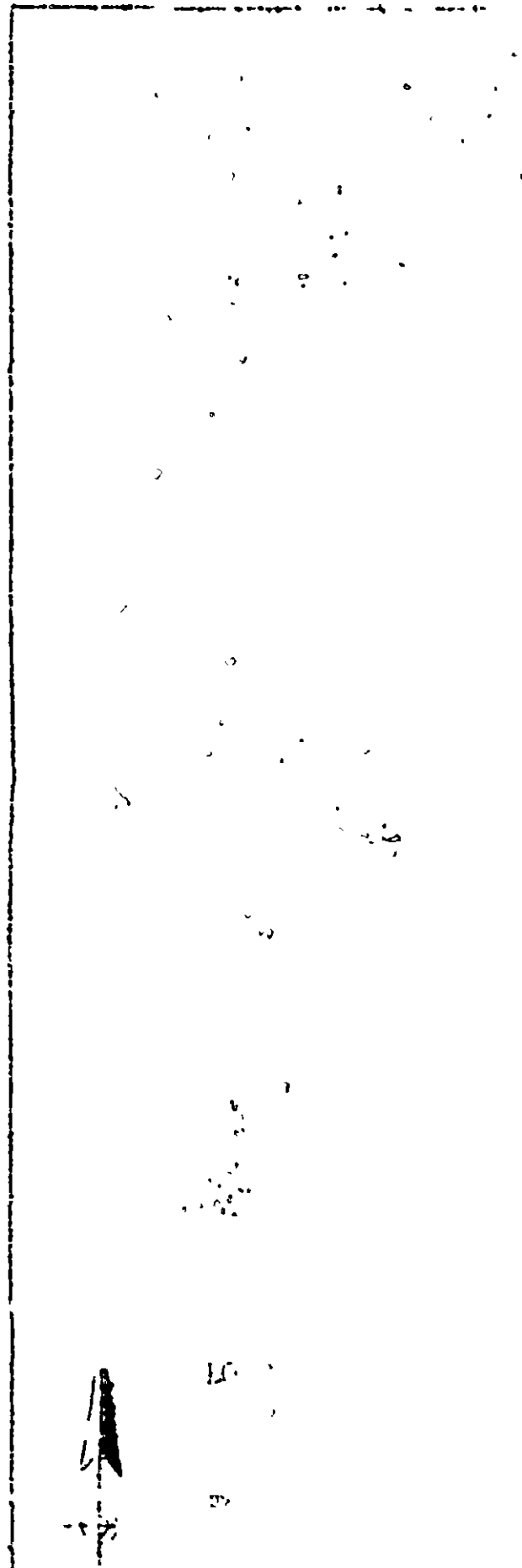
Table 4  
SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER  
 Date Sampled 3/31/01 Location 491 Lab Sample ID 16025 01(Bldg 491)

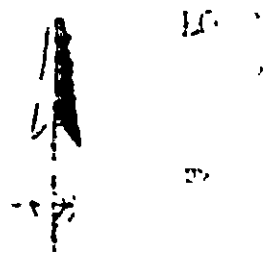
| CAS NO   | COMPOUND NAME               | MDL<br>(ug/L) | RESULTS      | QUALIFIER | REGULATORY<br>LEVEL(ug/L) | EXCEEDS<br>CRITERIA |
|----------|-----------------------------|---------------|--------------|-----------|---------------------------|---------------------|
| 110-86-1 | Pyridine       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

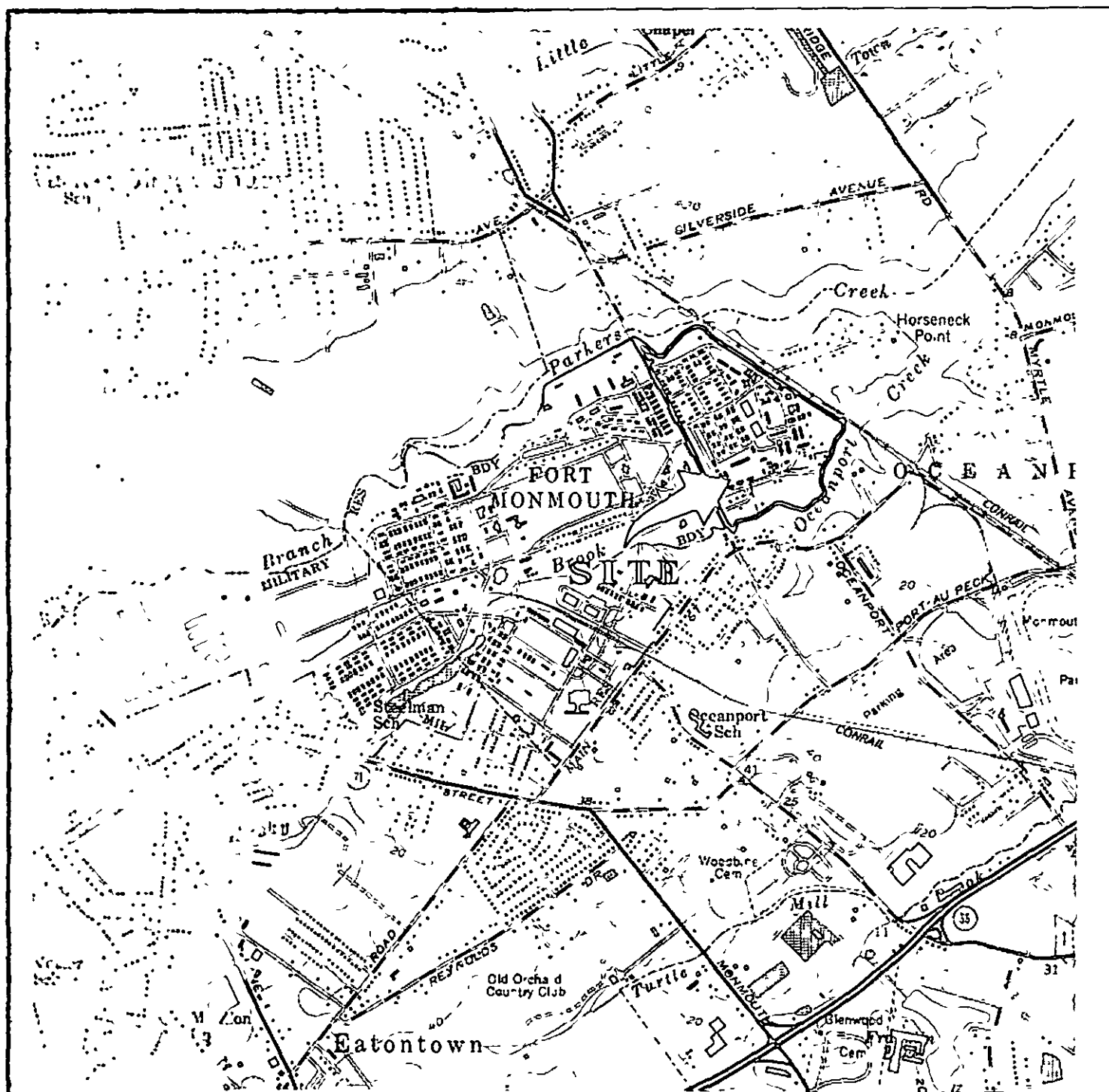
Table 4  
SEMI-VOLATILE ANALYSIS DATA SHEET

|              |                            |               |              |                     |                           |                     |
|--------------|----------------------------|---------------|--------------|---------------------|---------------------------|---------------------|
| Lab Name     | FMETL                      | NJDEP #       | 13461        | Matrix (soil/water) | WATER                     |                     |
| Date Sampled | 3/31/01                    | Location      | 491          | Lab Sample ID       | 16025 01(Bldg 491)        |                     |
| CAS NO       | COMPOUND NAME              | MDL<br>(ug/L) | RESULTS      | QUALIFIER           | REGULATORY<br>LEVEL(ug/L) | EXCEEDS<br>CRITERIA |
| 606-20-2     | 2,6-Dinitrotoluene         | 0.92          | Not Detected | --                  | nle                       | no                  |
| 99-09-2      | 3-Nitroaniline             | 1.93          | Not Detected | --                  | nle                       | no                  |
| 83-32-9      | Acenaphthene               | 0.62          | Not Detected | --                  | 400                       | no                  |
| 132-64-9     | Dibenzofuran               | 0.73          | Not Detected | --                  | nle                       | no                  |
| 121-14-2     | 2,4-Dinitrotoluene         | 1.41          | Not Detected | --                  | 10                        | no                  |
| 84-66-2      | Diethylphthalate           | 1.54          | Not Detected | --                  | 5000                      | no                  |
| 86-73-7      | Fluorene                   | 0.98          | Not Detected | --                  | 300                       | no                  |
| 7005-72-3    | 4-Chlorophenyl-phenylether | 0.86          | Not Detected | --                  | nle                       | no                  |
| 100-01-6     | 4-Nitroaniline             | 2.96          | Not Detected | --                  | nle                       | no                  |
| 86-30-6      | n-Nitrosodiphenylamine     | 1.44          | Not Detected | --                  | 20                        | no                  |
| 103-33-3     | Azobenzene                 | 1.00          | Not Detected | --                  | nle                       | no                  |
| 101-55-3     | 4-Bromophenyl-phenylether  | 1.28          | Not Detected | --                  | nle                       | no                  |
| 118-74-1     | Hexachlorobenzene          | 1.08          | Not Detected | --                  | 10                        | no                  |
| 85-01-8      | Phenanthrene               | 1.73          | Not Detected | --                  | nle                       | no                  |
| 120-12-7     | Anthracene                 | 1.85          | Not Detected | --                  | 2000                      | no                  |
| 84-74-2      | D1 n-butylphthalate        | 2.49          | Not Detected | --                  | 900                       | no                  |
| 206-44-0     | Fluoranthene               | 1.48          | Not Detected | --                  | 300                       | no                  |
| 92-87-5      | Benzidine                  | 2.15          | Not Detected | --                  | 50                        | no                  |
| 129-00-0     | Pyrene                     | 1.53          | Not Detected | --                  | 200                       | no                  |
| 85-68-7      | Burylbenzylphthalate       | 1.24          | Not Detected | --                  | 100                       | no                  |
| 56-55-3      | Benzo[a]anthracene         | 2.68          | Not Detected | --                  | 10                        | no                  |
| 91-94-1      | 3,3'-Dichlorobenzidine     | 1.60          | Not Detected | --                  | 60                        | no                  |
| 218-01-9     | Chrysene                   | 1.14          | Not Detected | --                  | 20                        | no                  |
| 117-81-7     | bis(2-Ethylhexyl)phthalate | 1.34          | Not Detected | --                  | 30                        | no                  |
| 117-84-0     | D1 n-octylphthalate        | 1.44          | Not Detected | --                  | 100                       | no                  |
| 205-99-2     | Benzo[b]fluoranthene       | 1.32          | Not Detected | --                  | 10                        | no                  |
| 207-08-9     | Benzo[k]fluoranthene       | 1.15          | Not Detected | --                  | 2                         | no                  |
| 50-32-8      | Benzo[a]pyrene             | 2.43          | Not Detected | --                  | 20                        | no                  |
| 193-39-5     | Indeno[1,2,3-cd]pyrene     | 2.24          | Not Detected | --                  | 20                        | no                  |
| 53-70-3      | Dibenz[a,h]anthracene      | 1.94          | Not Detected | --                  | 20                        | no                  |
| 191-24-2     | Benzo[g,h,i]perylene       | 2.04          | Not Detected | --                  | nle                       | no                  |



## FIGURES





**LONG BRANCH, N J**

40073-C8-TF-024

1954

PHOTOREVISED 1981

MA 6164 1 SE-SERIES V822

NEW  
JERSEY

QUADRANGLE LOCATION



## FIGURE 1

### LOCATION MAP

Building 491

Main-Post East

Fort Monmouth Army Base

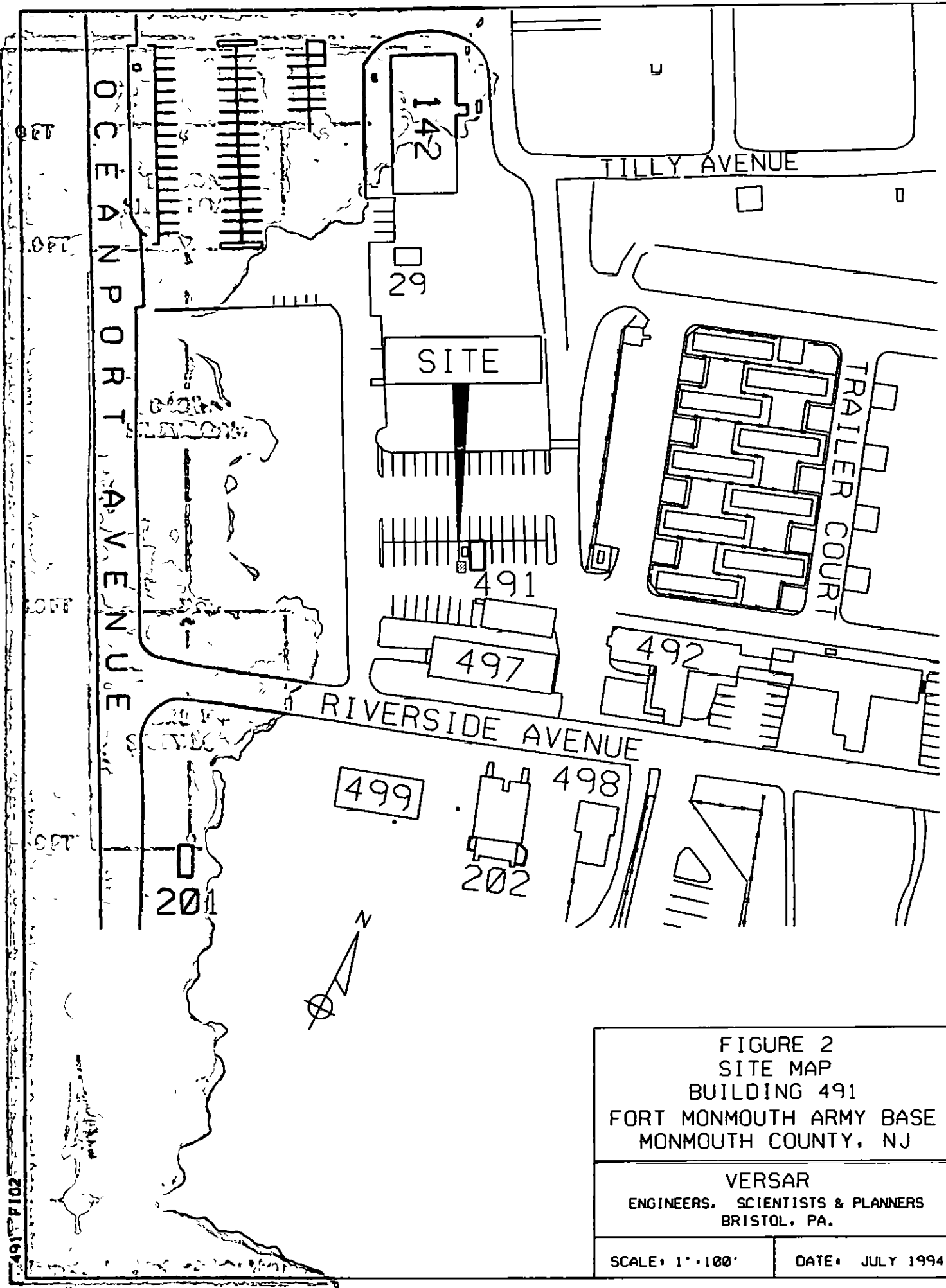
Monmouth County, NJ

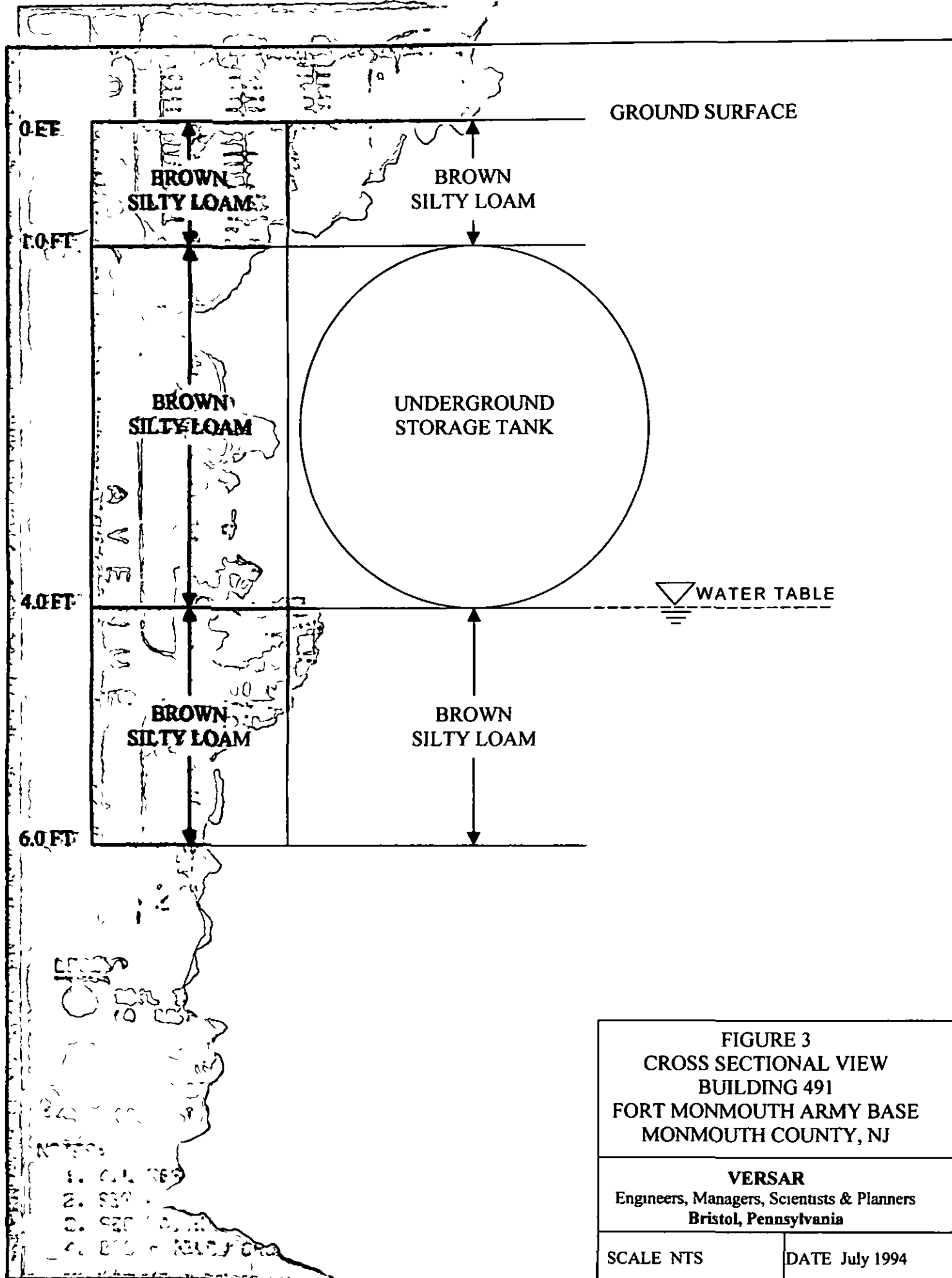
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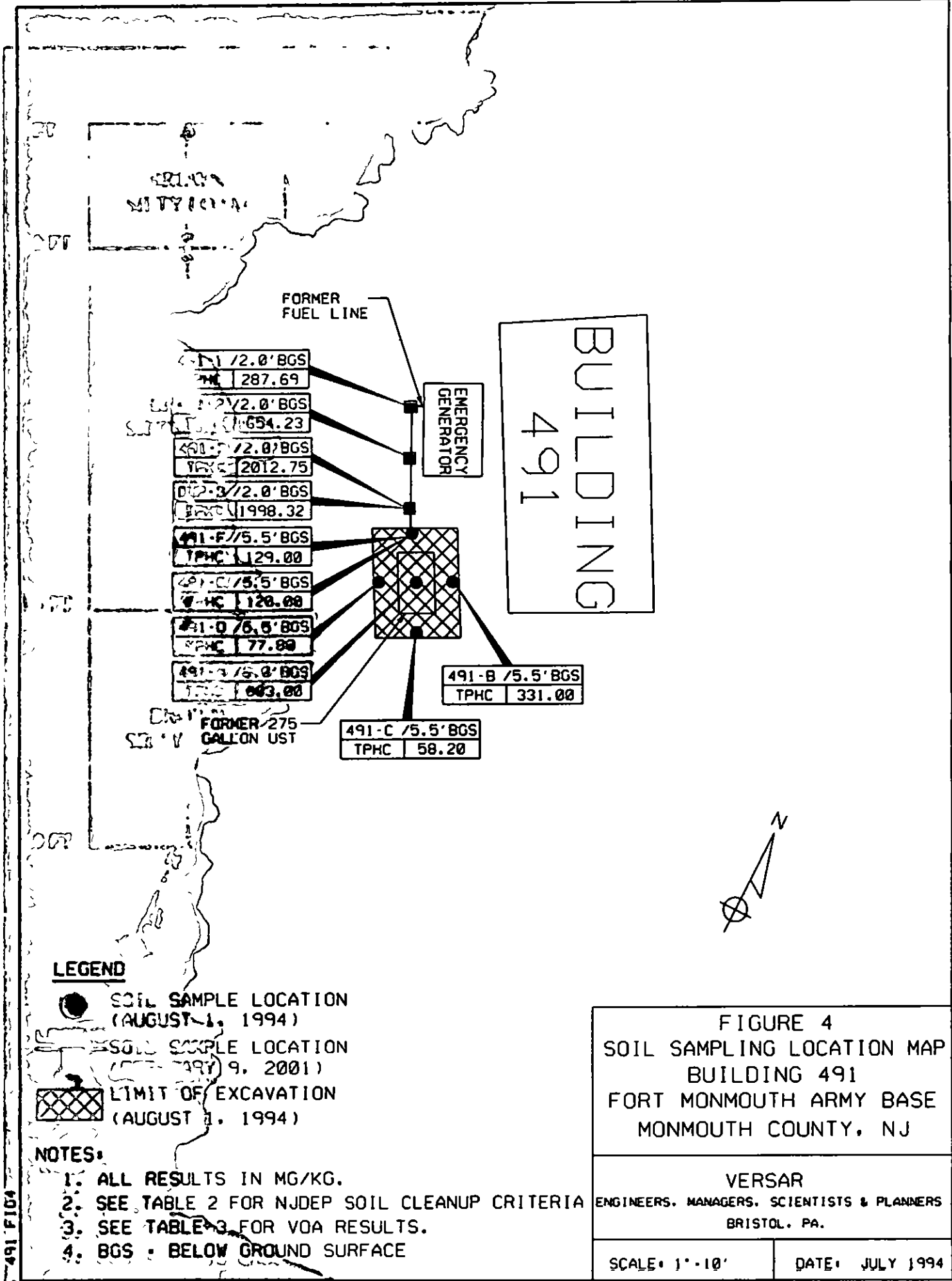
Engineers, Managers, Scientists, & Planners  
Bristol, PA

Scale 1" = 2000'

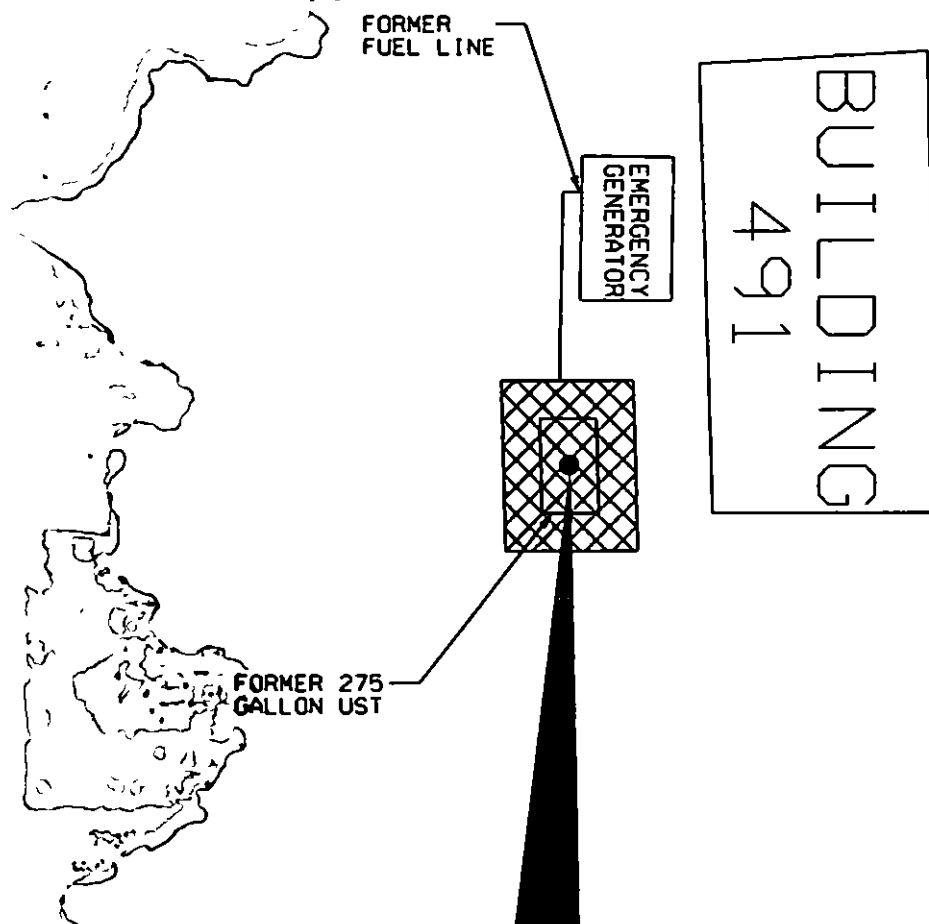
Date July 1994











| SAMPLING LOCATION:<br>SAMPLING DEPTH:<br>SAMPLING DATE: | HIGHER OF<br>NJDEP GWQS<br>AND POL | BLOG 491<br>5.0' BGS<br>2/28/01 | BLOG 491<br>5.0' BGS<br>3/31/01 |
|---------------------------------------------------------|------------------------------------|---------------------------------|---------------------------------|
| VOLATILE ORGANIC COMPOUNDS:                             |                                    |                                 |                                 |
| ACETONE:                                                | 700                                | ND                              | 5.27                            |
| 2-BUTANONE:                                             | 300                                | ND                              | 2.88                            |
| SEMI-VOLATILE ORGANIC COMPOUNDS:                        |                                    |                                 |                                 |
|                                                         |                                    | ND                              | ND                              |

#### LEGEND

- GROUNDWATER SAMPLE LOCATION  
(FEBRUARY 29, 2001 AND MARCH 31, 2001)
- ▨ LIMIT OF EXCAVATION  
(AUGUST 1, 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 491  
FORT MONMOUTH ARMY BASE  
MONMOUTH COUNTY, NJ

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

SCALE: 1" = 10'

DATE: AUGUST 1994

## Appendix A

**APPENDIX A**

**NJDEP-BUST CLOSURE APPROVAL LETTER**

# UNDERGROUND STORAGE TANK SYSTEM CLOSURE APPROVAL

## NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY

DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION  
BUREAU OF UNDERGROUND STORAGE TANKS  
CN-029, TRENTON, NJ 08625-0029

TMS #

UST #

C-93-3667

0090010

US Army  
BLDG. 491  
Ft. Monmouth, NJ

Monmouth

THE ABOVE LISTED FACILITY IS HEREBY GRANTED APPROVAL TO PERFORM  
THE FOLLOWING ACTIVITY IN ACCORDANCE WITH N.J.A.C. 7.14B-1 et seq.:

Removal of: one 275 gallon #2 diesel UST(s) and appurtenant piping.

SITE ASSESSMENT: Soil samples will be taken every five (5) feet along the center line of each tank and one (1) soil sample for every 15 feet along all associated piping. Two (2) additional samples will be taken from around the tank and biased to the areas of highest field screened readings. Samples will be analyzed for TPHC. If sample results are greater than 1,000ppm then 25% of the samples will be analyzed for VO+10.

ON-SITE MANAGER C. Appleby

908-532-1475  
TELEPHONE.

OWNER

TELEPHONE.

EFFECTIVE DATE SEP 07 1993

THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED  
ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.



KEVIN F. KRATINA, BUREAU CHIEF  
BUREAU OF UNDERGROUND STORAGE TANKS



State of New Jersey  
Department of Environmental Protection and Energy  
Division of Responsible Party Site Remediation

CN 029

Trenton NJ 08625-0029

Tel # 609-984-3156

Fax # 609-292-5604

Scott A. Weiner  
Commissioner

SEP 08 1993

Karl J. D  
D

Dear Applicant:

The Department of Environmental Protection (the Department) received an "Underground Storage Tank Closure Plan Approval Application" for your facility. This application detailed the procedures to be implemented as required by the Underground Storage Tank Systems Technical Requirements and Procedures at N.J.A.C. 7:14B-1 et seq. Based upon our review of the information submitted, a Closure Approval is hereby granted.

A Standard Reporting Form (SRF) must be submitted to the Department within seven (7) days of removal or abandonment of the tank(s). The date of removal or abandonment must be included with the SRF. The SRF will be used to delist the tank(s) from the Bureau of Underground Storage Tanks (BUST) registration files. A copy of the SRF is attached.

Within ninety (90) days of completion of the tank(s) closure, a Site Assessment Summary pursuant to N.J.A.C. 7:14B-9.5 must be submitted to BUST (copy attached). If contamination is discovered during closure, you are required to initiate corrective action as per N.J.A.C. 7:14B-8 and outlined in the Department's Scope of Work document. All discharges must be reported to the Spill Hotline at (609) 292-7172.

Once you have obtained a Closure Approval, a demolition permit issued pursuant to N.J.A.C. 5:23 et seq. and authorized by the Department of Community Affairs (DCA), Construction Code Element must be procured from your local construction code official. For further information in obtaining a demolition permit, please contact the local construction code official directly, or DCA's Code Assistance Unit at (609) 530-8793.

If you require further information or assistance, please contact the Tank Management Section of BUST at (609) 984-3156.

Attachments: Closure Approval

SRF

SAS





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

ATTN: UST Program  
(609) 984-3156

For State Use Only

Date Rec'd. \_\_\_\_\_

Auth. \_\_\_\_\_

Routing \_\_\_\_\_

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

STANDARD REPORTING FORM  
for reporting activities at an UST facility.

- ☐ General Facility Information Changes  
☐ Closure (Abandonment or Removal)  
☐ Temporary Closure  
☐ Change in Service

- ☐ Sale or Transfer  
☐ Substantial Modification  
☐ Financial Responsibility  
☐ Address Change Only

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

(More than one tank can be listed per activity)

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

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire):

US Army  
Department of Public Works  
BLDG 1617  
Fort Monmouth, NJ 07703

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

\_\_\_\_\_

3. Contact person for this activity:

Dinkar. 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 491

71

5. Registration Number (if known):

UST - 0090010

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

a. Facility name: \_\_\_\_\_

b. Facility location: \_\_\_\_\_

c. Owner's mailing address: \_\_\_\_\_

\_\_\_\_\_ NJ \_\_\_\_\_

d. Block: \_\_\_\_\_ Lot: \_\_\_\_\_

e. Contact person (facility operator): \_\_\_\_\_

f. Contact telephone number: (\_\_\_\_\_) \_\_\_\_\_

g. Other (Specify): \_\_\_\_\_

(OVER)

2-7

- 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.**

**"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."**

SFF-480  
(INCA-02-2/92)





**APPENDIX B**

**SITE ASSESSMENT SUMMARY**

## Site Remediation Program

## UST Site/Remedial Investigation Report Certification Form

**A. Facility Name** U.S. Army Fort Monmouth New JerseyFacility Street Address Directorate of Public Works Building 173Municipality Oceanport County MonmouthBlock \_\_\_\_\_ Lot(s) \_\_\_\_\_ Telephone Number 732-532-6224**B. Owner (RP)'s Name** \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Telephone Number \_\_\_\_\_

**C. (Check as appropriate)**☐ Site Investigation

Report (SIR) \$500 Fee

☐ Remedial Investigation

Report (RIR) \$1000 Fee

☒ NA ? Federal Agreement**D. (Complete all that apply)**• Assigned Case Manager Ian Curtis, Federal Case Manager• UST Registration Number 90010-71 (7 digits)• Incident Report Number 94 - 07 - 27 - 1804 - 20 (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 10173Firm U.S. Army Fort Monmouth Firm's UST Cert Number NA-U.S. ArmyFirm Address Directorate of Public Works Building 173 City Fort MonmouthState NJ Zip 07703 Telephone Number 732-532-6224

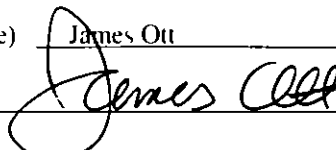
(NOTE: Certification numbers required only if work was conducted on USTs regulated per N J S A 58 10A 21 et seq.)

**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 WorksSignature Company Name U.S. Army Fort Monmouth Date 1/2/02

## Appendix C

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



State of New Jersey  
Department of Environmental Protection and Energy  
Hazardous Waste Regulation Program  
Manifest Section  
CN 028, Trenton, NJ 08625-0028

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

Form Approved. OMB No. 2050-0002. Expires 8-30-95

| UNIFORM HAZARDOUS WASTE MANIFEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1. Generator's US EPA ID No.                                                      | Manifest Document No.                          | 2. Page of                               | Information to the shaded areas is not required by Federal law. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|-----------------------------------------------------------------|
| 2. Generator's Name and Mailing Address<br>Main Post of James Shingling Bldg 250Y<br>A.H. SELMAN - D.E.M. 3 Fort Monmouth NJ<br>Generator's Phone (908) 532-6223                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1. Generator's US EPA ID No.<br>NJ0321062051710511810                             | Manifest Document No.<br>NJ0321062051710511810 | 2. Page of<br>1                          | Information to the shaded areas is not required by Federal law. |
| 3. Generator's Name and Mailing Address<br>Main Post of James Shingling Bldg 250Y<br>A.H. SELMAN - D.E.M. 3 Fort Monmouth NJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | 4. US EPA ID Number<br>NJ0321062051710511810                                      | 5. State Generator's ID<br>NJ                  | 6. Manifest Document Number<br>1603180   |                                                                 |
| 4. Generator's Phone (908) 532-6223                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 5. US EPA ID Number<br>NJ0321062051710511810                                      | 6. State Generator's ID<br>NJ                  | 7. State Transfer ID<br>NJDEP 009000-45  |                                                                 |
| 5. Transporter 1 Company Name<br>Frederick's Catena Inc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 6. US EPA ID Number<br>NJ0321062051710511810                                      | 7. State Generator's ID<br>NJ                  | 8. Transporter's Phone (908) 462-1001    |                                                                 |
| 6. Designated Facility Name and Site Address<br>Lottetli Oil Recovery Co. Inc.<br>Runyon + Chesapeake R.D.<br>all 312 p.m. NJ 08857                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 7. US EPA ID Number<br>NJ0321062051710511810                                      | 8. State Generator's ID<br>NJ                  | 9. State Transfer ID<br>NJDEP 009000-45  |                                                                 |
| 7. Transporter 2 Company Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | 8. US EPA ID Number                                                               | 9. State Generator's ID                        | 10. State Transfer ID                    |                                                                 |
| 8. Designated Facility Name and Site Address<br>Lottetli Oil Recovery Co. Inc.<br>Runyon + Chesapeake R.D.<br>all 312 p.m. NJ 08857                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 9. US EPA ID Number<br>NJ0321062051710511810                                      | 10. State Generator's ID<br>NJ                 | 11. State Transfer ID<br>NJDEP 009000-45 |                                                                 |
| 9. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 10. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 12. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 13. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 14. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 15. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)<br>Petroleum oil, NOS class 3 (Petroleum oil)<br>combustible liquid UN 1270 PG III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 12. Containers<br>No. Type                                                        | 13. Total Quantity                             | 14. Unit Wt/Vol                          | 15. Waste No.                                                   |
| 16. Additional Descriptions for Materials Listed Above<br>oil 60%<br>water 40% LT<br>oil 60%<br>water 40% LT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | 17. Handling Codes for Wastes Listed Above<br>Extraction T04<br>T04<br>Filtration |                                                |                                          |                                                                 |
| 17. Special Handling Instructions and Additional Information<br>Not EPA Regulated - NJ Hazardous<br>24 hr Emergency 908-2881<br>DECA 55404                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 18. Handling Codes for Wastes Listed Above<br>Extraction T04<br>T04<br>Filtration |                                                |                                          |                                                                 |
| 18. 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.<br>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. 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. |  | 19. Handling Codes for Wastes Listed Above<br>Extraction T04<br>T04<br>Filtration |                                                |                                          |                                                                 |
| 19. Generator's Name and Address<br>Joseph M. Fallon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | 20. Signature<br>Joseph M. Fallon 8/1/94                                          |                                                |                                          |                                                                 |
| 20. Transporter 1 Acknowledgement of Receipt of Materials<br>Printed/Typed Name<br>PAULO R. MEDEIROS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | 21. Signature<br>Paulo R. Medeiros 10/1/94                                        |                                                |                                          |                                                                 |
| 21. Transporter 2 Acknowledgement of Receipt of Materials<br>Printed/Typed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 22. Signature                                                                     |                                                |                                          |                                                                 |
| 22. Discrepancy Indication Space                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 23. Signature                                                                     |                                                |                                          |                                                                 |
| 23. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 18.<br>Printed/Typed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 24. Signature                                                                     |                                                |                                          |                                                                 |

EPA Form 3570-02 (Rev. 8/92) Previous editions are obsolete.

1 - TSD MAIL TO - TSD'S STATE

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

in case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection and Energy. (609) 213-7172

NJA 1603180



**APPENDIX D**  
**UST DISPOSAL CERTIFICATE**

## MAZZA &amp; SONS, INC.

Metal Recyclers  
Auto and Truck  
3230 Shafto Rd.  
Tinton Falls, NJ  
(908) 922-8292

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

DATE 1 Aug 91~~Rede~~

411- VST-009001008  
491- 009001071  
430- 009001045  
1426- No 45730090010-136

Farmington  
Easton town, NJ

Customer's Name

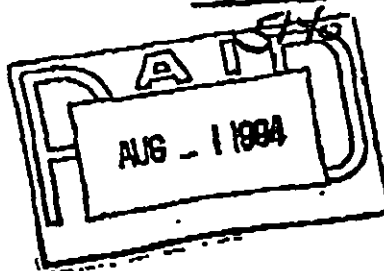
Cute, Inc.

Address \_\_\_\_\_

Make of  
Articles

43320 LB 6

38380 LB 6



Weight Price

Cast Iron

Steel

L. Iron

Copper #1

Copper #2

U. Copper

Brass

Alum Clean

Lead

Stainless

Radiators

Battery

TOTAL AMOUNT:

Weigher \_\_\_\_\_

Customer

Don Ellis





**APPENDIX E**  
**SOIL ANALYTICAL DATA PACKAGE**

# U.S. ARMY FORT MONMOUTH

P.O. #:

Chain of Custody

|                               |            |                                     |               |                                  |                                                                                                                                     |                     |  |                     |          |                                         |
|-------------------------------|------------|-------------------------------------|---------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------|--|---------------------|----------|-----------------------------------------|
| Project #:                    |            | Sampler: <i>Dinkar Desai</i>        |               | Date / Time: <i>8/1 10:02</i>    |                                                                                                                                     | Analysis Parameters |  | Start:              |          |                                         |
| Customer: <i>Dinkar Desai</i> |            | Site Name: <i>BL06 491</i>          |               |                                  |                                                                                                                                     |                     |  | Finish:             |          |                                         |
| Phone:                        |            |                                     |               |                                  |                                                                                                                                     |                     |  | Preservation Method |          |                                         |
| Lab Sample ID Number          | Date/Time  | Customer Sample Location/ID Number  | Sample Matrix | # of Bottles                     | <div style="transform: rotate(-45deg); display: inline-block;"> <i>TPHC</i><br/> <i>HL</i><br/> <i>Number</i><br/> <i>HL</i> </div> |                     |  |                     | Remarks  |                                         |
| <i>15951</i>                  | <i>8/1</i> | <i>Site A - A<sub>1</sub> DE</i>    | <i>Soil</i>   | <i>2</i>                         |                                                                                                                                     |                     |  |                     |          |                                         |
| <i>2</i>                      | <i>"</i>   | <i>Site B - B<sub>1</sub> SE</i>    | <i>H</i>      | <i>2</i>                         |                                                                                                                                     |                     |  |                     |          |                                         |
| <i>3</i>                      | <i>"</i>   | <i>Site C - C<sub>1</sub> SW</i>    | <i>H</i>      | <i>2</i>                         |                                                                                                                                     |                     |  |                     |          |                                         |
| <i>4</i>                      | <i>"</i>   | <i>Site D - D<sub>1</sub> W</i>     | <i>H</i>      | <i>2</i>                         |                                                                                                                                     |                     |  |                     | <i>3</i> |                                         |
| <i>5</i>                      | <i>"</i>   | <i>Site E - E<sub>1</sub> N</i>     | <i>H</i>      | <i>2</i>                         |                                                                                                                                     |                     |  |                     | <i>3</i> | <i>How</i>                              |
| <i>6</i>                      | <i>"</i>   | <i>Site F - F<sub>1</sub> (Dup)</i> | <i>H</i>      | <i>2</i>                         |                                                                                                                                     |                     |  |                     | <i>3</i> | <i>Acid Cell Test</i><br><i>9-00102</i> |
| <i>7</i>                      | <i>"</i>   | <i>Two field blanks</i>             |               |                                  |                                                                                                                                     |                     |  |                     |          | <i>A - Soil TPH</i>                     |
|                               | <i>"</i>   |                                     |               |                                  |                                                                                                                                     |                     |  |                     |          | <i>A<sub>1</sub> to E<sub>1</sub> -</i> |
|                               | <i>"</i>   |                                     |               |                                  |                                                                                                                                     |                     |  |                     |          | <i>VO - Supers</i>                      |
| Relinquished By (signature)   |            | Date / Time                         |               | Received By (signature)          |                                                                                                                                     | Shipped By:         |  |                     |          |                                         |
| Relinquished By (signature)   |            | Date / Time                         |               | Received for Lab by (signature): |                                                                                                                                     | Date / Time         |  |                     |          |                                         |
| <i>[Signature]</i>            |            | <i>8/1/10-25</i>                    |               | <i>[Signature]</i>               |                                                                                                                                     | <i>8-1-10 10:25</i> |  |                     |          |                                         |

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

**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 #: 1595.1-.6  
Sample Rec'd: 08/01/94  
Analysis Start: 08/08/94  
Analysis Comp: 08/08/94

### Analysis: Munsel

[illegible]

Brian K. McK

**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 #: 1595.1-.6  
Sample Rec'd: 08/01/94  
Analysis Start: 08/08/94  
Analysis Comp: 08/08/94

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

NJDEPE UST Reg. #:  
Closure #:  
DICAR #:  
Location #: Bldg. 491

| Lab ID. | Description            | %Solid | Result<br>(mg/Kg) | MDL |
|---------|------------------------|--------|-------------------|-----|
| 1595.1  | Site A, A-1 hNu= 1 *   | 87     | 603.              | 6.6 |
| 1595.2  | Site B, B1, SE hNu= 1  | 91     | 331.              | 6.6 |
| 1595.3  | Site C, C1, SW hNu= 2  | 87     | 58.2              | 6.6 |
| 1595.4  | Site D, D1, W hNu= 3   | 88     | 77.8              | 6.6 |
| 1595.5  | Site E, E1, N hNu= 3   | 87     | 120.              | 6.6 |
| 1595.6  | Site F, F1, dup hNu= 3 | 88     | 129.              | 6.6 |
|         |                        |        |                   |     |
|         |                        |        |                   |     |
|         |                        |        |                   |     |
|         |                        |        |                   |     |
|         |                        |        |                   |     |
|         |                        |        |                   |     |
| M. Bl.  | Method Blank           | 100    | ND                | 3.3 |

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

\* = Silica Gel Added, NA = Not Applicable

1595.1 dup= 101% 1595.1sp= 100% 1595.1spd= 104% RPD= 3.7%

  
-----  
Brian K. McKee  
Laboratory Director

PHC Conformance/Non-conformance Summary Report

|                                                                                                                                                           | No                                  | Yes                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank                                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| <hr/>                                                                                                                                                     |                                     |                                     |
| 2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range) | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <hr/>                                                                                                                                                     |                                     |                                     |
| 3. IR Spectra submitted for standards, blanks, & samples                                                                                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.                                                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Extraction holding time met. (If not met, list number of days exceeded for each sample)                                                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <hr/>                                                                                                                                                     |                                     |                                     |
| 6. Analysis holding time met. (If not met, list number of days exceeded for each sample)                                                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <hr/>                                                                                                                                                     |                                     |                                     |
| Comments: <hr/>                                                                                                                                           |                                     |                                     |
| <hr/>                                                                                                                                                     |                                     |                                     |

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 #1595

  
Brian K. McKee  
Laboratory Manager

# FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT  
Fort Monmouth Environmental Laboratory  
ENVIRONMENTAL DIVISION  
Fort Monmouth, New Jersey  
PROJEC: IJO# 01-0001

## Bldg. 491

| Field Sample Location | Laboratory<br>Sample ID# | Matrix   | Date and Time<br>Of Collection | Date Received |
|-----------------------|--------------------------|----------|--------------------------------|---------------|
| Trip Blank            | 801                      | Methanol | 09-Feb-01                      | 02/09/01      |
| 491-1 2'              | 717                      | Soil     | 09-Feb-01 09 55                | 02/09/01      |
| 491-2 2'              | 718                      | Soil     | 09-Feb-01 10 10                | 02/09/01      |
| 491-3 2'              | 719                      | Soil     | 09-Feb-01 10 20                | 02/09/01      |
| Field Dup             | 720                      | Soil     | 09-Feb-01                      | 02/09/01      |

ANALYSIS  
FORT MONMOUTH ENVIRONMENTAL LAB  
VOA+15, TPHC, %SOLIDS

ENCLOSURE  
CHAIN OF CUSTODY  
RESULTS

 2-16-01  
Daniel Wright  
Laboratory Director

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# **CHAIN OF CUSTODY**



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

**Tel (732)532-4359 Fax (732)532-6263 EMail [wrightd@mail.monmouth.army.mil](mailto:wrightd@mail.monmouth.army.mil)**

**NJDEP Certification #13461**

## Chain of Custody Record

[illegible]

## Change of Chain of Custody

Lab Project ID#: 717-720

Site/Project Name: Bida 491

Date Received: 2/9/01

Date of Change: 2/13/01

Requested by: print [Signature]

Sign: Houser

### Turnaround Time:

1. Were the correct containers and/or preservatives used for the tests indicated? Yes No
2. Was a sufficient amount of sample sent for the tests indicated? Yes No
3. Are samples Within Holding time for new analysis? Yes No
4. Was the change documented in the sample receipt log book? Yes No

Received by: PRK

**Sign:**

[illegible]**Comments:**

# **METHOD SUMMARY**

## **Method Summary**

### **NJDEP Method 8260**

#### **Gas Chromatographic Determination of Volatiles in Soil**

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

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

### **NJDEP Method OQA-QAM-025-10/97**

#### **Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil**

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

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

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

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

# **LABORATORY CHRONICLE**

000006

# Laboratory Chronicle

Lab ID 717-720/801

Site Bldg 491

|                      | Date     | Hold Time |
|----------------------|----------|-----------|
| Date Sampled         | 02/09/01 | NA        |
| Receipt/Refngeration | 02/09/01 | NA        |
| Extractions          |          |           |
| 1 TPHC               | 02/12/01 | 14 days   |
| Analyses             |          |           |
| 1 Volatile Organics  | 02/09/01 | 14 days   |
| 2 TPHC               | 02/12/01 | 40 days   |

000007

# **CONFORMANCE/ NON CONFORMANCE**



# GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

|                                                                                                                                                                                                      | Indicate<br>Yes, No, N/A |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 Chromatograms labeled/Compounds identified<br>(Field samples and method blanks)                                                                                                                    | <u>yes</u>               |
| 2 Retention times for chromatograms provided                                                                                                                                                         | <u>yes</u>               |
| 3 GC/MS Tune Specifications                                                                                                                                                                          |                          |
| a BFB Meet Criteria                                                                                                                                                                                  | <u>yes</u>               |
| b DFTPP Meet Criteria                                                                                                                                                                                | <u>NA</u>                |
| 4 GC/MS Tuning Frequency – Performed every 24 hours for 600<br>series and 12 hours for 8000 series                                                                                                   | <u>yes</u>               |
| 5 GC/MS Calibration – Initial Calibration performed before sample<br>analysis and continuing calibration performed within 24 hours of<br>sample analysis for 600 series and 12 hours for 8000 series | <u>yes</u>               |
| 6 GC/MS Calibration requirements                                                                                                                                                                     |                          |
| a Calibration Check Compounds Meet Criteria                                                                                                                                                          | <u>yes</u>               |
| b System Performance Check Compounds Meet Criteria                                                                                                                                                   | <u>yes</u>               |
| 7 Blank Contamination – If yes, List compounds and concentrations in each blank                                                                                                                      | <u>NO</u>                |
| a VOA Fraction _____                                                                                                                                                                                 |                          |
| b B/N Fraction <u>NA</u>                                                                                                                                                                             |                          |
| c Acid Fraction <u>NA</u>                                                                                                                                                                            |                          |
| 8 Surrogate Recoveries Meet Criteria                                                                                                                                                                 | <u>yes</u>               |
| If not met, list those compounds and their recoveries, which fall<br>outside the acceptable range                                                                                                    |                          |
| a VOA Fraction _____                                                                                                                                                                                 |                          |
| b B/N Fraction <u>NA</u>                                                                                                                                                                             |                          |
| c Acid Fraction <u>NA</u>                                                                                                                                                                            |                          |
| If not met, were the calculations checked and the results qualified<br>as "estimated"?                                                                                                               |                          |
|                                                                                                                                                                                                      | _____                    |
| 9 Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria<br>(If not met, list those compounds and their recoveries, which fall<br>outside the acceptable range)                                | <u>yes</u>               |
| a VOA Fraction _____                                                                                                                                                                                 |                          |
| b B/N Fraction <u>NA</u>                                                                                                                                                                             |                          |
| c Acid Fraction <u>NA</u>                                                                                                                                                                            |                          |

000009

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)

NO

a VOA Fraction 153062  
b B/N Fraction NA  
c Acid Fraction NA

- 11 Extraction Holding Time Met

Na

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

- 12 Analysis Holding Time Met

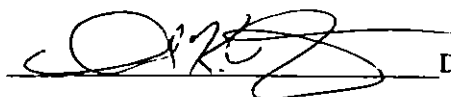
yes

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

Additional Comments

Duplicate performed on 491-3  
\_\_\_\_\_  
\_\_\_\_\_

Laboratory Manager



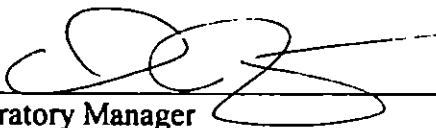
Date 2-16-01

## TPHC Conformance/Non-conformance Summary Report

- |   |                                                                                                                                                                       | Indicate<br>Yes, No, N/A |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 | Method Detection Limits provided                                                                                                                                      | <u>yes</u>               |
| 2 | Method Blank Contamination -- If yes, list the sample and the corresponding concentrations in each blank<br><br>_____<br>_____                                        | <u>NO</u>                |
| 3 | Matrix Spike Results Summary Meet Criteria<br>(If not met, list the sample and corresponding recovery which falls outside the acceptable range)<br><br>_____<br>_____ | <u>yes</u>               |
| 4 | Duplicate Results Summary Meet Criteria<br>(If not met, list the sample and corresponding recovery which falls outside the acceptable range)<br><br>_____<br>_____    | <u>yes</u>               |
| 5 | IR Spectra submitted for standards, blanks and samples                                                                                                                | <u>NA</u>                |
| 6 | Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted                                                                          | <u>yes</u>               |
| 7 | Analysis holding time met<br>(If not met, list number of days exceeded for each sample)<br><br>_____<br>_____                                                         | <u>yes</u>               |

Additional comments

Duplicate performed on 491-3

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

2-16-01  
\_\_\_\_\_  
Date

000011

# **VOLATILES**

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY  
NJDEP CERTIFICATION # 13461**

**Definition of Qualifiers**

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

## VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 771

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No

Matrix (soil/water) SOIL Lab Sample ID MB

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004942 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 0 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

## CONCENTRATION UNITS

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

|            |                           |      |   |
|------------|---------------------------|------|---|
| 107028     | Acrolein                  | 700  | U |
| 107131     | Acrylonitrile             | 700  | U |
| 75650      | tert-Butyl alcohol        | 1300 | U |
| 1634044    | Methyl-tert-Butyl ether   | 300  | U |
| 108203     | Di-isopropyl ether        | 200  | U |
| 75718      | Dichlorodifluoromethane   | 400  | U |
| 74-87-3    | Chloromethane             | 100  | U |
| 75-01-4    | Vinyl Chloride            | 300  | U |
| 74-83-9    | Bromomethane              | 200  | U |
| 75-00-3    | Chloroethane              | 300  | U |
| 75-69-4    | Trichlorofluoromethane    | 200  | U |
| 75-35-4    | 1,1-Dichloroethene        | 100  | U |
| 67-64-1    | Acetone                   | 200  | U |
| 75-15-0    | Carbon Disulfide          | 100  | U |
| 75-09-2    | Methylene Chloride        | 200  | U |
| 156-60-5   | trans-1,2-Dichloroethene  | 200  | U |
| 75-35-3    | 1,1-Dichloroethane        | 100  | U |
| 108-05-4   | Vinyl Acetate             | 300  | U |
| 78-93-3    | 2-Butanone                | 300  | U |
|            | cis-1,2-Dichloroethene    | 100  | U |
| 67-66-3    | Chloroform                | 100  | U |
| 75-55-6    | 1,1,1-Trichloroethane     | 100  | U |
| 56-23-5    | Carbon Tetrachloride      | 200  | U |
| 71-43-2    | Benzene                   | 100  | U |
| 107-06-2   | 1,2-Dichloroethane        | 200  | U |
| 79-01-6    | Trichloroethene           | 100  | U |
| 78-87-5    | 1,2-Dichloropropane       | 100  | U |
| 75-27-4    | Bromodichloromethane      | 100  | U |
| 110-75-8   | 2-Chloroethyl vinyl ether | 200  | U |
| 10061-01-5 | cis-1,3-Dichloropropene   | 100  | U |
| 108-10-1   | 4-Methyl-2-Pentanone      | 200  | U |
| 108-88-3   | Toluene                   | 100  | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 200  | U |
| 79-00-5    | 1,1,2-Trichloroethane     | 200  | U |
| 127-18-4   | Tetrachloroethene         | 100  | U |
| 591-78-6   | 2-Hexanone                | 200  | U |
| 126-48-1   | Dibromochloromethane      | 200  | U |
| 108-90-7   | Chlorobenzene             | 100  | U |
| 100-41-4   | Ethylbenzene              | 200  | U |

## VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 771

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID MB

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004942 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 0 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

## CONCENTRATION UNITS

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

|           |                           |     |   |
|-----------|---------------------------|-----|---|
| 1330-20-7 | m+p-Xylenes               | 300 | U |
| 1330-20-7 | o-Xylene                  | 200 | U |
| 100-42-5  | Styrene                   | 200 | U |
| 75-25-2   | Bromoform                 | 200 | U |
| 79-34-5   | 1,1,2,2-Tetrachloroethane | 200 | U |
| 541-73-1  | 1,3-Dichlorobenzene       | 300 | U |
| 106-46-7  | 1,4-Dichlorobenzene       | 300 | U |
| 95-50-1   | 1,2-Dichlorobenzene       | 300 | U |

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

MB 771

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID MB

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004942.D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 0 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

## CONCENTRATION UNITS

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

| CAS NO | COMPOUND NAME | RT | EST CONC | Q |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

Trip Blank

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID 801

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004945 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 0 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

| CAS NO     | COMPOUND                  | (ug/L or ug/Kg) | UG/KG | Q |
|------------|---------------------------|-----------------|-------|---|
| 107028     | Acrolein                  |                 | 700   | U |
| 107131     | Acrylonitrile             |                 | 700   | U |
| 75650      | tert-Butyl alcohol        |                 | 1300  | U |
| 1634044    | Methyl-tert-Butyl ether   |                 | 300   | U |
| 108203     | Di-isopropyl ether        |                 | 200   | U |
| 75718      | Dichlorodifluoromethane   |                 | 400   | U |
| 74-87-3    | Chloromethane             |                 | 100   | U |
| 75-01-4    | Vinyl Chloride            |                 | 300   | U |
| 74-83-9    | Bromomethane              |                 | 200   | U |
| 75-00-3    | Chloroethane              |                 | 300   | U |
| 75-69-4    | Trichlorofluoromethane    |                 | 200   | U |
| 75-35-4    | 1,1-Dichloroethene        |                 | 100   | U |
| 67-64-1    | Acetone                   |                 | 200   | U |
| 75-15-0    | Carbon Disulfide          |                 | 100   | U |
| 75-09-2    | Methylene Chloride        |                 | 200   | U |
| 156-60-5   | trans-1,2-Dichloroethene  |                 | 200   | U |
| 75-35-3    | 1,1-Dichloroethane        |                 | 100   | U |
| 108-05-4   | Vinyl Acetate             |                 | 300   | U |
| 78-93-3    | 2-Butanone                |                 | 2100  |   |
|            | cis-1,2-Dichloroethene    |                 | 100   | U |
| 67-66-3    | Chloroform                |                 | 100   | U |
| 75-55-6    | 1,1,1-Trichloroethane     |                 | 100   | U |
| 56-23-5    | Carbon Tetrachloride      |                 | 200   | U |
| 71-43-2    | Benzene                   |                 | 100   | U |
| 107-06-2   | 1,2-Dichloroethane        |                 | 200   | U |
| 79-01-6    | Trichloroethene           |                 | 100   | U |
| 78-87-5    | 1,2-Dichloropropane       |                 | 100   | U |
| 75-27-4    | Bromodichloromethane      |                 | 100   | U |
| 110-75-8   | 2-Chloroethyl vinyl ether |                 | 200   | U |
| 10061-01-5 | cis-1,3-Dichloropropene   |                 | 100   | U |
| 108-10-1   | 4-Methyl-2-Pentanone      |                 | 200   | U |
| 108-88-3   | Toluene                   |                 | 100   | U |
| 10061-02-6 | trans-1,3-Dichloropropene |                 | 200   | U |
| 79-00-5    | 1,1,2-Trichloroethane     |                 | 200   | U |
| 127-18-4   | Tetrachloroethene         |                 | 100   | U |
| 591-78-6   | 2-Hexanone                |                 | 200   | U |
| 126-48-1   | Dibromochloromethane      |                 | 200   | U |
| 108-90-7   | Chlorobenzene             |                 | 100   | U |
| 100-41-4   | Ethylbenzene              |                 | 200   | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

Trip Blank

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID 801

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004945.D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 0 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

| CAS NO    | COMPOUND                  | (ug/L or ug/Kg) | UG/KG | Q |
|-----------|---------------------------|-----------------|-------|---|
| 1330-20-7 | m+p-Xylenes               |                 | 300   | U |
| 1330-20-7 | o-Xylene                  |                 | 200   | U |
| 100-42-5  | Styrene                   |                 | 200   | U |
| 75-25-2   | Bromoform                 |                 | 200   | U |
| 79-34-5   | 1,1,2,2-Tetrachloroethane |                 | 200   | U |
| 541-73-1  | 1,3-Dichlorobenzene       |                 | 300   | U |
| 106-46-7  | 1,4-Dichlorobenzene       |                 | 300   | U |
| 95-50-1   | 1,2-Dichlorobenzene       |                 | 300   | U |

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Trip Blank

Lab Name FMETL NJDEP # 13461  
Project 01-0001 Case No 716-720 Location Bldg49 SDG No         
Matrix (soil/water) SOIL Lab Sample ID 801  
Sample wt/vol 10.0 (g/ml) G Lab File ID VC004945 D  
Level (low/med) MED Date Received 2/9/01  
% Moisture not dec 0 Date Analyzed 2/9/01  
GC Column Rtx502.2 ID 0.25 (mm) Dilution Factor 1.0  
Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

| CAS NO | COMPOUND NAME | RT | EST CONC | Q |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

491-3

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrx (soil/water) SOIL Lab Sample ID 719

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004948.D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 17.95 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

|            |                           |      |   |
|------------|---------------------------|------|---|
| 107028     | Acrolein                  | 860  | U |
| 107131     | Acrylonitrile             | 860  | U |
| 75650      | tert-Butyl alcohol        | 1600 | U |
| 1634044    | Methyl-tert-Butyl ether   | 370  | U |
| 108203     | Di-isopropyl ether        | 240  | U |
| 75718      | Dichlorodifluoromethane   | 490  | U |
| 74-87-3    | Chloromethane             | 120  | U |
| 75-01-4    | Vinyl Chloride            | 370  | U |
| 74-83-9    | Bromomethane              | 240  | U |
| 75-00-3    | Chloroethane              | 370  | U |
| 75-69-4    | Trichlorofluoromethane    | 240  | U |
| 75-35-4    | 1,1-Dichloroethene        | 120  | U |
| 67-64-1    | Acetone                   | 240  | U |
| 75-15-0    | Carbon Disulfide          | 120  | U |
| 75-09-2    | Methylene Chloride        | 240  | U |
| 156-60-5   | trans-1,2-Dichloroethene  | 240  | U |
| 75-35-3    | 1,1-Dichloroethane        | 120  | U |
| 108-05-4   | Vinyl Acetate             | 370  | U |
| 78-93-3    | 2-Butanone                | 2400 |   |
|            | cis-1,2-Dichloroethene    | 120  | U |
| 67-66-3    | Chloroform                | 120  | U |
| 75-55-6    | 1,1,1-Trichloroethane     | 120  | U |
| 56-23-5    | Carbon Tetrachloride      | 240  | U |
| 71-43-2    | Benzene                   | 120  | U |
| 107-06-2   | 1,2-Dichloroethane        | 240  | U |
| 79-01-6    | Trichloroethene           | 120  | U |
| 78-87-5    | 1,2-Dichloropropane       | 120  | U |
| 75-27-4    | Bromodichloromethane      | 120  | U |
| 110-75-8   | 2-Chloroethyl vinyl ether | 240  | U |
| 10061-01-5 | cis-1,3-Dichloropropene   | 120  | U |
| 108-10-1   | 4-Methyl-2-Pentanone      | 240  | U |
| 108-88-3   | Toluene                   | 120  | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 240  | U |
| 79-00-5    | 1,1,2-Trichloroethane     | 240  | U |
| 127-18-4   | Tetrachloroethene         | 120  | U |
| 591-78-6   | 2-Hexanone                | 240  | U |
| 126-48-1   | Dibromochloromethane      | 240  | U |
| 108-90-7   | Chlorobenzene             | 120  | U |
| 100-41-4   | Ethylbenzene              | 240  | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

491-3

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID 719

Sample wt/vol 10.0 (g/ml) G Lab File ID VC004948 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 17.95 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

|           |                           |     |   |
|-----------|---------------------------|-----|---|
| 1330-20-7 | m+p-Xylenes               | 370 | U |
| 1330-20-7 | o-Xylene                  | 240 | U |
| 100-42-5  | Styrene                   | 240 | U |
| 75-25-2   | Bromoform                 | 240 | U |
| 79-34-5   | 1,1,2,2-Tetrachloroethane | 240 | U |
| 541-73-1  | 1,3-Dichlorobenzene       | 370 | U |
| 106-46-7  | 1,4-Dichlorobenzene       | 370 | U |
| 95-50-1   | 1,2-Dichlorobenzene       | 370 | U |

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

491-3

Lab Name FMETL NJDEP # 13461  
 Project 01-0001 Case No 716-720 Location Bldg49 SDG No \_\_\_\_\_  
 Matrx (soil/water) SOIL Lab Sample ID 719  
 Sample wt/vol 10.0 (g/ml) G Lab File ID VC004948 D  
 Level (low/med) MED Date Received 2/9/01  
 % Moisture not dec 17.95 Date Analyzed 2/9/01  
 GC Column Rtx502.2 ID 0.25 (mm) Dilution Factor 1.0  
 Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

| CAS NO | COMPOUND NAME | RT | EST CONC | Q |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

Field Dupe

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No

Matrix (soil/water) SOIL Lab Sample ID 720

Sample wt/vol 10.2 (g/ml) G Lab File ID VC004949 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 19.13 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

| CAS NO     | COMPOUND                  | (ug/L or ug/Kg) | UG/KG | Q |
|------------|---------------------------|-----------------|-------|---|
| 107028     | Acrolein                  | 840             |       | U |
| 107131     | Acrylonitrile             | 840             |       | U |
| 75650      | tert-Butyl alcohol        | 1600            |       | U |
| 1634044    | Methyl-tert-Butyl ether   | 360             |       | U |
| 108203     | Di-isopropyl ether        | 240             |       | U |
| 75718      | Dichlorodifluoromethane   | 480             |       | U |
| 74-87-3    | Chloromethane             | 120             |       | U |
| 75-01-4    | Vinyl Chloride            | 360             |       | U |
| 74-83-9    | Bromomethane              | 240             |       | U |
| 75-00-3    | Chloroethane              | 360             |       | U |
| 75-69-4    | Trichlorofluoromethane    | 240             |       | U |
| 75-35-4    | 1,1-Dichloroethene        | 120             |       | U |
| 67-64-1    | Acetone                   | 240             |       | U |
| 75-15-0    | Carbon Disulfide          | 120             |       | U |
| 75-09-2    | Methylene Chloride        | 340             |       |   |
| 156-60-5   | trans-1,2-Dichloroethene  | 240             |       | U |
| 75-35-3    | 1,1-Dichloroethane        | 120             |       | U |
| 108-05-4   | Vinyl Acetate             | 360             |       | U |
| 78-93-3    | 2-Butanone                | 2600            |       |   |
|            | cis-1,2-Dichloroethene    | 120             |       | U |
| 67-66-3    | Chloroform                | 120             |       | U |
| 75-55-6    | 1,1,1-Trichloroethane     | 120             |       | U |
| 56-23-5    | Carbon Tetrachloride      | 240             |       | U |
| 71-43-2    | Benzene                   | 120             |       | U |
| 107-06-2   | 1,2-Dichloroethane        | 240             |       | U |
| 79-01-6    | Trichloroethene           | 120             |       | U |
| 78-87-5    | 1,2-Dichloropropane       | 120             |       | U |
| 75-27-4    | Bromodichloromethane      | 120             |       | U |
| 110-75-8   | 2-Chloroethyl vinyl ether | 240             |       | U |
| 10061-01-5 | cis-1,3-Dichloropropene   | 120             |       | U |
| 108-10-1   | 4-Methyl-2-Pentanone      | 240             |       | U |
| 108-88-3   | Toluene                   | 120             |       | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 240             |       | U |
| 79-00-5    | 1,1,2-Trichloroethane     | 240             |       | U |
| 127-18-4   | Tetrachloroethene         | 120             |       | U |
| 591-78-6   | 2-Hexanone                | 240             |       | U |
| 126-48-1   | Dibromochloromethane      | 240             |       | U |
| 108-90-7   | Chlorobenzene             | 120             |       | U |
| 100-41-4   | Ethylbenzene              | 240             |       | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

Field Dupe

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrix (soil/water) SOIL Lab Sample ID 720

Sample wt/vol 10.2 (g/ml) G Lab File ID VC004949 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 19.13 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

|           |                           |     |   |
|-----------|---------------------------|-----|---|
| 1330-20-7 | m+p-Xylenes               | 360 | U |
| 1330-20-7 | o-Xylene                  | 240 | U |
| 100-42-5  | Styrene                   | 240 | U |
| 75-25-2   | Bromoform                 | 240 | U |
| 79-34-5   | 1,1,2,2-Tetrachloroethane | 240 | U |
| 541-73-1  | 1,3-Dichlorobenzene       | 360 | U |
| 106-46-7  | 1,4-Dichlorobenzene       | 360 | U |
| 95-50-1   | 1,2-Dichlorobenzene       | 360 | U |



1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Field Dupe

Lab Name FMETL NJDEP # 13461

Project 01-0001 Case No 716-720 Location Bldg49 SDG No       

Matrx (soil/water) SOIL Lab Sample ID 720

Sample wt/vol 10.2 (g/ml) G Lab File ID VC004949 D

Level (low/med) MED Date Received 2/9/01

% Moisture not dec 19.13 Date Analyzed 2/9/01

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

Soil Extract Volume 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS

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

| CAS NO        | COMPOUND NAME      | RT    | EST CONC | Q  |
|---------------|--------------------|-------|----------|----|
| 1 007206-21-5 | 5-Octadecene, (E)- | 33.28 | 1300     | JN |

**TPHC**

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

|                         |                       |                            |           |
|-------------------------|-----------------------|----------------------------|-----------|
| <b>Client .</b>         | U S Army              | <b>Project #</b>           | 717-720   |
|                         | DPW SELFM-PW-EV       | <b>Location</b>            | Bldg 491  |
|                         | Bldg 173              | <b>UST Reg. #</b>          |           |
|                         | Ft Monmouth, NJ 07703 |                            |           |
| <b>Analysis :</b>       | OQA-QAM-025           | <b>Date Received</b>       | 09-Feb-01 |
| <b>Matrix .</b>         | Soil                  | <b>Date Extracted</b>      | 12-Feb-01 |
| <b>Inst. ID.</b>        | GC TPHC INST #1       | <b>Extraction Method :</b> | Shake     |
| <b>Column Type :</b>    | RTX-5, 0.32mm ID, 30M | <b>Analysis Complete :</b> | 12-Feb-01 |
| <b>Injection Volume</b> | 1uL                   | <b>Analyst :</b>           | B Patel   |

| Sample       | Field ID  | Dilution Factor | Weight (g) | % Solid | MDL (mg/kg) | TPHC Result (mg/kg) |
|--------------|-----------|-----------------|------------|---------|-------------|---------------------|
| 717          | 491-1     | 1.00            | 15.25      | 69.95   | 220         | 287.69              |
| 718          | 491-2     | 1.00            | 15.18      | 80.04   | 193         | 654.23              |
| 719          | 491-3     | 1.00            | 15.15      | 82.05   | 189         | 2012.75             |
| 720          | Field Dup | 1.00            | 15.17      | 80.87   | 192         | 1998.32             |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
|              |           |                 |            |         |             |                     |
| METHOD BLANK | MB-738    | 1.00            | 15.00      | 100.00  | 157         | ND                  |

ND = Not Detected

MDL = Method Detection Limit

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## LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

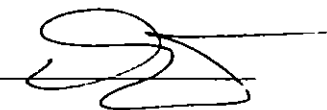
THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT  
AND ACCOMPANY ALL DATA SUBMISSIONS

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 | <input checked="" type="checkbox"/> |
| 2  | Table of Contents submitted                                                                               | <input checked="" type="checkbox"/> |
| 3  | Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted           | <input checked="" type="checkbox"/> |
| 4  | Document paginated and legible                                                                            | <input checked="" type="checkbox"/> |
| 5  | Chain of Custody submitted                                                                                | <input checked="" type="checkbox"/> |
| 6  | Samples submitted to lab within 48 hours of sample collection                                             | <input checked="" type="checkbox"/> |
| 7  | Methodology Summary submitted                                                                             | <input checked="" type="checkbox"/> |
| 8  | Laboratory Chronicle and Holding Time Check submitted                                                     | <input checked="" type="checkbox"/> |
| 9  | Results submitted on a dry weight basis                                                                   | <input checked="" type="checkbox"/> |
| 10 | Method Detection Limits submitted                                                                         | <input checked="" type="checkbox"/> |
| 11 | Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP  | <input checked="" type="checkbox"/> |

Laboratory Manager or Environmental Consultant's Signature  
Date 2/16/01



Laboratory Certification #13461

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

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## **Laboratory Authentication Statement**

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

A handwritten signature in black ink, appearing to read 'D.K. Wright', is written over a horizontal line.

Daniel K. Wright  
Laboratory Manager



**APPENDIX F**

**GROUNDWATER ANALYTICAL DATA PACKAGE**

# FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



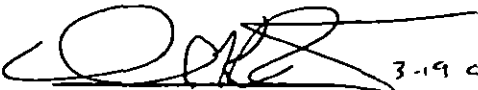
## ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT IJO# 01-0001

### Bldg. 491

| Field Sample Location | Laboratory<br>Sample ID# | Matrix  | Date and Time<br>Of Collection | Date Received |
|-----------------------|--------------------------|---------|--------------------------------|---------------|
| Trip Blank            | 1091                     | Aqueous | 28-Feb-01                      | 02/28/01      |
| Field Blank           | 1092                     | Aqueous | 28-Feb-01 09 40                | 02/28/01      |
| 491-5'                | 1093                     | Aqueous | 28-Feb-01 11 00                | 02/28/01      |
| F D -5'               | 1094                     | Aqueous | 28-Feb-01                      | 02/28/01      |

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

ENCLOSURE  
CHAIN OF CUSTODY  
RESULTS

  
Daniel Wright/Date  
Laboratory Director

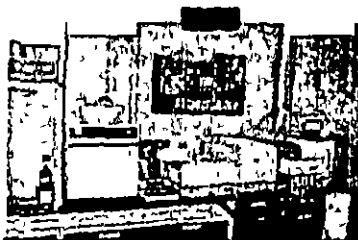
3-19-01



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# **CHAIN OF CUSTODY**



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

**Tel (732)532-4359 Fax (732)532-6263 EMail [wrightd@mail.monmouth.army.mil](mailto:wrightd@mail.monmouth.army.mil)**

**NJDEP Certification #13481**

## Chain of Custody Record

[illegible]

# **METHODOLOGY SUMMARY**

## Method Summary

### **EPA Method 624**

#### **Gas Chromatographic Determination of Volatiles in Water**

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

### **EPA Method 3510/8270**

#### **Gas Chromatographic Determination of Semi-volatiles in Water**

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

# **CONFORMANCE/NON- CONFORMANCE SUMMARY**

# GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate  
Yes, No, N/A

- 1 Chromatograms labeled/Compounds identified  
(Field samples and method blanks) yes
- 2 Retention times for chromatograms provided yes
- 3 GC/MS Tune Specifications
- a BFB Meet Criteria yes
- b DFTPP Meet Criteria yes
- 4 GC/MS Tuning Frequency – Performed every 24 hours for 600  
series and 12 hours for 8000 series yes
- 5 GC/MS Calibration – Initial Calibration performed before sample  
analysis and continuing calibration performed within 24 hours of  
sample analysis for 600 series and 12 hours for 8000 series yes
- 6 GC/MS Calibration requirements
- a Calibration Check Compounds Meet Criteria yes
- b System Performance Check Compounds Meet Criteria yes
- 7 Blank Contamination – If yes, List compounds and concentrations in each blank NO
- a VOA Fraction \_\_\_\_\_
- b B/N Fraction \_\_\_\_\_
- c Acid Fraction NA
- 8 Surrogate Recoveries Meet Criteria yes
- If not met, list those compounds and their recoveries, which fall  
outside the acceptable range
- a VOA Fraction \_\_\_\_\_
- b B/N Fraction \_\_\_\_\_
- c Acid Fraction NA
- If not met, were the calculations checked and the results qualified  
as "estimated"?
- 9 Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria yes  
(If not met, list those compounds and their recoveries, which fall  
outside the acceptable range)
- a VOA Fraction \_\_\_\_\_
- b B/N Fraction \_\_\_\_\_
- c Acid Fraction NA

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

Indicate  
Yes, No, N/A

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

yes

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

- 11 Extraction Holding Time Met

yes

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

- 12 Analysis Holding Time Met

yes

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

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

Laboratory Manager



Date

3-14-01



# **LABORATORY CHRONICLE**

# Laboratory Chronicle

Lab ID 1091-1094

Site Bldg 491

|                       | Date              | Hold Time |
|-----------------------|-------------------|-----------|
| Date Sampled          | 02/28/01          | NA        |
| Receipt/Refrigeration | 02/28/01          | NA        |
| Extractions           |                   |           |
| 1 BN                  | 02/28/01          | 14 days   |
| Analyses              |                   |           |
| 1 Volatile Organics   | 03/01/01          | 14 days   |
| 2 BN                  | 02/28/01-03/01/01 | 40 days   |

# **VOLATILE ORGANICS**

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

Data File **VC005088.D**  
 Operator **Skelton**  
 Date Acquired **28-Feb-01**

Sample Name **MB**  
 Field ID **MB**  
 Multiplier **1**

| CAS#       | Compound Name             | R T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|-----|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |     |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |     |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |     |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |     |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |     |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |     |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |     |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |     |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |     |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |     |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |     |          | not detected | nle                      | 0 50 ug/L |           |
| 75-35-4    | 1,1-Dichloroethene        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |     |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |     |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1,2-Dichloroethene  |     |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1,1-Dichloroethane        |     |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |     |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |     |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |     |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                |     |          | not detected | 6                        | 0 30 ug/L |           |
| 75-55-6    | 1,1,1 Trichloroethane     |     |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |     |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |     |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1,2-Dichloroethane        |     |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |     |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |     |          | not detected | 1                        | 0 40 ug/L |           |
| 75-27-4    | Bromodichloromethane      |     |          | not detected | 1                        | 0 55 ug/L |           |
| 110-75-8   | 2-Chloroethyl vinyl ether |     |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |     |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |     |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |     |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02-6 | trans-1,3-Dichloropropene |     |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1,1,2 Trichloroethane     |     |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |     |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |     |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |     |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |     |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |     |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |     |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |     |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |     |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |     |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34-5    | 1,1,2,2-Tetrachloroethane |     |          | not detected | 2                        | 0 47 ug/L |           |
| 541-73-1   | 1,3-Dichlorobenzene       |     |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |     |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50-1    | 1,2-Dichlorobenzene       |     |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C , 7 9-6 2-Sept 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

**MB 022801**

Lab Name FMETL NJDEP# 13461  
 Project 01-0001 Case No 1091-109 Location Bldg49 SDG No \_\_\_\_\_  
 Matrix (soil/water) WATER Lab Sample ID MB  
 Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005088.D  
 Level (low/med) LOW Date Received 2/28/01  
 % Moisture not dec \_\_\_\_\_ Date Analyzed 2/28/01  
 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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

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

Data File **VC005107.D**  
 Operator **Skelton**  
 Date Acquired **1-Mar-01**

Sample Name **1091**  
 Field ID **Trip Blank**  
 Multiplier **1**

| CAS#       | Compound Name             | R.T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|-----|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |     |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |     |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |     |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |     |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |     |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |     |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |     |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |     |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |     |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |     |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |     |          | not detected | nle                      | 0 50 ug/L |           |
| 75-35-4    | 1,1-Dichloroethene        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |     |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |     |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1,2-Dichloroethene  |     |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1,1-Dichloroethane        |     |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |     |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |     |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |     |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                |     |          | not detected | 6                        | 0 30 ug/L |           |
| 75-55-6    | 1,1,1-Trichloroethane     |     |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |     |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |     |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1,2-Dichloroethane        |     |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |     |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |     |          | not detected | 1                        | 0 40 ug/L |           |
| 75-27-4    | Bromodichloromethane      |     |          | not detected | 1                        | 0 55 ug/L |           |
| 110 75-8   | 2-Chloroethyl vinyl ether |     |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |     |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |     |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |     |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02-6 | trans-1,3-Dichloropropene |     |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1,1,2-Trichloroethane     |     |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |     |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |     |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |     |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |     |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |     |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |     |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |     |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |     |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |     |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34 5    | 1,1,2,2-Tetrachloroethane |     |          | not detected | 2                        | 0 47 ug/L |           |
| 541 73-1   | 1,3-Dichlorobenzene       |     |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |     |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50-1    | 1,2-Dichlorobenzene       |     |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C , 7-9-6 2-Sept 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

**Trip Blank**

Lab Name FMETL NJDEP# 13461  
Project 01-0001 Case No 1091-109 Location Bldg49 SDG No           
Matrx (soil/water) WATER Lab Sample ID 1091  
Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005107.D  
Level (low/med) LOW Date Received 2/28/01  
% Moisture not dec          Date Analyzed 3/1/01  
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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

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

Data File VC005108.D  
 Operator Skelton  
 Date Aquired 1-Mar-01

Sample Name 1092  
 Field ID Field Blank  
 Multiplier 1

| CAS#       | Compound Name             | R T. | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|------|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |      |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |      |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |      |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |      |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |      |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |      |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |      |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |      |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |      |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |      |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |      |          | not detected | nle                      | 0 50 ug/L |           |
| 75 35-4    | 1,1-Dichloroethene        |      |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |      |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |      |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |      |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1 2-Dichloroethene  |      |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1 1-Dichloroethane        |      |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |      |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |      |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1 2-Dichloroethene    |      |          | not detected | 10                       | 0 17 ug/L |           |
| 67 66-3    | Chloroform                |      |          | not detected | 6                        | 0 30 ug/L |           |
| 75 55-6    | 1,1,1-Trichloroethane     |      |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |      |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |      |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1 2-Dichloroethane        |      |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |      |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |      |          | not detected | 1                        | 0 40 ug/L |           |
| 75 27-4    | Bromodichloromethane      |      |          | not detected | 1                        | 0 55 ug/L |           |
| 110-75-8   | 2-Chloroethyl vinyl ether |      |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |      |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |      |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |      |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02 6 | trans 1 3-Dichloropropene |      |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1 1,2-Trichloroethane     |      |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |      |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |      |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |      |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |      |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |      |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |      |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |      |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |      |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |      |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34-5    | 1 1,2,2-Tetrachloroethane |      |          | not detected | 2                        | 0 47 ug/L |           |
| 541 73-1   | 1,3-Dichlorobenzene       |      |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |      |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50-1    | 1 2-Dichlorobenzene       |      |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9-6 2-Sept 97

**Qualifiers**

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

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



1E

VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Field Blank

Lab Name FMETL NJDEP# 13461

Project 01-0001 Case No 1091-109 Location Bldg49 SDG No         

Matrix (soil/water) WATER Lab Sample ID 1092

Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005108.D

Level (low/med) LOW Date Received 2/28/01

% Moisture not dec          Date Analyzed 3/1/01

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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

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

Data File VC005109.D  
 Operator Skelton  
 Date Aquired 1-Mar-01

Sample Name 1093  
 Field ID 491-5'  
 Multiplier 1

| CAS#       | Compound Name             | R.T. | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|------|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |      |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |      |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |      |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |      |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |      |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |      |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |      |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |      |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |      |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |      |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |      |          | not detected | nle                      | 0 50 ug/L |           |
| 75-35-4    | 1,1-Dichloroethene        |      |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |      |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |      |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |      |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1,2-Dichloroethene  |      |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1,1-Dichloroethane        |      |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |      |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |      |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |      |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                |      |          | not detected | 6                        | 0 30 ug/L |           |
| 75-55-6    | 1,1,1-Trichloroethane     |      |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |      |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |      |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1,2-Dichloroethane        |      |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |      |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |      |          | not detected | 1                        | 0 40 ug/L |           |
| 75-27-4    | Bromodichloromethane      |      |          | not detected | 1                        | 0 55 ug/L |           |
| 110-75-8   | 2-Chloroethyl vinyl ether |      |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |      |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |      |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |      |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02-6 | trans-1,3-Dichloropropene |      |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1,1,2-Trichloroethane     |      |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |      |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |      |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |      |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |      |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |      |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |      |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |      |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |      |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |      |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34-5    | 1,1,2,2-Tetrachloroethane |      |          | not detected | 2                        | 0 47 ug/L |           |
| 541-73-1   | 1,3-Dichlorobenzene       |      |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |      |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50-1    | 1,2-Dichlorobenzene       |      |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C , 7 9-6 2-Sept 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

491-5'

Lab Name FMETL NJDEP# 13461  
 Project 01-0001 Case No 1091-109 Location Bldg49 SDG No \_\_\_\_\_  
 Matrix (soil/water) WATER Lab Sample ID 1093  
 Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005109.D  
 Level (low/med) LOW Date Received 2/28/01  
 % Moisture not dec \_\_\_\_\_ Date Analyzed 3/1/01  
 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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

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

Data File VC005110 D  
 Operator Skelton  
 Date Acquired 1-Mar-01

Sample Name 1094  
 Field ID Field Dupe-5'  
 Multiplier 1

| CAS#       | Compound Name             | R.T   | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|-------|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |       |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |       |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |       |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |       |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |       |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |       |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |       |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |       |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |       |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |       |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |       |          | not detected | nle                      | 0 50 ug/L |           |
| 75-35-4    | 1,1-Dichloroethene        |       |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |       |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |       |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |       |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1,2-Dichloroethene  |       |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1,1-Dichloroethane        |       |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |       |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |       |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |       |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                | 16 23 | 105871   | 1 51 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 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Field Dup

Lab Name FMETL NJDEP# 13461  
 Project 01-0001 Case No 1091-109 Location Bldg49 SDG No \_\_\_\_\_  
 Matrix (soil/water) WATER Lab Sample ID 1094  
 Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005110.D  
 Level (low/med) LOW Date Received 2/28/01  
 % Moisture not dec \_\_\_\_\_ Date Analyzed 3/1/01  
 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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

# **BASE NEUTRALS**

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

Data File Name BNA05034.D

Operator Bhaskar

Date Acquired 28-Feb-01

Sample Name MB-1034

Misc Info MB-010228

Sample Multiplier 1

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

# Semi-Volatile Analysis Report

## Page 2

Data File Name BNA05034.D  
Operator Bhaskar  
Date Acquired 28-Feb-01

Sample Name MB-1034  
Misc Info MB-010228  
Sample Multiplier 1

| CAS#     | Name                       | R.T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifiers |
|----------|----------------------------|-----|----------|--------------|--------------------------|-----------|------------|
| 92-87-5  | Benidine                   |     |          | not detected | 50                       | 2 15 ug/L |            |
| 129-00-0 | Pyrene                     |     |          | not detected | 200                      | 1 53 ug/L |            |
| 85-68-7  | Butylbenzylphthalate       |     |          | not detected | 100                      | 1 24 ug/L |            |
| 56-55-3  | Benzo[a]anthracene         |     |          | not detected | 10                       | 2 68 ug/L |            |
| 91-94-1  | 3,3'-Dichlorobenzidine     |     |          | not detected | 60                       | 1 60 ug/L |            |
| 218-01-9 | Chrysene                   |     |          | not detected | 20                       | 1 14 ug/L |            |
| 117-81-7 | bis(2-Ethylhexyl)phthalate |     |          | not detected | 30                       | 1 34 ug/L |            |
| 117-84-0 | Di-n-octylphthalate        |     |          | not detected | 100                      | 1 44 ug/L |            |
| 205-99-2 | Benzo[b]fluoranthene       |     |          | not detected | 10                       | 1 32 ug/L |            |
| 207-08-9 | Benzo[k]fluoranthene       |     |          | not detected | 2                        | 1 15 ug/L |            |
| 50-32-8  | Benzo[a]pyrene             |     |          | not detected | 20                       | 2 43 ug/L |            |
| 193-39-5 | Indeno[1,2,3-cd]pyrene     |     |          | not detected | 20                       | 2 24 ug/L |            |
| 53-70-3  | Dibenz[a,h]anthracene      |     |          | not detected | 20                       | 1 94 ug/L |            |
| 191-24-2 | Benzo[g,h,i]perylene       |     |          | not detected | NLE                      | 2 04 ug/L |            |

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

### Qualifiers

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

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



1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

MB-1034

Lab Name FMETL Lab Code 13461

Project 01-0001 Case No 1092-109 Location Bldg 49 SDG No       

Matrix (soil/water) WATER Lab Sample ID MB-1034

Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05034 D

Level (low/med) LOW Date Received 2/28/01

% Moisture        decanted (Y/N) N Date Extracted 2/28/01

Concentrated Extract Volume 1000 (uL) Date Analyzed 2/28/01

Injection Volume 10 (uL) Dilution Factor 10

GPC Cleanup (Y/N) N pH       

## CONCENTRATION UNITS

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

| CAS NUMBER | COMPOUND NAME | RT   | EST CONC | Q |
|------------|---------------|------|----------|---|
| 1          | unknown       | 7.08 | 8        | J |

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

Data File Name BNA05044.D

Operator Bhaskar

Date Acquired 1-Mar-01

Sample Name 1092

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

# Semi-Volatile Analysis Report

## Page 2

Data File Name **BNA05044.D**  
 Operator **Bhaskar**  
 Date Acquired **1-Mar-01**

Sample Name **1092**  
 Misc Info **Field Blank**  
 Sample Multiplier **1**

| CAS#     | Name                       | R.T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifiers |
|----------|----------------------------|-----|----------|--------------|--------------------------|-----------|------------|
| 92-87-5  | Benzydine                  |     |          | not detected | 50                       | 2 15 ug/L |            |
| 129-00-0 | Pyrene                     |     |          | not detected | 200                      | 1 53 ug/L |            |
| 85-68-7  | Butylbenzylphthalate       |     |          | not detected | 100                      | 1 24 ug/L |            |
| 56-55-3  | Benzo[a]anthracene         |     |          | not detected | 10                       | 2 68 ug/L |            |
| 91-94-1  | 3,3'-Dichlorobenzidine     |     |          | not detected | 60                       | 1 60 ug/L |            |
| 218-01-9 | Chrysene                   |     |          | not detected | 20                       | 1 14 ug/L |            |
| 117-81-7 | bis(2 Ethylhexyl)phthalate |     |          | not detected | 30                       | 1 34 ug/L |            |
| 117-84-0 | Di-n-octylphthalate        |     |          | not detected | 100                      | 1 44 ug/L |            |
| 205-99-2 | Benzo[b]fluoranthene       |     |          | not detected | 10                       | 1 32 ug/L |            |
| 207-08-9 | Benzo[k]fluoranthene       |     |          | not detected | 2                        | 1 15 ug/L |            |
| 50-32-8  | Benzo[a]pyrene             |     |          | not detected | 20                       | 2 43 ug/L |            |
| 193-39-5 | Indeno[1,2,3-cd]pyrene     |     |          | not detected | 20                       | 2 24 ug/L |            |
| 53-70-3  | Dibenz[a,h]anthracene      |     |          | not detected | 20                       | 1 94 ug/L |            |
| 191-24-2 | Benzo[g,h,i]perylene       |     |          | not detected | NLE                      | 2.04 ug/L |            |

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

### Qualifiers

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

Field Blank

Lab Name FMETL Lab Code 13461

Project 01-0001 Case No 1092-109 Location Bldg 49 SDG No

Matrx (soil/water) WATER Lab Sample ID 1092

Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05044 D

Level (low/med) LOW Date Received 2/28/01

% Moisture  decanted (Y/N) N Date Extracted 2/28/01

Concentrated Extract Volume 1000 (uL) Date Analyzed 3/1/01

Injection Volume 10 (uL) Dilution Factor 10

GPC Cleanup (Y/N) N pH

## CONCENTRATION UNITS

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

| CAS NUMBER | COMPOUND NAME | RT   | EST CONC | Q |
|------------|---------------|------|----------|---|
| 1          | unknown       | 7.09 | 6        | J |

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

Data File Name BNA05045.D  
 Operator Bhaskar  
 Date Acquired 1-Mar-01

Sample Name 1093  
 Misc Info 491  
 Sample Multiplier 1

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

# Semi-Volatile Analysis Report

## Page 2

Data File Name BNA05045.D  
 Operator Bhaskar  
 Date Acquired 1-Mar-01

Sample Name 1093  
 Misc Info 491  
 Sample Multiplier 1

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

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

### Qualifiers

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

491

Lab Name FMETL Lab Code 13461

Project 01-0001 Case No 1092-109 Location Bldg 49 SDG No         

Matrx (soil/water) WATER Lab Sample ID 1093

Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05045 D

Level (low/med) LOW Date Received 2/28/01

% Moisture          decanted (Y/N) N Date Extracted 2/28/01

Concentrated Extract Volume 1000 (uL) Date Analyzed 3/1/01

Injection Volume 1 0 (uL) Dilution Factor 1 0

GPC Cleanup (Y/N) N pH         

## CONCENTRATION UNITS

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

| CAS NUMBER | COMPOUND NAME | RT    | EST CONC | Q |
|------------|---------------|-------|----------|---|
| 1          | unknown       | 7 09  | 6        | J |
| 2          | unknown       | 18 72 | 11       | J |

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

Data File Name **BNA05046.D**  
 Operator **Bhaskar**  
 Date Acquired **1-Mar-01**

Sample Name **1094**  
 Misc Info **Field Dupe**  
 Sample Multiplier **1**

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



# Semi-Volatile Analysis Report

## Page 2

Data File Name BNA05046.D  
Operator Bhaskar  
Date Acquired 1-Mar-01

Sample Name 1094  
Misc Info Field Dupe  
Sample Multiplier 1

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

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

### Qualifiers

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

Field Dupe

Lab Name FMETL Lab Code 13461

Project 01-0001 Case No 1092-109 Location Bldg 49 SDG No

Matrix (soil/water) WATER Lab Sample ID 1094

Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05046 D

Level (low/med) LOW Date Received 2/28/01

% Moisture  decanted (Y/N) N Date Extracted 2/28/01

Concentrated Extract Volume 1000 (uL) Date Analyzed 3/1/01

Injection Volume 10 (uL) Dilution Factor 10

GPC Cleanup (Y/N) N pH

## CONCENTRATION UNITS

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

| CAS NUMBER | COMPOUND NAME | RT    | EST CONC | Q |
|------------|---------------|-------|----------|---|
| 1          | unknown       | 7.08  | 5        | J |
| 2          | unknown       | 18.72 | 14       | J |

## 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 | <input checked="" type="checkbox"/> |
| 2  | Table of Contents submitted                                                                               | <input checked="" type="checkbox"/> |
| 3  | Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted           | <input checked="" type="checkbox"/> |
| 4  | Document paginated and legible                                                                            | <input checked="" type="checkbox"/> |
| 5  | Chain of Custody submitted                                                                                | <input checked="" type="checkbox"/> |
| 6  | Samples submitted to lab within 48 hours of sample collection                                             | <input checked="" type="checkbox"/> |
| 7  | Methodology Summary submitted                                                                             | <input checked="" type="checkbox"/> |
| 8  | Laboratory Chronicle and Holding Time Check submitted                                                     | <input checked="" type="checkbox"/> |
| 9  | Results submitted on a dry weight basis                                                                   | <input checked="" type="checkbox"/> |
| 10 | Method Detection Limits submitted                                                                         | <input checked="" type="checkbox"/> |
| 11 | Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP  | <input checked="" type="checkbox"/> |

Laboratory Manager or Environmental Consultant's Signature \_\_\_\_\_  
Date 3/14/01

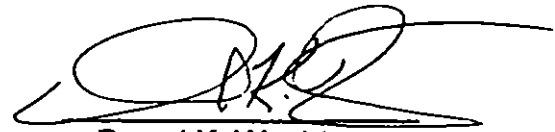
Laboratory Certification #13461

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

000081

## **Laboratory Authentication Statement**

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

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

**Daniel K. Wright**  
**Laboratory Manager**

# FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT  
Fort Monmouth Environmental Laboratory  
ENVIRONMENTAL DIVISION  
Fort Monmouth, New Jersey  
PROJECT IJO# 01-0001

**Bldg. 491**

| Field Sample Location | Laboratory<br>Sample ID# | Matrix  | Date and Time<br>Of Collection | Date Received |
|-----------------------|--------------------------|---------|--------------------------------|---------------|
| 491 GW                | 16025 01                 | Aqueous | 31-Mar-01                      | 04/02/01      |

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

ENCLOSURE  
CHAIN OF CUSTODY  
RESULTS

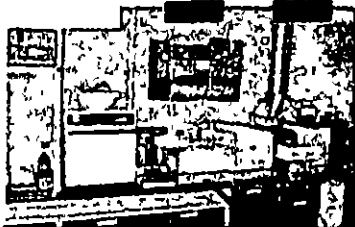
  
Daniel Wright/Date  
Laboratory Director

4-12

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| <b><u>Section</u></b>               | <b><u>Pages</u></b> |
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# **CHAIN OF CUSTODY**



# Fort Monmouth Environmental Testing Laboratory

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

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

**NJDEP Certification #13461**

## Chain of Custody Record

[illegible]



# **METHOD SUMMARY**

## **Methodology Summary**

### **EPA Method 624**

#### **Gas Chromatographic Determination of Volatiles in Water**

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

### **EPA Method 625**

#### **Gas Chromatographic Determination of Semi-volatiles in Water**

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

# **CONFORMANCE/ NON- CONFORMANCE**

# 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 yes
  - a VOA Fraction \_\_\_\_\_
  - b B/N Fraction Diethyl phthalate @ 1.81 ug/L
  - c Acid Fraction NA
- 8 Surrogate Recoveries Meet Criteria yes

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

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

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

\_\_\_\_\_
- 9 Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria yes

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

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

000006

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

Indicate  
Yes, No, N/A

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

Yes

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

- 11 Extraction Holding Time Met

Yes

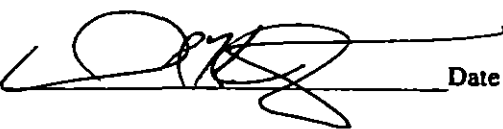
If not met, list the number of days exceeded for each sample \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 12 Analysis Holding Time Met

Yes

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

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

Laboratory Manager: 

Date 4-12-01

000007

# **LABORATORY CHRONICLE**

# Laboratory Chronicle

Lab ID 16025

Site Bldg 491

|                       | Date        | Hold Time |
|-----------------------|-------------|-----------|
| Date Sampled          | 03/31/01    | NA        |
| Receipt/Refrigeration | 03/31/01*   | NA        |
| Extractions           |             |           |
| 1 BN                  | 04/06/01    | 7 days    |
| Analyses              |             |           |
| 1 Volatile Organics   | 04/03,04/01 | 14 days   |
| 2 BN                  | 04/10/01    | 14 days   |

\* Sampled and Refrigerated on 03/31/01 Received on 04/02/01

000009

# **VOLATILE ORGANICS**



**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY  
NJDEP CERTIFICATION # 13461**

**Definition of Qualifiers**

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

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

Data File VC005422 D  
 Operator Skelton  
 Date Acquired 3-Apr-01

Sample Name MB  
 Field ID MB 040301  
 Multiplier 1

| CAS#       | Compound Name             | R T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifier |
|------------|---------------------------|-----|----------|--------------|--------------------------|-----------|-----------|
| 107028     | Acrolein                  |     |          | not detected | 50                       | 1 85 ug/L |           |
| 107131     | Acrylonitrile             |     |          | not detected | 50                       | 2 78 ug/L |           |
| 75650      | tert-Butyl alcohol        |     |          | not detected | nle                      | 8 52 ug/L |           |
| 1634044    | Methyl-tert-Butyl ether   |     |          | not detected | 70                       | 0 16 ug/L |           |
| 108203     | Di-isopropyl ether        |     |          | not detected | nle                      | 0 25 ug/L |           |
| 75718      | Dichlorodifluoromethane   |     |          | not detected | nle                      | 1 68 ug/L |           |
| 74-87-3    | Chloromethane             |     |          | not detected | 30                       | 1 16 ug/L |           |
| 75-01-4    | Vinyl Chloride            |     |          | not detected | 5                        | 1 06 ug/L |           |
| 74-83-9    | Bromomethane              |     |          | not detected | 10                       | 1 10 ug/L |           |
| 75-00-3    | Chloroethane              |     |          | not detected | nle                      | 1 01 ug/L |           |
| 75-69-4    | Trichlorofluoromethane    |     |          | not detected | nle                      | 0 50 ug/L |           |
| 75-35-4    | 1,1-Dichloroethene        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 67-64-1    | Acetone                   |     |          | not detected | 700                      | 1 36 ug/L |           |
| 75-15-0    | Carbon Disulfide          |     |          | not detected | nle                      | 0 46 ug/L |           |
| 75-09-2    | Methylene Chloride        |     |          | not detected | 2                        | 0 24 ug/L |           |
| 156-60-5   | trans-1,2-Dichloroethene  |     |          | not detected | 100                      | 0 16 ug/L |           |
| 75-34-3    | 1,1-Dichloroethane        |     |          | not detected | 70                       | 0 12 ug/L |           |
| 108-05-4   | Vinyl Acetate             |     |          | not detected | nle                      | 0 78 ug/L |           |
| 78-93-3    | 2-Butanone                |     |          | not detected | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |     |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                |     |          | not detected | 6                        | 0 30 ug/L |           |
| 75-55-6    | 1,1,1-Trichloroethane     |     |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |     |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |     |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1,2-Dichloroethane        |     |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |     |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |     |          | not detected | 1                        | 0 40 ug/L |           |
| 75-27-4    | Bromodichloromethane      |     |          | not detected | 1                        | 0 55 ug/L |           |
| 110-75-8   | 2-Chloroethyl vinyl ether |     |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |     |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |     |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |     |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02-6 | trans-1,3-Dichloropropene |     |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1,1,2-Trichloroethane     |     |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |     |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |     |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |     |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |     |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |     |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |     |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |     |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |     |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |     |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34-5    | 1,1,2,2-Tetrachloroethane |     |          | not detected | 2                        | 0 47 ug/L |           |
| 541-73-1   | 1,3-Dichlorobenzene       |     |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |     |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50-1    | 1,2-Dichlorobenzene       |     |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C , 7 9-6 2-Sept 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

**MB 1611**

Lab Name FMETL NJDEP# 13461  
 Project UST Case No 16025 Location B491 SDG No \_\_\_\_\_  
 Matrix (soil/water) WATER Lab Sample ID MB  
 Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005422 D  
 Level (low/med) LOW Date Received 4/2/01  
 % Moisture not dec \_\_\_\_\_ Date Analyzed 4/3/01  
 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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

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

Data File **VC005450 D**  
 Operator **Skelton**  
 Date Acquired **4-Apr-01**

Sample Name **16025 01**  
 Field ID **Bldg491GW**  
 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                   | 8 86  | 393964   | 5 27 ug/L    | 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                | 15 24 | 172224   | 2 88 ug/L    | 300                      | 0 62 ug/L |           |
| 156594     | cis-1,2-Dichloroethene    |       |          | not detected | 10                       | 0 17 ug/L |           |
| 67-66-3    | Chloroform                |       |          | not detected | 6                        | 0 30 ug/L |           |
| 75-55-6    | 1,1,1-Trichloroethane     |       |          | not detected | 30                       | 0 23 ug/L |           |
| 56-23-5    | Carbon Tetrachloride      |       |          | not detected | 2                        | 0 47 ug/L |           |
| 71-43-2    | Benzene                   |       |          | not detected | 1                        | 0 23 ug/L |           |
| 107-06-2   | 1,2-Dichloroethane        |       |          | not detected | 2                        | 0 18 ug/L |           |
| 79-01-6    | Trichloroethene           |       |          | not detected | 1                        | 0 23 ug/L |           |
| 78-87-5    | 1,2-Dichloropropane       |       |          | not detected | 1                        | 0 40 ug/L |           |
| 75-27-4    | Bromodichloromethane      |       |          | not detected | 1                        | 0 55 ug/L |           |
| 110-75-8   | 2-Chloroethyl vinyl ether |       |          | not detected | nle                      | 0 65 ug/L |           |
| 10061-01-5 | cis-1,3-Dichloropropene   |       |          | not detected | nle                      | 0 69 ug/L |           |
| 108-10-1   | 4-Methyl-2-Pentanone      |       |          | not detected | 400                      | 0 59 ug/L |           |
| 108-88-3   | Toluene                   |       |          | not detected | 1000                     | 0 37 ug/L |           |
| 10061-02-6 | trans-1,3-Dichloropropene |       |          | not detected | nle                      | 0 87 ug/L |           |
| 79-00-5    | 1,1,2 Trichloroethane     |       |          | not detected | 3                        | 0 48 ug/L |           |
| 127-18-4   | Tetrachloroethene         |       |          | not detected | 1                        | 0 32 ug/L |           |
| 591-78-6   | 2-Hexanone                |       |          | not detected | nle                      | 0 71 ug/L |           |
| 126-48-1   | Dibromochloromethane      |       |          | not detected | 10                       | 0 86 ug/L |           |
| 108-90-7   | Chlorobenzene             |       |          | not detected | 4                        | 0 39 ug/L |           |
| 100-41-4   | Ethylbenzene              |       |          | not detected | 700                      | 0 65 ug/L |           |
| 1330-20-7  | m+p-Xylenes               |       |          | not detected | nle                      | 1 14 ug/L |           |
| 1330-20-7  | o-Xylene                  |       |          | not detected | nle                      | 0 62 ug/L |           |
| 100-42-5   | Styrene                   |       |          | not detected | 100                      | 0 56 ug/L |           |
| 75-25-2    | Bromoform                 |       |          | not detected | 4                        | 0 70 ug/L |           |
| 79-34-5    | 1,1,2,2-Tetrachloroethane |       |          | not detected | 2                        | 0 47 ug/L |           |
| 541-73-1   | 1,3-Dichlorobenzene       |       |          | not detected | 600                      | 0 55 ug/L |           |
| 106-46-7   | 1,4-Dichlorobenzene       |       |          | not detected | 75                       | 0 57 ug/L |           |
| 95-50 1    | 1,2-Dichlorobenzene       |       |          | not detected | 600                      | 0 64 ug/L |           |

\*Higher of PQL's and Ground Water Quality Criteria as per N J A C , 7 9-6 2-Sept 97

**Qualifiers**

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

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

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

491 GW

Lab Name FMETL NJDEP# 13461  
Project UST Case No 16025 Location B491 SDG No \_\_\_\_\_  
Matrix (soil/water) WATER Lab Sample ID 16025 01  
Sample wt/vol 5.0 (g/ml) ML Lab File ID VC005450 D  
Level (low/med) LOW Date Received 4/2/01  
% Moisture not dec \_\_\_\_\_ Date Analyzed 4/4/01  
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 |
|--------|---------------|----|----------|---|
|--------|---------------|----|----------|---|

# **SEMI- VOLATILES**

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

Data File Name BNA05201 D  
 Operator Bhaskar  
 Date Acquired 10-Apr-01

Sample Name MB-1625  
 Misc Info MB-010406  
 Sample Multiplier 1

| CAS#       | Name                        | R.T   | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifiers |
|------------|-----------------------------|-------|----------|--------------|--------------------------|-----------|------------|
| 110-86-1   | Pyridine                    |       |          | not detected | NLE                      | 1.54 ug/L |            |
| 62-75-9    | N-nitroso-dimethylamine     |       |          | not detected | 20                       | 0.69 ug/L |            |
| 62-53-3    | Aniline                     |       |          | not detected | NLE                      | 1.85 ug/L |            |
| 111-44-4   | bis(2-Chloroethyl)ether     |       |          | not detected | 10                       | 0.63 ug/L |            |
| 541-73-1   | 1,3-Dichlorobenzene         |       |          | not detected | 600                      | 0.62 ug/L |            |
| 106-46-7   | 1,4-Dichlorobenzene         |       |          | not detected | 75                       | 0.58 ug/L |            |
| 100-51-6   | Benzyl alcohol              |       |          | not detected | NLE                      | 0.62 ug/L |            |
| 95-50-1    | 1,2-Dichlorobenzene         |       |          | not detected | 600                      | 0.65 ug/L |            |
| 39638-32-9 | bis(2-chloroisopropyl)ether |       |          | not detected | 300                      | 0.57 ug/L |            |
| 621-64-7   | n-Nitroso-di-n-propylamine  |       |          | not detected | 20                       | 0.64 ug/L |            |
| 67-72-1    | Hexachloroethane            |       |          | not detected | 10                       | 0.34 ug/L |            |
| 98-95-3    | Nitrobenzene                |       |          | not detected | 10                       | 0.51 ug/L |            |
| 78-59-1    | Isophorone                  |       |          | not detected | 100                      | 0.45 ug/L |            |
| 111-91-1   | bis(2-Chloroethoxy)methane  |       |          | not detected | NLE                      | 0.48 ug/L |            |
| 120-82-1   | 1,2,4-Trichlorobenzene      |       |          | not detected | 9                        | 0.54 ug/L |            |
| 91-20-3    | Naphthalene                 |       |          | not detected | NLE                      | 0.72 ug/L |            |
| 106-47-8   | 4-Chloroaniline             |       |          | not detected | NLE                      | 1.78 ug/L |            |
| 87-68-3    | Hexachlorobutadiene         |       |          | not detected | 1                        | 0.43 ug/L |            |
| 91-57-6    | 2-Methylnaphthalene         |       |          | not detected | NLE                      | 0.55 ug/L |            |
| 77-47-4    | Hexachlorocyclopentadiene   |       |          | not detected | 50                       | 0.76 ug/L |            |
| 91-58-7    | 2-Chloronaphthalene         |       |          | not detected | NLE                      | 0.53 ug/L |            |
| 88-74-4    | 2-Nitroaniline              |       |          | not detected | NLE                      | 1.04 ug/L |            |
| 131-11-3   | Dimethylphthalate           |       |          | not detected | 7000                     | 1.04 ug/L |            |
| 208-96-8   | Acenaphthylene              |       |          | not detected | NLE                      | 0.70 ug/L |            |
| 606-20-2   | 2,6-Dinitrotoluene          |       |          | not detected | NLE                      | 0.92 ug/L |            |
| 99-09-2    | 3-Nitroaniline              |       |          | not detected | NLE                      | 1.93 ug/L |            |
| 83-32-9    | Acenaphthene                |       |          | not detected | 400                      | 0.62 ug/L |            |
| 132-64-9   | Dibenzofuran                |       |          | not detected | NLE                      | 0.73 ug/L |            |
| 121-14-2   | 2,4-Dinitrotoluene          |       |          | not detected | 10                       | 1.41 ug/L |            |
| 84-66-2    | Diethylphthalate            | 18.48 | 56454    | 1.81 ug/L    | 5000                     | 1.54 ug/L |            |
| 86-73-7    | Fluorene                    |       |          | not detected | 300                      | 0.98 ug/L |            |
| 7005-72-3  | 4-Chlorophenyl phenylether  |       |          | not detected | NLE                      | 0.86 ug/L |            |
| 100-01-6   | 4-Nitroaniline              |       |          | not detected | NLE                      | 2.96 ug/L |            |
| 86-30-6    | n-Nitrosodiphenylamine      |       |          | not detected | 20                       | 1.44 ug/L |            |
| 103-33-3   | Azobenzene                  |       |          | not detected | NLE                      | 1.00 ug/L |            |
| 101-55-3   | 4-Bromophenyl-phenylether   |       |          | not detected | NLE                      | 1.28 ug/L |            |
| 118-74-1   | Hexachlorobenzene           |       |          | not detected | 10                       | 1.08 ug/L |            |
| 85-01-8    | Phenanthrene                |       |          | not detected | NLE                      | 1.73 ug/L |            |
| 120-12-7   | Anthracene                  |       |          | not detected | 2000                     | 1.85 ug/L |            |
| 84-74-2    | Di-n-butylphthalate         |       |          | not detected | 900                      | 2.49 ug/L |            |
| 206-44-0   | Fluoranthene                |       |          | not detected | 300                      | 1.48 ug/L |            |

# Semi-Volatile Analysis Report

Page 2

Data File Name BNA05201.D

Operator Bhaskar

Date Acquired 10-Apr-01

Sample Name MB-1625

Misc Info MB-010406

Sample Multiplier 1

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

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

## Qualifiers

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

PQL= Practical Quantitation Limit

MDL= Method Detection Limit

NLE= No Limit Established

R T =Retention Time

Page 2 of 2

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

|                |
|----------------|
| <b>MB-1625</b> |
|----------------|

Lab Name FMETL Lab Code 13461

Project LTM Case No 16025 Location BI 491 SDG No           

Matrix (soil/water) WATER Lab Sample ID MB-1625

Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05201 D

Level (low/med) LOW Date Received 3/31/01

% Moisture            decanted (Y/N) N Date Extracted 4/6/01

Concentrated Extract Volume 1000 (uL) Date Analyzed 4/10/01

Injection Volume 10 (uL) Dilution Factor 10

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 |
|------------|---------------|----|----------|---|
|------------|---------------|----|----------|---|

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

Data File Name BNA05207 D  
 Operator Bhaskar  
 Date Acquired 10-Apr-01

Sample Name 1602501  
 Misc Info 491 GW  
 Sample Multiplier 1

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

# Semi-Volatile Analysis Report

## Page 2

Data File Name BNA05207.D  
Operator Bhaskar  
Date Acquired 10-Apr-01

Sample Name 1602501  
Misc Info 491 GW  
Sample Multiplier 1

| CAS#     | Name                       | R.T | Response | Result       | Regulatory Level (ug/L)* | MDL       | Qualifiers |
|----------|----------------------------|-----|----------|--------------|--------------------------|-----------|------------|
| 92-87-5  | Benzidine                  |     |          | not detected | 50                       | 2 15 ug/L |            |
| 129-00-0 | Pyrene                     |     |          | not detected | 200                      | 1 53 ug/L |            |
| 85-68-7  | Butylbenzylphthalate       |     |          | not detected | 100                      | 1 24 ug/L |            |
| 56-55-3  | Benzo[a]anthracene         |     |          | not detected | 10                       | 2 68 ug/L |            |
| 91-94-1  | 3,3'-Dichlorobenzidine     |     |          | not detected | 60                       | 1 60 ug/L |            |
| 218-01-9 | Chrysene                   |     |          | not detected | 20                       | 1 14 ug/L |            |
| 117-81-7 | bis(2-Ethylhexyl)phthalate |     |          | not detected | 30                       | 1 34 ug/L |            |
| 117-84-0 | Di-n-octylphthalate        |     |          | not detected | 100                      | 1 44 ug/L |            |
| 205-99-2 | Benzo[b]fluoranthene       |     |          | not detected | 10                       | 1 32 ug/L |            |
| 207-08-9 | Benzo[k]fluoranthene       |     |          | not detected | 2                        | 1 15 ug/L |            |
| 50-32-8  | Benzo[a]pyrene             |     |          | not detected | 20                       | 2 43 ug/L |            |
| 193-39-5 | Indeno[1,2,3-cd]pyrene     |     |          | not detected | 20                       | 2 24 ug/L |            |
| 53-70-3  | Dibenz[a,h]anthracene      |     |          | not detected | 20                       | 1 94 ug/L |            |
| 191-24-2 | Benzo[g,h,i]perylene       |     |          | not detected | NLE                      | 2 04 ug/L |            |

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

### Qualifiers

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id

491 GW

Lab Name FMETL Lab Code 13461  
Project LTM Case No 16025 Location BI 491 SDG No \_\_\_\_\_  
Matrix (soil/water) WATER Lab Sample ID 1602501  
Sample wt/vol 1000 (g/ml) ML Lab File ID BNA05207 D  
Level (low/med) LOW Date Received 3/31/01  
% Moisture \_\_\_\_\_ decanted (Y/N) N Date Extracted 4/6/01  
Concentrated Extract Volume 1000 (uL) Date Analyzed 4/10/01  
Injection Volume 10 (uL) Dilution Factor 10  
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 |
|------------|---------------|----|----------|---|
|------------|---------------|----|----------|---|

## LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

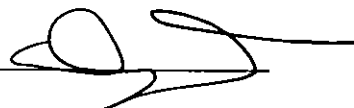
THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT  
AND ACCOMPANY ALL DATA SUBMISSIONS

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 | <input checked="" type="checkbox"/> |
| 2  | Table of Contents submitted                                                                               | <input checked="" type="checkbox"/> |
| 3  | Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted           | <input checked="" type="checkbox"/> |
| 4  | Document paginated and legible                                                                            | <input checked="" type="checkbox"/> |
| 5  | Chain of Custody submitted                                                                                | <input checked="" type="checkbox"/> |
| 6  | Samples submitted to lab within 48 hours of sample collection                                             | <input checked="" type="checkbox"/> |
| 7  | Methodology Summary submitted                                                                             | <input checked="" type="checkbox"/> |
| 8  | Laboratory Chronicle and Holding Time Check submitted                                                     | <input checked="" type="checkbox"/> |
| 9  | Results submitted on a dry weight basis                                                                   | <input checked="" type="checkbox"/> |
| 10 | Method Detection Limits submitted                                                                         | <input checked="" type="checkbox"/> |
| 11 | Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP  | <input checked="" type="checkbox"/> |

Laboratory Manager or Environmental Consultant's Signature  
Date 4/12/01



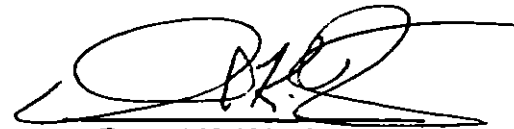
Laboratory Certification #13461

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

000030

## **Laboratory Authentication Statement**

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

A handwritten signature in black ink, appearing to read 'D.K. Wright', is written over a horizontal line.

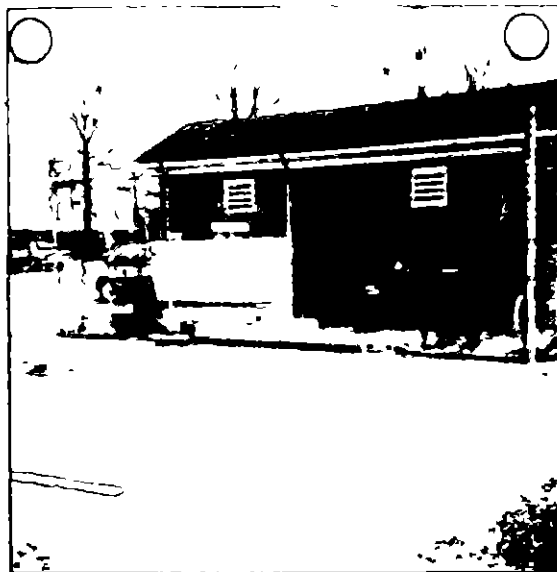
Daniel K. Wright  
Laboratory Manager

## Appendix G

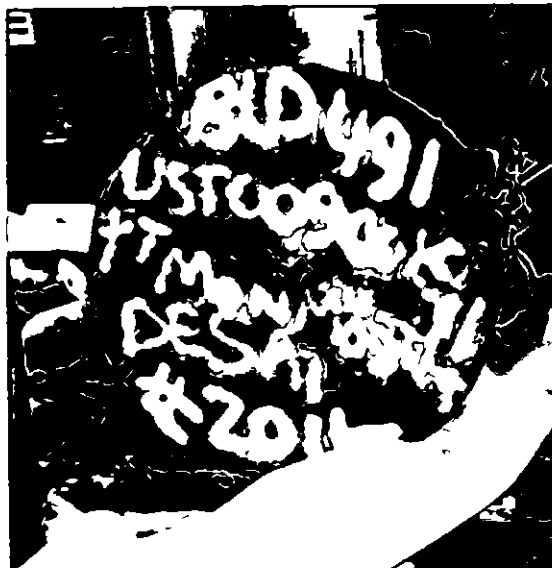
**APPENDIX G**  
**PHOTOGRAPHS**

**PHOTO**





Blg. 491 - UST - 275 gal - Steel - N10  
 Installed - 1982  
 C. Appleby - 4/30/92



Blg 491  
 UST 0090010-71

JULY 27, 1994

# PHOTOGRAPHIC LOG

UST NO. 90010-71

Building 491  
 Main Post-East  
 Fort Monmouth

VERSAR  
 Engineers, Managers, Scientists & Planners  
 Bristol, PA