

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

**COPY**

---

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

***Building 801A  
Main Post-West Area***

---

**NJDEP UST Registration No. 0081533-128**

**DECEMBER 1998**

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

**BUILDING 801A**

**MAIN POST-WEST AREA  
NJDEP UST REGISTRATION NO. 0081533-128**

**DECEMBER 1998**

**PREPARED FOR:**

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

**PREPARED BY:**

**VERSAR  
1900 FROST ROAD  
SUITE 110  
BRISTOL, PA 19007**

**PROJECT NO. 2491-308**

## **TABLE OF CONTENTS**

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

## **TABLE OF CONTENTS (CONTINUED)**

### **TABLES**

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

### **FIGURES**

|                 |                                   |
|-----------------|-----------------------------------|
| <b>Figure 1</b> | <b>Site Location Map</b>          |
| <b>Figure 2</b> | <b>Site Map</b>                   |
| <b>Figure 3</b> | <b>Cross Sectional View</b>       |
| <b>Figure 4</b> | <b>Soil Sampling Location Map</b> |

### **APPENDICES**

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

## EXECUTIVE SUMMARY

### UST Closure

On July 16, 1998, a fiberglass underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) underground storage tank procedures at the Main Post-West area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081533-128 (Fort Monmouth ID No. 801A), was located northeast of Building 801A. UST No. 0081533-128 was a 2,000-gallon No. 2 fuel oil UST.

### Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes or punctures. No holes or punctures were noted in the UST. Groundwater was encountered at a depth of 7.0 feet bgs. No evidence of potentially contaminated soil or groundwater was observed surrounding the tank. Soil samples contained TPHC concentrations ranging from non detect to 223.44 mg/kg.

### Site Restoration

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with crushed stone, sand, and native backfill and restored to its original condition.

### Conclusions and Recommendations

Based on the post-excavation soil sampling results, soils 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.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-128 at Building 801A.

## 1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

### 1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-128, was closed at Building 801A at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on July 16, 1998. Refer to site location map on Figure 1. This report presents the results of the Department of Public Works= (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a fiberglass 2,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-128 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. The decommissioning activities were conducted by DPW personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 0081533-128 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 0081533-128 are included in Appendices A and B, respectively.

Based on inspecting the UST, field screening of subsurface soils and groundwater, and reviewing analytical results of collected soil 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 United States Army Directorate of Public Works (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 investigation, are presented in the final section of this report.

## 1.2 SITE DESCRIPTION

Building 801A is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-128 was located northeast of Building 801A and appurtenant copper piping ran approximately eight (8) feet south from the excavation to Building 801A. 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 801A. 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.

#### 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. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapeczka, 1990).

#### Local Geology

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

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

### Hydrogeology

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

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

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

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

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

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

Building 801A located approximately 400 feet south of Husky Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 801A is anticipated to be to the north.

### **1.3 HEALTH AND SAFETY**

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

### **1.4 REMOVAL OF UNDERGROUND STORAGE TANK**

#### **1.4.1 General Procedures**

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

#### **1.4.2 Underground Storage Tank Excavation and Cleaning**

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 50 gallons of liquid from the UST and its associated piping were transported by Casie Protank to Casie Ecology Oil Salvage, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Vineland, 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-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. No evidence of contamination was observed. Soil screening was also performed along the piping run associated with the UST closure. No contamination was noted anywhere along the piping length. Groundwater was encountered at a depth of 7.0 feet bgs 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 tank was transported to Mazza and Sons, Inc., Metal Recyclers. See Appendix D for a copy of the UST disposal certificate and Appendix F for photographs of the UST. The transportation of the UST was in compliance with all applicable regulations and laws.

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

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

## **1.6 MANAGEMENT OF EXCAVATED SOILS**

Based on OVA air monitoring and TPHC analysis results from the post-excavation soil samples, no soils exhibited signs of contamination. Therefore, the excavated soils were used as backfill following removal of the UST.

## 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. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

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.: 0010173
- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory  
Contact Person: Daniel K. Wright  
Phone Number: (908) 532-4359  
NJDEP Company Certification No.: 13461
- Hazardous Waste Hauler: Casie Protank Environmental Services  
Contact Person: Bob Corsiglia  
Phone Number: (609) 696-4401  
NJDEP Company Certification No.: 16931

### 2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom, did not exhibit any evidence of potential contamination. Groundwater was encountered at a depth of 7.0 feet bgs and no sheen was observed.

## 2.3 SOIL SAMPLING

On July 16, 1998, following the removal of the UST, post-excavation soil samples A, B, C, D, E, F, and DUP E were collected from a total of six (6) locations of the UST excavation. Sample A was collected along the excavation floor at a depth of 9.5 feet bgs. Sidewall samples B, C, D, E and DUP E were collected at a depth of 6.5 feet bgs. Piping sample F was collected at a depth of 1.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

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

### **3.0 CONCLUSIONS AND RECOMMENDATIONS**

#### **3.1 SOIL SAMPLING RESULTS**

To evaluate soil conditions following removal of the UST, post-excavation soil samples were collected on July 16, 1998, from a total of six (6) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on July 16, 1998, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained levels of TPHC ranging in concentration from non-detect to 223.44 mg/kg.

#### **3.2 CONCLUSIONS AND RECOMMENDATIONS**

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 801A were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on the post-excavation sampling results, soils 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.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-128 at Building 801A.

## TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
BUILDING 801A, MAIN POST-WEST AREA  
FORT MONMOUTH, NEW JERSEY

Page 1 of 1

---

| Sample ID | Date of<br>Collection | Date Analysis<br>Started | Matrix | Sample Type     | Analytical Parameters* | Analysis Method |
|-----------|-----------------------|--------------------------|--------|-----------------|------------------------|-----------------|
| A         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| B         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| C         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| D         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| E         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| F         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| G         | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |
| DUP E     | 7/16/98               | 7/17/98                  | Soil   | Post-Excavation | TPHC                   | OQA-QAM-025     |

Note:

\* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS  
 BUILDING 801A, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

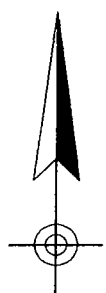
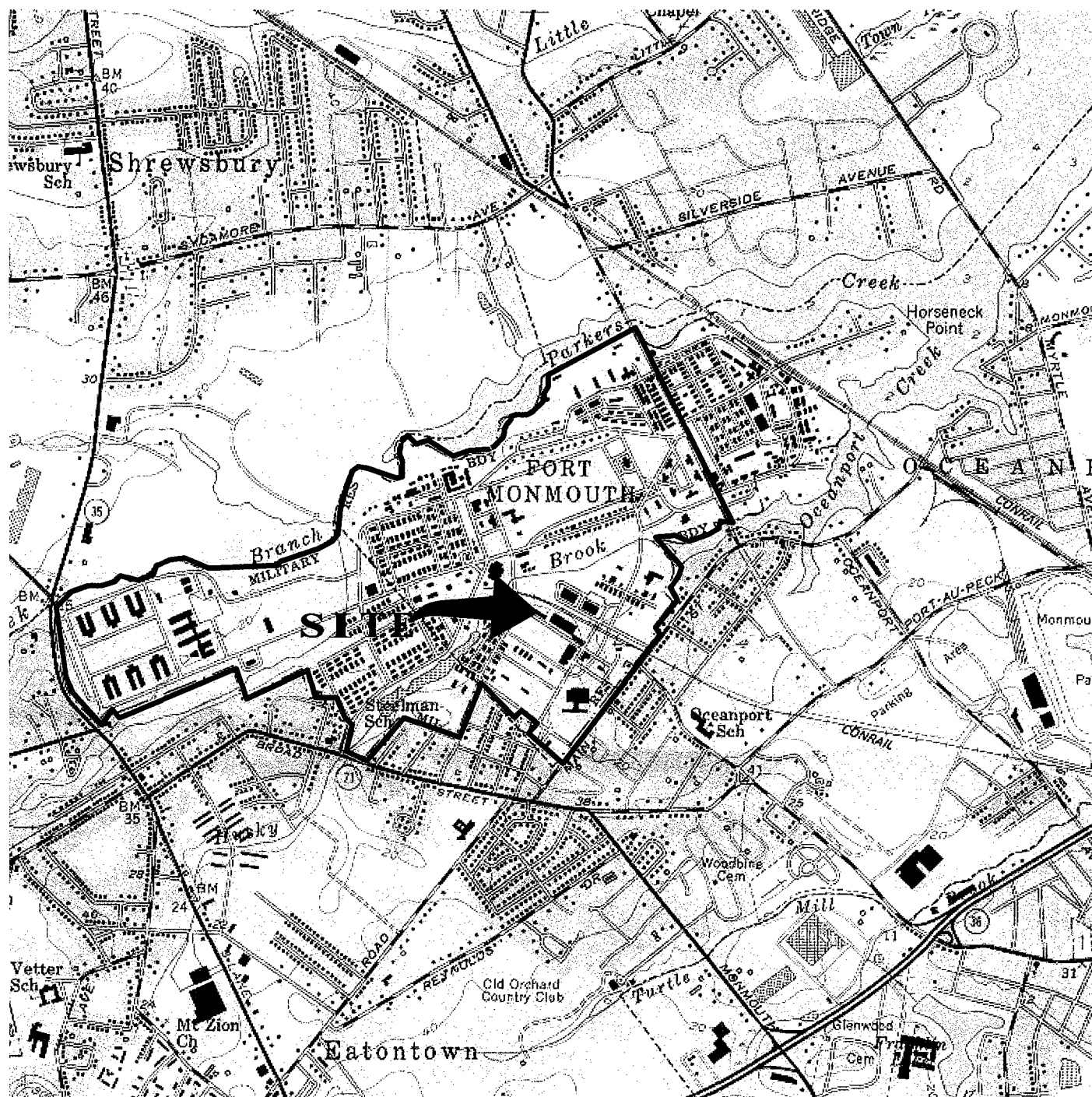
Page 1 of 1

| Sample ID/<br>Depth | Sample<br>Laboratory ID | Sample<br>Date | Analysis<br>Date | Analytical<br>Method<br>Used | Method<br>Detection<br>Limit<br>(mg/kg) | Compound<br>of<br>Concern | Result<br>(mg/kg) * | NJDEP<br>Soil Cleanup<br>Criteria **<br>(mg/kg) | Exceeds<br>Cleanup<br>Criteria |
|---------------------|-------------------------|----------------|------------------|------------------------------|-----------------------------------------|---------------------------|---------------------|-------------------------------------------------|--------------------------------|
| A/9.5=              | 3730.01                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 83.96               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 177                                     | Yes                       | ND                  | 10,000                                          | No                             |
| B/6.5=              | 3730.02                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 86.70               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 179                                     | Yes                       | 223.44              | 10,000                                          | No                             |
| C/6.5=              | 3730.03                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 77.67               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 196                                     | Yes                       | ND                  | 10,000                                          | No                             |
| D/6.5=              | 3730.04                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 78.17               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 193                                     | Yes                       | ND                  | 10,000                                          | No                             |
| E/6.5=              | 3730.05                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 86.85               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 172                                     | Yes                       | ND                  | 10,000                                          | No                             |
| F/1.0=              | 3730.06                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 87.92               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 175                                     | Yes                       | ND                  | 10,000                                          | No                             |
| DUP E /6.5=         | 3730.07                 | 7/16/98        | 7/17/98          | Total Solid                  | --                                      | --                        | 84.12               | --                                              | --                             |
|                     |                         |                |                  | TPHC                         | 176                                     | Yes                       | ND                  | 10,000                                          | No                             |

## Note:

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

FIGURES



LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822



QUADRANGLE LOCATION

## FIGURE 1

**SITE LOCATION MAP**  
**Building 801A**  
**Main Post-West**  
**Fort Monmouth Army Base**  
**Monmouth County, NJ**

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

SCALE: 1"= 2000'

DATE: JULY 1998

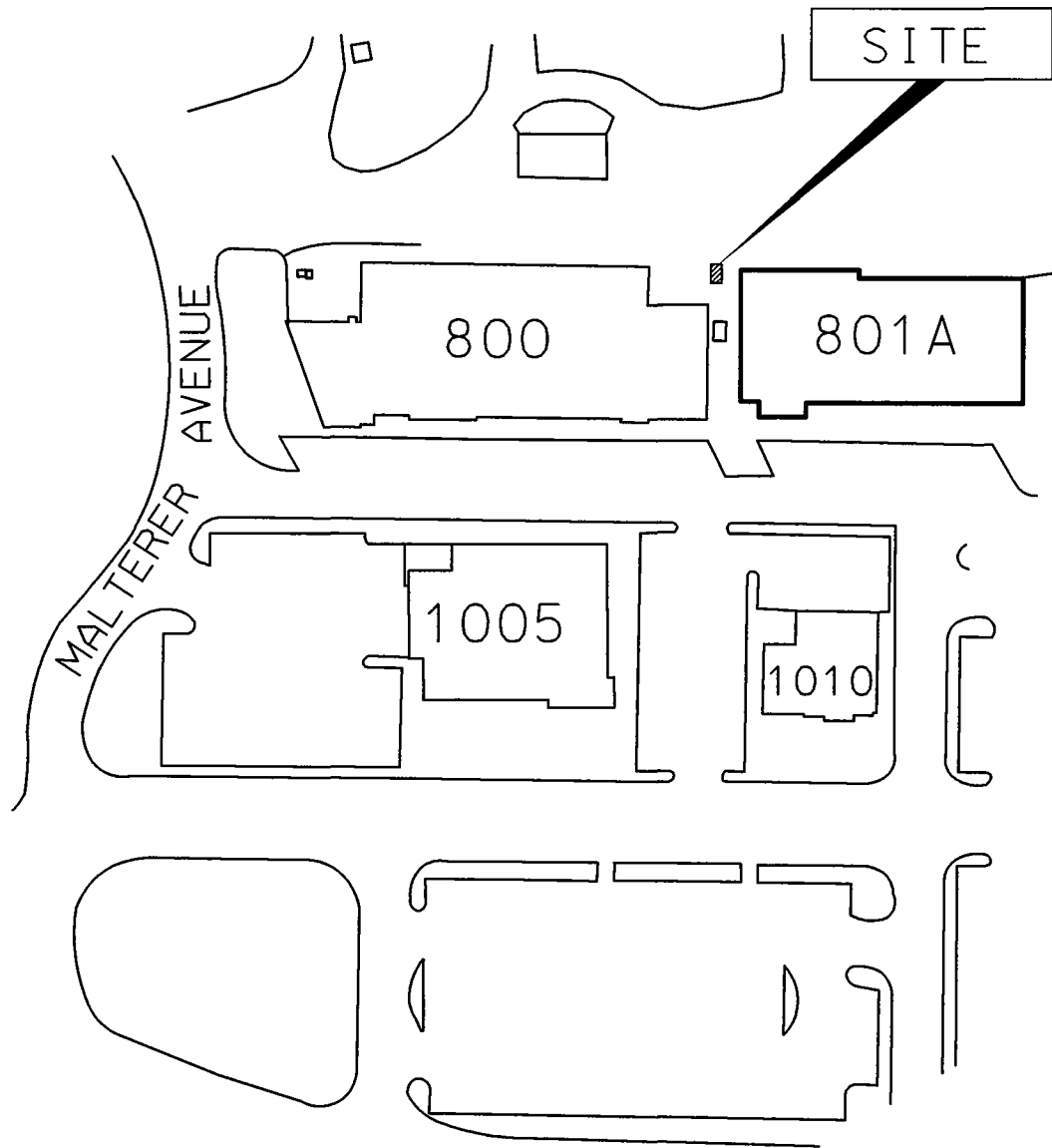
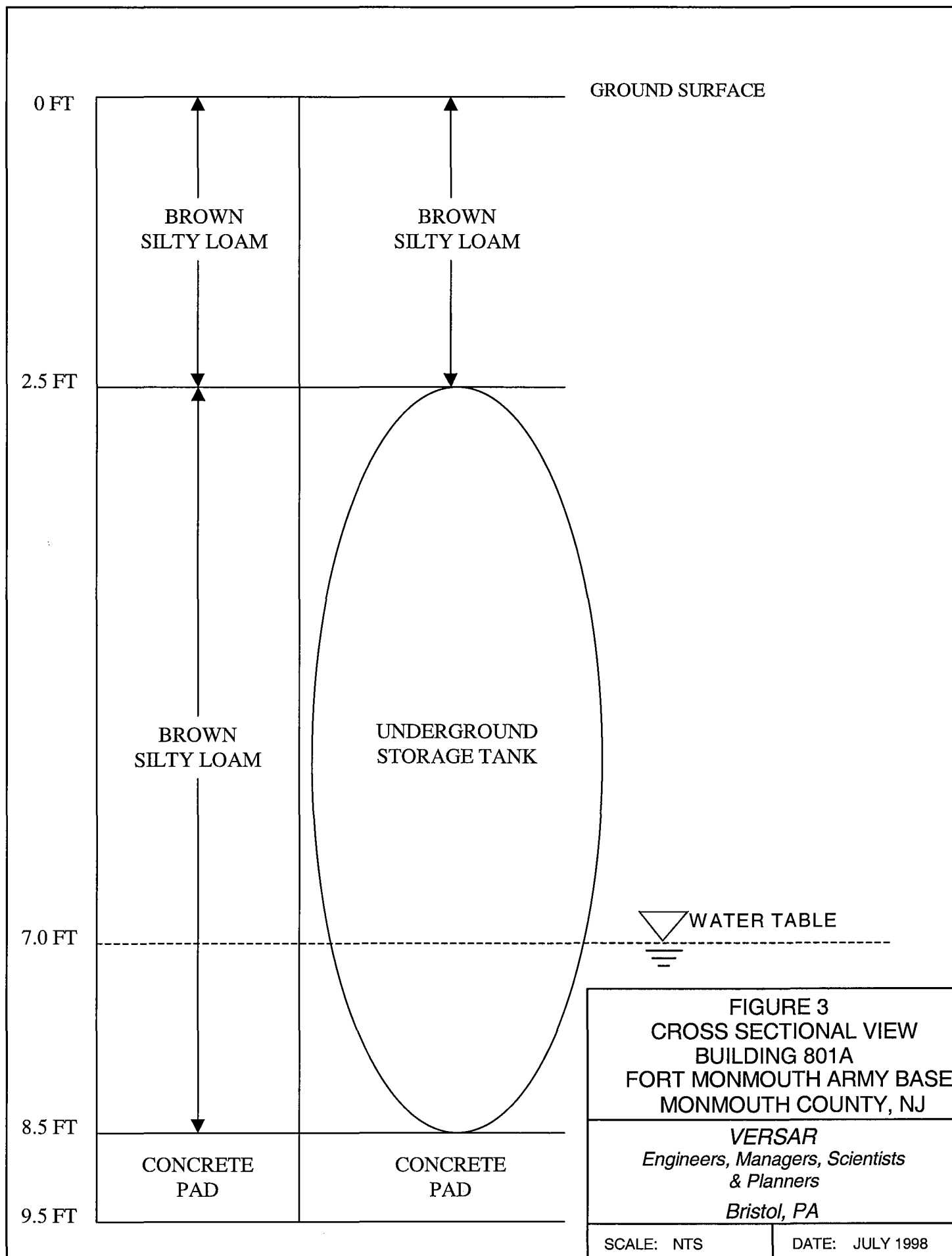


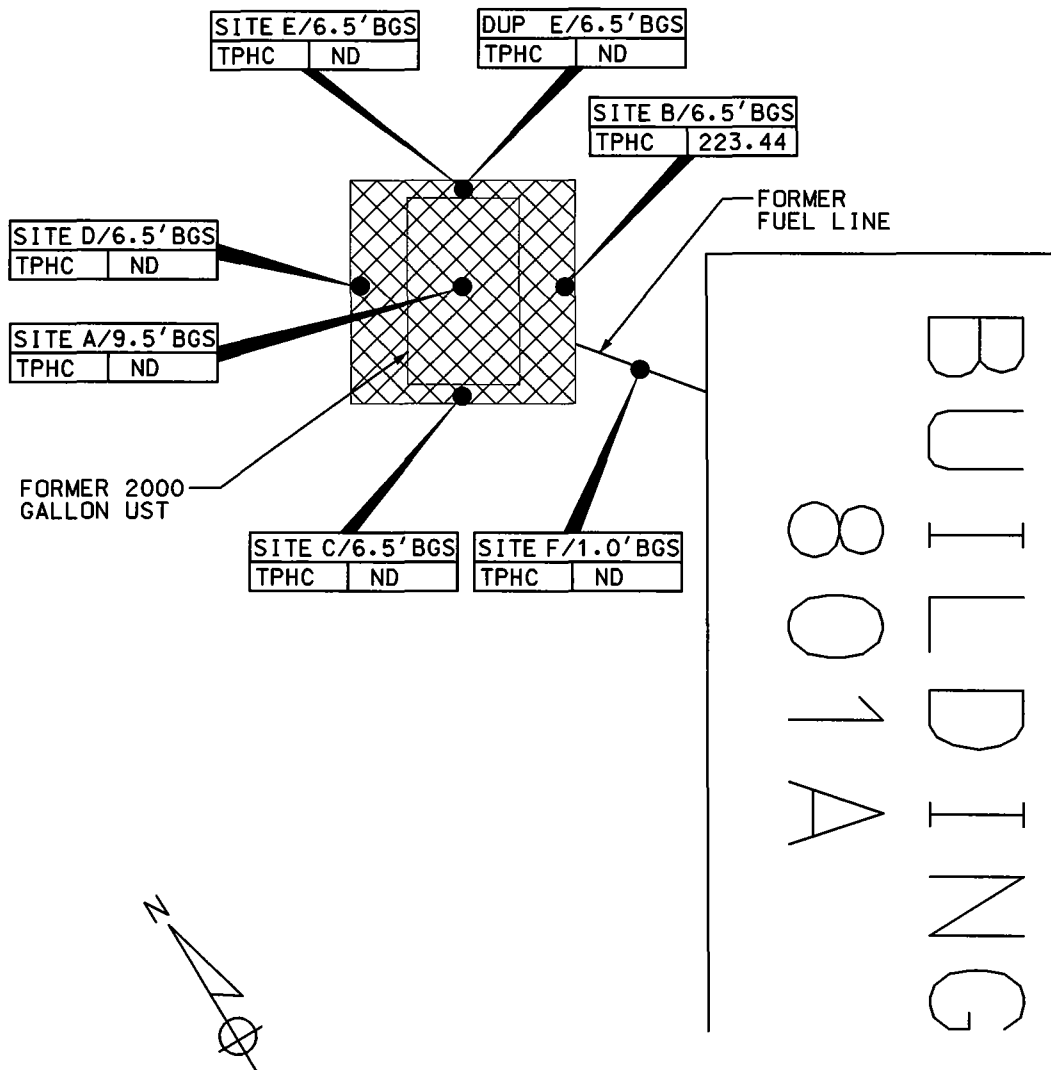
FIGURE 2  
SITE MAP  
BUILDING 801A  
FORT MONMOUTH ARMY BASE  
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: JULY 1998





#### LEGEND

- SOIL SAMPLE LOCATION  
(JULY 16, 1998)
- ▨ LIMIT OF EXCAVATION  
(JULY 16, 1998)

#### NOTES:

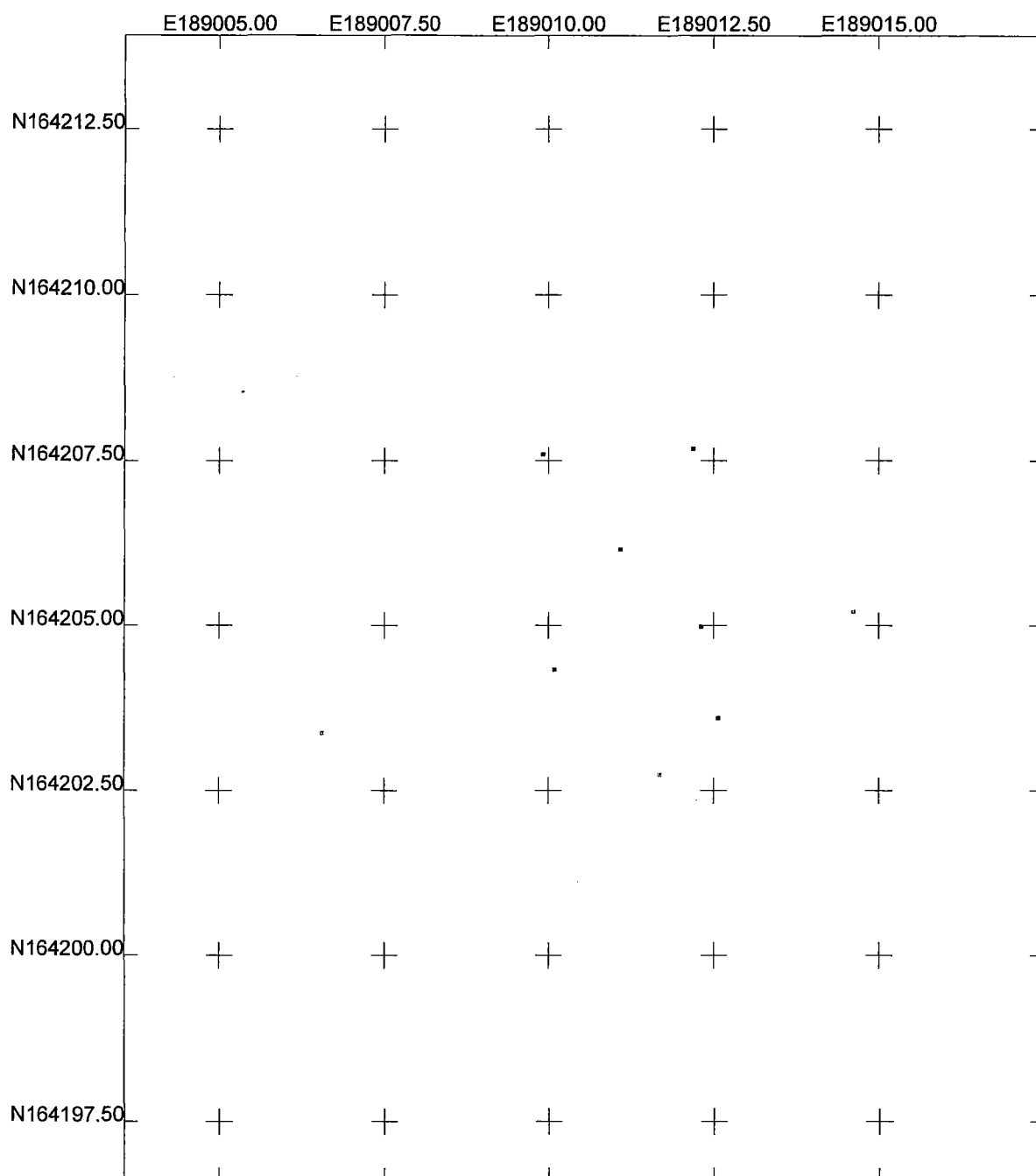
1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE

FIGURE 4  
SOIL SAMPLING LOCATION MAP  
BUILDING 801A  
FORT MONMOUTH ARMY BASE  
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: JULY 1998



**Figure 4 GPS Sampling Locations Map**

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



Scale 1:100  
0 3.000  
Meters

r102614a.cor  
12/10/1998  
Pathfinder Office  
 **Trimble**

#### **Figure 4 GPS Sampling Location Point Data**

US State Plane 1983 NJ (NY East) 2900 Nad 1983 (Conus)

##### **Refernce Points**

| <b><u>Locatons</u></b> | <b><u>Y Coord. ( Northing )</u></b> | <b><u>X Coord. ( Easting )</u></b> |
|------------------------|-------------------------------------|------------------------------------|
| 801 BLDG CORNER        | 164205.217                          | 189014.603                         |
| 800 BLDG CORNER        | 164203.374                          | 189006.535                         |
| UTILITY POLE           | 164202.755                          | 189011.657                         |

##### **Sample Points**

| <b><u>Locatons</u></b> | <b><u>Y Coord. ( Northing )</u></b> | <b><u>X Coord. ( Easting )</u></b> |
|------------------------|-------------------------------------|------------------------------------|
| 801A A                 | 164206.17                           | 189011.061                         |
| 801A B                 | 164204.992                          | 189012.295                         |
| 801A C                 | 164204.341                          | 189010.085                         |
| 801A D                 | 164207.61                           | 189009.911                         |
| 801A E                 | 164207.696                          | 189012.176                         |
| 801A F                 | 164203.608                          | 189012.55                          |

**APPENDIX A**

**NJDEP-STANDARD REPORTING FORM**

FOR STATE USE ONLY

Check In ☐ Yes ☐ No

STATUS COMCODE  
Active Inactive

☐ ☐ ☐ ☐ ☐

UNDERGROUND STORAGE TANK  
FACILITY QUESTIONNAIRE

FACILITY UST # 0081533

BLDG. 801-A

Completion of this Registration Questionnaire will satisfy the registration requirements of the Underground Storage of Hazardous Substances Act, N.J.S.A. 58:10A-21, and the Registration and Billing Regulations N.J.A.C. 7:14B-2.

[Check appropriate box(es)]

- A. ☐ Is this a registration of a proposed or newly installed underground storage tank? (This form must be filed at least 30 days prior to operation)  
B. ☐ Is this a registration of an existing underground storage tank not presently registered?  
C. ☒ Is this a correction or amendment to an existing facility registration? UST # 0081533  
D. ☐ There have been no changes to the facility registration since last submittal. UST # \_\_\_\_\_ (Go to certification page for signatures)

If "C" is checked above, please check the appropriate type of change(s) below

- |                                                                  |                                                          |                                                                            |
|------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Facility Name and/or Address Change     | <input type="checkbox"/> Type of Product(s) Stored       | <input type="checkbox"/> Financial Responsibility Change                   |
| <input type="checkbox"/> Owner Name and/or Address Change        | <input type="checkbox"/> Spills, Leaks, Releases         | <input type="checkbox"/> Substantial Modification(s)                       |
| <input type="checkbox"/> Facility Operator and/or Address Change | <input type="checkbox"/> Tank(s) and/or Piping Changes   | <input type="checkbox"/> Sale or Transfer (Complete Questions 4,5,6 & 13D) |
| <input type="checkbox"/> Owner Contact Person Change             | <input type="checkbox"/> Closure (Complete Question #13) | <input checked="" type="checkbox"/> Other (please specify)                 |

Correct prior SRF ERROR:  
INCORRECT REMOVAL DATE

SECTION A - GENERAL FACILITY INFORMATION

1. Facility Name MAIN POST WEST

2. Facility Location FORT MONMOUTH

NUMBER AND STREET

CITY OR MUNICIPALITY

COUNTY

STATE N.J.

ZIP CODE

BLOCK

LOT

3. Facility Operator \_\_\_\_\_

PERSON OR TITLE

Contact Tele. No. \_\_\_\_\_

(Area Code)

(Extension)

Operator Address (if different than #2) \_\_\_\_\_

NUMBER AND STREET

CITY OR MUNICIPALITY

STATE

ZIP CODE

4. Tank Owner \_\_\_\_\_

5. Tank Owner Address \_\_\_\_\_

NUMBER AND STREET

CITY OR MUNICIPALITY

STATE

ZIP CODE

Contact Person (Tank Owner) CHARLES APPELBY

Contact 7325326224

Tele. No. (Area Code)

(Extension)

7. EPA ID # ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

8. Total number of regulated underground storage tanks at facility ☐ ☐ ☐ (Complete Section B for each tank)

BLDG. 801-A

11. Is a copy of the facility site plan submitted with this registration pursuant to N.J.A.C. 7:14B-2? ☐ YES ☐ NO

**ALL underground tanks, including those taken out of operation (UNLESS THE TANK WAS REMOVED FROM THE GROUND PRIOR TO 9/3/86) must be registered. Report all tank/piping status changes unless previously submitted.**

| 1. Tank Identification Number                                                       | TANK NO.     | TANK NO.     | TANK NO.     | TANK NO.     | TANK NO.     |
|-------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|
| 2. CAS Number (hazardous substances only)                                           |              |              |              |              |              |
| 3. Date Tank Installed (Month/Day/Year)                                             | Mo. Day Year | Mo. Day Year | Mo. Day Year | Mo. Day Year | Mo. Day Year |
| 4. Tank Size (gallons)                                                              |              |              |              |              |              |
| 5. Tank Contents (Mark one "X" for each tank)                                       |              |              |              |              |              |
| A. Lead gasoline                                                                    |              |              |              |              |              |
| B. Unleaded gasoline                                                                |              |              |              |              |              |
| C. Alcohol enriched gasoline                                                        |              |              |              |              |              |
| D. Light diesel fuel (No. 1-D)                                                      |              |              |              |              |              |
| E. Medium diesel fuel (No. 2-D)                                                     |              |              |              |              |              |
| F. Waste Oil                                                                        |              |              |              |              |              |
| G. Kerosene (No. 1)                                                                 |              |              |              |              |              |
| H. Home heating oil (No. 2)                                                         |              |              |              |              |              |
| J. Heating oil (No. 4)                                                              |              |              |              |              |              |
| K. Heavy heating oil (No. 6)                                                        |              |              |              |              |              |
| L. Aviation fuel                                                                    |              |              |              |              |              |
| M. Motor oil                                                                        |              |              |              |              |              |
| N. Lubricating oil                                                                  |              |              |              |              |              |
| P. Sewage                                                                           |              |              |              |              |              |
| Q. Sewage sludge                                                                    |              |              |              |              |              |
| R. Other hazardous substances (specify)                                             |              |              |              |              |              |
| S. Hazardous waste (specify ID number)                                              |              |              |              |              |              |
| T. Mixtures (please specify)                                                        |              |              |              |              |              |
| U. Emergency spill tank (specify substance)                                         |              |              |              |              |              |
| V. Other petroleum products (please specify)                                        |              |              |              |              |              |
| W. Other (please specify)                                                           |              |              |              |              |              |
| 6. Tank & Piping Construction (Mark one each for both tank & piping)                | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  |
| A. Bare Steel                                                                       |              |              |              |              |              |
| B. Cathodically protected steel                                                     |              |              |              |              |              |
| C. Fiberglass-coated steel                                                          |              |              |              |              |              |
| D. Fiberglass-reinforced plastic                                                    |              |              |              |              |              |
| E. Internally lined                                                                 |              |              |              |              |              |
| F. Other (please specify)                                                           |              |              |              |              |              |
| 7. Tank & Piping Structure (Mark one each for both tank & piping)                   | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  |
| A. Single wall                                                                      |              |              |              |              |              |
| B. Double wall                                                                      |              |              |              |              |              |
| C. Other (please specify)                                                           |              |              |              |              |              |
| 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  | Tank Piping  |
| A. Statistical Inventory Reconciliation                                             |              |              |              |              |              |
| B. Manual Tank Gauging                                                              |              |              |              |              |              |
| C. Inventory Control                                                                |              |              |              |              |              |
| D. Interstitial                                                                     |              |              |              |              |              |
| E. Precision Test                                                                   |              |              |              |              |              |
| F. Ground water observation wells                                                   |              |              |              |              |              |
| G. Vapor observation wells                                                          |              |              |              |              |              |
| H. In-tank (automatic) monitoring gauge                                             |              |              |              |              |              |
| J. Periodic Tank Test                                                               |              |              |              |              |              |

BLDG. 801-A

| Tank Identification Number                                                                            | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] |
|-------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 8. Type of Monitoring/Detection System                                                                | Tank Piping              | Tank Piping              | Tank Piping              | Tank Piping              | Tank Piping              |
| K. None                                                                                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| L. Other (please specify)                                                                             |                          |                          |                          |                          |                          |
| 9. Overfill Protection (tank only)<br>(Mark one X for each tank)                                      |                          |                          |                          |                          |                          |
| A. Yes                                                                                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B. No                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Spill Containment Around Fill Pipe<br>(Mark one X for each tank)                                  |                          |                          |                          |                          |                          |
| A. Yes                                                                                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B. No                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Tank Status (Mark one X for each tank)                                                            | Tank Piping              | Tank Piping              | Tank Piping              | Tank Piping              | Tank Piping              |
| A. In-use                                                                                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B. Empty less than 12 months                                                                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C. Empty 12 months or more                                                                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D. Emergency spill tank (sump)                                                                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E. Emergency backup generator tank                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F. Abandoned in Place                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| G. Removed                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| H. Other (please specify)                                                                             |                          |                          |                          |                          |                          |
| 12. If box 11B, C, or D above has been marked, indicate the estimated date last used (month/day/year) | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             |
| 13. Closure Information - Tank ID No.<br>BLDG. 801-A                                                  | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] | TANK NO.<br>[ ][ ][ ][ ] |
| A. Date abandoned in place                                                                            | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             | Mo. Day Year             |
| B. Date taken temporarily out of service                                                              |                          |                          |                          |                          |                          |
| C. Date removed                                                                                       | 07/16/1998               |                          |                          |                          |                          |
| D. Date of Sale or Transfer                                                                           |                          |                          |                          |                          |                          |
| E. TMS # (if applicable)                                                                              |                          |                          |                          |                          |                          |
| F. ISRA # (if applicable)                                                                             |                          |                          |                          |                          |                          |

**SECTION C - FINANCIAL RESPONSIBILITY**

Does this facility have a Financial Responsibility Assurance Mechanism as required in 40 CFR 280? ☐ YES ☐ NO  
Please list the appropriate financial information below:

|                |                          |
|----------------|--------------------------|
| Type           | Carrier / Issuing Agency |
| Effective Date | Expiration Date          |
| Policy Number  | Amount                   |

**SECTION D - MONITORING SYSTEMS**

Does this facility have a release detection monitoring system which is in compliance with N.J.A.C. 7:14B-6? ☐ YES ☐ NO  
If "No", please be aware that the facility must meet the appropriate deadline. (See "Dates to Know" on Page 4)

**SECTION E - RECORDKEEPING/COMPLIANCE**

Please answer all the questions in this section on a facility basis. Any one tank not in compliance requires a "NO" answer for the entire facility.

- Does this facility have cathodic protection systems for all steel tanks and piping?  
If "Yes", are the systems properly operated and maintained pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
- Are the performance claims and documentation of monitoring systems maintained by the owner or operator pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
- Are the proper monitoring, testing, sampling, repair and inventory records kept on-site pursuant to N.J.A.C. 7:14B-5 and 6? ☐ YES ☐ NO
- Is the proper Release Response Plan kept on-site pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
- Does the facility have spill and over fill protection systems pursuant to N.J.A.C. 7:14B-4? ☐ YES ☐ NO
- Have all Fill Ports been permanently marked as per API #1637 pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO

# **IMPORTANT INFORMATION**

FDG. 801-A

**FEE:** Please make checks payable to: "Treasurer, State of New Jersey". Use of the enclosed return envelope will expedite processing. Registration and Billing Schedule can be found in N.J.A.C. 7:14B.  
All Initial Registration fees are \$100 per facility.

**PENALTY:** Failure by owner or operator of a regulated underground storage tank to comply with any requirement of the State UST Act or regulations may result in the penalties set forth in N.J.S.A. 58:10A-10.

**EMERGENCY:** If a discharge or spill occurs, the NJDEP Hotline at (609) 292-7172 must be called IMMEDIATELY - 24 hours a day.

**UPGRADE EXEMPTION:** Residential heating oil underground storage tanks are exempt from all upgrade requirements.

## **DATES TO KNOW (critical deadlines)**

December 22, 1988 — All new federally regulated tank systems must have cathodic protection and spill/overfill protection.  
September 4, 1990 — All new State-only regulated tank systems must have cathodic protection and spill/overfill protection.  
December 22, 1990 — All federally regulated piping must have begun leak detection.  
February 19, 1993 — All federally regulated tank systems must maintain financial responsibility assurance.  
December 22, 1993 — All federally regulated tank systems must have begun leak detection.  
December 22, 1998 — All regulated tanks shall install cathodic protection and spill/overfill protection.

## **CERTIFICATIONS**

**NOTE: IF THE PERSON SIGNING CERTIFICATION NO. 2 IS THE SAME AS THE PERSON SIGNING CERTIFICATION NO. 1, THEN CERTIFICATION NO. 2 NEED NOT BE SIGNED. (If different persons are required to sign No. 1 and No. 2, then they must do so.)**

### **CERTIFICATION NO. 1:**

Must be signed by the highest ranking individual at the facility with overall responsibility

"I certify under penalty of law that the information provided in this document is true, accurate and complete to the best of my knowledge, information and belief. I am aware that there are significant civil and criminal 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."

JAMES OTT

(Typed / Printed Name)

DIRECTOR, PUBLIC WORKS

(Title)

*[Signature]*

(Signature)

7/22/90

(Date)

### **CERTIFICATION NO. 2:**

Must be signed as follows:

- For a corporation, by a principal executive officer of at least the level of vice president
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively
- For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official
- For persons other than indicated above, by the person with legal responsibility for the site

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information. I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil and criminal 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."

N/A

(Typed / Printed Name)

(Signature)

(Title)

(Date)

### **CERTIFICATION NO. 3:**

If applicable, must be signed by the individual who is certified to perform services.

"I certify under penalty of law that the information provided in this document is true, accurate and complete to the best of my knowledge, information and belief. I am aware that there are significant civil and criminal 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."

CHARLES APPLEBY ENV. PROTECTION SPECIALIST

(Typed / Printed Name)

(Title)

U.S. ARMY

(Name of Firm, if applicable)

*[Signature]*

(Signature)

2056

(N.J. Certification Number)

7/24/98

(Date)

# **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 : 81533-128 (7 digits)• Incident Report Number        •        •        •        (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 ☐ NoName: Dinker DeSai Signature: [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: New Jersey 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: [Signature]Company Name: U.S. Army Fort MonmouthDate: 1/9/99

## APPENDIX C

### WASTE MANIFEST

# CASIE PROTANK

## ENVIRONMENTAL SERVICES

801

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                  |  |                                          |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------|--|------------------------------------------|--|
| <b>NON-HAZARDOUS MANIFEST</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | 1. Generator's US EPA ID No.<br>NJ 0210102059013073              |  | 2. Page 1 of 1                           |  |
| 3. Generator's Name and Mailing Address<br>Main Post<br>AHN: SELFM-RV-EV<br>U.S. Army Com. Elec. Command<br>c/o Joe Fallon/Bldg<br>Fort Monmouth NJ 07703                                                                                                                                                                                                                                                                                                                                                    |  | A. Non-hazardous Manifest Document Number<br><b>NHZ020 17382</b> |  |                                          |  |
| 4. Generator's Phone ( 732 ) 532-6223                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | B. State Generator's ID<br><b>SAME</b>                           |  |                                          |  |
| 5. Transporter 1 Company Name<br><b>Casie Ecology Oil Salvage, Inc.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 6. US EPA ID Number<br>NJ 045995693                              |  | C. State Trans. ID<br><b>1 6 9 3 1</b>   |  |
| 7. Transporter 2 Company Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | 8. US EPA ID Number                                              |  | D. Transporter's Phone ((609) 696-4401   |  |
| 9. Designated Facility Name and Site Address<br><b>Casie Ecology Oil Salvage, Inc. T/A<br/>3209 N. Mill Rd / Casie Protank<br/>Vineland NJ 08360</b>                                                                                                                                                                                                                                                                                                                                                         |  | 10. US EPA ID Number<br>NJ 045995693                             |  | E. State Trans. ID<br><b>X 0 5 9 7 6</b> |  |
| 11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 12. Containers                                                   |  | 13. Total Quantity                       |  |
| a. Combustible liquid, n.o.s. (Fuel Oil)<br>NA1993, PGIII                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | No. Type                                                         |  | 14. Unit Wt/Vol                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | 0 0 1 T T                                                        |  | X 1990 6 I D 7 2                         |  |
| J. Additional Descriptions for Materials Listed Above<br>L 90% oil / sed. 10% wtr.                                                                                                                                                                                                                                                                                                                                                                                                                           |  | K. Handling Codes for Wastes Listed Above                        |  |                                          |  |
| a.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | a.                                                               |  |                                          |  |
| b.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | b.                                                               |  |                                          |  |
| 15. Special Handling Instructions and Additional Information<br><br>a. 24 Hr. Emergency Response #609 696-4401 K. Ambrosia ERG# 128                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                  |  |                                          |  |
| 16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.<br><br>I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261, 264 and 279 or any applicable state law. |  |                                                                  |  |                                          |  |
| Printed/Typed Name<br><b>Joseph M. Fallon</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Signature<br><i>Joseph M. Fallon</i>                             |  | Month Day Year<br><b>10/4/30/98</b>      |  |
| 17. Transporter 1 Acknowledgement of Receipt of Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | Signature<br><i>Don Scolery</i>                                  |  | Month Day Year<br><b>10/4/30/98</b>      |  |
| Printed/Typed Name<br><b>Don Scolery</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | Signature                                                        |  | Month Day Year                           |  |
| 18. Transporter 2 Acknowledgement of Receipt of Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | Signature                                                        |  | Month Day Year                           |  |
| Printed/Typed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Signature                                                        |  | Month Day Year                           |  |
| 19. Discrepancy Indication Space                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                  |  |                                          |  |
| 20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                  |  |                                          |  |
| Printed/Typed Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Signature                                                        |  | Month Day Year                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                  |  |                                          |  |

1--GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

**APPENDIX D**

**UST DISPOSAL CERTIFICATE**



MC DOUTH COUNTY  
RECLAMATION CENTER

TINTON FALLS, NJ

MAILING 6000 ASBURY AVE.  
ADDRESS: NEPTUNE, NJ 07753

CUSTOMER COPY

FACILITY I.D. NO. 1336F1SP01

RECEIPT DOCUMENT NUMBER

B  
I  
L  
L  
T  
O

MARP508937  
MARPAL COMPANY  
PO BOX 188

LINCROFT

NJ 07738

A  
U  
L  
E  
R

MARP508937  
MARPAL COMPANY  
PO BOX 188

LINCROFT

NJ 07738

01713605

Escrow Level: 2400.00

| DATE     | ENTRY TIME | OPER. | EXIT TIME | OPER. | GROSS WEIGHT            | TARE WEIGHT             | NET WEIGHT           |
|----------|------------|-------|-----------|-------|-------------------------|-------------------------|----------------------|
| 08/17/98 | 11:42      | KRW   | 11:52     | EEB   | ( 43920 LB)<br>Scale 02 | ( 36140 LB)<br>Scale 03 | ( 7780 LB)<br>3.89 T |
| 00864004 | Scale 02   |       | Scale 03  |       | ( 21.96 T)              | ( 18.07 T)              |                      |

| VEHICLE NUMBER | VEHICLE TYPE    | PLATE NUMBER | TRANSACTION TYPE |
|----------------|-----------------|--------------|------------------|
| 2065ZZ         | Rolloff<br>Open | XX77PH       |                  |

| QUANTITY | WC | DESCRIPTION/ORIGIN                                          | UNITS           | UNIT PRICE | AMOUNT |
|----------|----|-------------------------------------------------------------|-----------------|------------|--------|
| 3.8900   | 13 | Bulky Waste - (MRF)<br>MONMOUTH COUNTY<br>EATONTOWN BOROUGH | Tons<br>100.00% | 88.15      | 342.90 |

TVS  
0312166  
77379

I hereby certify that the information provided on this form is true to the best of my knowledge.

\*\*\* Prepayment Balance Remaining: 177625.16

DRIVER NAME  
PRINT

SIGNATURE

DOCUMENT  
TOTAL

\$342.90

**APPENDIX E**

**SOIL ANALYTICAL DATA PACKAGE**

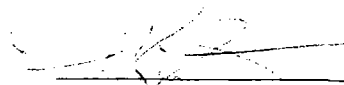
**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY**  
**NJDEPE # 13461**

**REPORT OF ANALYSIS**

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

**Project:** Total Petroleum Hydrocarbons  
98-0001  
Bldg. 801A

Project # 3730  
Date Rec. 07/16/98  
Date Compl. 07/19/98  
Released by:

  
\_\_\_\_\_  
Daniel K. Wright Date:  
Laboratory Director

## **Table of Contents**

| <b><u>Section</u></b>            | <b><u>Pages</u></b> |
|----------------------------------|---------------------|
| Cover Sheet                      | 1                   |
| Table of Contents                | 2                   |
| Method Summary                   | 3                   |
| Conformance/Non-Conformance      | 4                   |
| Chain of Custody                 | 5-6                 |
| Results Summary                  | 7                   |
| Initial Calibration Summary      | 8                   |
| Continuing Calibration Summary   | 9-10                |
| Surrogate Results Summary        | 11                  |
| MS/MSD Results Summary           | 12                  |
| Quality Control Spike Summary    | 13                  |
| Raw Sample Data                  | 14-27               |
| Laboratory Deliverable Checklist | 28                  |

## **Method Summary**

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

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

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

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

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

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

## PHC Conformance/Non-conformance Summary Report

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

\_\_\_\_\_  
Daniel K. Wright  
Laboratory Manager



# Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-4359 Fax (732)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

## Chain of Custody Record

|                                                                                                   |                 |                     |      |                          |          |                                        |               |            |                                          |
|---------------------------------------------------------------------------------------------------|-----------------|---------------------|------|--------------------------|----------|----------------------------------------|---------------|------------|------------------------------------------|
| <b>Customer: Charles Appleby</b>                                                                  |                 | Project No: 98-0001 |      | Analysis Parameters      |          |                                        |               |            | Comments:<br>* = Samples Kept <4 Celsius |
| Phone #: X26224                                                                                   |                 | Location: B. 801-A  |      | TPHC                     | % SOLIDS | VOA+15                                 | VOA ID Number | OVA        |                                          |
| ( ) DERA (X) OMA UST Assessment                                                                   |                 | UST# 81533-128      |      |                          |          |                                        |               |            |                                          |
| Samplers Name / Company : Gary DiMartinis TVS                                                     |                 |                     |      | Sample #                 |          |                                        |               |            |                                          |
| Lab Sample I.D.                                                                                   | Sample Location | Date                | Time | Type                     | bottles  |                                        |               |            | Remarks / Preservation Method            |
| 3730.01                                                                                           | 801A-A          | 7-16-98             | 0957 | SAIL                     | 1        | X                                      | X             |            | ND EX. FLOOR @ 9.5' *                    |
| 02                                                                                                | B               |                     | 0944 |                          |          |                                        |               |            | ND SIDEWALL @ 6.5'                       |
| 03                                                                                                | C               |                     | 0947 |                          |          |                                        |               |            | ND                                       |
| 04                                                                                                | D               |                     | 0951 |                          |          |                                        |               |            | ND                                       |
| 05                                                                                                | E               |                     | 0940 |                          |          |                                        |               |            | ND                                       |
| 06                                                                                                | F               |                     | 1002 |                          |          |                                        |               |            | ND Piping Run @ 1.0'                     |
| 07                                                                                                | DUP             |                     |      |                          |          |                                        |               |            | FIELD DUPLICATE                          |
| Note: OVA(#A51903) Calibrated With 95 ppm Methane & Zero Air @ 0930 on 7-16-98 by Gary DiMartinis |                 |                     |      |                          |          |                                        |               |            |                                          |
| Relinquished by (signature):                                                                      |                 | Date/Time:          |      | Received by (signature): |          | Relinquished by (signature):           |               | Date/Time: |                                          |
|                                                                                                   |                 | 7-16-98 1330        |      |                          |          |                                        |               |            |                                          |
| Relinquished by (signature):                                                                      |                 | Date/Time:          |      | Received by (signature): |          | Relinquished by (signature):           |               | Date/Time: |                                          |
|                                                                                                   |                 |                     |      |                          |          |                                        |               |            |                                          |
| Report Type: ( ) Full, (X) Reduced, ( ) Standard, ( ) Screen / non-certified                      |                 |                     |      |                          |          | Remarks: Dedicated Sampling Tools Used |               |            |                                          |
| Turnaround time: ( ) Standard 4 wks, (X) Rush 2 Days, ( ) ASAP Verbal ___ Hrs.                    |                 |                     |      |                          |          |                                        |               |            |                                          |



## Calrpt

## Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Thu Jun 11 14:59:41 1998

## Calibration Files

100 =T05959.D 50 =T05960.D 20 =T05961.D  
10 =T05962.D 5 =T05963.D

| Compound |                 | 100   | 50    | 20    | 10    | 5     | Avg      | %RSD  |
|----------|-----------------|-------|-------|-------|-------|-------|----------|-------|
| 1)       | tC C8           | 2.277 | 2.425 | 2.559 | 2.711 | 2.206 | 2.436 E4 | 8.43  |
| 2)       | tC C10          | 2.499 | 2.664 | 2.791 | 2.930 | 2.534 | 2.684 E4 | 6.68  |
| 3)       | TC C12          | 2.776 | 2.935 | 3.075 | 3.239 | 2.766 | 2.958 E4 | 6.83  |
| 4)       | tC C14          | 2.896 | 3.070 | 3.238 | 3.430 | 2.928 | 3.112 E4 | 7.18  |
| 5)       | tC C16          | 2.966 | 3.159 | 3.344 | 3.568 | 3.053 | 3.218 E4 | 7.49  |
| 6)       | tC C18          | 3.349 | 3.613 | 3.893 | 4.085 | 3.562 | 3.701 E4 | 7.82  |
| 7)       | tC C20          | 3.258 | 3.475 | 3.672 | 3.915 | 3.342 | 3.533 E4 | 7.50  |
| 8)       | tC C22          | 3.199 | 3.420 | 3.607 | 3.844 | 3.278 | 3.469 E4 | 7.51  |
| 9)       | tC C24          | 3.264 | 3.487 | 3.671 | 3.904 | 3.333 | 3.532 E4 | 7.37  |
| 10)      | tC C26          | 3.255 | 3.476 | 3.650 | 3.866 | 3.319 | 3.513 E4 | 7.10  |
| 11)      | tC C28          | 3.293 | 3.512 | 3.674 | 3.893 | 3.318 | 3.538 E4 | 7.11  |
| 12)      | tC C30          | 3.401 | 3.623 | 3.790 | 3.976 | 3.375 | 3.633 E4 | 7.05  |
| 13)      | tC C32          | 3.431 | 3.658 | 3.825 | 4.024 | 3.434 | 3.674 E4 | 6.97  |
| 14)      | tC C34          | 3.521 | 3.812 | 4.027 | 4.220 | 3.564 | 3.829 E4 | 7.80  |
| 15)      | tC C36          | 3.385 | 3.858 | 4.127 | 4.279 | 3.664 | 3.863 E4 | 9.25  |
| 16)      | tC C38          | 3.166 | 3.924 | 4.329 | 4.459 | 3.853 | 3.946 E4 | 12.84 |
| 17)      | tC C40          | 2.828 | 3.816 | 4.405 | 4.438 | 3.846 | 3.867 E4 | 16.86 |
| 18)      | tC c42          | 2.580 | 3.759 | 4.424 | 4.447 | 3.820 | 3.806 E4 | 19.91 |
| 19)      | TC Pristane     | 3.105 | 3.345 | 3.551 | 3.726 | 3.255 | 3.397 E4 | 7.21  |
| 20)      | TC Phytane      | 3.270 | 3.492 | 3.694 | 3.945 | 3.369 | 3.554 E4 | 7.59  |
| 21)      | sC o-terphenyl  | 3.907 | 4.169 | 4.410 | 4.703 | 4.034 | 4.245 E4 | 7.46  |
| 22)      | tC TPHC - total | 3.313 | 3.705 | 4.003 | 4.287 | 3.910 | 3.844 E4 | 9.44  |

(#) = Out of Range

MEAN AVERAGE RSD% = 8.79

TPH43.M

Tue Jul 07 08:38:13 1998

# Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980716\T06164.D  
 Acq On : 17 Jul 98 5:01 pm  
 Sample : 50 PPM STANDARD  
 Misc :  
 IntFile : TPHCINT.E

Vial: 2  
 Operator: Deinhardt  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 15% Max. Rel. Area : 200%

|       | Compound     | AvgRF  | CCRF      | %Dev  | Area% | Dev(min) |
|-------|--------------|--------|-----------|-------|-------|----------|
| 1 tC  | C8           | 24.358 | 22.535 E3 | 7.5   | 102   | 0.00     |
| 2 tC  | C10          | 26.836 | 27.082 E3 | -0.9  | 113   | 0.00     |
| 3 TC  | C12          | 29.584 | 30.150 E3 | -1.9  | 114   | 0.00     |
| 4 tC  | C14          | 31.125 | 31.182 E3 | -0.2  | 113   | 0.00     |
| 5 tC  | C16          | 32.180 | 31.812 E3 | 1.1   | 112   | 0.00     |
| 6 tC  | C18          | 37.007 | 36.560 E3 | 1.2   | 110   | 0.00     |
| 7 tC  | C20          | 35.326 | 34.918 E3 | 1.2   | 111   | 0.00     |
| 8 tC  | C22          | 34.694 | 34.384 E3 | 0.9   | 111   | 0.00     |
| 9 tC  | C24          | 35.318 | 35.106 E3 | 0.6   | 111   | 0.01     |
| 10 tC | C26          | 35.130 | 35.034 E3 | 0.3   | 112   | 0.01     |
| 11 tC | C28          | 35.380 | 35.424 E3 | -0.1  | 115   | 0.01     |
| 12 tC | C30          | 36.331 | 36.465 E3 | -0.4  | 118   | 0.00     |
| 13 tC | C32          | 36.742 | 36.802 E3 | -0.2  | 119   | 0.00     |
| 14 tC | C34          | 38.289 | 38.221 E3 | 0.2   | 120   | 0.00     |
| 15 tC | C36          | 38.627 | 36.540 E3 | 5.4   | 114   | 0.00     |
| 16 tC | C38          | 39.462 | 32.139 E3 | 18.6  | 101   | 0.01     |
| 17 tC | C40          | 38.666 | 26.585 E3 | 31.2# | 88    | 0.01     |
| 18 tC | c42          | 38.058 | 22.950 E3 | 39.7# | 81    | 0.01     |
| 19 TC | Pristane     | 33.965 | 34.750 E3 | -2.3  | 115   | 0.00     |
| 20 TC | Phytane      | 35.539 | 35.188 E3 | 1.0   | 111   | 0.00     |
| 21 sC | o-terphenyl  | 42.449 | 41.974 E3 | 1.1   | 111   | 0.00     |
| 22 tC | TPHC - total | 38.436 | 35.718 E3 | 7.1   | 108   | 0.00     |

# Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980716\T06175.D  
 Acq On : 18 Jul 98 2:05 am  
 Sample : 50 PPM STANDARD  
 Misc :  
 IntFile : TPHCINT.E

Vial: 46  
 Operator: Deinhardt  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 15% Max. Rel. Area : 200%

|       | Compound     | AvgRF  | CCRF      | %Dev  | Area% | Dev(min) |
|-------|--------------|--------|-----------|-------|-------|----------|
| 1 tC  | C8           | 24.358 | 26.053 E3 | -7.0  | 118   | 0.00     |
| 2 tC  | C10          | 26.836 | 29.909 E3 | -11.5 | 125   | 0.00     |
| 3 TC  | C12          | 29.584 | 33.248 E3 | -12.4 | 126   | 0.00     |
| 4 tC  | C14          | 31.125 | 34.322 E3 | -10.3 | 124   | 0.00     |
| 5 tC  | C16          | 32.180 | 34.894 E3 | -8.4  | 122   | 0.00     |
| 6 tC  | C18          | 37.007 | 40.338 E3 | -9.0  | 122   | 0.00     |
| 7 tC  | C20          | 35.326 | 38.305 E3 | -8.4  | 122   | 0.00     |
| 8 tC  | C22          | 34.694 | 37.532 E3 | -8.2  | 121   | 0.00     |
| 9 tC  | C24          | 35.318 | 38.255 E3 | -8.3  | 121   | 0.00     |
| 10 tC | C26          | 35.130 | 38.119 E3 | -8.5  | 122   | 0.00     |
| 11 tC | C28          | 35.380 | 38.407 E3 | -8.6  | 125   | 0.01     |
| 12 tC | C30          | 36.331 | 39.701 E3 | -9.3  | 129   | 0.00     |
| 13 tC | C32          | 36.742 | 39.930 E3 | -8.7  | 130   | 0.00     |
| 14 tC | C34          | 38.289 | 42.379 E3 | -10.7 | 133   | 0.00     |
| 15 tC | C36          | 38.627 | 44.994 E3 | -16.5 | 141   | 0.00     |
| 16 tC | C38          | 39.462 | 47.949 E3 | -21.5 | 151   | 0.01     |
| 17 tC | C40          | 38.666 | 46.386 E3 | -20.0 | 154   | 0.02     |
| 18 tC | c42          | 38.058 | 43.010 E3 | -13.0 | 152   | 0.03     |
| 19 TC | Pristane     | 33.965 | 36.795 E3 | -8.3  | 122   | 0.00     |
| 20 TC | Phytane      | 35.539 | 38.492 E3 | -8.3  | 122   | 0.00     |
| 21 sC | o-terphenyl  | 42.449 | 45.891 E3 | -8.1  | 122   | 0.00     |
| 22 tC | TPHC - total | 38.436 | 41.587 E3 | -8.2  | 125   | 0.00     |



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

**Matrix Spike Recovery Report**

Lab. ID #: 3730

Location #: B. 801-A

| Sample     | Spike Amount<br>Added (ppm) | Sample Amount<br>(ppm) | Matrix Spike<br>Amount (ppm) | Percent<br>Recovery | QC Limits<br>% |
|------------|-----------------------------|------------------------|------------------------------|---------------------|----------------|
| 3730.01MS  | 1000                        | 0.00                   | 960.91                       | 96.09               | 75-125         |
| 3730.01MSD | 1000                        | 0.00                   | 910.41                       | 91.04               | 75-125         |

|     |      |       |
|-----|------|-------|
| RPD | 5.40 | 20.00 |
|-----|------|-------|

7/21/98

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

**Blank Spike Recovery Report**

Lab. ID # : 3730  
Location #: B. 801-A

| Sample      | Date Extracted | Spike Amount<br>Added (ppm) | Matrix Spike<br>Amount (ppm) | Percent<br>Recovery | QC Limits<br>% |
|-------------|----------------|-----------------------------|------------------------------|---------------------|----------------|
| Blank Spike | 17-Jul-98      | 1000                        | 945.18                       | 94.52               | 75-125         |

7/21/98

# Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06172.D Vial: 43  
 Acq On : 17 Jul 98 11:43 pm Operator: Deinhardt  
 Sample : 3730.01 Inst : GC/MS Ins  
 Misc : Multiplr: 1.00  
 IntFile : TPHCINT.E  
 Quant Time: Jul 20 8:36 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Initial Calibration  
 DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
 Signal Phase : HP-5  
 Signal Info : 30m x 0.32mm

| Compound                    | R.T.         | Response | Conc Units  |
|-----------------------------|--------------|----------|-------------|
| -----                       |              |          |             |
| System Monitoring Compounds |              |          |             |
| 21) sC o-terphenyl          | 13.91        | 425106   | 10.015 mg/L |
| Spiked Amount 10.000        | Range 8 - 13 | Recovery | = 100.15%#  |

Target Compounds

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06172.D

Vial: 43

Acq On : 17 Jul 98 11:43 pm

Operator: Deinhardt

Sample : 3730.01

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:36 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

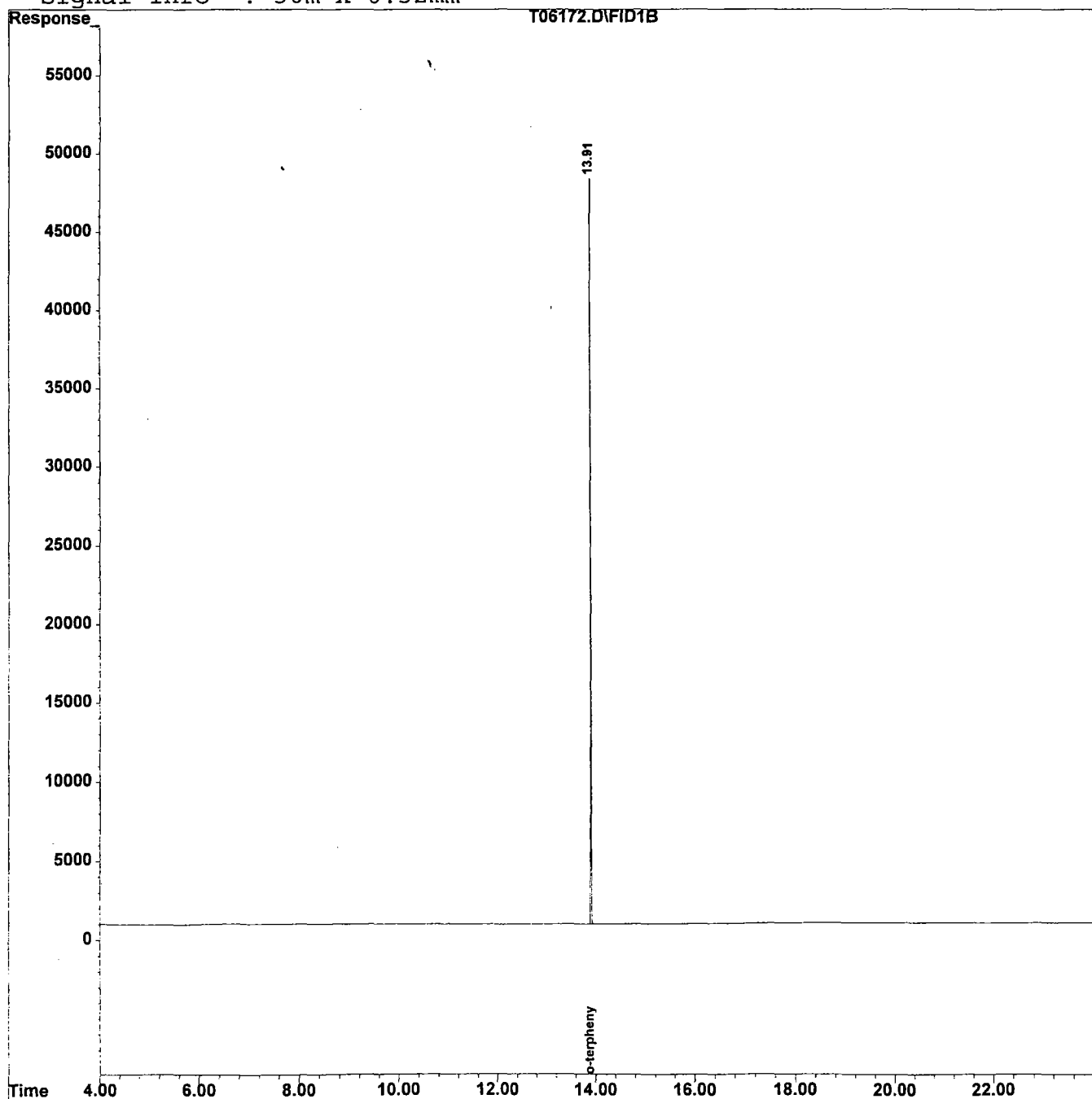
Response via : Multiple Level Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



# Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06176.D  
 Acq On : 18 Jul 98 2:52 am  
 Sample : 3730.02  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Jul 20 8:38 1998 Quant Results File: TPH43.RES

Vial: 47  
 Operator: Deinhardt  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Initial Calibration  
 DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
 Signal Phase : HP-5  
 Signal Info : 30m x 0.32mm

| Compound                          | R.T.  | Response   | Conc Units    |
|-----------------------------------|-------|------------|---------------|
| -----                             |       |            |               |
| System Monitoring Compounds       |       |            |               |
| 21) sC o-terphenyl                | 13.91 | 415838     | 9.796 mg/L    |
| Spiked Amount 10.000 Range 8 - 13 |       | Recovery = | 97.96%#       |
| Target Compounds                  |       |            |               |
| 7) tC C20                         | 13.51 | 6451       | 0.183 mg/L    |
| 8) tC C22                         | 14.10 | 1608       | 0.046 mg/L    |
| 9) tC C24                         | 14.90 | 12761      | 0.361 mg/L    |
| 10) tC C26                        | 15.65 | 1317       | 0.037 mg/L    |
| 11) tC C28                        | 16.12 | 4621       | 0.131 mg/L    |
| 12) tC C30                        | 16.96 | 1083       | 0.030 mg/L    |
| 13) tC C32                        | 17.38 | 4642       | 0.126 mg/L    |
| 14) tC C34                        | 17.85 | 1190       | 0.031 mg/L    |
| 15) tC C36                        | 18.73 | 3179       | 0.082 mg/L    |
| 17) tC C40                        | 20.75 | 1064       | 0.028 mg/L    |
| 20) TC Phytane                    | 13.51 | 6451       | 0.182 mg/L    |
| 22) tC TPHC - total               | 13.91 | 2253113    | 58.620 mg/L m |

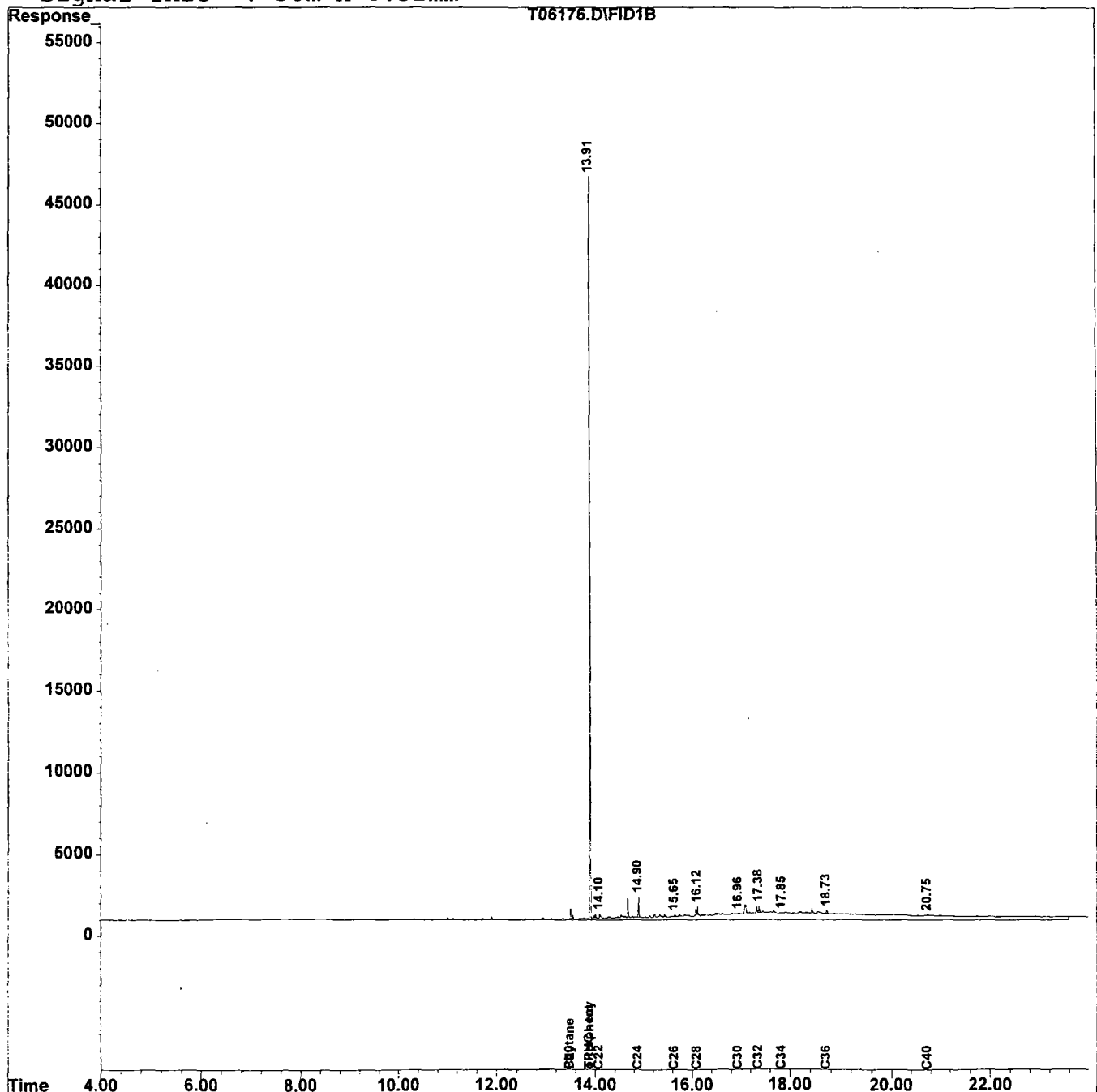
# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06176.D  
Acq On : 18 Jul 98 2:52 am  
Sample : 3730.02  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Jul 20 8:38 1998 Quant Results File: TPH43.RES

Vial: 47  
Operator: Deinhardt  
Inst : GC/MS Ins  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Thu Jul 09 13:23:26 1998  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
Signal Phase : HP-5  
Signal Info : 30m x 0.32mm



## Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06177.D

Vial: 48

Acq On : 18 Jul 98 3:38 am

Operator: Deinhardt

Sample : 3730.03

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:38 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

Response via : Initial Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

| Compound | R.T. | Response | Conc Units |
|----------|------|----------|------------|
|----------|------|----------|------------|

## System Monitoring Compounds

|                      |              |            |            |
|----------------------|--------------|------------|------------|
| 21) sC o-terphenyl   | 13.91        | 395576     | 9.319 mg/L |
| Spiked Amount 10.000 | Range 8 - 13 | Recovery = | 93.19%#    |

## Target Compounds

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06177.D

Vial: 48

Acq On : 18 Jul 98 3:38 am

Operator: Deinhardt

Sample : 3730.03

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:38 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

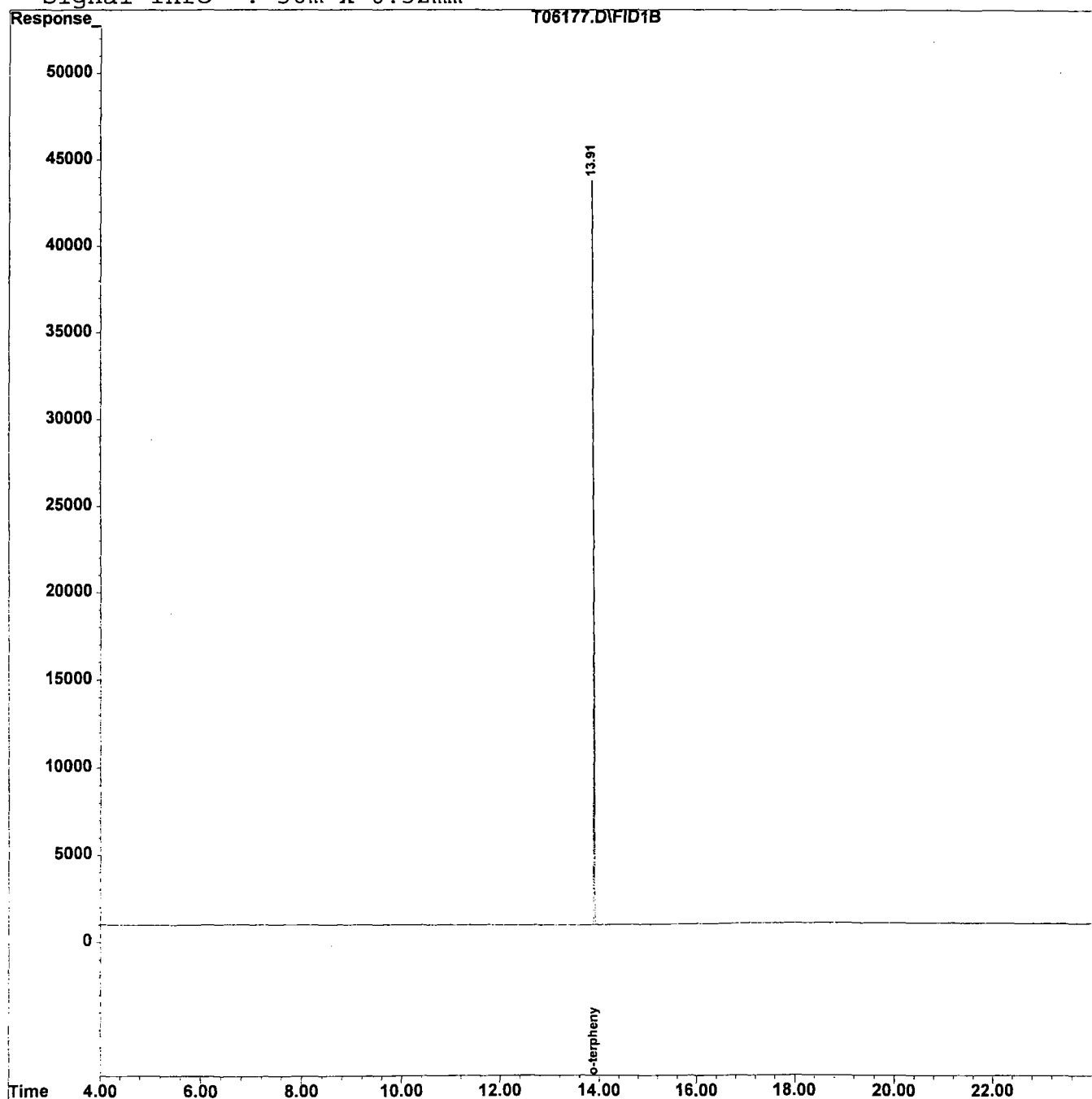
Response via : Multiple Level Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



# Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06178.D  
 Acq On : 18 Jul 98 4:23 am  
 Sample : 3730.04  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Jul 20 8:41 1998 Quant Results File: TPH43.RES

Vial: 49  
 Operator: Deinhardt  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Initial Calibration  
 DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
 Signal Phase : HP-5  
 Signal Info : 30m x 0.32mm

| Compound | R.T. | Response | Conc Units |
|----------|------|----------|------------|
|----------|------|----------|------------|

## System Monitoring Compounds

|                      |              |            |            |
|----------------------|--------------|------------|------------|
| 21) sC o-terphenyl   | 13.91        | 376398     | 8.867 mg/L |
| Spiked Amount 10.000 | Range 8 - 13 | Recovery = | 88.67%#    |

## Target Compounds

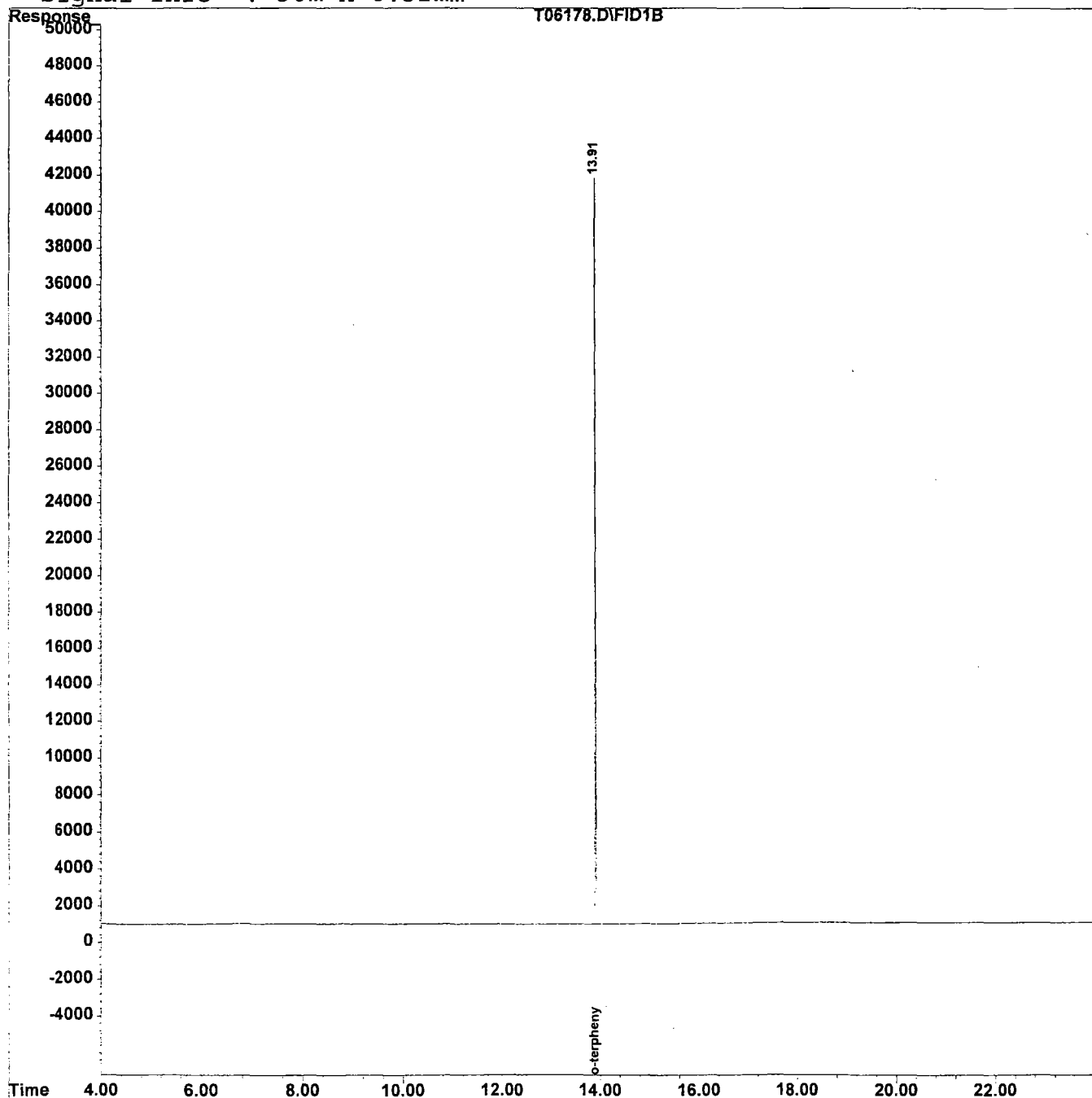
# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06178.D  
Acq On : 18 Jul 98 4:23 am  
Sample : 3730.04  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Jul 20 8:41 1998 Quant Results File: TPH43.RES

Vial: 49  
Operator: Deinhardt  
Inst : GC/MS Ins  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Thu Jul 09 13:23:26 1998  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
Signal Phase : HP-5  
Signal Info : 30m x 0.32mm



# Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06179.D Vial: 50  
 Acq On : 18 Jul 98 5:09 am Operator: Deinhardt  
 Sample : 3730.05 Inst : GC/MS Ins  
 Misc : Multiplr: 1.00  
 IntFile : TPHCINT.E  
 Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Thu Jul 09 13:23:26 1998  
 Response via : Initial Calibration  
 DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
 Signal Phase : HP-5  
 Signal Info : 30m x 0.32mm

| Compound | R.T. | Response | Conc Units |
|----------|------|----------|------------|
|----------|------|----------|------------|

## System Monitoring Compounds

|                      |              |            |            |
|----------------------|--------------|------------|------------|
| 21) sC o-terphenyl   | 13.91        | 399349     | 9.408 mg/L |
| Spiked Amount 10.000 | Range 8 - 13 | Recovery = | 94.08%#    |

## Target Compounds

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06179.D

Vial: 50

Acq On : 18 Jul 98 5:09 am

Operator: Deinhardt

Sample : 3730.05

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

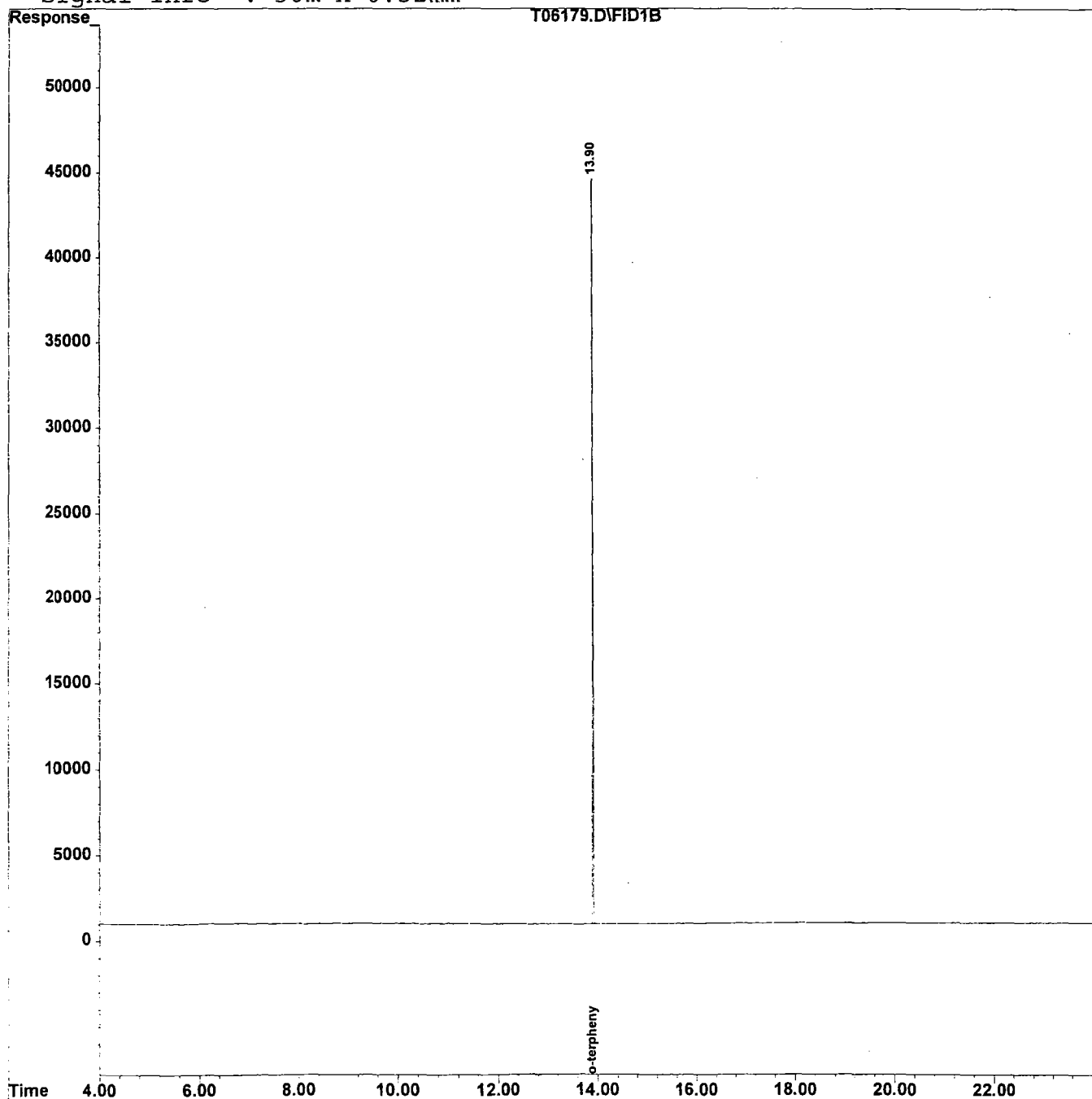
Response via : Multiple Level Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



## Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06180.D

Vial: 51

Acq On : 18 Jul 98 5:54 am

Operator: Deinhardt

Sample : 3730.06

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

Response via : Initial Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

| Compound                    | R.T.         | Response   | Conc Units    |
|-----------------------------|--------------|------------|---------------|
| -----                       |              |            |               |
| System Monitoring Compounds |              |            |               |
| 21) sC o-terphenyl          | 13.91        | 426153     | 10.039 mg/L   |
| Spiked Amount 10.000        | Range 8 - 13 | Recovery = | 100.39%#      |
| Target Compounds            |              |            |               |
| 7) tC C20                   | 13.51        | 2524       | 0.071 mg/L    |
| 8) tC C22                   | 14.01        | 1017       | 0.029 mg/L    |
| 9) tC C24                   | 14.90        | 4271       | 0.121 mg/L    |
| 11) tC C28                  | 16.12        | 2095       | 0.059 mg/L    |
| 13) tC C32                  | 17.38        | 1504       | 0.041 mg/L    |
| 15) tC C36                  | 18.73        | 1124       | 0.029 mg/L    |
| 20) TC Phytane              | 13.51        | 2524       | 0.071 mg/L    |
| 22) tC TPHC - total         | 13.90        | 1484601    | 38.626 mg/L m |

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06180.D

Vial: 51

Acq On : 18 Jul 98 5:54 am

Operator: Deinhardt

Sample : 3730.06

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

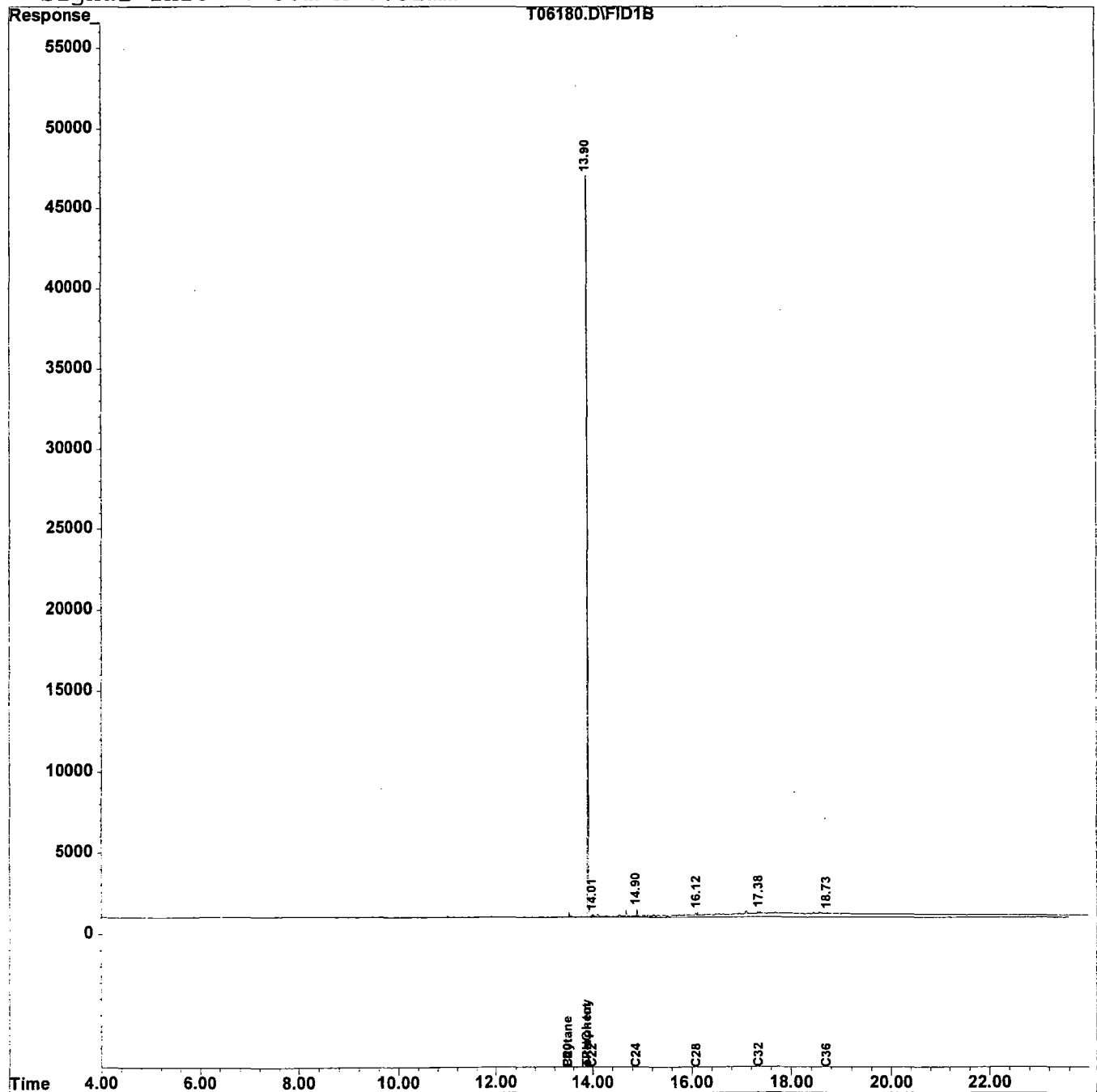
Response via : Multiple Level Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



# Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980716\T06181.D

Vial: 52

Acq On : 18 Jul 98 6:39 am

Operator: Deinhardt

Sample : 3730.07

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

Response via : Initial Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

| Compound | R.T. | Response | Conc Units |
|----------|------|----------|------------|
|----------|------|----------|------------|

## System Monitoring Compounds

|                      |              |            |            |
|----------------------|--------------|------------|------------|
| 21) sC o-terphenyl   | 13.91        | 414680     | 9.769 mg/L |
| Spiked Amount 10.000 | Range 8 - 13 | Recovery = | 97.69%#    |

## Target Compounds

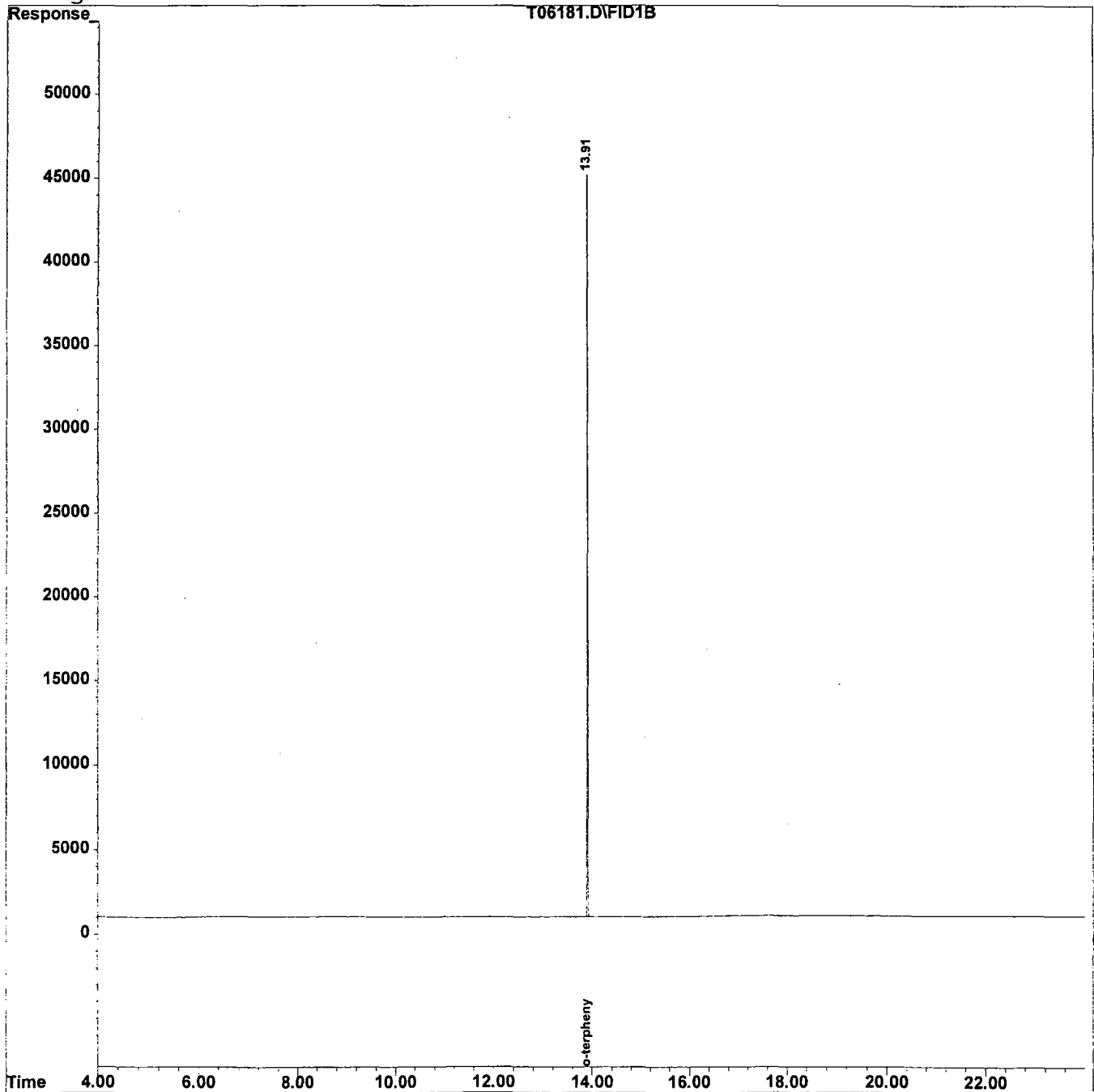
# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06181.D  
Acq On : 18 Jul 98 6:39 am  
Sample : 3730.07  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Vial: 52  
Operator: Deinhardt  
Inst : GC/MS Ins  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Thu Jul 09 13:23:26 1998  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH43.M

Volume Inj. : 1 ul  
Signal Phase : HP-5  
Signal Info : 30m x 0.32mm



# Quantitation Report

Data File : C:\HPCHEM\1\DATA\980716\T06181.D

Vial: 52

Acq On : 18 Jul 98 6:39 am

Operator: Deinhardt

Sample : 3730.07

Inst : GC/MS Ins

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jul 20 8:45 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Thu Jul 09 13:23:26 1998

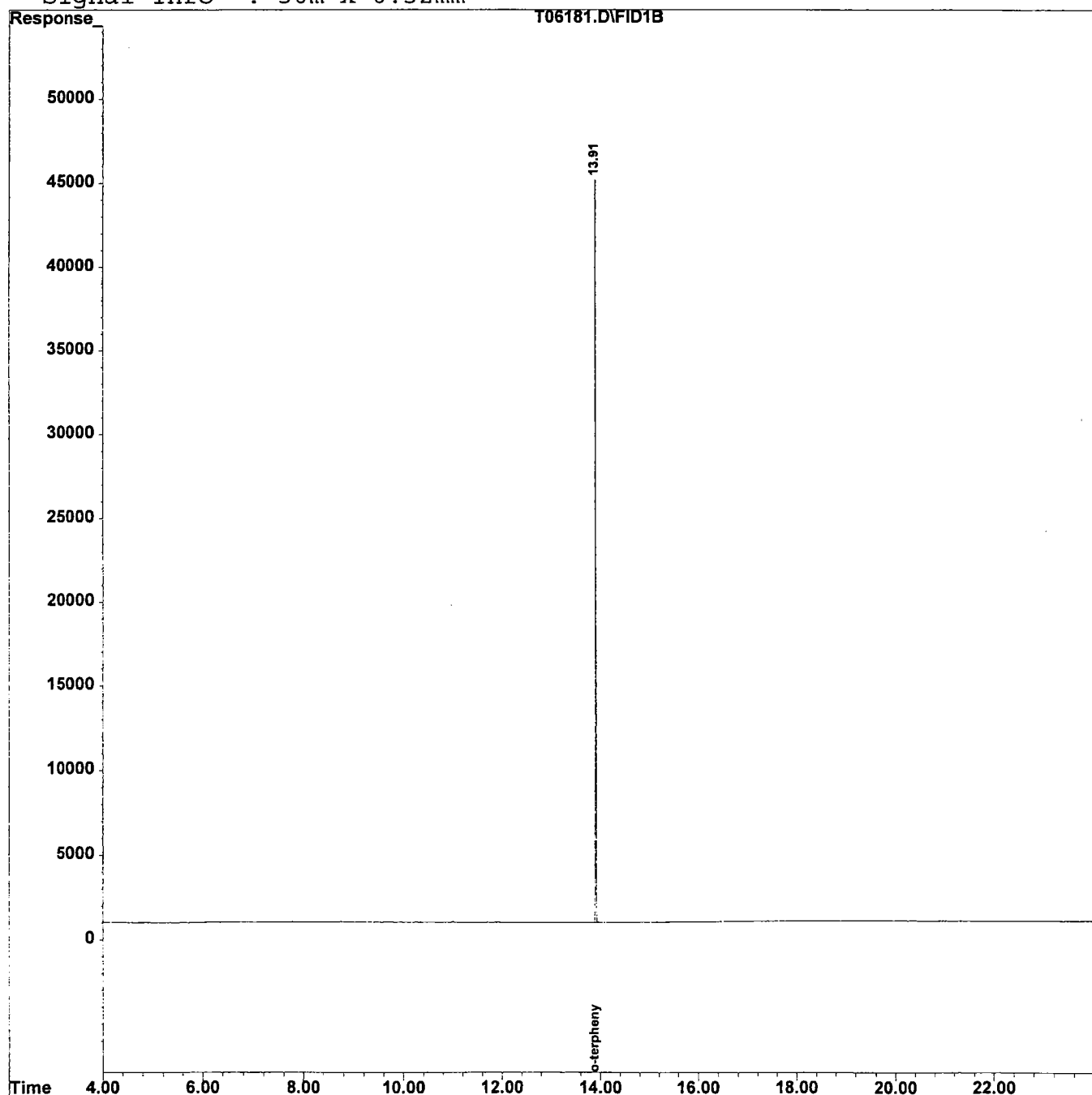
Response via : Multiple Level Calibration

DataAcq Meth : TPH43.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



## LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature

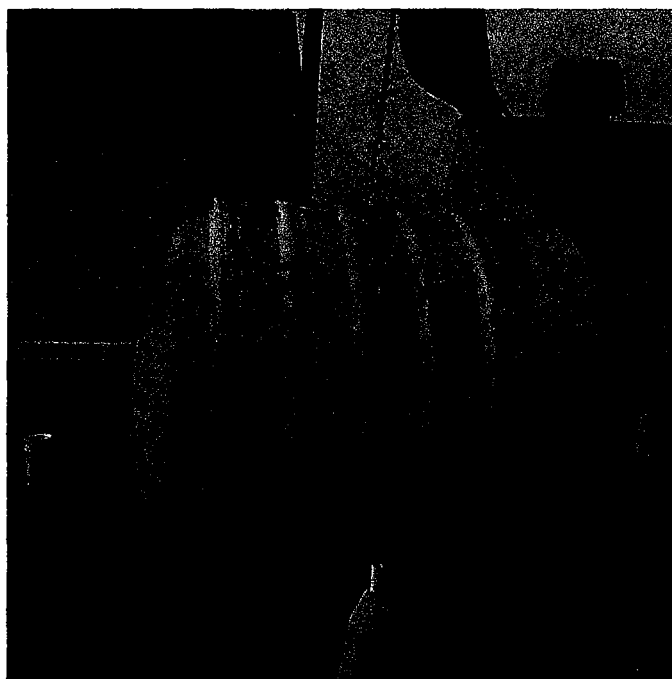
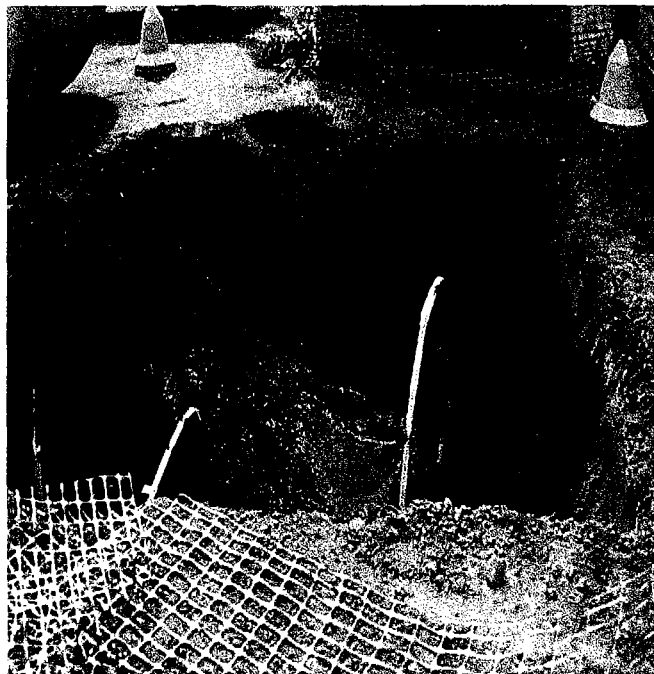
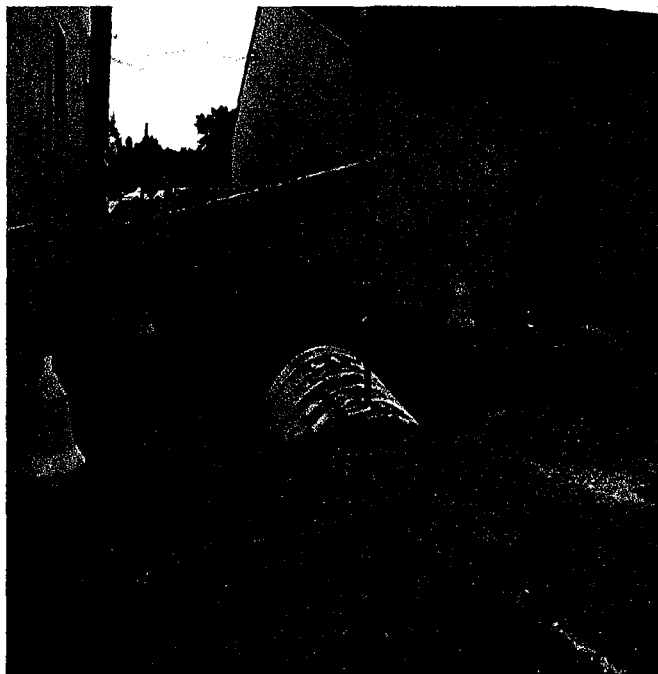
Date 7/27/94

Laboratory Certification #13461

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

## APPENDIX F

## PHOTOGRAPHS



**JULY 16, 1998**  
**PHOTOGRAPHIC LOG**

**UST NO. 81533-128**

**BUILDING 801A**  
**Main Post-West**  
**Fort Monmouth**

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