

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

**COPY**

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

***Building 828  
Main Post-West Area***

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**NJDEP UST Registration No. 0081533-135**

**June 1998**

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

**BUILDING 828**

**MAIN POST-WEST AREA  
NJDEP UST REGISTRATION NO. 0081533-135**

**JUNE 1998**

**PREPARED FOR:**

**UNITED STATES ARMY, FORT MONMOUTH, NEW JERSEY  
DIRECTORATE OF PUBLIC WORKS  
BUILDING 291  
FORT MONMOUTH, NJ 07703**

**PREPARED BY:**

**SMC ENVIRONMENTAL SERVICES GROUP  
501 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406**

**PROJECT NO. 2491-3080**

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## EXECUTIVE SUMMARY

### UST Closure

On October 20, 1997, a steel 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. 0081533-135 (Fort Monmouth ID No. 828), was located southeast of the Credit Union Building. UST No. 0081533-135 was a 1,000-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. No holes were noted in the UST. A small amount of contamination was noted under the tank which appeared to be from the tank's tar coating. OVA readings taken during the assessment were non-detectable. Approximately 5 cubic yards of potentially contaminated soil were removed from the excavated area. Groundwater was not encountered. Soil samples contained TPHC concentrations ranging from non-detect to 206.38 mg/kg. No product lines were found during the excavation of the UST.

### Site Restoration

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with crushed stone 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. 0081533-135 at Building 828.

## 1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

### 1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-135, was closed at Building 828 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on October 20, 1997. 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 steel 1,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-135 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. 0081533-135 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BFCM). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 0081533-135 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 soil samples, the DPW has concluded that no significant historical discharges are associated with the UST.

This UST Closure and Site Investigation Report has been prepared by SMC Environmental Services Group, 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 828 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-135 was located southeast of the Credit Union Building. No product lines (piping) were found during the excavation of the UST. 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 828. 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 (Zapczka, 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 Zapczka, 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 828 is located approximately 1200 feet south of Husky Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 828 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. No product lines(piping) were found during the excavation of the UST. The UST was purged to remove vapors prior to cutting. 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. Lionetti Oil Recovery Co. Inc. transported approximately 125 gallons of liquid from the UST to the Lionetti Oil Recovery Co. Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. A small amount of contaminated soil was observed under the tank, this was believed to be from the tank's tar coating. OVA readings taken during the assessment were non-detectable. Approximately 5 cubic yards of potentially contaminated soil were removed from the excavated area. Groundwater was not encountered. See Figure 3 for a cross-sectional view of the excavated area.

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

The tank was transported 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: Charles Appleby  
Employer: U.S. Army, Fort Monmouth  
Phone Number: (908) 532-0989  
NJDEP Certification No.: 002056
- 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: Lionetti Oil Recovery Co. Inc  
Contact Person: Charles Clayton  
Phone Number: (908) 721-0900  
NJDEP Hazardous Waste Hauler No.: S6247

### 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, as well as the UST excavation sidewalls and bottoms, did not exhibit any evidence of potential contamination. Groundwater was not encountered.

## 2.3 SOIL SAMPLING

On October 20, 1997, following the removal of the UST, post-excavation soil samples A, B, C, D, E, and DUP C were collected from a total of five (5) locations of the UST excavation. Samples A, B, and C were collected along the centerline at a depth of 8.0 feet bgs. Sidewall samples D and E were collected at a depth of 7.5 feet bgs. No product lines (piping) were found during the excavation of the UST. 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 October 20, 1997 from a total of five (5) 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 October 20, 1997, from the UST excavation contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained levels of TPHC ranging in concentration from non-detect to 206.38 mg/kg.

### **3.2 CONCLUSIONS AND RECOMMENDATIONS**

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 828 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. 0081533-135 at Building 828.

# TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES  
BUILDING 828, MAIN POST-WEST AREA  
FORT MONMOUTH, NEW JERSEY

Page 1 of 1

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Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
A	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP C	10/20/97	10/21/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

\* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS  
 BUILDING 828, MAIN POST-WEST AREA  
 FORT MONMOUTH, NEW JERSEY

Page 1 of 1

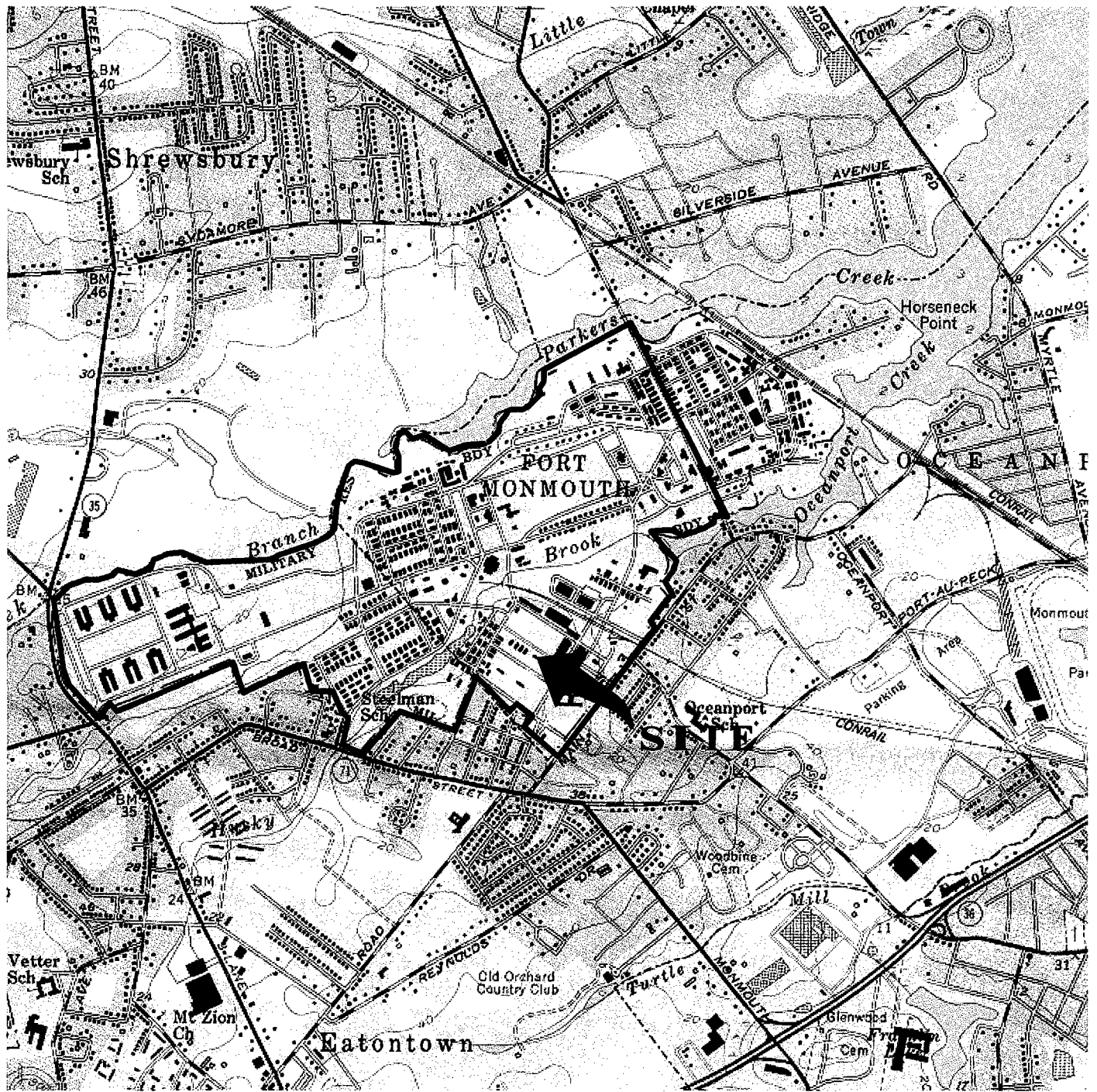
Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/8.0=	3086.1	10/20/97	10/21/97	Total Solid	--	--	91.86%	--	--
				TPHC	169	yes	ND	10,000	No
B/8.0=	3086.2	10/20/97	10/21/97	Total Solid	--	--	93.58%	--	--
				TPHC	167	yes	ND	10,000	No
C/8.0=	3086.3	10/20/97	10/21/97	Total Solid	--	--	93.33%	--	--
				TPHC	167	yes	ND	10,000	No
D/7.5=	3086.4	10/20/97	10/21/97	Total Solid	--	--	90.83%	--	--
				TPHC	170	yes	206.38	10,000	No
E/7.5=	3086.5	10/20/97	10/21/97	Total Solid	--	--	90.26%	--	--
				TPHC	173	yes	ND	10,000	No
DUP C/8.0=	3086.7	10/20/97	10/21/97	Total Solid	--	--	93.22%	--	--
				TPHC	162	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



**FIGURE 1**

**LOCATION MAP**  
 Building 828  
 Main-Post West  
 Fort Monmouth Army Base  
 Monmouth County, NJ

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

Scale: 1" = 2000'

Date: OCT 1997

LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822



NEW JERSEY



QUADRANGLE LOCATION

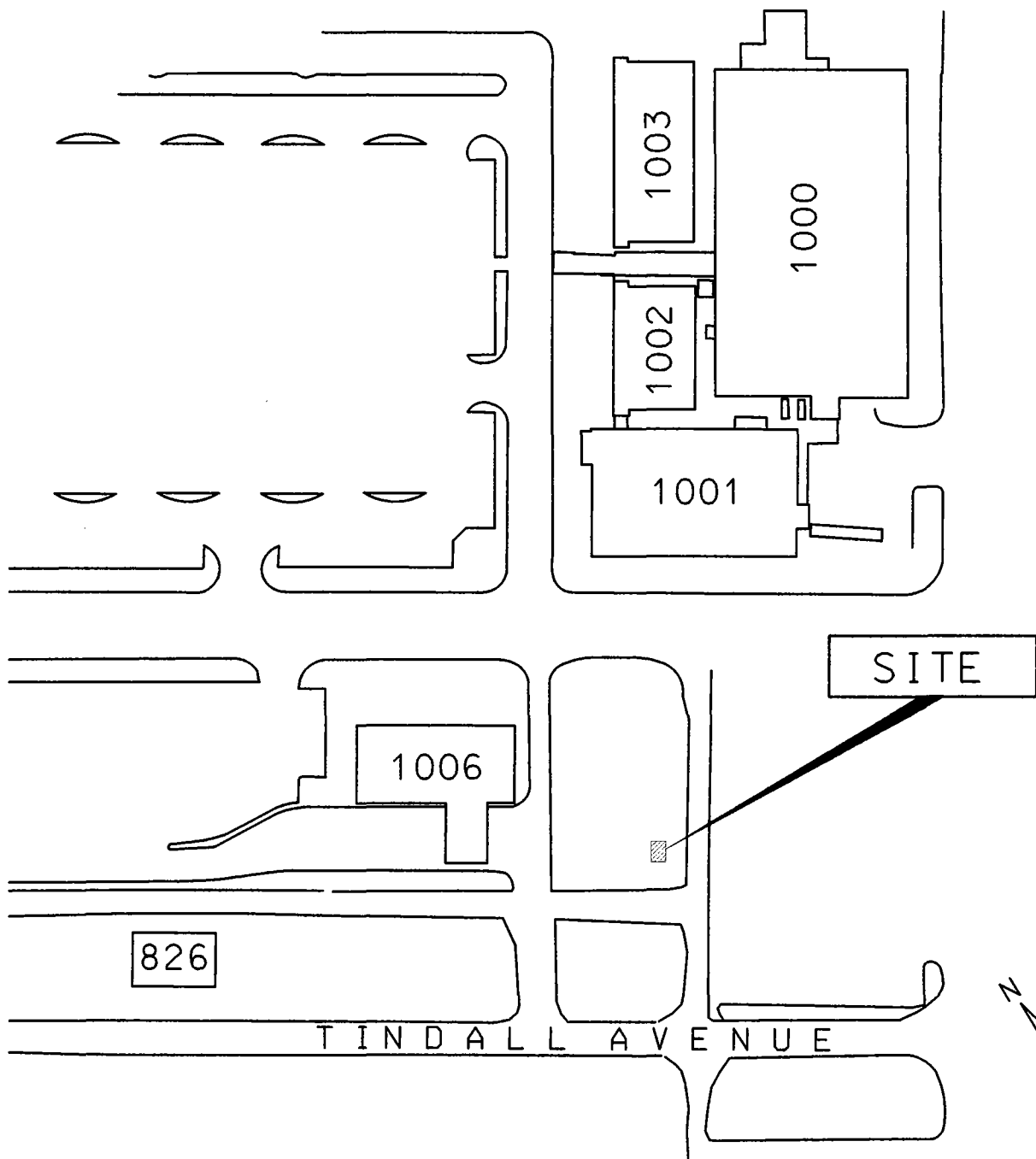
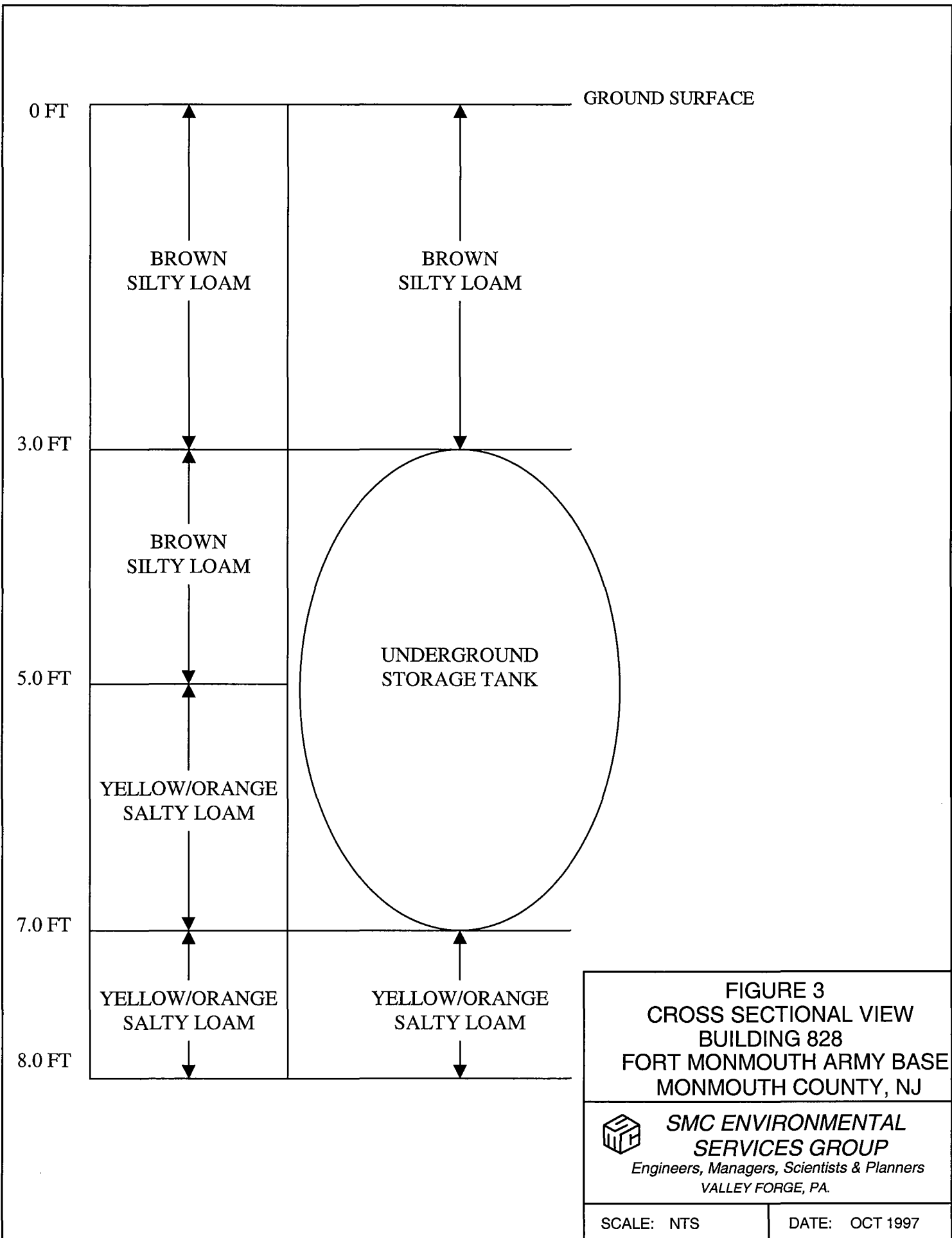


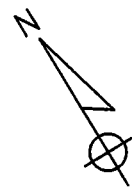
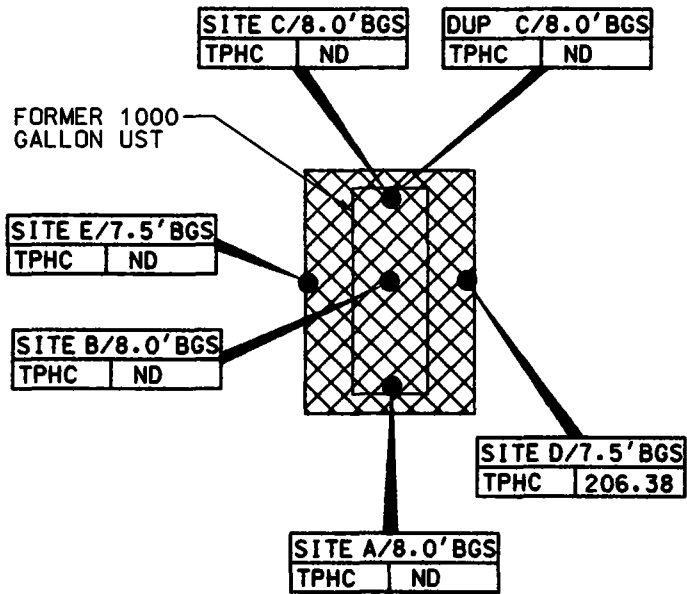
FIGURE 2  
 SITE MAP  
 BUILDING 828  
 FORT MONMOUTH ARMY BASE  
 MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: OCT 1997





**LEGEND**

- SOIL SAMPLE LOCATION (OCTOBER 20, 1997)
- ▣ LIMIT OF EXCAVATION (OCTOBER 20, 1997)

**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 828**  
**FORT MONMOUTH ARMY BASE**  
**MONMOUTH COUNTY, NJ**

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

SCALE: 1"=10'

DATE: OCT 1997

## APPENDIX A

### NJDEP-STANDARD REPORTING FORM



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

ATTN: UST Program  
(609) 984-3155

For State Use Only

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

**STANDARD REPORTING FORM**  
for reporting activities at an UST facility:

<input checked="" type="checkbox"/> General Facility Information Changes	<input type="checkbox"/> Sale or Transfer
<input type="checkbox"/> Closure (Abandonment or Removal)	<input type="checkbox"/> Substantial Modification
<input type="checkbox"/> Temporary Closure	<input type="checkbox"/> Financial Responsibility
<input type="checkbox"/> Change in Service	<input type="checkbox"/> Address Change Only

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

(More than one tank can be listed per activity)

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

Answer questions 1 through 5 and others as applicable.

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

U.S. ARMY - FORT MONMOUTH  
DPW - BUILDING 173  
FORT MONMOUTH NJ 07703

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

MAIN POST WEST

3. Contact person for this activity:

Charles Appleby  
Telephone Number: (732) 532-6224

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

Bldg. 828 0081533

5. Registration Number (if known):

UST - \_\_\_\_\_

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

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

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

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

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

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

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

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

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

(OVER)

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

a.  Abandonment Date: \_\_\_/\_\_\_/\_\_\_ Case No: \_\_\_\_\_

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

b.  Removal Date: 10/20/97 Case No. NA

Attach the necessary implementation schedule (3 copies).

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

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

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

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

Tank No. \_\_\_\_\_ Old \_\_\_\_\_ New \_\_\_\_\_

Tank No. \_\_\_\_\_ Old \_\_\_\_\_ New \_\_\_\_\_

Tank No. \_\_\_\_\_ Old \_\_\_\_\_ New \_\_\_\_\_

(Attach additional sheets if more space is needed)

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

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

b. New Facility Name \_\_\_\_\_

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

\_\_\_\_\_ County \_\_\_\_\_

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

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

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

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

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

a. Policy Type:  d. Company/Carrier:

b. Policy Number:  e. Expiration Date:

c. Other:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Specify)

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

CERTIFICATION

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

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

Signature: [Signature]

Name (print or type): JAMES OTT

Title: DIRECTOR - DEPT OF PUBLIC WORKS Date: 10/20/97



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

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

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

Facility Street Address : Directorate of Public Works Building 173

Municipality: Eatontown County : Monmouth

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

B. Owner (RP)'s Name:

Street Address: City :

State: Zip: Telephone Number :

C. (Check as appropriate)

- Site Investigation Report (SIR) \$500 Fee
Remedial Investigation Report (RIR) \$1000 Fee
[X] NA - Federal Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
UST Registration Number : 81533-135 (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 No

Name: Charles Appleby Signature: UST Cert. No.: 2056

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

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

State: 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.
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.

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

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

Signature: James Ott

Company Name: U.S. Army Fort Monmouth Date: 1/2/95

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



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

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No.

NJ.3.21.00.2.05.9.7

Manifest Document No.

08113

2. Page 1 of 1

NHZ 008113

3. Generator's Name and Mailing Address  
U.S. ARMY COMMUNICATIONS ELECTRONICS COMMAND MAIN POST  
C/O J. FALLON BLDG 173 ATTN: SELPM-PW-EV  
FORT MONMOUTH, N.J. 07703

4. Generator's Phone ( 732 ) 532-6223

5. Transporter 1 Company Name  
LIONETTI OIL RECOVERY CO INC

6. US EPA ID Number  
NJ D 0 8 4 0 4 4 0 6 4

A. Transporter's Phone  
908 721-0900

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address  
LIONETTI OIL RECOVERY CO INC DBA LORCO PETROLEUM SVCS  
RUNYON&CHEESEQUAKE RDS  
OLD BRIDGE, NJ 08857

10. US EPA ID Number  
NJ D 0 8 4 0 4 4 0 6 4

C. Facility's Phone  
908 721-0900

11. Waste Shipping Name and Description

a. PETROLEUM OIL (PETROLEUM OIL)  
COMBUSTIBLE LIQUID UN1270 PGIII

12. Containers No. Type 13. Total Quantity 14. Unit Wt/Vol

0 0 1 T 62.450 G

b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above  
T, L PETROLEUM OIL 42%  
WATER 58%

E. Handling Codes for Wastes Listed Above  
T04 FILTRATION

15. Special Handling Instructions and Additional Information  
24 HR EMERGENCY RESPONSE#(908) 721-0900  
DECAL#8704 ERG#128 DEXSIL TEST KIT RESULTS \_\_\_\_\_ PPM  
MANIFEST USED FOR TRACKING PURPOSES ONLY

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

Printed/Typed Name  
DINKER, MI. DESAI

Signature  
*[Signature]*

Month Day Year  
11 10 1997

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name  
DAN MACKAY

Signature  
*[Signature]*

Month Day Year  
11 10 1997

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

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

Printed/Typed Name  
Richard Bell

Signature  
*[Signature]*

Month Day Year  
11 10 1997

ORIGINAL - RETURN TO GENERATOR

GENERATOR

TRANSPORTER

FACILITY

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



**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. 828

Project # 3086  
Date Rec.10/21/97  
Date Comp.10/22/97  
Released by:



Daniel K. Wright  
Laboratory Director



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## Method Summary

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

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

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

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

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


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

PHC Conformance/Non-conformance Summary Report

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

Laboratory Authentication Statement

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

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

# Fort Monmouth Environmental Testing Laboratory

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

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

NJDEP Certification #13461

## Chain of Custody Record

Customer: DPW-ENV				Project No: 96-1262-110 98-0001		Analysis Parameters					Comments:			
Phone #:				Location: B.828		TPHC	Pb	SOILS	MUNSELL				OVA	* = SAMPLES KEPT BELOW 4°C.
( ) DERA (X) OMA ( ) Other:														
Samplers Name / Company: GARY DIMARTINIS - TUS				Sample #										
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles								Remarks / Preservation Method	
3086.01	828-A	10-20-97	1419	SOIL	1	X	X	X					ND CENTER LINE @ 8.0' *	
102	B		1423										ND	
103	C		1427										ND	
104	D		1433										ND SIDE WALL @ 7.5'	
105	E		1437										ND	
106	ES		1443										ND ETC. SOIL	
107	DUP		—										— FIELD DUPLICATE ✓	
NOTE: OVA (#A52114) CALIBRATED 4:25 PM CH4 + ZERO (0) AIR @ 1400 HRS ON 10-20-97 by G. DIMARTINIS.														
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):				
<i>[Signature]</i>		10-21-97 0830		<i>[Signature]</i>										
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):				
Report Type: ( ) Full, (X) Reduced, ( ) Standard, ( ) Screen / non-certified						Remarks: DEDICATED SAMPLING TOOLS USED.								
Turnaround time: (X) Standard 4 wks, ( ) Rush Days, ( ) ASAP Verbal Hrs.														

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

<b>Client :</b>	U.S. Army	<b>Lab. ID # :</b>	3086
	DPW. SELFM-PW-EV	<b>Date Rec'd:</b>	21-Oct-97
	Bldg. 173	<b>Analysis Start:</b>	21-Oct-97
	Ft. Monmouth, NJ 07703	<b>Analysis Complete:</b>	22-Oct-97

<b>Analysis:</b>	OQA-QAM-025	<b>UST Reg. #:</b>	
<b>Matrix:</b>	Soil	<b>Closure #:</b>	
<b>Analyst:</b>	D.DEINHARDT	<b>DICAR #:</b>	
<b>Ext. Meth:</b>	Shake	<b>Location #:</b>	B. 828

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
<b>3086.01</b>	828-A	<b>1.00</b>	15.14	91.86	169	<b>ND</b>
<b>3086.02</b>	828-B	<b>1.00</b>	15.07	93.58	167	<b>ND</b>
<b>3086.03</b>	828-C	<b>1.00</b>	15.10	93.33	167	<b>ND</b>
<b>3086.04</b>	828-D	<b>1.00</b>	15.20	90.83	170	<b>206.38</b>
<b>3086.05</b>	828-E	<b>1.00</b>	15.08	90.26	173	<b>ND</b>
<b>3086.06</b>	828-ES	<b>1.00</b>	15.19	92.12	168	<b>ND</b>
<b>3086.07</b>	828-DUP	<b>1.00</b>	15.52	93.22	162	<b>ND</b>
<b>METHOD BLANK</b>	21-Oct-97	<b>1.00</b>	15.00	100.00	157	<b>ND</b>

ND = Not Detected  
MDL = Method Detection Limit

  
**Daniel K. Wright**  
 Laboratory Director

Response Factor Report FID/TCD

Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997

Calibration Files

1 =T02563.D 2 =T02562.D 3 =T02561.D  
 4 =T02560.D 5 =T02559.D

Compound	1	2	3	4	5	Avg		%RSD
1) t C8	1.239	1.233	1.136	1.165	1.149	1.184	E4	4.06
2) t C10	1.261	1.273	1.178	1.200	1.187	1.220	E4	3.62
3) t C12	1.329	1.346	1.248	1.268	1.259	1.290	E4	3.43
4) t C14	1.358	1.369	1.269	1.289	1.283	1.314	E4	3.53
5) t C16	1.374	1.394	1.290	1.310	1.304	1.334	E4	3.48
6) t C18	1.608	1.612	1.492	1.475	1.545	1.546	E4	4.10
7) t C20	1.484	1.499	1.382	1.409	1.393	1.433	E4	3.77
8) t C22	1.462	1.489	1.385	1.416	1.410	1.432	E4	2.93
9) t C24	1.479	1.469	1.363	1.400	1.393	1.421	E4	3.56
10) t C26	1.352	1.295	1.330	1.367	1.378	1.344	E4	2.47
11) t C28	1.232	1.272	1.214	1.253	1.350	1.264	E4	4.17
12) t C30	1.176	1.209	1.155	1.214	1.356	1.222	E4	6.43
13) t C32	1.077	1.131	1.072	1.187	1.230	1.139	E4	6.03
14) t C34	1.033	1.069	0.948	1.179	1.089	1.064	E4	7.91
15) t C36	8.305	8.680	6.669	9.566	8.289	8.302	E3	12.64
16) t C38	5.760	5.941	3.889	6.293	5.501	5.477	E3	17.04
17) t C40	3.163	3.285	1.884	3.423	2.984	2.948	E3	20.90
18) t c42	1.608	1.557	0.832	1.656	1.400	1.411	E3	23.92
19) T Pristane	1.484	1.490	1.364	1.403	1.349	1.418	E4	4.65
20) T Phytane	1.502	1.513	1.389	1.413	1.393	1.442	E4	4.19
21) s o-terphenyl	1.615	1.629	1.504	1.542	1.531	1.564	E4	3.52
22) t TPHC - total	1.804	1.668	1.279	1.394	1.322	1.494	E4	15.43

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\971020\T02847.D  
 Acq On : 22 Oct 97 1:02 pm  
 Sample : 50 PPM STANDARD  
 Misc :  
 IntFile : TPHCINT.E

Vial: 2  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 t C8	11.844	9.160 E3	22.7	77	-0.02
2 t C10	12.199	10.938 E3	10.3	88	-0.01
3 t C12	12.899	11.718 E3	9.2	89	-0.01
4 t C14	13.135	11.913 E3	9.3	89	-0.01
5 t C16	13.343	12.076 E3	9.5	89	-0.01
6 t C18	15.464	13.652 E3	11.7	87	-0.01
7 t C20	14.334	13.002 E3	9.3	90	-0.01
8 t C22	14.324	12.898 E3	10.0	89	-0.01
9 t C24	14.208	12.826 E3	9.7	90	-0.01
10 t C26	13.442	12.519 E3	6.9	93	-0.01
11 t C28	12.641	12.131 E3	4.0	101	-0.01
12 t C30	12.219	11.903 E3	2.6	107	-0.02
13 t C32	11.393	10.747 E3	5.7	107	-0.02
14 t C34	10.635	9.127 E3	14.2	104	-0.02
15 t C36	8.302	6.466 E3	22.1	103	-0.02
16 t C38	5.477	3.901 E3	28.8#	103	-0.02
17 t C40	2.948	1.909 E3	35.2#	101	-0.03
18 t c42	1.411	0.820 E3	41.9#	95	-0.05
19 T Pristane	14.180	12.762 E3	10.0	89	-0.01
20 T Phytane	14.419	13.070 E3	9.4	90	-0.01
21 s o-terphenyl	15.642	14.070 E3	10.0	92	-0.01
22 t TPHC - total	14.936	12.309 E3	17.6	91	-0.04

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Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\971020\T02836.D  
 Acq On : 22 Oct 97 5:33 am  
 Sample : 50 PPM STANDARD  
 Misc :  
 IntFile : TPHCINT.E

Vial: 2  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 t	C8	11.844	9.145 E3	22.8	77	-0.02
2 t	C10	12.199	10.916 E3	10.5	88	-0.01
3 t	C12	12.899	11.726 E3	9.1	89	-0.01
4 t	C14	13.135	11.905 E3	9.4	89	-0.01
5 t	C16	13.343	12.057 E3	9.6	89	-0.01
6 t	C18	15.464	13.590 E3	12.1	86	-0.01
7 t	C20	14.334	12.988 E3	9.4	90	-0.01
8 t	C22	14.324	12.907 E3	9.9	89	-0.01
9 t	C24	14.208	12.795 E3	9.9	89	-0.01
10 t	C26	13.442	12.475 E3	7.2	93	-0.01
11 t	C28	12.641	12.118 E3	4.1	101	-0.01
12 t	C30	12.219	11.806 E3	3.4	106	-0.02
13 t	C32	11.393	10.699 E3	6.1	107	-0.02
14 t	C34	10.635	9.061 E3	14.8	104	-0.02
15 t	C36	8.302	6.379 E3	23.2	101	-0.02
16 t	C38	5.477	3.803 E3	30.6#	100	-0.03
17 t	C40	2.948	1.852 E3	37.2#	98	-0.03
18 t	c42	1.411	0.797 E3	43.5#	92	-0.05
19 T	Pristane	14.180	12.525 E3	11.7	87	-0.01
20 T	Phytane	14.419	13.067 E3	9.4	90	-0.01
21 s	o-terphenyl	15.642	14.036 E3	10.3	92	-0.01
22 t	TPHC - total	14.936	12.520 E3	16.2	92	0.91#

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

### Surrogate Recovery Report

Lab. ID #: 3086

Location #: B. 828

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3086.01		10.00	12.82	128.22
3086.02		10.00	13.21	132.07
3086.03		10.00	13.01	130.14
3086.04		10.00	12.75	127.46
3086.05		10.00	12.78	127.84
3086.06		10.00	12.95	129.52
3086.07		10.00	12.83	128.34
METHOD BLANK	21-Oct-97	10.00	12.41	124.13

Surrogate Added : o-Terphenyl

### Matrix Spike Recovery Report

Lab. ID #: 3086  
Location #: B. 828

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3085.08MS	1000	53.30	1095.65	104.23	75-125
3085.08MSD	1000	53.30	1070.86	101.76	75-125

RPD	2.41	20.00
-----	------	-------

### Blank Spike Recovery Report

Lab. ID #: 3086  
Location #: B. 828

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	21-Oct-97	1000	1017.11	101.71	75-125

Data File : C:\HPCHEM\1\DATA\971020\T02844.D  
 Acq On : 22 Oct 97 10:59 am  
 Sample : 3086.01  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 11:27 1997 Quant Results File: TPH15.RES

Vial: 65  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.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) s o-terphenyl	13.64	200552	12.822	mg/L
Spiked Amount 10.000		Recovery =	128.22%	
Target Compounds				
1) t C8	0.00	0	N.D.	mg/L
2) t C10	0.00	0	N.D.	mg/L
3) t C12	0.00	0	N.D.	mg/L
4) t C14	0.00	0	N.D.	mg/L
5) t C16	0.00	0	N.D.	mg/L
6) t C18	0.00	0	N.D.	mg/L
7) t C20	0.00	0	N.D.	mg/L
8) t C22	0.00	0	N.D.	mg/L
9) t C24	14.71	2325	0.164	mg/L
10) t C26	15.30	1096	0.082	mg/L
11) t C28	0.00	0	N.D.	mg/L
12) t C30	16.61	1172	0.096	mg/L
13) t C32	0.00	0	N.D.	mg/L
14) t C34	0.00	0	N.D.	mg/L
15) t C36	0.00	0	N.D.	mg/L
16) t C38	0.00	0	N.D.	mg/L
17) t C40	0.00	0	N.D.	mg/L
18) t c42	0.00	0	N.D.	mg/L
19) T Pristane	0.00	0	N.D.	mg/L
20) T Phytane	0.00	0	N.D.	mg/L
22) t TPHC - total	0.00	0	N.D.	mg/L

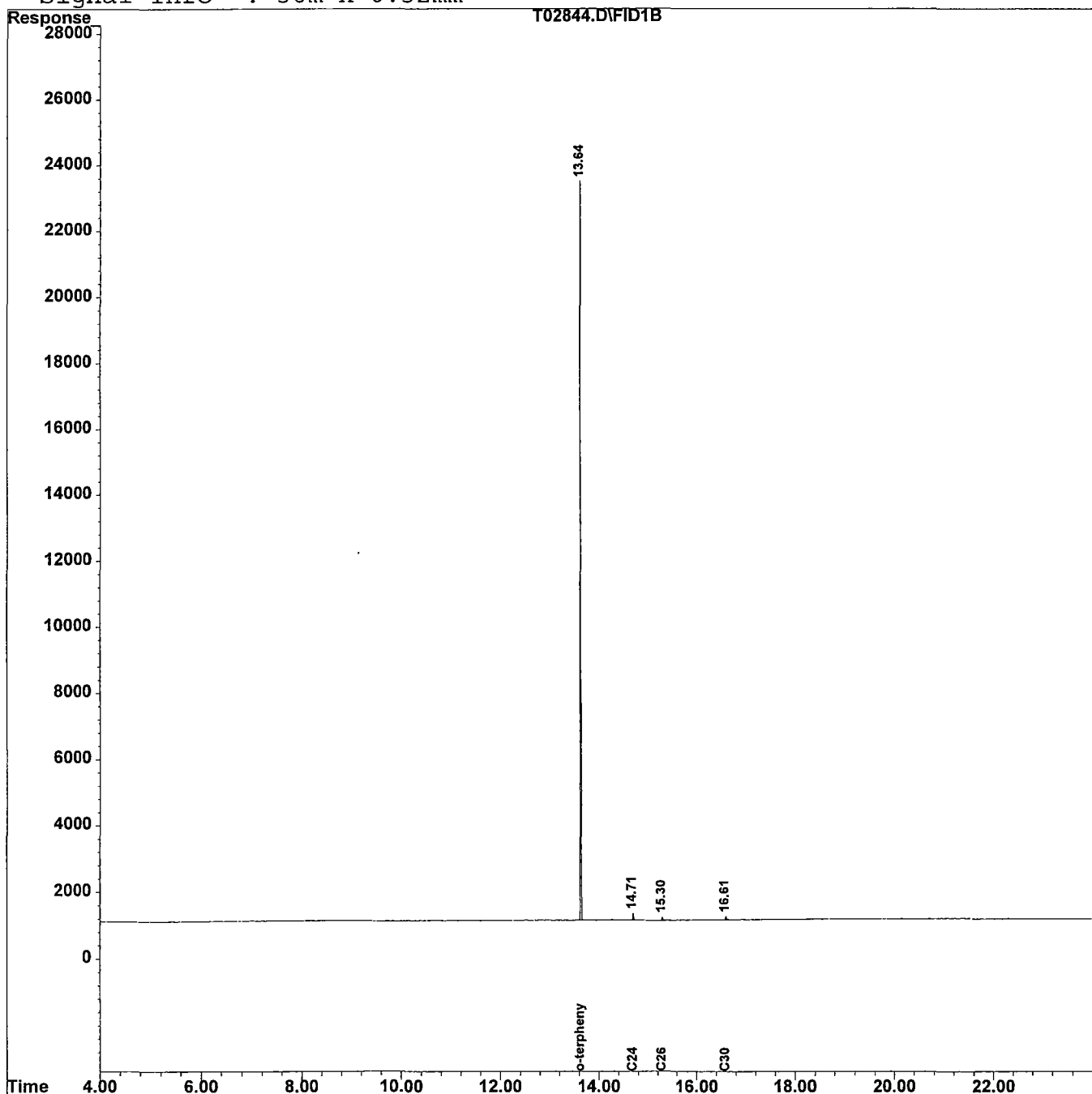
Quantitation Report

Data File : C:\HPCHEM\1\DATA\971020\T02844.D  
Acq On : 22 Oct 97 10:59 am  
Sample : 3086.01  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 11:27 1997

Vial: 65  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



14

Data File : C:\HPCHEM\1\DATA\971020\T02845.D  
 Acq On : 22 Oct 97 11:40 am  
 Sample : 3086.02  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 12:08 1997 Quant Results File: TPH15.RES

Vial: 66  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.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) s o-terphenyl	13.64	206584	13.207	mg/L
Spiked Amount 10.000		Recovery =	132.07%	
Target Compounds				
1) t C8	0.00	0	N.D.	mg/L
2) t C10	0.00	0	N.D.	mg/L
3) t C12	0.00	0	N.D.	mg/L
4) t C14	0.00	0	N.D.	mg/L
5) t C16	0.00	0	N.D.	mg/L
6) t C18	0.00	0	N.D.	mg/L
7) t C20	0.00	0	N.D.	mg/L
8) t C22	0.00	0	N.D.	mg/L
9) t C24	14.71	1852	0.130	mg/L
10) t C26	15.30	1319	0.098	mg/L
11) t C28	0.00	0	N.D.	mg/L
12) t C30	16.61	1392	0.114	mg/L
13) t C32	0.00	0	N.D.	mg/L
14) t C34	0.00	0	N.D.	mg/L
15) t C36	0.00	0	N.D.	mg/L
16) t C38	0.00	0	N.D.	mg/L
17) t C40	0.00	0	N.D.	mg/L
18) t c42	0.00	0	N.D.	mg/L
19) T Pristane	0.00	0	N.D.	mg/L
20) T Phytane	0.00	0	N.D.	mg/L
22) t TPHC - total	0.00	0	N.D.	mg/L

Quantitation Report

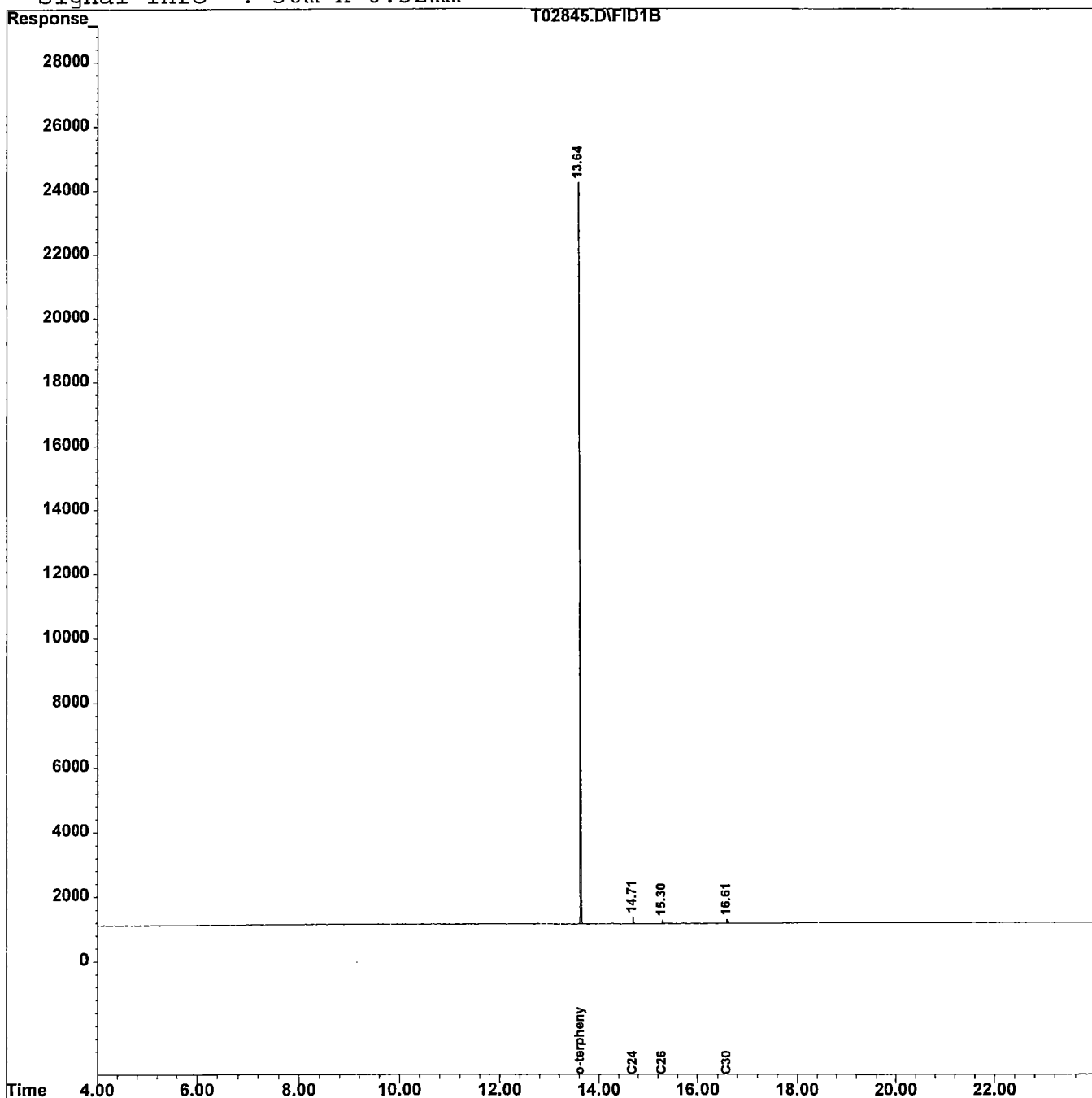
Data File : C:\HPCHEM\1\DATA\971020\T02845.D  
Acq On : 22 Oct 97 11:40 am  
Sample : 3086.02  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 12:08 1997

Vial: 66  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Results File: TPH15.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



11

Data File : C:\HPCHEM\1\DATA\971020\T02846.D  
 Acq On : 22 Oct 97 12:21 pm  
 Sample : 3086.03  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 12:49 1997

Vial: 67  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.M

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

Compound	R.T.	Response	Conc	Units
<b>System Monitoring Compounds</b>				
21) s o-terphenyl	13.64	203551	13.014	mg/L
Spiked Amount 10.000		Recovery =	130.14%	
<b>Target Compounds</b>				
1) t C8	0.00	0	N.D.	mg/L
2) t C10	0.00	0	N.D.	mg/L
3) t C12	0.00	0	N.D.	mg/L
4) t C14	0.00	0	N.D.	mg/L
5) t C16	0.00	0	N.D.	mg/L
6) t C18	0.00	0	N.D.	mg/L
7) t C20	0.00	0	N.D.	mg/L
8) t C22	0.00	0	N.D.	mg/L
9) t C24	14.71	1819	0.128	mg/L
10) t C26	15.30	1298	0.097	mg/L
11) t C28	0.00	0	N.D.	mg/L
12) t C30	16.61	1260	0.103	mg/L
13) t C32	0.00	0	N.D.	mg/L
14) t C34	0.00	0	N.D.	mg/L
15) t C36	0.00	0	N.D.	mg/L
16) t C38	0.00	0	N.D.	mg/L
17) t C40	0.00	0	N.D.	mg/L
18) t c42	0.00	0	N.D.	mg/L
19) T Pristane	0.00	0	N.D.	mg/L
20) T Phytane	0.00	0	N.D.	mg/L
22) t TPHC - total	0.00	0	N.D.	mg/L



Quantitation Report

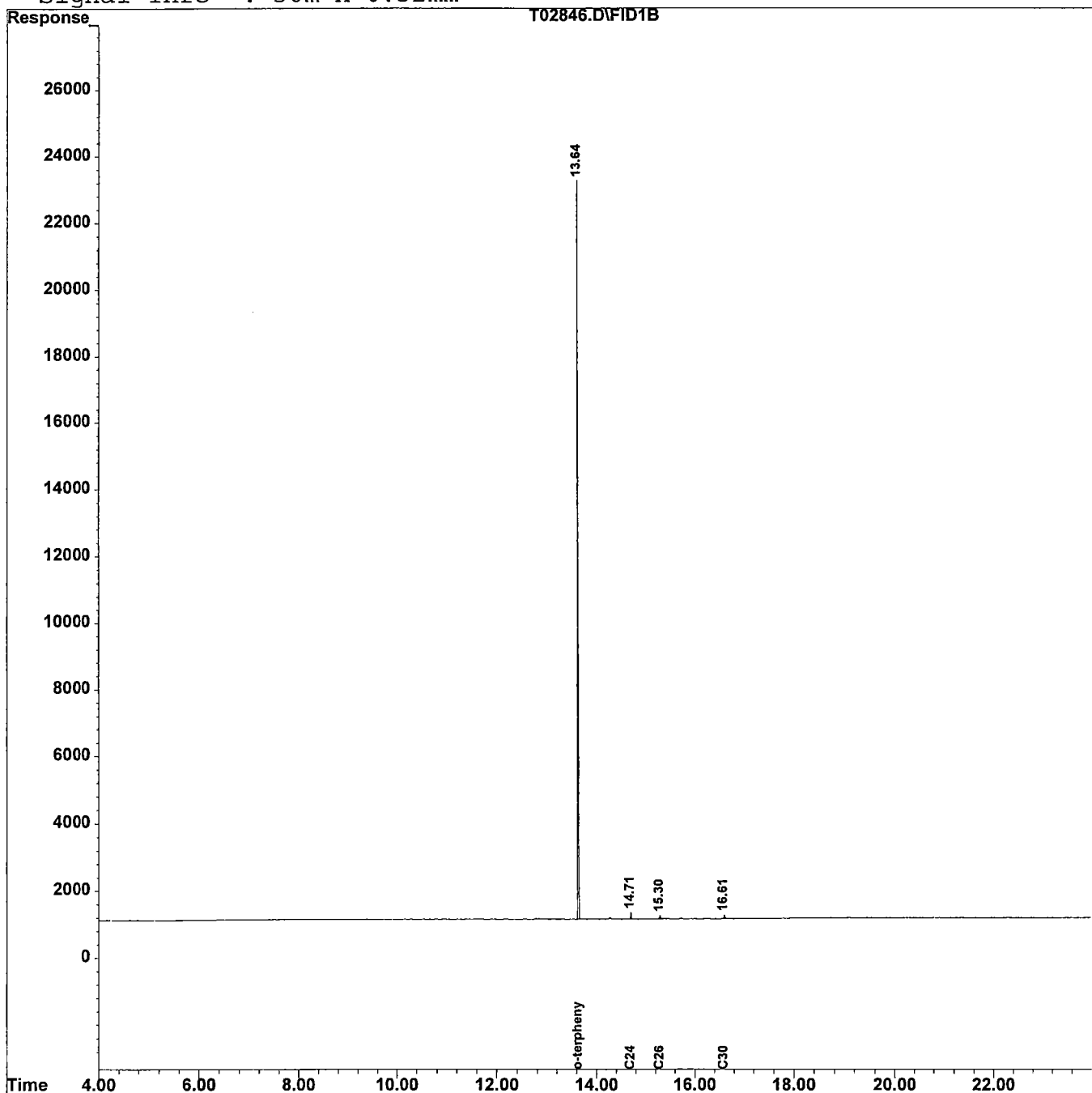
Data File : C:\HPCHEM\1\DATA\971020\T02846.D  
Acq On : 22 Oct 97 12:21 pm  
Sample : 3086.03  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 12:49 1997

Vial: 67  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Results File: TPH15.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



14

Data File : C:\HPCHEM\1\DATA\971020\T02848.D  
 Acq On : 22 Oct 97 1:44 pm  
 Sample : 3086.04  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 30 14:13 1997 Quant Results File: TPH15.RES

Vial: 69  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.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) s o-terphenyl	13.64	199360	12.746 mg/L
Spiked Amount 10.000		Recovery =	127.46%
Target Compounds			
1) t C8	0.00	0	N.D. mg/L
2) t C10	0.00	0	N.D. mg/L
3) t C12	0.00	0	N.D. mg/L
4) t C14	11.36	6515	0.496 mg/L
5) t C16	0.00	0	N.D. mg/L
6) t C18	0.00	0	N.D. mg/L
7) t C20	0.00	0	N.D. mg/L
8) t C22	0.00	0	N.D. mg/L
9) t C24	14.71	1972	0.139 mg/L
10) t C26	0.00	0	N.D. mg/L
11) t C28	0.00	0	N.D. mg/L
12) t C30	16.61	1104	0.090 mg/L
13) t C32	0.00	0	N.D. mg/L
14) t C34	0.00	0	N.D. mg/L
15) t C36	0.00	0	N.D. mg/L
16) t C38	0.00	0	N.D. mg/L
17) t C40	0.00	0	N.D. mg/L
18) t c42	0.00	0	N.D. mg/L
19) T Pristane	0.00	0	N.D. mg/L
20) T Phytane	0.00	0	N.D. mg/L
22) t TPHC - total	13.64	851117	56.985 mg/L m

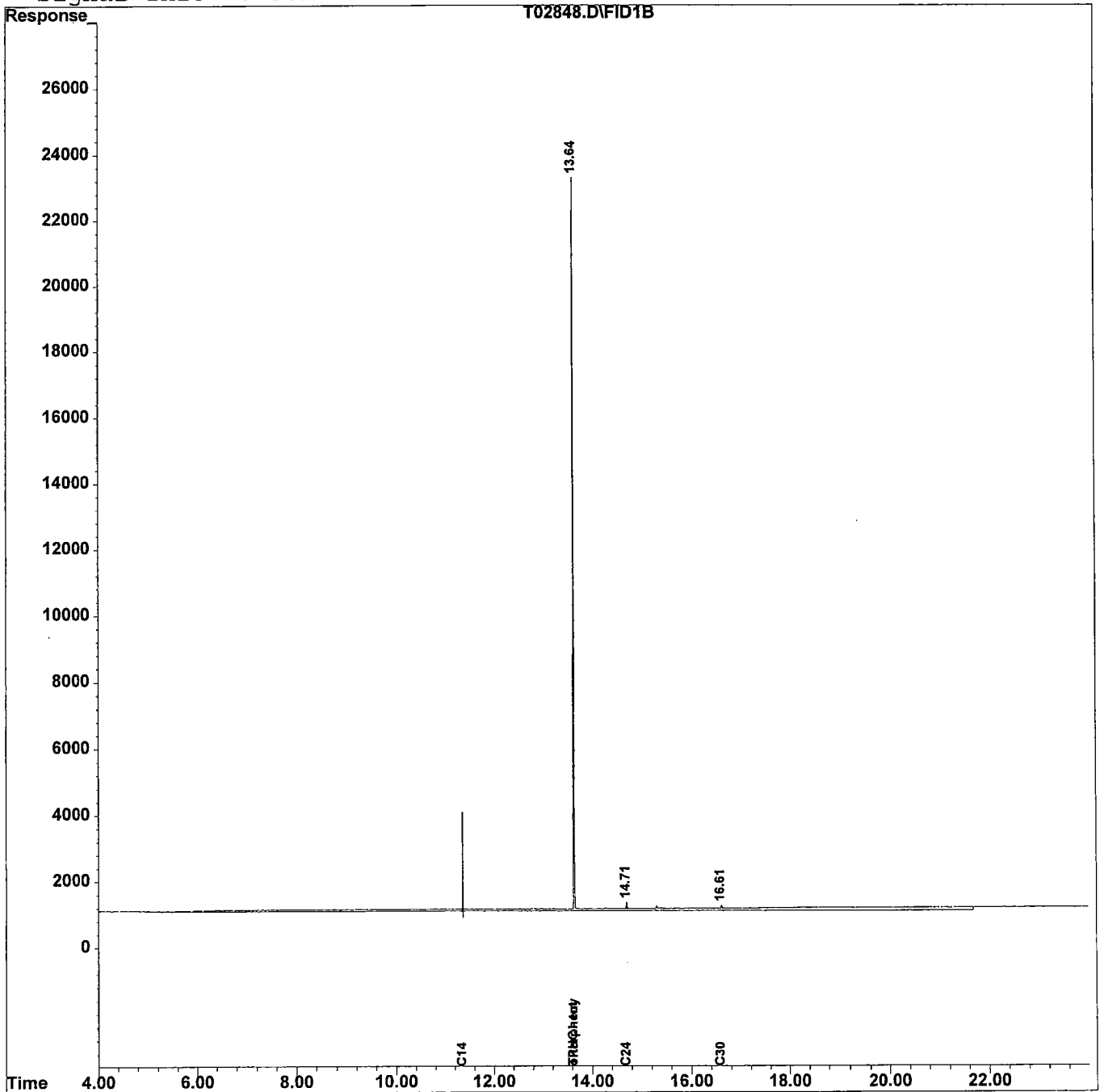
Quantitation Report

Data File : C:\HPCHEM\1\DATA\971020\T02848.D  
Acq On : 22 Oct 97 1:44 pm  
Sample : 3086.04  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 30 14:13 1997 Quant Results File: TPH15.RES

Vial: 69  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



Data File : C:\HPCHEM\1\DATA\971020\T02849.D  
 Acq On : 22 Oct 97 2:25 pm  
 Sample : 3086.05  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 14:53 1997 Quant Results File: TPH15.RES

Vial: 70  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.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) s o-terphenyl	13.64	199965	12.784 mg/L
Spiked Amount 10.000		Recovery =	127.84%
Target Compounds			
1) t C8	0.00	0	N.D. mg/L
2) t C10	0.00	0	N.D. mg/L
3) t C12	0.00	0	N.D. mg/L
4) t C14	0.00	0	N.D. mg/L
5) t C16	0.00	0	N.D. mg/L
6) t C18	0.00	0	N.D. mg/L
7) t C20	0.00	0	N.D. mg/L
8) t C22	0.00	0	N.D. mg/L
9) t C24	14.71	1907	0.134 mg/L
10) t C26	0.00	0	N.D. mg/L
11) t C28	0.00	0	N.D. mg/L
12) t C30	0.00	0	N.D. mg/L
13) t C32	0.00	0	N.D. mg/L
14) t C34	0.00	0	N.D. mg/L
15) t C36	0.00	0	N.D. mg/L
16) t C38	0.00	0	N.D. mg/L
17) t C40	0.00	0	N.D. mg/L
18) t c42	0.00	0	N.D. mg/L
19) T Pristane	0.00	0	N.D. mg/L
20) T Phytane	0.00	0	N.D. mg/L
22) t TPHC - total	0.00	0	N.D. mg/L

21

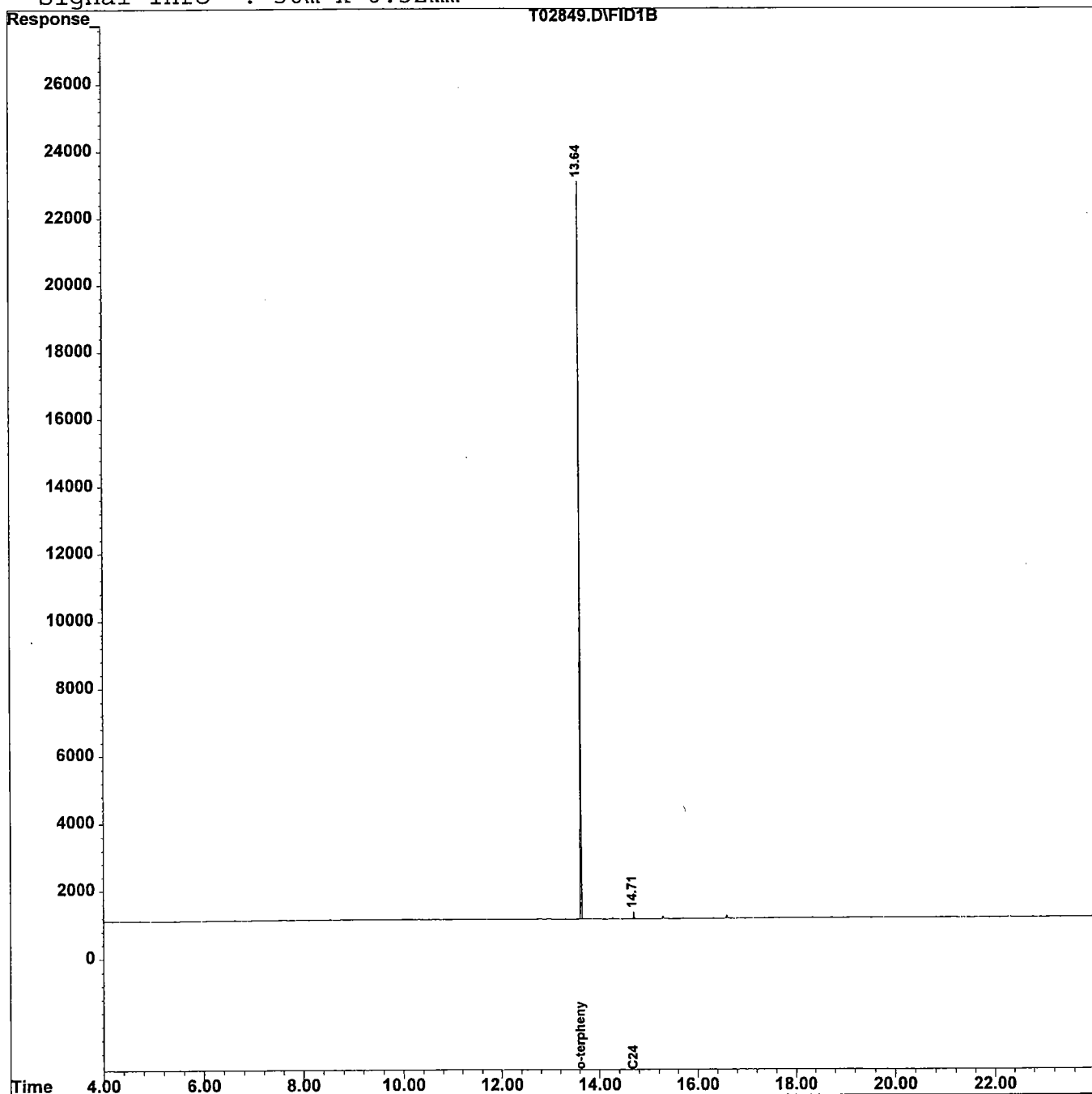
Quantitation Report

Data File : C:\HPCHEM\1\DATA\971020\T02849.D  
Acq On : 22 Oct 97 2:25 pm  
Sample : 3086.05  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 14:53 1997 Quant Results File: TPH15.RES

Vial: 70  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



Data File : C:\HPCHEM\1\DATA\971020\T02850.D  
 Acq On : 22 Oct 97 3:08 pm  
 Sample : 3086.06  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 15:36 1997 Quant Results File: TPH15.RES

Vial: 71  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.M

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

Compound	R.T.	Response	Conc	Units
<b>System Monitoring Compounds</b>				
21) s o-terphenyl	13.64	202582	12.952	mg/L
Spiked Amount 10.000		Recovery =	129.52%	
<b>Target Compounds</b>				
1) t C8	0.00	0	N.D.	mg/L
2) t C10	0.00	0	N.D.	mg/L
3) t C12	0.00	0	N.D.	mg/L
4) t C14	0.00	0	N.D.	mg/L
5) t C16	0.00	0	N.D.	mg/L
6) t C18	0.00	0	N.D.	mg/L
7) t C20	0.00	0	N.D.	mg/L
8) t C22	0.00	0	N.D.	mg/L
9) t C24	14.71	1947	0.137	mg/L
10) t C26	0.00	0	N.D.	mg/L
11) t C28	0.00	0	N.D.	mg/L
12) t C30	0.00	0	N.D.	mg/L
13) t C32	0.00	0	N.D.	mg/L
14) t C34	0.00	0	N.D.	mg/L
15) t C36	0.00	0	N.D.	mg/L
16) t C38	0.00	0	N.D.	mg/L
17) t C40	0.00	0	N.D.	mg/L
18) t c42	0.00	0	N.D.	mg/L
19) T Pristane	0.00	0	N.D.	mg/L
20) T Phytane	0.00	0	N.D.	mg/L
22) t TPHC - total	0.00	0	N.D.	mg/L

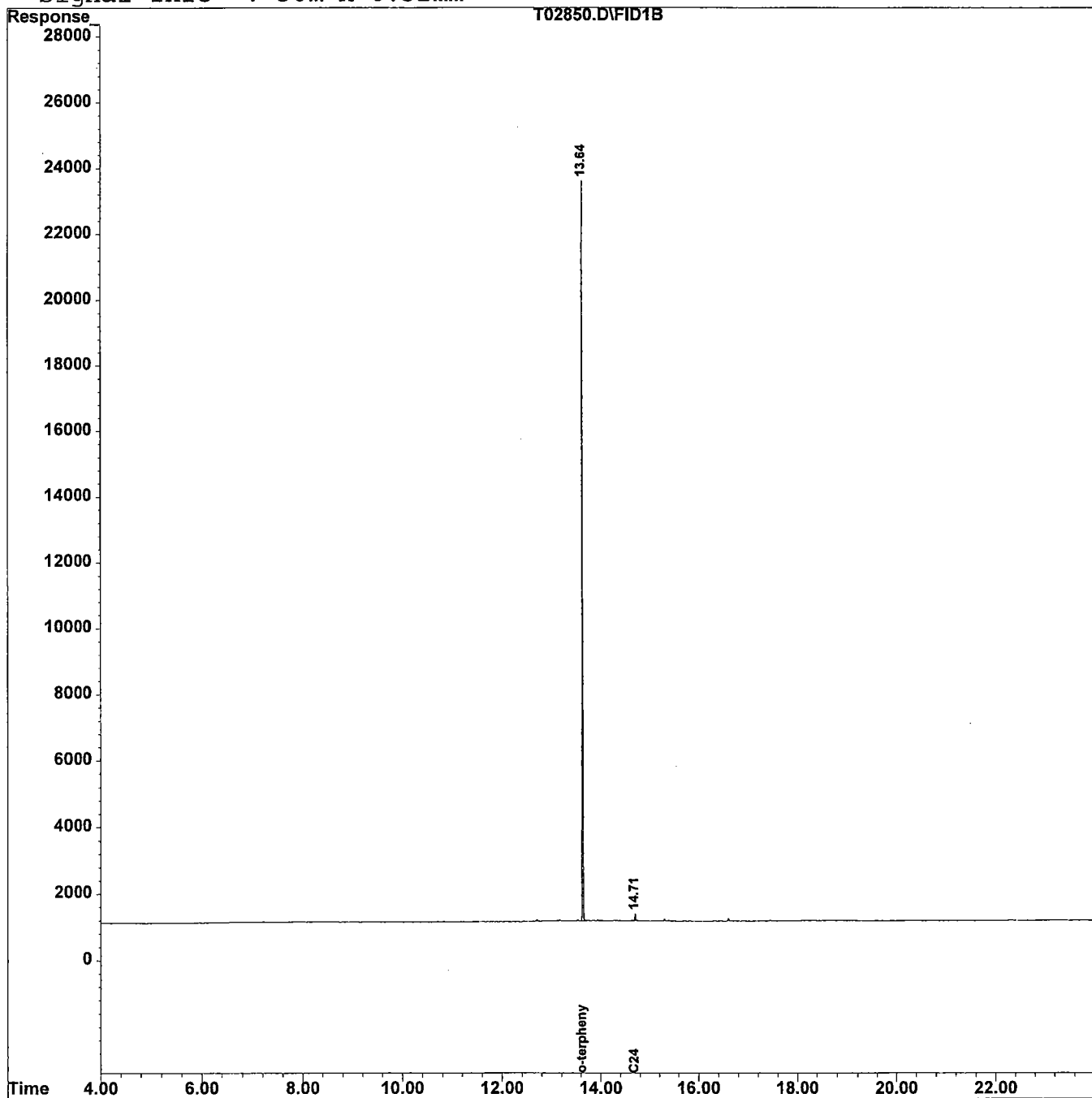
Quantitation Report

Data File : C:\HPCHEM\1\DATA\971020\T02850.D  
Acq On : 22 Oct 97 3:08 pm  
Sample : 3086.06  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 15:36 1997 Quant Results File: TPH15.RES

Vial: 71  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



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Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\971020\T02851.D  
 Acq On : 22 Oct 97 3:50 pm  
 Sample : 3086.07  
 Misc :  
 IntFile : TPHCINT.E  
 Quant Time: Oct 22 16:17 1997 Quant Results File: TPH15.RES

Vial: 72  
 Operator: DEINHARDT  
 Inst : FID/TCD  
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
 Title : TPHC Calibration 06/05/97 21 peaks  
 Last Update : Fri Aug 22 07:39:41 1997  
 Response via : Initial Calibration  
 DataAcq Meth : TPH15.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) s o-terphenyl	13.64	200740	12.834	mg/L
Spiked Amount 10.000		Recovery =	128.34%	
Target Compounds				
1) t C8	0.00	0	N.D.	mg/L
2) t C10	0.00	0	N.D.	mg/L
3) t C12	0.00	0	N.D.	mg/L
4) t C14	0.00	0	N.D.	mg/L
5) t C16	0.00	0	N.D.	mg/L
6) t C18	0.00	0	N.D.	mg/L
7) t C20	0.00	0	N.D.	mg/L
8) t C22	0.00	0	N.D.	mg/L
9) t C24	14.71	1794	0.126	mg/L
10) t C26	0.00	0	N.D.	mg/L
11) t C28	0.00	0	N.D.	mg/L
12) t C30	0.00	0	N.D.	mg/L
13) t C32	0.00	0	N.D.	mg/L
14) t C34	0.00	0	N.D.	mg/L
15) t C36	0.00	0	N.D.	mg/L
16) t C38	0.00	0	N.D.	mg/L
17) t C40	0.00	0	N.D.	mg/L
18) t c42	0.00	0	N.D.	mg/L
19) T Pristane	0.00	0	N.D.	mg/L
20) T Phytane	0.00	0	N.D.	mg/L
22) t TPHC - total	0.00	0	N.D.	mg/L



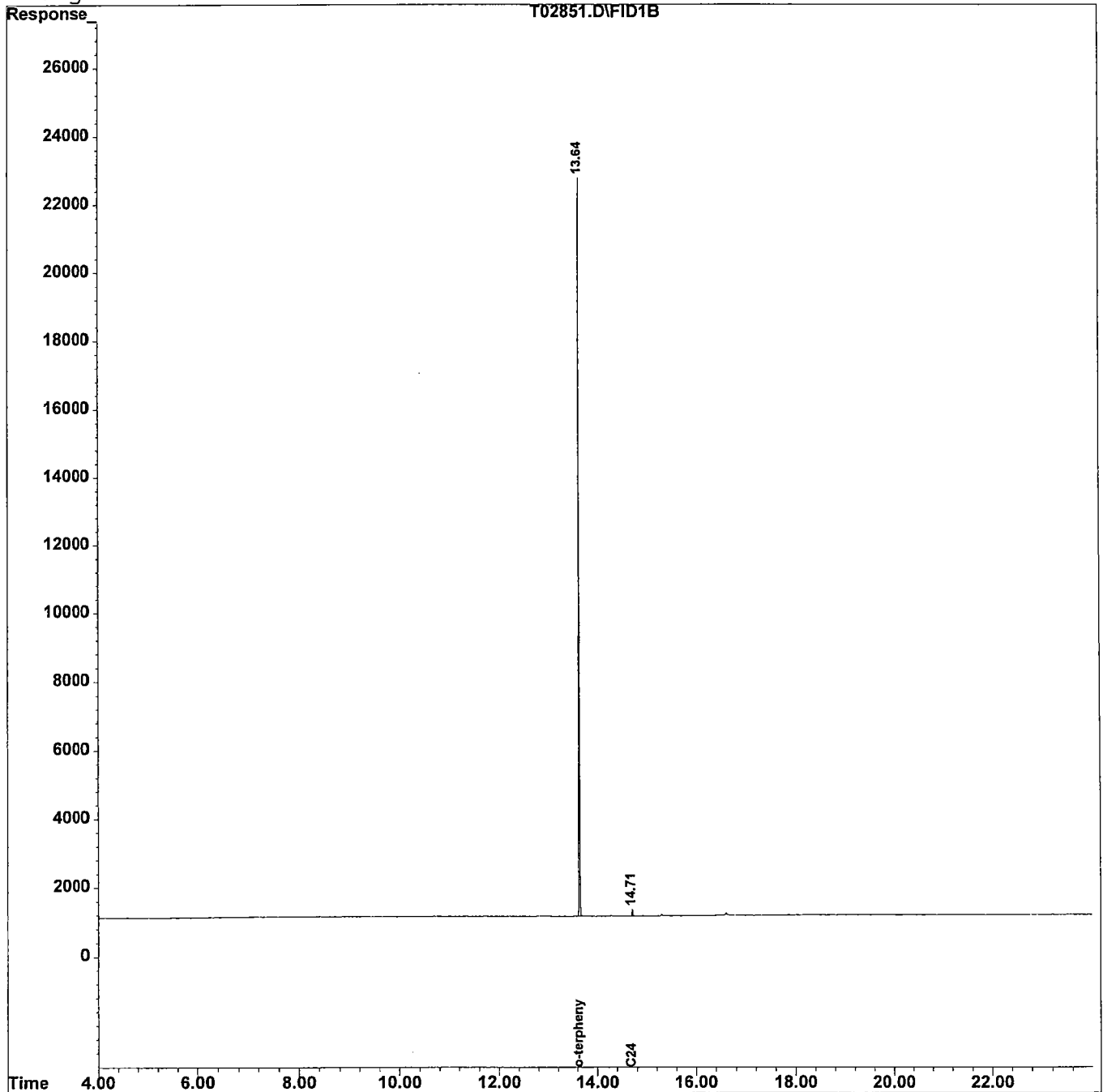
Quantitation Report

Data File : C:\HPCHEM\1\DATA\971020\T02851.D  
Acq On : 22 Oct 97 3:50 pm  
Sample : 3086.07  
Misc :  
IntFile : TPHCINT.E  
Quant Time: Oct 22 16:17 1997 Quant Results File: TPH15.RES

Vial: 72  
Operator: DEINHARDT  
Inst : FID/TCD  
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH15.M (Chemstation Integrator)  
Title : TPHC Calibration 06/05/97 21 peaks  
Last Update : Fri Aug 22 07:39:41 1997  
Response via : Multiple Level Calibration  
DataAcq Meth : TPH15.M

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



26

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature \_\_\_\_\_  
Date 12/22/97

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**



B 828  
10-20-97



B. 828  
10-20-97



B 828  
10-20-97

# OCTOBER 20, 1997 PHOTOGRAPHIC LOG

UST NO. 81533-135

Building 828  
Main Post-West  
Fort Monmouth



**SMC ENVIRONMENTAL  
SERVICES GROUP**  
Engineers, Managers, Scientists & Planners  
VALLEY FORGE, PA.