

United States Army
Fort Monmouth, New Jersey

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

***Building 418
Main Post-East Area***

NJDEP UST Registration No. 90010-34

December 1997

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

BUILDING 418

**MAIN POST-EAST AREA
NJDEP UST REGISTRATION NO. 90010-34**

DECEMBER 1997

PREPARED FOR:

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

PREPARED BY:

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

PROJECT NO. 2429-3080

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Appendix E	Soil Analytical Data Package
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EXECUTIVE SUMMARY

UST Closure

On February 11, 1997, a tar-coated steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) underground storage tank closure procedures at the Main Post-East area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 90010-34 (Fort Monmouth ID No. 418), was located south of Building 418. UST No. 90010-34 was an 1,080 gallon No. 2 fuel oil UST. The fill port was located directly above the tank.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank. Samples contained TPHC concentrations ranging from 153.19 to 261.06 mg/kg.

Site Restoration

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with 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. 90010-34 at Building 418.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 90010-34, was closed at Building 418 at the Main Post-East area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on February 11, 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 tar-coated steel 1,080-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 90010-34 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. 90010-34 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. 90010-34 are included in Appendices A and B, respectively.

Based on inspecting the UST, field screening of subsurface soils, 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 SMC Environmental Services Group, to assist the U.S. Army DPW in complying with the NJDEP-BUST regulations. The applicable NJDEP-BUST regulations at the date of closure were the *Interim Closure Requirements for Underground Storage Tank Systems* (N.J.A.C. 7:14B-1 et seq. October 1990 and revisions dated November 1, 1991).

This report was prepared using information collected at the time of closure. Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in the final section of this report.

1.2 SITE DESCRIPTION

Building 418 is located in the Main Post-East area of the Fort Monmouth Army Base. UST No. 90010-34 was located south of Building 418. Appurtenant copper piping was approximately thirteen (13) feet in length and ran northwest to Building 418. 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 418. 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 418 located approximately 100 feet south of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 418 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

On February 10, 1997, prior to UST removal, 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 hole 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 100 gallons of liquid from the UST and its associated piping were drummed and transported to the Fort Monmouth waste oil holding facility. Refer to Appendix C for a copy of the waste manifest.

After the UST was cleaned, the crew waited until February 11, 1997 to remove the UST from the excavated area. The UST 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 and piping were screened visually and with an OVA for evidence of contamination. No evidence of contamination was observed. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tar-coated steel tank was transported in compliance with all applicable regulations and laws to Mazza & Sons, Inc., Recycling Division. Refer to Appendix D for the UST disposal certificate and Appendix F for photographs of the UST.

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

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

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and TPHC analysis results from the post-excavation soil samples, 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: Eugene W. Lesinski
Employer: U.S. Army, Fort Monmouth
Phone Number: (908) 532-0989
NJDEP Certification No.: 0014537
- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory
Contact Person: Daniel K. Wright
Phone Number: (908) 532-4359
NJDEP Company Certification No.: 13461

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 did not exhibit any evidence of potential contamination.

2.3 SOIL SAMPLING

On February 11, 1997, following the removal of the UST, post-excavation soil samples A, B, C, D, E, F, G, and DUP B were collected from a total of seven (7) locations of the UST excavation. Sidewall samples C and D were collected at a depth of 5.0 feet bgs. Excavation floor samples E, F, and G were collected at a depth of 5.5 feet bgs. Pipe run samples A, B, and DUP B were collected along the former piping trench, which was approximately thirteen (13) feet in length and which ran northwest to Building 418. Piping samples A, B, and DUP B were collected at a depth of 0.5, 1.0, and 1.0 foot bgs, respectively. 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 and associated piping, post-excavation soil samples were collected on February 11, 1997 from a total of seven (7) 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 February 11, 1997, 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 153.19 to 261.06 mg/kg.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 418 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. 90010-34 at Building 418.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 418, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 1

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
B	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
C	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
D	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
E	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
F	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
G	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025
DUP B	2/11/97	2/12/97	Soil	Post-Excavation	TPHC	OQA - QAM - 025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 BUILDING 418, MAIN POST-EAST AREA
 FORT MONMOUTH, NEW JERSEY

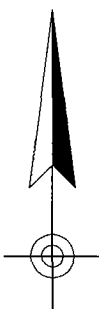
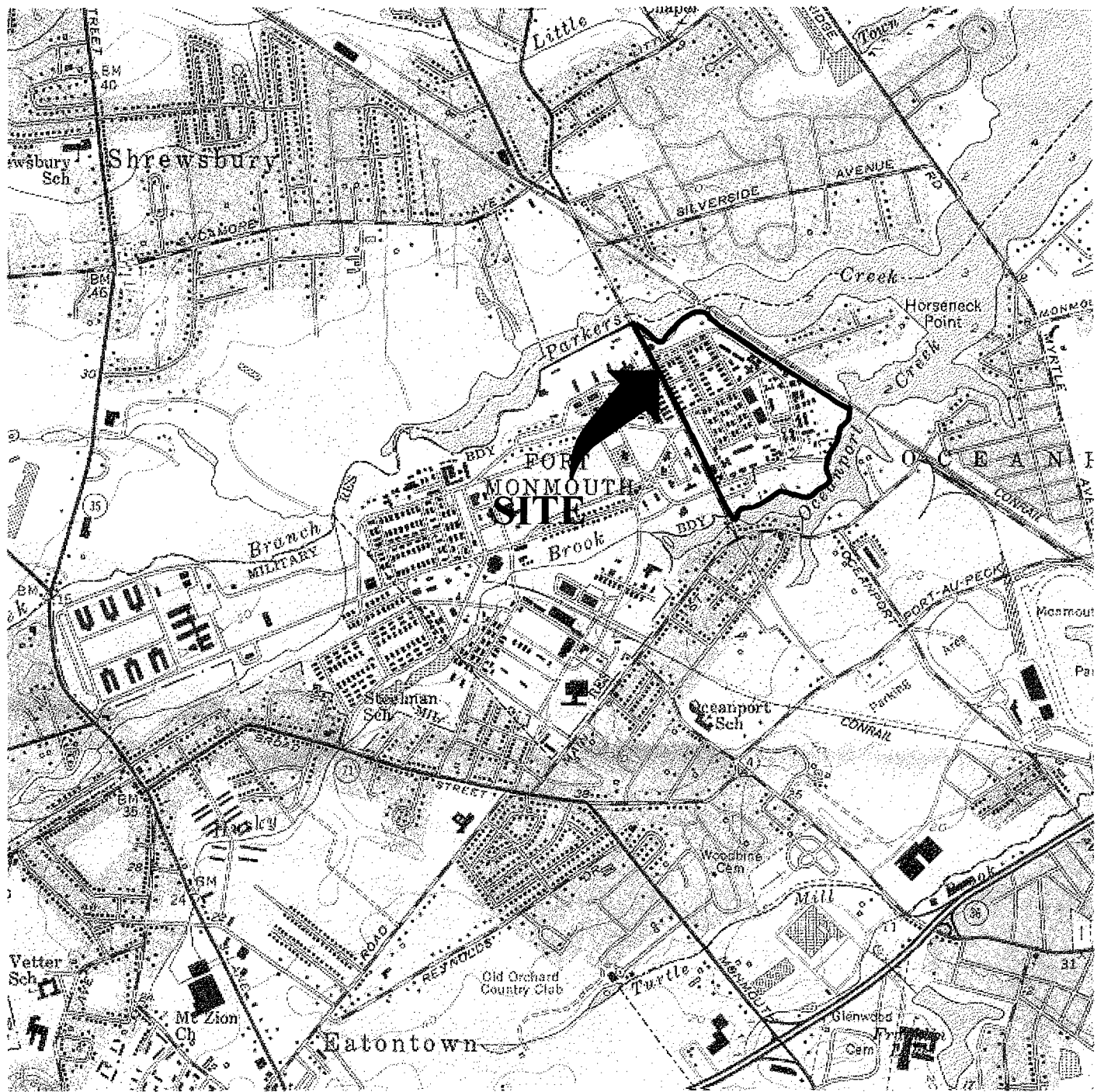
Page 1 of 1

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/0.5'	2324.1	2/11/97	2/12/97	Total Solid	--	--	89.29 %	--	--
				TPHC	173	yes	153.19	10,000	No
B/1.0'	2324.2	2/11/97	2/12/97	Total Solid	--	--	90.48 %	--	--
				TPHC	151	yes	195.56	10,000	No
C/5.0'	2324.3	2/11/97	2/12/97	Total Solid	--	--	88.37 %	--	--
				TPHC	159	yes	164.30	10,000	No
D/5.0'	2324.4	2/11/97	2/12/97	Total Solid	--	--	87.80 %	--	--
				TPHC	168	yes	208.61	10,000	No
E/5.5'	2324.5	2/11/97	2/12/97	Total Solid	--	--	87.33 %	--	--
				TPHC	169	yes	261.06	10,000	No
F/5.5'	2324.6	2/11/97	2/12/97	Total Solid	--	--	87.95 %	--	--
				TPHC	174	yes	189.76	10,000	No
G/5.5'	2324.7	2/11/97	2/12/97	Total Solid	--	--	87.80 %	--	--
				TPHC	167	yes	223.67	10,000	No
DUP B/1.0'	2324.8	2/11/97	2/12/97	Total Solid	--	--	88.60 %	--	--
				TPHC	166	yes	198.80	10,000	No

Note:

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

FIGURES



LONG BRANCH, NJ

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE -SERIES V822



New Jersey

Quadrangle Location

FIGURE 1

SITE LOCATION MAP

Building 418

Main Post-East

Fort Monmouth Army Base

Monmouth County, NJ

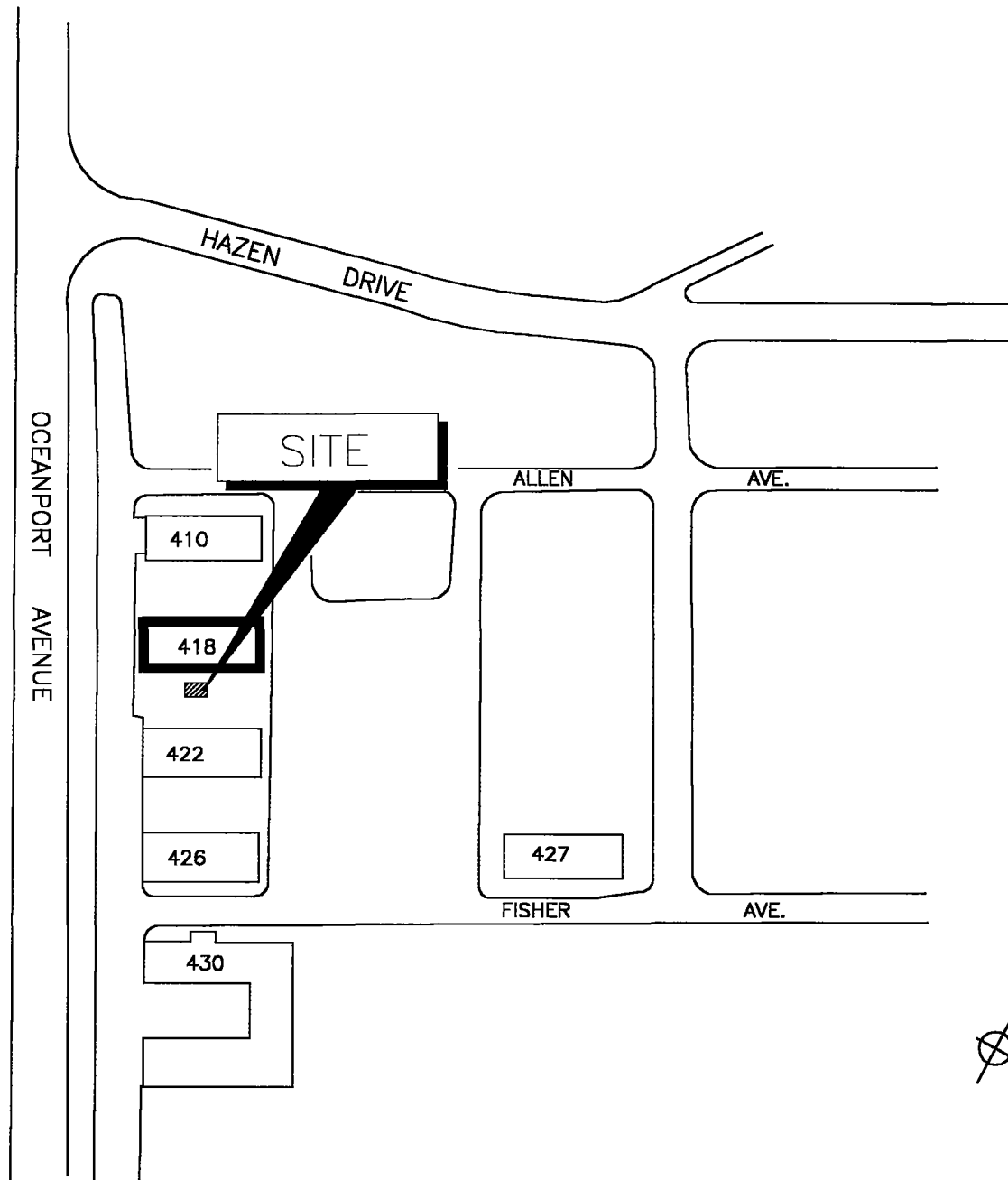


SMC Environmental Services Group
Engineers, Managers, Scientists, & Planners
Valley Forge, Pennsylvania

Mapped, edited and published by the Geological Survey

Scale: 1"=2,000'

Date: DEC 1997



418 2429 FIG2

FIGURE 2
 SITE MAP
 BUILDING 418
 FORT MONMOUTH ARMY BASE
 MONMOUTH COUNTY, NJ



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 VALLEY FORGE, PA.

SCALE: 1"=100'

DATE: DEC. 1997

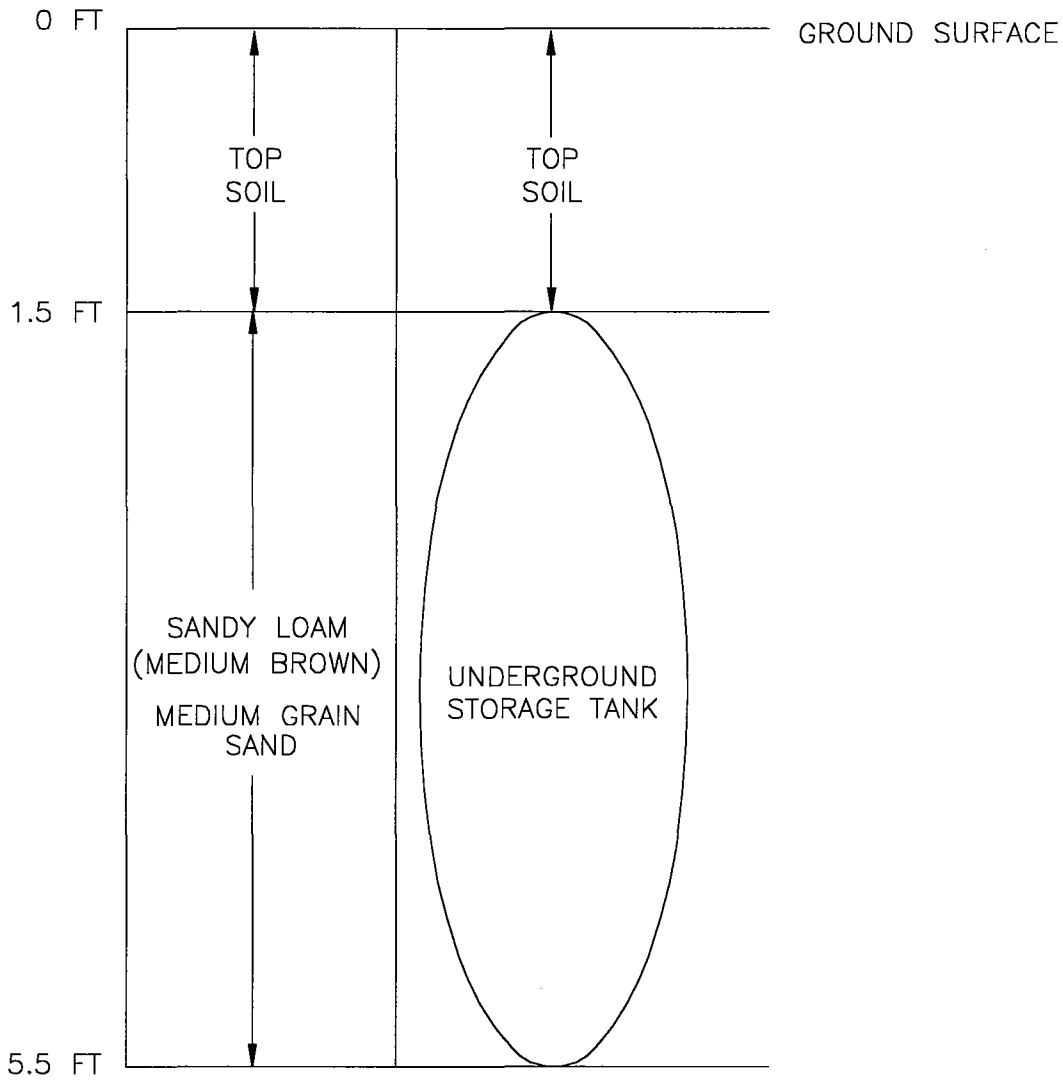


FIGURE 3
 CROSS SECTIONAL VIEW
 BUILDING 418
 FORT MONMOUTH ARMY BASE
 MONMOUTH COUNTY, NJ

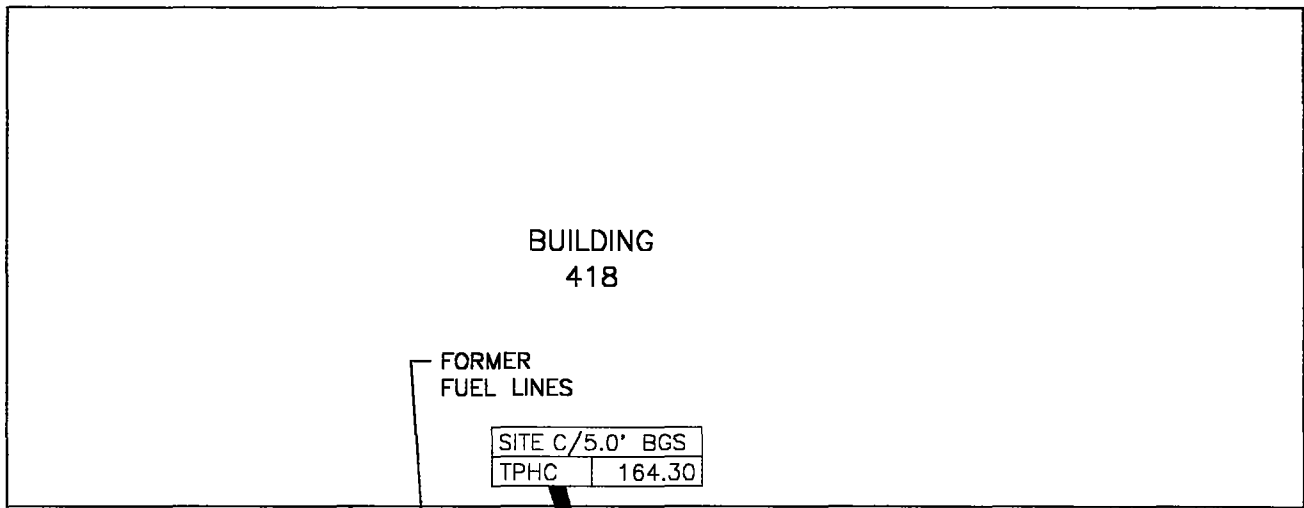


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Engineers, Managers, Scientists & Planners
 VALLEY FORGE, PA

SCALE: NTS

DATE: OCT. 1997



SITE A/0.5' BGS	
TPHC	153.19

SITE B/1.0' BGS	
TPHC	195.56

DUP B/1.0' BGS	
TPHC	198.80

SITE E/5.5' BGS	
TPHC	261.06

SITE C/5.0' BGS	
TPHC	164.30

SITE D/5.0' BGS	
TPHC	208.61

FORMER 1,080 GALLON UST

SITE G/5.5' BGS	
TPHC	233.67

SITE F/5.5' BGS	
TPHC	189.76



LEGEND

● SOIL SAMPLE LOCATION (FEB. 11, 1997)

▨ LIMIT OF EXCAVATION (FEB. 11, 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 418
 FORT MONMOUTH ARMY BASE
 MONMOUTH COUNTY, NJ



SMC ENVIRONMENTAL SERVICES GROUP

Engineers, Managers, Scientists & Planners
 VALLEY FORGE, PA

SCALE: 1"=10'

DATE: DEC. 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) 984-3156

For State Use Only

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

STANDARD REPORTING FORM
 for reporting activities at an UST facility:

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

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

(More than one tank can be listed per activity)

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

Answer questions 1 through 5 and others as applicable.

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

U.S. ARMY - FORT MONMOUTH
DPW - BUILDING 173
FORT MONMOUTH NJ 07703
ATTN: EUGENE W. LESINSKI

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

3. Contact person for this activity:

GENE LESINSKI
 Telephone Number: (908) 532-0989

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

BLDG 418 34

5. Registration Number (if known):

UST - 1890010

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: 2/1/97 Case No. _____
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:
 - b. Policy Number:
 - c. Other:
 - d. Company/Carrier:
 - e. Expiration Date:
- _____

(Specify)

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

CERTIFICATION

This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for the facility (N.J.A.C. 7:14B-23 (a) 1).

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

Signature: James Ott

Name (print or type): JAMES OTT

Title: DIRECTOR - DEPT OF PUBLIC WORKS Date: 2/25/97

APPENDIX B
SITE ASSESSMENT SUMMARY

UST-014
2/91

FOR STATE USE ONLY
UST#
Date Rec'd
TMS #
Staff

**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION**
Division of Responsible Party Site Remediation
CN 029

TRENTON, N.J. 08625-0028
Tel. # 609-984-3156
Fax.# 609-292-5604

Scott A. Weiner
Commissioner

Karl J. Delaney
Director

**UNDERGROUND STORAGE TANK
SITE ASSESSMENT SUMMARY**

*Under the provisions of the Underground Storage
of Hazardous Substances Act
in accordance with N.J.A.C. 7:14B*

This Summary form shall be used by all owners and operators of Underground Storage Tank Systems (USTS) who have either reported a release and are subject to the site assessment requirements of N.J.A.C. 7:14B-8.2 or who have closed USTS pursuant to N.J.A.C. 7:14B-9.1 et seq. and are subject to the site assessment requirements of N.J.A.C. 7:14B-9.2 and 9.3.

INSTRUCTIONS:

- ◆ Please print legibly or type.
- ◆ Fill in all applicable blanks. This form will require various attachments in order to complete the Summary. The technical guidance document, Interim Closure Requirements for USTs, explains the regulatory (and technical) requirements for closure and the Scope of Work, Investigation and Corrective Action Requirements for Discharges from Underground Storage Tanks and Piping Systems explains the regulatory (and technical) requirements for corrective action.
- ◆ Return one original of the form and all required attachments to the above address.
- ◆ Attach a scaled site diagram of the subject facility which shows the information specified in Item IV B of this form.
- ◆ Explain any "No" or "N/A" response on a separate sheet.

Date of Submission: _____

Building No. 418 UST No. 90010-34

0192477-1

Facility Registration #

1. FACILITY NAME AND ADDRESS:

U.S. Army Fort Monmouth New Jersey
Directorate of Engineering and Housing Building 167
Fort Monmouth New Jersey 07703 County Monmouth
Telephone No. 908-532-6224

OWNER'S NAME AND ADDRESS, if different from above.

Telephone No. _____

II. DISCHARGE REPORTING REQUIREMENTS

A. Was contamination found? Yes No If Yes, Case No. _____

(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B. The substance(s) discharged was (were) N/A

C. Have any vapor hazards been mitigated? Yes No N/A

III. DECOMMISSIONING OF TANK SYSTEMS Closure approval No. NJDEP "Blanket Closure"

The site assessment requirements associated with tank decommissioning are explained in the Technical Guidance Document, Interim Closure Requirements for UST's, Section V. A.-D. Attach complete documentation of the methods used and the results obtained for each of the steps of tank decommissioning used. Please include a site map which shows the locations of all samples and borings, the location of all tanks and piping runs at the facility at the beginning of the tank closure operation and annotated to differentiate the status of all tanks and piping (e.g., removed, abandoned, temporarily closed, etc.). The same site map can be used to document other parts of the site assessment requirements, if it is properly and legibly annotated.

IV. SITE ASSESSMENT REQUIREMENTS

A. Excavated Soil

Any evidence of contamination in excavated soil will require that the soil be classified as either Hazardous Waste or Non-Hazardous Waste. Please include all required documentation of compliance with the requirements for handling contaminated excavated soil (if any was present) as explained in the technical guidance documents for closure and corrective action. Describe amount of soil removed, its classification and disposal location.

B. Scaled Site Diagrams

1. Scaled site diagrams must be attached which include the following information:

- a. North arrow and scale
- b. The locations of the ground water monitoring wells
- c. Location and depth of each soil sample and boring
- d. All major surface and subsurface structures and utilities
- e. Approximate property boundaries
- f. All existing or closed underground storage tank systems, including appurtenant piping
- g. A cross-sectional view indicating depth of tank, stratigraphy and location of water table
- h. Locations of surface water bodies

C. Soil samples and borings (check appropriate answer)

1. Were soil samples taken from the excavation as prescribed? Yes No N/A

2. Were soil borings taken at the tank system closure site as prescribed? Yes No N/A

3. Attach the analytical results in tabular form and include the following information about each sample

- a. Customer sample number (keyed to the site map) _____
- b. The depth of the soil sample
- c. Soil boring logs
- d. Method detection limit of the method used
- e. QA/QC Information as required

D. Ground Water Monitoring

1. Number of ground water monitoring wells installed 0
2. Attach the analytical results of the ground water samples in tabular form. Include the following information for each sample from each well:
 - a. Site diagram number for each well installed
 - b. Depth of ground water surface
 - c. Depth of screened interval
 - d. Method detection limit of the method used
 - e. Well logs
 - f. Well permit numbers
 - g. QA/QC Information as required

V. SOIL CONTAMINATION

- A. Was soil contamination found? Yes X No
If "Yes", please answer Question B-E
If "No", please answer Question B
- B. The highest soil contamination still remaining in the ground has been determined to be:
 1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
 2. N/A ppb total B/N, N/A ppb total non-targeted B/N
 3. 261.06 ppm TPHC
 4. N/A ppb N/A (for non-petroleum substance)
- C. Remediation of free product contaminated soils
 1. All free product contaminated soil on the property boundaries and above the water table are believed to have been removed from the subsurface. Yes No
 2. Free product contaminated soils are suspected to exist below the water table. Yes No
 3. Free product contaminated soils are suspected to exist off the property boundaries. Yes No
- D. Was the vertical and horizontal extent of contamination determined? Yes No N/A
- E. Does soil contamination intersect ground water? Yes No N/A

VI. GROUND WATER CONTAMINATION

- A. Was ground water contamination found? Yes X No
If "Yes", please answer Questions B-G.
If "No", please answer only Question B.
- B. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be: N/A
 1. ppb total BTEX, ppb total non-targeted VOC
 2. ppb total B/N, ppb total non-targeted B/N
 3. ppb total MTBE, ppb total TBA
 4. ppb (for non-petroleum substance)
 5. greatest thickness of separate phase product found
 6. separate phase product has been delineated Yes No N/A

C. Results (s) of well search

1. A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of Work. Yes No N/A
2. The number of these wells identified is _____.

D. Proximity of wells and contaminant plume

1. The shallowest depth of any well noted in the well search which may be in the horizontal or vertical potential path(s) of the contaminant plume(s) is _____ feet below grade (consideration has been given for the effects of pumping, subsurface structures, etc. on the direction(s) of contaminant migration). This well is _____ feet from the source and its screening begins at a depth of _____ feet.
2. The shallowest depth to the top of the well screen for any well in the potential path of the plume(s) (as described in D1 above above) is _____ feet below grade. This well is located _____ feet from the source.
3. The closest horizontal distance of a private, commercial, or municipal well in the potential path of the plume (as determined in D1) is _____ feet from the source. This well is _____ feet deep and screening begins at a depth of _____ feet.

E. A plan for separate phase product recovery has been included. Yes No N/A

F. A ground water contour map has been submitted which includes the ground water elevations for each well. Yes No N/A

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. Yes No
2. The plume is suspected to continue off the property at concentrations greater than MCLs. Yes No
3. Off property access (circle one): is being sought has been approved has been denied

VII. SITE ASSESSMENT CERTIFICATION [preparer of site assessment plan - N.J.A.C. 7:14B-8.3(b) & 9.5(a)3]

The person signing this certification as the "Qualified Ground Water Consultant" (as defined in N.J.A.C.7:14B-1.6) responsible for the design and implementation of the site assessment plan as specified in N.J.A.C. 7:14B-8.3(a) & 9.2(b)2, must supply the name of the certifying organization and certification number.

"I certify under penalty of law that the information provided in this document is true, accurate, and complete and was obtained by procedures in compliance with N.J.A.C. 7:14B-8 and 9. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) Eugene Lesinski

SIGNATURE SEE ATTACHED SUB-SURFACE EVALUATOR LOG

COMPANY NAME U.S. Army Fort Monmouth DATE _____

(Preparer of Site Assessment Plan)

CERTIFYING ORGANIZATION NJDEP

CERTIFYING NUMBER 0014537

VIII. TANK DECOMMISSIONING CERTIFICATION [person performing tank decommissioning portion of closure plan - N.J.A.C. 7:14B-9.5(a)4]

"I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) SAME AS SITE ASSESSMENT SIGNATURE _____

COMPANY NAME _____ DATE _____
(Performer of Tank Decommissioning)

IX. CERTIFICATIONS BY THE RESPONSIBLE PARTY(IES) OF THE FACILITIES

A. The following certification shall be signed by the highest ranking individual with overall responsibility for that facility [N.J.A.C. 7:14B-2.3(c)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 penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) James Ott SIGNATURE _____

COMPANY NAME U.S. Army Fort Monmouth DATE _____

B. The following certification shall be signed as follows [according to the requirements of N.J.A.C. 7:14B-2.3(C)2]:

1. For a corporation, by a principal executive officer of at least the level of vice president.
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 the principal executive officer or ranking elected official.
4. In cases where the highest ranking corporate partnership, governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made. In all other cases, the certifications of A and B shall be made.

"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 immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) _____ SIGNATURE _____

COMPANY NAME _____ DATE _____

US ARMY, SELFM-PW-E
DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 418 REG.#: 0090010 - 34 CLOSURE#: N/A
 DATE: 2-11-97 TOA: 0915 TOD: 1530
 GOV. SSE: LESINSKI NJDEP CERT.#: 0014537
 REMOVAL CONTRACTOR: SAI Inc. TVS
 CLOSURE SUPERVISOR: De Martinis NJDEP CERT.#: _____
 WEATHER: SUNNY - 40°F

ACTIVITY	YES / NO
THE SUPERVISOR (CLOSURE CERT.) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E.G. 29CFR)	Y
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	N/A
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
A DISCHARGE WAS REPORTED TO THE NJDEP (609-292-7172), CASE# _____	N
PHOTOS HAVE UST#, BLDG. #, DATE, TIME, NAME OF SSE AND DESCR. WRITTEN ON BACK	Y
GROUNDWATER WAS ENCOUNTERED AT _____ FEET BG, A SHEEN (WAS/WAS NOT) OBSERVED ON GW	N
IF OVA/Hnu WAS USED: WAS IT CAL. AND FOUND TO BE OPERATIONAL (cal. data on COC)	Y
IF SAMPLES WERE TAKEN: COC, SCALED SITE MAP (VERT. SOIL HORIZONS AND PLOT PLAN)	Y
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM, 1992	Y
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7:26E-3.6 <u>et seq.</u>	Y
ALL PETROL. CONT. SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	N/A
THE SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER)	Y
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	N
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY: (CIRCLE EACH) SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ. WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE MAP (SAMPLING), SRF-CLOSURE, CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS (IN YDS ³), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	N

CHECK ALL BOXES. LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3 and 7:26 et seq.. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment.

SIGNATURE: _____ DATE: 2-11-97

APPENDIX C

WASTE MANIFEST

APPENDIX D
UST DISPOSAL CERTIFICATE

THIS CHECK IS DELIVERED FOR PAYMENT ON THE FOLLOWING ACCOUNTS.

DATE	ACCOUNT	AMOUNT

TOTAL OF INVOICES
 LESS % DISCOUNT
 LESS FREIGHT
 LESS
 TOTAL DEDUCTIONS
 AMOUNT OF CHECK

MAZZA & SONS, INC.
 RECYCLING DIVISION
 3230 SHAFFO RD.
 TINTON FALLS, NJ 07753

1074

55-7233/2212

DATE 2/27/97

PAY TO THE ORDER OF

Tecom Vinnell
One Hundred & Seventy Five

\$ 175.00

DOLLARS Security feature. Includes Check on back.

Sovereign Bank

[Signature]

⑈001074⑈ ⑆221272332⑆000 1091099288⑈

MAZZA & SONS, INC.

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

NO. _____

DATE 27 FEB 97

Customer's Name

TECOM - VINNELL

Address _____

Make of Autos

Tires

Tank

Price:

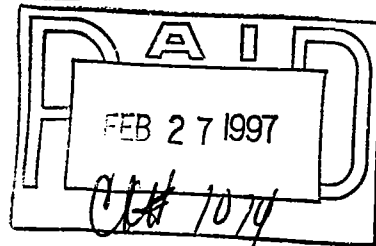
B. 418
 15140
 12280

 2860

Weight Price

Cast Iron	1021
Steel	1021
Lt. Iron	
Copper #1	100.10
Copper #2	
Lt. Copper	
Brass	
Alum Clean	
Lead	
Stainless	
Radiators	
Battery	

TOTAL AMOUNT: ~~1021~~



Weigher _____

Customer _____

APPENDIX E
SOIL ANALYTICAL DATA PACKAGE

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
Bldg. 418
UST

Project # 2324
Date Rec. 02/11/97
Date Compl. 02/12/97
Released by:



Daniel K. Wright
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

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

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

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

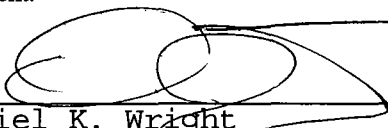
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

PHC Conformance/Non-conformance Summary Report

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

Page 1 of 1

Customer: GENE LESINSKI - DPW () DERA () OMA () Other:		Project No:		Location: B. 418		Analysis Parameters					Comments: DEDICATED SAMPLING TOOLS USED. SEE ATTACHED SKETCH FOR SAMPLING LOCATIONS. * = SAMPLES KEPT BELOW 4°C. Remarks / Preservation Method
Sampler's Signature: <i>[Signature]</i>				Sample Type		TPHC	% Solids	MUNSEL		QUA	
Lab Sample I.D.	Sample Location	Date	Time	Sample Type	TPHC	% Solids	MUNSEL			QUA	
2324.1	418-A	2-11-97	1139	SOIL	X	X	X			ND	Piping Run @ 0.5' *
.2	418-B		1134							ND	Piping Run @ 1.0'
.3	418-C		1333							ND	SIDEWALL @ 5.0'
.4	418-D		1348							ND	↓
.5	418-E		1152							ND	EX. FLOOR @ 5.5'
.6	418-F		1156							ND	↓
.7	418-G		1318							ND	↓
.8	418-DUP		—		↓	↓	↓			—	FIELD DUPLICATE

NOTE: QUA CALIBRATED W/SPM CH4 ZERO (0) AIR @ 1100 HRS. ON 2-11-97 BY G. DiMARTINIS. (SERIAL # A51903)

Relinquished by (signature): <i>[Signature]</i>	Date/Time: 2/11/97 1515	Received by (signature): <i>[Signature]</i>	Relinquished by (signature):	Date/Time:	Received by (signature):
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Relinquished by (signature):	Date/Time:	Received for laboratory by (signature):	Date/Time:	Remarks:	

print legibly

CUSTODY.XLS/1/16/97

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

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


Lab. ID # : 2324
Date Rec'd: 11-Feb-97
Analysis Start: 12-Feb-97
Analysis Complete: 12-Feb-97

Analysis: OQA-QAM-025
Matrix: Soil
Analyst: P. Skelton
Ext. Meth: Shake

UST Reg. #:
Closure #:
DICAR #:
Location #: B418

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
2324.1	418-A	1.00	15.20	89.29	173	153.19
2324.2	418-B	1.00	17.21	90.48	151	195.56
2324.3	418-C	1.00	16.76	88.37	159	164.30
2324.4	418-D	1.00	15.90	87.80	168	208.61
2324.5	418-E	1.00	15.96	87.33	169	261.06
2324.6	418-F	1.00	15.38	87.95	174	189.76
2324.7	418-G	1.00	16.06	87.80	167	223.67
2324.8	418-DUP	1.00	15.94	88.60	166	198.80
METHOD BLANK	11-Feb-97	1.00	15.00	100.00	157	0.00

ND = Not Detected
 MDL = Method Detection Limit


 Daniel K. Wright
 Laboratory Director

Response Factor Report TC./FID

Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997

Calibration Files

5 =T00339.D 10 =T00338.D 50 =T00337.D
 100 =T00336.D 200 =T00335.D

Compound		5	10	50	100	200	Avg		%RSD
1) s	2-Fluorobiphenyl	5.6	5.6	6.5	6.6	5.7	6.0	E3	8.51
2) s	o-terphenyl	44.6	42.9	40.3	39.0	41.5	41.7	E3	5.26
3) t	tphc	50.8	51.7	45.3	42.9	45.7	47.2	E3	8.00

Evaluation - Continuing Calibration Report

Data File : C:\HPCHEM\3\DATA\970211\T00606.D
 Acq On : 11 Feb 97 4:42 pm
 Sample : 50 ppm check
 Misc :
 IntFile : autoint1.e

Vial: 1
 Operator:
 Inst : TCD/FID
 Multiplr: 1.00

Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 s	2-Fluorobiphenyl	6.027	4.582 E3	24.0#	70	0.00
2 s	o-terphenyl	41.651	40.659 E3	2.4	101	0.00
3 t	tphc	47.245	42.285 E3	10.5	93	-2.60#

Evaluation Continuing Calibration Report

Data File : C:\HPCHEM\3\DATA\970211\T00617.D
 Acq On : 11 Feb 97 11:40 pm
 Sample : 50 ppm check
 Misc :
 IntFile : autoint1.e

Vial: 1
 Operator:
 Inst : TCD/FID
 Multiplr: 1.00

Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 s	2-Fluorobiphenyl	6.027	4.766 E3	20.9#	73	0.00
2 s	o-terphenyl	41.651	42.628 E3	-2.3	106	0.00
3 t	tphc	47.245	48.224 E3	-2.1	107	-2.60#

(#) = Out of Range
 T00617.D TPH4.M

SPCC's out = 0 CCC's out = 0
 Wed Feb 12 09:33:15 1997

Evaluation - Continuing Calibration Report

Data File : C:\HPCHEM\3\DATA\970211\T00628.D Vial: 1
 Acq On : 12 Feb 97 12:30 pm Operator:
 Sample : 50 ppm check Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e

Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 s	2-Fluorobiphenyl	6.027	4.744 E3	21.3#	73	0.00
2 s	o-terphenyl	41.651	41.820 E3	-0.4	104	0.00
3 t	tphc	47.245	45.295 E3	4.1	100	-2.60#

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

T00628.D TPH4.M

Thu Feb 13 09:31:54 1997

Page 1

Surrogate Recovery Report

Lab. ID #: 2324
Location #: B.418

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
2324.01		10.00	10.75	107.49
2324.02		10.00	10.76	107.55
2324.03		10.00	10.30	102.96
2324.04		10.00	10.44	104.39
2324.05		10.00	10.46	104.57
2324.06		10.00	10.09	100.94
2324.07		10.00	10.33	103.27
2324.08		10.00	10.56	105.59
METHOD BLANK	11-Feb-97	10.00	9.68	96.84

Surrogate Added : o-Terphenyl

Matrix Spike Recovery Report

Lab. ID #: 2324

Location #: B.418

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
2323.10MS	630	52.61	841.45	125.21	75-125
2323.10MSD	630	52.61	940.35	140.91	75-125

RPD	11.80	20.00
-----	-------	-------

8/28/97

Blank Spike Recovery Report

Lab. ID #: 2324
Location #: B.418

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	11-Feb-97	630	896.69	142.33	75-125

8/28/97

Data File : C:\HPCHEM\3\DATA\970211\T00633.D Vial: 19
 Acq On : 12 Feb 97 3:51 pm Operator:
 Sample : 2324.1 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:34 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	407940	10.749 mg/L
Target Compounds			
3) t tphc	13.39	1670007	41.582 mg/L m

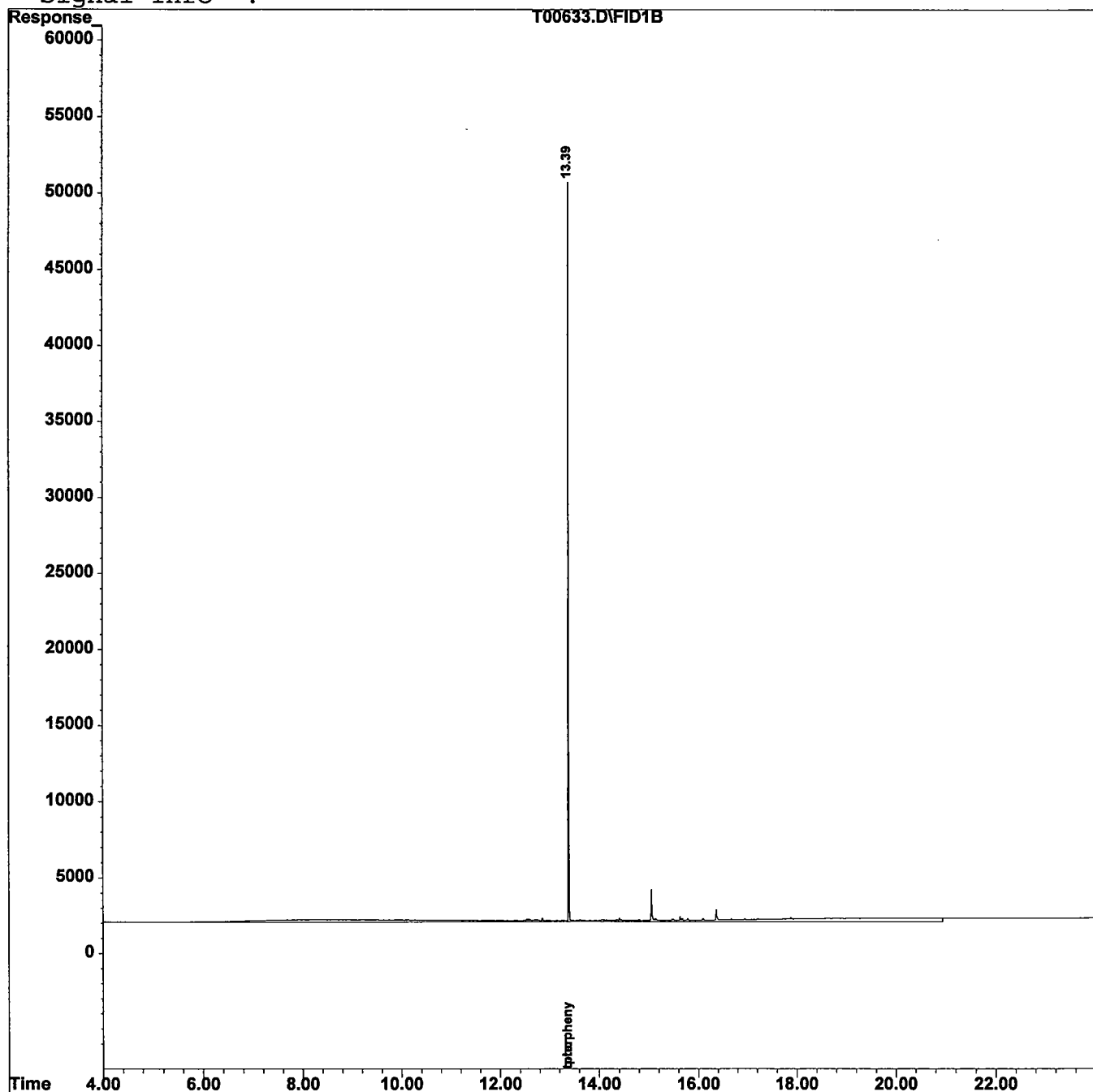
Quantitation Report

Data File : C:\HPCHEM\3\DATA\970211\T00633.D
Acq On : 12 Feb 97 3:51 pm
Sample : 2324.1
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:34 1997 Quant Results File: TPH4.RES

Vial: 19
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00625.D Vial: 20
 Acq On : 12 Feb 97 10:25 am Operator:
 Sample : 2324.2 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:29 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	408181	10.755 mg/L
Target Compounds			
3) t tphc	13.39	2544540	60.903 mg/L m

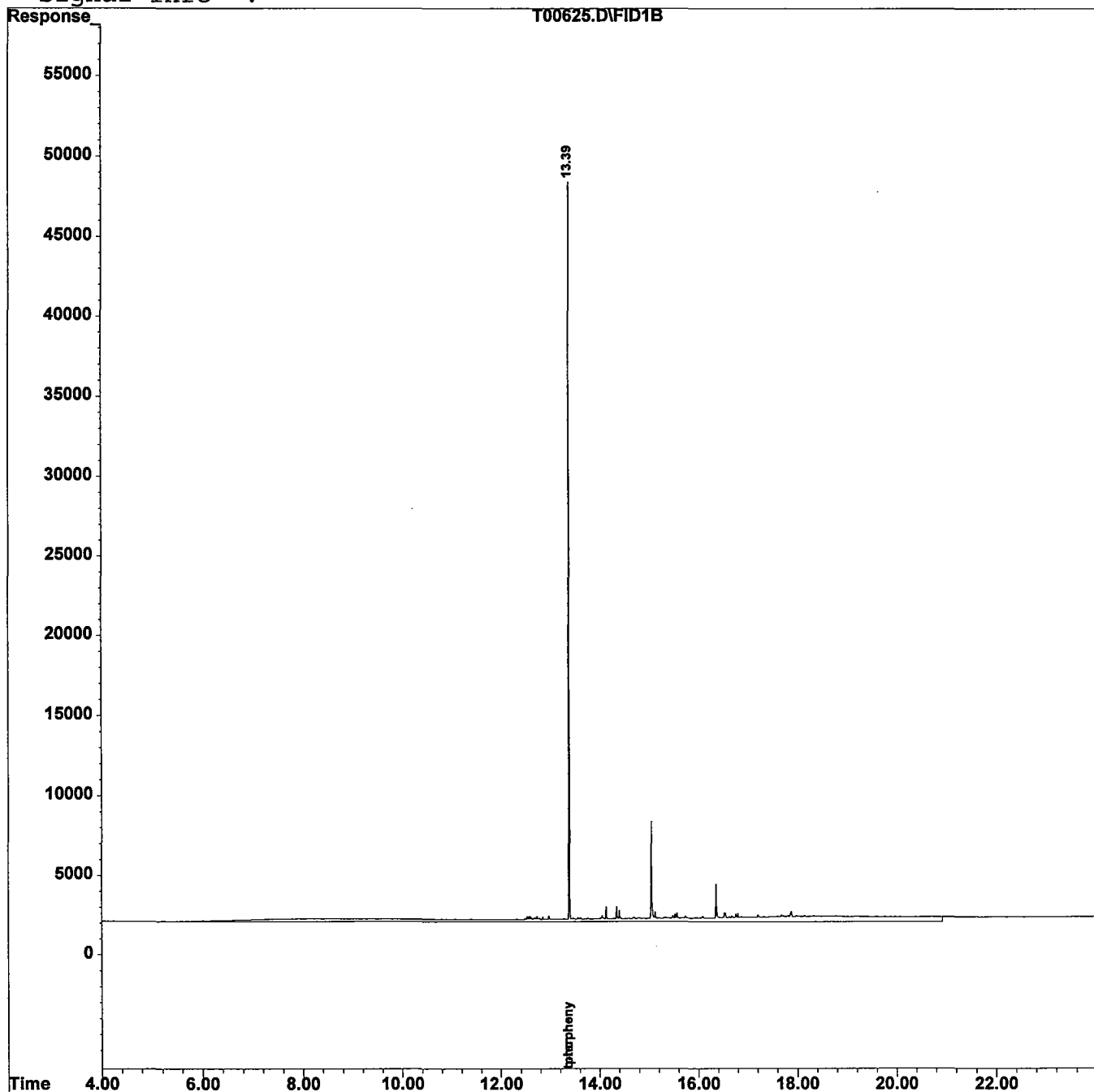
Quantitation Report

Data File : C:\HPCHEM\3\DATA\970211\T00625.D
Acq On : 12 Feb 97 10:25 am
Sample : 2324.2
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:29 1997

Vial: 20
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00626.D Vial: 21
 Acq On : 12 Feb 97 11:04 am Operator:
 Sample : 2324.3 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:30 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	389302	10.296 mg/L
Target Compounds			
3) t tphc	13.39	1990726	48.668 mg/L m

Quantitation Report

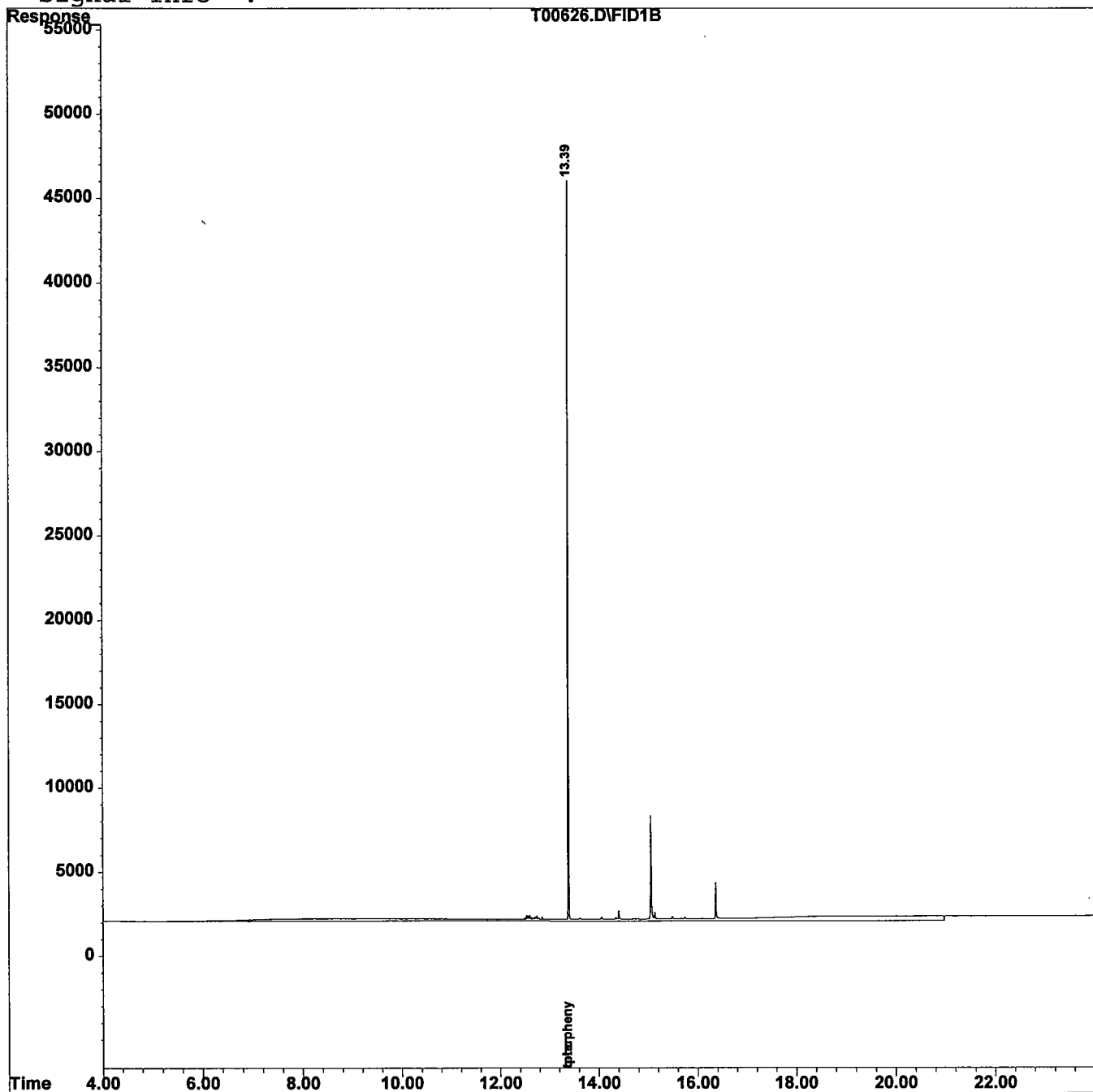
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Acq On : 12 Feb 97 11:04 am
Sample : 2324.3
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:30 1997

Vial: 21
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00627.D
Acq On : 12 Feb 97 11:47 am
Sample : 2324.4
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:30 1997

Vial: 22
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	395181	10.439 mg/L
Target Compounds			
3) t tphc	13.39	2424236	58.245 mg/L m

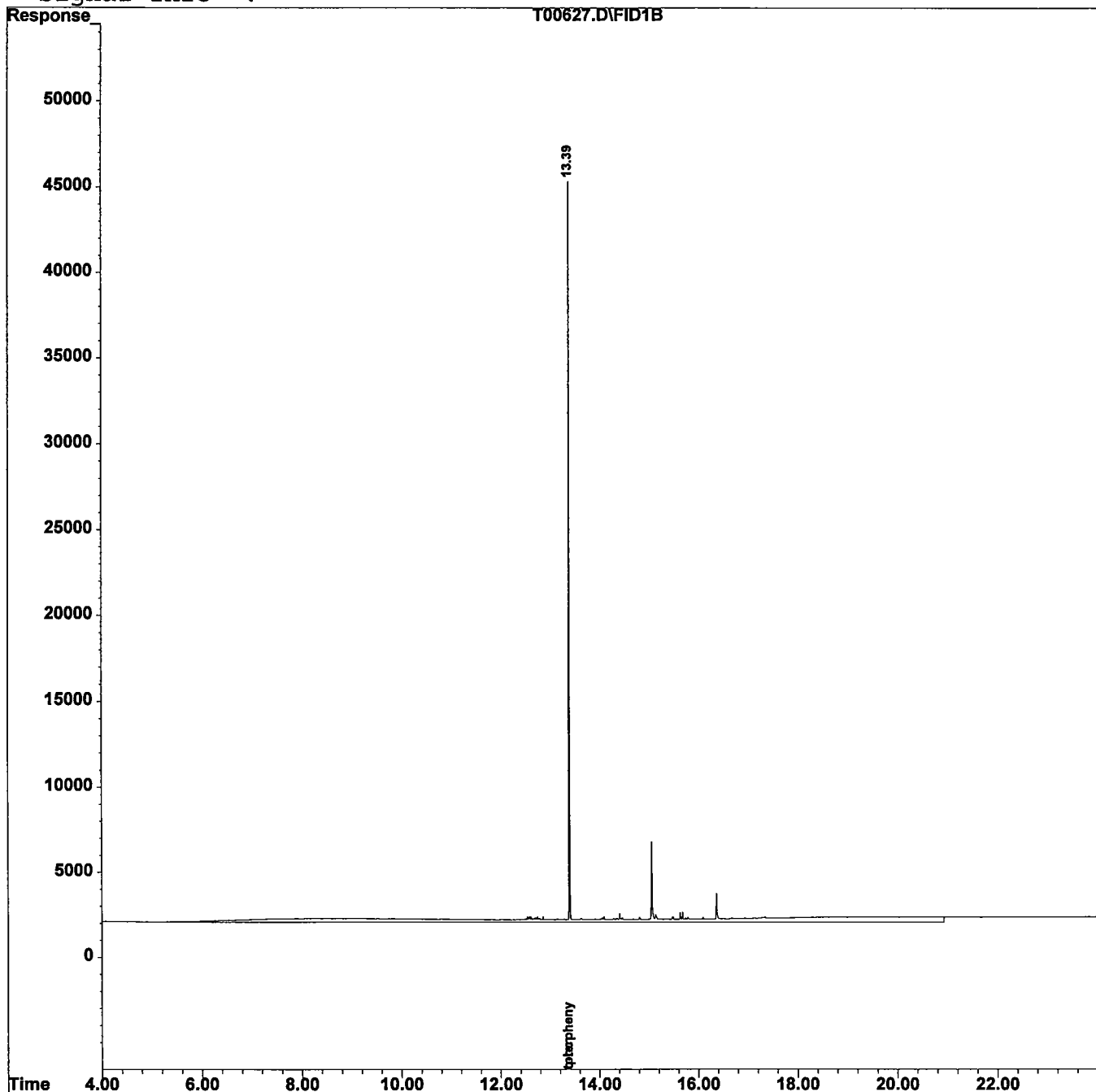
Quantitation Report

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Acq On : 12 Feb 97 11:47 am
Sample : 2324.4
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:30 1997 Quant Results File: TPH4.RES

Vial: 22
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00629.D
Acq On : 12 Feb 97 1:12 pm
Sample : 2324.5
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:32 1997

Vial: 24
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	395944	10.457 mg/L
Target Compounds			
3) t tphc	13.40	3081805	72.773 mg/L m

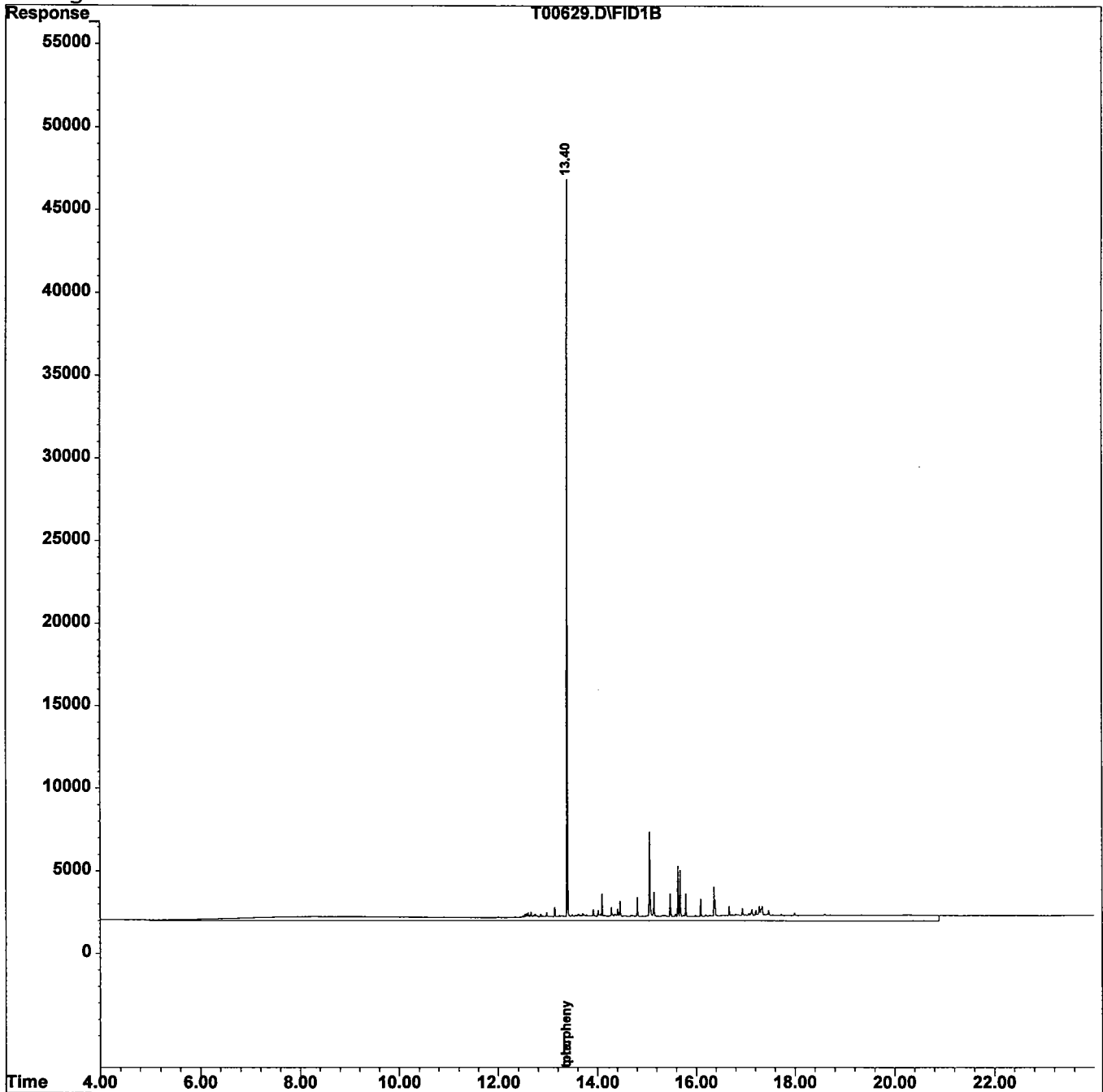
Quantitation Report

Data File : C:\HPCHEM\3\DATA\970211\T00629.D
Acq On : 12 Feb 97 1:12 pm
Sample : 2324.5
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:32 1997 Quant Results File: TPH4.RES

Vial: 24
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00630.D Vial: 25
 Acq On : 12 Feb 97 1:51 pm Operator:
 Sample : 2324.6 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:33 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	380970	10.094 mg/L
Target Compounds			
3) t tphc	13.39	2111495	51.336 mg/L m

Quantitation Report

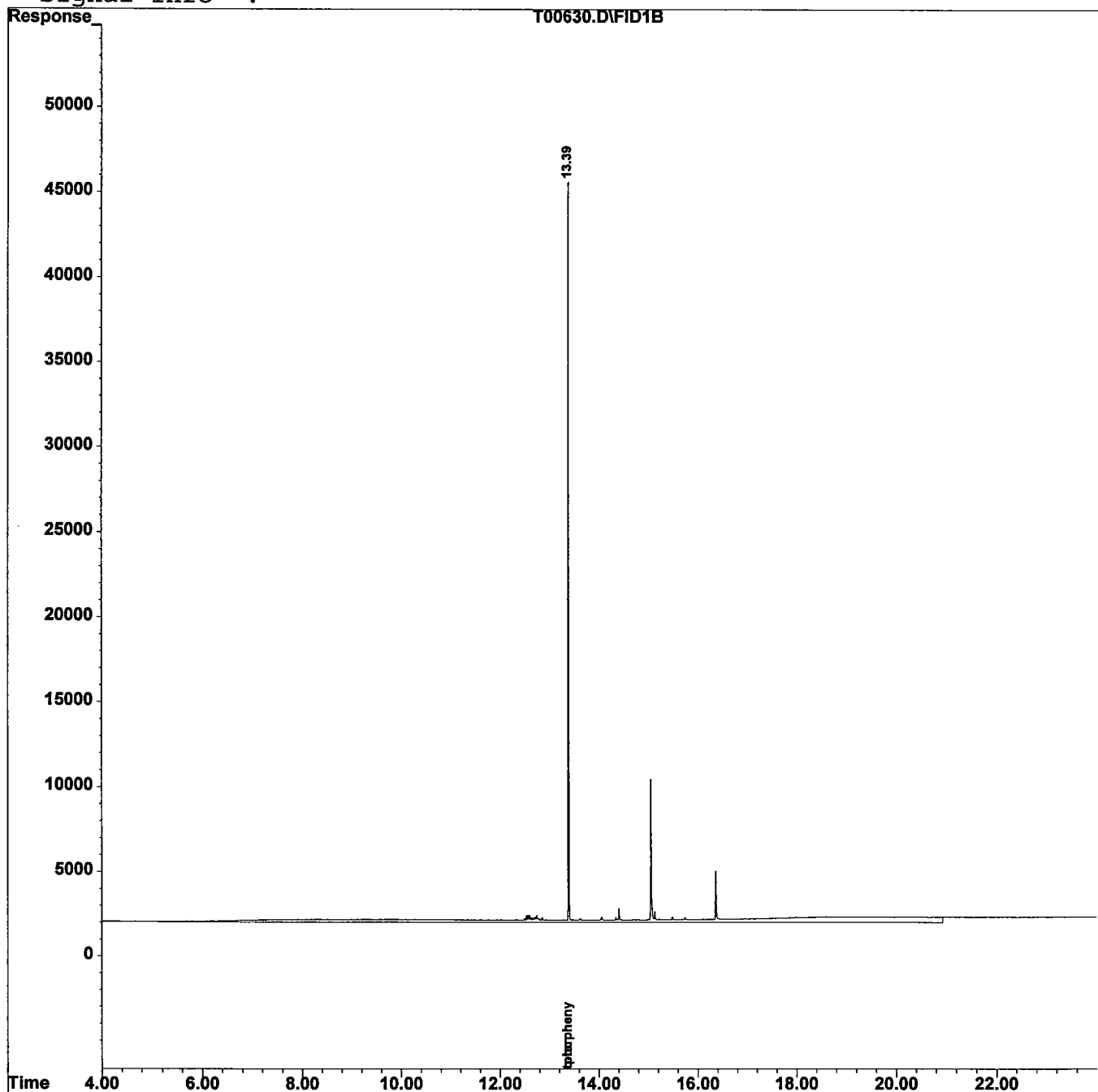
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Acq On : 12 Feb 97 1:51 pm
Sample : 2324.6
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:33 1997

Vial: 25
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00631.D Vial: 26
 Acq On : 12 Feb 97 2:29 pm Operator:
 Sample : 2324.7 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:33 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	390561	10.327 mg/L
Target Compounds			
3) t tphc	13.39	2643023	63.079 mg/L m

Quantitation Report

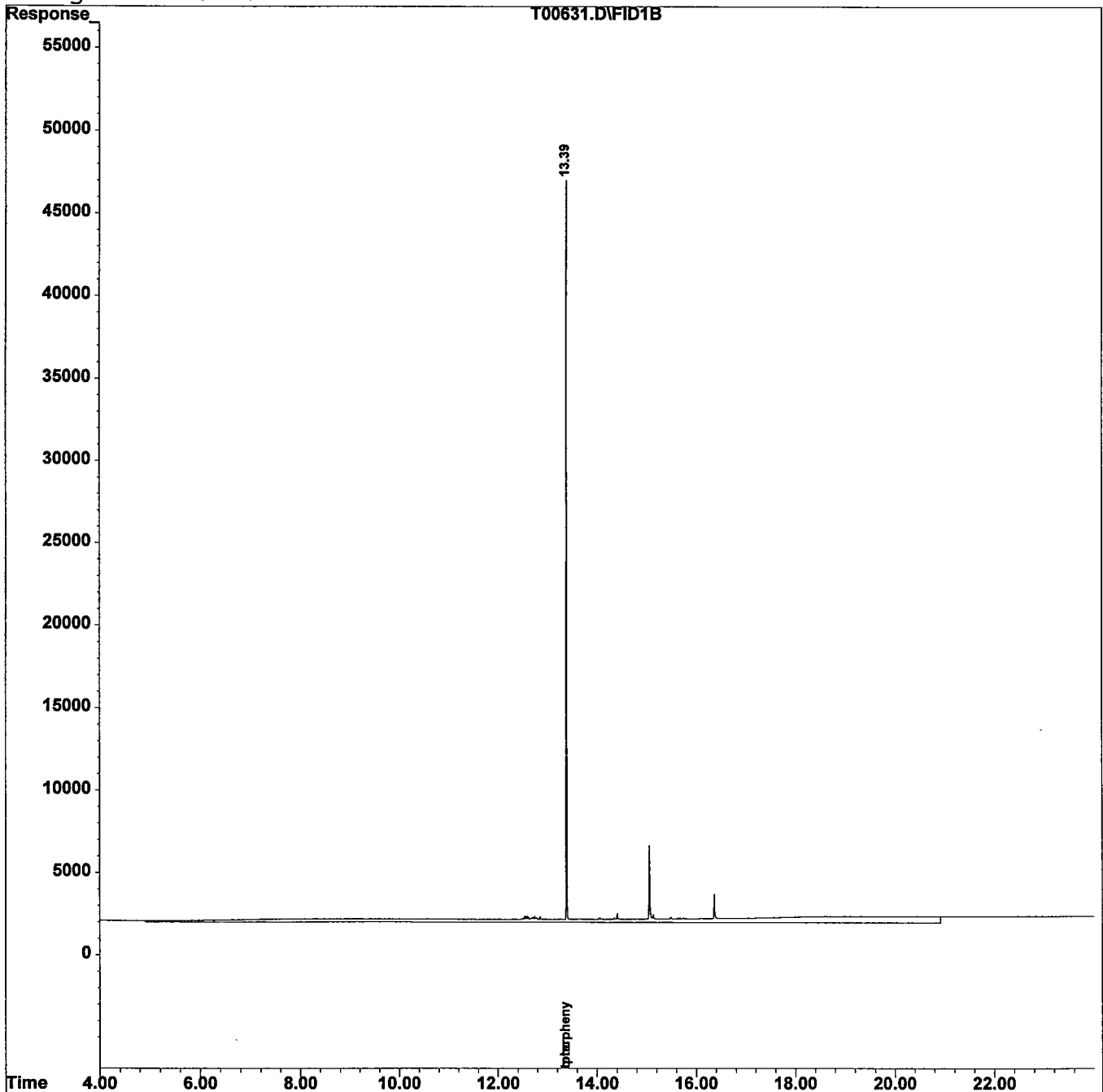
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Acq On : 12 Feb 97 2:29 pm
Sample : 2324.7
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:33 1997

Vial: 26
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\970211\T00632.D Vial: 27
 Acq On : 12 Feb 97 3:10 pm Operator:
 Sample : 2324.8 Inst : TCD/FID
 Misc : Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Feb 13 9:34 1997 Quant Results File: TPH4.RES

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
 Title : TPHC Calibration 01/29/97
 Last Update : Thu Jan 30 08:42:30 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH4.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
1) s 2-Fluorobiphenyl	0.00	0	N.D. mg/L
2) s o-terphenyl	13.40	400136	10.559 mg/L
Target Compounds			
3) t tphc	13.39	2329505	56.153 mg/L m

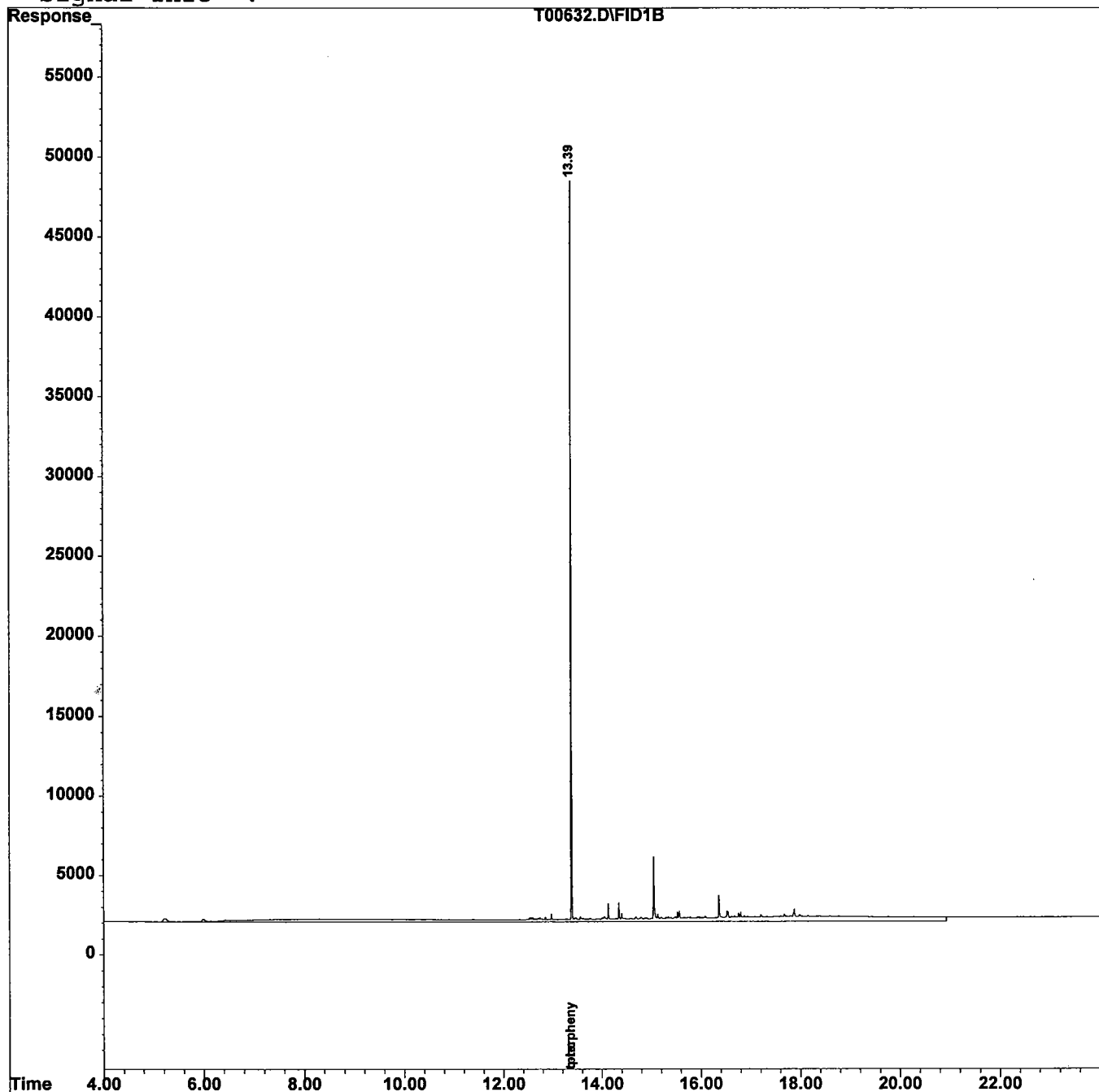
Quantitation Report

Data File : C:\HPCHEM\3\DATA\970211\T00632.D
Acq On : 12 Feb 97 3:10 pm
Sample : 2324.8
Misc :
IntFile : autoint1.e
Quant Time: Feb 13 9:34 1997

Vial: 27
Operator:
Inst : TCD/FID
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPH4.M
Title : TPHC Calibration 01/29/97
Last Update : Thu Jan 30 08:42:30 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH4.M

Volume Inj. :
Signal Phase :
Signal Info :



LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature

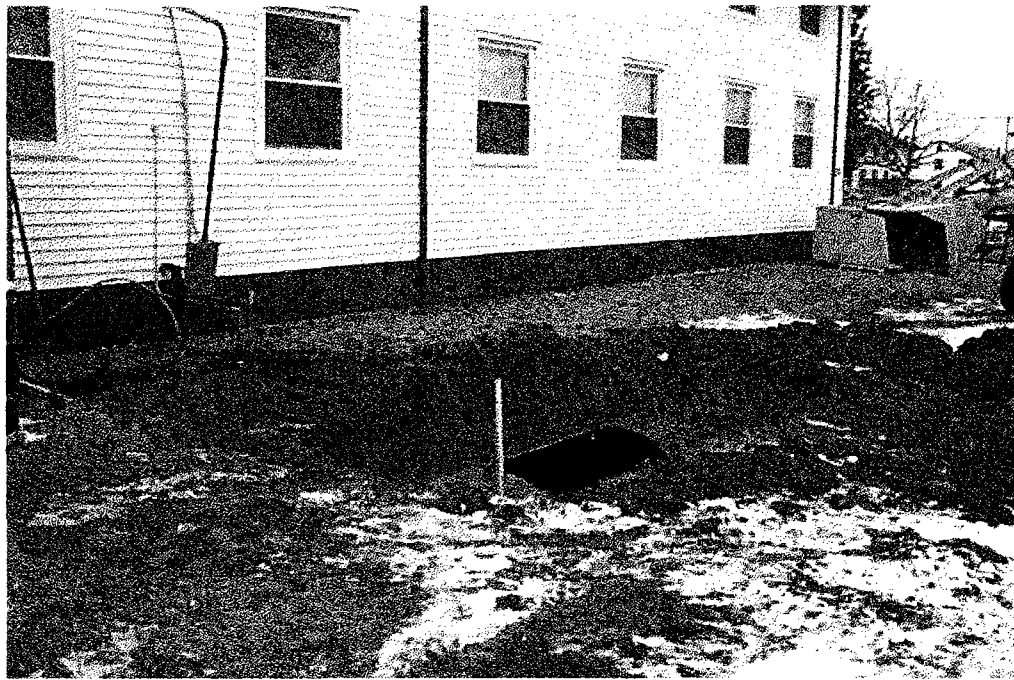
Date 11/16/97



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



December 1997

PHOTOGRAPHIC LOG

UST No. 90010-34

**Building 418
Main Post-East
Fort Monmouth**



SMC Environmental Services Group
Engineers, Managers, Scientists, & Planners
Valley Forge, Pennsylvania