COPY

United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 916
Main Post-West Area

NJDEP UST Registration No. 0081533-154

September 1998

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 916

MAIN POST-WEST AREA
NJDEP UST REGISTRATION NO. 0081533-154

SEPTEMBER 1998

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. 2491-308

916.DOC

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EXECUTIVE SUMMARY

UST Closure

On March 18, 1998, 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. 0081533-154 (Fort Monmouth ID No. 916), was located west of Building 916. UST No. 0081533-154 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 or punctures. No holes or punctures were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank. Groundwater was encountered at a depth of four (4) feet below ground surface. Soil samples contained TPHC concentrations ranging from non-detect to 216.91 mg/kg.

Site Restoration

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

Conclusions and Recommendations

Based on the post-excavation soil sampling results, soils with TPHC concentrations exceeding the NJDEP soil cleanup criteria for total organic contaminants of 10,000 mg/kg, do not exist in the former location of the UST or associated piping.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-154 at Building 916.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-154, was closed at Building 916 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on March 18, 1998. Refer to site location map on Figure 1. This report presents the results of the Department of Public Works= (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 1,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-154 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. 0081533-154 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 0081533-154 are included in Appendices A and B, respectively.

Based on inspecting the UST, field screening of subsurface soils and groundwater, and reviewing analytical results of collected soil samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping.

This UST Closure and Site Investigation Report has been prepared by 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 916 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-154 was located west of Building 916 and appurtenant copper piping ran approximately seven (7) feet northeast from the excavation to Building 916. 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 916. 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 (Zapecza, 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 Zapecza, 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:

X tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
X topography
X nature of the fill material within the Main Post area
X presence of clay and silt lenses in the natural overburden deposits
X 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 916 located approximately 800 feet south of Husky Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 916 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

- X All underground obstructions (utilities, etc.) were identified by the contractor performing the closure prior to excavation activities.

- X All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.

- X 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.

- X 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.

- X A Sub-Surface Evaluator from the DPW was present during all site assessment activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. LORCO and Casie Protank transported approximately 150 gallons of liquid from the UST and its associated piping. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. No evidence of contamination was observed. Soil screening was also performed along the piping run associated with the UST closure. No contamination was noted anywhere along the piping length. Groundwater was encountered at four (4) feet bgs and no sheen was observed. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported to Mazza and Sons, Inc., Metal Recyclers. See Appendix D for a copy of the UST disposal certificate and Appendix F for photographs of the UST. The transportation of the UST was in compliance with all applicable regulations and laws.

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

- X Site of origin
- X Contact person
- X NJDEP UST Facility ID number
- X 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:

X Subsurface Evaluator: Charles Appleby
Employer: U.S. Army, Fort Monmouth
Phone Number: (732) 532-6224
NJDEP Certification No.: 2056

X Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory
Contact Person: Daniel K. Wright
Phone Number: (908) 532-4359
NJDEP Company Certification No.: 13461

X Hazardous Waste Hauler: Lionetti Oil Recovery Co. Inc
Contact Person: Charles Clayton
Phone Number: (908) 721-0900
NJDEP Hazardous Waste Hauler No.: S6247

X Hazardous Waste Hauler: Casie Protank Environmental Services
Contact Person: Bob Corsiglia
Phone Number: (609) 696-4401
NJDEP Hazardous Waste Hauler No.: 16931

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom, did not exhibit any evidence of potential contamination. Groundwater was encountered at 4 feet bgs and no sheen was observed.

2.3 SOIL SAMPLING

On March 20, 1998, following the removal of the UST, post-excavation soil samples A, B, C, D, E, F, and DUP A were collected from a total of six (6) locations of the UST excavation. Samples A and DUPA were collected along the excavation floor at a depth of 5.0 feet bgs. Sidewall samples B, C, D, and E were collected at a depth of 3.5 feet bgs. Sample F was collected along the former piping length of the excavation, which was approximately seven (7) feet in length. The piping sample was collected at a depth of 1.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

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

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST, post-excavation soil samples were collected on March 20, 1998, from a total of six (6) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on March 20, 1998, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained levels of TPHC ranging in concentration from non-detect to 216.91 mg/kg.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 916 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. 0081533-154 at Building 916.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 916, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
A	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
F	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP A	3/20/98	3/23/98	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 916, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

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/5.0=	3422.01	3/20/98	3/23/98	Total Solid	--	--	89.63	--	--
				TPHC	166	yes	ND	10,000	No
B/3.5=	3422.02	3/20/98	3/23/98	Total Solid	--	--	89.23	--	--
				TPHC	173	Yes	ND	10,000	No
C/3.5=	3422.03	3/20/98	3/23/98	Total Solid	--	--	88.17	--	--
				TPHC	169	yes	ND	10,000	No
D/3.5=	3422.04	3/20/98	3/23/98	Total Solid	--	--	91.50	--	--
				TPHC	164	yes	ND	10,000	No
E/3.5=	3422.05	3/20/98	3/23/98	Total Solid	--	--	92.12	--	--
				TPHC	166	yes	ND	10,000	No
F/1.0 =	3422.06	3/20/98	3/23/98	Total Solid	--	--	91.34	--	--
				TPHC	163	yes	ND	10,000	No
DUP A/5.0=	3422.07	3/20/98	3/23/98	Total Solid	--	--	88.59	--	--
				TPHC	172	yes	216.91	10,000	No

Note:

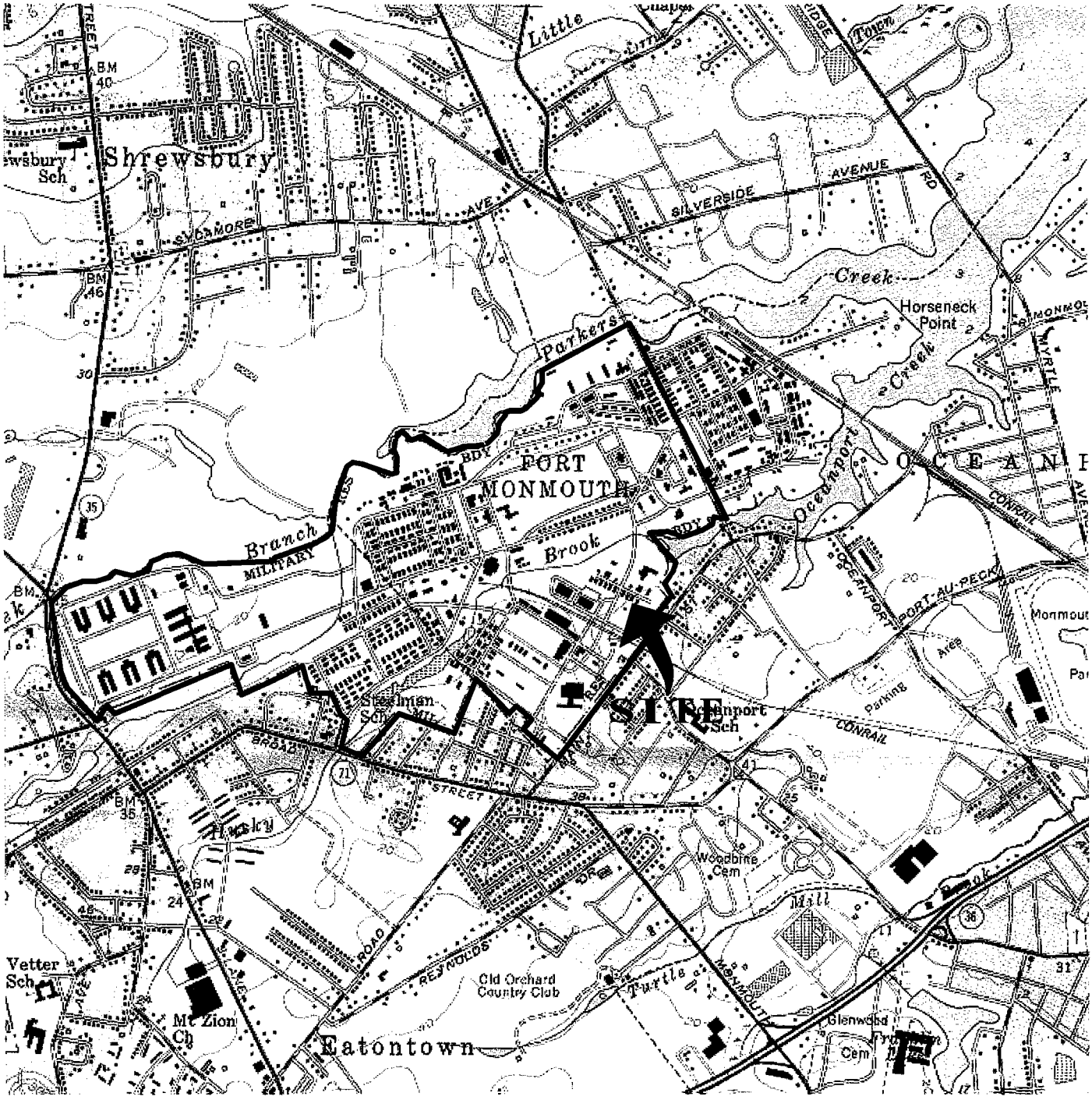
* Total Solid results are expressed as a percentage.

** NJDEP Residential Direct Contact soil cleanup criteria for total organics

-- Not detected above stated sample quantitation limit

TPHC Total Petroleum Hydrocarbons

FIGURES



LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW JERSEY

QUADRANGLE LOCATION

Mapped, edited and published by the Geological Survey

FIGURE 1

SITE LOCATION MAP
Building 916
Main Post-West
Fort Monmouth Army Base
Monmouth County, NJ

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

SCALE: 1"= 2000'	DATE: MARCH 1998

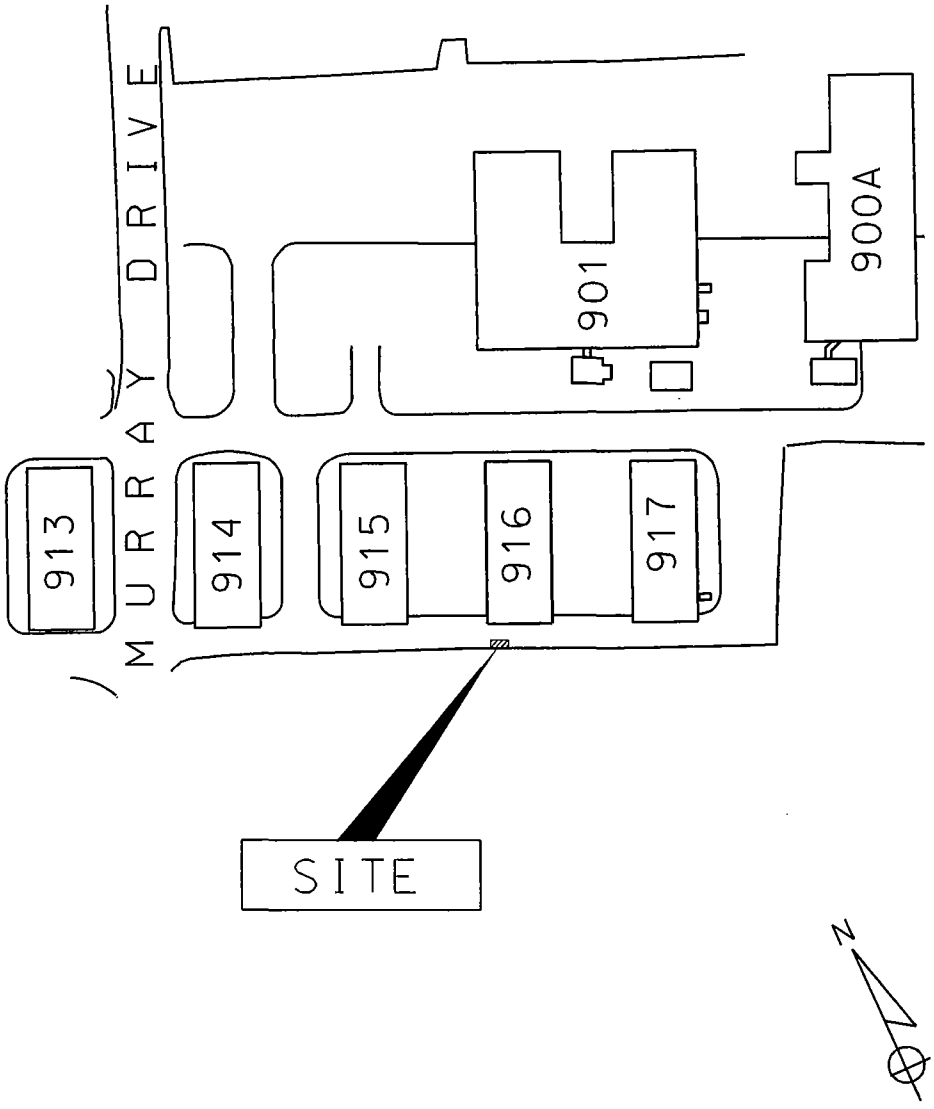


FIGURE 2
SITE MAP
BUILDING 916
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: MARCH 1998

916 2429 FIG2

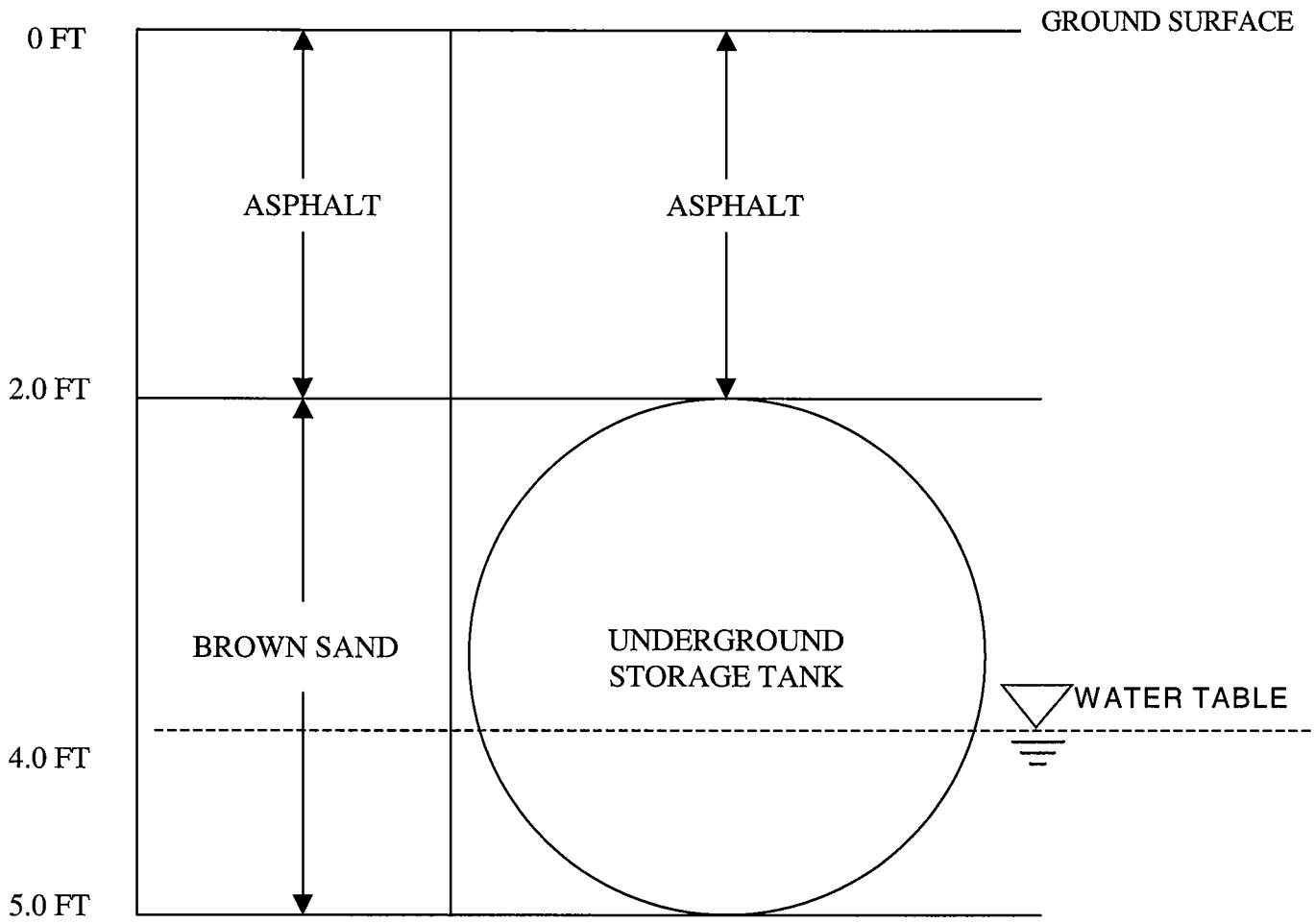
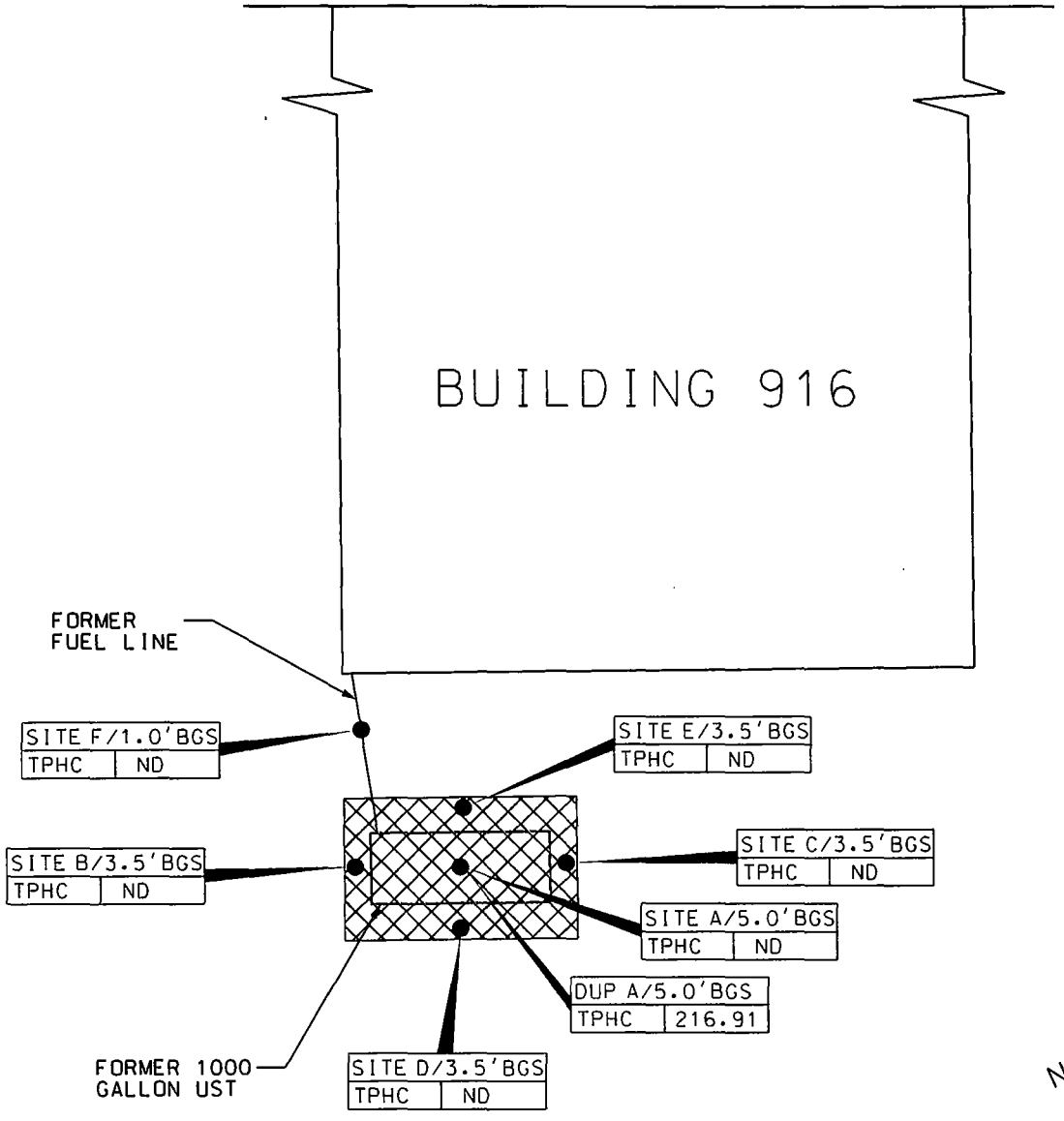


FIGURE 3
CROSS SECTIONAL VIEW
BUILDING 916
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: NTS | DATE: MARCH 1998



LEGEND

- SOIL SAMPLE LOCATION (MARCH 20, 1998)
- LIMIT OF EXCAVATION (MARCH 18, 1998)

NOTES:

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

FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 916
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10' | DATE: MARCH 1998

916 2429 FIG4

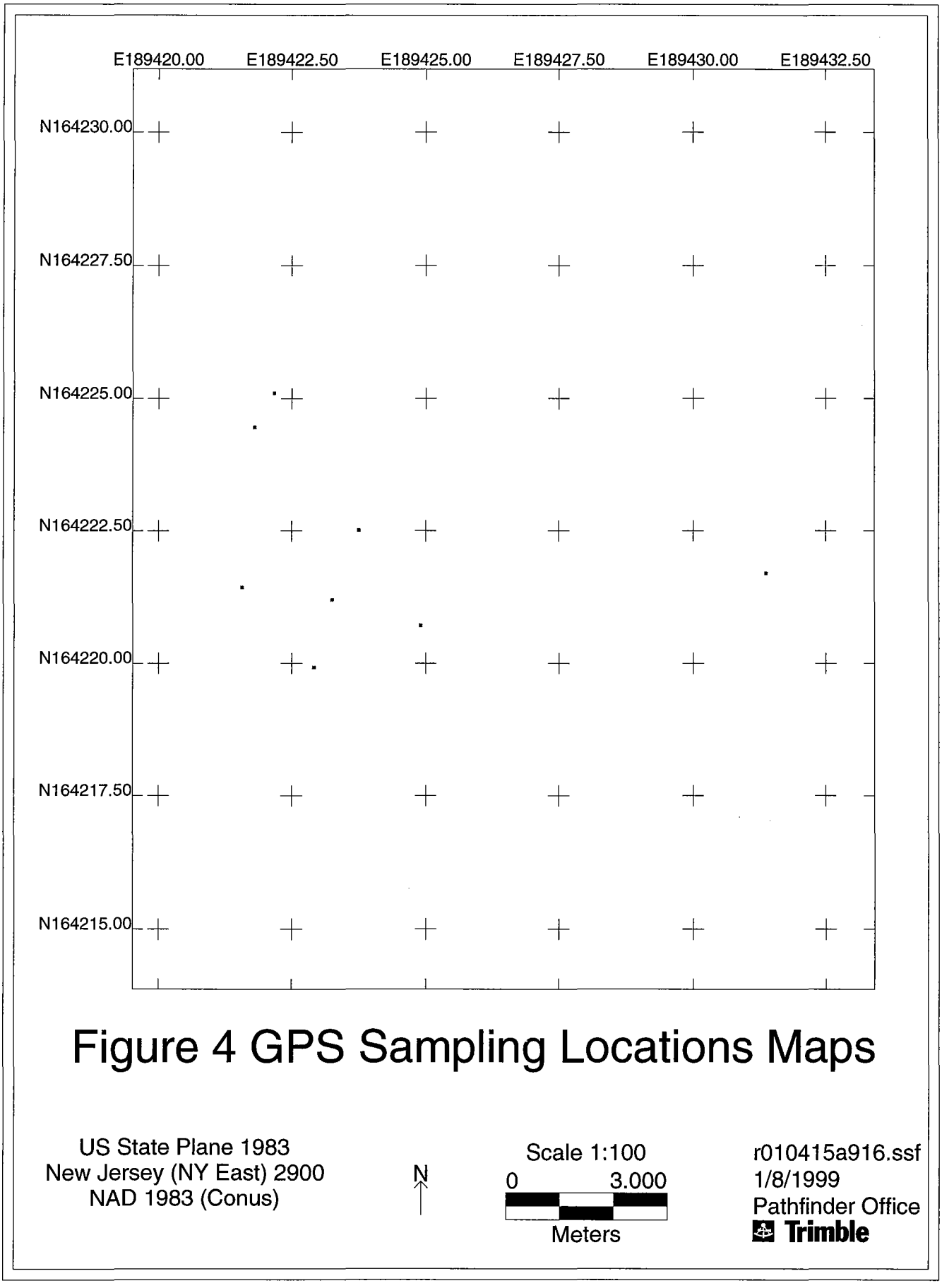


Figure 4 GPS Sampling Locations Maps

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

N

Scale 1:100
0 3.000
Meters

r010415a916.ssf
1/8/1999
Pathfinder Office
Trimble

Figure 4 GPS Sampling Location Point Data

US State Plane 1983 NJ (NY East) 2900 NADCON (CONUS)

Location / Descr.	Y Coord. (Northing)	X Coord. (Easting)
916 A	164221.214	189423.25
916 B	164221.446	189421.571
916 C	164220.73	189424.891
916 D	164219.932	189422.905
916 E	164222.524	189423.74
916 F	164224.47	189421.796

Reference Points

Location / Descr.	Y Coord. (Northing)	X Coord. (Easting)
916 CORN	164221.712	189431.363
916 CORN	164225.111	189422.163

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:

___ General Facility Information Changes
X Closure (Abandonment or Removal)
___ Temporary Closure
___ Change in Service
___ Sale or Transfer
___ Substantial Modification
___ Financial Responsibility
___ Address Change Only

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

(More than one tank can be listed per activity)

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

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire): U.S. ARMY – FORT MONMOUTH
DPW – BUILDING 173
FORT MONMOUTH NJ 07703

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

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: 0081533
Bldg. 916

5. Registration Number (if known): UST - 154

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: 3/18/98 Case No. N/A
   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/overfill protection monitoring systems, cathodic protection, etc.):
   a. Type of Modification _____ Date: ____/____/____
   b. * NOTE * Substantial modifications require a permit under N.J.A.C. 7:14B-10.

11. For changes in FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):
   a. Policy Type: ☐ 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 that facility (N.J.A.C. 7:14B-2.3 (a) 1).

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

Signature: James Ott

Name (print or type): JAMES OTT

Title: DIRECTOR - DEPT OF PUBLIC WORKS Date: 3/18/98

SRF-UST
(INT/MOD-2/92)

APPENDIX B

SITE ASSESSMENT SUMMARY

(12/97) **New Jersey Department of Environmental Protection**

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

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

Facility Street Address : Directorate of Public Works Building 173

Municipality: Oceanport County : Monmouth

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

B. Owner (RP)'s Name:

Street Address: City :

State: Zip: Telephone Number :

C. (Check as appropriate)

___ Site Investigation Report (SIR) $500 Fee

___ Remedial Investigation Report (RIR) $1000 Fee

_X_ NA – Federal Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
- UST Registration Number : 81533-154 (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. A copy of the resolution, certified as a true copy by the secretary of the corporation, shall be submitted along with the certification; or
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.

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

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

Signature:

Company Name: U.S. Army Fort Monmouth Date: 1/7/99

APPENDIX C

WASTE MANIFEST

CASIE / PROTANK
ENVIRONMENTAL SERVICES

916

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

NON-HAZARDOUS MANIFEST

1. Generator's US EPA ID No. NJ3210020597 Document No. 12322
2. Page 1 of 1
3. Generator's Name and Mailing Address U.S. Army Com. Elec.Command
Main Post Bldg 173/Attn:
Fort Monmouth NJ 07703
4. Generator's Phone (732) 532-6223
5. Transporter 1 Company Name: Casie Ecology Oil Salvage, Inc.
6. US EPA ID Number: NJD045995693
7. Transporter 2 Company Name
8. US EPA ID Number
9. Designated Facility Name and Site Address
Casie Ecology Oil Salvage, Inc. T/A
3209 N. Mill Rd / Casie Protank
Vineland NJ 08360
10. US EPA ID Number: NJD045995693

A. Non-hazardous Manifest Document Number: NHZ020 16448
B. State Generator's ID: c/o ~~James Shirghio~~, Joe Fallon
C. State Trans. ID 16931
D. Transporter's Phone (609) 696-4401
E. State Trans. ID
F. Transporter's Phone ( )
G. State Facility's 0614D1HP05
H. Facility's Phone (609) 696-4401

GENERATOR

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a.	Combustible liquid, n.o.s.(Fuel Oil) NA1993, PGIII	001	TT	X3370 ~~00001~~	G	ID72
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
L,T %oil/sed. %wtr.

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
a.24 Hr. Emergency Response #609 696-4401 K. Ambrosia NAERG# 127

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261, 264 and 279 or any applicable state law.

Printed/Typed Name: Charles Appleby SELF-EMPLOYED | Signature | Month Day Year: 04/01/98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Bob Consiglio | Signature | Month Day Year: 04/01/98

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name | Signature | Month Day Year

1–GENERATOR COPY

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

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

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NJ3210020597 | Manifest Document No. 009298 | 2. Page 1 of 1 | NHZ 009298

3. Generator's Name and Mailing Address
US Army Communications Electronics Command
Main Post, c/o Fort Fallon, Bldg. 173, ATTN: SELFM-PW-EV
4. Generator's Phone (732) 532-6223 Fort Monmouth, NJ 07703

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
LIONETTI OIL RECOVERY CO INC	N J D 0 8 4 0 4 4 0 6 4	908 721-0900
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone
LIONETTI OIL RECOVERY CO INC DBA LORCO PETROLEUM SVCS RUNYON&CHEESEQUAKE RDS OLD BRIDGE, NJ 08857	N J D 0 8 4 0 4 4 0 6 4	908 721-0900

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. PETROLEUM OIL(PETROLEUM OIL) COMBUSTIBLEL LIQUID UN1270 PGIII	0 0 1	T T	2125	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
T,L PETROLEUM OIL 80 %
WATER 20 %

E. Handling Codes for Wastes Listed Above
T04 FILTRATION

15. Special Handling Instructions and Additional Information
24 HR EMERGENCY RESPONSE#(908) 721-0900
DECAL# 87068 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	Signature	Month	Day	Year
Joseph M Fallon	Joseph M Fallon	12	10	97

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Anibal Vazquez		12	10	97

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	Signature	Month	Day	Year
Richard LoBello		12	10	97

GENERATOR
TRANSPORTER
FACILITY

APPENDIX D

UST DISPOSAL CERTIFICATE

916

MAZZA & SONS, INC.

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

NO. _____

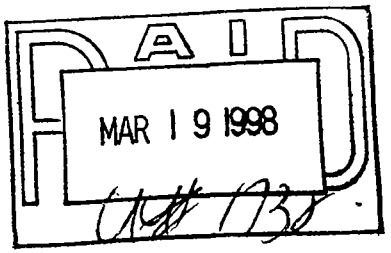
DATE. 19 MAR 98

Customer's Name Tecom Vinnik

Address _____

	Weight	Price
Cast Iron		
Steel Turn	360	
Lt. Iron		
Copper #1		
Copper #2		

22760 LB
21560
1200



	Weight	Price
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Battery		
		$ 360

TOTAL AMOUNT:

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
98-0001
Bldg. 916

Project # 3422
Date Rec. 03/20/98
Date Compl. 03/23/98
Released by:

Daniel K. Wright
Laboratory Director

Table of Contents

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.

Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-3484 EMail:appleby@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: DPW-ENV
Phone #:
( )DERA (X)OMA ( )Other:_____

Project No: 98-0001
Location: B. 916

Samplers Name / Company : GARY DiMARTINIS-TVS

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	TPHC	O&G Solids	Mansfield					OVA	Remarks / Preservation Method
3422. 01	916-A	3-20-98	0943	SOIL	1	X	X	X	15.81				ND	EXC. FLOOR @ 5.0' *
02	B		0953						15.21				ND	SIDE WALL @ 3.5'
03	C		0947						15.81				ND	
04	D		0950						15.63				ND	
05	E		0956						15.38				ND	
06	F		0906						15.75				ND	Piping Run @ 1.0'
07	DUP		—						15.42	MS 15.25	MSD 15.09		—	FIELD Duplicate

Comments: * = SAMPLES KEPT BELOW 4°C.

NOTE: OVA (#A52114) CALIBRATED w/95 ppm CH4 + ZERO(0) AIR @ 0930 HRS ON 3/20/98 by G. DiMARTINIS.

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Gary DiMartinis	3/20/98 1135	J. Lehrmann			
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
Turnaround time: (X)Standard 4 wks, (_)Rush ____ Days, (_)ASAP Verbal ____ Hrs.

Remarks: DEDICATED SAMPLING TOOLS USED.

print legibly

coc XLS3/10/98

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

Client :	U.S. Army	**Lab. ID # :**	3422
	DPW. SELFM-PW-EV	**Date Rec'd:**	20-Mar-98
	Bldg. 173	**Analysis Start:**	23-Mar-98
	Ft. Monmouth, NJ 07703	**Analysis Complete:**	23-Mar-98
Analysis:	OQA-QAM-025	**UST Reg. #:**	
Matrix:	Soil	**Closure #:**	
Analyst:	D.DEINHARDT	**DICAR #:**	
Ext. Meth:	Shake	**Location #:**	B.916

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3422.01	916-A	1.00	15.81	89.63	166	ND
3422.02	916-B	1.00	15.21	89.23	173	ND
3422.03	916-C	1.00	15.81	88.17	169	ND
3422.04	916-D	1.00	15.63	91.50	164	ND
3422.05	916-E	1.00	15.38	92.12	166	ND
3422.06	916-F	1.00	15.75	91.34	163	ND
3422.07	916-DUP	1.00	15.42	88.59	172	216.91
METHOD BLANK	23-Mar-98	1.00	15.00	100.00	157	ND

ND = Not Detected

MDL = Method Detection Limit

Daniel K. Wright
Laboratory Director

Response Factor Report FID/TCD

Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998

Calibration Files
200 =T04649.D 100 =T04654.D 50 =T04651.D
10 =T04652.D 5 =T04653.D

	Compound	200	100	50	10	5	Avg		%RSD
1)	tC C8	1.801	2.041	1.835	1.725	1.727	1.826	E4	7.10
2)	tC C10	1.933	2.259	1.974	1.798	1.804	1.953	E4	9.60
3)	TC C12	2.116	2.476	2.169	1.953	1.968	2.136	E4	9.89
4)	tC C14	2.185	2.559	2.270	2.025	2.004	2.209	E4	10.19
5)	tC C16	2.233	2.625	2.327	2.097	2.075	2.271	E4	9.81
6)	tC C18	2.504	2.926	2.710	2.444	2.375	2.592	E4	8.67
7)	tC C20	2.415	2.851	2.515	2.261	2.228	2.454	E4	10.22
8)	tC C22	2.423	2.840	2.510	2.200	2.209	2.436	E4	10.80
9)	tC C24	2.432	2.772	2.450	2.161	2.155	2.394	E4	10.62
10)	tC C26	2.319	2.709	2.406	2.137	2.015	2.317	E4	11.53
11)	tC C28	2.021	2.356	2.104	1.873	1.841	2.039	E4	10.16
12)	tC C30	1.799	2.063	1.863	2.013	1.652	1.878	E4	8.83
13)	tC C32	1.643	1.872	1.718	1.186	1.254	1.535	E4	19.53
14)	tC C34	1.367	1.551	1.502	1.141	1.378	1.388	E4	11.46
15)	tC C36	1.034	1.168	1.188	0.925	0.988	1.060	E4	10.76
16)	tC C38	7.201	8.395	8.389	6.574	7.621	7.636	E3	10.27
17)	tC C40	5.866	6.687	6.507	5.147	6.028	6.047	E3	10.00
18)	tC c42	4.967	5.805	5.464	4.397	5.259	5.178	E3	10.29
19)	TC Pristane	2.592	2.935	2.513	2.288	2.304	2.526	E4	10.43
20)	TC Phytane	2.414	2.957	2:616	2.363	2.356	2.541	E4	10.06
21)	sC o-terphenyl	2.709	3.183	2.823	2.559	2.556	2.766	E4	9.35
22)	tC TPHC - total	2.282	2.624	2.440	2.600	2.736	2.536	E4	6.98

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980324\T04676.D Vial: 2
Acq On : 25 Mar 98 7:00 am Operator: DEINHARDT
Sample : 50 PPM STANDARD Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
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	tC	C8	18.259	18.534 E3	-1.5	105	0.00
2	tC	C10	19.534	19.961 E3	-2.2	106	0.00
3	TC	C12	21.365	21.668 E3	-1.4	107	0.00
4	tC	C14	22.088	22.364 E3	-1.2	108	0.00
5	tC	C16	22.714	22.752 E3	-0.2	108	0.00
6	tC	C18	25.919	25.365 E3	2.1	110	0.00
7	tC	C20	24.542	24.352 E3	0.8	109	0.00
8	tC	C22	24.364	24.263 E3	0.4	110	0.00
9	tC	C24	23.940	23.808 E3	0.6	108	0.00
10	tC	C26	23.170	23.453 E3	-1.2	113	0.00
11	tC	C28	20.391	20.601 E3	-1.0	116	0.00
12	tC	C30	18.781	18.240 E3	2.9	118	0.01
13	tC	C32	15.348	17.072 E3	-11.2	122	0.01
14	tC	C34	13.879	15.046 E3	-8.4	127	0.01
15	tC	C36	10.605	11.961 E3	-12.8	132	0.02
16	tC	C38	7.636	8.967 E3	-17.4	133	0.02
17	tC	C40	6.047	6.912 E3	-14.3	131	0.03
18	tC	c42.	5.178	5.688 E3	-9.8	129	0.03
19	TC	Pristane	25.262	25.197 E3	0.3	111	0.00
20	TC	Phytane	25.410	25.606 E3	-0.8	109	0.00
21	sC	o-terphenyl	27.662	27.739 E3	-0.3	110	0.00
22	tC	TPHC - total	25.364	24.018 E3	5.3	106	2.56#

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980324\T04665.D Vial: 2
Acq On : 24 Mar 98 11:09 pm Operator: DEINHARDT
Sample : 50 PPM STANDARD Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
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	tC	C8	18.259	18.500 E3	-1.3	105	0.00
2	tC	C10	19.534	19.836 E3	-1.5	105	0.00
3	TC	C12	21.365	21.484 E3	-0.6	106	0.00
4	tC	C14	22.088	22.171 E3	-0.4	107	0.00
5	tC	C16	22.714	22.605 E3	0.5	108	0.00
6	tC	C18	25.919	26.027 E3	-0.4	113	0.01
7	tC	C20	24.542	24.380 E3	0.7	109	0.01
8	tC	C22	24.364	24.277 E3	0.4	110	0.00
9	tC	C24	23.940	23.685 E3	1.1	108	0.00
10	tC	C26	23.170	23.424 E3	-1.1	113	0.01
11	tC	C28	20.391	20.527 E3	-0.7	115	0.01
12	tC	C30	18.781	18.311 E3	2.5	118	0.01
13	tC	C32	15.348	16.992 E3	-10.7	121	0.01
14	tC	C34	13.879	14.961 E3	-7.8	126	0.02
15	tC	C36	10.605	11.889 E3	-12.1	131	0.02
16	tC	C38	7.636	8.894 E3	-16.5	132	0.02
17	tC	C40	6.047	6.814 E3	-12.7	129	0.03
18	tC	c42	5.178	5.632 E3	-8.8	128	0.04
19	TC	Pristane	25.262	25.000 E3	1.0	110	0.01
20	TC	Phytane	25.410	25.533 E3	-0.5	109	0.01
21	sC	o-terphenyl	27.662	27.539 E3	0.4	110	0.01
22	tC	TPHC - total	25.364	24.005 E3	5.4	106	2.56#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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

Surrogate Recovery Report

Lab. ID # : 3422

Location #: B. 916

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3422.01		10.00	11.08	**110.81**
3422.02		10.00	10.37	**103.68**
3422.03		10.00	10.28	**102.77**
3422.04		10.00	9.14	**91.42**
3422.05		10.00	10.49	**104.85**
3422.06		10.00	10.16	**101.63**
3422.07		10.00	10.34	**103.39**
METHOD BLANK	23-Mar-98	10.00	10.99	**109.91**

Surrogate Added : **o-Terphenyl**

3/26/98

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

Matrix Spike Recovery Report

Lab. ID # : 3422
Location #: B. 916

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3422.07MS	1000	59.26	1045.00	98.57	75-125
3422.07MSD	1000	59.26	1038.17	97.89	75-125

RPD	**0.69**	**20.00**

3/26/98

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

Blank Spike Recovery Report

Lab. ID # : 3422

Location #: B. 916

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	23-Mar-98	1000	1033.56	103.36	75-125

3/26/98

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04670.D Vial: 18
Acq On : 25 Mar 98 2:46 am Operator: DEINHARDT
Sample : 3422.01 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
21) sC o-terphenyl	13.95	306507	11.081	mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 110.81%#		
Target Compounds				

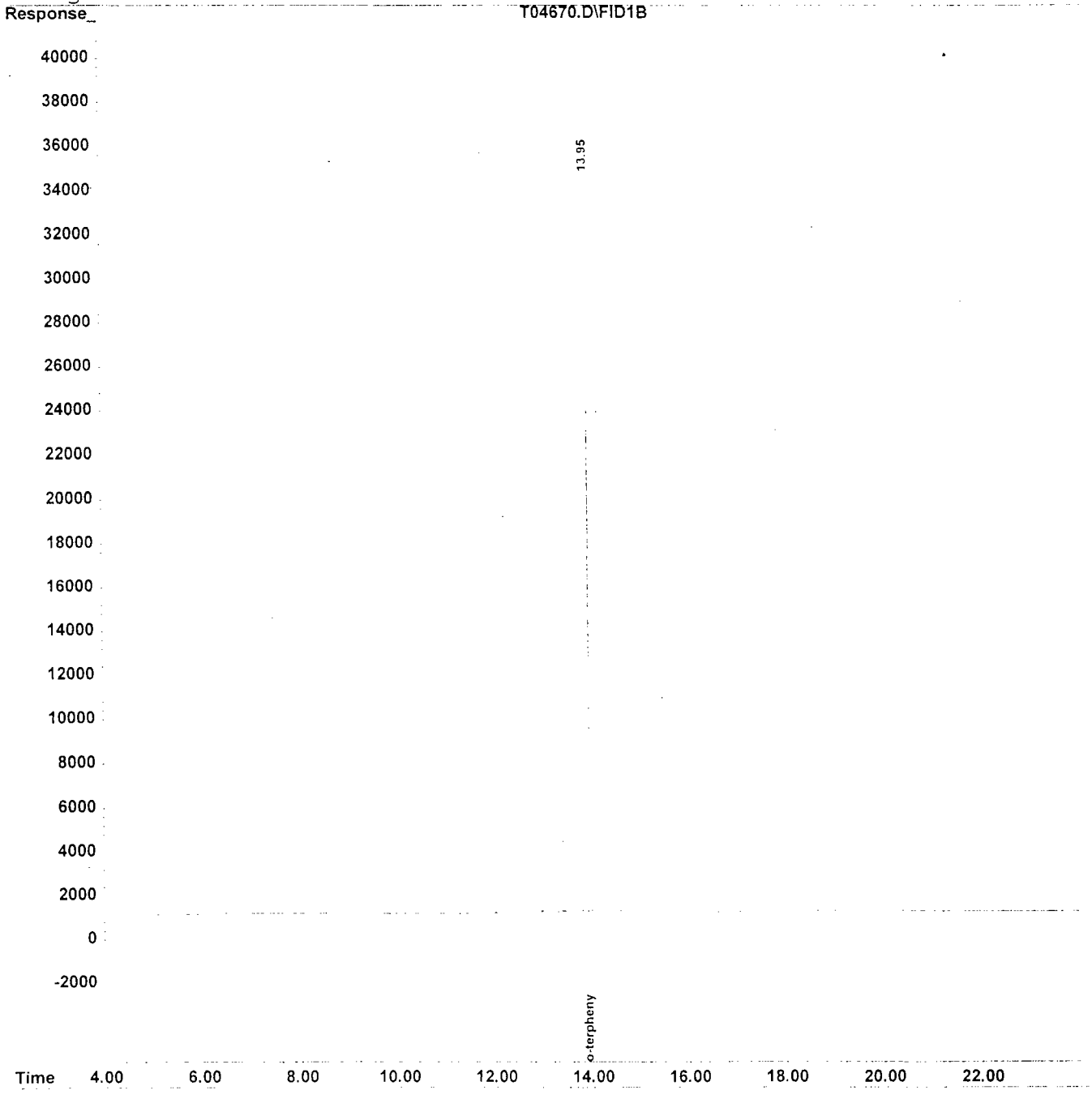
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980324\T04670.D Vial: 18
Acq On : 25 Mar 98 2:46 am Operator: DEINHARDT
Sample : 3422.01 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04671.D Vial: 19
Acq On : 25 Mar 98 3:29 am Operator: DEINHARDT
Sample : 3422.02 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

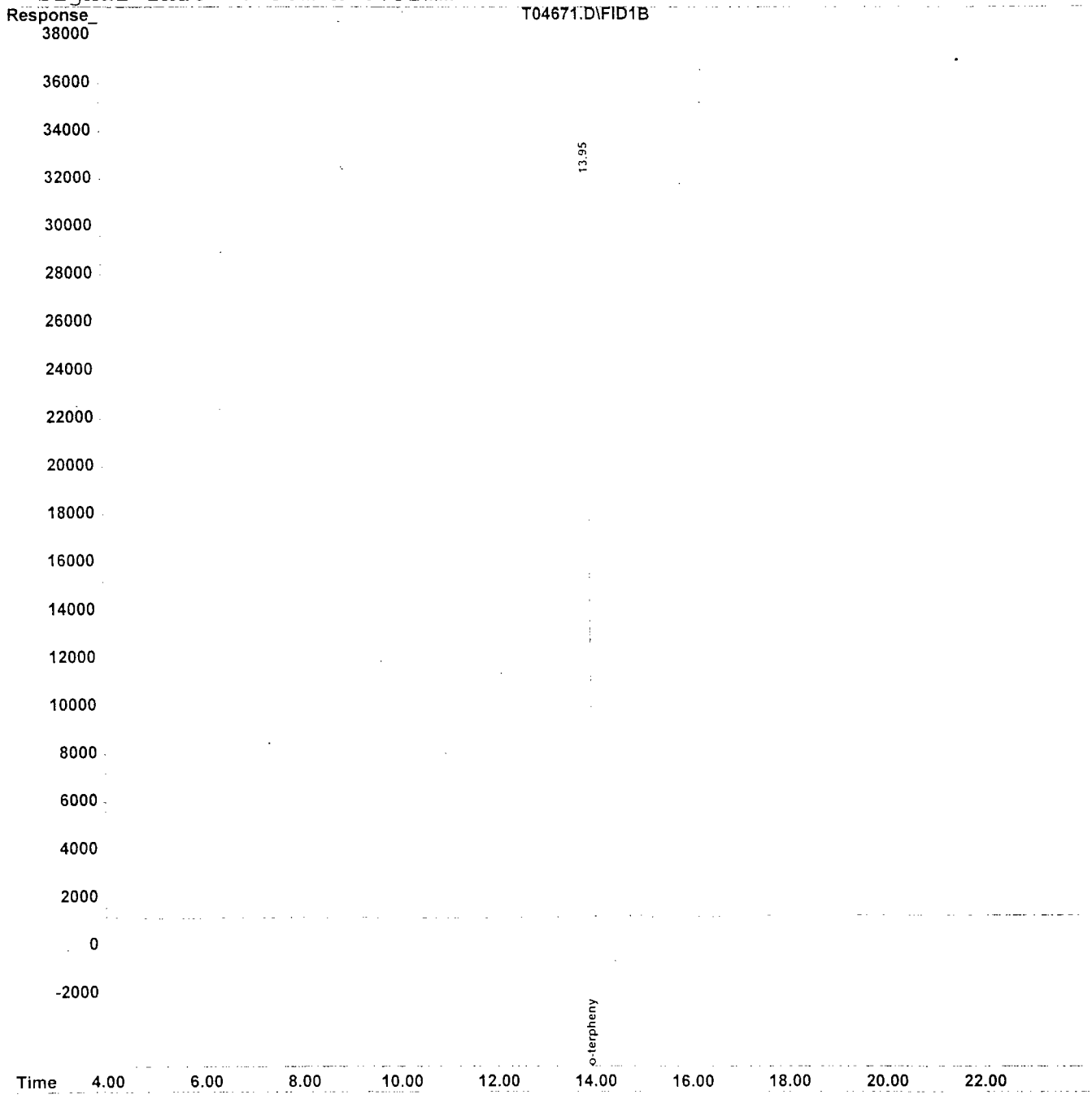
Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
21) sC. o-terphenyl	13.95	286783	10.368	mg/L
Spiked Amount 10.000 Range 8 - 13 Recovery = 103.68%#				
Target Compounds				

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File : C:\HPCHEM\1\DATA\980324\T04671.D Vial: 19
Acq On : 25 Mar 98 3:29 am Operator: DEINHARDT
Sample : 3422.02 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04672.D Vial: 20
Acq On : 25 Mar 98 4:12 am Operator: DEINHARDT
Sample : 3422.03 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
21) sC o-terphenyl	13.95	284266	10.277	mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 102.77%#		
Target Compounds				

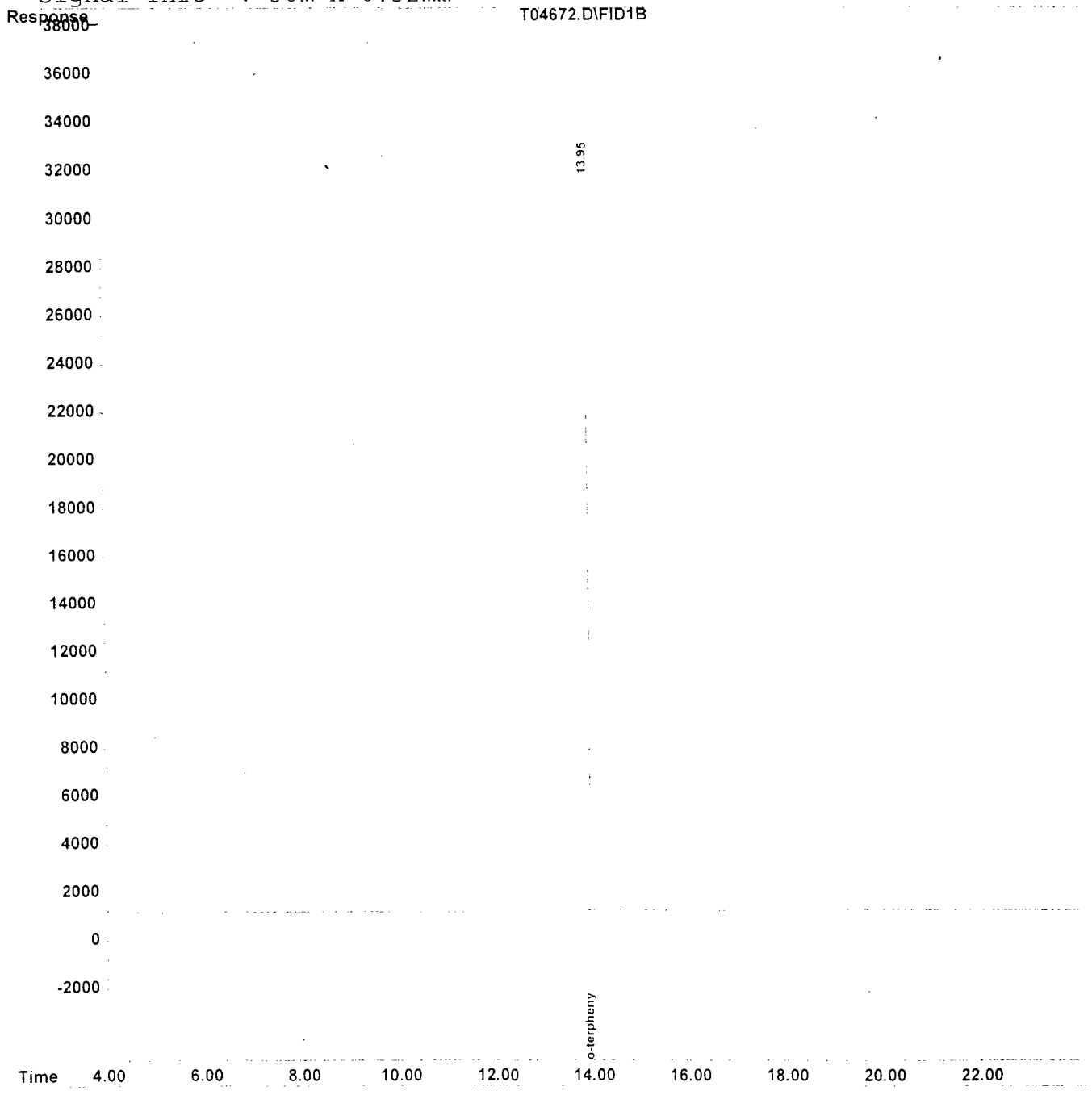
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980324\T04672.D Vial: 20
Acq On : 25 Mar 98 4:12 am Operator: DEINHARDT
Sample : 3422.03 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04673.D Vial: 21
Acq On : 25 Mar 98 4:54 am Operator: DEINHARDT
Sample : 3422.04 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.95	252873	9.142 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	91.42%#
Target Compounds			

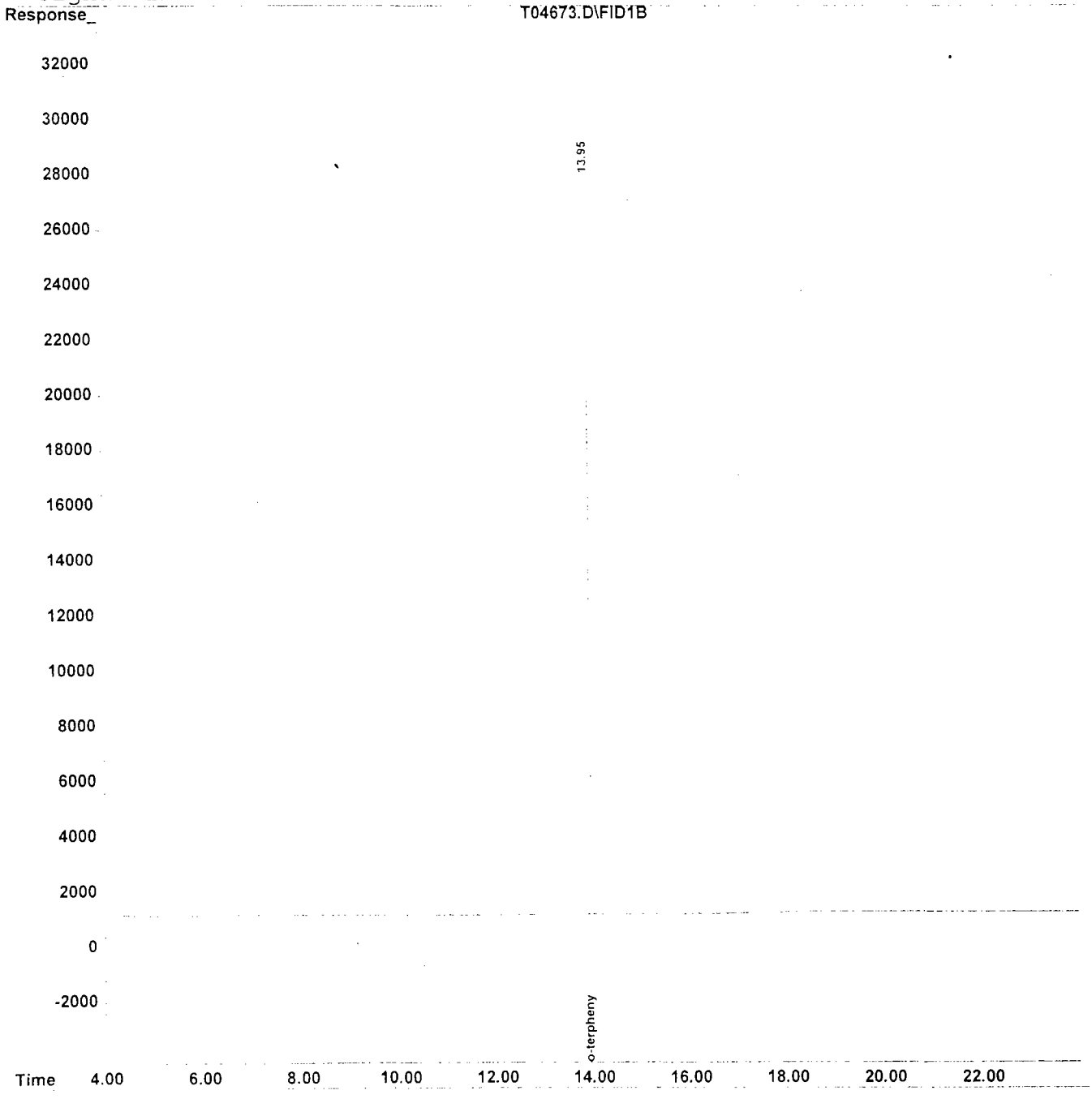
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980324\T04673.D Vial: 21
Acq On : 25 Mar 98 4:54 am Operator: DEINHARDT
Sample : 3422.04 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04674.D Vial: 22
Acq On : 25 Mar 98 5:37 am Operator: DEINHARDT
Sample : 3422.05 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.95	290020	10.485 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 104.85%#	
Target Compounds			

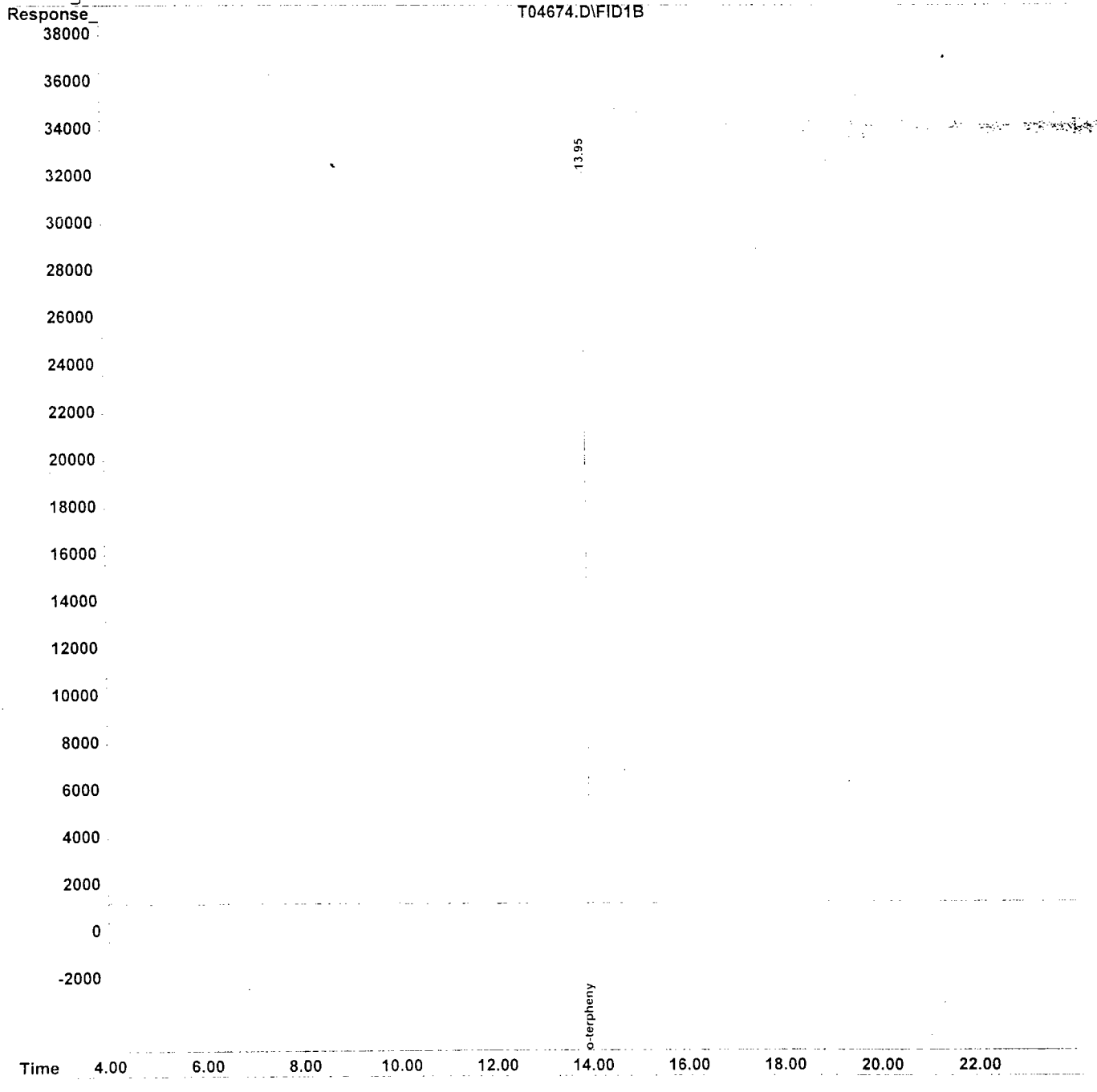
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980324\T04674.D Vial: 22
Acq On : 25 Mar 98 5:37 am Operator: DEINHARDT
Sample : 3422.05 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:52 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04675.D Vial: 23
Acq On : 25 Mar 98 6:18 am Operator: DEINHARDT
Sample : 3422.06 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:53 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.95	281111	10.163 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 101.63%#	
Target Compounds			

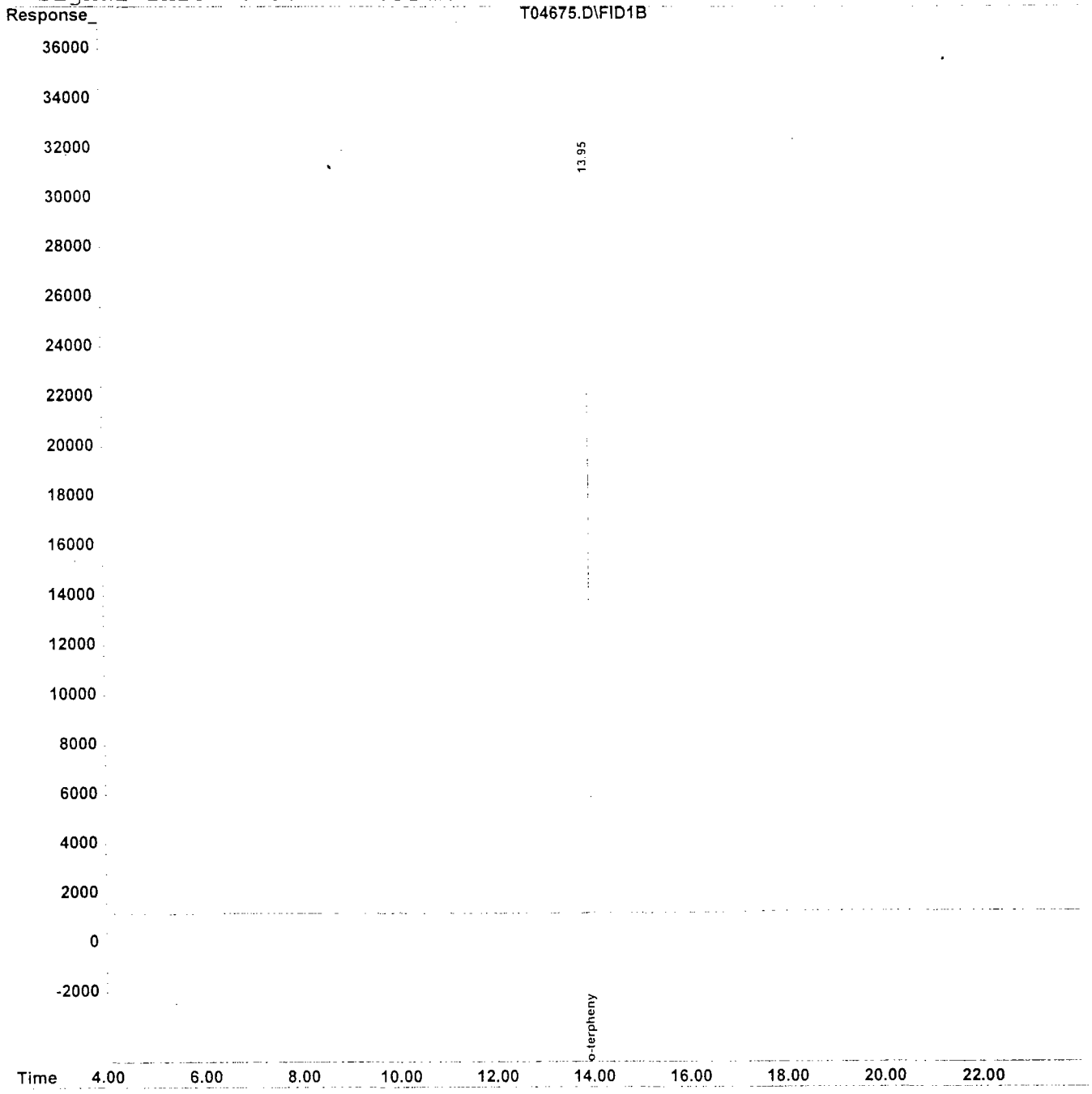
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980324\T04675.D Vial: 23
Acq On : 25 Mar 98 6:18 am Operator: DEINHARDT
Sample : 3422.06 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 7:53 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH27.M

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



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980324\T04677.D Vial: 25
Acq On : 25 Mar 98 7:42 am Operator: DEINHARDT
Sample : 3422.07 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Mar 25 11:50 1998 Quant Results File: TPH27.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH27.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Mar 19 07:39:01 1998
Response via : Initial Calibration
DataAcq Meth : TPH27.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.95	285992	10.339 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 103.39%#	
Target Compounds			
5) tC C16	12.49	1558	0.069 mg/L
6) tC C18	12.95	1506	0.058 mg/L
7) tC C20	13.39	1689	0.069 mg/L
8) tC C22	14.21	1355	0.056 mg/L
9) tC C24	14.95	1420	0.059 mg/L
19) TC Pristane	12.98	1516	0.060 mg/L
20) TC Phytane	13.44	1253	0.049 mg/L
22) tC TPHC - total	13.95	1503097	59.261 mg/L m

(f)=RT Delta > 1/2 Window (m)=manual int.

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature _____

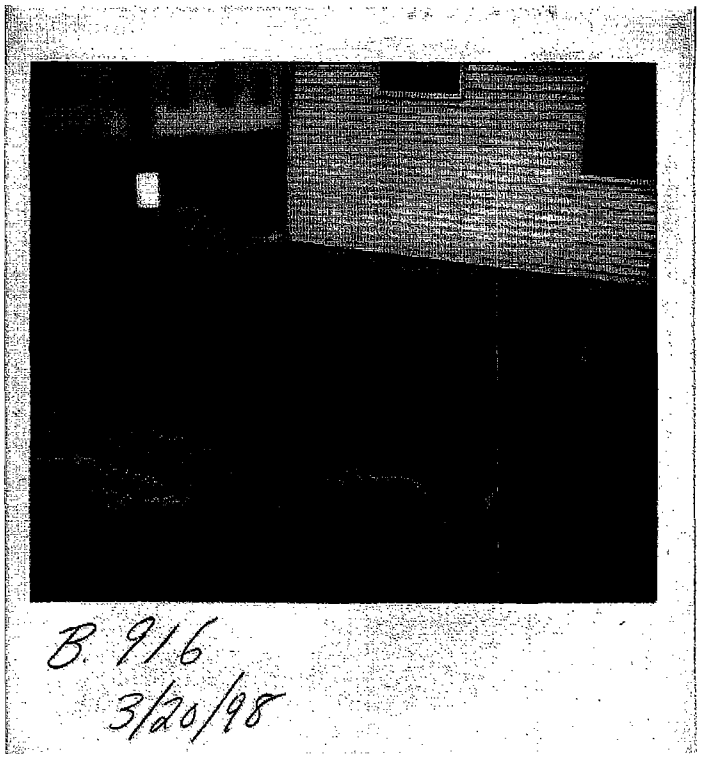
Date 4/6/15

Laboratory Certification #13461

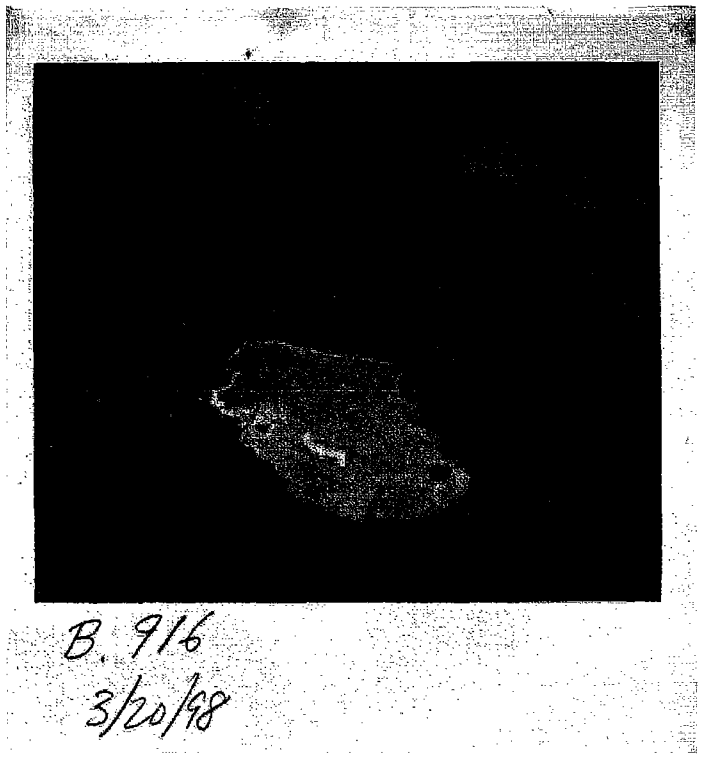
*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance

APPENDIX F

PHOTOGRAPHS



B. 916
3/20/98



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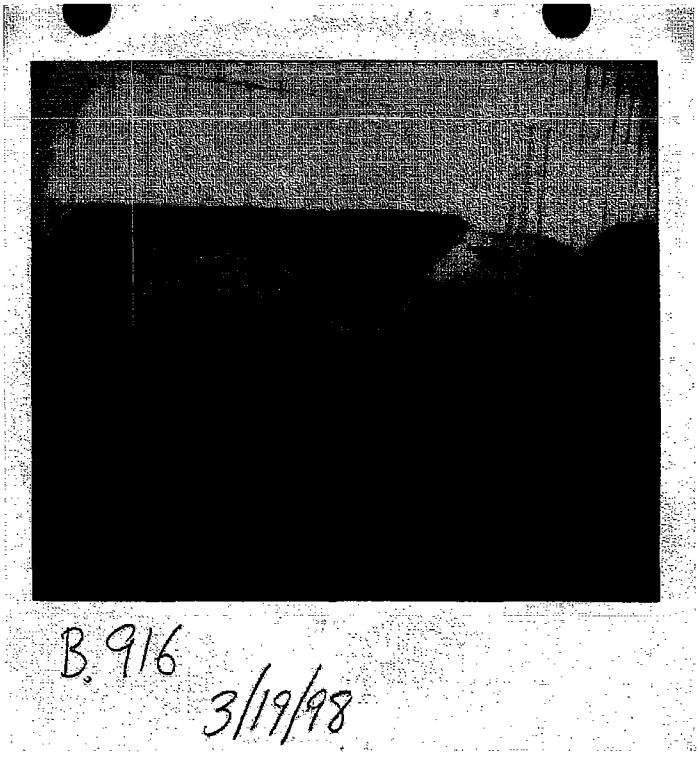
3/20/98



B. 916 3/19/98

March 18, 1997

PHOTOGRAPHIC LOG

UST NO. 81533-154

Building 916
Main Post-West
Fort Monmouth

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