

United States Army
Fort Monmouth, New Jersey

COPY

Underground Storage Tank Closure and Site Investigation Report

***Building 2021A
Charles Wood-East***

NJDEP UST Registration No. 192486-35

OCTOBER 1998

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

BUILDING 2021A

**CHARLES WOOD-EAST
NJDEP UST REGISTRATION NO. 192486-35**

OCTOBER 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
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PROJECT NO. 2491-308

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EXECUTIVE SUMMARY

UST Closure

On May 28, 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 Charles Wood-East area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 192486-35 (Fort Monmouth ID No. 2021A), was located south of Building 2021A. UST No. 192486-35 was a 275-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. No holes or punctures were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank. Groundwater was not encountered. Samples contained non-detectable levels of TPHC.

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. 192486-35 at Building 2021A.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 192486-35, was closed at Building 2021A at the Charles Wood-East area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on May 28, 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 275 gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 192486-35 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 SMC Environmental Services Group personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 192486-35 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM).

The Standard Reporting Form and signed Site Assessment Summary form for UST No. 192486-35 are included in Appendices A and B, respectively.

Based on inspecting the UST, field screening of subsurface soils and groundwater, and reviewing analytical results of soil samples, the DPW has concluded that no significant historical discharges are associated with the UST 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 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 2021A is located in the Charles Wood-East area of the Fort Monmouth Army Base. UST No. 192486-35 was located south of Building 2021A and appurtenant copper piping ran approximately six (6) feet north from the excavation to Building 2021A. 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 2021A. 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 Charles Wood 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 Charles Wood 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 ironoxide encrusted (Minard).

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. Topographic elevations for the Charles Wood area range from 20 feet above mean seal level (MSL) to 71 feet above MSL.

Hydrogeology

The water table aquifer in the Charles Wood 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.

Six well records for monitor wells installed at locations within the Charles Wood area in February 1981 were used for reference. The wells were completed to total depths ranging from 20 to 25 feet below ground surface (bgs). Water was encountered at depths ranging from 5 to 12 feet bgs.

The lithologic descriptions for these borings described deposits that were primarily fine to coarse, glauconitic sands, with traces of gravel, silt, and clay. These sediments are part of the Hornerstown Marl, from the Tertiary Period (Paleocene Series, approximately 58 to 66 Ma). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce from 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Shallow groundwater is locally influenced within the Charles Wood 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 Charles Wood 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. Building 2021A is located approximately 300 feet south of an unnamed stream that runs from east to west through the Charles Wood area.

Based on the Charles Wood area topography, the groundwater flow in the area of Building 2021A is anticipated to be to the north.

1.3 HEALTH AND SAFETY

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

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

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

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 20 gallons of liquid from the UST and its associated piping were transported by Lionetti Oil Recovery Co. Inc to the Lionetti Oil Recovery Co. Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes 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 not encountered. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

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

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

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

1.6 MANAGEMENT OF EXCAVATED SOILS

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

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed and carried out by U.S. Army DPW personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEP Certified Sub-Surface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP-BUST document *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Site Investigation Activities:

- Subsurface Evaluator: David H. Daniels
Employer: SMC Environmental Services Group
Phone Number: (215) 788-7844
NJDEP Certification No.: 10279
- Project Manager: Dinker Desai
Employer: U.S. Army, Fort Monmouth
Phone Number: (730) 532-6224
NJDEP Certification No.: 10173
- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory
Contact Person: Daniel K. Wright
Phone Number: (908) 532-4359
NJDEP Company Certification No.: 13461
- Hazardous Waste Hauler: Lionetti Oil Recovery Co. Inc
Contact Person: Charles Clayton
Phone Number: (908) 721-0900
NJDEP Hazardous Waste Hauler No.: S6247

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom, did not exhibit any evidence of potential contamination. Groundwater was not encountered.

2.3 SOIL SAMPLING

On May 29, 1998, following the removal of the UST, post-excavation soil samples N, PP, V, W, S, E, and DUP W2 were collected from a total of six (6) locations of the UST excavation. Sidewall samples N, W, S, E, and DUP W2 were collected at a depth of 5.0 feet bgs. Piping sample V and PP were collected at a depth of 2.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

SMC Environmental Services Group 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 May 29, 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 May 29, 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 non-detectable levels of TPHC.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 2021A 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. 192486-35 at Building 2021A.

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$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

$f \in \mathbb{R}$

$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

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$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

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$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

$f \in \mathbb{R}$

$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

$f \in \mathbb{R}$

$\mathbf{A}, \mathbf{B} \in \mathbb{R}^n$

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 2021A, CHARLES WOOD-EAST AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 1

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
N	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
PP	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
V	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
W	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
W2	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
S	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	5/29/98	5/29/98	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 BUILDING 2021A, CHARLES WOOD-EAST AREA
 FORT MONMOUTH, NEW JERSEY

Page 1 of 1

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
N/5.0=	3602.01	5/29/98	5/29/98	Total Solid	--	--	87.30	--	--
				TPHC	170	yes	ND	10,000	No
PP/2.0=	3602.02	5/29/98	5/29/98	Total Solid	--	--	87.48	--	--
				TPHC	172	yes	ND	10,000	No
V/2.0=	3602.03	5/29/98	5/29/98	Total Solid	--	--	86.70	--	--
				TPHC	178	yes	ND	10,000	No
W/5.0=	3602.04	5/29/98	5/29/98	Total Solid	--	--	86.66	--	--
				TPHC	175	yes	ND	10,000	No
W2/5.0=	3602.05	5/29/98	5/29/98	Total Solid	--	--	86.51	--	--
				TPHC	175	yes	ND	10,000	No
S/5.0=	3602.06	5/29/98	5/29/98	Total Solid	--	--	86.84	--	--
				TPHC	172	yes	ND	10,000	No
E/5.0=	3602.07	5/29/98	5/29/98	Total Solid	--	--	86.67	--	--
				TPHC	173	yes	ND	10,000	No

Note:

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

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

Fig. 20

Fig. 21

Fig. 22

Fig. 23

Fig. 24

Fig. 25

Fig. 26

Fig. 27

Fig. 28

Fig. 29

Fig. 30

Fig. 31

Fig. 32

Fig. 33

Fig. 34

Fig. 35

Fig. 36

Fig. 37

Fig. 38

FIGURES

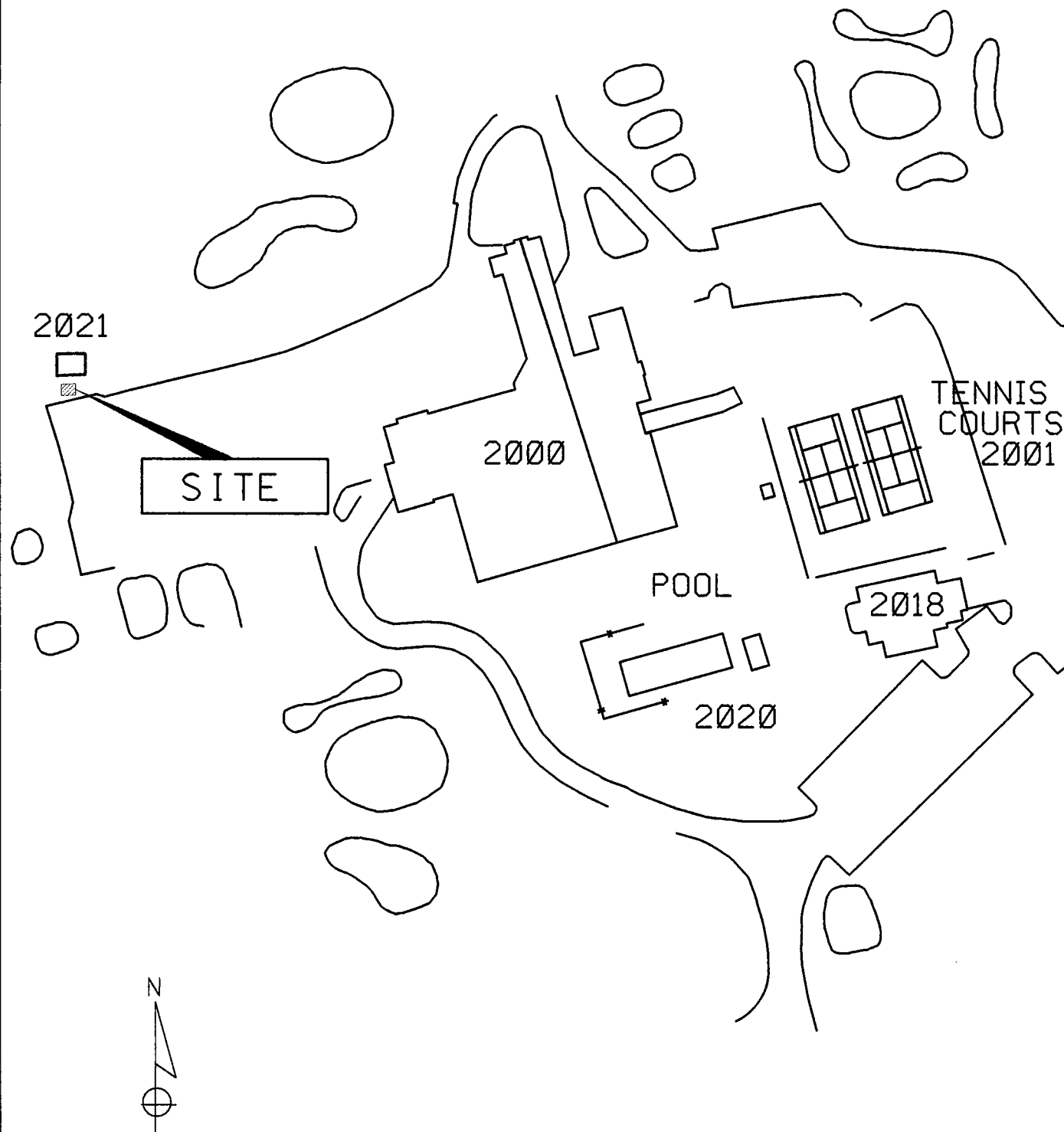


FIGURE 2
SITE MAP
BUILDING 2021A
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ



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

SCALE: 1"=100'

DATE: MAY 1998

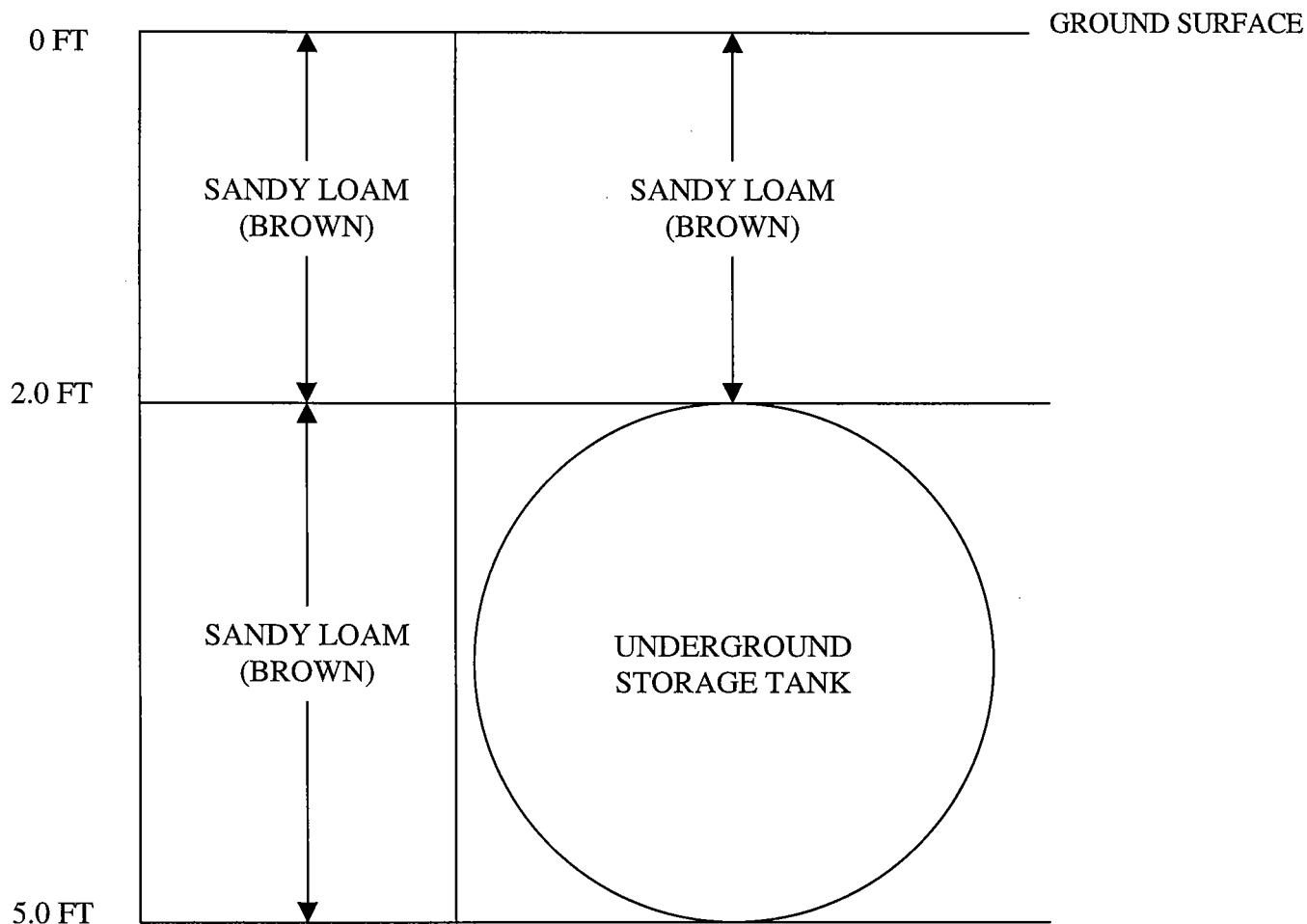


FIGURE 3
CROSS SECTIONAL VIEW
BUILDING 2021A
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

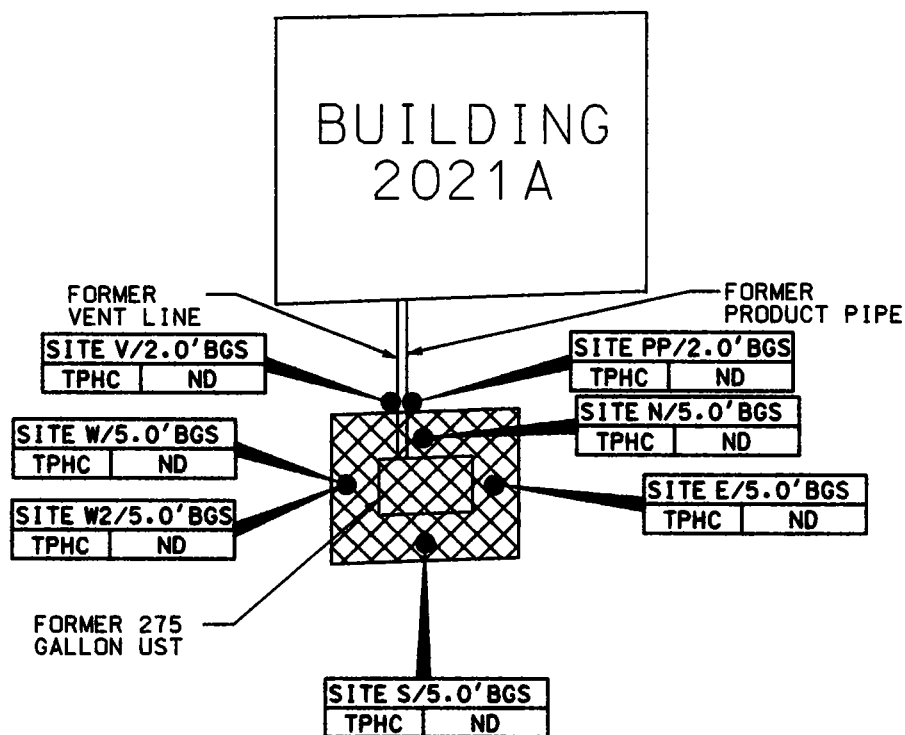


**SMC ENVIRONMENTAL
SERVICES GROUP**

Engineers, Managers, Scientists & Planners
VALLEY FORGE, PA.

SCALE: NTS

DATE: MAY 1998



LEGEND

● SOIL SAMPLE LOCATION
(MAY 29, 1998)

▨ LIMIT OF EXCAVATION
(MAY 29, 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 2021A
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ



SMC ENVIRONMENTAL
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VALLEY FORGE, PA.

SCALE: 1"=10'

DATE: MAY 1998

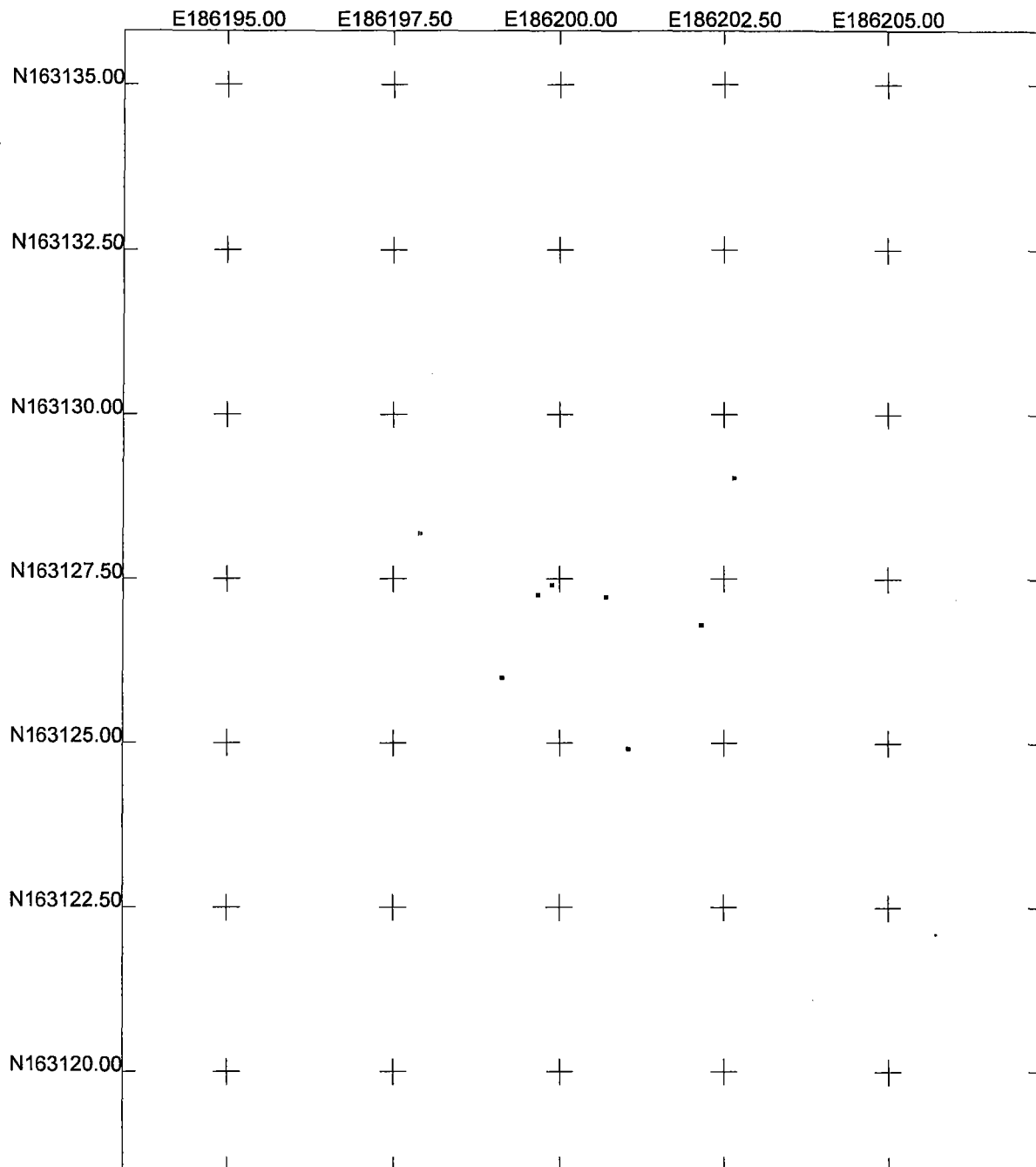


Figure 4 GPS Sampling Location Map

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



Scale 1:100
0 3.000
Meters

r020317c2021a.cor
2/5/1999
Pathfinder Office
 **Trimble**

Figure 4 GPS Sample Location Point Data

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

(In Meters)

Sample Points

<u>Location/Desc.</u>	<u>Y Coord. (Northing)</u>	<u>X Coord. (Easting)</u>
2021A PP	163127.413	186199.87
2021A V	163127.264	186199.664
2021A N	163127.235	186200.692
2021A S	163124.923	186201.043
2021A E	163126.811	186202.144
2021A W W2	163126.007	186199.12

Reference Points

<u>Location/Desc.</u>	<u>Y Coord. (Northing)</u>	<u>X Coord. (Easting)</u>
2021A CORN	163128.199	186197.889
2021A CORN	163129.046	186202.646

١٠٠

NJDEP-STANDARD REPORTING FORM

FOR STATE USE ONLY

Check In ☐ Yes ☐ No

STATUS Active Inactive COMCODE

☐ ☐ ☐ ☐ ☐

UNDERGROUND STORAGE TANK FACILITY QUESTIONNAIRE

COPY

UST # 192486 (Tank # 35) Building 2021A

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

Is this registration of a proposed or newly installed underground storage tank? (This form must be filed at least 30 days prior to operation)

☐ Is this registration of an existing underground storage tank not presently registered?

☒ Is this a correction or amendment to an existing facility registration? UST # 192486-35

☐ There have been no changes to the facility registration since last submittal. UST # _____ (Go to certification page for signatures)

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

☐ Facility Name and/or Address Change
☐ Owner Name and/or Address Change
☐ Facility Operator and/or Address Change
☐ Owner Contact Person Change

☐ Type of Product(s) Stored
☐ Spills, Leaks, Releases
☐ Tank(s) and/or Piping Changes
☒ Closure (Complete Question #13)

☐ Financial Responsibility Change
☐ Substantial Modification(s)
☐ Sale or Transfer (Complete Questions 4,5,6 & 13D)
☐ Other (please specify)

SECTION A - GENERAL FACILITY INFORMATION

1. Facility Name MAIN POST FORT MONMOUTH

2. Facility Location _____
NUMBER AND STREET

CITY OR MUNICIPALITY

COUNTY

STATE N.J.

ZIP CODE

BLOCK

LOT

3. Facility Operator _____

PERSON OR TITLE

Contact _____

Tele. No. _____

(Area Code)

(Extension)

Operator Address _____

(if different than #2)

NUMBER AND STREET

CITY OR MUNICIPALITY

STATE

ZIP CODE

4. Tank Owner _____

5. Tank Owner Address _____

NUMBER AND STREET

CITY OR MUNICIPALITY

STATE

ZIP CODE

Contact Person _____

(Tank Owner)

Contact _____

Tele. No. _____

(Area Code)

(Extension)

7. EPA ID # _____

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

1. Total regulated underground storage tank capacity at facility (gallons) _____
 2. Facility Type: A ☐ State B ☐ Commercial/Industrial C ☐ County/Municipal Federal D ☐ Charitable / Pub. School E ☐ Residence F ☐ Other Farm (as defined in N.J.S.A. 54:4-23.1 et seq.)
 3. Is a copy of the facility site plan submitted with this registration pursuant to N.J.A.C. 7:14B-2? ☐ YES ☐ NO

SPECIFIC TANK INFORMATION

4. All underground tanks, including those taken out of operation (UNLESS THE TANK WAS REMOVED FROM THE GROUND PRIOR TO 1980) must be registered. Report all tank/piping status changes unless previously submitted.

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

IMPORTANT INFORMATION

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

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

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

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

DATES TO KNOW (critical deadlines)

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

CERTIFICATIONS

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

CERTIFICATION NO. 1:

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

"I certify under penalty of law that the information provided in this document is true, accurate and complete to the best of my knowledge, information and belief. I am aware that there are significant civil and criminal penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

JAMES OTT

(Typed / Printed Name)

DIRECTOR, DPW

(Title)

James Ott

(Signature)

5/30/98

(Date)

CERTIFICATION NO. 2:

Must be signed as follows:

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

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

(Typed / Printed Name)

(Title)

(Signature)

(Date)

CERTIFICATION NO. 3:

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

"I certify under penalty of law that the information provided in this document is true, accurate and complete to the best of my knowledge, information and belief. I am aware that there are significant civil and criminal penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

David H. Daniels, Site Manager

(Typed / Printed Name)

(Title)

SMC Environmental Services

(Name of Firm, if applicable)

David H. Daniels

(Signature)

0010279

(N.J. Certification Number)

5/28/98

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APPENDIX B

SITE ASSESSMENT SUMMARY

UST Site/Remedial Investigation Report Certification Form

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

State: _____ Zip: _____ Telephone Number : _____

- Tank Closure Number : Federal Case Manager

Telephone Number : 215-788-7844

Date:

3/25/99

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APPENDIX C

WASTE MANIFEST



RD1 Box 5A
Old Bridge, N.J. 08857
(732) 721-0900
Fax (732) 721-0231

STANDARD
COLLECTION
ORDER FORM

199329

GENERATOR/LOCATION Fort Monmouth
NAME Fort Monmouth
INFORMATION/ATTENTION LINE
ACCOUNT APPROVAL CODE:
DELIVERY ADDRESS Riverside Ave Bldg 280. 281
CITY Fort Monmouth STATE NJ ZIP
PHONE NUMBER
PURCHASE ORDER NUMBER
USA EPA ID NO. (IF APPLICABLE) NJ3210020397 STATE ID NO.

BILL TO (IF DIFFERENT FROM LOCATION)
NAME SMC Environmental
INFORMATION/ATTENTION LINE
ACCOUNT APPROVAL CODE:
DELIVERY ADDRESS
CITY
STATE
ZIP
PHONE NUMBER
PURCHASE ORDER NUMBER
MANIFEST NUMBER 14023

SHIPPING INFORMATION

This is to certify that the below named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

NO.	TYPE	QTY.	UNIT	US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	SALES REPRESENTATIVE

SERVICE SECTION

SALES CODE	DESCRIPTION	WASTE CODE	QUANTITY	UNIT PRICE	Building	Drums	Gallons
40500	USED OIL REMOVAL				1221	1	20
40300	ANTI-FREEZE REMOVAL						
40600	USED OIL FILTER REMOVAL				1700	1	25
40501	OILY-WATER DISPOSAL	TD72	220	gallons			
40502	SLUDGE DISPOSAL				400	1	25
41001	GASOLINE/WATER						
41501	DRUM DISPOSAL				949	1	30
41504	TANK ENTRY						
40800	PARTS WASHER SERVICE				979	1	20
41500	TRUCK & OPERATOR						
41511	NEW 55 GAL DRUM /17H				286	1	30
41503	QAQC ANALYTICAL TESTING						
42001	DEXSIL TEST KIT	TAX			2018	1	25
41509	TRANSPORTATION				977	1	25
					2021A	1	20

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT SECTION.
INVOICES REFLECTING CHARGES TO CUSTOMER ARE SUBJECT TO AN INTEREST RATE OF THE LESSER OF 1 1/2% PER MONTH (18% PER ANNUM) OR THE MAXIMUM RATE ALLOWED BY LAW ON ANY INVOICES THAT ARE NOT PAID WITHIN 30 DAYS. IN THE EVENT OF DEFAULT, LORCO SHALL BE ENTITLED TO RECOVER COSTS OF COLLECTION, INCLUDING REASONABLE ATTORNEY'S FEES.
GENERATOR WARRANTS AND REPRESENTS THAT THE MATERIALS PROVIDED LORCO HEREUNDER HAVE NOT BEEN MIXED, COMBINED, OR OTHERWISE BLENDED IN ANY QUANTITY WITH MATERIALS CONTAINING POLYCHLORINATED BIPHENYLS (PCB) OR ANY OTHER MATERIAL DEFINED AS HAZARDOUS WASTE UNDER APPLICABLE LAWS, INCLUDING BUT NOT LIMITED TO 40 CFR PART 261. GENERATOR AGREES TO INDEMNIFY AND HOLD LORCO HARMLESS FOR ANY DAMAGES, COSTS, ATTORNEY'S FEES, ETC. ARISING OUT OF OR IN ANY WAY RELATED TO A BREACH OF THE ABOVE WARRANTY BY THE GENERATOR.

Generator certifies that the waste is TD72
In accordance the N.J.A.C. 7:26-12.1 et seq, LORCO has the required permits to accept the above described waste.

DEEPA M. DESAI
Print Name
R. L. R. 6.1.98
Signature Date
GENERATOR/CUSTOMER

SMALL QUANTITY TOTAL
GENERATOR CERTIFICATION

I certify that this generator generates less than 100 kilograms of hazardous waste per month, as defined at 40 C.F.R. 261, and does not accumulate more than 1,000 kilograms of such waste during the month.

[Signature]
GENERATOR'S SIGNATURE

LARGE QUANTITY GENERATOR CERTIFICATION

DEXSIL CDT
TEST RESULTS
2100
TA PPM

Total → 9 → 220 gallons

PAYMENT RECEIVED SECTION

CASH ☐	TOTAL RECEIVED
CHECK NUMBER	

CUSTOMER SERVICED EVERY 30 DAYS

In accordance with 40 CFR 266 § 43(5) LORCO has notified the US EPA of its location and used oil management activities

Anibal Lucero
Print Name
[Signature]
Signature Date
LORCO REPRESENTATIVE



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

NON-HAZARDOUS
WASTE MANIFEST

1. Generator's US EPA ID No.

NJ3210020597

Manifest
Document No.

14073

2. Page 1

of 1

NHZ 014023

3. Generator's Name and Mailing Address

U.S. Army Communications Electronics Command
Main Post, Bldg. 173 Joe Fallon BTR: SCLEM-PW-ER

4. Generator's Phone

(732) 532-6223 Fort Monmouth, NJ 07703

Suma

5. Transporter 1 Company Name

LIONETTI OIL RECOVERY CO INC

6. US EPA ID Number

NJ D 0 8 4 0 4 4 0 6 4

A. Transporter's Phone

908 721-0900

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

LIONETTI OIL RECOVERY CO INC DBA LORCO PETROLEUM SVCS
RUNYON&CHEESEQUAKE RDS
OLD BRIDGE, NJ 08857

10. US EPA ID Number

NJ D 0 8 4 0 4 4 0 6 4

C. Facility's Phone

908 721-0900

11. Waste Shipping Name and Description

12. Containers

No.

Type

13. Total
Quantity14. Unit
Wt/Vola. PETROLEUM OIL (PETROLEUM OIL)
COMBUSTIBLE LIQUID UN1270 PGIII

0 0 1 T 1220 G

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

T, L PETROLEUM OIL 90 %
WATER 10 %

E. Handling Codes for Wastes Listed Above

T04 FILTRATION

15. Special Handling Instructions and Additional Information

24 HR EMERGENCY RESPONSE#(908) 721-0900
DECAL 87066 ERG#128 DEXSIL TEST KIT RESULTS 4000PM
MANIFEST USED FOR TRACKING PURPOSES ONLY

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

Printed/Typed Name

DINKER, M. DESAI

Signature

[Signature]

Month Day Year

06/01/98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Anibal Vazquez

Signature

[Signature]

Month Day Year

06/01/98

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

ORIGINAL RETURN TO GENERATOR

F 1
K 2
F 3
K 4
F 5
K 6
F 7
K 8
F 9
K 10
F 11
K 12
F 13
K 14
F 15
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F 99
K 100

APPENDIX D
UST DISPOSAL CERTIFICATE

MAZZA & SONS, INC.

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

NO. _____

DATE. 6 June 88

Customer's Name SMC ENR

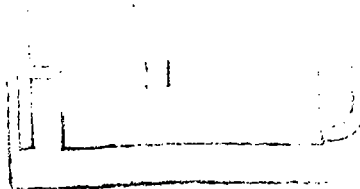
Address _____

Weight	Price
Cast Iron	
Steel	
Lt. Iron	21.00
Copper #1	
Copper #2	

13840 LB

13140 LB

700



Weight	Price
Lt. Copper	
Brass	
Alum Clean	
Lead	
Stainless	
Battery	
	\$ 21.00
TOTAL AMOUNT:	

Weigher _____

Customer TK

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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
98-0779
Bldg. 2021A
Tetra Tech - BRAC

Project # 3602
Date Rec. 05/29/98
Date Compl. 05/30/98
Released by:



Daniel K. Wright
Laboratory Director

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MS/MSD Results Summary	11
Quality Control Spike Summary	12
Raw Sample Data	13-26
Laboratory Deliverable Checklist	27

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.

No Yes

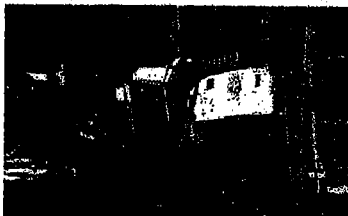
Year	Percentage of Population Aged 65 and Over
1950	7%
1960	10%
1970	12%
1980	14%
1990	16%
2000	18%

NA

1

Laboratory Authentication Statement

Daniel K. Wright
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

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

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

NJDEP Certification #13461

Chain of Custody Record

Customer: Charles Appleby				Project No: 98-0779, UST Gen.		Analysis Parameters						Comments:				
Phone #: X26224				Location: Building 2021 A												
() DERA (X) OMA () Other: _____																
Samplers Name / Company : Dave Daniels (SMC)					Sample #	TPHC	% SOLIDS	H-Nu readings (ppm)				Remarks / Preservation Method				
Lab Sample I.D.	Sample Location	Date	Time	Type	bottles											
3602 01	2021A - N (5')	5-29-98	11:00	Soil	1	X	✓			0			Ice			
02	2021A - PP (5')		11:05							0						
03	2021A - V (5')		11:10							0						
04	2021A - W (5')		11:15							0						
05	2021A - W2 (5')		11:20							0						
06	2021A - S (5')		11:25							0						
07	2021A - E (5')		11:30							0						
Relinquished by (signature):					Date/Time:		Received by (signature):				Relinquished by (signature):		Date/Time:		Received by (signature):	
<i>Dave Daniels</i>					5-29-98 1200		<i>D. Daniels</i>									
Relinquished by (signature):					Date/Time:		Received by (signature):				Relinquished by (signature):		Date/Time:		Received by (signature):	
Report Type: () Full, (X) Reduced, () Standard, () Screen / non-certified						Remarks: H-Nu Calibration → zero gas = 0.0 ppm										
Turnaround time: () Standard 4 wks, (X) Rush _____ Days, (X) ASAP Verbal _____ Hrs.						calibration gas = 100 ppm at setting 2.80										

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

Client : U.S. Army **Lab. ID # :** 3602
 DPW. SELFM-PW-EV **Date Rec'd:** 29-May-98
 Bldg. 173 **Analysis Start:** 29-May-98
 Ft. Monmouth, NJ 07703 **Analysis Complete:** 30-May-98

Analysis: OQA-QAM-025 **UST Reg. #:**
Matrix: Soil **Closure #:**
Analyst: D.DEINHARDT **DICAR #:**
Ext. Meth: Shake **Location #:** BLDG. 2021A

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3602.01	2021A-N	1.00	15.85	87.30	170	ND
3602.02	2021A-PP	1.00	15.62	87.48	172	ND
3602.03	2021A-V	1.00	15.20	86.70	178	ND
3602.04	2021A-W	1.00	15.48	86.66	175	ND
3602.05	2021A-W2	1.00	15.55	86.51	175	ND
3602.06	2021A-S	1.00	15.69	86.84	172	ND
3602.07	2021A-E	1.00	15.70	86.67	173	ND
METHOD BLANK	TBLK 106	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\TPH39.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue May 19 15:34:03 1998

Calibration Files

100 =T05526.D 50 =T05527.D 20 =T05528.D
10 =T05529.D 5 =T05530.D

Compound			100	50	20	10	5	Avg	%RSD
1)	tC	C8	1.958	1.975	2.011	2.071	1.926	1.988 E4	2.79
2)	tC	C10	2.069	2.058	2.193	2.312	2.174	2.161 E4	4.81
3)	TC	C12	2.254	2.233	2.370	2.472	2.329	2.332 E4	4.11
4)	tC	C14	2.337	2.331	2.485	2.610	2.451	2.443 E4	4.73
5)	tC	C16	2.387	2.397	2.569	2.720	2.584	2.532 E4	5.54
6)	tC	C18	2.803	2.743	3.003	3.143	2.980	2.934 E4	5.50
7)	tC	C20	2.619	2.636	2.835	2.987	2.838	2.783 E4	5.57
8)	tC	C22	2.581	2.604	2.802	2.948	2.817	2.750 E4	5.64
9)	tC	C24	2.625	2.650	2.858	2.993	2.852	2.796 E4	5.55
10)	tC	C26	2.612	2.637	2.848	2.976	2.837	2.782 E4	5.54
11)	tC	C28	2.638	2.660	2.881	3.000	2.859	2.808 E4	5.52
12)	tC	C30	2.715	2.736	2.975	3.093	2.946	2.893 E4	5.62
13)	tC	C32	2.723	2.755	2.980	3.051	2.897	2.881 E4	4.91
14)	tC	C34	2.831	2.865	3.057	3.183	2.953	2.978 E4	4.84
15)	tC	C36	2.817	2.824	3.030	3.116	2.868	2.931 E4	4.59
16)	tC	C38	2.756	2.740	2.900	2.973	2.719	2.818 E4	3.99
17)	tC	C40	2.595	2.590	2.685	2.690	2.423	2.597 E4	4.16
18)	tC	c42	2.500	2.455	2.551	2.498	2.118	2.424 E4	7.20
19)	TC	Pristane	2.528	2.534	2.768	2.852	2.734	2.683 E4	5.42
20)	TC	Phytane	2.621	2.645	2.846	3.017	2.868	2.800 E4	5.91
21)	sC	o-terphenyl	3.189	3.203	3.453	3.648	3.452	3.389 E4	5.70
22)	tC	TPHC - total	2.962	2.952	3.297	3.530	3.773	3.303 E4	10.82

(#) = Out of Range
TPH39.M

Mon Jun 01 08:32:02 1998

Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980528\T05541.D
 Acq On : 29 May 98 8:38 am
 Sample : 50 PPM STANDARD
 Misc :
 IntFile : TPHCINT.E

Vial: 3
 Operator: DEINHARDT
 Inst : FID/TCD
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Tue May 19 15:34:03 1998
 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 : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 tC C8	19.881	20.140 E3	-1.3	102	-0.05
2 tC C10	21.611	21.310 E3	1.4	104	-0.03
3 TC C12	23.316	23.121 E3	0.8	104	-0.03
4 tC C14	24.428	23.954 E3	1.9	103	-0.03
5 tC C16	25.316	24.454 E3	3.4	102	-0.03
6 tC C18	29.342	28.175 E3	4.0	103	-0.03
7 tC C20	27.831	26.762 E3	3.8	102	-0.03
8 tC C22	27.503	26.306 E3	4.4	101	-0.03
9 tC C24	27.956	26.712 E3	4.4	101	-0.03
10 tC C26	27.822	26.565 E3	4.5	101	-0.03
11 tC C28	28.078	26.773 E3	4.6	101	-0.03
12 tC C30	28.930	27.539 E3	4.8	101	-0.03
13 tC C32	28.810	27.677 E3	3.9	100	-0.03
14 tC C34	29.779	28.814 E3	3.2	101	-0.04
15 tC C36	29.309	28.453 E3	2.9	101	-0.04
16 tC C38	28.175	28.049 E3	0.4	102	-0.05
17 tC C40	25.966	26.426 E3	-1.8	102	-0.06
18 tC c42	24.244	25.563 E3	-5.4	104	-0.07
19 TC Pristane	26.833	26.038 E3	3.0	103	-0.03
20 TC Phytane	27.995	26.832 E3	4.2	101	-0.03
21 sC o-terphenyl	33.891	32.584 E3	3.9	102	-0.03
22 tC TPHC - total	33.030	29.020 E3	12.1	98	2.41#

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980529\T05550.D Vial: 2
 Acq On : 29 May 98 5:25 pm Operator: DEINHARDT
 Sample : 50 ppm standard Inst : FID/TCD
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Tue May 19 15:34:03 1998
 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 : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 tC C8	19.881	20.144 E3	-1.3	102	-0.09
2 tC C10	21.611	21.970 E3	-1.7	107	-0.03
3 TC C12	23.316	23.817 E3	-2.1	107	-0.03
4 tC C14	24.428	24.786 E3	-1.5	106	-0.02
5 tC C16	25.316	25.387 E3	-0.3	106	-0.02
6 tC C18	29.342	30.016 E3	-2.3	109	-0.02
7 tC C20	27.831	27.785 E3	0.2	105	-0.03
8 tC C22	27.503	27.309 E3	0.7	105	-0.02
9 tC C24	27.956	27.693 E3	0.9	104	-0.02
10 tC C26	27.822	27.519 E3	1.1	104	-0.02
11 tC C28	28.078	27.797 E3	1.0	104	-0.02
12 tC C30	28.930	28.579 E3	1.2	104	-0.02
13 tC C32	28.810	28.774 E3	0.1	104	-0.02
14 tC C34	29.779	29.874 E3	-0.3	104	-0.03
15 tC C36	29.309	29.326 E3	-0.1	104	-0.03
16 tC C38	28.175	28.629 E3	-1.6	104	-0.03
17 tC C40	25.966	26.642 E3	-2.6	103	-0.04
18 tC c42	24.244	24.188 E3	0.2	99	-0.05
19 TC Pristane	26.833	26.583 E3	0.9	105	-0.02
20 TC Phytane	27.995	27.878 E3	0.4	105	-0.03
21 sC o-terphenyl	33.891	33.743 E3	0.4	105	-0.02
22 tC TPHC - total	33.030	30.984 E3	6.2	105	2.42#

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

Surrogate Recovery Report

Lab. ID #: 3602

Location #: BLDG. 2021A

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3602.01		10.00	10.62	106.22
3602.02		10.00	11.14	111.37
3602.03		10.00	10.46	104.62
3602.04		10.00	10.53	105.27
3602.05		10.00	10.59	105.85
3602.06		10.00	10.59	105.91
3602.07		10.00	10.76	107.59
METHOD BLANK	TBLK 106	10.00	10.79	107.89

Surrogate Added : o-Terphenyl

6/1/98

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

Matrix Spike Recovery Report

Lab. ID #: 3602

Location #: BLDG. 2021A

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3597.01MS	1000	190.00	1216.06	102.61	75-125
3597.01MSD	1000	190.00	1274.33	108.43	75-125

RPD	5.52	20.00
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6/1/98

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

Blank Spike Recovery Report

Lab. ID #: 3602
Location #: BLDG. 2021A

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	29-May-98	1000	905.49	90.55	75-125

6/1/98

Data File : C:\HPCHEM\1\DATA\980529\T05553.D

Vial: 5

Acq On : 29 May 98 8:38 pm

Operator: DEINHARDT

Sample : 3602.01

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: May 29 21:05 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound

R.T.

Response

Conc Units

System Monitoring Compounds

21) sC o-terphenyl	13.91	360006	10.622 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	106.22%#

Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05553.D

Vial: 5

Acq On : 29 May 98 8:38 pm

Operator: DEINHARDT

Sample : 3602.01

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: May 29 21:05 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

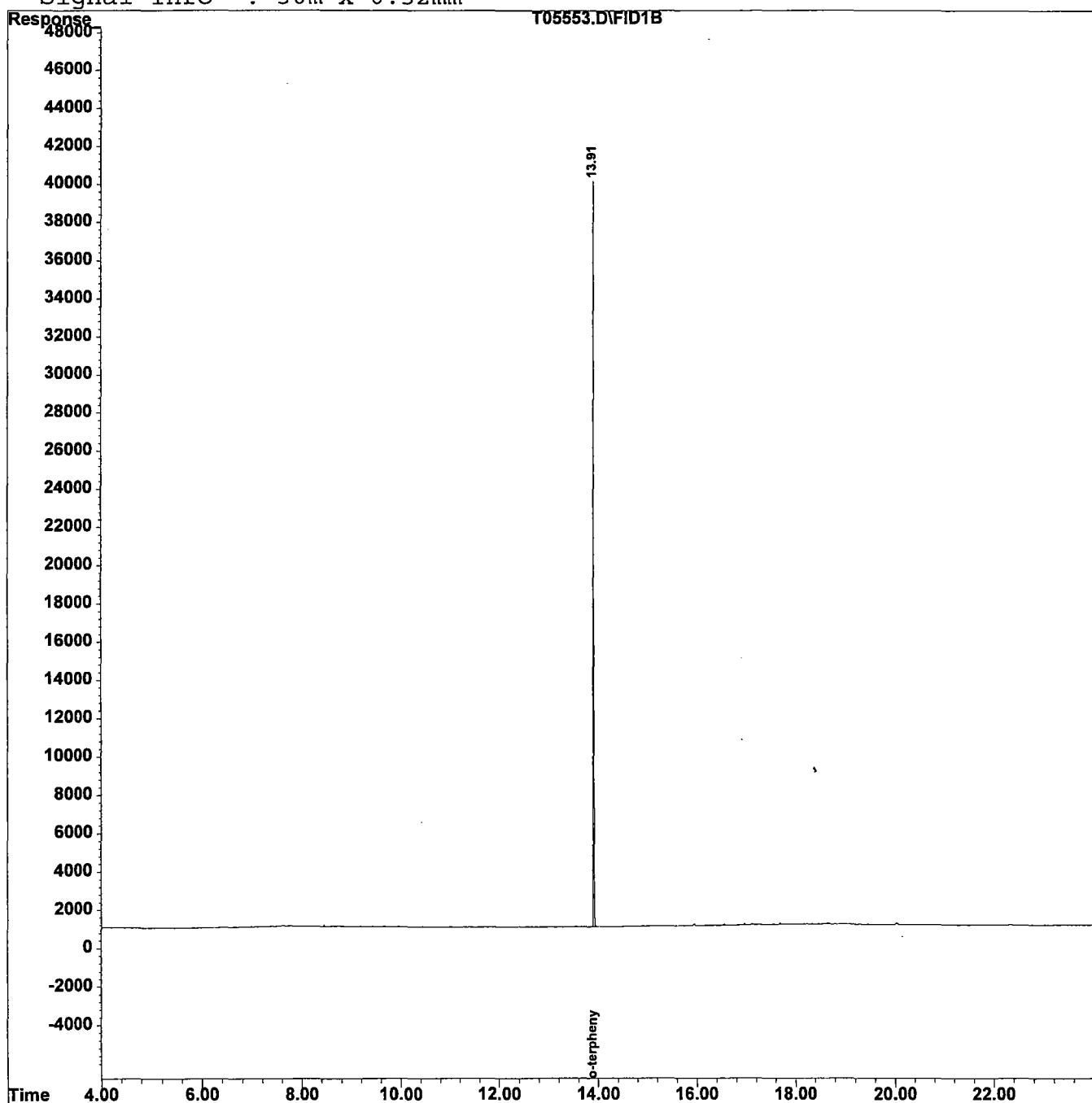
Response via : Multiple Level Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



Data File : C:\HPCHEM\1\DATA\980529\T05554.D

Vial: 6

Acq On : 29 May 98 9:38 pm

Operator: DEINHARDT

Sample : 3602.02

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: May 29 22:05 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound

R.T.

Response

Conc Units

System Monitoring Compounds

21) sC o-terphenyl	13.91	377447	11.137 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	111.37%#

Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05554.D

Vial: 6

Acq On : 29 May 98 9:38 pm

Operator: DEINHARDT

Sample : 3602.02

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: May 29 22:05 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

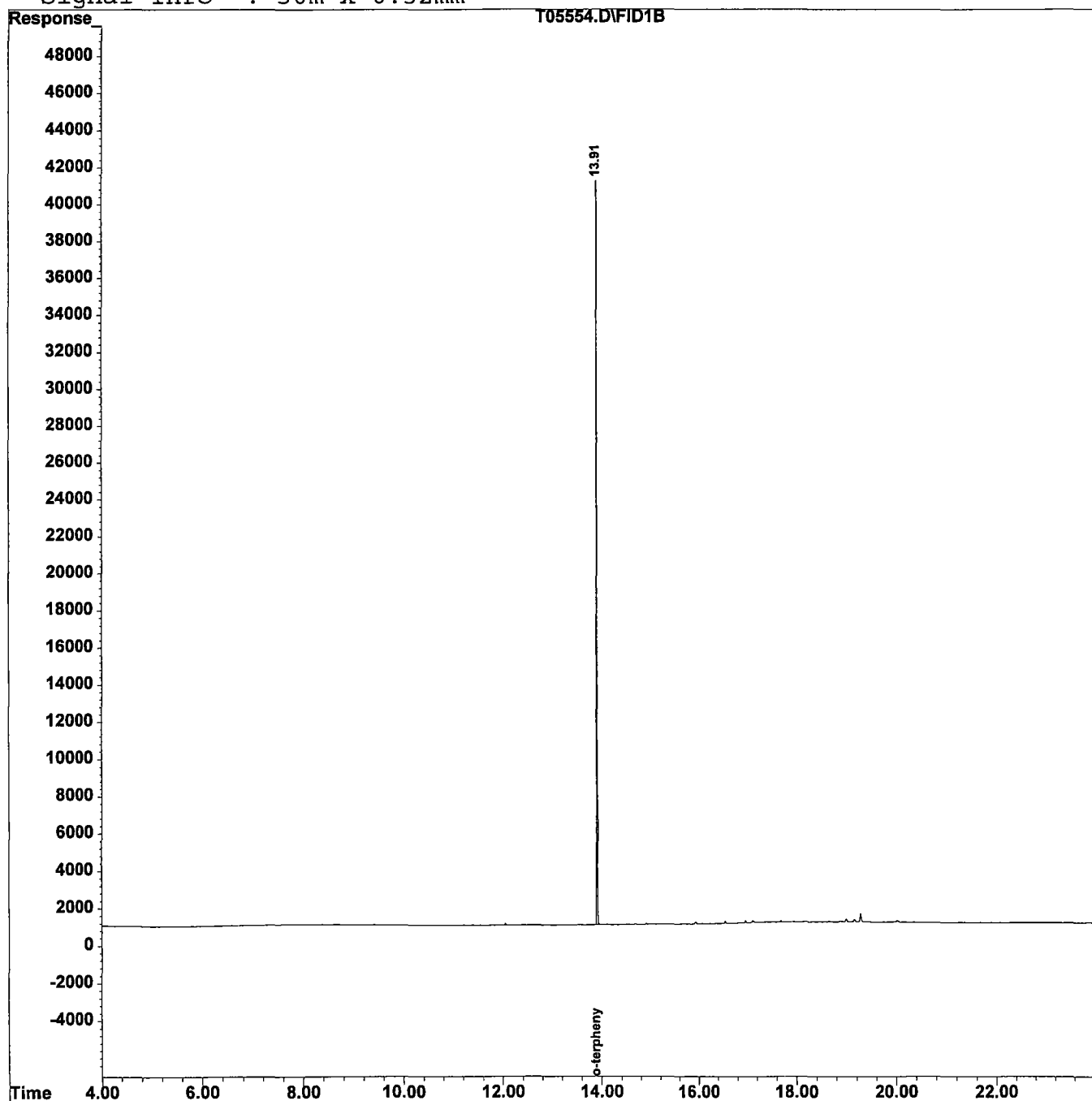
Response via : Multiple Level Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



Data File : C:\HPCHEM\1\DATA\980529\T05555.D

Vial: 7

Acq On : 29 May 98 10:36 pm

Operator: DEINHARDT

Sample : 3602.03

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:13 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
21) sC o-terphenyl	13.91	354568	10.462 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	104.62%#

Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05555.D

Vial: 7

Acq On : 29 May 98 10:36 pm

Operator: DEINHARDT

Sample : 3602.03

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:13 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

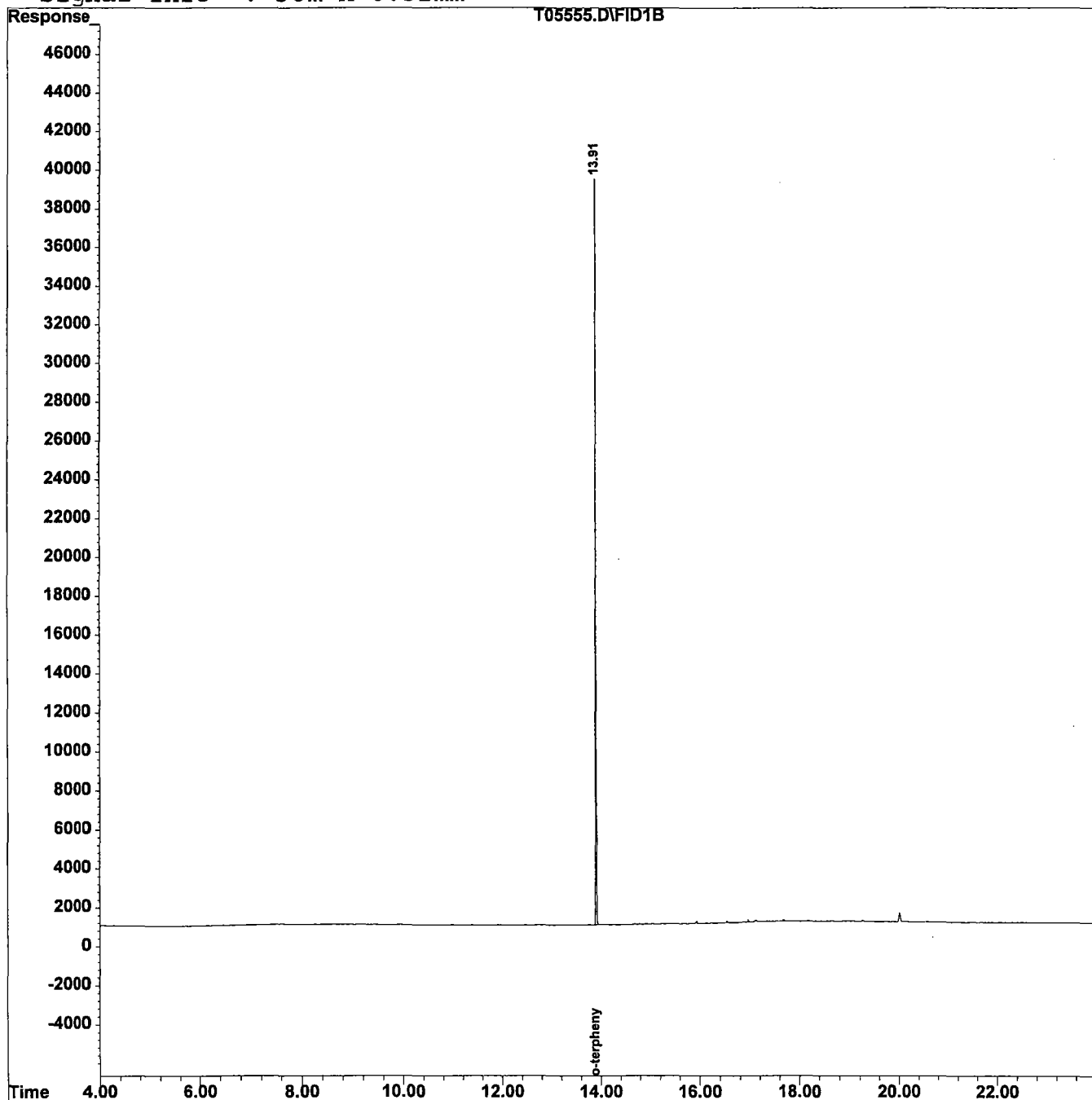
Response via : Multiple Level Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



Data File : C:\HPCHEM\1\DATA\980529\T05556.D

Vial: 8

Acq On : 29 May 98 11:33 pm

Operator: DEINHARDT

Sample : 3602.04

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:13 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound

R.T.

Response

Conc Units

System Monitoring Compounds

21) sC o-terphenyl	13.91	356775	10.527 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	105.27%#

Target Compounds

Quantitation Report

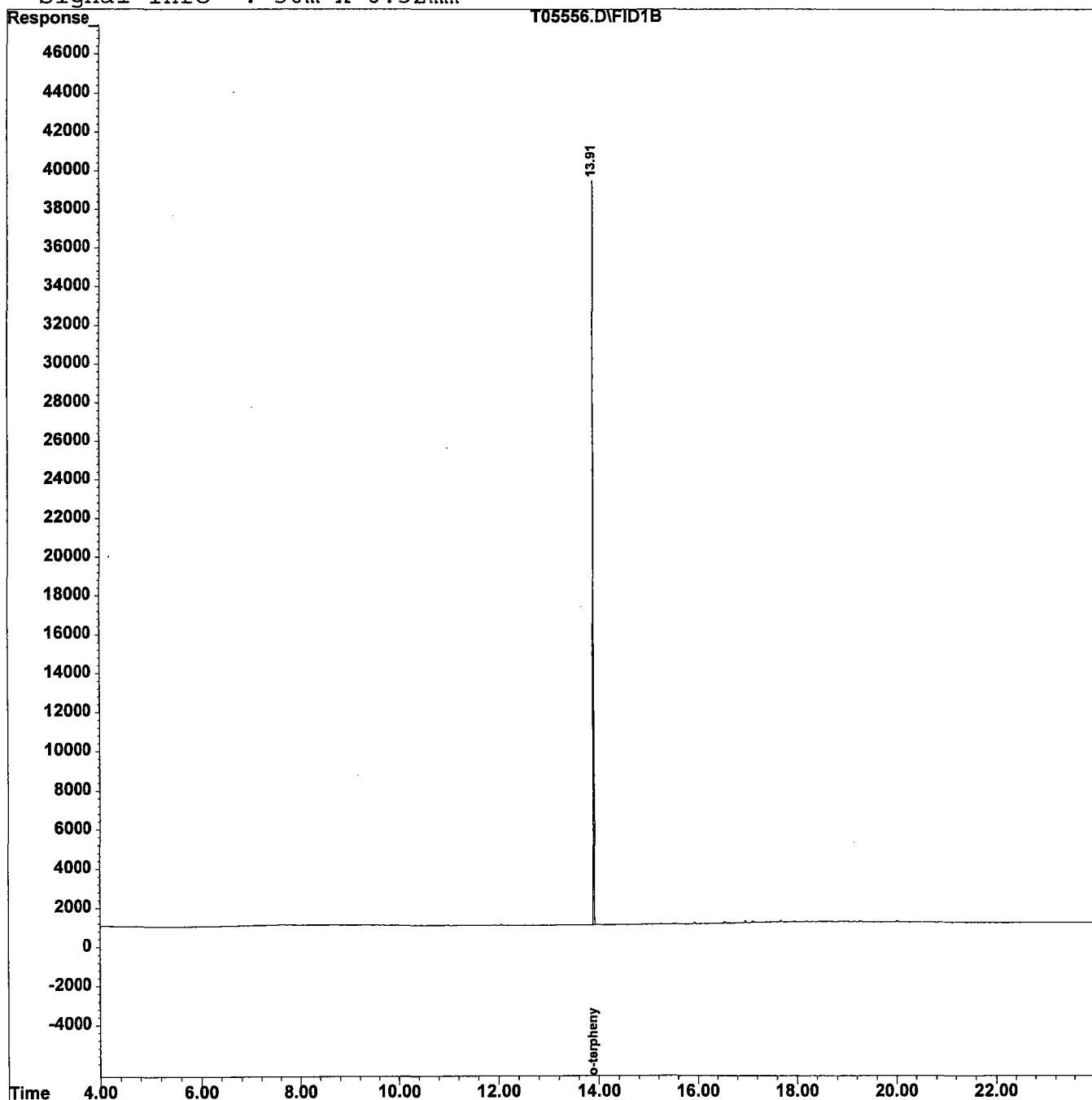
Data File : C:\HPCHEM\1\DATA\980529\T05556.D
 Acq On : 29 May 98 11:33 pm
 Sample : 3602.04
 Misc :
 IntFile : TPHCINT.E
 Quant Time: Jun 1 8:13 1998

Vial: 8
 Operator: DEINHARDT
 Inst : FID/TCD
 Multiplr: 1.00

Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Tue May 19 15:34:03 1998
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH39.M

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



21

Data File : C:\HPCHEM\1\DATA\980529\T05557.D

Vial: 9

Acq On : 30 May 98 12:30 am

Operator: DEINHARDT

Sample : 3602.05

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:13 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound

R.T.

Response

Conc Units

System Monitoring Compounds

21) sC o-terphenyl	13.91	358756	10.585 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	105.85%#

Target Compounds

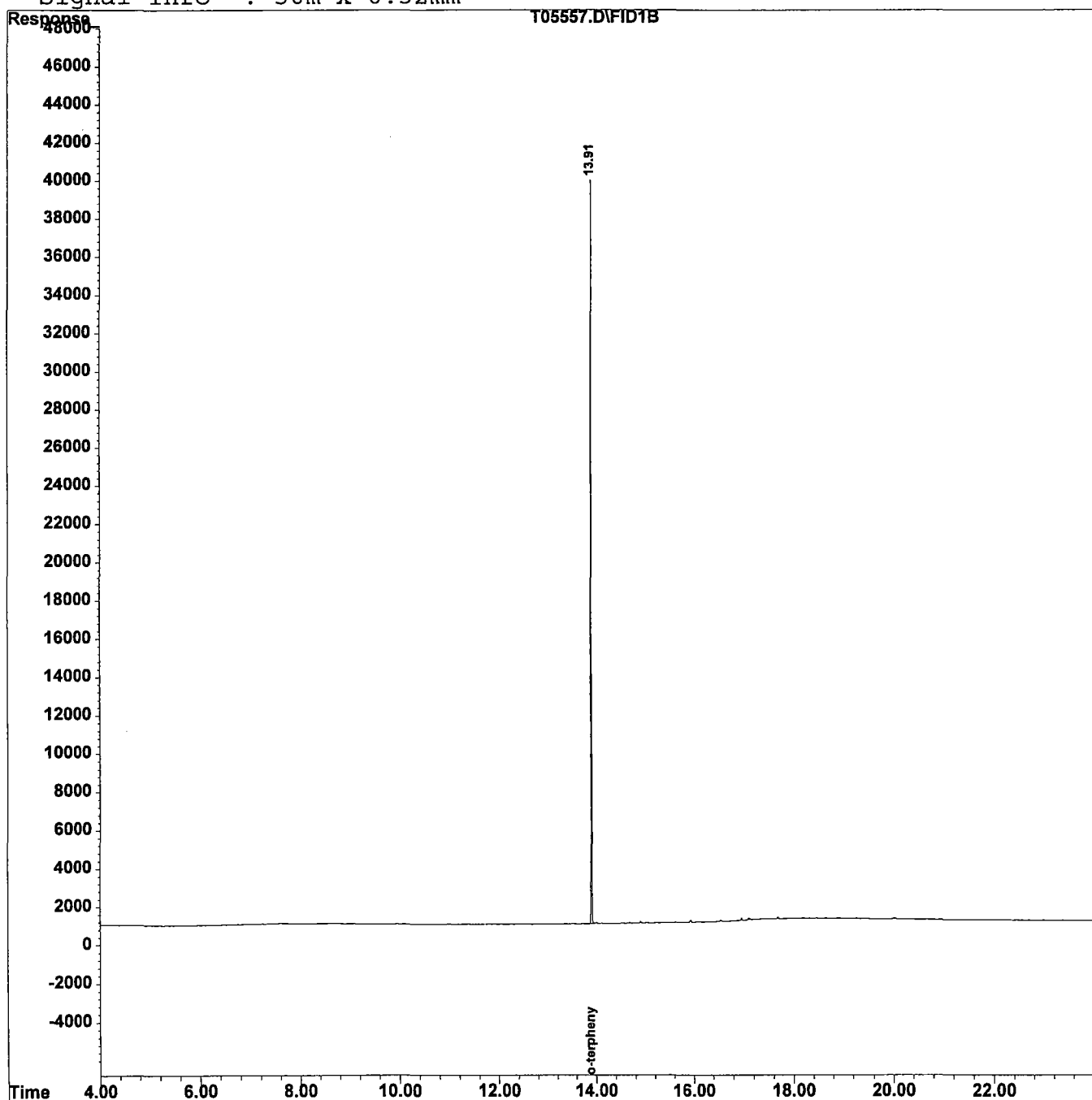
Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05557.D
 Acq On : 30 May 98 12:30 am
 Sample : 3602.05
 Misc :
 IntFile : TPHCINT.E
 Quant Time: Jun 1 8:13 1998 Quant Results File: TPH39.RES

Vial: 9
 Operator: DEINHARDT
 Inst : FID/TCD
 Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Tue May 19 15:34:03 1998
 Response via : Multiple Level Calibration
 DataAcq Meth : TPH39.M

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



Data File : C:\HPCHEM\1\DATA\980529\T05558.D

Vial: 10

Acq On : 30 May 98 1:26 am

Operator: DEINHARDT

Sample : 3602.06

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:14 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound	R.T.	Response	Conc Units

System Monitoring Compounds			
21) sC o-terphenyl	13.91	358931	10.591 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery	= 105.91%#

Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05558.D

Vial: 10

Acq On : 30 May 98 1:26 am

Operator: DEINHARDT

Sample : 3602.06

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:14 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

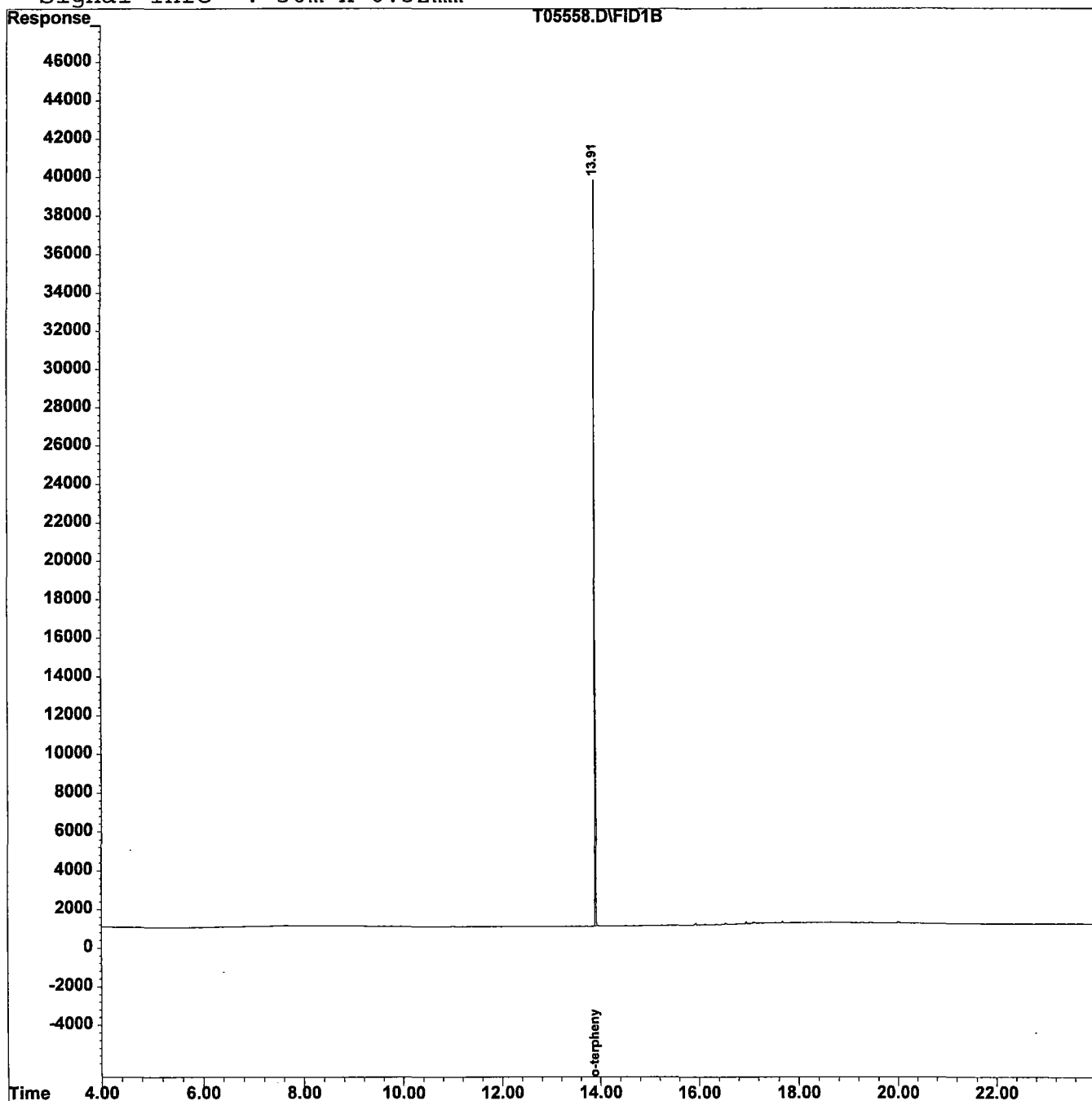
Response via : Multiple Level Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



Data File : C:\HPCHEM\1\DATA\980529\T05559.D

Vial: 11

Acq On : 30 May 98 2:21 am

Operator: DEINHARDT

Sample : 3602.07

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:14 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

Response via : Initial Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm

Compound

R.T.

Response

Conc Units

System Monitoring Compounds

21) sC o-terphenyl	13.91	364637	10.759 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	107.59%#

Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980529\T05559.D

Vial: 11

Acq On : 30 May 98 2:21 am

Operator: DEINHARDT

Sample : 3602.07

Inst : FID/TCD

Misc :

Multiplr: 1.00

IntFile : TPHCINT.E

Quant Time: Jun 1 8:14 1998 Quant Results File: TPH39.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH39.M (Chemstation Integrator)

Title : TPHC Calibration 06/05/97 21 peaks

Last Update : Tue May 19 15:34:03 1998

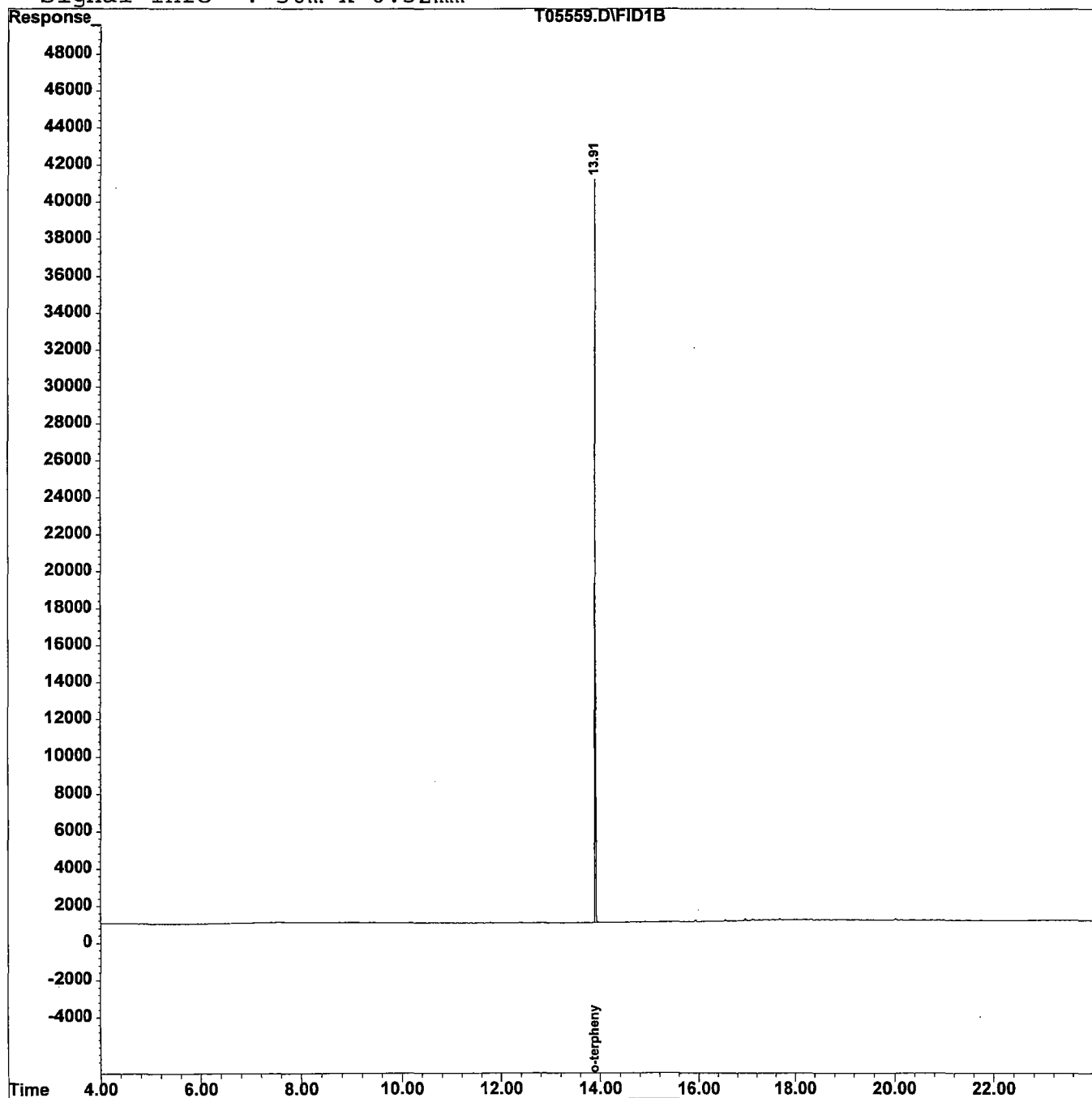
Response via : Multiple Level Calibration

DataAcq Meth : TPH39.M

Volume Inj. : 1 ul

Signal Phase : HP-5

Signal Info : 30m x 0.32mm



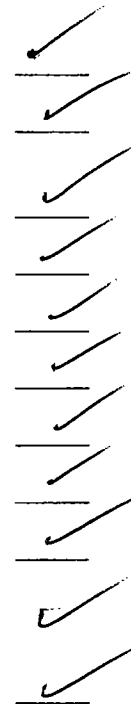
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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



Laboratory Manager or Environmental Consultant's Signature

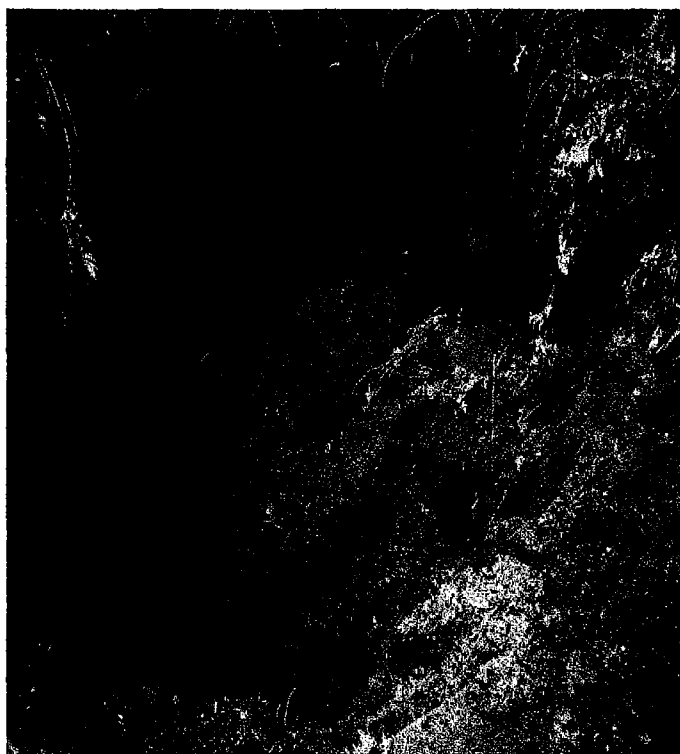
Date 6/15/96

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



May 28, 1998

PHOTOGRAPHIC LOG

UST NO. 192486-35

Building 2021A

Charles Wood-East

Fort Monmouth



**SMC ENVIRONMENTAL
SERVICES GROUP**

Engineers, Managers, Scientists & Planners
VALLEY FORGE, PA.