United States Army
Fort Monmouth, New Jersey

COPY

Underground Storage Tank Closure and Site Investigation Report

Building 2275
Charles Wood Area

NJDEP UST Registration No. 81515-12

April 1998

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 2275

CHARLES WOOD AREA
NJDEP UST REGISTRATION NO. 81515-12

APRIL 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. 2429-3080

2275.DOC

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

UST Closure

On June 20, 1997, a fiberglass-coated steel underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) closure procedures at the Charles Wood area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 81515-12 (Fort Monmouth ID No. 2275), was located south of Building 2275 in the Charles Wood area of U.S. Army, Fort Monmouth. UST No. 81515-12 was a 1,000-gallon No. 2 fuel oil UST. The UST fill port was located directly above the tank.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*, except three additional samples were obtained from contaminated soil which was separated and removed from the excavation area. These samples (G, H, and I) are not considered post-excavation sampling results. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST; however, stained soil was observed beneath coarse sand at 7.5 feet below ground surface (bgs). Approximately five cubic yards of contaminated soil were sampled and removed from the excavation area. Post-excavation samples were collected on June 20, 1997 and contained levels of total petroleum hydrocarbons (TPHC) ranging in concentration from non-detect to 724.76 mg/kg. OVA readings for the post-excavation samples ranged from non-detect to 5 ppm. Perched water encountered at 6.0 feet bgs did not exhibit a sheen.

Site Restoration

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with native topsoil 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. 81515-12 at Building 2275.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81515-12, was closed at Building 2275 at the Charles Wood area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on June 20, 1997. Refer to site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a fiberglass-coated steel 1,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 81515-12 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. 81515-12 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST). The NJDEP-BUST Standard Reporting Form and signed Site Assessment Summary form for UST No. 81515-12 are included in Appendices A and B, respectively.

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

This UST Closure and Site Investigation Report has been prepared by SMC Environmental Services Group, to assist the U.S. Army DPW in complying with the NJDEP-BUST regulations. The applicable NJDEP-BUST regulations at the date of closure were the *Interim Closure Requirements for Underground Storage Tank Systems* (N.J.A.C. 7:14B-1 et seq. October 1990 and revisions dated November 1, 1991).

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

1.2 SITE DESCRIPTION

Building 2275 is located in the Charles Wood area of the Fort Monmouth Army Base. UST No. 81515-12 was located south of Building 2275 and appurtenant copper piping ran approximately seven feet north from the excavation to Building 2275. The fill port area was located directly above the tank. 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 2275. 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. More than 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 2275 is located approximately 200 feet west of an unnamed stream which 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 2275 is anticipated to be to the northeast.

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 hole was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 35 gallons of liquid from the UST and its piping were transported to the Fort Monmouth waste oil holding facility. Refer to Appendix C for a copy of 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. Stained soil with an odor was observed beneath coarse sand at 7.5 feet bgs. The stained soil had OVA readings between 20 and 25 ppm. Soil screening was also performed along the piping associated with the UST. No contamination was noted anywhere along the piping length. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

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

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

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

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on visual observations, approximately five cubic yards of contaminated soil were removed from the UST excavation. The contaminated soil had OVA readings ranging from 20 to 25 ppm. All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Perched water encountered did not exhibit a sheen.

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. Three additional samples were obtained from the contaminated soil which was removed from the excavation area. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Site Investigation Activities.

- Subsurface Evaluator: Eugene W. Lesinski
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (732) 532-0989
  NJDEP Certification No.: 0014537

- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory
  Contact Person: Daniel K. Wright
  Phone Number: (732) 532-4359
  NJDEP Company Certification No.: 13461

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Contaminated soil was identified beneath coarse sand at 7.5 feet bgs. The contaminated soil had OVA readings between 20 and 25 ppm and was visibly stained. The contaminated soil was removed until no evidence of contamination was observed. Perched water with no sheen was encountered during the decommissioning activities.

2.3 SOIL SAMPLING

On June 20, 1997, following the UST removal, post-excavation soil samples A, B, C, D, E, F, G, H, I, J, K, L, M, and DUP B were collected from a total of thirteen locations of the UST excavation. Samples A, B, C, and DUP B were obtained along the centerline of the excavation at a depth of 7.0 feet bgs. Samples D and E were collected along the sidewall of the excavation at a depth of 5.5 feet bgs. Sample F was collected along the former piping length of the excavation, which was approximately seven feet in length. The piping sample was collected at a depth of 1.0 feet bgs.

Samples G, H, and I which had OVA readings of 20, 25, and 20 ppm, respectively, were obtained at a depth of 8.0 feet bgs from contaminated soil which was removed from the excavation area. Samples J, K, L, and M were obtained as confirmatory samples after the removal of the contaminated soil. Samples J and K were obtained along the excavation floor at a depth of 9.5 feet bgs. Samples L and M were obtained along the sidewalls at a depth of 8.0 feet bgs. All samples were analyzed for TPHC and percent solids.

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

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated piping, soil samples were collected from a total of thirteen locations on June 20, 1997. All samples were analyzed for TPHC and total solids, Of the thirteen samples collected, three samples were obtained from soil which was separated and removed from the excavation area. These samples (G, H, and I) are not considered post-excavation sampling results. 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 June 20, 1997 from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained levels of TPHC ranging in concentration from non-detect to 724.76 mg/kg.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 2275 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. 81515-12 at Building 2275.

TABLES

TABLE 1

SUMMARY OF EXCAVATION SAMPLING ACTIVITIES
BUILDING 2275, CHARLES WOOD AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
A	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
C	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
E	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
F	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
G	6/20/97	6/23/97	Soil	Excavation	TPHC	OQA-QAM-025
H	6/20/97	6/23/97	Soil	Excavation	TPHC	OQA-QAM-025
I	6/20/97	6/23/97	Soil	Excavation	TPHC	OQA-QAM-025
J	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
K	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
L	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
M	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP B	6/20/97	6/23/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 2

SOIL SAMPLING RESULTS
BUILDING 2275, CHARLES WOOD AREA
FORT MONMOUTH, NEW JERSEY

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg)*	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A/7.0'	2723.01	6/20/97	6/23/97	Total Solid	--	--	85.83 %	--	--
				TPHC	177	yes	ND	10,000	No
B/7.0'	2723.02	6/20/97	6/23/97	Total Solid	--	--	87.33 %	--	--
				TPHC	174	yes	ND	10,000	No
C/7.0'	2723.03	6/20/97	6/23/97	Total Solid	--	--	84.99 %	--	--
				TPHC	170	yes	ND	10,000	No
D/5.5'	2723.04	6/20/97	6/23/97	Total Solid	--	--	77.51 %	--	--
				TPHC	191	yes	623.19	10,000	No
E/5.5'	2723.05	6/20/97	6/23/97	Total Solid	--	--	85.99 %	--	--
				TPHC	166	yes	ND	10,000	No
F/1.0'	2723.06	6/20/97	6/23/97	Total Solid	--	--	88.01 %	--	--
				TPHC	168	yes	449.94	10,000	No
G/8.0'	2723.07	6/20/97	6/23/97	Total Solid	--	--	75.33 %	--	--
				TPHC	198	yes	8,295.14	--	--
H/8.0'	2723.08	6/20/97	6/23/97	Total Solid	--	--	83.12 %	--	--
				TPHC	170	yes	11,554.48	--	--
I/8.0'	2723.09	6/20/97	6/23/97	Total Solid	--	--	83.21 %	--	--
				TPHC	175	yes	11,014.50	--	--

Note:

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

TABLE 2

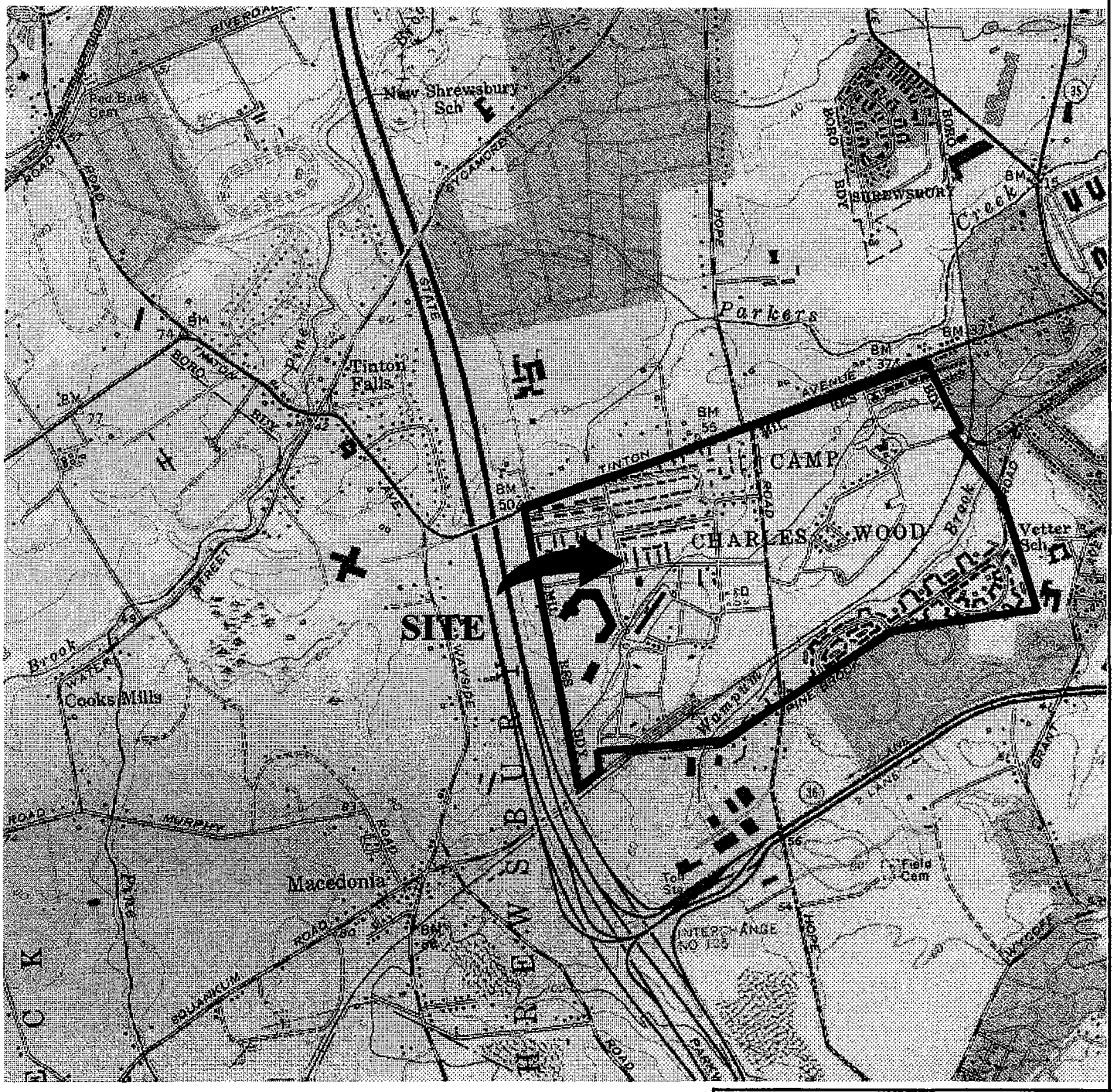
SOIL SAMPLING RESULTS
BUILDING 2275, CHARLES WOOD AREA
FORT MONMOUTH, NEW JERSEY

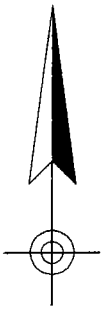
Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Method Detection Limit (mg/kg)	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
J/9.5'	2723.10	6/20/97	6/23/97	Total Solid	--	--	70.22 %	--	--
				TPHC	199	yes	ND	10,000	No
K/9.5'	2723.11	6/20/97	6/23/97	Total Solid	--	--	71.12 %	--	--
				TPHC	201	yes	ND	10,000	No
L/8.0'	2723.12	6/20/97	6/23/97	Total Solid	--	--	71.27 %	--	--
				TPHC	216	yes	724.76	10,000	No
M/8.0'	2723.13	6/20/97	6/23/97	Total Solid	--	--	77.54 %	--	--
				TPHC	189	yes	ND	10,000	No
DUP B/7.0'	2723.14	6/20/97	6/23/97	Total Solid	--	--	86.94 %	--	--
				TPHC	175	yes	ND	10,000	No

Note:

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

FIGURES





LONG BRANCH, NJ

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE -SERIES V822

Mapped, edited and published by the Geological Survey

FIGURE 1

SITE LOCATION MAP

Building 2275

Charles Wood Area

Fort Monmouth Army Base

Monmouth County, NJ

SMC Environmental Services Group

Engineers, Managers, Scientists, & Planners

Valley Forge, Pennsylvania

Scale:	**1"=2,000'**	Date:	**DEC 1997**

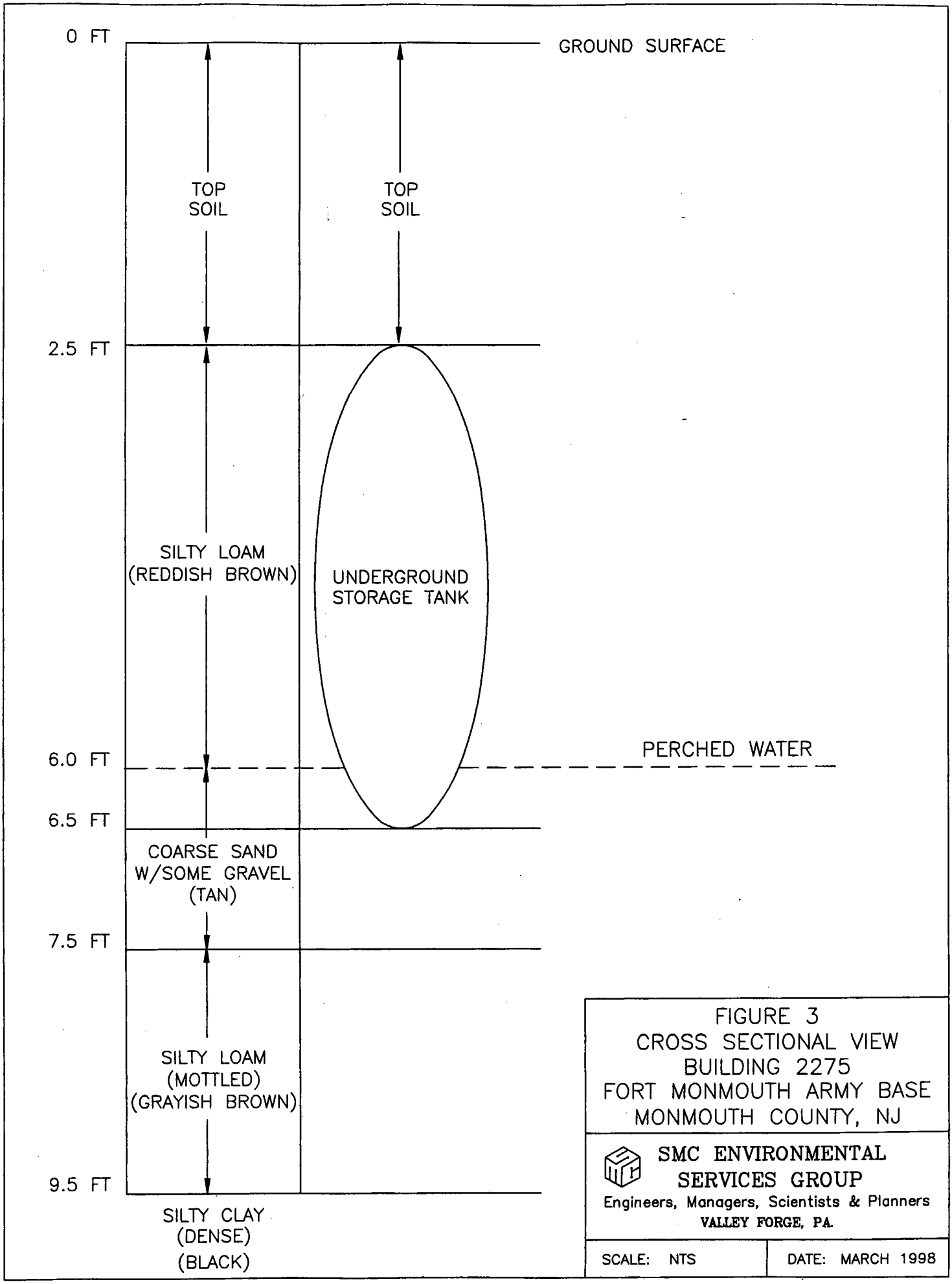


FIGURE 3
CROSS SECTIONAL VIEW
BUILDING 2275
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: NTS | DATE: MARCH 1998

2275 FIG

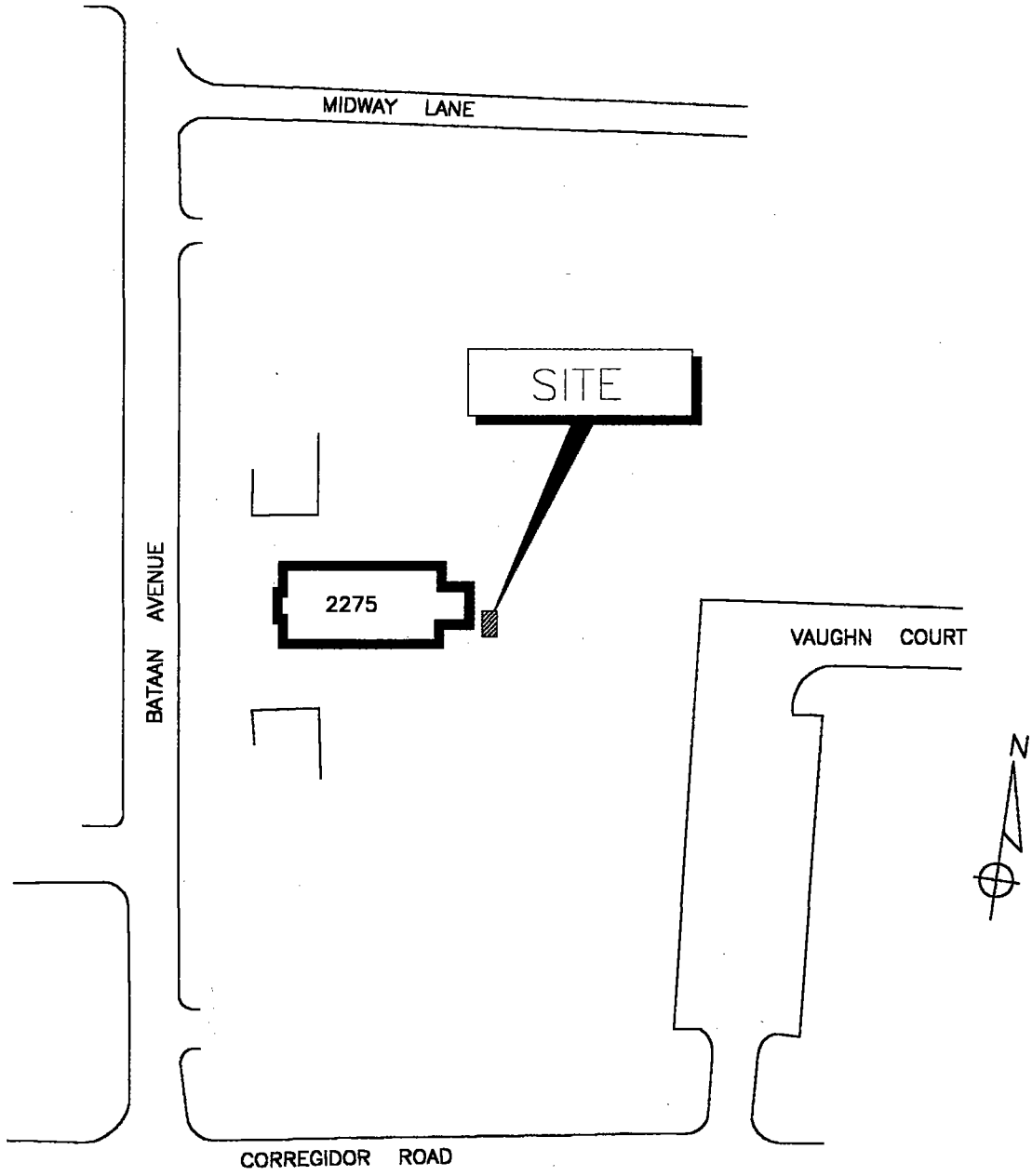
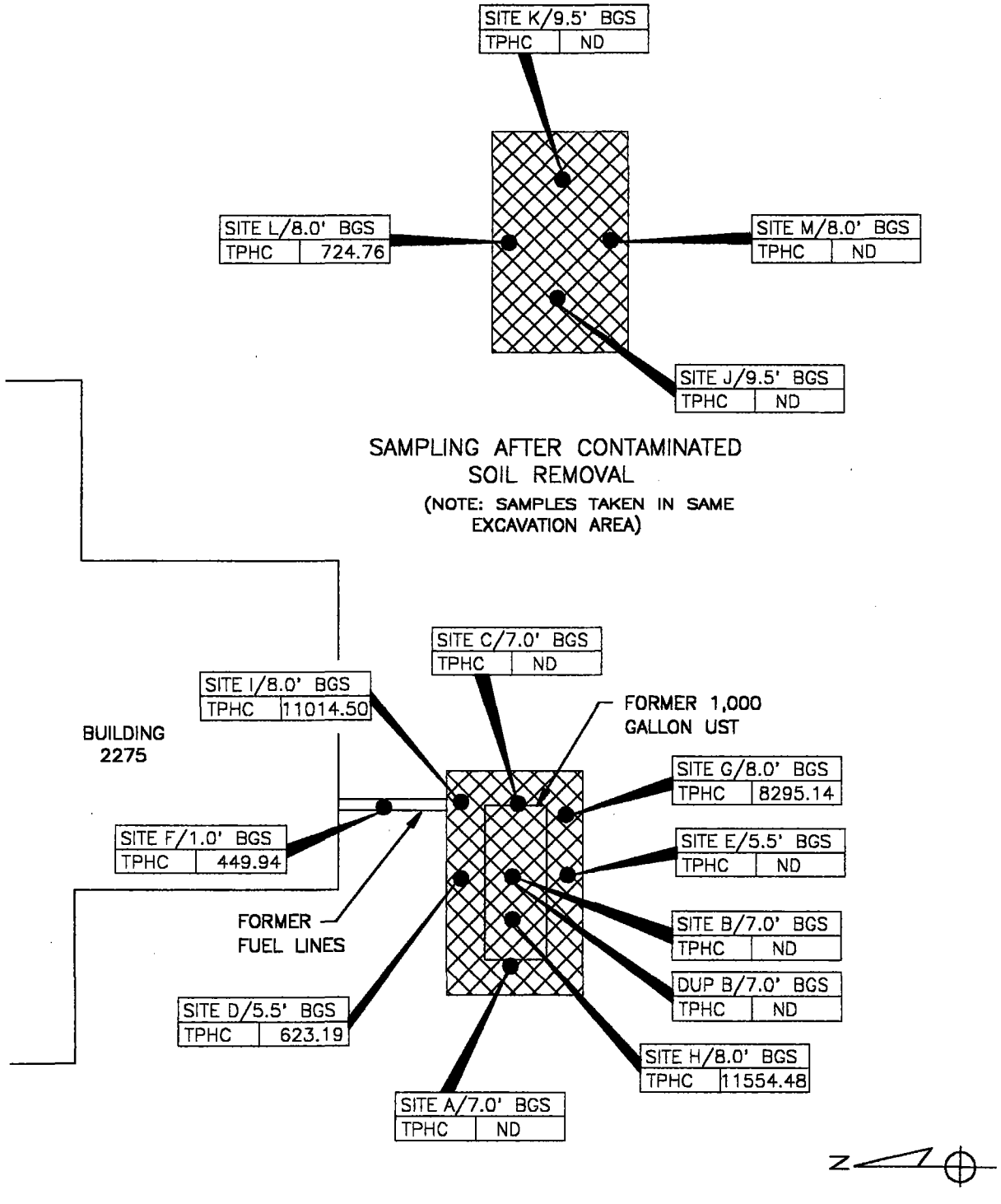


FIGURE 2
SITE MAP
BUILDING 2275
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100' | DATE: MARCH 1998

2275 2429 FIG2



LEGEND

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

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

FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 2275
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

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

2275 2429 FIG4

APPENDIX A

NJDEP STANDARD REPORTING FORM

Departme[nt] Environmental Protection and Ener[gy]
Divis[ion] of Responsible Party Site Remediation
CN 028
Trenton, NJ 08625-0029

ATTN: UST Program
(609) 984-3156

Date Rec'd.	
Auth.	
Routing	
UST NO.	

STANDARD REPORTING FORM
for reporting activities at an UST facility:

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

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

(More than one tank can be listed per activity)

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

Answer questions 1 through 5 and others as applicable.

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

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

3. Contact person for this activity: GENE LESINSKI
Telephone Number: (908) 532-0989

4. The identification number of the affected tank as it appears in Question Number 12 on the Registration Questionnaire: BLDG 2275 — 12

5. Registration Number (if known): UST - 0081515

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)

a. ☐ Abandonment Date: __/__/__

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: 6/20/97 Case No. _____

Attach the necessary implementation schedule (3 copies).

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

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

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

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

Tank No._____ Old _____ New _____

Tank No._____ Old _____ New _____

Tank No._____ Old _____ New _____

(Attach additional sheets if more space is needed)

9. For TRANSFER OF OWNERSHIP: Effective Date: __/__/__

a. New Owner (operator) _____

b. New Facility Name _____

_____

_____ NJ _____

_____

County

c. Closing Attorney _____ Tele: (___) ___-____

10. For SUBSTANTIAL MODIFICATIONS (to include any retrofitted activity – e.g. the addition of spill/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: 2/8/98

SW-UST

(IND/MOD-2/92)

APPENDIX B

SITE ASSESSMENT SUMMARY

UST-014
2/91

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

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Responsible Party Site Remediation
CN 029
TRENTON, N.J. 08625-0028

Scott A. Weiner
Commisioner

Tel. # 609-984-3156
Fax.# 609-292-5604

Karl J. Delaney
Director

UNDERGROUND STORAGE TANK SITE ASSESSMENT SUMMARY

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

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

INSTRUCTIONS:

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

Date of Submission: 7/27/98

Building No. 2275 UST No. 81515-12

0192477-1
Facility Registration #

1. FACILITY NAME AND ADDRESS:

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

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

Telephone No.

UST-014
2/91

II. DISCHARGE REPORTING REQUIREMENTS

A. Was contamination found ? ___X___Yes _____ No If Yes, Case No. Not Recorded
(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B. The substance(s) discharged was (were) _____No. 2 Fuel Oil_____

C. Have any vapor hazards been mitigated?_____Yes _____ No ___X___ N/A

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

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

IV. SITE ASSESSMENT REQUIREMENTS

A. Excavated Soil

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

B. Scaled Site Diagrams

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

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

C. Soil samples and borings (check appropriate answer)

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

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

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

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

D. Ground Water Monitoring

1. Number of ground water monitoring wells installed 0

2. Attach the analytical results of the ground water samples in tabular form. Include the following information for each sample from each well:

   a. Site diagram number for each well installed
   b. Depth of ground water surface
   c. Depth of screened interval
   d. Method detection limit of the method used
   e. Well logs
   f. Well permit numbers
   g. QA/QC Information as required

V. SOIL CONTAMINATION

A. Was soil contamination found? X Yes _____ No
If "Yes", please answer Question B-E
If "No", please answer Question B

B. The highest soil contamination still remaining in the ground has been determined to be:
1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. 724.76 ppm TPHC
4. N/A ppb N/A (for non-petroleum substance)

C. Remediation of free product contaminated soils

1. All free product contaminated soil on the property boundaries and above the water table are believed to have been removed from the subsurface. X Yes _____ No
2. Free product contaminated soils are suspected to exist below the water table. _____ Yes X No
3. Free product contaminated soils are suspected to exist off the property boundaries. ____Yes X No

D. Was the vertical and horizontal extent of contamination determined? X Yes _____ No _____ N/A

E. Does soil contamination intersect ground water? _____Yes X No _____ N/A

VI. GROUND WATER CONTAMINATION

A. Was ground water contamination found? _____ Yes X No
If "Yes", please answer Questions B-G.
If "No", please answer only Question B.

B. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be: N/A

1._____ppb total BTEX._____ppb total non-targeted VOC
2._____ppb total B/N._____ppb total non-targeted B/N
3._____ppb total MTBE._____ppb total TBA
4._____ppb_____(for non-petroleum substance)
5. greatest thickness of separate phase product found _____
6. separate phase product has been delineated _____Yes _____ No _____ N/A

C. Results (s) of well search

1. A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of Work. _____Yes _____No _____ N/A

2. The number of these wells identified is _____.

D. Proximity of wells and contaminant plume

1. The shallowest depth of any well noted in the well search which may be in the horizontal or vertical potential path(s) of the contaminant plume(s) is _____ feet below grade (consideration has been given for the effects of pumping, subsurface structures, etc. on the direction(s) of contaminant migration). This well is _____ feet from the source and its screening begins at a depth of _____ feet.

2. The shallowest depth to the top of the well screen for any well in the potential path of the plume(s) (as described in D1 above above) is _____ feet below grade. This well is located _____ feet from the source.

3. The closest horizontal distance of a private, commerical, or municipal well in the potential path of the plume (as determined in D1) is _____ feet from the source. This well is_____ feet deep and screening begins at a depth of _____ feet.

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

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

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. _____Yes _____ No

2. The plume is suspected to continue off the properly at concentrations greater than MCLs. _____Yes _____ No

3. Off property access (circle one): is being sought has been approved has been denied

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

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

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

NAME (Print or Type) Eugene Lesinski
SIGNATURE SEE ATTACHED SUB-SURFACE EVALUATOR LOG
COMPANY NAME U.S. Army Fort Monmouth DATE NA
(Preparer of Site Assessment Plan)

CERTIFYING ORGANIZATION NJDEP
CERTIFYING NUMBER 0014537

UST-014
2/91

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

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

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

COMPANY NAME _____ DATE _____
(Peformer of Tank Decommissioning)

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

A. The following certification shall be signed by the highest ranking individual with overall responsibility for that facility [N.J.A.C. 7:14B-2.3(c)1l].

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

NAME (Print or Type) James Ott SIGNATURE _____

COMPANY NAME U.S. Army Fort Monmouth DATE 7/27/98

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

1. For a corporation, by a principal executive officer of at least the level of vice president.
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency by either the principal executive officer or ranking elected official.
4. In cases where the highest ranking corporate partnership. governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made. In all other cases, the certifications of A and B shall be made.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) _____ SIGNATURE _____

COMPANY NAME _____ DATE _____

ARMY, SELFM-PW-

DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 2275 REG.#: 0081515 - 12 CLOSURE#: N/A

DATE: 6-20-95 TOA: 1000 TOD: 1400 - (I)

GOV. SSE: Lesinski NJDEP CERT.#: 061453

REMOVAL CONTRACTOR: ~~SAI Inc.~~ TUS

CLOSURE SUPERVISOR: DeMartinis NJDEP CERT.#: —

WEATHER: Cloudy - 85°F

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

CHECK ALL BOXES. LEAVE NO BLANKS

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

SIGNATURE: _____ DATE: 6-20-97

c:\ms\ust\removal\sitessls.doc

APPENDIX C

WASTE MANIFEST

LORCO PETROLEUM SERVICES

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

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NJ2210020978 | Manifest Document No. 04856 | 2. Page 1 of 1 | NHZ 004856

3. Generator's Name and Mailing Address
U.S. ARMY Communications Electronics Command
[redacted] Charles Wood Area c/o Joseph Fallon, Bldg. 173
ATTN: SELFM-PW-EV Fort Monmouth, N.J. 07703

2275

4. Generator's Phone (908) 532-0987

5. Transporter 1 Company Name: LIONETTI OIL RECOVERY CO INC | 6. US EPA ID Number: NJD084044064 | 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: NJD084044064 | C. Facility's Phone: 908 721-0900

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. PETROLEUM OIL(PETROLEUM OIL) COMBUSTIBLEL LIQUID UN1270 PGIII	001	T	TXX 535	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
T,L PETROLEUM OIL 99%
WATER 1 %

E. Handling Codes for Wastes Listed Above
T04 FILTRATION

15. Special Handling Instructions and Additional Information
24 HR EMERGENCY RESPONSE#(908) 721-0900 21,000
DECAL#7362 ERG#128 DEXSIL TEST KIT RESULTS [redacted] 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: EUGENE W LESINSKI | Signature | Month 06 Day 25 Year 97

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Richard Dirienzo | Signature | Month 06 Day 25 Year 97

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: EUGENE W LESINSKI EWL | Signature | Month 06 Day 25 Year 97

19. Discrepancy Indication Space
EWL

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

Printed/Typed Name: Richard LoBello | Signature | Month 06 Day 25 Year 97

GENERATOR

TRANSPORTER

FACILITY

ORIGINAL - RETURN TO GENERATOR

APPENDIX D

UST DISPOSAL CERTIFICATE

DATE	DISCOUNTS	AMOUNT	
TOTAL OF INVOICES			
LESS ___ % DISCOUNT			
LESS FREIGHT			
LESS			
TOTAL DEDUCTIONS			
AMOUNT OF CHECK			

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

1350

55-7233/2212

DATE 9/3/97

PAY TO THE ORDER OF Tecom Vinnell

$ 476.70

Four Hundred Seventy Six + 70/100 DOLLARS

Sovereign Bank

⑈001350⑈ ⑆221272332⑆000 109109286⑈

James Mazza MP

MAZZA & SONS, INC.

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

NO. 267

DATE. 3-Sept 97

Customer's Name Tecom Vinnell

Address _____

	Weight	Price
Cast Iron		
Steel Trunk	75.60	
Lt. Iron		
Copper #1		
Copper #2		

B.2275

20120 LB

17960 LB

2160

	Weight	Price
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Battery		
		75.60
TOTAL AMOUNT:		

SEP 3 - 1997

1350

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
96-1262
Bldg. 2275

Project #2723
Date Rec. 06/20/97
Date Comp. 06/26/97
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.

PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Method Detection Limits provided.	__	✓
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank.	✓	__
3. Matrix Spike Results Summary Meet Criteria.	✓	__
4. Duplicate Results Summary Meet Criteria.		✓
5. IR Spectra submitted for standards, blanks, & samples	__ NA __	
6. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.	__	✓
7. Analysis holding time met.	__	✓

3. Matrix Spike Results Summary Meet Criteria.
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).
2692.04 134% - BS in Range

4. Duplicate Results Summary Meet Criteria.
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).

(If not met, list number of days exceeded for each sample)

Additional Comments:

Laboratory Authentication Statement

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

Daniel K. Wright
Laboratory Manager

Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: GENE LESINSKI-DPW | **Project No:** 96-1262
Phone #: 20989 | **Location:** B. 2275 (CHAPEL)
( )DERA (X)OMA ( )Other:_____
Samplers Name / Company : GARY DiMARTINIS-TUS

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	TPHC	% SOLIDS	MANSFIELD					OVA	Remarks / Preservation Method
2723.01	2275-A	6-20-97	1123	SOIL	1	X	X	X					NO	CENTER LINE @7.0' *
.02	2275-B		1117										NO	
.03	2275-C		1120										NO	
.04	2275-D		1124										NO	SIDEWALL @5.5'
.05	2275-E		1132										ND	
.06	2275-F		1138										NO	Piping Run @1.0'
.07	2275-G		1145										20	~~SIDEWALL~~ @ 8.0'. EXC. FLOOR @10
.08	2275-H		1255										25	
.09	2275-I		1325										20	
.10	2275-J		1415										ND	EXC. FLOOR @ 9.5'
.11	2275-K		1411										ND	
.12	2275-L		1427										5	SIDE WALL @ 8.0'
.13	2275-M		1419										5	
.14	2275-DUP		—										—	FIELD DUPLICATE

Comments: * = SAMPLES KEPT BELOW 4 °C.

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	6-20-97 1550	[signature]			
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: (_)Standard 4 wks, (X)Rush 5 Days, (_)ASAP Verbal ____ Hrs.

Remarks: DEDICATED SAMPLING TOOLS USED

NOTE: OVA (#AS1183) CALIBRATED W/95 ppm CH_4 + ZERO (-) AIR @1100 HRS. on 6/20/97.

print legibly

Custody.xls5/1/97

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

Client :	U.S. Army	**Lab. ID # :**	2723
	DPW. SELFM-PW-EV	**Date Rec'd:**	20-Jun-97
	Bldg. 173	**Analysis Start:**	23-Jun-97
	Ft. Monmouth, NJ 07703	**Analysis Complete:**	26-Jun-97
Analysis:	OQA-QAM-025	**UST Reg. #:**	
Matrix:	Soil	**Closure #:**	
Analyst:	P. Skelton	**DICAR #:**	
Ext. Meth:	Shake	**Location #:**	BLDG. 2275

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
2723.01	2275-A	1.00	15.49	85.83	177	ND
2723.02	2275-B	1.00	15.48	87.33	174	ND
2723.03	2275-C	1.00	16.23	84.99	170	ND
2723.04	2275-D	1.00	15.90	77.51	191	623.19
2723.05	2275-E	1.00	16.51	85.99	166	ND
2723.06	2275-F	1.00	15.86	88.01	168	449.94
2723.07	2275-G	1.00	15.78	75.33	198	8295.14
2723.08	2275-H	1.00	16.60	83.12	170	11554.48
2723.09	2275-I	1.00	16.10	83.21	175	11014.50
2723.10	2275-J	1.00	16.85	70.22	199	ND
2723.11	2275-K	1.00	16.42	71.12	201	ND
2723.12	2275-L	1.00	15.25	71.27	216	724.76
2723.13	2275-M	1.00	16.03	77.54	189	ND
2723.14	2275-DUP	1.00	15.48	86.94	175	ND
METHOD BLANK	23-Jun-97	1.00	15.00	100.00	157	ND

ND = Not Detected

MDL = Method Detection Limit

Daniel K. Wright
Laboratory Director

6

Response Factor Report FID/TCD

Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997

Calibration Files
1 =T01476.D 2 =T01475.D 3 =T01474.D
4 =T01473.D 5 =T01472.D

		Compound	1	2	3	4	5	Avg		%RSD
1)	t	C8	1.474	1.450	1.396	1.394	1.354	1.414	E4	3.40
2)	t	C10	1.524	1.488	1.439	1.438	1.402	1.458	E4	3.30
3)	t	C12	1.623	1.588	1.542	1.535	1.499	1.557	E4	3.09
4)	t	C14	1.667	1.643	1.592	1.582	1.543	1.605	E4	3.09
5)	t	C16	1.733	1.692	1.641	1.631	1.587	1.657	E4	3.42
6)	t	C18	1.966	1.953	1.897	1.892	1.862	1.914	E4	2.30
7)	t	C20	1.917	1.871	1.814	1.805	1.757	1.833	E4	3.39
8)	t	C22	1.901	1.855	1.799	1.792	1.741	1.818	E4	3.40
9)	t	C24	1.942	1.905	1.846	1.840	1.785	1.864	E4	3.28
10)	t	C26	1.950	1.900	1.844	1.841	1.783	1.863	E4	3.42
11)	t	C28	1.928	1.898	1.844	1.845	1.776	1.858	E4	3.14
12)	t	C30	1.979	1.917	1.862	1.861	1.768	1.877	E4	4.15
13)	t	C32	1.960	1.827	1.764	1.756	1.623	1.786	E4	6.86
14)	t	C34	1.776	1.703	1.628	1.606	1.451	1.633	E4	7.43
15)	t	C36	1.506	1.407	1.319	1.306	1.146	1.337	E4	9.98
16)	t	C38	0.980	1.033	0.949	0.942	0.780	0.937	E4	10.12
17)	t	C40	5.522	6.078	5.632	5.585	4.193	5.402	E3	13.16
18)	t	c42	2.495	2.579	2.667	2.744	1.850	2.467	E3	14.48
19)	T	Pristane	1.835	1.781	1.723	1.712	1.643	1.739	E4	4.19
20)	T	Phytane	1.935	1.879	1.824	1.813	1.760	1.842	E4	3.63
21)	s	o-terphenyl	2.166	2.100	2.027	2.018	1.957	2.053	E4	3.94
22)	t	TPHC - total	3.056	2.530	1.916	1.884	1.790	2.235	E4	24.34

(#) = Out of Range

7

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\970625\T01675.D Vial: 1
Acq On : 25 Jun 97 10:28 am Operator: Skelton
Sample : 50 ppm std Inst : FID/TCD
Misc : 50 ppm std Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	t	C8	14.139	15.957 E3	-12.9	114	0.01
2	t	C10	14.582	16.477 E3	-13.0	114	0.00
3	t	C12	15.575	17.545 E3	-12.6	114	0.00
4	t	C14	16.054	18.055 E3	-12.5	113	0.00
5	t	C16	16.566	18.635 E3	-12.5	114	0.00
6	t	C18	19.140	21.547 E3	-12.6	114	0.00
7	t	C20	18.328	20.602 E3	-12.4	114	0.00
8	t	C22	18.176	20.566 E3	-13.1	114	0.00
9	t	C24	18.637	21.077 E3	-13.1	114	0.00
10	t	C26	18.634	20.954 E3	-12.5	114	0.00
11	t	C28	18.583	20.626 E3	-11.0	112	0.00
12	t	C30	18.774	19.952 E3	-6.3	107	0.00
13	t	C32	17.862	17.345 E3	2.9	98	0.03
14	t	C34	16.327	13.919 E3	14.7	86	0.06
15	t	C36	13.368	11.585 E3	13.3	88	0.07
16	t	C38	9.365	6.567 E3	29.9#	69	0.08
17	t	C40	5.402	3.442 E3	36.3#	61	0.08
18	t	c42	2.467	2.166 E3	12.2	81	0.08
19	T	Pristane	17.389	19.333 E3	-11.2	112	0.00
20	T	Phytane	18.421	20.675 E3	-12.2	113	0.00
1	s	o-terphenyl	20.532	22.707 E3	-10.6	112	0.00
22	t	TPHC - total	22.352	18.957 E3	15.2	99	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\970625\T01686.D Vial: 1
Acq On : 25 Jun 97 9:39 pm Operator: Skelton
Sample : 50 ppm std Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	t	C8	14.139	16.773 E3	-18.6	120	0.00
2	t	C10	14.582	17.777 E3	-21.9	124	0.00
3	t	C12	15.575	18.993 E3	-21.9	123	0.00
4	t	C14	16.054	19.534 E3	-21.7	123	0.00
5	t	C16	16.566	20.139 E3	-21.6	123	0.00
6	t	C18	19.140	23.077 E3	-20.6	122	0.00
7	t	C20	18.328	22.222 E3	-21.2	123	0.00
8	t	C22	18.176	22.157 E3	-21.9	123	0.00
9	t	C24	18.637	22.666 E3	-21.6	123	0.00
10	t	C26	18.634	22.495 E3	-20.7	122	0.00
11	t	C28	18.583	22.064 E3	-18.7	120	0.00
12	t	C30	18.774	21.238 E3	-13.1	114	0.00
13	t	C32	17.862	18.353 E3	-2.7	104	0.00
14	t	C34	16.327	14.648 E3	10.3	90	0.00
15	t	C36	13.368	9.974 E3	25.4#	76	-0.01
16	t	C38	9.365	6.046 E3	35.4#	64	-0.02
17	t	C40	5.402	3.121 E3	42.2#	55	-0.02
18	t	c42	2.467	1.496 E3	39.4#	56	-0.03
19	T	Pristane	17.389	21.373 E3	-22.9	124	0.00
20	T	Phytane	18.421	22.291 E3	-21.0	122	0.00
21	s	o-terphenyl	20.532	24.469 E3	-19.2	121	0.00
22	t	TPHC - total	22.352	23.448 E3	-4.9	122	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\970625\T01697.D Vial: 1
Acq On : 26 Jun 97 7:38 am Operator: Skelton
Sample : 50 ppm std Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	t	C8	14.139	18.666 E3	-32.0#	134	0.02
2	t	C10	14.582	20.213 E3	-38.6#	140	0.00
3	t	C12	15.575	21.726 E3	-39.5#	141	0.00
4	t	C14	16.054	22.397 E3	-39.5#	141	0.00
5	t	C16	16.566	23.088 E3	-39.4#	141	0.00
6	t	C18	19.140	26.874 E3	-40.4#	142	0.00
7	t	C20	18.328	25.458 E3	-38.9#	140	0.00
8	t	C22	18.176	25.340 E3	-39.4#	141	0.00
9	t	C24	18.637	25.909 E3	-39.0#	140	0.00
10	t	C26	18.634	25.666 E3	-37.7#	139	0.00
11	t	C28	18.583	25.149 E3	-35.3#	136	0.00
12	t	C30	18.774	24.139 E3	-28.6#	130	0.00
13	t	C32	17.862	20.772 E3	-16.3	118	0.00
14	t	C34	16.327	16.469 E3	-0.9	101	0.00
15	t	C36	13.368	11.149 E3	16.6	85	-0.01
16	t	C38	9.365	6.716 E3	28.3#	71	-0.02
17	t	C40	5.402	3.457 E3	36.0#	61	-0.02
18	t	c42	2.467	1.654 E3	33.0#	62	-0.03
19	T	Pristane	17.389	24.570 E3	-41.3#	143	0.00
20	T	Phytane	18.421	25.532 E3	-38.6#	140	0.00
1	s	o-terphenyl	20.532	28.058 E3	-36.7#	138	0.00
22	t	TPHC - total	22.352	23.971 E3	-7.2	125	0.00

(#) = 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 # : 2723

Location #: BLDG.2275

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
2723.01		10.00	13.64	**136.35**
2723.02		10.00	12.51	**125.12**
2723.03		10.00	13.75	**137.48**
2723.04		10.00	13.40	**133.95**
2723.05		10.00	10.88	**108.80**
2723.06		10.00	11.77	**117.66**
2723.07		10.00	11.42	**114.21**
2723.08		10.00	10.19	**101.88**
2723.09		10.00	11.43	**114.28**
2723.10		10.00	11.69	**116.92**
2723.11		10.00	10.74	**107.35**
2723.12		10.00	11.35	**113.47**
2723.13		10.00	11.20	**112.01**
2723.14		10.00	12.22	**122.17**
METHOD BLANK	23-Jun-97	10.00	12.29	**122.85**

Surrogate Added : **o-Terphenyl**

7/11/97

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

Matrix Spike Recovery Report

Lab. ID # : 2723

Location #: B. 2275

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
2692.08MS	630	0.00	871.60	138.35	75-125
2692.08MSD	630	0.00	867.23	137.66	75-125
			RPD	0.50	20.00

12/10/97

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

Blank Spike Recovery Report

Lab. ID # : 2723

Location #: BLDG.2275

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	23-Jun-97	630	888.93	116.68	75-125

7/9/97

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01685.D Vial: 11
Acq On : 25 Jun 97 8:42 pm Operator: Skelton
Sample : 2723.01 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 9:51 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	279951	13.635	mg/L	
Spiked Amount	10.000	Recovery	=	136.35%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	
5) t	C16	0.00	0	N.D.	mg/L	
6) t	C18	0.00	0	N.D.	mg/L	
7) t	C20	0.00	0	N.D.	mg/L	
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	
20) T	Phytane	0.00	0	N.D.	mg/L	
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

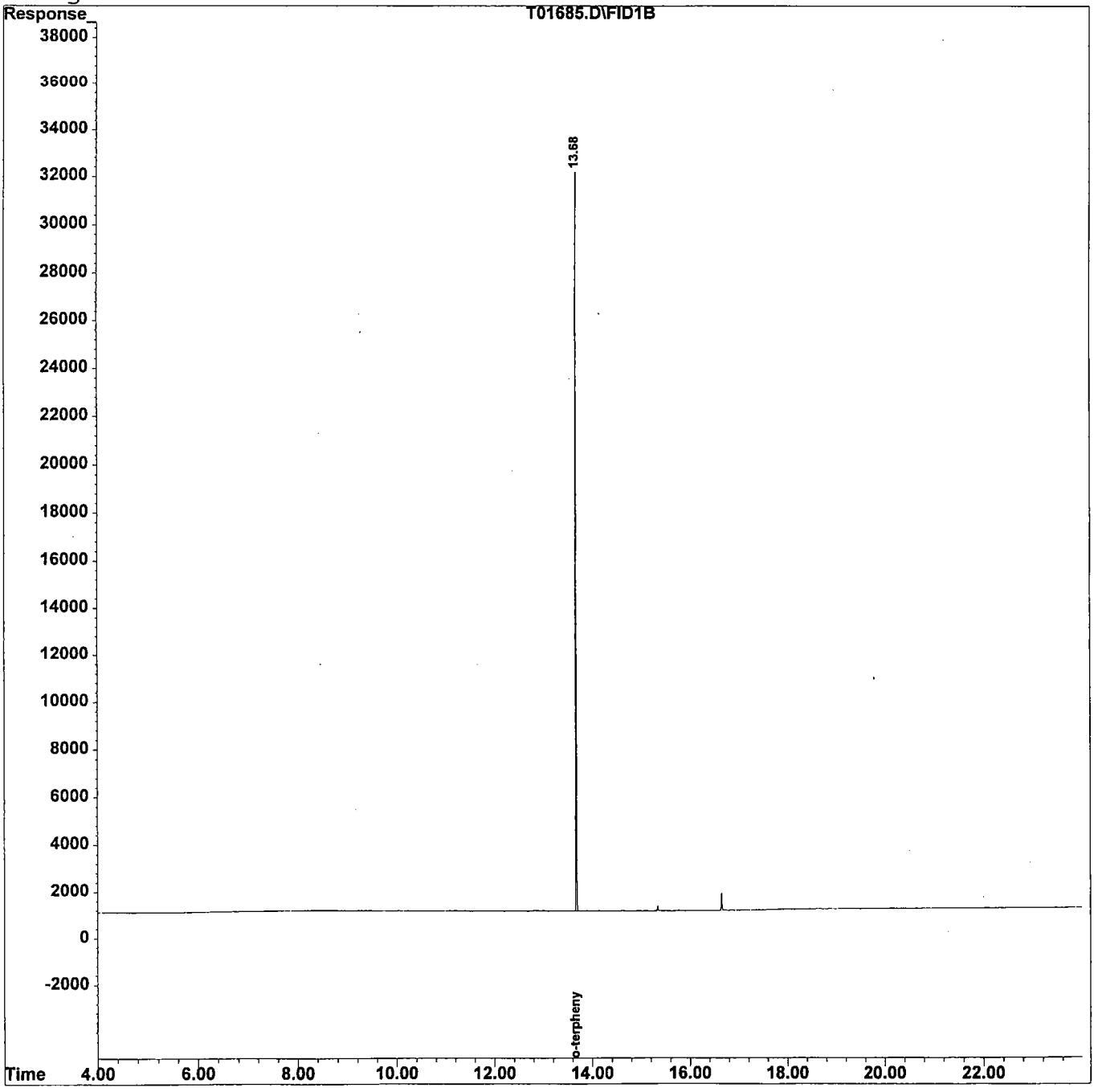
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01685.D Vial: 11
Acq On : 25 Jun 97 8:42 pm Operator: Skelton
Sample : 2723.01 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 9:51 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



15

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01687.D Vial: 13
Acq On : 25 Jun 97 10:35 pm Operator: Skelton
Sample : 2723.02 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:12 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	256899	12.512	mg/L	
Spiked Amount	10.000	Recovery	=	125.12%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	d
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	
5) t	C16	0.00	0	N.D.	mg/L	
6) t	C18	0.00	0	N.D.	mg/L	
7) t	C20	0.00	0	N.D.	mg/L	
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	
20) T	Phytane	0.00	0	N.D.	mg/L	
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

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

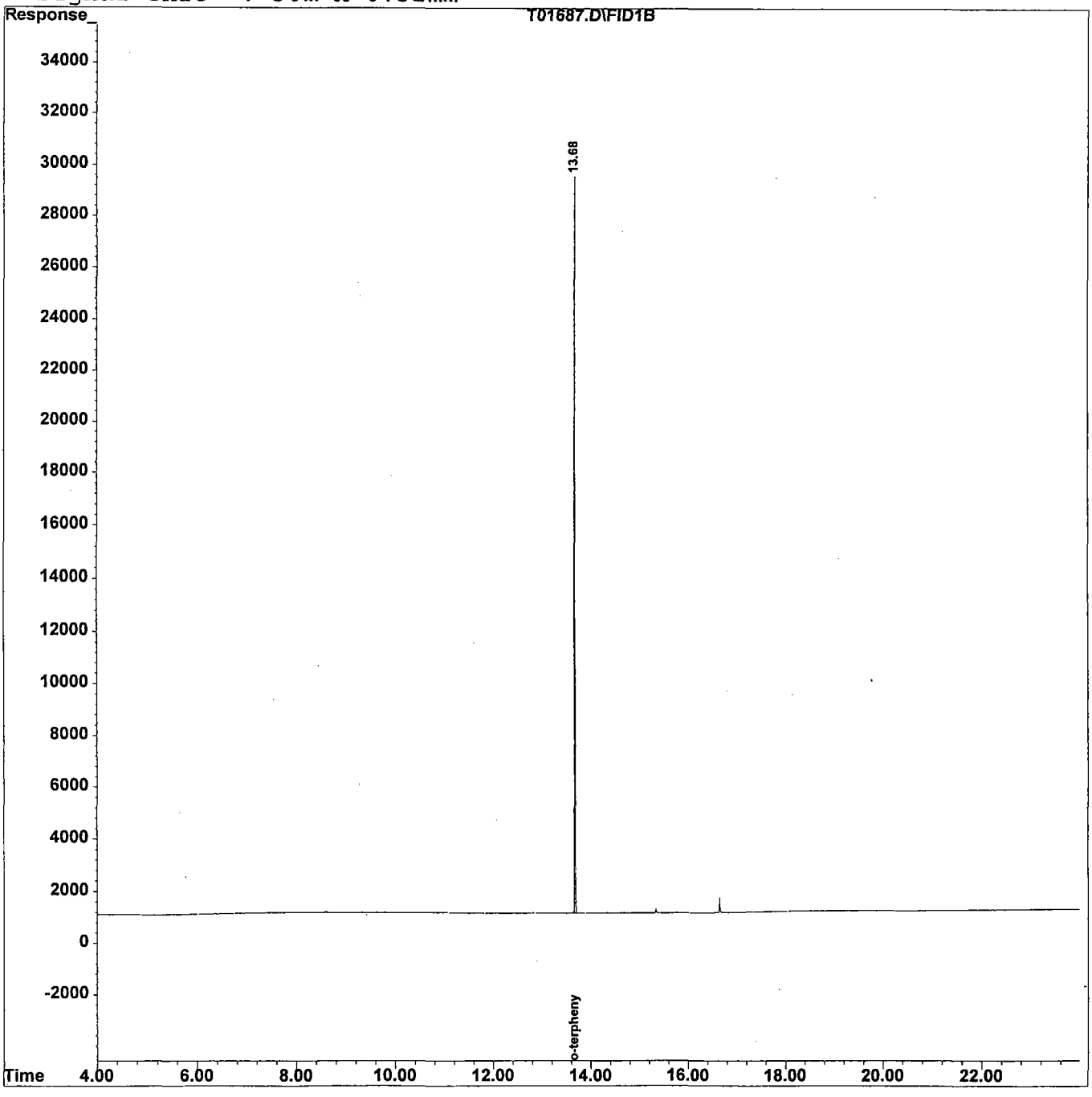
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01687.D
Acq On : 25 Jun 97 10:35 pm
Sample : 2723.02
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 11:12 1997 Quant Results File: TPH8.RES

Vial: 13
Operator: Skelton
Inst : FID/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.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\970625\T01688.D Vial: 14
Acq On : 25 Jun 97 11:30 pm Operator: Skelton
Sample : 2723.03 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:12 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	282278	13.748	mg/L	
Spiked Amount	10.000	Recovery	=	137.48%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	d
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	
5) t	C16	0.00	0	N.D.	mg/L	
6) t	C18	0.00	0	N.D.	mg/L	
7) t	C20	0.00	0	N.D.	mg/L	
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	
20) T	Phytane	0.00	0	N.D.	mg/L	
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

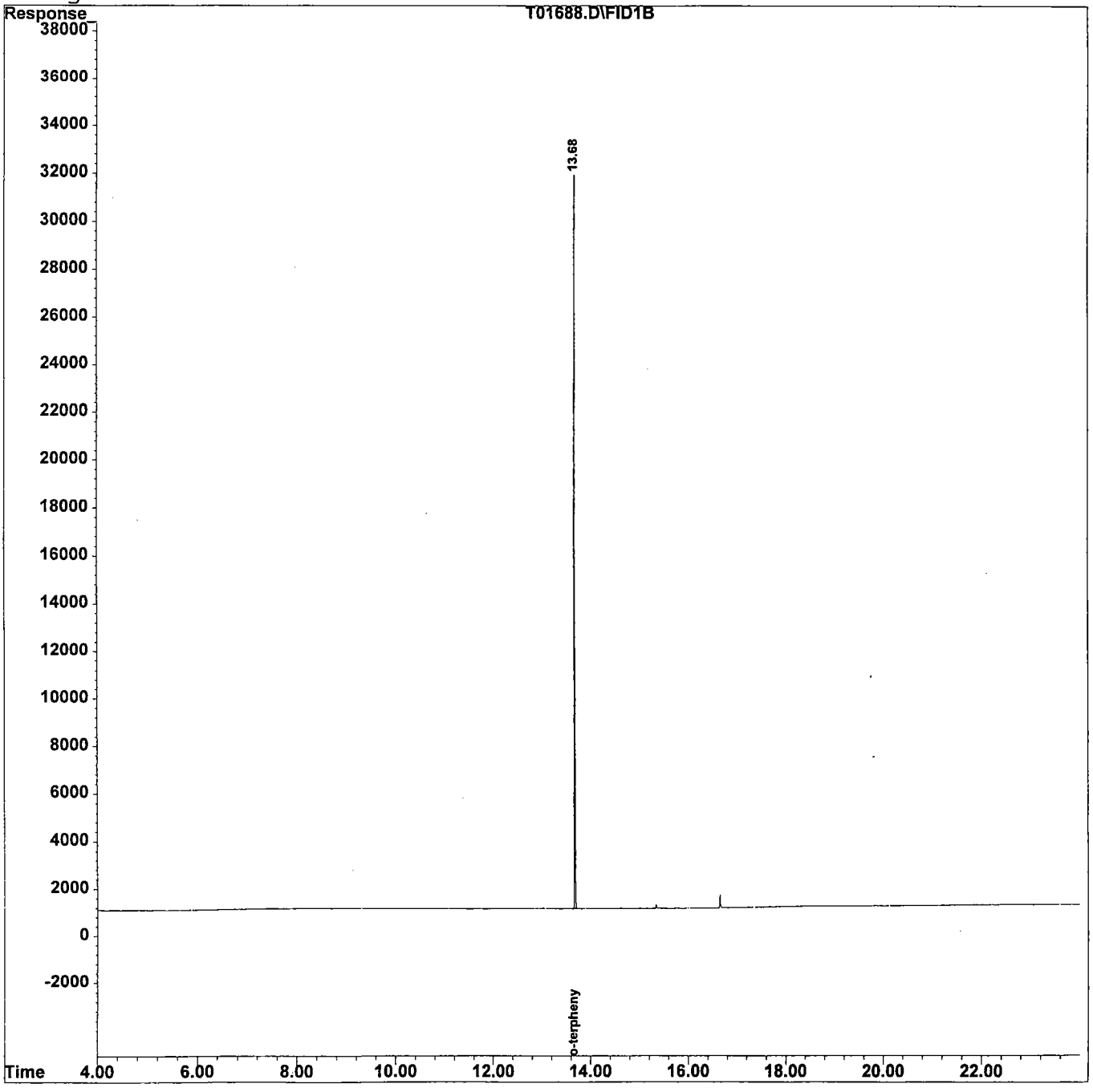
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01688.D Vial: 14
Acq On : 25 Jun 97 11:30 pm Operator: Skelton
Sample : 2723.03 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:12 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



1C

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01689.D Vial: 15
Acq On : 26 Jun 97 12:26 am Operator: Skelton
Sample : 2723.04 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:11 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	275023	13.395	mg/L	
Spiked Amount	10.000	Recovery	=	133.95%		
	Target Compounds					
1) t	C8	13.68f	4359452	308.336	mg/L	m
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	11.26	2730	0.170	mg/L	
5) t	C16	12.26	3502	0.211	mg/L	
6) t	C18	12.72	2901	0.152	mg/L	
7) t	C20	13.16	1782	0.097	mg/L	
8) t	C22	13.98	1476	0.081	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	15.34	1542	0.083	mg/L	
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	16.65	5069	0.270	mg/L	
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	12.75	4644	0.267	mg/L	
20) T	Phytane	13.20	3339	0.181	mg/L	
22) t	TPHC - total	13.68	3433413	153.605	mg/L	m

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

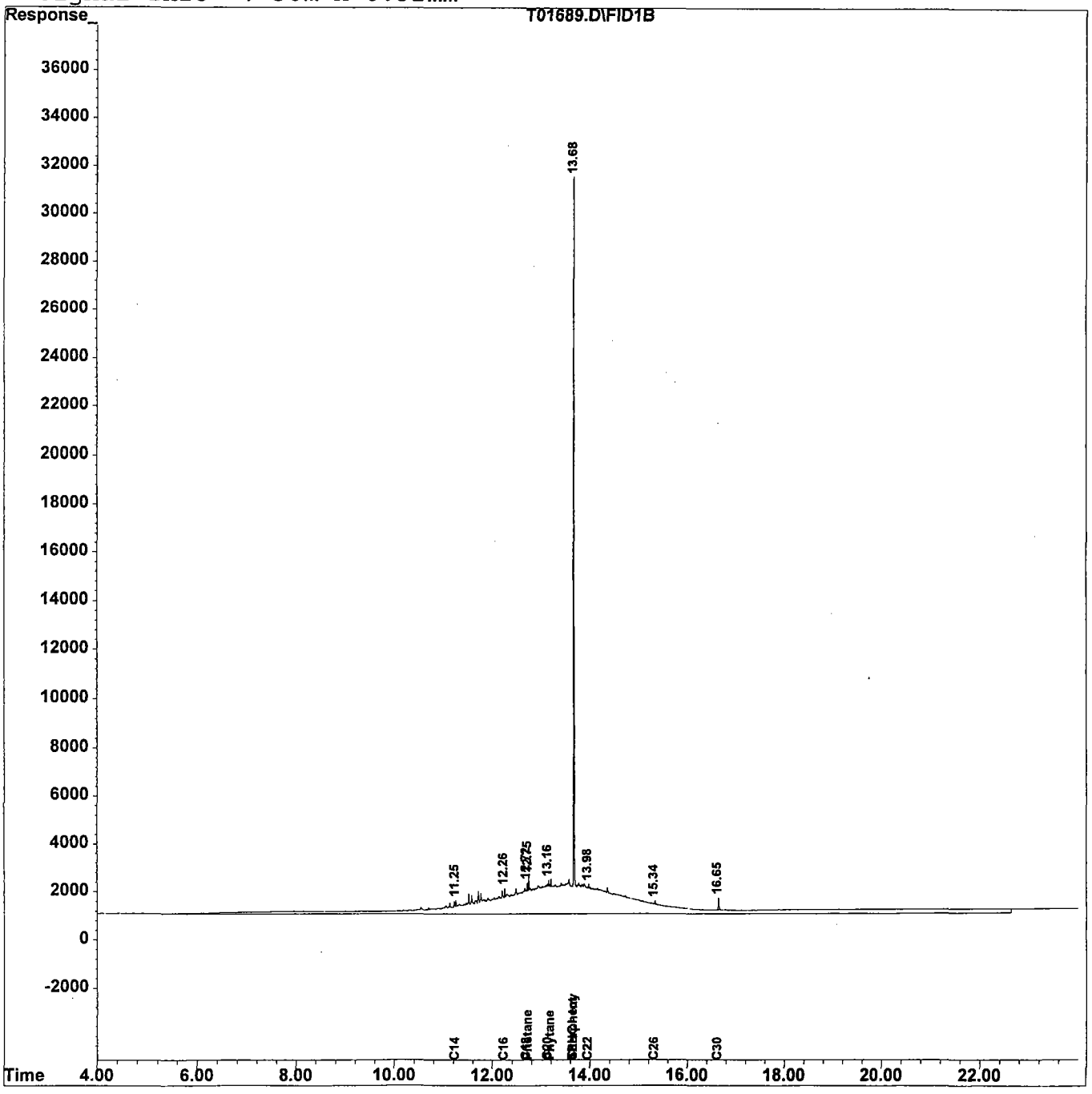
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01689.D
Acq On : 26 Jun 97 12:26 am
Sample : 2723.04
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 12:11 1997 Quant Results File: TPH8.RES

Vial: 15
Operator: Skelton
Inst : FID/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



21

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01690.D Vial: 16
Acq On : 26 Jun 97 1:20 am Operator: Skelton
Sample : 2723.05 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:13 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	223389	10.880	mg/L	
Spiked Amount	10.000	Recovery	=	108.80%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	d
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	
5) t	C16	0.00	0	N.D.	mg/L	
6) t	C18	0.00	0	N.D.	mg/L	
7) t	C20	0.00	0	N.D.	mg/L	
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	
20) T	Phytane	0.00	0	N.D.	mg/L	
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

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

2

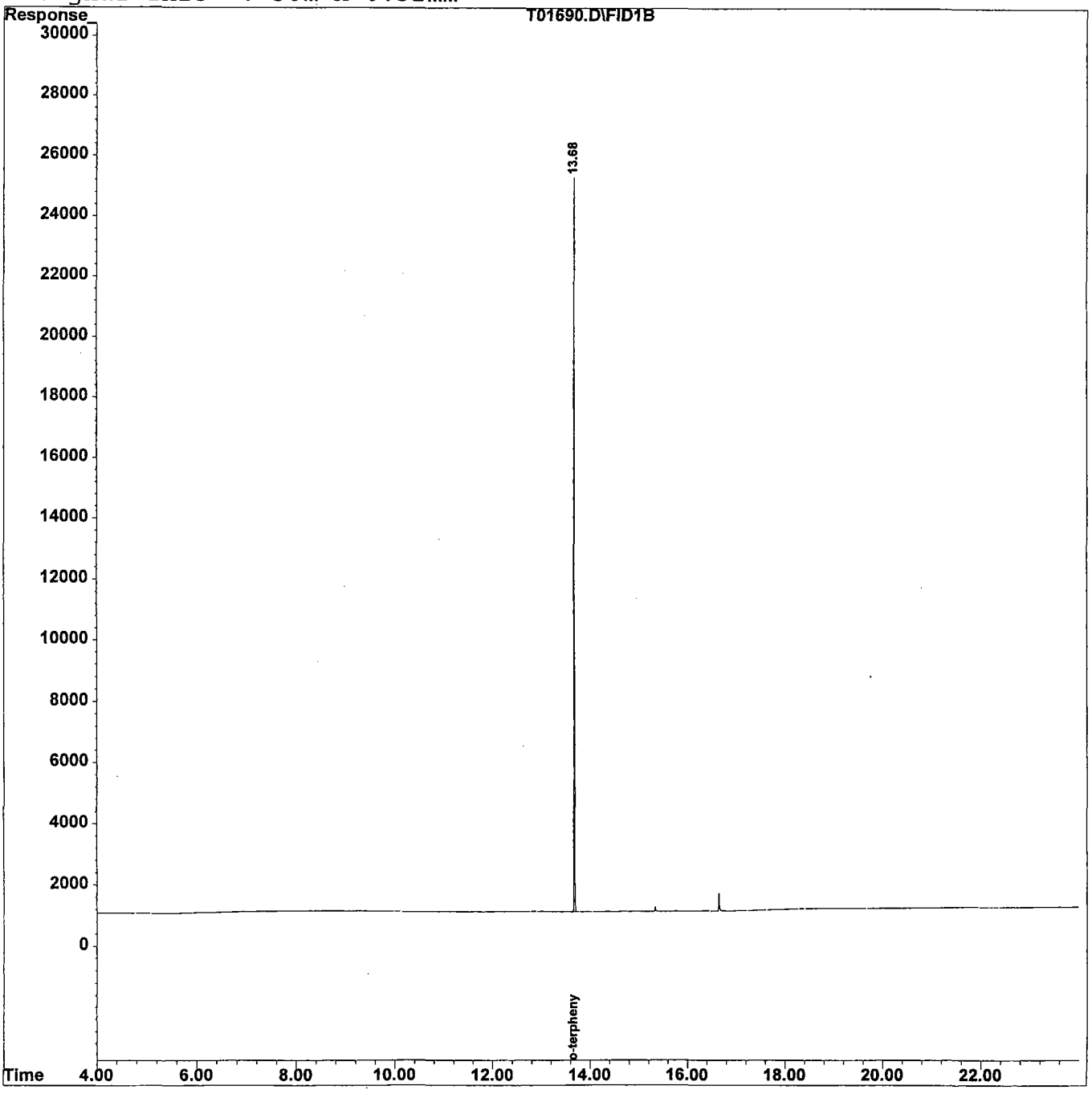
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01690.D
Acq On : 26 Jun 97 1:20 am
Sample : 2723.05
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 11:13 1997 Quant Results File: TPH8.RES

Vial: 16
Operator: Skelton
Inst : FID/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



23

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01691.D Vial: 17
Acq On : 26 Jun 97 2:15 am Operator: Skelton
Sample : 2723.06 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:49 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
21)	s	o-terphenyl	13.68	241579	11.766	mg/L	
Spiked Amount		10.000	Recovery	=	117.66%		
		Target Compounds					
1)	t	C8	13.68f	866528	61.288	mg/L	m
2)	t	C10	0.00	0	N.D.	mg/L	
3)	t	C12	0.00	0	N.D.	mg/L	
4)	t	C14	0.00	0	N.D.	mg/L	
5)	t	C16	0.00	0	N.D.	mg/L	
6)	t	C18	0.00	0	N.D.	mg/L	
7)	t	C20	0.00	0	N.D.	mg/L	
8)	t	C22	14.06	2967	0.163	mg/L	
9)	t	C24	14.73	16343	0.877	mg/L	
10)	t	C26	15.34	1820	0.098	mg/L	
11)	t	C28	0.00	0	N.D.	mg/L	
12)	t	C30	16.65	5536	0.295	mg/L	
13)	t	C32	0.00	0	N.D.	mg/L	
14)	t	C34	0.00	0	N.D.	mg/L	
15)	t	C36	18.24	1616	0.121	mg/L	
16)	t	C38	0.00	0	N.D.	mg/L	
17)	t	C40	0.00	0	N.D.	mg/L	
18)	t	c42	0.00	0	N.D.	mg/L	
19)	T	Pristane	0.00	0	N.D.	mg/L	
20)	T	Phytane	0.00	0	N.D.	mg/L	
22)	t	TPHC - total	13.68	2807600	125.608	mg/L	m

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

24

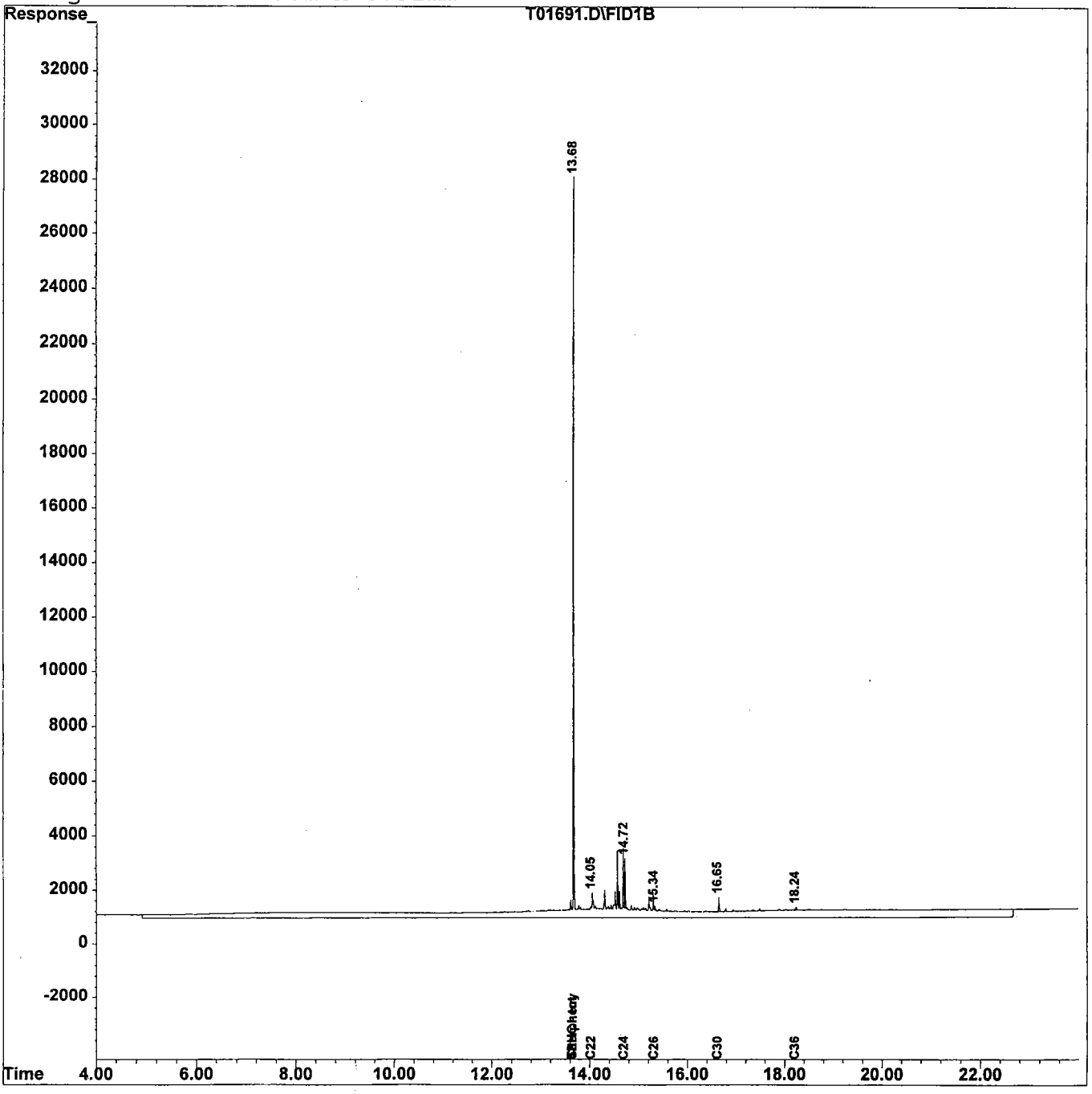
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01691.D
Acq On : 26 Jun 97 2:15 am
Sample : 2723.06
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 12:49 1997 Quant Results File: TPH8.RES

Vial: 17
Operator: Skelton
Inst : FID/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



25

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01692.D Vial: 18
Acq On : 26 Jun 97 3:10 am Operator: Skelton
Sample : 2723.07 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:44 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

		Compound	R.T.	Response	Conc	Units	
System Monitoring Compounds							
21)	s	o-terphenyl	13.68	234503	11.421	mg/L	
Spiked Amount 10.000			Recovery =		114.21%		
Target Compounds							
1)	t	C8	11.78f	47244215	3341.494	mg/L	m
2)	t	C10	8.59	45990	3.154	mg/L	
3)	t	C12	10.10	401579	25.784	mg/L	
4)	t	C14	11.26	632539	39.402	mg/L	
5)	t	C16	12.26	655976	39.598	mg/L	
6)	t	C18	12.73	580632	30.335	mg/L	
7)	t	C20	13.16	541212	29.529	mg/L	
8)	t	C22	13.98	316179	17.395	mg/L	
9)	t	C24	14.73	133999	7.190	mg/L	
10)	t	C26	15.42	36972	1.984	mg/L	
11)	t	C28	16.06	8146	0.438	mg/L	
12)	t	C30	16.65	7697	0.410	mg/L	
13)	t	C32	0.00	0	N.D.	mg/L	
14)	t	C34	0.00	0	N.D.	mg/L	
15)	t	C36	0.00	0	N.D.	mg/L	
16)	t	C38	0.00	0	N.D.	mg/L	
17)	t	C40	0.00	0	N.D.	mg/L	
18)	t	c42	0.00	0	N.D.	mg/L	
19)	T	Pristane	12.75	296228	17.036	mg/L	
20)	T	Phytane	13.21	193913	10.527	mg/L	
22)	t	TPHC - total	11.78	44080712	1972.100	mg/L	m

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

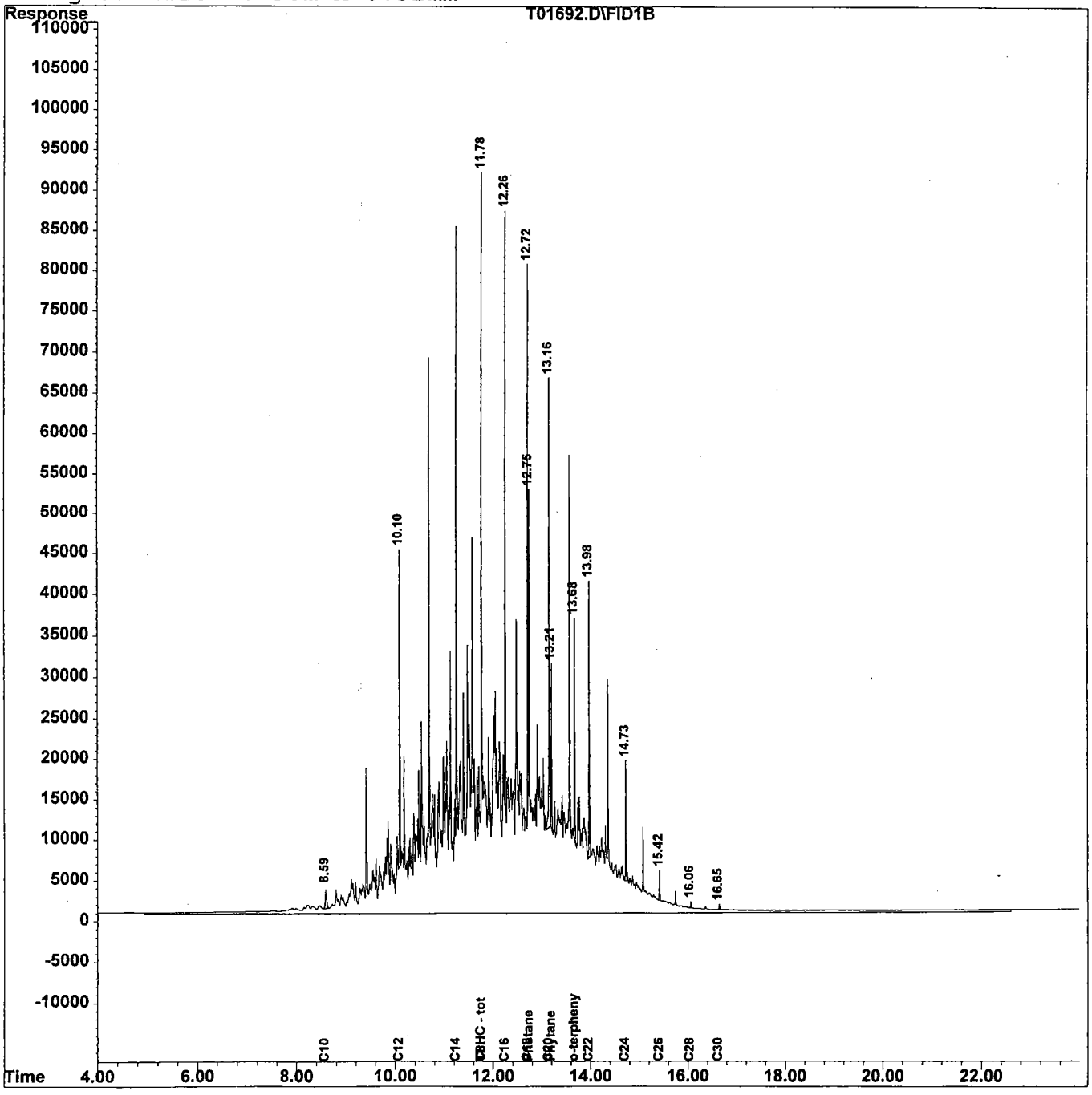
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01692.D
Acq On : 26 Jun 97 3:10 am
Sample : 2723.07
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 12:44 1997 Quant Results File: TPH8.RES

Vial: 18
Operator: Skelton
Inst : FID/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



27

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01693.D Vial: 19
Acq On : 26 Jun 97 4:04 am Operator: Skelton
Sample : 2723.08 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:51 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	209180	10.188	mg/L	
Spiked Amount	10.000	Recovery	=	101.88%		
	Target Compounds					
1) t	C8	6.22f	2388	0.169	mg/L	m
2) t	C10	8.59	83433	5.722	mg/L	
3) t	C12	10.10	742095	47.647	mg/L	
4) t	C14	11.26	1007346	62.749	mg/L	
5) t	C16	12.27	951030	57.409	mg/L	
6) t	C18	12.73	724142	37.833	mg/L	
7) t	C20	13.17	742476	40.510	mg/L	
8) t	C22	13.98	402527	22.146	mg/L	
9) t	C24	14.73	164133	8.807	mg/L	
10) t	C26	15.42	44303	2.378	mg/L	
11) t	C28	16.06	10176	0.548	mg/L	
12) t	C30	16.65	5421	0.289	mg/L	
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	12.76	428765	24.658	mg/L	
20) T	Phytane	13.21	246919	13.404	mg/L	
22) t	TPHC - total	11.78	71271172	3188.557	mg/L	m

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

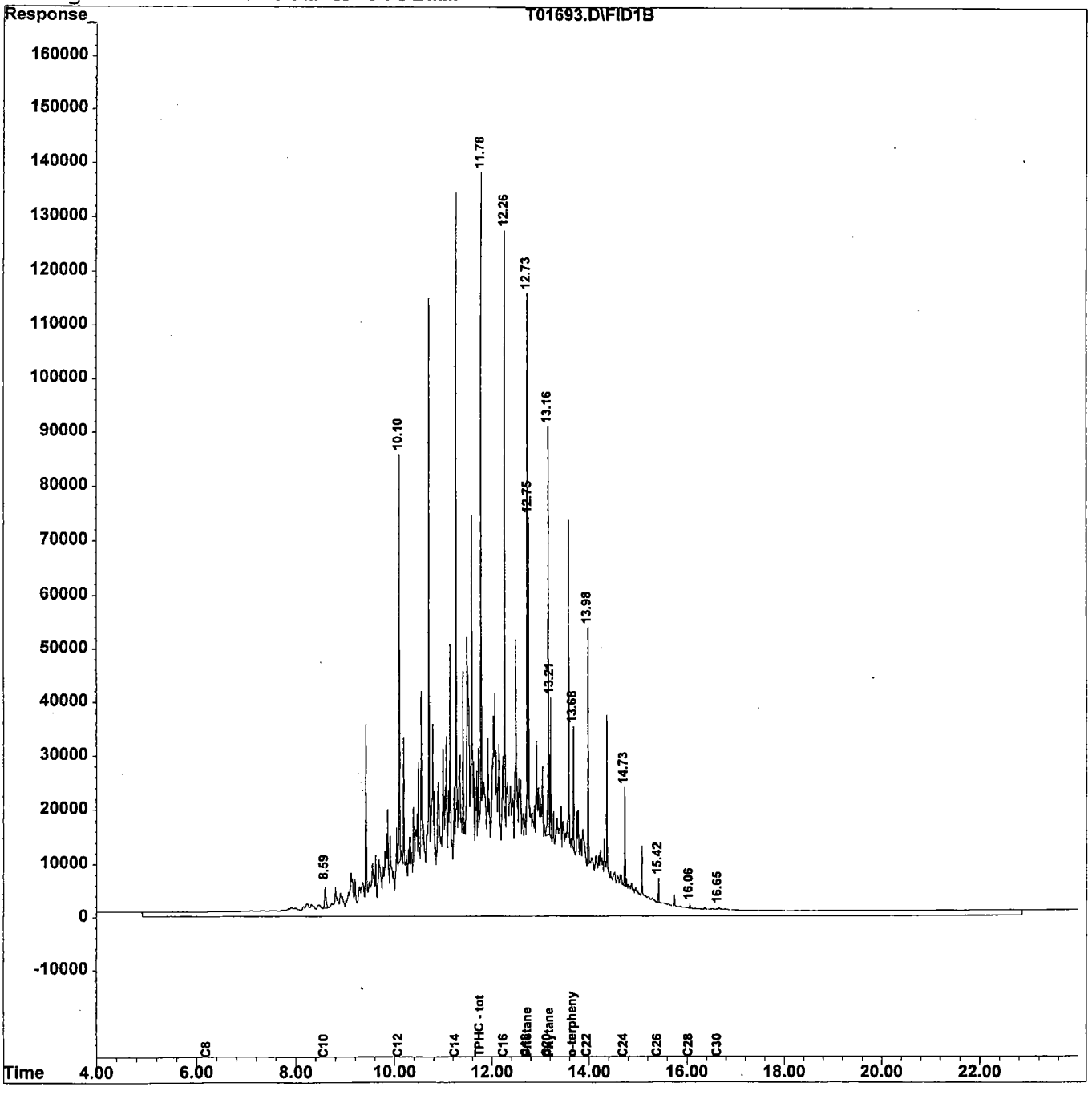
28

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01693.D Vial: 19
Acq On : 26 Jun 97 4:04 am Operator: Skelton
Sample : 2723.08 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:51 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



29

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01694.D Vial: 20
Acq On : 26 Jun 97 4:58 am Operator: Skelton
Sample : 2723.09 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:52 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	234641	11.428	mg/L	
Spiked Amount	10.000	Recovery	=	114.28%		
	Target Compounds					
1) t	C8	11.78f	60916298	4308.495	mg/L	m
2) t	C10	8.59	99068	6.794	mg/L	
3) t	C12	10.10	704714	45.247	mg/L	
4) t	C14	11.26	1053734	65.639	mg/L	
5) t	C16	12.27	888953	53.662	mg/L	
6) t	C18	12.73	761676	39.794	mg/L	
7) t	C20	13.17	672195	36.675	mg/L	
8) t	C22	13.98	349072	19.205	mg/L	
9) t	C24	14.73	161613	8.672	mg/L	
10) t	C26	15.42	43397	2.329	mg/L	
11) t	C28	16.06	9510	0.512	mg/L	
12) t	C30	16.65	7662	0.408	mg/L	
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	12.76	444590	25.568	mg/L	
20) T	Phytane	13.21	251895	13.674	mg/L	
22) t	TPHC - total	11.78	65965315	2951.182	mg/L	m

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

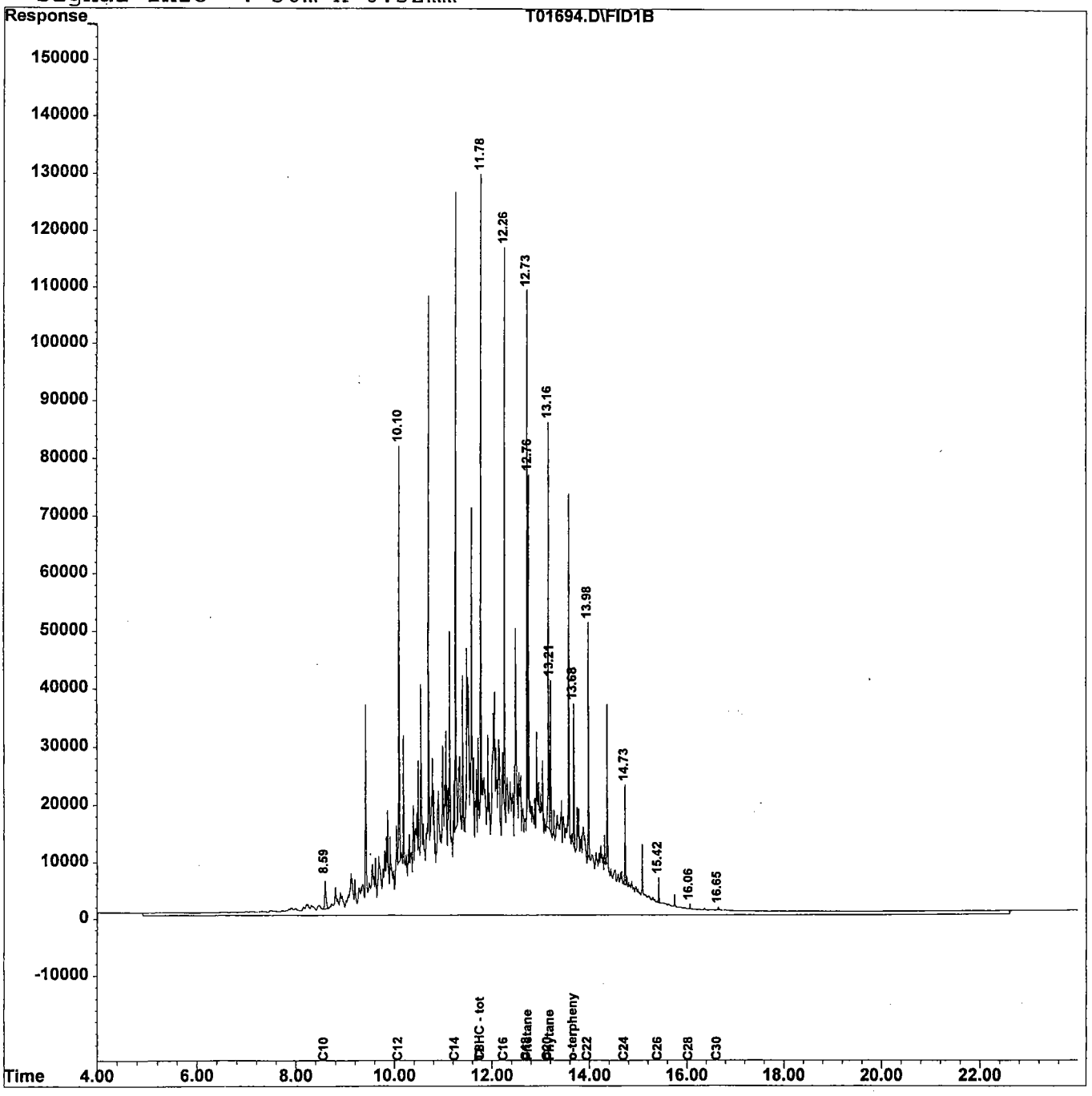
2C

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01694.D Vial: 20
Acq On : 26 Jun 97 4:58 am Operator: Skelton
Sample : 2723.09 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:52 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



21

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01695.D Vial: 21
Acq On : 26 Jun 97 5:51 am Operator: Skelton
Sample : 2723.10 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:14 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
21) s	o-terphenyl	13.68	240057	11.692	mg/L
Spiked Amount	10.000	Recovery	=	116.92%	
	Target Compounds				
1) t	C8	0.00	0	N.D.	mg/L
2) t	C10	0.00	0	N.D.	mg/L
3) t	C12	0.00	0	N.D.	mg/L d
4) t	C14	0.00	0	N.D.	mg/L
5) t	C16	0.00	0	N.D.	mg/L
6) t	C18	0.00	0	N.D.	mg/L
7) t	C20	0.00	0	N.D.	mg/L
8) t	C22	0.00	0	N.D.	mg/L
9) t	C24	0.00	0	N.D.	mg/L
10) t	C26	0.00	0	N.D.	mg/L d
11) t	C28	0.00	0	N.D.	mg/L
12) t	C30	0.00	0	N.D.	mg/L d
13) t	C32	0.00	0	N.D.	mg/L
14) t	C34	0.00	0	N.D.	mg/L
15) t	C36	0.00	0	N.D.	mg/L
16) t	C38	0.00	0	N.D.	mg/L
17) t	C40	0.00	0	N.D.	mg/L
18) t	c42	0.00	0	N.D.	mg/L
19) T	Pristane	0.00	0	N.D.	mg/L
20) T	Phytane	0.00	0	N.D.	mg/L
22) t	TPHC - total	0.00	0	N.D.	mg/L d

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

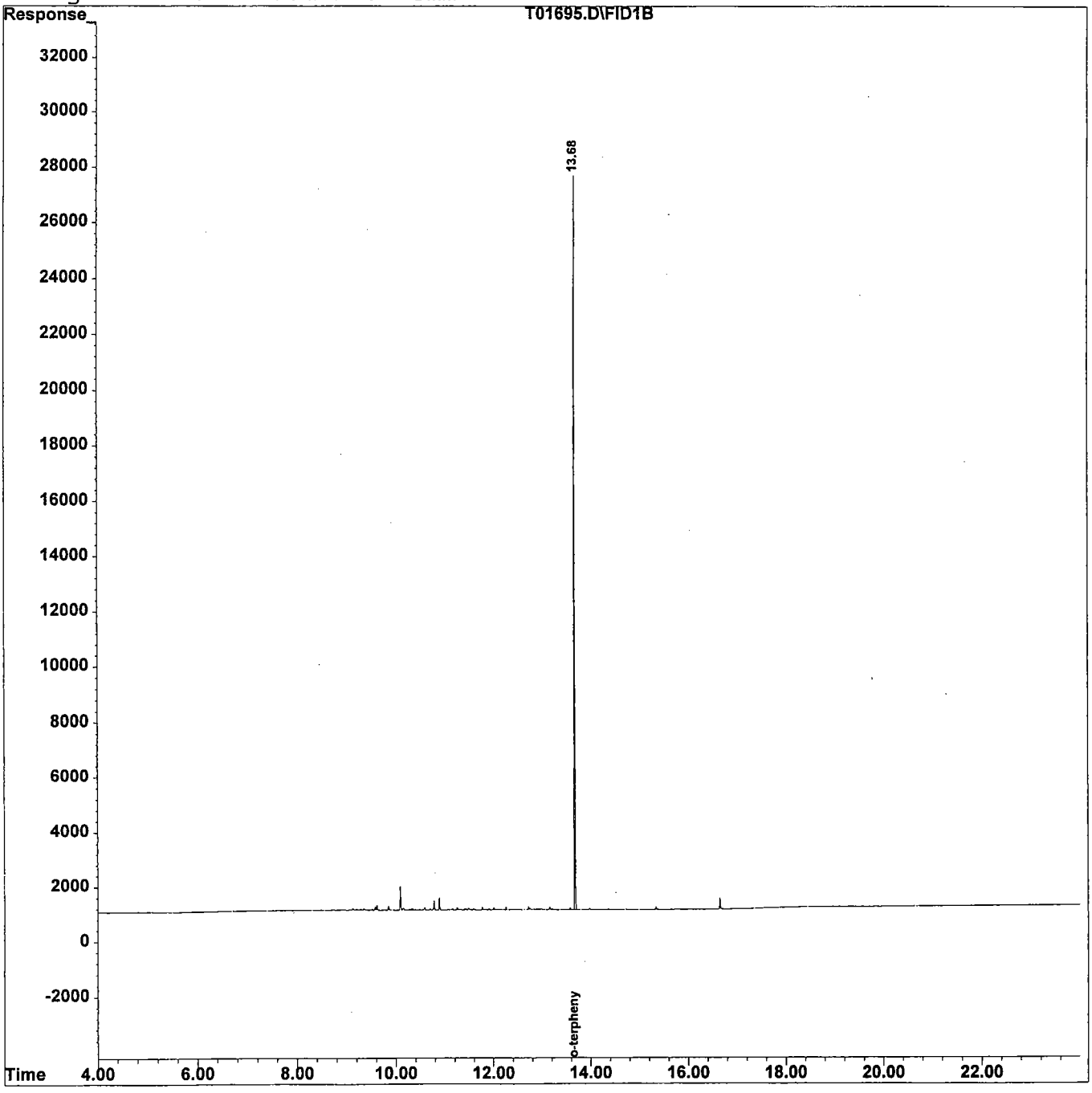
27

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01695.D Vial: 21
Acq On : 26 Jun 97 5:51 am Operator: Skelton
Sample : 2723.10 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:14 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



33

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01696.D Vial: 22
Acq On : 26 Jun 97 6:45 am Operator: Skelton
Sample : 2723.11 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 11:15 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
21) s	o-terphenyl	13.68	220415	10.735	mg/L
Spiked Amount	10.000		Recovery =	107.35%	
	Target Compounds				
1) t	C8	0.00	0	N.D.	mg/L
2) t	C10	0.00	0	N.D.	mg/L
3) t	C12	0.00	0	N.D.	mg/L d
4) t	C14	0.00	0	N.D.	mg/L
5) t	C16	0.00	0	N.D.	mg/L
6) t	C18	0.00	0	N.D.	mg/L
7) t	C20	0.00	0	N.D.	mg/L
8) t	C22	0.00	0	N.D.	mg/L
9) t	C24	0.00	0	N.D.	mg/L
10) t	C26	0.00	0	N.D.	mg/L
11) t	C28	0.00	0	N.D.	mg/L
12) t	C30	0.00	0	N.D.	mg/L d
13) t	C32	0.00	0	N.D.	mg/L
14) t	C34	0.00	0	N.D.	mg/L
15) t	C36	0.00	0	N.D.	mg/L
16) t	C38	0.00	0	N.D.	mg/L
17) t	C40	0.00	0	N.D.	mg/L
18) t	c42	0.00	0	N.D.	mg/L
19) T	Pristane	0.00	0	N.D.	mg/L
20) T	Phytane	0.00	0	N.D.	mg/L
22) t	TPHC - total	0.00	0	N.D.	mg/L d

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

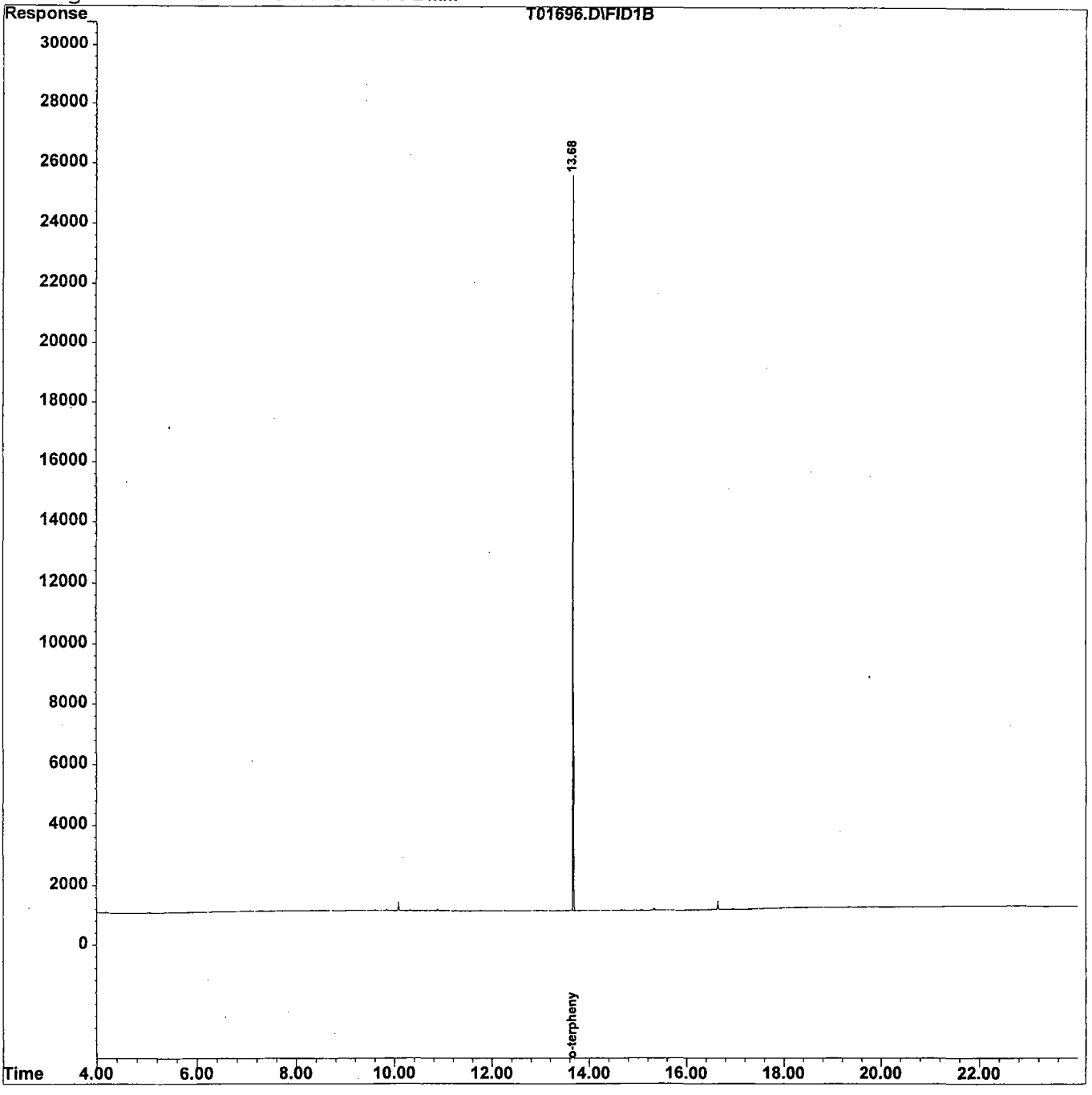
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01696.D
Acq On : 26 Jun 97 6:45 am
Sample : 2723.11
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 11:15 1997 Quant Results File: TPH8.RES

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

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



35

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01698.D Vial: 24
Acq On : 26 Jun 97 8:33 am Operator: Skelton
Sample : 2723.12 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 12:54 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	232978	11.347	mg/L	
Spiked Amount	10.000	Recovery	=	113.47%		
	Target Compounds					
1) t	C8	13.68f	961488	68.004	mg/L	m
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	10.10	4057	0.260	mg/L	
4) t	C14	11.25	11496	0.716	mg/L	
5) t	C16	12.26	13601	0.821	mg/L	
6) t	C18	12.72	12221	0.638	mg/L	
7) t	C20	13.16	10679	0.583	mg/L	
8) t	C22	13.98	6498	0.358	mg/L	
9) t	C24	14.73	2557	0.137	mg/L	
10) t	C26	15.34	1172	0.063	mg/L	
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	16.65	3196	0.170	mg/L	
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	12.75	6081	0.350	mg/L	
20) T	Phytane	13.20	3667	0.199	mg/L	
22) t	TPHC - total	13.68	3521437	157.543	mg/L	m

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

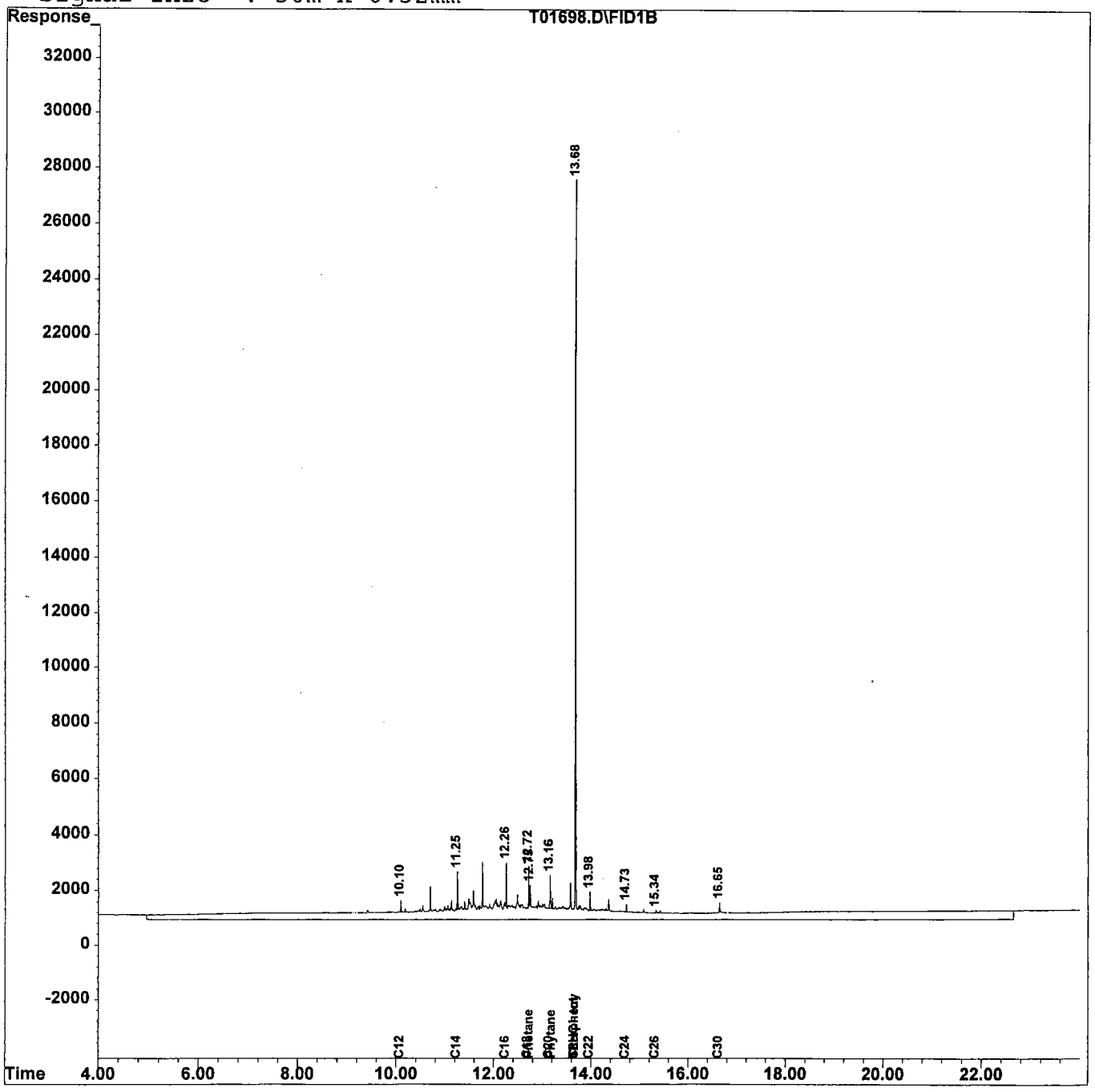
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01698.D
Acq On : 26 Jun 97 8:33 am
Sample : 2723.12
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 12:54 1997 Quant Results File: TPH8.RES

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

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



27

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01699.D Vial: 25
Acq On : 26 Jun 97 9:30 am Operator: Skelton
Sample : 2723.13 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 13:21 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	229969	11.201	mg/L	
Spiked Amount	10.000	Recovery	=	112.01%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	d
5) t	C16	0.00	0	N.D.	mg/L	d
6) t	C18	0.00	0	N.D.	mg/L	d
7) t	C20	0.00	0	N.D.	mg/L	d
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	d
20) T	Phytane	0.00	0	N.D.	mg/L	d
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

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

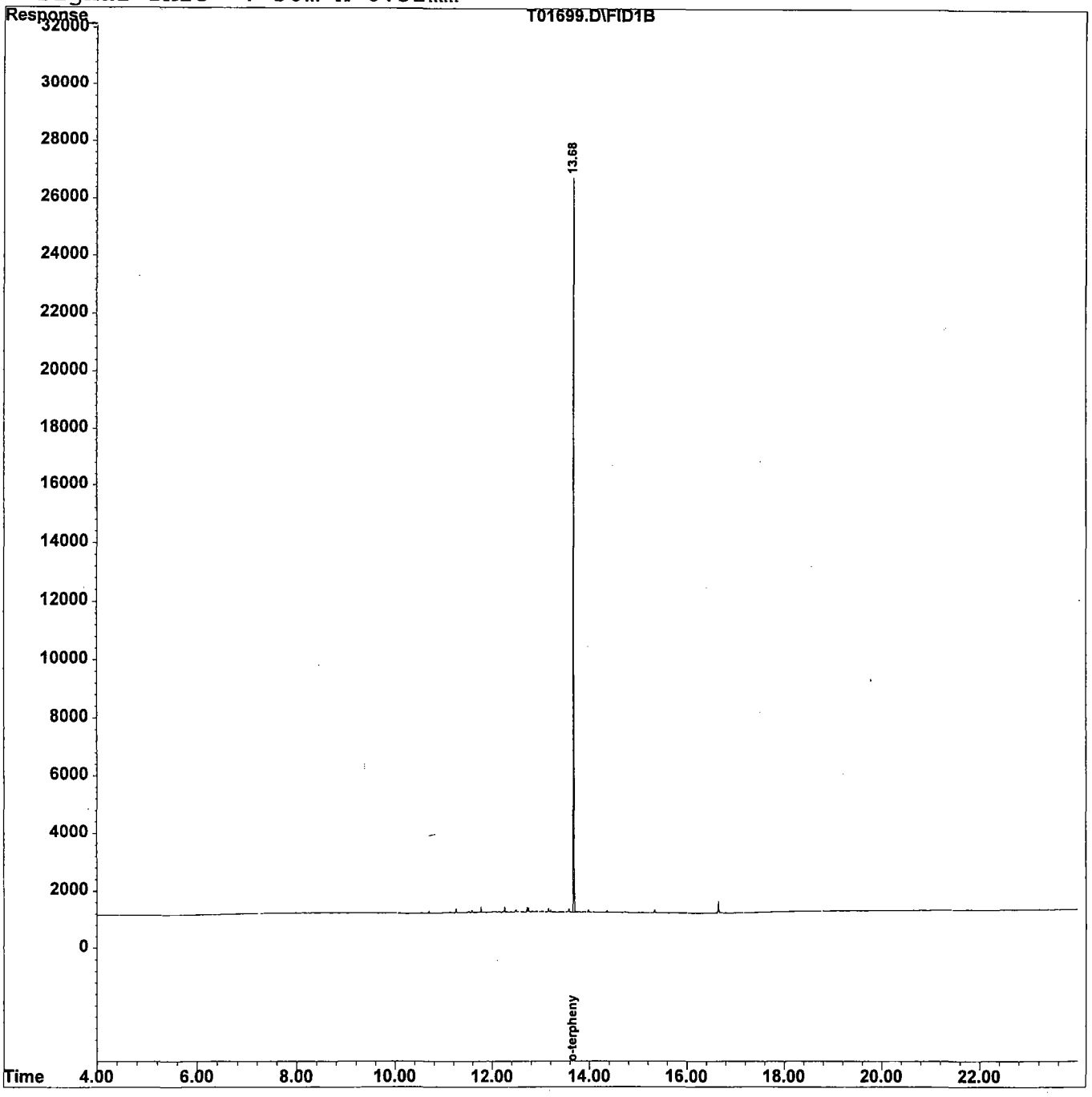
Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01699.D
Acq On : 26 Jun 97 9:30 am
Sample : 2723.13
Misc :
IntFile : TPHCINT.E
Quant Time: Jun 26 13:21 1997 Quant Results File: TPH8.RES

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

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



20

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\970625\T01700.D Vial: 26
Acq On : 26 Jun 97 10:30 am Operator: Skelton
Sample : 2723.14 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 13:23 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Initial Calibration
DataAcq Meth : TPH8.M

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

	Compound	R.T.	Response	Conc	Units	
	System Monitoring Compounds					
21) s	o-terphenyl	13.68	250834	12.217	mg/L	
Spiked Amount	10.000	Recovery	=	122.17%		
	Target Compounds					
1) t	C8	0.00	0	N.D.	mg/L	
2) t	C10	0.00	0	N.D.	mg/L	
3) t	C12	0.00	0	N.D.	mg/L	
4) t	C14	0.00	0	N.D.	mg/L	
5) t	C16	0.00	0	N.D.	mg/L	
6) t	C18	0.00	0	N.D.	mg/L	
7) t	C20	0.00	0	N.D.	mg/L	
8) t	C22	0.00	0	N.D.	mg/L	
9) t	C24	0.00	0	N.D.	mg/L	
10) t	C26	0.00	0	N.D.	mg/L	d
11) t	C28	0.00	0	N.D.	mg/L	
12) t	C30	0.00	0	N.D.	mg/L	d
13) t	C32	0.00	0	N.D.	mg/L	
14) t	C34	0.00	0	N.D.	mg/L	
15) t	C36	0.00	0	N.D.	mg/L	
16) t	C38	0.00	0	N.D.	mg/L	
17) t	C40	0.00	0	N.D.	mg/L	
18) t	c42	0.00	0	N.D.	mg/L	
19) T	Pristane	0.00	0	N.D.	mg/L	
20) T	Phytane	0.00	0	N.D.	mg/L	
22) t	TPHC - total	0.00	0	N.D.	mg/L	d

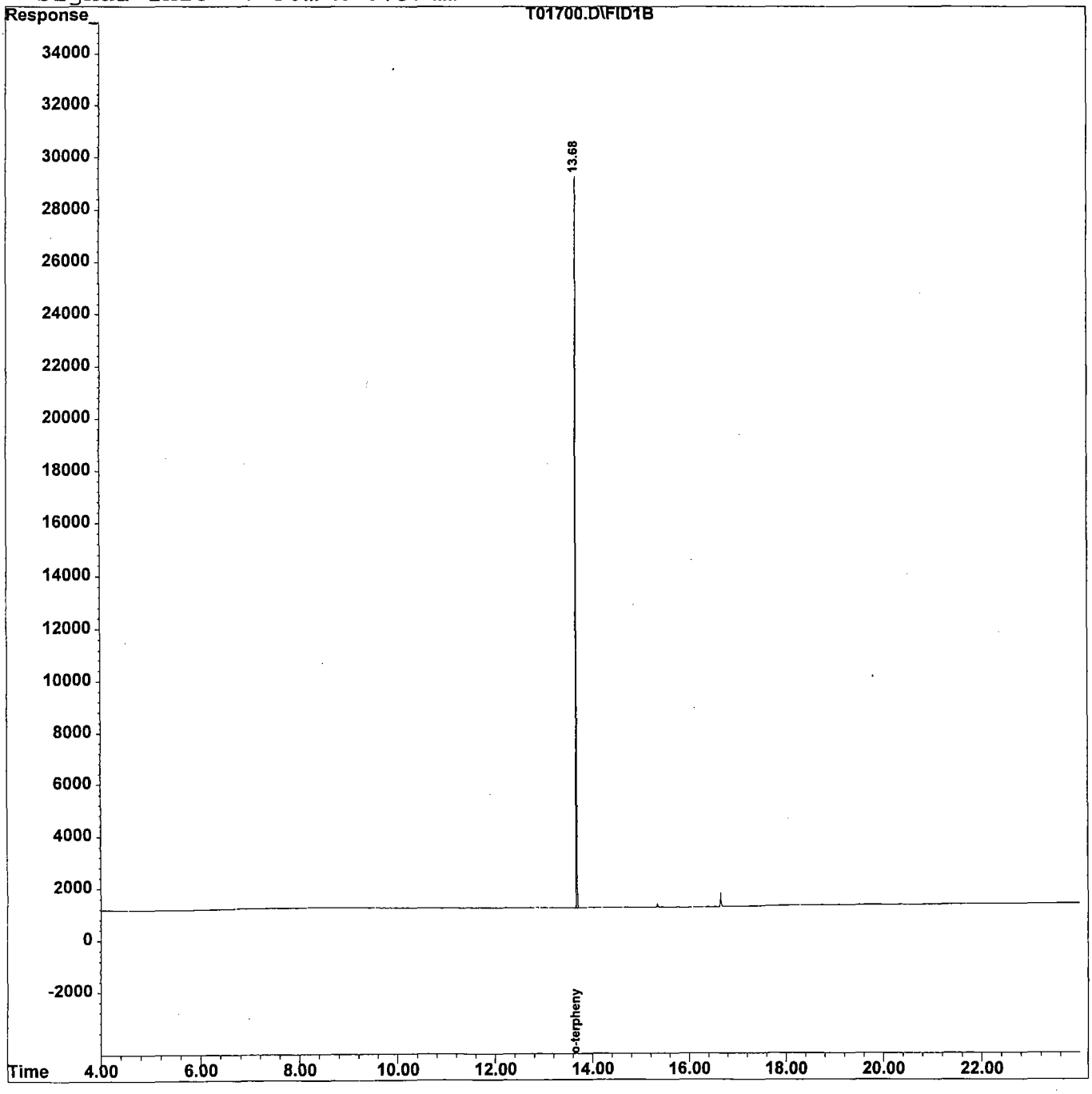
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\970625\T01700.D Vial: 26
Acq On : 26 Jun 97 10:30 am Operator: Skelton
Sample : 2723.14 Inst : FID/TCD
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 26 13:23 1997 Quant Results File: TPH8.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH8.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 05 14:02:46 1997
Response via : Multiple Level Calibration
DataAcq Meth : TPH8.M

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



41

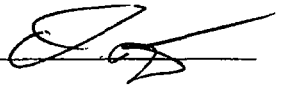
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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 <u>and</u> in the main body of the report.

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

Laboratory Manager or Environmental Consultant's Signature 

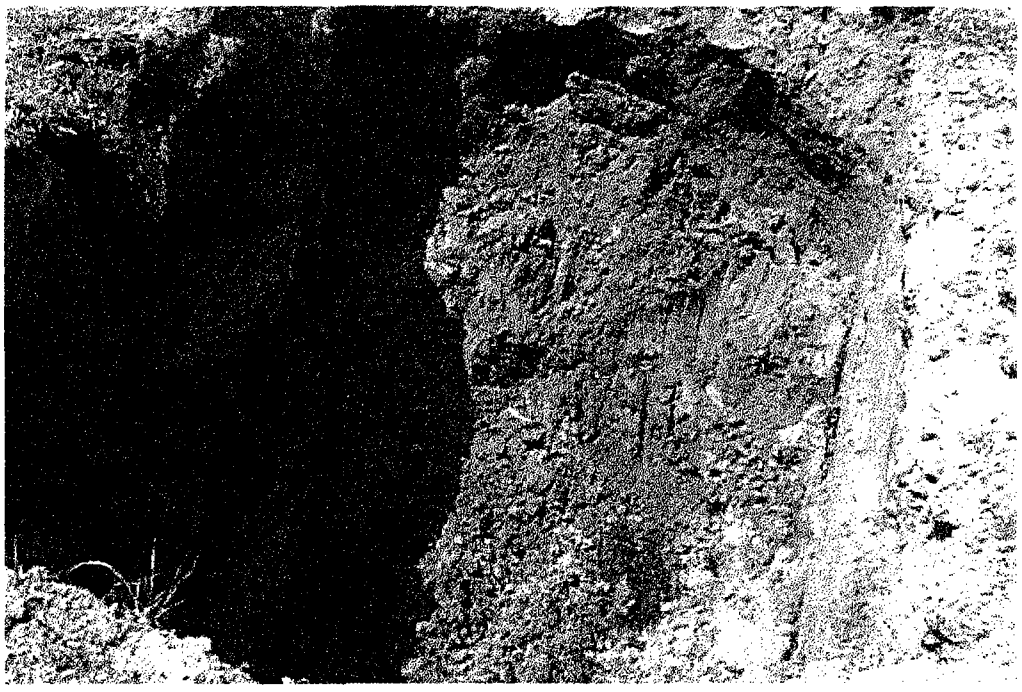
Date 12/16/97

Laboratory Certification #13461

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

APPENDIX F

PHOTOGRAPHS



December 1997

PHOTOGRAPHIC LOG

UST No. 81515-12

Building 2275

Charles Wood Area

Fort Monmouth

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