COPY

United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 286
Main Post-West Area

NJDEP UST Registration No. 81533-60

December 1998

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 286

MAIN POST-WEST AREA
NJDEP UST REGISTRATION NO. 81533-60

DECEMBER 1998

PREPARED FOR:

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

PREPARED BY:

VERSAR
1900 FROST ROAD
SUITE 110
BRISTOL, PA 19007

PROJECT NO. 2491-308

286.DOC

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EXECUTIVE SUMMARY

UST Closure

On June 26, 1998, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) underground storage tank closure procedures at the Main Post-West area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 81533-60 (Fort Monmouth ID No. 286), was located southwest of Building 286. UST No. 81533-60 was a 4,000-gallon No. 2 fuel oil UST.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual.* The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation.* Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Stained soil was observed in the native soil near the fill end of the tank. On June 27, 1998, potentially contaminated soil was removed from the excavation area. In total, approximately 3 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area. Soil samples that were collected after the removal of the potentially contaminated soil contained TPHC concentrations ranging from non-detect to 567.98 mg/kg. Due to the location of the utilities and concrete, the steel piping lines were not removed. Groundwater was encountered at 6.0 feet below ground surface and no sheen was observed.

Site Restoration

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

Conclusions and Recommendations

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

No further action is proposed in regard to the closure and site assessment of UST No. 81533-60 at Building 286.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81533-60, was closed at Building 286 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on June 26, 1998. Refer to the site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 4,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 81533-60 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. 81533-60 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM). The NJDEP Standard Reporting Form and signed Site Assessment Summary form for UST No. 81533-60 are included in Appendices A and B, respectively.

After removal of the potentially contaminated soil, the site was assessed. Based on inspecting the UST, field screening of remaining subsurface soils, and reviewing analytical results of collected soil samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping.

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

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

1.2 SITE DESCRIPTION

Building 286 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-60 was located southwest of Building 286 and appurtenant steel piping ran approximately twenty-five (25) feet east from the excavation to Building 286. 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 286. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area.

Regional Geology

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. 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 Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

The Tinton sand conformably overlies the Red Bank Sand and ranges from a clayey medium to very coarse grained feldspathic quartz and glauconite sand to a glauconitic coarse sand. The color varies from dark yellowish orange or light brown to moderate brown and from light olive to grayish olive. Glauconite may constitute 60 to 80 percent of the sand fraction in the upper part of the unit (Minard, 1969). The upper part of the Tinton is often highly oxidized and iron oxide encrusted (Minard).

Hydrogeology

The water table aquifer in the Main Post area is identified as part of the "composite confining units," or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths of 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Due to the proximity of the Atlantic Ocean to Fort Monmouth, shallow groundwater may be tidally influenced and may flow toward creeks and brooks as the tide goes out, and away from creeks and brooks as the tide comes in. However, an abundance of clay lenses and sand deposits were noted in borings installed throughout Fort Monmouth. Therefore, the direction of shallow groundwater should be determined on a case-by-case basis.

Shallow groundwater is locally influenced within the Main Post area by the following factors:

- tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
- topography
- nature of the fill material within the Main Post area
- presence of clay and silt lenses in the natural overburden deposits
- local groundwater recharge areas (i.e., streams, lakes)

Due to the fluvial nature of the overburden deposits (i.e., sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis. This is consistent with lithologies observed in borings installed within the Main Post area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of gravel silt and/or clay.

Building 286 is located approximately 1000 feet north of Husky Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 286 is anticipated to be to the south.

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. A manway was then made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 150 gallons of liquid from the UST and its associated piping were transported by Casie Protank to Casie Ecology Oil Salvage, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Vineland, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP 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 was observed in the native soil near the fill end of the tank. On June 27, 1998, potentially contaminated soil was removed from the excavation area. In total, approximately 3 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area. Soil samples that were collected after the removal of the potentially contaminated soil contained TPHC concentrations ranging from non-detect to 567.98 mg/kg. Soil screening was also performed along the piping run associated with the UST closure. No contamination was noted anywhere along the piping length. Due to the location of the utilities and concrete, the steel piping lines were not removed. Groundwater was encountered at a depth of 6.0 feet bgs and no sheen was observed. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

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

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

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

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on visual observations, approximately 3 cubic yards of potentially contaminated soil were removed from the UST excavation. 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. Groundwater 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 document *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Site Investigation Activities:

- Subsurface Evaluator: Dinker DeSai
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (908) 532-0989
  NJDEP Certification No.: 10173

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

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

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank

exhibited evidence of potential contamination. Soils were removed from the excavation until no evidence of contamination remained. Groundwater encountered did not exhibit a sheen.

2.3 SOIL SAMPLING

On June 29, 1998, following the removal of the UST and all potentially contaminated soils, post-excavation soil samples A, A2, B, B2, C, C2, D, D2, E, E2, F, F2, and DUP A were collected from a total of twelve (12) locations of the UST excavation. Excavation floor samples A, B, and DUP A were collected at a depth of 8.0 feet bgs. Samples A2 and B2 were collected along the excavation floor at a depth of 10.0 feet bgs. Sidewall samples C, C2, D, D2, E, E2, F, and F2 were collected at a depth of 5.5 feet bgs. On July 13, 1998, piping run samples A, B, and DUP A were collected at a depth of 1.5 and 1.0 feet bgs. All samples were analyzed for TPHC and total solids.

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

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST, post-excavation soil samples were collected on June 29, 1998, and July 13, 1998, from a total of fourteen (14) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained TPHC concentrations ranging from non-detect to 567.98 mg/kg. Groundwater encountered did not exhibit a sheen.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 286 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. 81533-60 at Building 286.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 286, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
A2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
B	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
B2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
C	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
C2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
D	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
D2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
E	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
E2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
F	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
F2	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
DUPA	6/27/98	6/29/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 286, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	7/13/98	7/13/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
B	7/13/98	7/13/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025
DUP A	7/13/98	7/13/98	Soil	Post-Excavation	TPHC	OQA - QAM - 025

Note:
* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 286, MAIN POST-WEST 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/8.0'	3687.01	6/27/98	6/29/98	Total Solid	--	--	82.23 %	--	--
				TPHC	190	yes	ND	10,000	No
A2/10.0	3687.02	6/27/98	6/29/98	Total Solid	--	--	78.24 %	--	--
				TPHC	193	yes	ND	10,000	No
B/8.0	3687.03	6/27/98	6/29/98	Total Solid	--	--	85.75 %	--	--
				TPHC	178	yes	ND	10,000	No
B2/10.0	3687.04	6/27/98	6/29/98	Total Solid	--	--	79.05 %	--	--
				TPHC	196	yes	ND	10,000	No
C/5.5	3687.05	6/27/98	6/29/98	Total Solid	--	--	78.68 %	--	--
				TPHC	199	yes	ND	10,000	No
C2/5.5	3687.06	6/27/98	6/29/98	Total Solid	--	--	78.49 %	--	--
				TPHC	196	yes	ND	10,000	No
D/5.5	3687.07	6/27/98	6/29/98	Total Solid	--	--	81.05 %	--	--
				TPHC	188	yes	ND	10,000	No
D2/5.5	3687.08	6/27/98	6/29/98	Total Solid	--	--	77.80 %	--	--
				TPHC	199	yes	ND	10,000	No
E/5.5	3687.09	6/27/98	6/29/98	Total Solid	--	--	90.37 %	--	--
				TPHC	173	yes	309.19	10,000	No
E2/5.5	3687.10	6/27/98	6/29/98	Total Solid	--	--	77.46 %	--	--
				TPHC	202	yes	567.98	10,000	No

Note:

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

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 286, MAIN POST-WEST 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
F/5.5	3687.11	6/27/98	6/29/98	Total Solid	--	--	88.86 %	--	--
				TPHC	174	yes	ND	10,000	No
F2/5.5	3687.12	6/27/98	6/29/98	Total Solid	--	--	78.93 %	--	--
				TPHC	198	yes	ND	10,000	No
DUPA/8.0	3687.13	6/27/98	6/29/98	Total Solid	--	--	83.20 %	--	--
				TPHC	189	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
TPHC	Total Petroleum Hydrocarbons
--	Not Applicable

TABLE 2

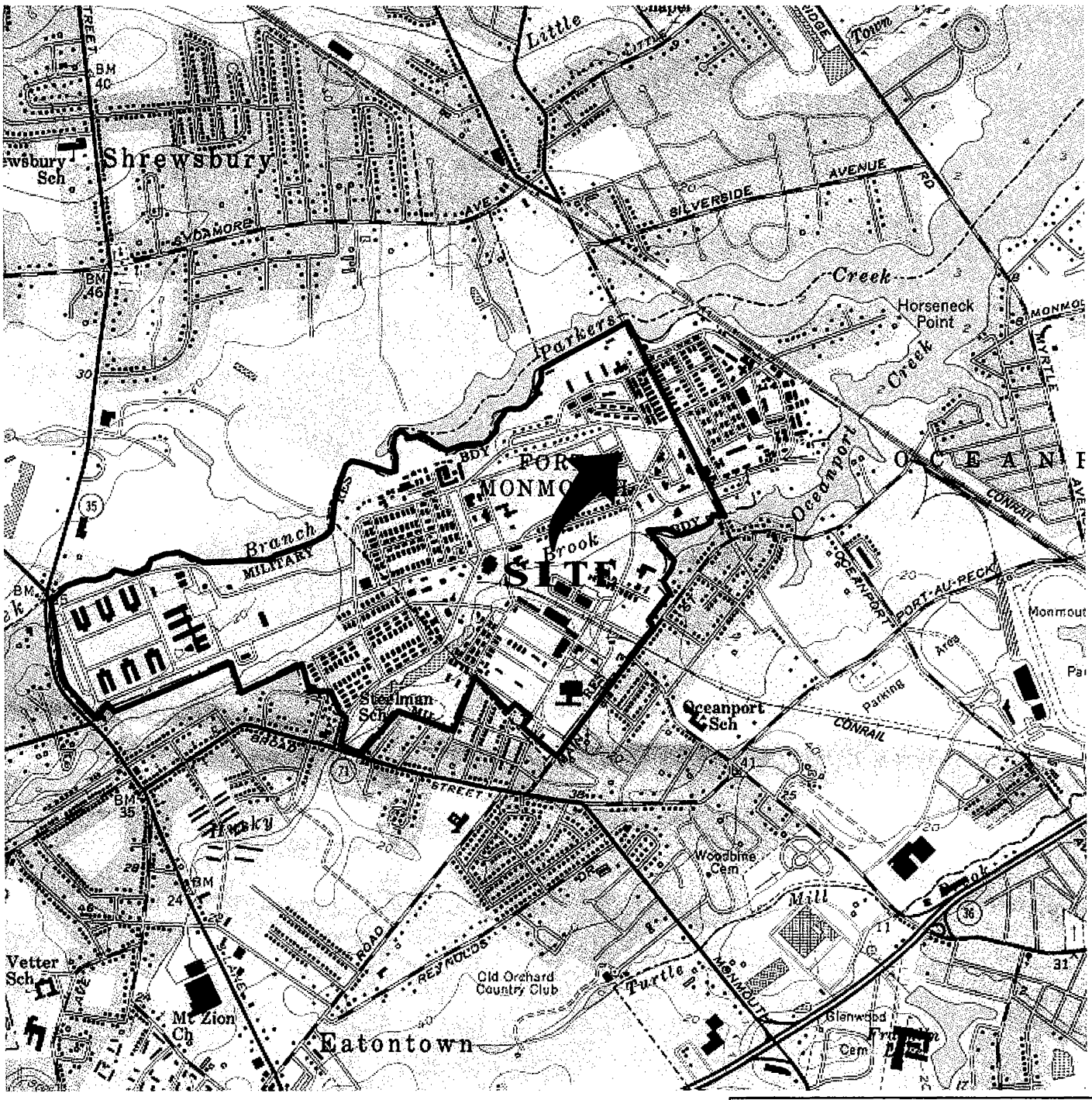
POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 286, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

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/1.5	3718.01	7/13/98	7/13/98	Total Solid	--	--	95.31 %	--	--
				TPHC	162	yes	ND	10,000	No
B/1.0	3718.02	7/13/98	7/13/98	Total Solid	--	--	73.56 %	--	--
				TPHC	208	yes	ND	10,000	No
DUPA/1.5	3718.03	7/13/98	7/13/98	Total Solid	--	--	93.97 %	--	--
				TPHC	163	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
TPHC	Total Petroleum Hydrocarbons
--	Not Applicable

FIGURES



LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW JERSEY

QUADRANGLE LOCATION

Mapped, edited and published by the Geological Survey

FIGURE 1

LOCATION MAP
Building 286
Main-Post West
Fort Monmouth Army Base
Monmouth County, NJ

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

Scale: 1" = 2000'

Date: JUNE 1998

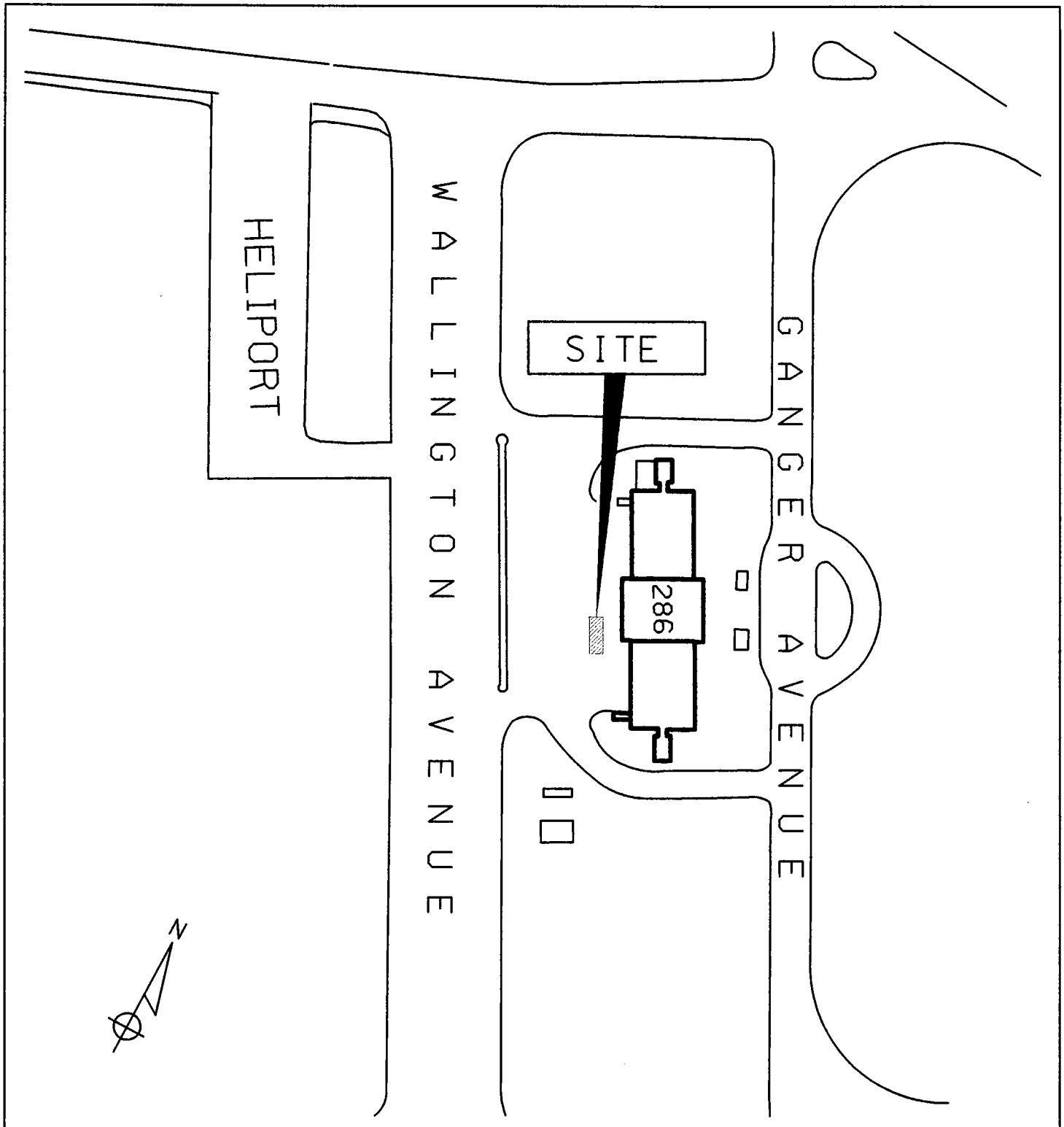


FIGURE 2
SITE MAP
BUILDING 286
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: JUNE 1998

286 2429 FIG2

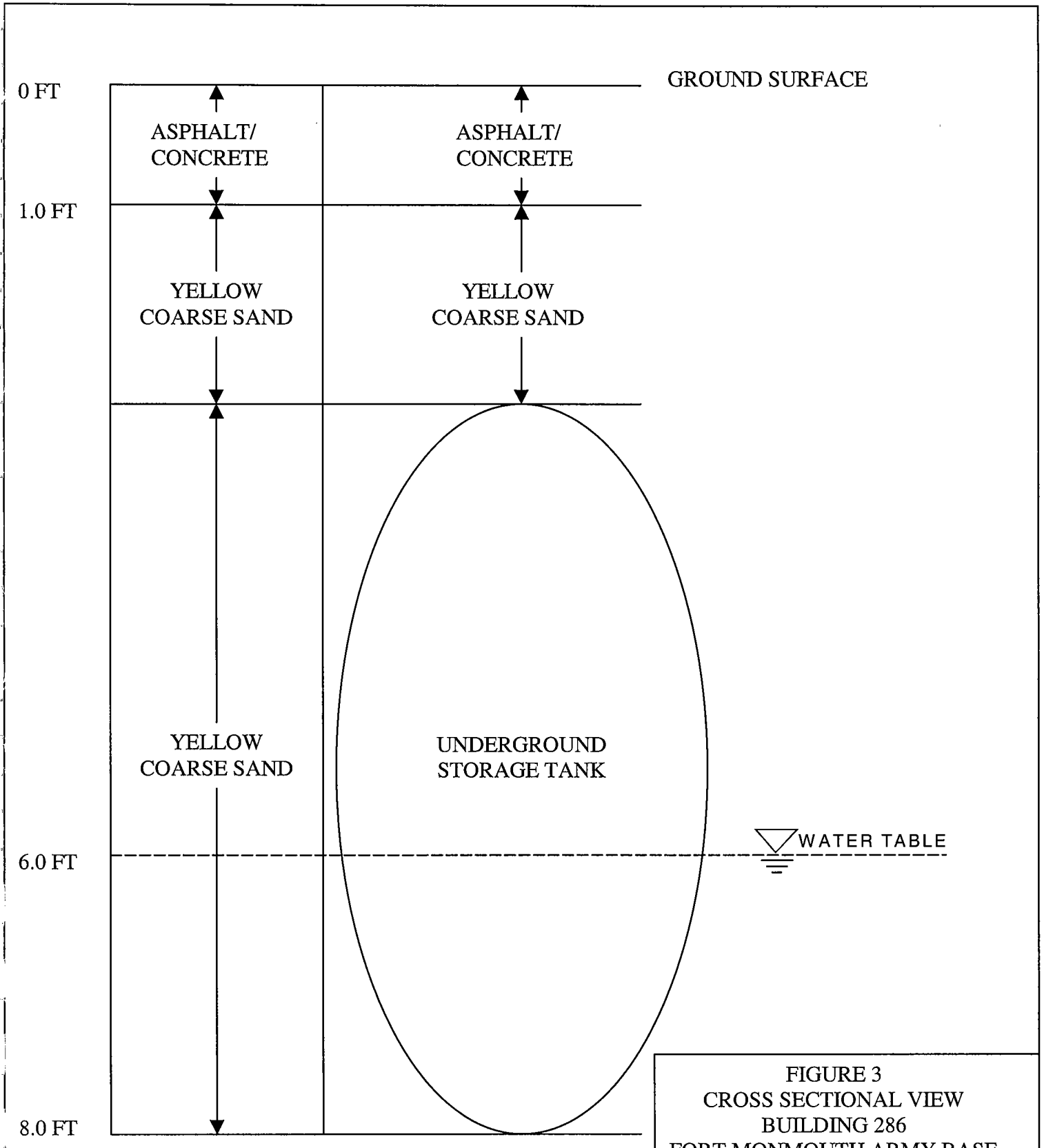
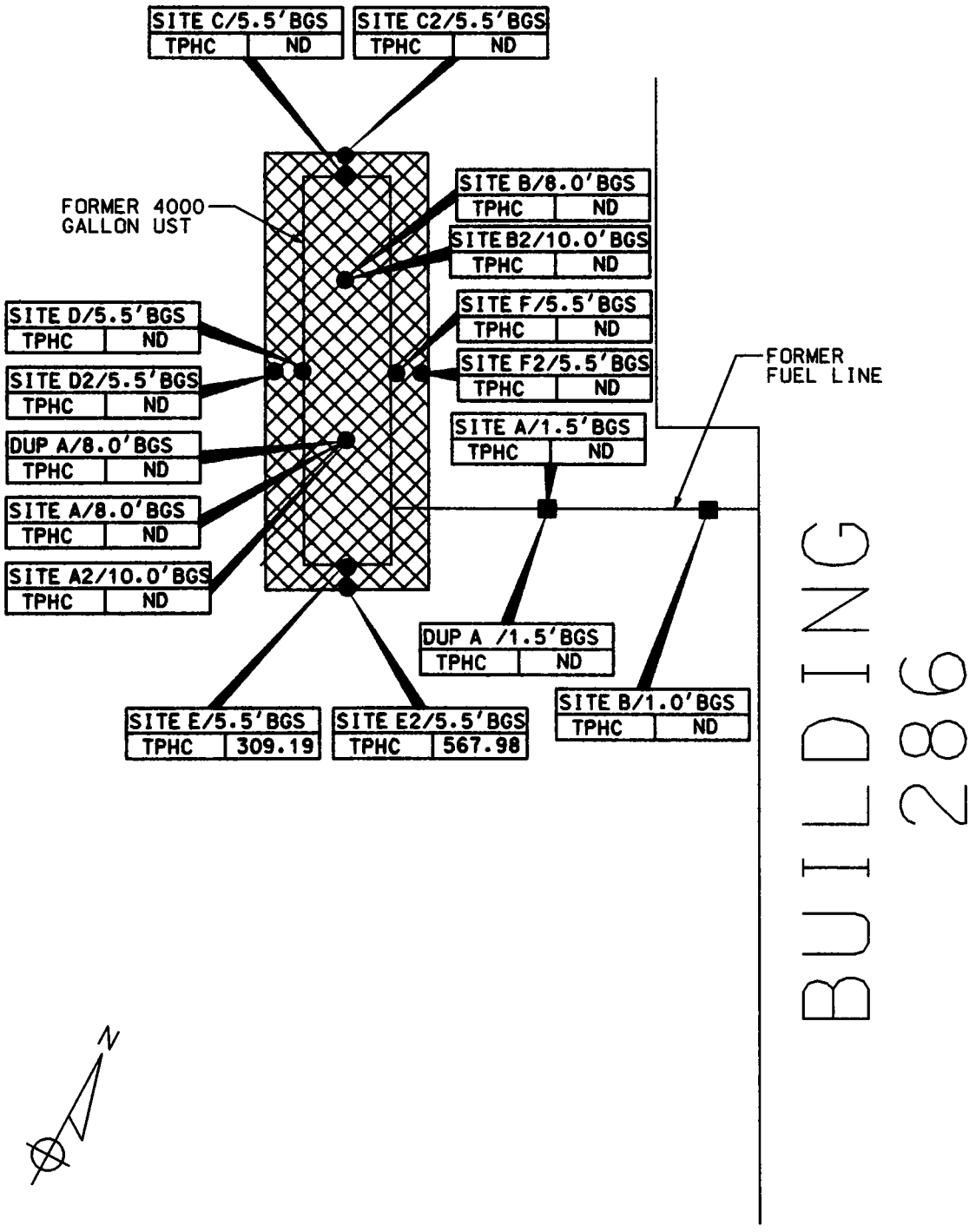


FIGURE 3
CROSS SECTIONAL VIEW
BUILDING 286
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, Pennsylvania

SCALE: NTS | DATE: JUNE 1998



LEGEND

- SOIL SAMPLE LOCATION (JUNE 27, 1998)
- SOIL SAMPLE LOCATION (JULY 13, 1998)
- LIMIT OF EXCAVATION (JUNE 27, 1998)

NOTES:

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

FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 286
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

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

286 2429 FIG4

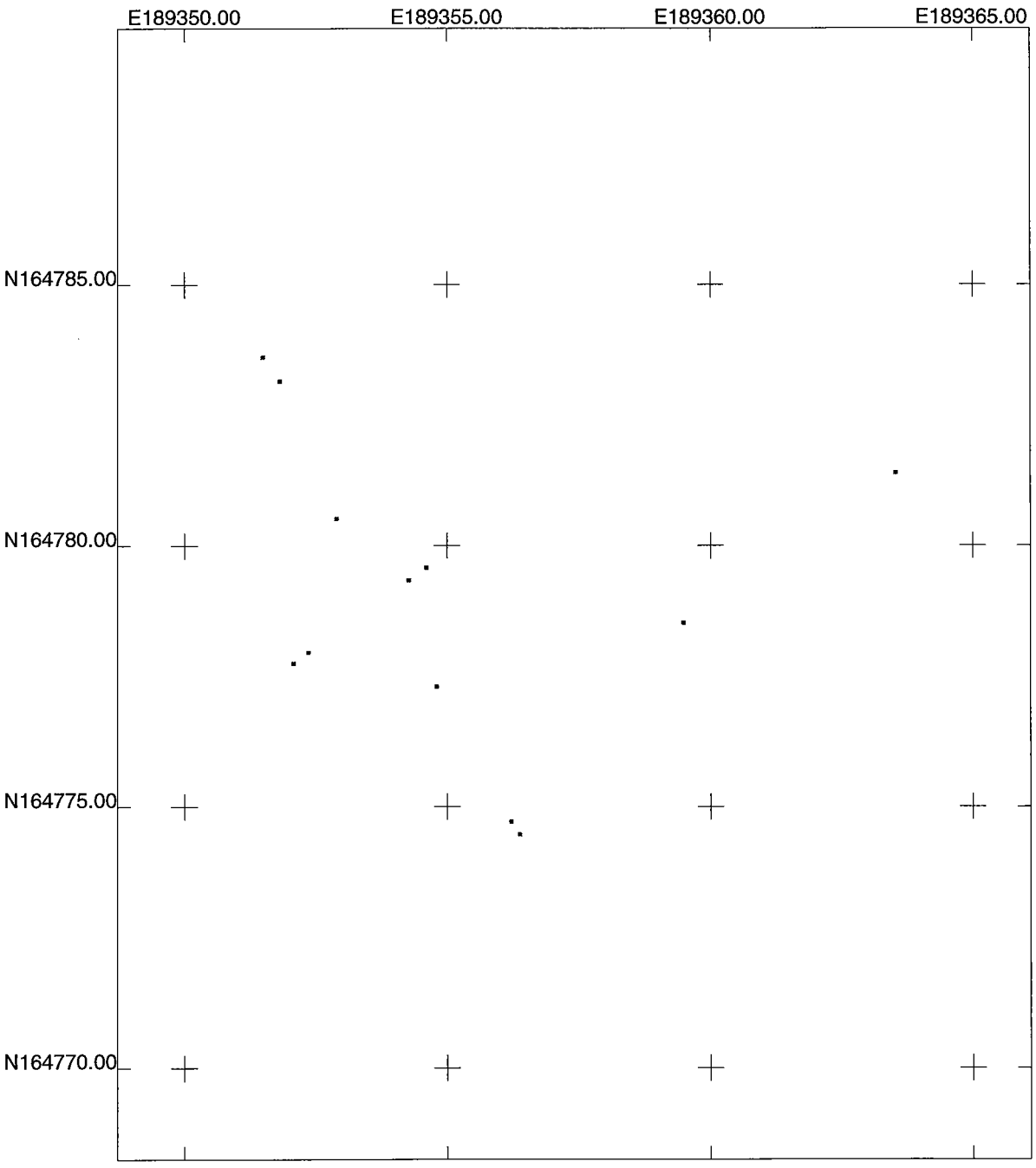


Figure 4 GPS Sampling Locations Map

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

N

Scale 1:125
0 4.000
Meters

r010515a.cor
1/8/1999
Pathfinder Office
Trimble

Figure 4 GPS Sampling Location Point Data

US State Plane 1983 NJ (NY East) 2900 NADCON (Conus)
(in Meters)

Sample Points

Location / Desc.	Y Coord. (Northing)	X Coord. (Easting)
286 A	164777.314	189354.786
286 B	164780.536	189352.872
286 C	164783.176	189351.794
286 C2	164783.631	189351.466
286 D	164777.971	189352.333
286 D2	164777.76	189352.053
286 E	164774.725	189356.202
286 E2	164774.484	189356.365
286 F2	164779.596	189354.597
286 F	164779.355	189354.255

Piping Line

Location / Desc.	Y Coord. (Northing)	X Coord. (Easting)
286 A	164778.534	189359.469
286 B	164781.408	189363.524

APPENDIX A

NJDEP STANDARD REPORTING FORM

UST Fac. #7

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
BUREAU OF APPLICABILITY AND COMPLIANCE
Registration and Billing Unit
CN 028, Trenton, N.J. 08625-0028
1-609-984-3156

FOR STATE USE ONLY
Check In ☐ Yes ☐
STATUS Active ☐ Inactive ☐ COMCODE ☐☐☐☐

UNDERGROUND STORAGE TANK FACILITY QUESTIONNAIRE

FACILITY UST # 0081533 Bldg 286

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

[Check appropriate box(es)]

A. ☐ Is this a registration of a proposed or newly installed underground storage tank? (This form must be filed at least 30 days prior to operatio
B. ☐ Is this a registration of an existing underground storage tank not presently registered?
C. ☒ Is this a correction or amendment to an existing facility registration? UST # 81533
D. ☐ There have been no changes to the facility registration since last submittal. UST #_____ (Go to certification page for signatures)

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

☐ Facility Name and/or Address Change
☐ Owner Name and/or Address Change
☐ Facility Operator and/or Address Change
☐ Owner Contact Person Change
☐ Type of Product(s) Stored
☐ Spills, Leaks, Releases
☐ Tank(s) and/or Piping Changes
☒ Closure (Complete Question #13)
☐ Financial Responsibility Change
☐ Substantial Modification(s)
☐ Sale or Transfer (Complete Questions 4,5,6 & 13
☐ Other *(please specify)*

SECTION A - GENERAL FACILITY INFORMATION

1. Facility Name: MAIN POST WEST
2. Facility Location: Ft Monmouth
   NUMBER AND STREET
   CITY OR MUNICIPALITY
   COUNTY | STATE: NJ | ZIP CODE | BLOCK | LOT
3. Facility Operator
   PERSON OR TITLE
   Contact Tele. No (Area Code) (Extension)
   Operator Address (if different than #2)
   NUMBER AND STREET
   CITY OR MUNICIPALITY
   STATE | ZIP CODE
4. Tank Owner
5. Tank Owner Address
   NUMBER AND STREET
   CITY OR MUNICIPALITY
   STATE | ZIP CODE
   Contact Person (Tank Owner): Charles Appleby
   Contact Tele. No: 732 532 6229 (Area Code) (Extension)
7. EPA ID #
8. Total number of regulated underground storage tanks at facility ☐☐☐ *(Complete Section B for each tank)*

Bldg. 6

Tank Identification Number	TANK NO.	TANK NO.	TANK NO.	TANK NO.	TANK NO.
8. Type of Monitoring/Detection System	Tank Piping	Tank Piping	Tank Piping	Tank Piping	Tank Piping
K. None	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
L. Other (please specify)					
9. Overfill Protection (tank only) (Mark one X for each tank)					
A. Yes	☐	☐	☐	☐	☐
B. No	☐	☐	☐	☐	☐
10. Spill Containment Around Fill Pipe (Mark one X for each tank)					
A. Yes	☐	☐	☐	☐	☐
B. No	☐	☐	☐	☐	☐
11. Tank Status (Mark one X for each tank)	Tank Piping	Tank Piping	Tank Piping	Tank Piping	Tank Piping
A. In-use	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
B. Empty less than 12 months	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
C. Empty 12 months or more	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
D. Emergency spill tank (sump)	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
E. Emergency backup generator tank	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
F. Abandoned in Place	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
G. Removed	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
H. Other (please specify)					
12. If box 11B, C, or D above has been marked, indicate the estimated date last used (month/day/year)	Mo. Day Year	Mo. Day Year	Mo. Day Year	Mo. Day Year	Mo. Day Year
13. Closure Information - Tank ID No. (Bldg. 286)	TANK NO. 0060	TANK NO.	TANK NO.	TANK NO.	TANK NO.
	Mo. Day Year	Mo. Day Year	Mo. Day Year	Mo. Day Year	Mo. Day Year
A. Date abandoned in place					
B. Date taken temporarily out of service					
C. Date removed	06/26/1998				
D. Date of Sale or Transfer					
E. TMS # (if applicable)	NA Fed. Case Mgr.				
F. ISRA # (if applicable)	NA				

SECTION C - FINANCIAL RESPONSIBILITY

Does this facility have a Financial Responsibility Assurance Mechanism as required in 40 CFR 280? ☐ YES ☐ NO
Please list the appropriate financial information below:

Type _____ Carrier / Issuing Agency _____

___/___/___ Effective Date ___/___/___ Expiration Date _____ Policy Number $_____ Amount

SECTION D - MONITORING SYSTEMS

Does this facility have a release detection monitoring system which is in compliance with N.J.A.C. 7:14B-6? ☐ YES ☐ NO
If "No", please be aware that the facility must meet the appropriate deadline. (See "Dates to Know" on Page 4)

SECTION E - RECORDKEEPING/COMPLIANCE

Please answer all the questions in this section on a facility basis. Any one tank not in compliance requires a "NO" answer for the entire facility.

1. Does this facility have cathodic protection systems for all steel tanks and piping? ☐ YES ☐ NO
   If "Yes", are the systems properly operated and maintained pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
2. Are the performance claims and documentation of monitoring systems maintained by the owner or operator pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
3. Are the proper monitoring, testing, sampling, repair and inventory records kept on-site pursuant to N.J.A.C. 7:14B-5 and 6? ☐ YES ☐ NO
4. Is the proper Release Response Plan kept on-site pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO
5. Does the facility have spill and over fill protection systems pursuant to N.J.A.C. 7:14B-4? ☐ YES ☐ NO
6. Have all Fill Ports been permanently marked as per API #1637 pursuant to N.J.A.C. 7:14B-5? ☐ YES ☐ NO

APPENDIX B

SITE ASSESSMENT SUMMARY

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

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

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

Facility Street Address : Directorate of Public Works Building 173

Municipality: Oceanport County : Monmouth

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

B. Owner (RP)'s Name:

Street Address: City :

State: Zip: Telephone Number :

C. (Check as appropriate)

___ Site Investigation Report (SIR) $500 Fee

___ Remedial Investigation Report (RIR) $1000 Fee

_X_ NA – Federal Agreement

D. (Complete all that apply)

- Assigned Case Manager : Ian Curtis, Federal Case Manager
- UST Registration Number : 81533-60 (7 digits)
- Incident Report Number ___•___•___•_____•___ (10 or 12 digits)
  ___•___•___•_____•___
- Tank Closure Number : Federal Case Manager

E. Certification by the Subsurface Evaluator:

The attached report conforms to the specific reporting requirements of N.J.A.C. 7:26E ..... (Yes) No

Name: Dinker DeSai Signature: UST Cert. No.: 2056

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

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

State: New Jersey Zip: 07703 Telephone Number : 732-532-6224

(NOTE: Certification numbers required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.)

F. Certification by the Responsible Party(ies) of the Facility:

The following certification shall be signed [according to the requirements of N.J.A.C. 7:14B-1.7(b)]as follows:

1. For a Corporation by a person authorized by a resolution of the board of directors to sign the document. A copy of the resolution, certified as a true copy by the secretary of the corporation, shall be submitted along with the certification; or
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.

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

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

Signature: James Ott

Company Name: U.S. Army Fort Monmouth Date: 3/25/99

APPENDIX C

WASTE MANIFEST

#1

CASIE PROTANK

286

ENVIRONMENTAL SERVICES

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

NON-HAZARDOUS MANIFEST

1. Generator's US EPA ID No. N J 3 2 1 0 0 2 0 5 9 7 | Document No. 810

2. Page 1 of

3. Generator's Name and Mailing Address: U.S. Army Com. Elec.Command
Main Post Bldg 173/Attn: Joe Fallon
Fort Monmouth NJ 07703

A. Non-hazardous Manifest Document Number: NHZ020 19288

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

B. State Generator's ID: S.L. / ~~c/o James Shirghio~~ c/o JOE FALLON

5. Transporter 1 Company Name: Casie Ecology Oil Salvage, Inc.

6. US EPA ID Number: N J D 0 4 5 9 9 5 6 9 3

C. State Trans. ID: 1 6 9 3 1 0 0

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone: (609) 696-4401

E. State Trans. ID

9. Designated Facility Name and Site Address: Casie Ecology Oil Salvage, Inc. T/A
3209 N. Mill Rd / Casie Protank
Vineland NJ 08360

10. US EPA ID Number: N J D 0 4 5 9 9 5 6 9 3

F. Transporter's Phone ( )

G. State Facility's ID: 0614D1HP05

H. Facility's Phone: (609) 696-4401

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a. Combustible liquid, n.o.s.(Fuel Oil) NA1993, III	0 0 1	T T	~~0 0 0 0 1~~ XX782	G	I D 7 2
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: (L,T)

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Bldg.# 286, 233, 235, 237, 239
UST Closure

a. ERG# 128
b. 24 hr emergency response #609-696-4401 K. Ambrosia

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261, 264 and 279 or any applicable state law.

Printed/Typed Name: Charles Appleby SELF-AWEC Signature: [signature] Month Day Year: 6/24/98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: SHAWN LEE Signature: [signature] Month Day Year: 6/24/98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name Signature Month Day Year

FACILITY

19. Discrepancy Indication Space

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

Printed/Typed Name Signature Month Day Year

GENERATOR

In case of an emergency or spill, immediately call CASIE (800) 354-2584

1-GENERATOR COPY

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

Bldg 286 File Copy

CASIE PROTANK
ENVIRONMENTAL SERVICES

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

NON-HAZARDOUS MANIFEST

1. Generator's US EPA ID No. N J 3 2 1 0 0 2 0 5 9 7 — Document No. 14820

2. Page 1 of

3. Generator's Name and Mailing Address: U.S. Army Com. Elec.Command
Main Post Bldg 173/Attn:
Fort Monmouth NJ 07703

4. Generator's Phone (732 532-6223

A. Non-hazardous Manifest Document Number: NHZ020 19474

B. State Generator's ID: NJ05982
c/o James ~~Shirghio~~/ Joe Knilon

5. Transporter 1 Company Name: Casie Ecology Oil Salvage, Inc.

6. US EPA ID Number: N J D 0 4 5 9 9 5 6 9 3

C. State Trans. ID: 16931

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone ((609) 696-4401

E. State Trans. ID

9. Designated Facility Name and Site Address: Casie Ecology Oil Salvage, Inc. T/A
3209 N. Mill Rd / Casie Protank
Vineland NJ 08360

10. US EPA ID Number: N J D 0 4 5 9 9 5 6 9 3

F. Transporter's Phone ( )

G. State Facility's ID: 0614D1HP05

H. Facility's Phone (609) 696-4401

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
GENERATOR a.	Combustible liquid, n.o.s.(Fuel Oil) NA1993, III	001	TT	00273	G	ID72
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: (L,T)

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Bldg 286 - 150 Gal
Bldg 105 - 123 Gal

a. ERG# 128
b. 24 hr emergency response #609-696-4401 K. Ambrosia

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261, 264 and 279 or any applicable state law.

Printed/Typed Name: Charles Appleby SEL Env-Pol-Ev — Signature — Month Day Year: 10/27/98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: James Bisher — Signature — Month Day Year: 10/27/98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

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

Printed/Typed Name — Signature — Month Day Year

1-GENERATOR COPY

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

APPENDIX D

UST DISPOSAL CERTIFICATE

3145
286
81533-60

MAZZA & SONS, INC.

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

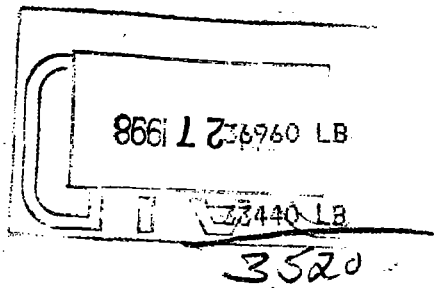
NO. _____

DATE. 27 June 98

Customer's Name Tecom Vinnell

Address _____

	Weight	Price
Cast Iron		
Steel	96.80	
Lt. Iron		
Copper #1		
Copper #2		



	Weight	Price
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Battery		
	5	
	96	80
TOTAL AMOUNT:		

Ck# 1948

Weigher _____ Customer _____

THIS CHECK IS DELIVERED FOR PAYMENT ON THE FOLLOWING ACCOUNTS.

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

1940

MAZZA & SONS, INC.
RECYCLING DIVISION
P.O. BOX 246
OAKHURST, NJ 07755

55-7233/2212

DATE 6/27/98

PAY TO THE ORDER OF Tecom Vinnell

$ 96.80

Ninety six & 80/100 DOLLARS

Sovereign Bank

⑈001940⑈ ⑆221272332⑆000 109109286⑈

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 286

Project # 3687
Date Rec. 06/29/98
Date Compl. 06/30/98
Released by:

7/17/98
Daniel K. Wright Date:
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

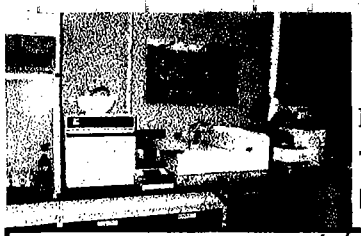
	No	Yes
1.Method Detection Limits provided.	__	✓
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	✓	__
3. Matrix Spike Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).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

Additional Comments:_____

Laboratory Authentication Statement

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

Daniel K. Wright
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

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

NJDEP Certification #13461

Chain of Custody Record

Customer: C. Appleby - DPW
Phone #: 26224
( )DERA (X)OMA ( )Other:_____

Project No: 98-0001
Location: B. 286
0081533-60

Samplers Name / Company : GARY DiMARTINIS - TVS

Analysis Parameters: TPHC; % SOLIDS; OVA

Comments: *=SAMPLES KEPT BELOW 4°c.

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	TPHC	% SOLIDS	OVA	Remarks / Preservation Method
3687.01	286-A	6-27-98	0838	SOIL	1	X	X	15	EXC. FLOOR @ 8.0' *
02	A2		0847					ND	EXC. FLOOR @ 10.0'
03	B		0852					3	EXC. FLOOR @ 8.0'
04	B2		0856					1	EXC. FLOOR @ 10.0'
05	C		0859					ND	SIDEWALL @ 5.5'
06	C2		0902					ND	
07	D		0816					ND	
08	D2		0831					1	
09	E		0819					ND	
10	E2		0827					2	
11	F		0813					ND	
12	F2		0834					ND	
13	DUP		—					—	FIELD DUPLICATE

NOTE: OVA (#A5903) CALIBRATED W/ 95 ppm CH4 + ZERO (0) AIR @ 0800 HRS. ON 6-27-98 by G. DiMARTINIS.

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	6/27/98 1625	[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: (X)Standard 4 wks, (_)Rush ____ Days, (_)ASAP Verbal ____Hrs.

Remarks: DEDICATED SAMPLING TOOLS USED.

print legibly

coc.XLS5/18/98

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

Client :	U.S. Army	**Lab. ID # :**	3687
	DPW. SELFM-PW-EV	**Date Rec'd:**	29-Jun-98
	Bldg. 173	**Analysis Start:**	29-Jun-98
	Ft. Monmouth, NJ 07703	**Analysis Complete:**	30-Jun-98
Analysis:	OQA-QAM-025	**UST Reg. #:**	
Matrix:	Soil	**Closure #:**	
Analyst:	D.DEINHARDT	**DICAR #:**	
Ext. Meth:	Shake	**Location #:**	B. 286

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3687.01	286-A	**1.00**	15.04	82.23	190	**ND**
3687.02	286-A2	**1.00**	15.56	78.24	193	**ND**
3687.03	286-B	**1.00**	15.41	85.75	178	**ND**
3687.04	286-B2	**1.00**	15.14	79.05	196	**ND**
3687.05	286-C	**1.00**	15.03	78.68	199	**ND**
3687.06	286-C2	**1.00**	15.26	78.49	196	**ND**
3687.07	286-D	**1.00**	15.44	81.05	188	**ND**
3687.08	286-D2	**1.00**	15.18	77.80	199	**ND**
3687.09	286-E	**1.00**	15.07	90.37	173	**309.19**
3687.10	286-E2	**1.00**	15.04	77.46	202	**567.98**
3687.11	286-F	**1.00**	15.17	88.86	174	**ND**
3687.12	286-F2	**1.00**	15.03	78.93	198	**ND**
3687.13	286-DUP	**1.00**	14.94	83.20	189	**ND**
METHOD BLANK	TBLK 121	**1.00**	15.00	100.00	157	**ND**

ND = Not Detected

MDL = Method Detection Limit

Daniel K. Wright
Laboratory Director

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998

Calibration Files
100 =T05610.D 50 =T05611.D 20 =T05612.D
10 =T05613.D 5 =T05614.D

	Compound	100	50	20	10	5	Avg		%RSD
1)	tC C8	2.121	2.039	1.912	1.984	2.064	2,024	E4	3.93
2)	tC C10	2.305	2.184	2.138	2.205	2.215	2.209	E4	2.76
3)	TC C12	2.550	2.393	2.339	2.387	2.400	2.414	E4	3.30
4)	tC C14	2.654	2.496	2.459	2.503	2.528	2.528	E4	2.96
5)	tC C16	2.711	2.562	2.547	2.612	2.650	2.616	E4	2.56
6)	tC C18	3.131	3.028	2.996	3.016	2.986	3.031	E4	1.91
7)	tC C20	2.968	2.814	2.807	2.877	2.906	2.874	E4	2.34
8)	tC C22	2.923	2.778	2.769	2.841	2.861	2.834	E4	2.24
9)	tC C24	2.968	2.825	2.806	2.876	2.900	2.875	E4	2.25
10)	tC C26	2.957	2.820	2.782	2.852	2.874	2.857	E4	2.30
11)	tC C28	2.992	2.851	2.799	2.873	2.863	2.876	E4	2.47
12)	tC C30	3.101	2.957	2.881	2.950	2.903	2.958	E4	2.90
13)	tC C32	3.137	2.994	2.879	2.930	2.887	2.966	E4	3.58
14)	tC C34	3.267	3.114	2.979	3.014	2.946	3.064	E4	4.24
15)	tC C36	3.229	3.069	2.864	2.895	2.752	2.962	E4	6.33
16)	tC C38	3.100	2.923	2.657	2.575	2.270	2.705	E4	11.86
17)	tC C40	2.791	2.587	2.210	1.982	1.570	2.228	E4	21.76
18)	tC c42	2.484	2.257	1.798	1.475	1.060	1.815	E4	31.76
19)	TC Pristane	2.844	2.665	2.705	2.785	2.764	2.753	E4	2.54
20)	TC Phytane	2.979	2.828	2.827	2.892	2.933	2.892	E4	2.29
21)	sC o-terphenyl	3.572	3.380	3.368	3.461	3.500	3.456	E4	2.46
22)	tC TPHC - total	3.082	2.986	2.975	3.099	3.340	3.096	E4	4.74

(#) = Out of Range MEAN RSD % = 5.619

TPH41.M Fri Jun 12 08:15:45 1998

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980629\T05876.D Vial: 2
Acq On : 29 Jun 98 2:49 pm Operator: Deinhardt
Sample : 50 PPM STANDARD Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	tC	C8	20.240	20.256 E3	-0.1	103	0.00
2	tC	C10	22.094	23.012 E3	-4.2	108	0.00
3	TC	C12	24.139	25.356 E3	-5.0	109	0.00
4	tC	C14	25.279	26.177 E3	-3.6	108	0.00
5	tC	C16	26.162	26.622 E3	-1.8	108	0.00
6	tC	C18	30.314	30.154 E3	0.5	105	0.00
7	tC	C20	28.743	29.127 E3	-1.3	107	0.00
8	tC	C22	28.341	28.532 E3	-0.7	106	0.00
9	tC	C24	28.749	29.031 E3	-1.0	107	0.00
10	tC	C26	28.571	28.942 E3	-1.3	110	0.00
11	tC	C28	28.758	29.267 E3	-1.8	119	0.00
12	tC	C30	29.584	30.301 E3	-2.4	128	0.00
13	tC	C32	29.655	30.588 E3	-3.1	133	0.00
14	tC	C34	30.640	31.458 E3	-2.7	133	0.00
15	tC	C36	29.620	29.808 E3	-0.6	129	0.00
16	tC	C38	27.051	26.436 E3	2.3	120	0.00
17	tC	C40	22.281	22.122 E3	0.7	112	0.00
18	tC	c42	18.150	18.662 E3	-2.8	108	0.00
19	TC	Pristane	27.526	27.805 E3	-1.0	107	0.00
20	TC	Phytane	28.919	29.265 E3	-1.2	107	0.00
21	sC	o-terphenyl	34.563	35.291 E3	-2.1	108	0.00
22	tC	TPHC - total	30.963	29.859 E3	3.6	107	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980629\T05887.D Vial: 2
Acq On : 30 Jun 98 1:50 am Operator: Deinhardt
Sample : 50 PPM STANDARD Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	tC	C8	20.240	20.954 E3	-3.5	106	0.00
2	tC	C10	22.094	23.361 E3	-5.7	110	0.00
3	TC	C12	24.139	25.874 E3	-7.2	111	0.00
4	tC	C14	25.279	26.797 E3	-6.0	111	0.00
5	tC	C16	26.162	27.309 E3	-4.4	110	0.00
6	tC	C18	30.314	32.422 E3	-7.0	113	0.00
7	tC	C20	28.743	29.911 E3	-4.1	110	0.00
8	tC	C22	28.341	29.249 E3	-3.2	109	0.00
9	tC	C24	28.749	29.726 E3	-3.4	109	0.00
10	tC	C26	28.571	29.549 E3	-3.4	112	0.00
11	tC	C28	28.758	29.844 E3	-3.8	121	0.00
12	tC	C30	29.584	30.826 E3	-4.2	130	0.00
13	tC	C32	29.655	31.057 E3	-4.7	135	0.00
14	tC	C34	30.640	31.953 E3	-4.3	135	0.00
15	tC	C36	29.620	30.615 E3	-3.4	132	0.00
16	tC	C38	27.051	27.889 E3	-3.1	126	0.00
17	tC	C40	22.281	24.201 E3	-8.6	123	0.00
18	tC	c42	18.150	21.223 E3	-16.9	122	0.00
19	TC	Pristane	27.526	28.765 E3	-4.5	110	0.00
20	TC	Phytane	28.919	29.943 E3	-3.5	109	0.00
21	sC	o-terphenyl	34.563	36.142 E3	-4.6	111	0.00
22	tC	TPHC - total	30.963	30.649 E3	1.0	110	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 # : 3687

Location #: B. 286

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3687.01		10.00	10.26	**102.60**
3687.02		10.00	9.65	**96.50**
3687.03		10.00	9.65	**96.47**
3687.04		10.00	9.33	**93.32**
3687.05		10.00	9.67	**96.70**
3687.06		10.00	9.88	**98.80**
3687.07		10.00	10.36	**103.61**
3687.08		10.00	9.58	**95.84**
3687.09		10.00	10.11	**101.07**
3687.10		10.00	9.82	**98.17**
3687.11		10.00	9.76	**97.61**
3687.12		10.00	10.24	**102.35**
3687.13		10.00	9.58	**95.79**
METHOD BLANK	TBLK 121	10.00	10.19	**101.92**

Surrogate Added : **o-Terphenyl**

6/30/98

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

Matrix Spike Recovery Report

Lab. ID # : 3687

Location #: B. 286

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3687.04MS	1000	0.00	945.19	94.52	75-125
3687.04MSD	1000	0.00	906.14	90.61	75-125

RPD	**4.22**	**20.00**

6/30/98

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

Blank Spike Recovery Report

Lab. ID # : 3687

Location #: B. 286

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	29-Jun-98	1000	1034.37	103.44	75-125

6/30/98

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980629\T05879.D Vial: 5
Acq On : 29 Jun 98 6:44 pm Operator: Deinhardt
Sample : 3687.01 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:42 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	354614	10.260 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 102.60%#	
Target Compounds			

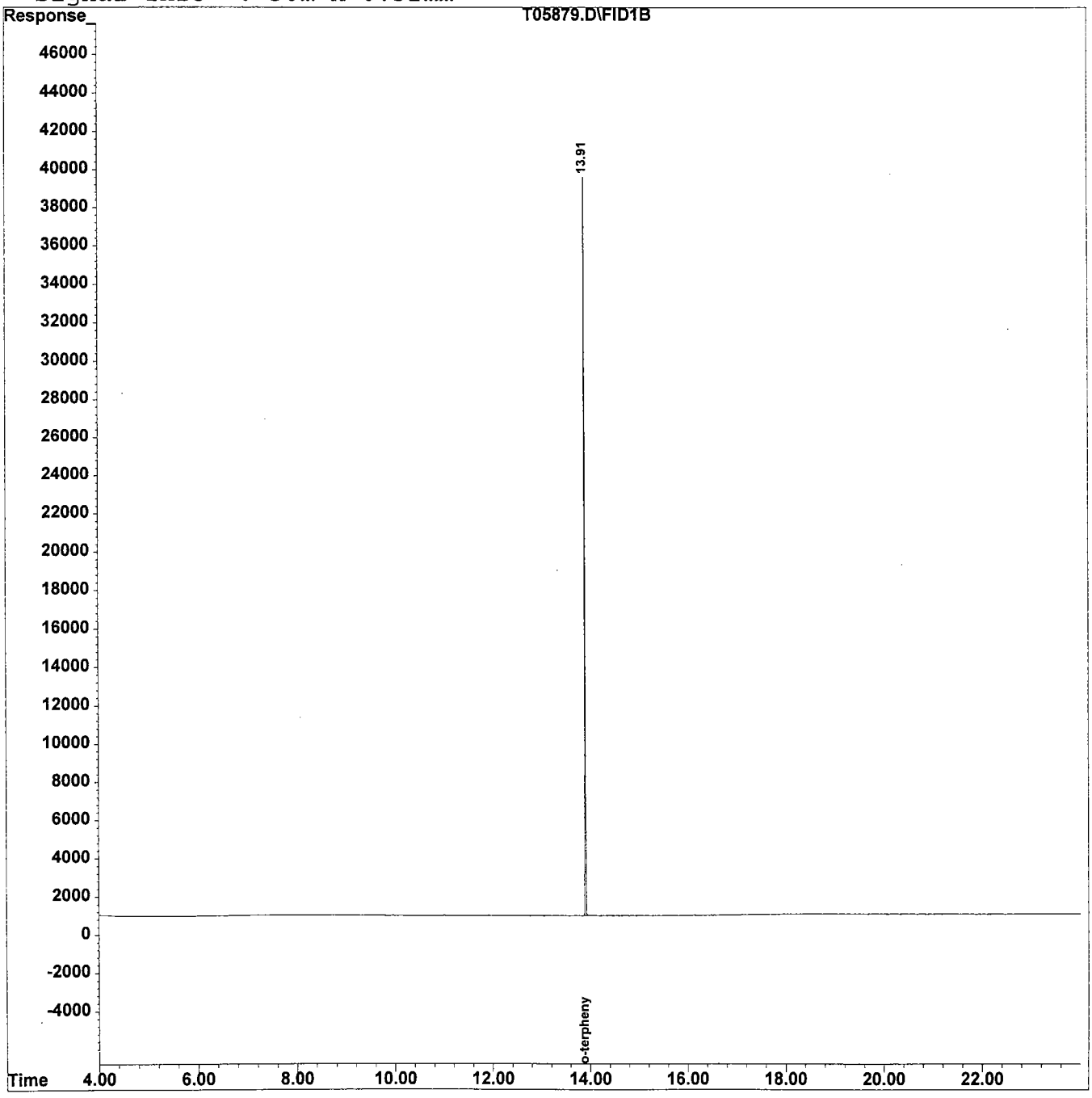
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05879.D Vial: 5
Acq On : 29 Jun 98 6:44 pm Operator: Deinhardt
Sample : 3687.01 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:42 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05880.D Vial: 6
Acq On : 29 Jun 98 7:38 pm Operator: Deinhardt
Sample : 3687.02 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

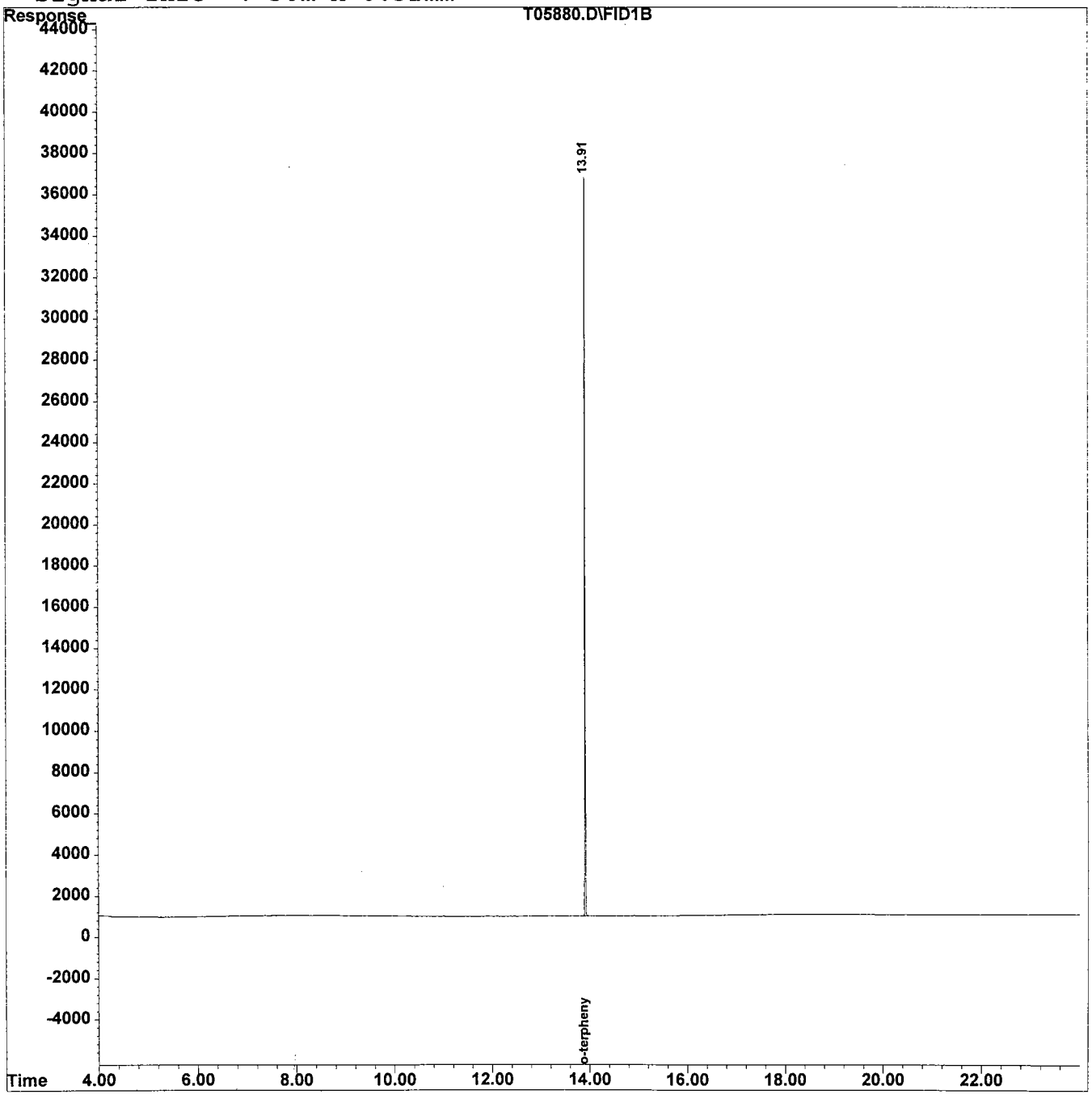
Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	333548	9.650 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	96.50%#
Target Compounds			

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05880.D Vial: 6
Acq On : 29 Jun 98 7:38 pm Operator: Deinhardt
Sample : 3687.02 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05881.D Vial: 7
Acq On : 29 Jun 98 8:32 pm Operator: Deinhardt
Sample : 3687.03 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	333417	9.647 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	96.47%#
Target Compounds			

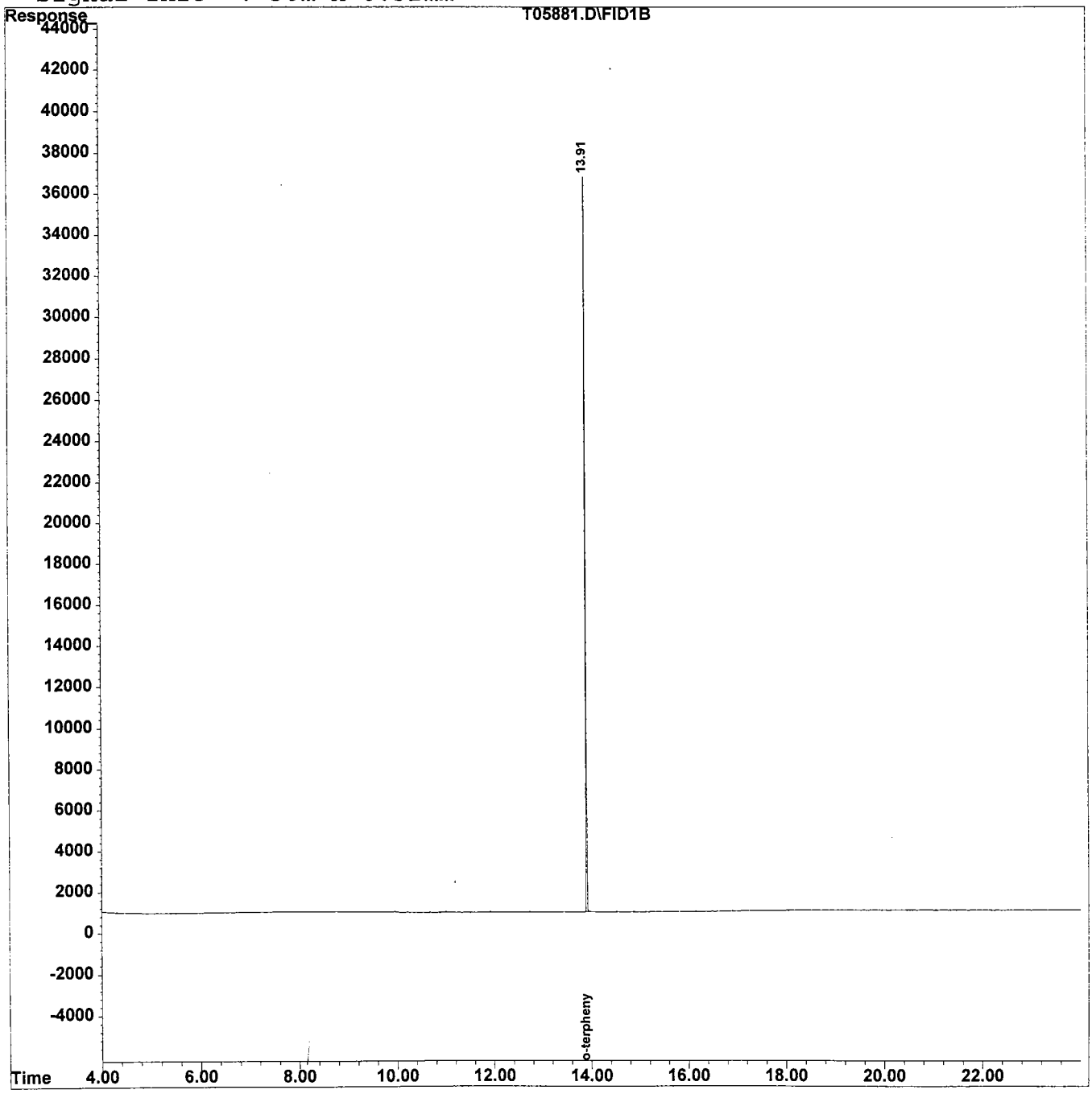
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05881.D Vial: 7
Acq On : 29 Jun 98 8:32 pm Operator: Deinhardt
Sample : 3687.03 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05882.D Vial: 8
Acq On : 29 Jun 98 9:26 pm Operator: Deinhardt
Sample : 3687.04 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	322531	9.332 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	93.32%#
Target Compounds			

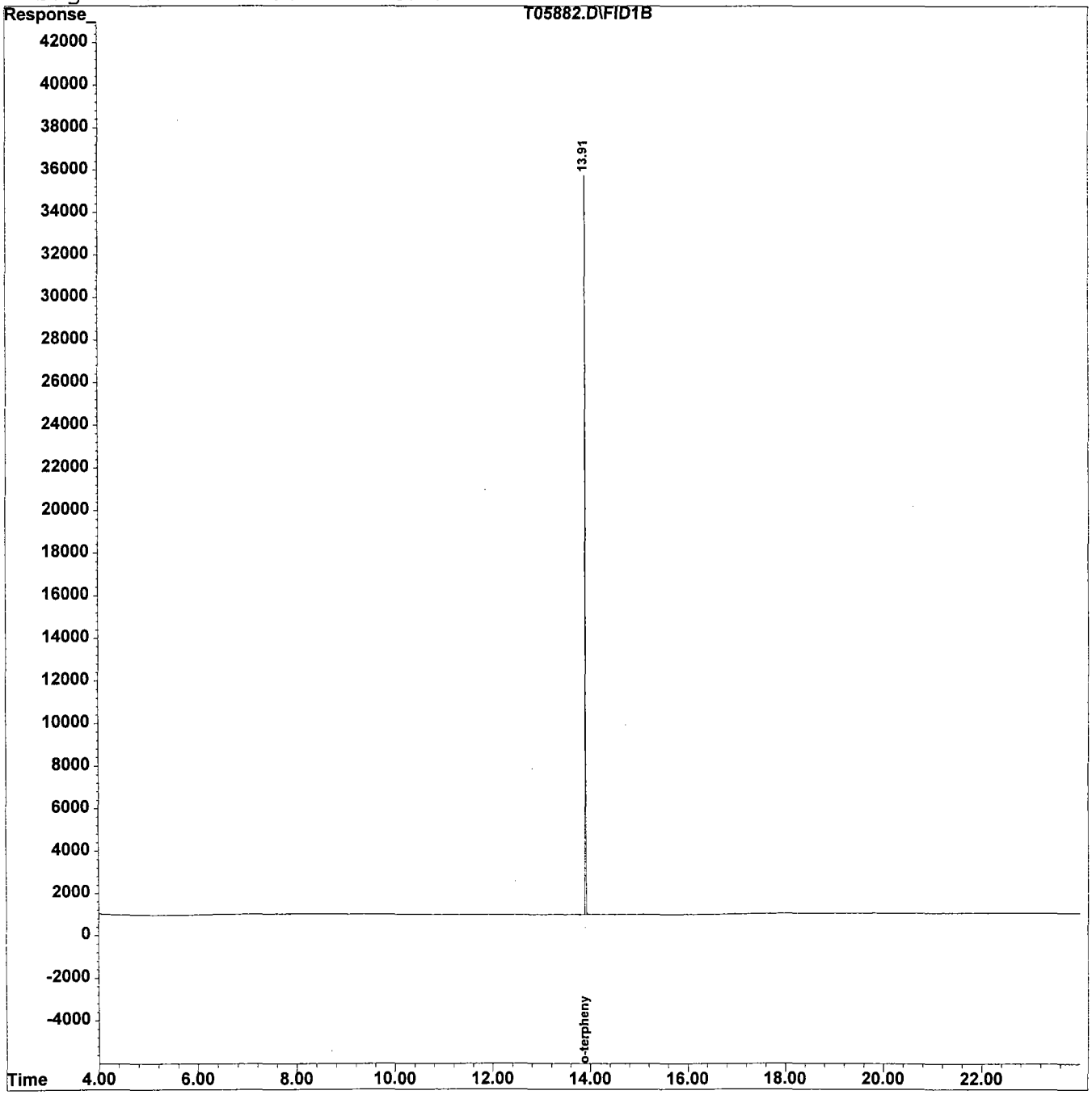
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05882.D Vial: 8
Acq On : 29 Jun 98 9:26 pm Operator: Deinhardt
Sample : 3687.04 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:43 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05885.D Vial: 11
Acq On : 30 Jun 98 12:05 am Operator: Deinhardt
Sample : 3687.05 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:44 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

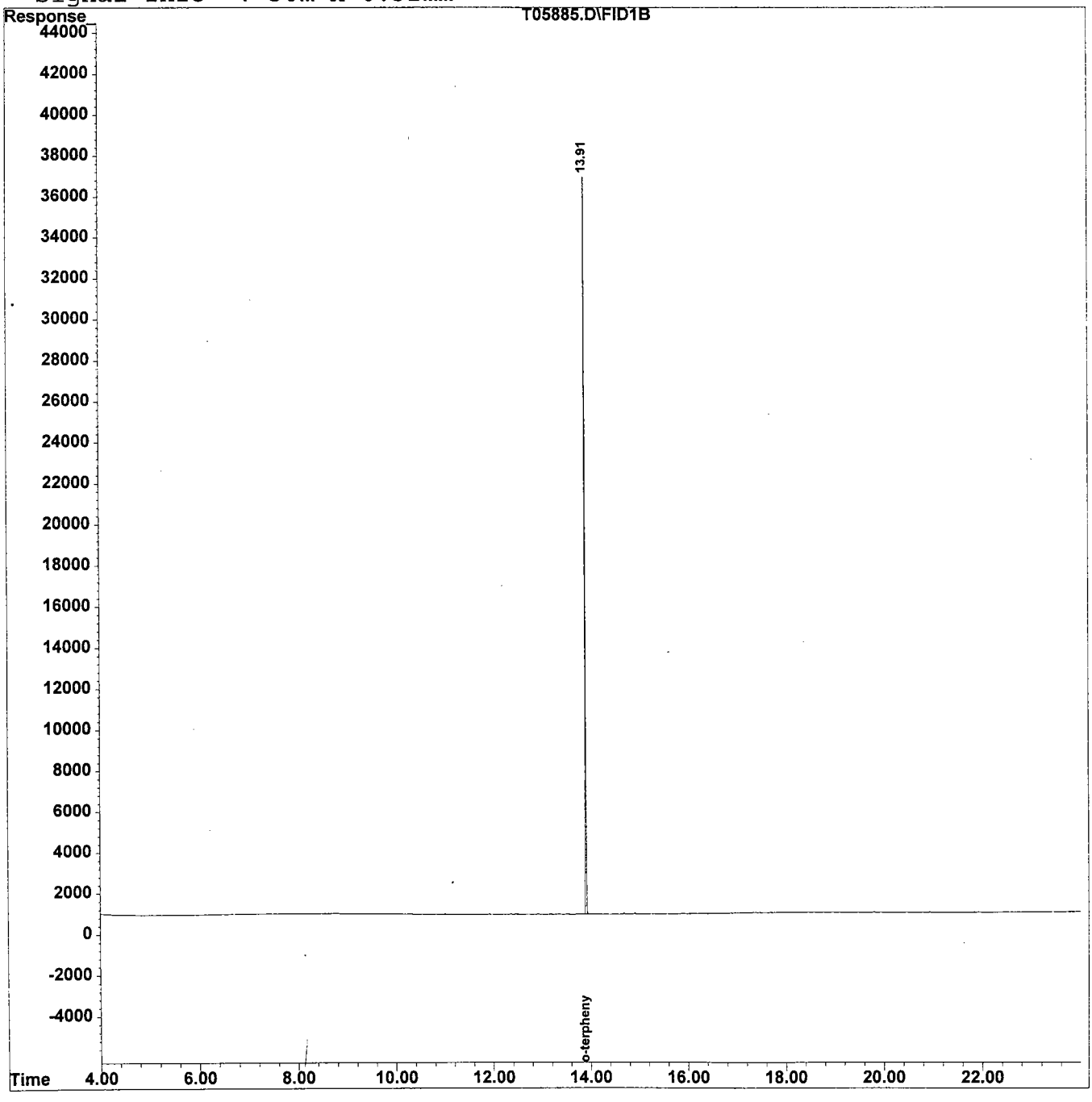
Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	334235	9.670 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	96.70%#
Target Compounds			

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05885.D Vial: 11
Acq On : 30 Jun 98 12:05 am Operator: Deinhardt
Sample : 3687.05 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:44 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05886.D Vial: 12
Acq On : 30 Jun 98 12:58 am Operator: Deinhardt
Sample : 3687.06 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	341467	9.880 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	98.80%#
Target Compounds			

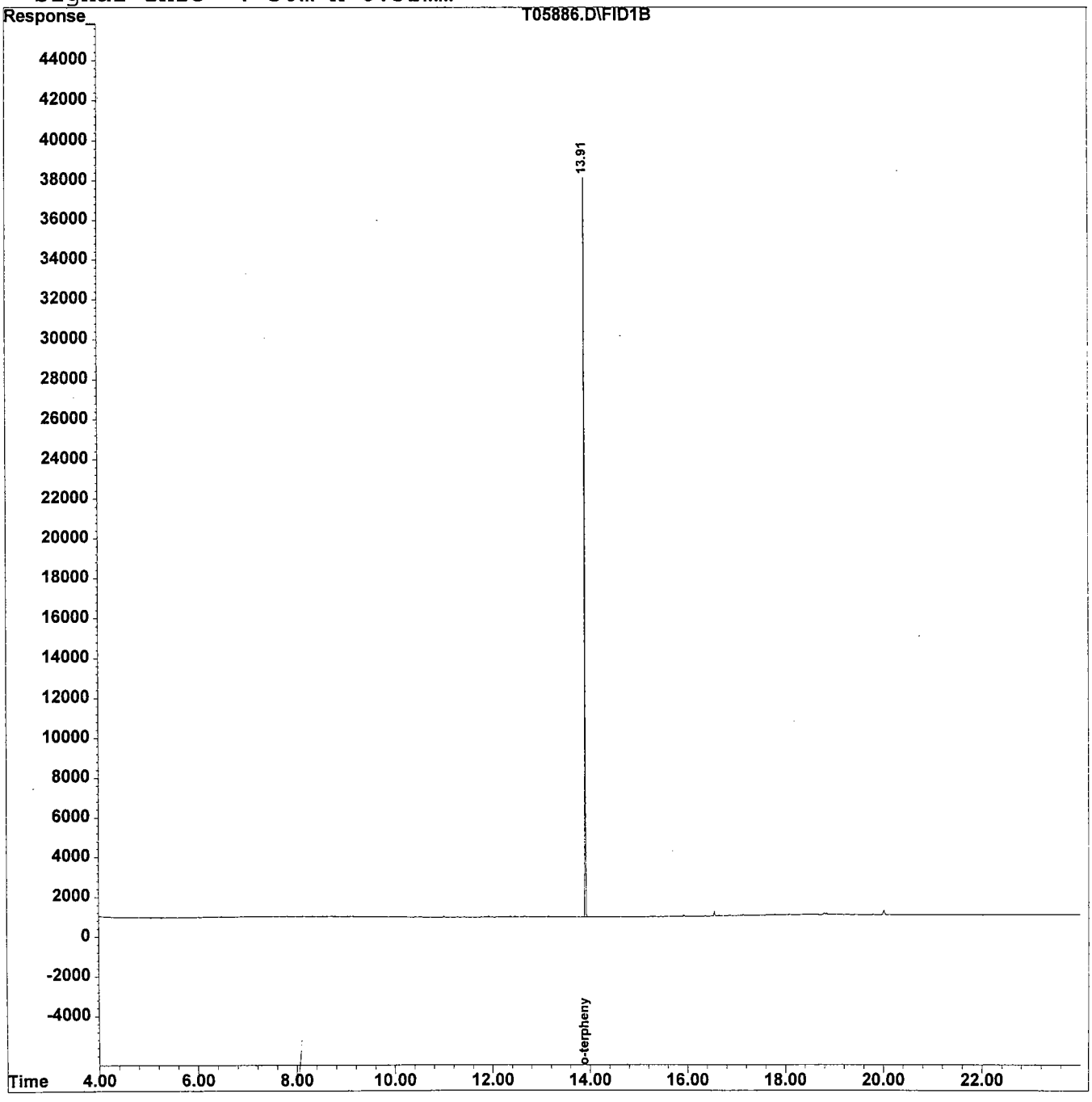
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05886.D Vial: 12
Acq On : 30 Jun 98 12:58 am Operator: Deinhardt
Sample : 3687.06 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05888.D Vial: 14
Acq On : 30 Jun 98 2:43 am Operator: Deinhardt
Sample : 3687.07 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	358094	10.361 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 103.61%#	
Target Compounds			

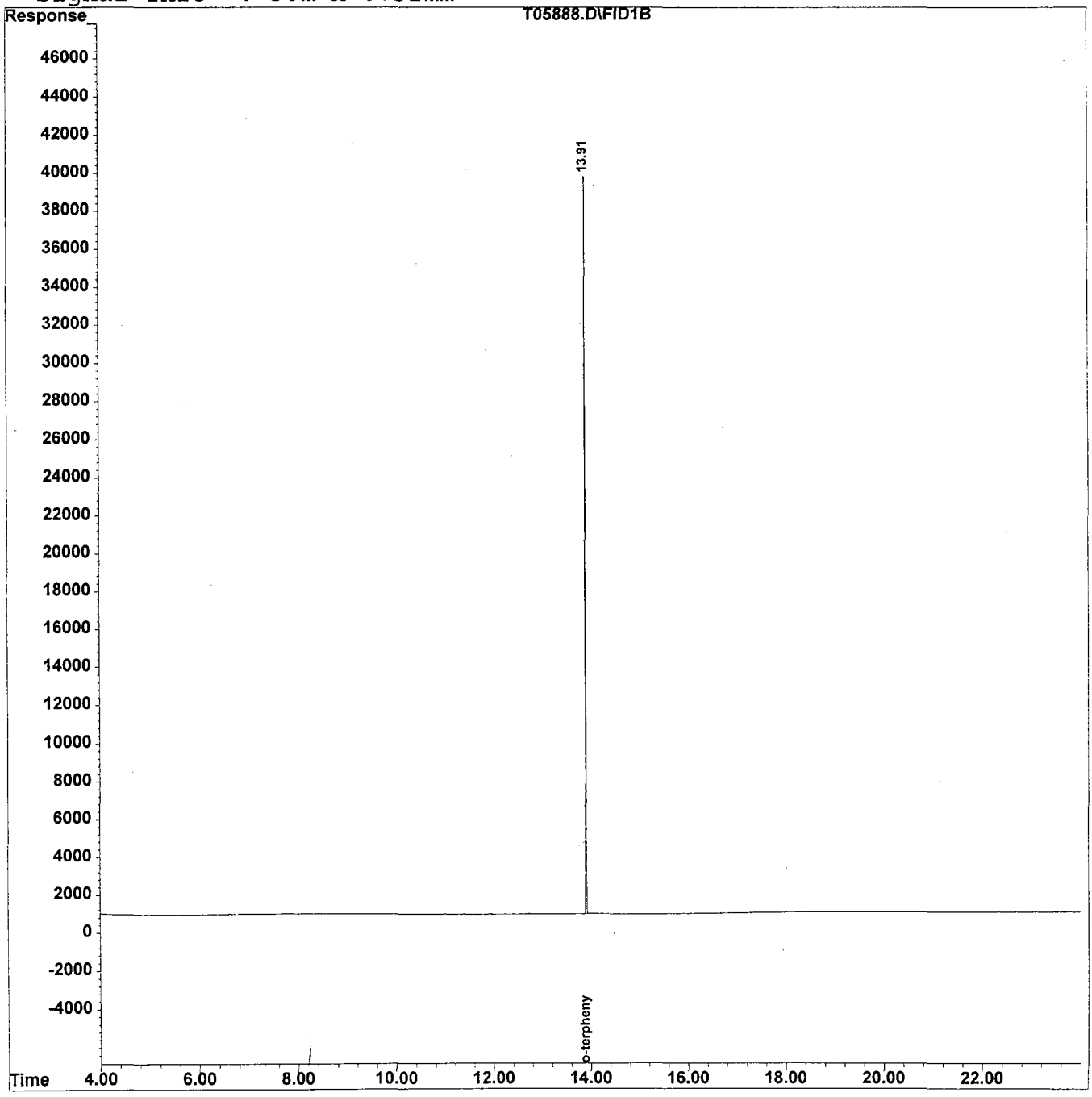
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05888.D Vial: 14
Acq On : 30 Jun 98 2:43 am Operator: Deinhardt
Sample : 3687.07 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05889.D Vial: 15
Acq On : 30 Jun 98 3:36 am Operator: Deinhardt
Sample : 3687.08 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	331260	9.584 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	95.84%#
Target Compounds			

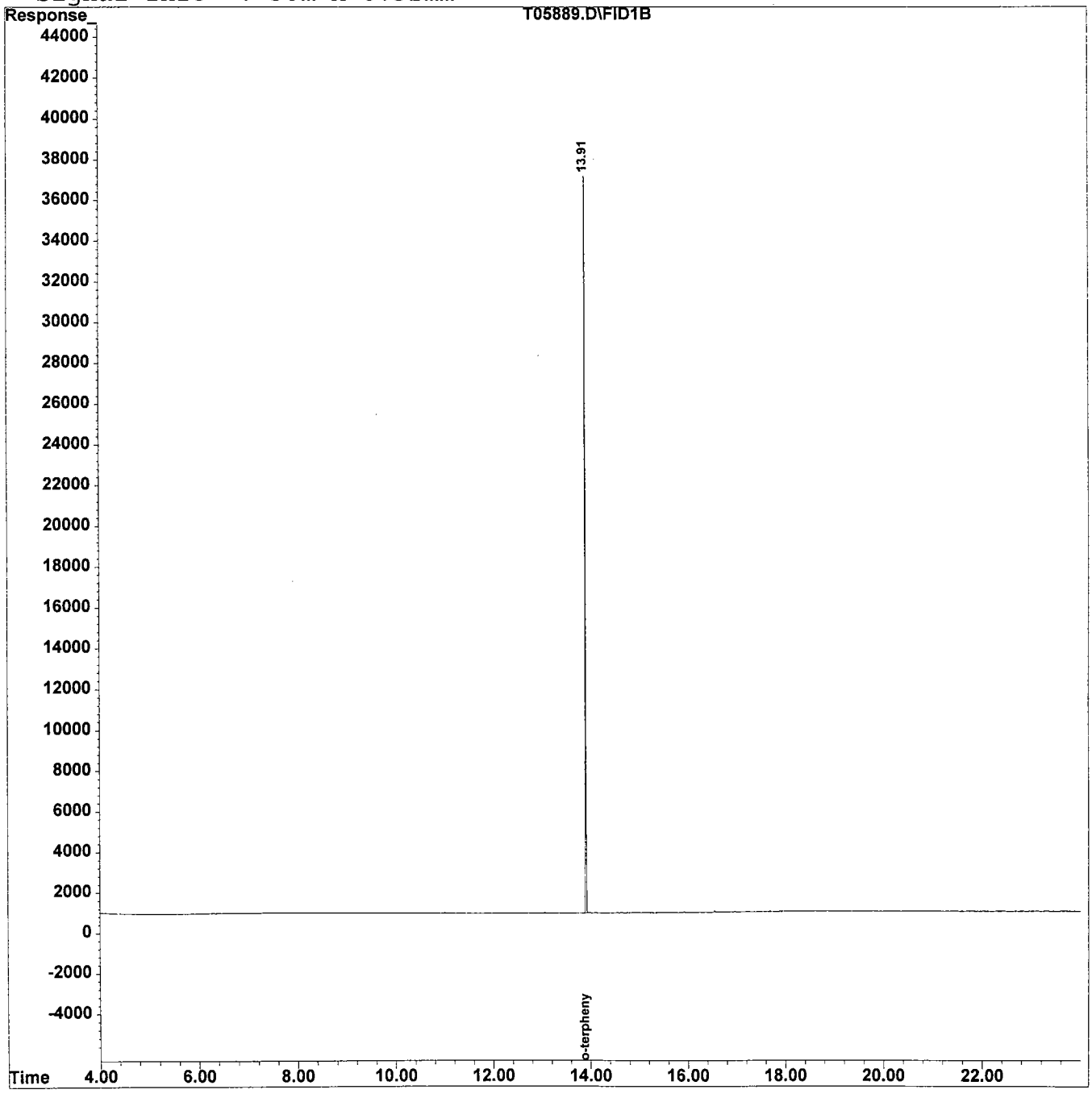
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05889.D Vial: 15
Acq On : 30 Jun 98 3:36 am Operator: Deinhardt
Sample : 3687.08 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:45 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05890.D Vial: 16
Acq On : 30 Jun 98 4:29 am Operator: Deinhardt
Sample : 3687.09 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:46 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

	Compound	R.T.	Response	Conc Units
	System Monitoring Compounds			
21)	sC o-terphenyl	13.91	349339	10.107 mg/L
Spiked Amount	10.000 Range	8 - 13	Recovery =	101.07%#
	Target Compounds			
3)	TC C12	10.12	1371	0.057 mg/L
5)	tC C16	12.48	2471	0.094 mg/L
6)	tC C18	12.95	1829	0.060 mg/L
7)	tC C20	13.26	1639	0.057 mg/L
8)	tC C22	14.11	5613	0.198 mg/L
9)	tC C24	14.91	17558	0.611 mg/L
10)	tC C26	15.53	1477	0.052 mg/L
11)	tC C28	16.25	1596	0.056 mg/L
12)	tC C30	16.83	3149	0.106 mg/L
13)	tC C32	17.38	9618	0.324 mg/L
14)	tC C34	17.91	1269	0.041 mg/L
15)	tC C36	18.73	8155	0.285 mg/L
16)	tC C38	19.47	3534	0.133 mg/L
17)	tC C40	20.76	1600	2.336 mg/L
19)	TC Pristane	12.95	1829	0.066 mg/L
20)	TC Phytane	13.51	3871	0.134 mg/L
22)	tC TPHC - total	13.91	2607651	84.217 mg/L m

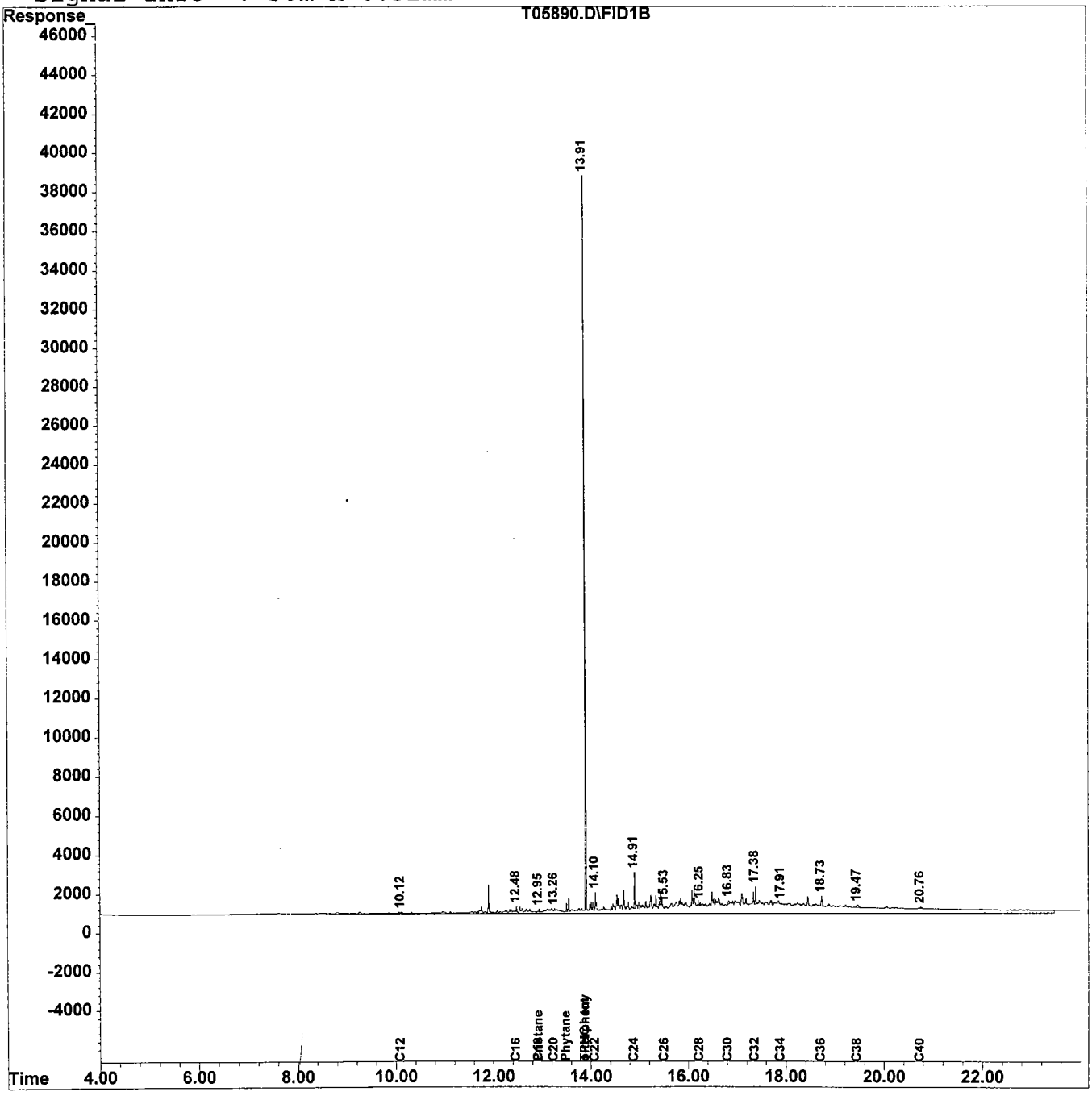
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05890.D Vial: 16
Acq On : 30 Jun 98 4:29 am Operator: Deinhardt
Sample : 3687.09 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:46 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05891.D Vial: 17
Acq On : 30 Jun 98 5:22 am Operator: Deinhardt
Sample : 3687.10 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:46 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	339318	9.817 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery =	98.17%#
Target Compounds			
3) TC C12	10.26	1869	0.077 mg/L
4) tC C14	11.44	10614	0.420 mg/L
5) tC C16	12.47	5479	0.209 mg/L
6) tC C18	12.94	14782	0.488 mg/L
7) tC C20	13.34	1208	0.042 mg/L
8) tC C22	14.13	1519	0.054 mg/L
9) tC C24	14.91	1085	0.038 mg/L
10) tC C26	15.53	3216	0.113 mg/L
11) tC C28	16.30	1380	0.048 mg/L
12) tC C30	16.63	2115	0.071 mg/L
13) tC C32	17.39	1103	0.037 mg/L
14) tC C34	17.93	1028	0.034 mg/L
19) TC Pristane	12.94	14782	0.537 mg/L
20) TC Phytane	13.40	4381	0.151 mg/L
22) tC TPHC - total	13.91	4097687	132.340 mg/L m

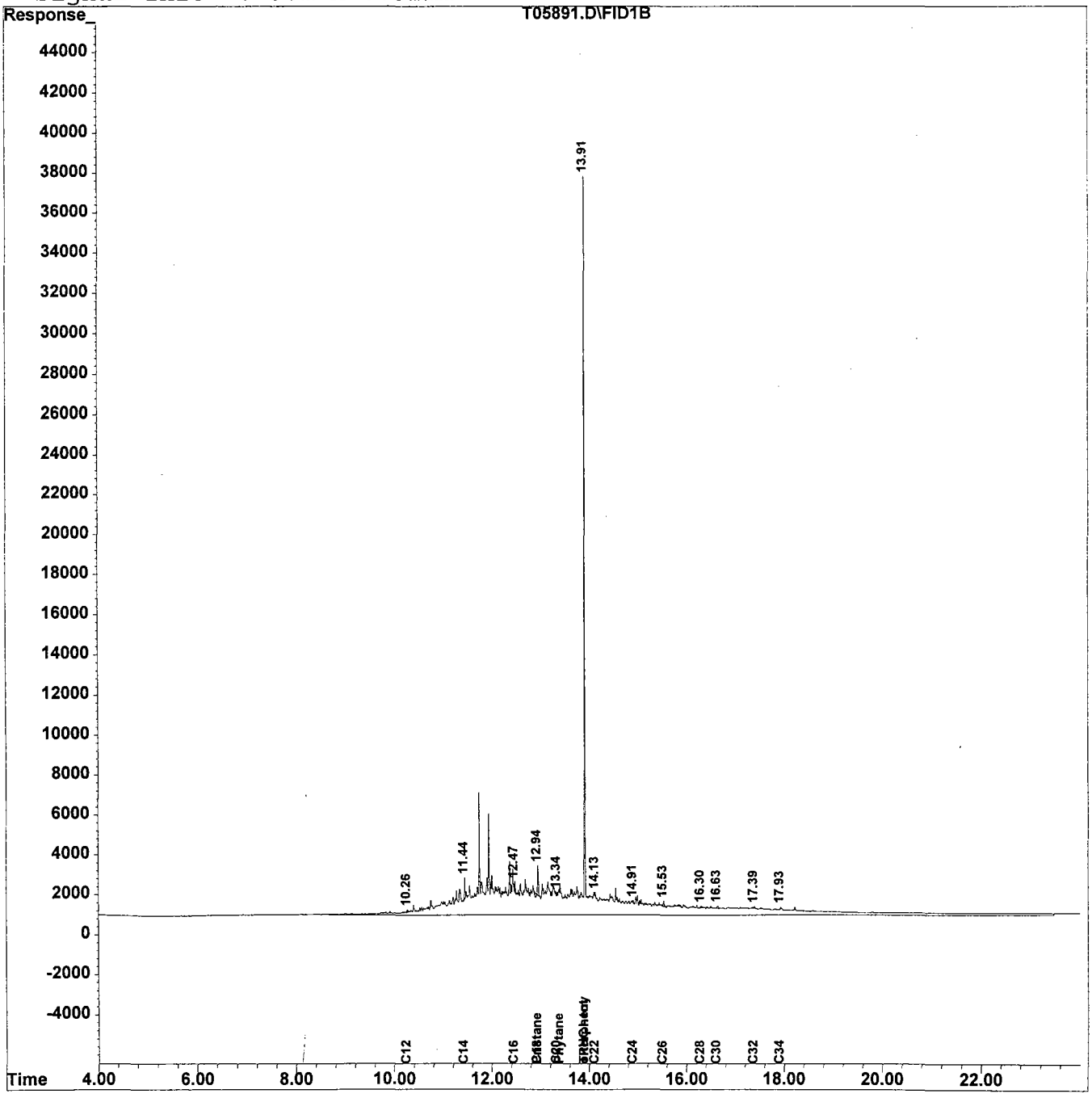
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05891.D Vial: 17
Acq On : 30 Jun 98 5:22 am Operator: Deinhardt
Sample : 3687.10 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:46 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05892.D Vial: 18
Acq On : 30 Jun 98 6:16 am Operator: Deinhardt
Sample : 3687.11 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:47 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	337353	9.761 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	97.61%#
Target Compounds			

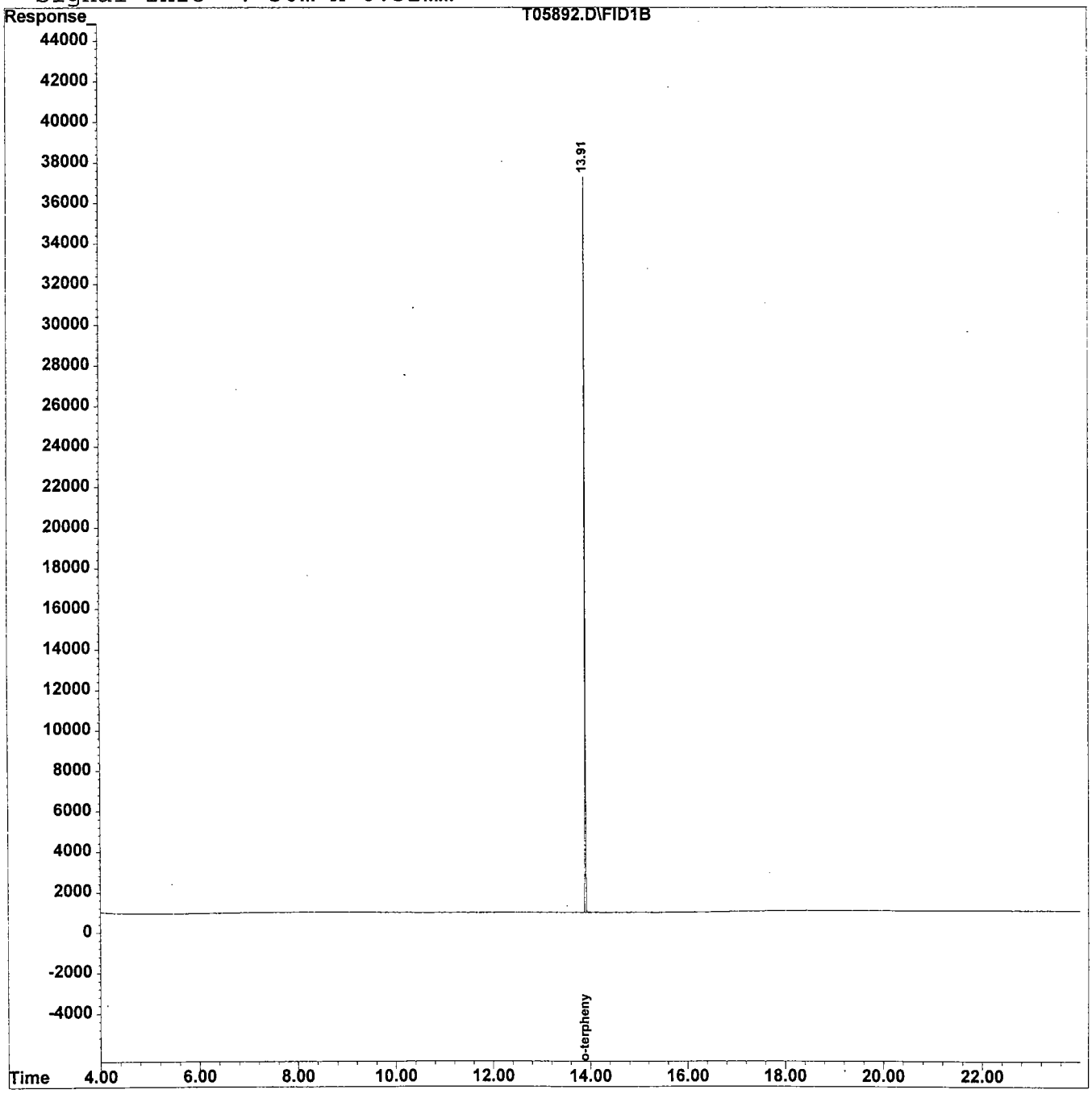
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05892.D Vial: 18
Acq On : 30 Jun 98 6:16 am Operator: Deinhardt
Sample : 3687.11 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:47 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05893.D Vial: 19
Acq On : 30 Jun 98 7:09 am Operator: Deinhardt
Sample : 3687.12 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:47 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	353753	10.235 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	102.35%#
Target Compounds			

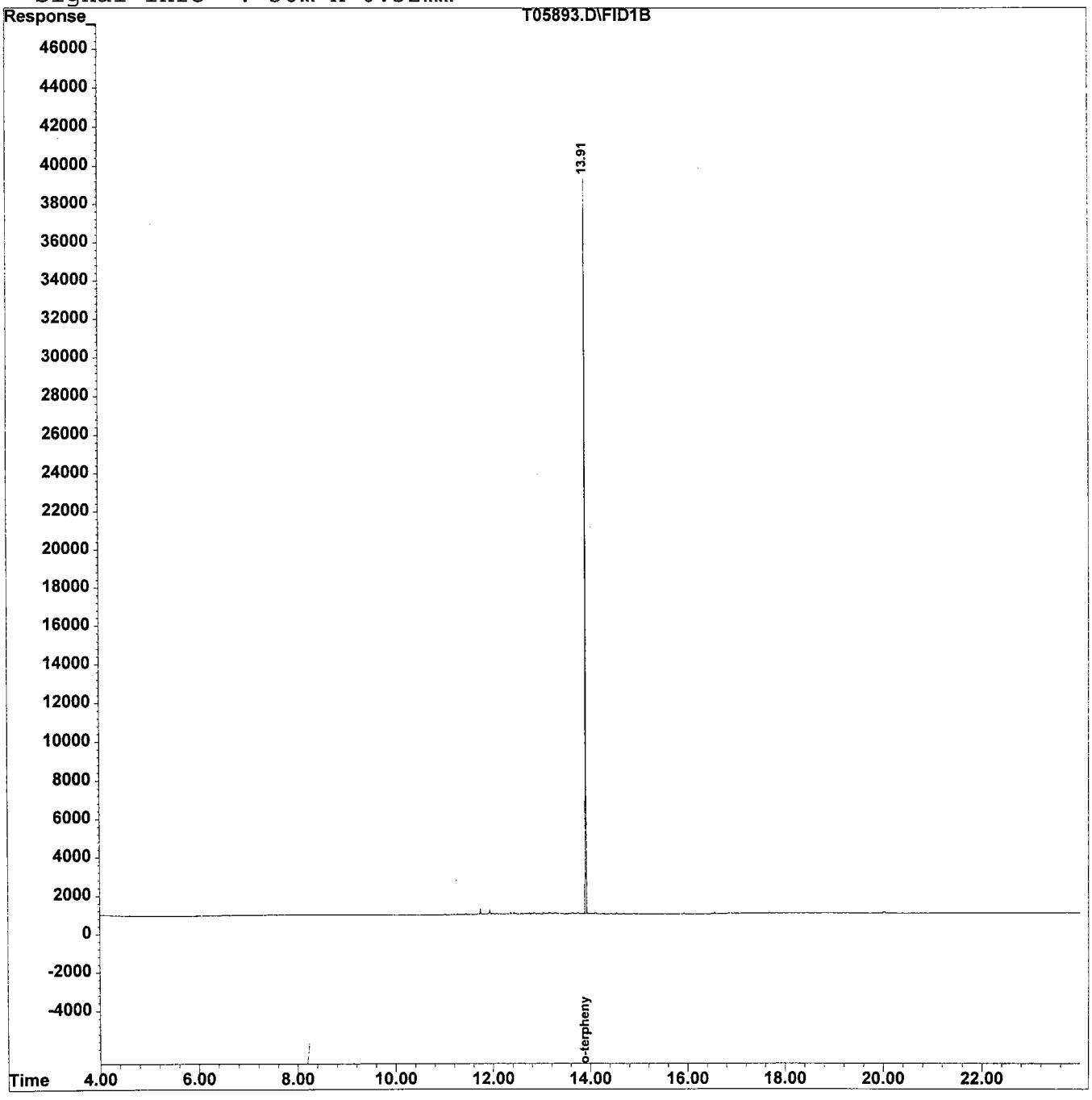
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05893.D Vial: 19
Acq On : 30 Jun 98 7:09 am Operator: Deinhardt
Sample : 3687.12 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:47 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.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\980629\T05894.D Vial: 20
Acq On : 30 Jun 98 8:03 am Operator: Deinhardt
Sample : 3687.13 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:48 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Initial Calibration
DataAcq Meth : TPH41.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	331073	9.579 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	95.79%#
Target Compounds			

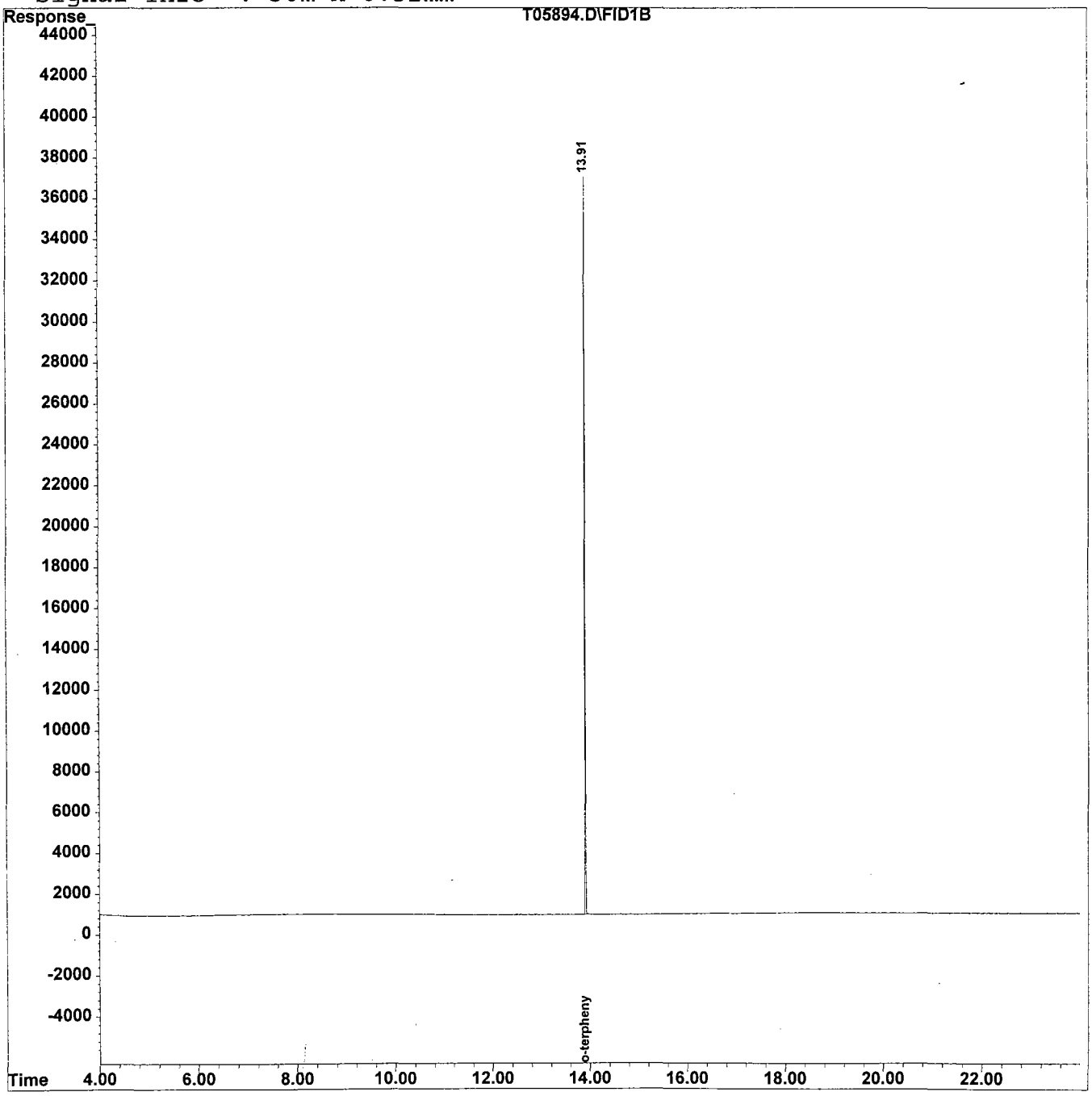
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980629\T05894.D Vial: 20
Acq On : 30 Jun 98 8:03 am Operator: Deinhardt
Sample : 3687.13 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 30 9:48 1998 Quant Results File: TPH41.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH41.M

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



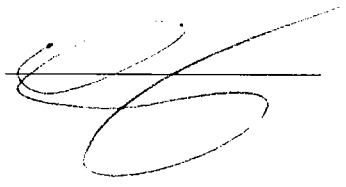
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature 

Date 4/21/14

Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

REPORT OF ANALYSIS

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

Project: Total Petroleum Hydrocarbons
98-0001
Bldg. 286

Project # 3718
Date Rec. 07/13/98
Date Compl. 07/13/98
Released by:

Daniel K. Wright Date: 8/17/98
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

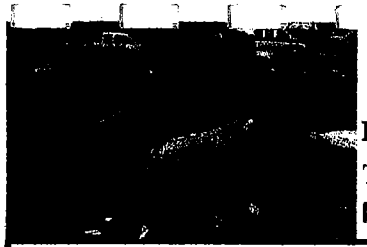
	No	Yes
1.Method Detection Limits provided.		✓
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank.	✓	
3. Matrix Spike Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).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

Additional Comments:_____

Laboratory Authentication Statement

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

Daniel R. Wright
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: Charles Appleby
Phone #: X26224
( )DERA (X)OMA UST Assessment

Project No: 98-0001
Location: B. 286 (Piping Run)
UST# 81533-60

Samplers Name / Company : Gary DiMartinis TVS

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	TPHC	% SOLIDS	VOA+15	VOA ID Number	OVA	Remarks / Preservation Method
3718. 01	286-A	7-13-98	0852	SOIL	1	X	X			ND	Piping Run @ 1.5' *
02	B	↓	0901	↓	↓	↓	↓			** 5	Piping Run @ 1.0' ↓
03	DUP	↓	—	↓	↓	↓	↓			—	FIELD DUPLICATE ↓
											SUSPECTED METHANE INTERFERENCE.

Comments:
* = Samples Kept <4 Celsius

Note: OVA (#A51903) Calibrated With 95 ppm Methane & Zero Air @ 0845 on 7-13-98 by Gary DiMartinis

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	7-13-98 1040	[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 2 Days, (_)ASAP Verbal ___ Hrs.

Remarks: Dedicated Sampling Tools Used

print legibly

USTcoc6/30/98

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

Client :	U.S. Army	**Lab. ID # :**	3718
	DPW. SELFM-PW-EV	**Date Rec'd:**	13-Jul-98
	Bldg. 173	**Analysis Start:**	13-Jul-98
	Ft. Monmouth, NJ 07703	**Analysis Complete:**	13-Jul-98
Analysis:	OQA-QAM-025	**UST Reg. #:**	
Matrix:	Soil	**Closure #:**	
Analyst:	D.DEINHARDT	**DICAR #:**	
Ext. Meth:	Shake	**Location #:**	B. 286

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3718.01	286-A	**1.00**	15.21	95.31	162	**ND**
3718.02	286-B	**1.00**	15.35	73.56	208	**ND**
3718.03	286-DUP	**1.00**	15.35	93.97	163	**ND**
METHOD BLANK	TBLK 129	**1.00**	15.00	100.00	157	**ND**

ND = Not Detected

MDL = Method Detection Limit

Daniel K. Wright
Laboratory Director

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jun 11 14:59:41 1998

Calibration Files
100 =T05959.D 50 =T05960.D 20 =T05961.D
10 =T05962.D 5 =T05963.D

	Compound	100	50	20	10	5	Avg		%RSD
1) tC	C8	2.277	2.425	2.559	2.711	2.206	2.436	E4	8.43
2) tC	C10	2.499	2.664	2.791	2.930	2.534	2.684	E4	6.68
3) TC	C12	2.776	2.935	3.075	3.239	2.766	2.958	E4	6.83
4) tC	C14	2.896	3.070	3.238	3.430	2.928	3.112	E4	7.18
5) tC	C16	2.966	3.159	3.344	3.568	3.053	3.218	E4	7.49
6) tC	C18	3.349	3.613	3.893	4.085	3.562	3.701	E4	7.82
7) tC	C20	3.258	3.475	3.672	3.915	3.342	3.533	E4	7.50
8) tC	C22	3.199	3.420	3.607	3.844	3.278	3.469	E4	7.51
9) tC	C24	3.264	3.487	3.671	3.904	3.333	3.532	E4	7.37
10) tC	C26	3.255	3.476	3.650	3.866	3.319	3.513	E4	7.10
11) tC	C28	3.293	3.512	3.674	3.893	3.318	3.538	E4	7.11
12) tC	C30	3.401	3.623	3.790	3.976	3.375	3.633	E4	7.05
13) tC	C32	3.431	3.658	3.825	4.024	3.434	3.674	E4	6.97
14) tC	C34	3.521	3.812	4.027	4.220	3.564	3.829	E4	7.80
15) tC	C36	3.385	3.858	4.127	4.279	3.664	3.863	E4	9.25
16) tC	C38	3.166	3.924	4.329	4.459	3.853	3.946	E4	12.84
17) tC	C40	2.828	3.816	4.405	4.438	3.846	3.867	E4	16.86
18) tC	c42	2.580	3.759	4.424	4.447	3.820	3.806	E4	19.91
19) TC	Pristane	3.105	3.345	3.551	3.726	3.255	3.397	E4	7.21
20) TC	Phytane	3.270	3.492	3.694	3.945	3.369	3.554	E4	7.59
21) sC	o-terphenyl	3.907	4.169	4.410	4.703	4.034	4.245	E4	7.46
22) tC	TPHC - total	3.313	3.705	4.003	4.287	3.910	3.844	E4	9.44

(#) = Out of Range MEAN AVERAGE RSD% = 8.79

TPH43.M Tue Jul 07 08:38:13 1998

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\980713\T06045.D Vial: 2
Acq On : 13 Jul 98 3:05 pm Operator: Deinhardt
Sample : 50 PPM STANDARD Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	tC	C8	24.358	24.807 E3	-1.8	112	0.00
2	tC	C10	26.836	27.798 E3	-3.6	116	0.00
3	TC	C12	29.584	30.479 E3	-3.0	116	0.00
4	tC	C14	31.125	31.374 E3	-0.8	114	0.00
5	tC	C16	32.180	32.060 E3	0.4	112	0.00
6	tC	C18	37.007	36.389 E3	1.7	110	0.00
7	tC	C20	35.326	35.271 E3	0.2	112	0.00
8	tC	C22	34.694	34.721 E3	-0.1	112	0.00
9	tC	C24	35.318	35.466 E3	-0.4	112	0.00
10	tC	C26	35.130	35.361 E3	-0.7	113	0.00
11	tC	C28	35.380	35.729 E3	-1.0	116	0.00
12	tC	C30	36.331	36.896 E3	-1.6	120	0.00
13	tC	C32	36.742	37.249 E3	-1.4	121	0.00
14	tC	C34	38.289	38.769 E3	-1.3	121	0.00
15	tC	C36	38.627	36.767 E3	4.8	115	0.00
16	tC	C38	39.462	32.238 E3	18.3	101	0.00
17	tC	C40	38.666	26.338 E3	31.9#	87	0.00
18	tC	c42	38.058	22.473 E3	41.0#	79	0.00
19	TC	Pristane	33.965	33.900 E3	0.2	112	0.00
20	TC	Phytane	35.539	35.605 E3	-0.2	113	0.00
21	sC	o-terphenyl	42.449	42.434 E3	0.0	112	0.00
22	tC	TPHC - total	38.436	35.988 E3	6.4	108	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 2

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

Surrogate Recovery Report

Lab. ID # : 3718

Location #: B. 286

Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3718.01		10.00	9.45	**94.50**
3718.02		10.00	9.38	**93.79**
3718.03		10.00	9.19	**91.92**
METHOD BLANK	TBLK 129	10.00	9.09	**90.91**

Surrogate Added : **o-Terphenyl**

7/14/98

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

Matrix Spike Recovery Report

Lab. ID # : 3718

Location #: B. 286

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3718.01MS	1000	0.00	936.82	93.68	75-125
3718.01MSD	1000	0.00	937.98	93.80	75-125

RPD	**0.12**	**20.00**

7/14/98

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

Blank Spike Recovery Report

Lab. ID # : 3718

Location #: B. 286

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	13-Jul-98	1000	906.51	90.65	75-125

7/14/98

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\980713\T06048.D Vial: 5
Acq On : 13 Jul 98 6:13 pm Operator: Deinhardt
Sample : 3718.01 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:39 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Initial Calibration
DataAcq Meth : TPH43.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	401131	9.450 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	94.50%#
Target Compounds			

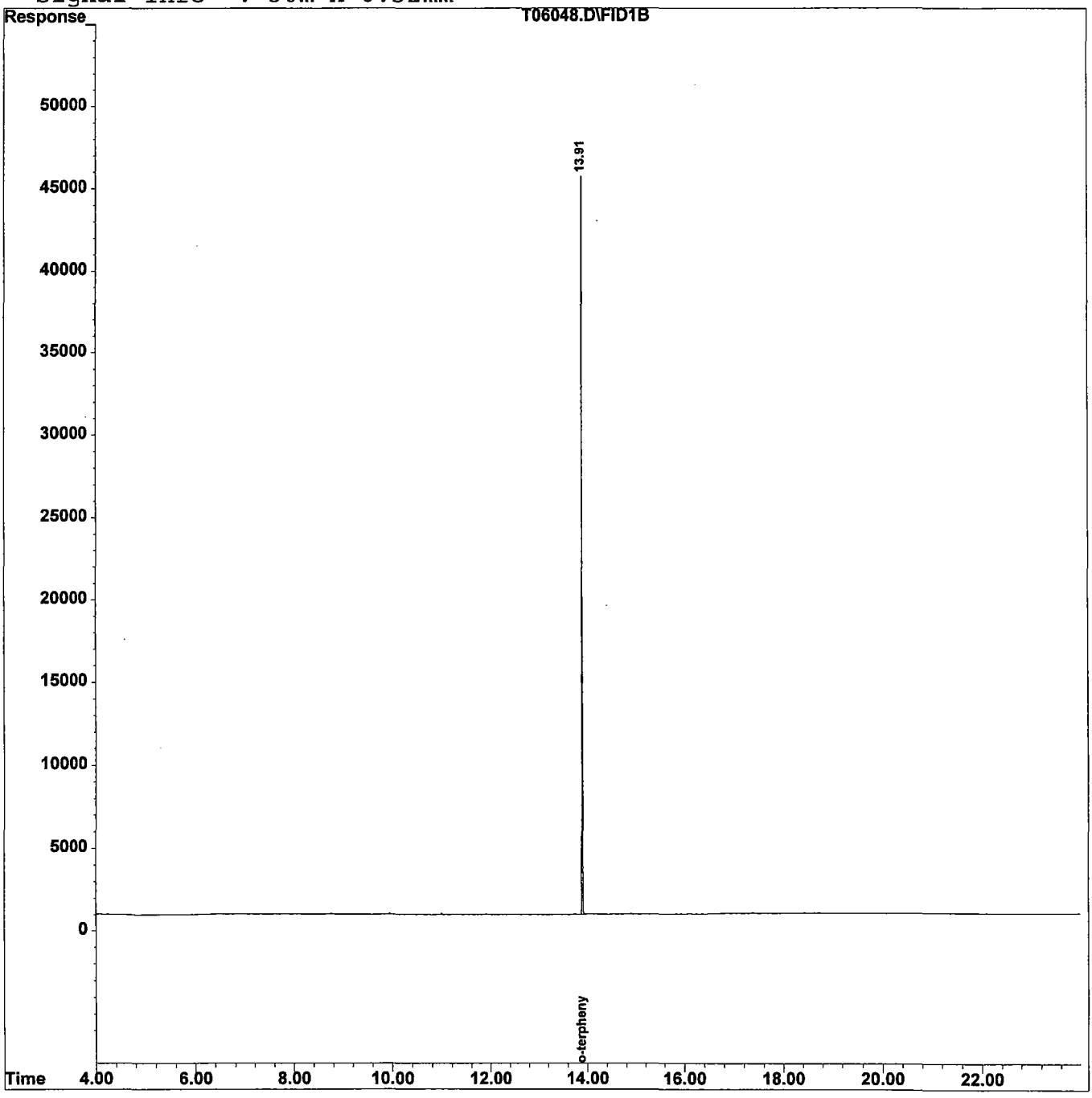
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980713\T06048.D Vial: 5
Acq On : 13 Jul 98 6:13 pm Operator: Deinhardt
Sample : 3718.01 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:39 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH43.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\980713\T06051.D Vial: 8
Acq On : 13 Jul 98 8:32 pm Operator: Deinhardt
Sample : 3718.02 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:40 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Initial Calibration
DataAcq Meth : TPH43.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	398131	9.379 mg/L
Spiked Amount 10.000 Range 8 - 13 Recovery = 93.79%#			
Target Compounds			
9) tC C24	14.91	1893	0.054 mg/L
11) tC C28	16.24	1858	0.053 mg/L
12) tC C30	16.85	1948	0.054 mg/L
13) tC C32	17.38	1515	0.041 mg/L
14) tC C34	18.09	1126	0.029 mg/L
15) tC C36	18.66	1510	0.039 mg/L
22) tC TPHC - total	13.91	1290243	33.569 mg/L m

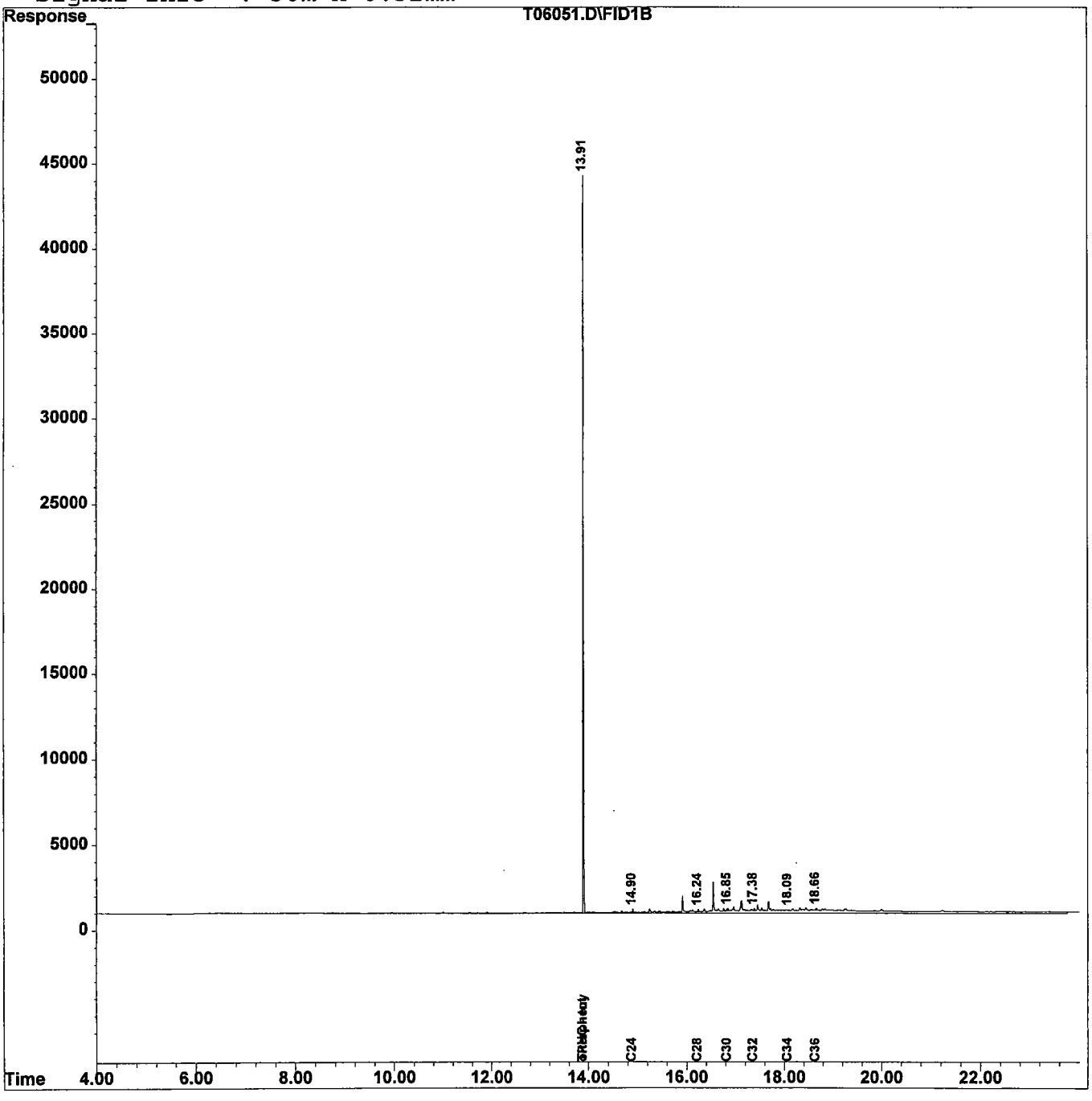
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980713\T06051.D Vial: 8
Acq On : 13 Jul 98 8:32 pm Operator: Deinhardt
Sample : 3718.02 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:40 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH43.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\980713\T06052.D Vial: 9
Acq On : 13 Jul 98 9:17 pm Operator: Deinhardt
Sample : 3718.03 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:41 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Initial Calibration
DataAcq Meth : TPH43.M

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

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
21) sC o-terphenyl	13.91	390206	9.192 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	91.92%#
Target Compounds			

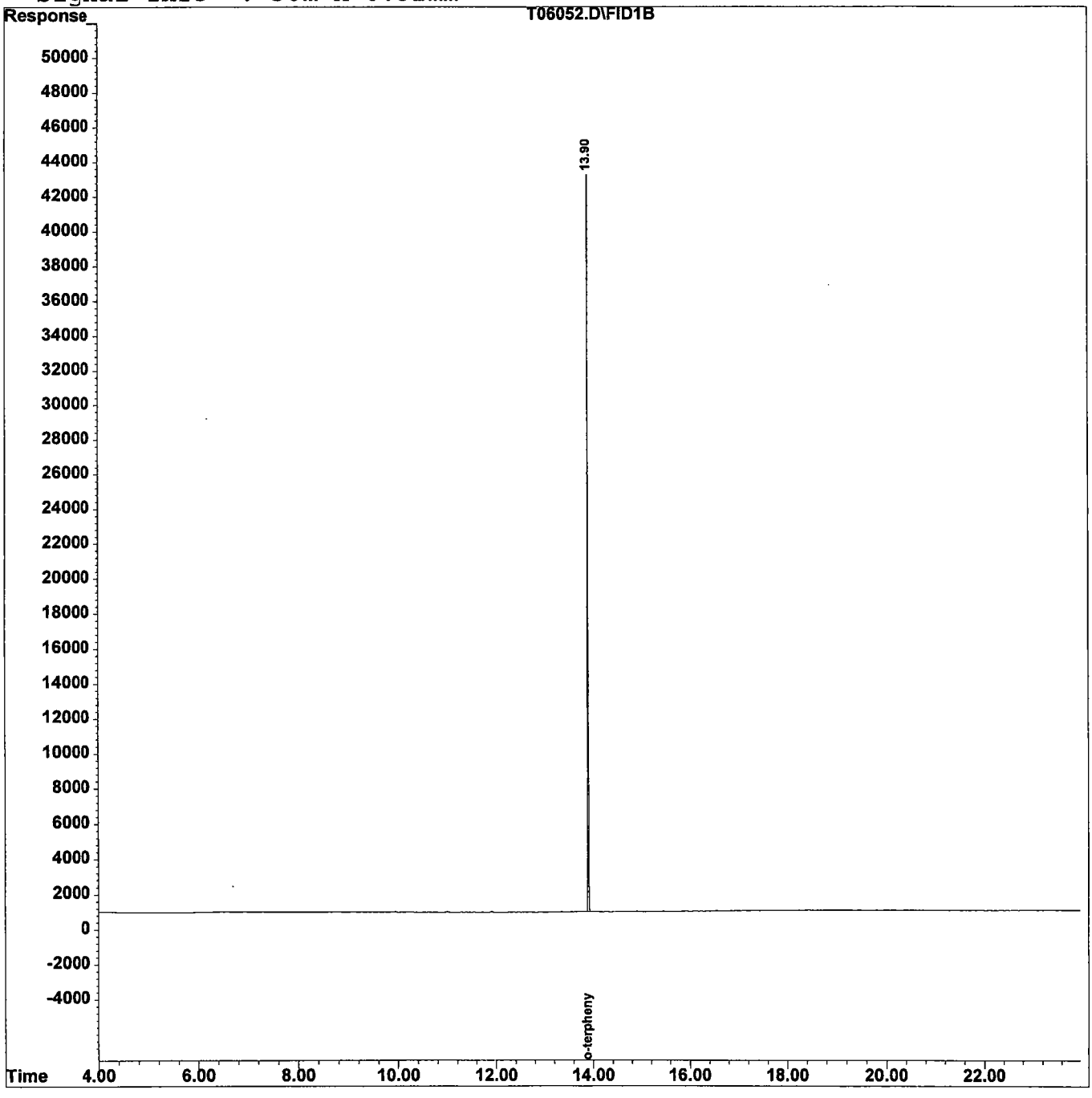
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\980713\T06052.D Vial: 9
Acq On : 13 Jul 98 9:17 pm Operator: Deinhardt
Sample : 3718.03 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jul 14 7:41 1998 Quant Results File: TPH43.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH43.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Jul 09 13:23:26 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPH43.M

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



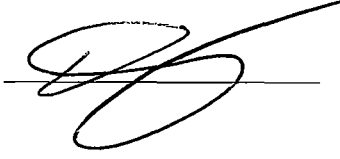
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature 

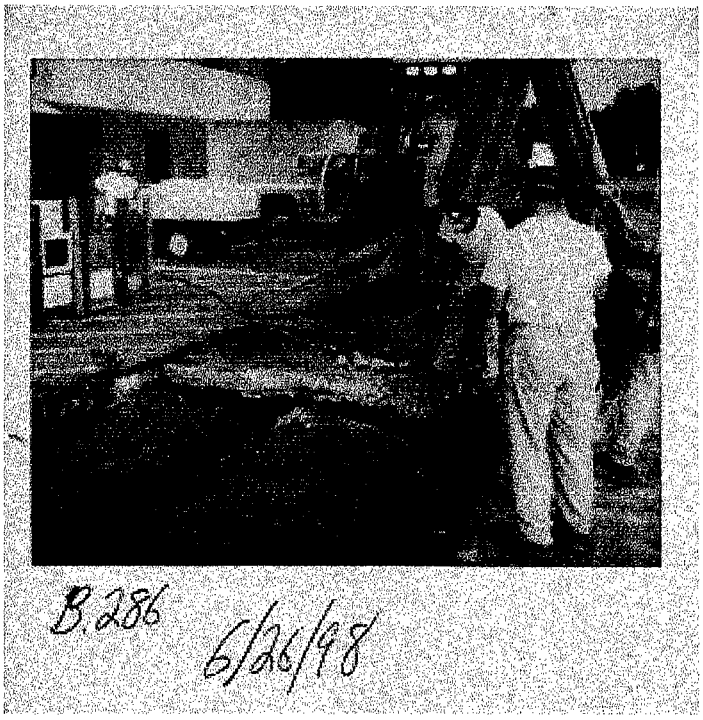
Date 6/17/25

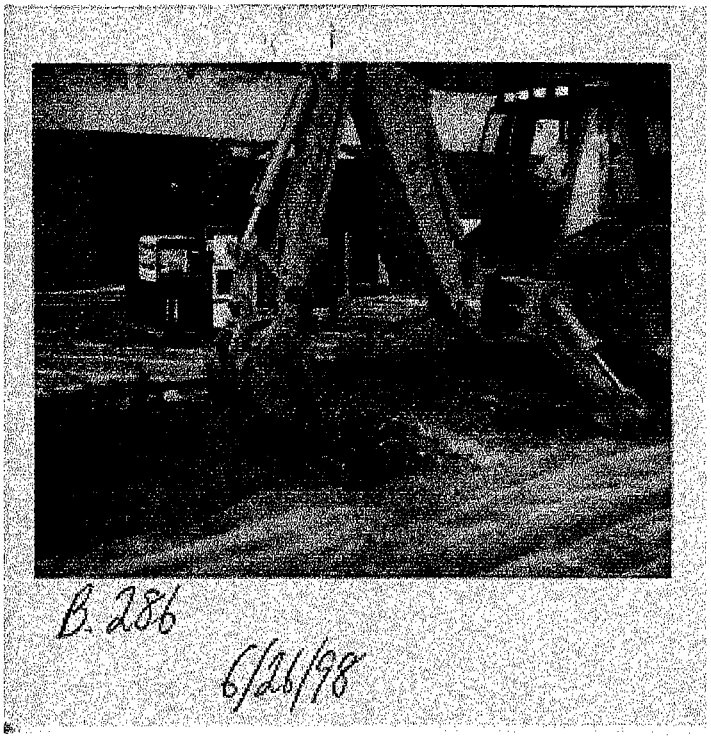
Laboratory Certification #13461

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

APPENDIX F

PHOTOGRAPHS





JUNE 26, 1998

PHOTOGRAPHIC LOG

UST NO. 81533-60

Building 286
Main Post-West
Fort Monmouth

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, PA