

October 12, 2000

New Jersey Department of Environmental Protection
Bureau of Federal Case Management
CN 028
401 East State Street
Trenton, New Jersey 08625-1454

**RE: Results of Additional Site Investigation Activities
Fort Monmouth, Building 3021
Fort Monmouth, New Jersey
NJDEP Case #89-11-02-1052**

Dear Mr. Ian R. Curtis

Versar, Inc., on behalf of Fort Monmouth, presents in this letter, a summary report describing the results of the additional site investigation activities conducted for the investigation of the former underground storage tank (UST) at Building 3021 in Fort Monmouth, New Jersey. Provided below is a brief site history and summary of previous investigations, excerpted from the *Site Investigation Report* dated May 1994, prepared by Weston for the Fort Monmouth, Building 3021. The site history and summary of previous investigations is followed by a description of the results of the additional site investigation activities to date.

Site History

Building 3021 is located in the Charles Wood area of Fort Monmouth. A site map detailing the UST location is provided as Figure 2 in Appendix A. The former UST, NJDEP Registration No. 00192486-27 (Fort Monmouth ID No. 3021), was located at the northeast corner and immediately adjacent to Building 3021. UST No. 00192486-27 was a 5,000-gallon #2 fuel oil UST. On 2 November 1989, a discharge was reported to the New Jersey Department of Environmental Protection (NJDEP) and the facility was assigned case #89-11-02-1052.

On 3 October 1991, three monitoring wells were placed within the area surrounding the UST No. 27 excavation to determine the possible impact, if any, to the environment. On 10 December 1991 groundwater samples collected from each monitoring well were analyzed by Environmental Profile Laboratories for volatile organic compounds plus 15 tentatively identified compounds (VO+15), base neutral compounds plus 15 tentatively identified compounds (BN+15) and lead. The results indicated that methylene chloride, a common laboratory chemical, was detected in all samples in concentrations which exceed NJDEPE Class II-A Ground Water Quality Criteria. Laboratory method blanks run with VO+15 samples indicate that methylene chloride was the result of laboratory contamination. Analytical results for the 10 December 1991 sampling was considered questionable due to two internal standards and one surrogate being outside Quality Control Limits.

On 26 October 1992, a second round of groundwater samples was collected from each monitoring well and analyzed by Environmental Profile Laboratories for VO+15, BN+15, and lead. The results indicated concentrations of lead (36 ug/L) and benzene (3J ug/L) in sample No. 3021-2 which exceed NJDEPE Class II-A Ground Water Quality Criteria. In addition, concentrations of methylene chloride in Sample Nos. 3021-1 (38B ug/L) and 3021-3 (20B ug/L) exceeded NJDEPE Class II-A Ground Water Quality Criteria. The methylene chloride results were marked with a "B" data qualifier, which indicates methylene chloride was detected in method blanks run with samples. Methylene chloride is present due to laboratory induced contamination. Lead is not typically associated with No. 2 fuel oil, it is unlikely that the reported spill would be responsible for lead contamination. Lead has been encountered in soils at the site and is considered common to the Charles Wood area.

On 22 November 1993, a third round of groundwater samples was collected and analyzed by 21st Century Laboratories for VO+15, BN+15, and lead. The results indicated that a concentration of methylene chloride in sample MW-3 (4.4 ug/L) exceeds NJDEPE Class II-A Ground Water Quality Criteria. Methylene chloride was present in the field blank and trip blank. The presence of methylene chloride in field and trip blank indicates that the source of contamination is not from the UST but from another source (e.g., the laboratory). All other sample analyses indicated either non-detectable concentrations or concentrations below NJDEPE Class II-A Ground Water Quality Criteria.

Based on the remedial efforts performed during excavation and the analytical results of the groundwater samples, the Site Investigation Report recommended no further action for groundwater. The report additionally recommended that a minimum of six soil samples from adjacent native soils be collected in the excavation area of UST No. 27.

Additional Site Investigation Activities

A sampling summary is provided as Table 1 in Appendix A. The analytical reports, summarized in Tables 2, are included in Appendix B.

Additional Soil Sampling

Due to the fact that a discharge was reported to the NJDEP by the DPW on 2 November 1989 (Case #89-11-02-1052), it was proposed that a minimum of six soil samples from adjacent native soils be collected in the excavation area of UST No. 27 in accordance with NJDEP requirements. The soil samples will be analyzed for TPHC. VO+15 analysis will be required on 25 percent of samples in which TPHC levels exceed 1,000 ppm.

On 5 October 2000, six soil samples from adjacent native soils were collected in the excavation area of UST No. 27. All post-excavation soil samples collected from the UST excavation contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained non-detectable levels of Total Petroleum Hydrocarbons (TPHC).

Based on the most recent data, Versar, on behalf of Fort Monmouth, recommends that No Further Action be performed at the subject site.

If you have any questions or concerns regarding this summary report, please feel free to contact me at (732) 532-8990.

Sincerely,
Versar, Inc.

Eric Miller

Eric Miller
Environmental Engineer

Enclosures: Appendix A – Tables and Figures
Appendix B – Analytical Data Reports

APPENDIX A
TABLES AND FIGURES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
AREA 3021, CHARLES WOOD AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 1

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
1	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
2	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
3	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
4	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
5	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
6	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP 1	10/5/00	10/5/00	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
 AREA 3021, CHARLES WOOD AREA
 FORT MONMOUTH, NEW JERSEY

Page 1 of 1

Sample ID	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
1	5769.01	10/5/00	10/5/00	Total Solid	--	--	77.93	--	--
				TPHC	195	Yes	ND	10,000	No
2	5769.02	10/5/00	10/5/00	Total Solid	--	--	77.67	--	--
				TPHC	195	Yes	ND	10,000	No
3	5769.03	10/5/00	10/5/00	Total Solid	--	--	80.67	--	--
				TPHC	190	Yes	ND	10,000	No
4	5769.04	10/5/00	10/5/00	Total Solid	--	--	80.04	--	--
				TPHC	193	Yes	ND	10,000	No
5	5769.05	10/5/00	10/5/00	Total Solid	--	--	75.90	--	--
				TPHC	203	Yes	ND	10,000	No
6	5769.06	10/5/00	10/5/00	Total Solid	--	--	78.53	--	--
				TPHC	195	Yes	ND	10,000	No
DUP 1	5769.07	10/5/00	10/5/00	Total Solid	--	--	79.68	--	--
				TPHC	191	Yes	ND	10,000	No

Note:

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

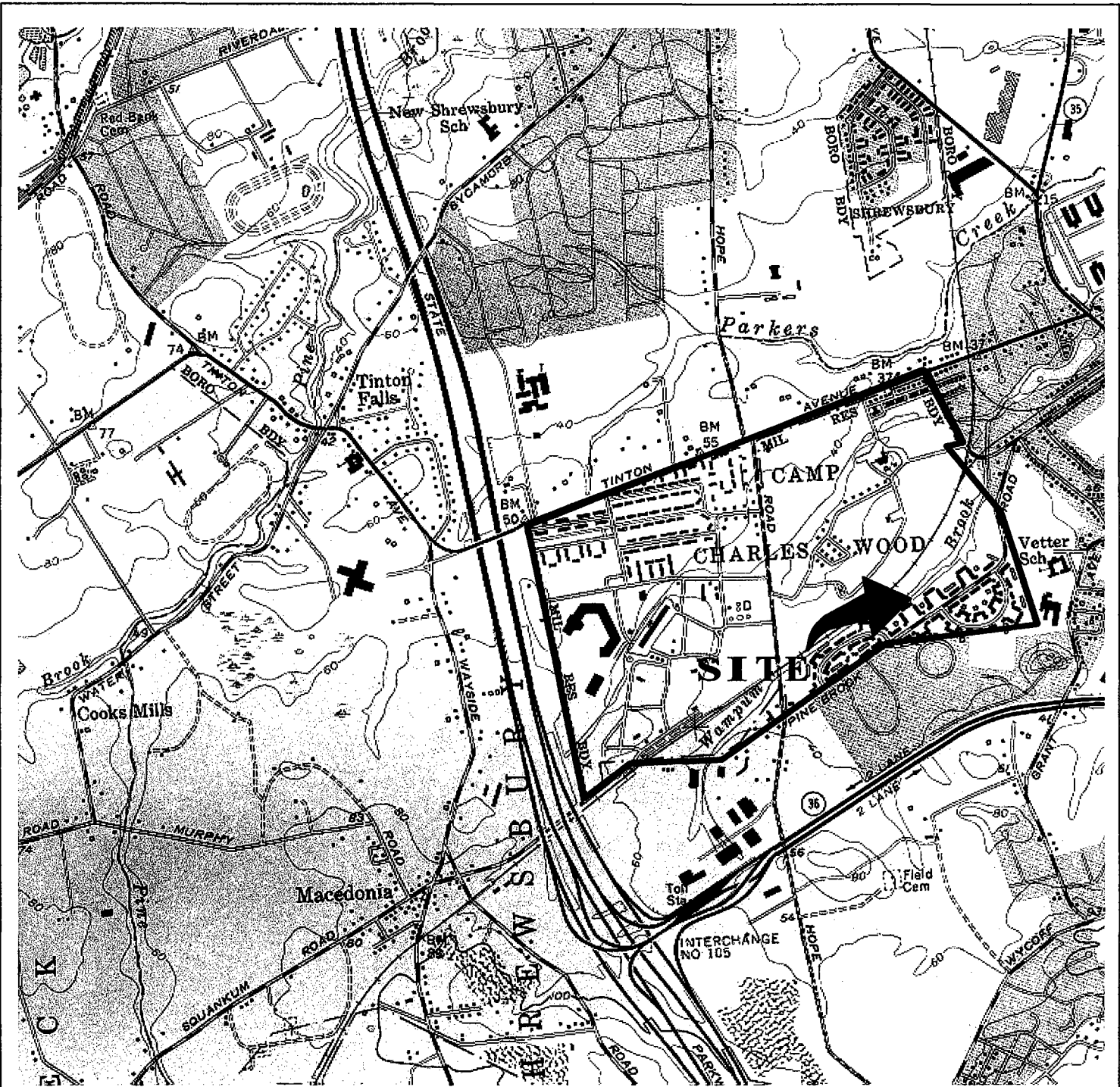


FIGURE 1

LOCATION MAP
 Building 3021
 Charles Wood
 Fort Monmouth Army Base
 Monmouth County, NJ

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

Scale: 1" = 2000'

Date: May 1994

LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW
 JERSEY

QUADRANGLE LOCATION



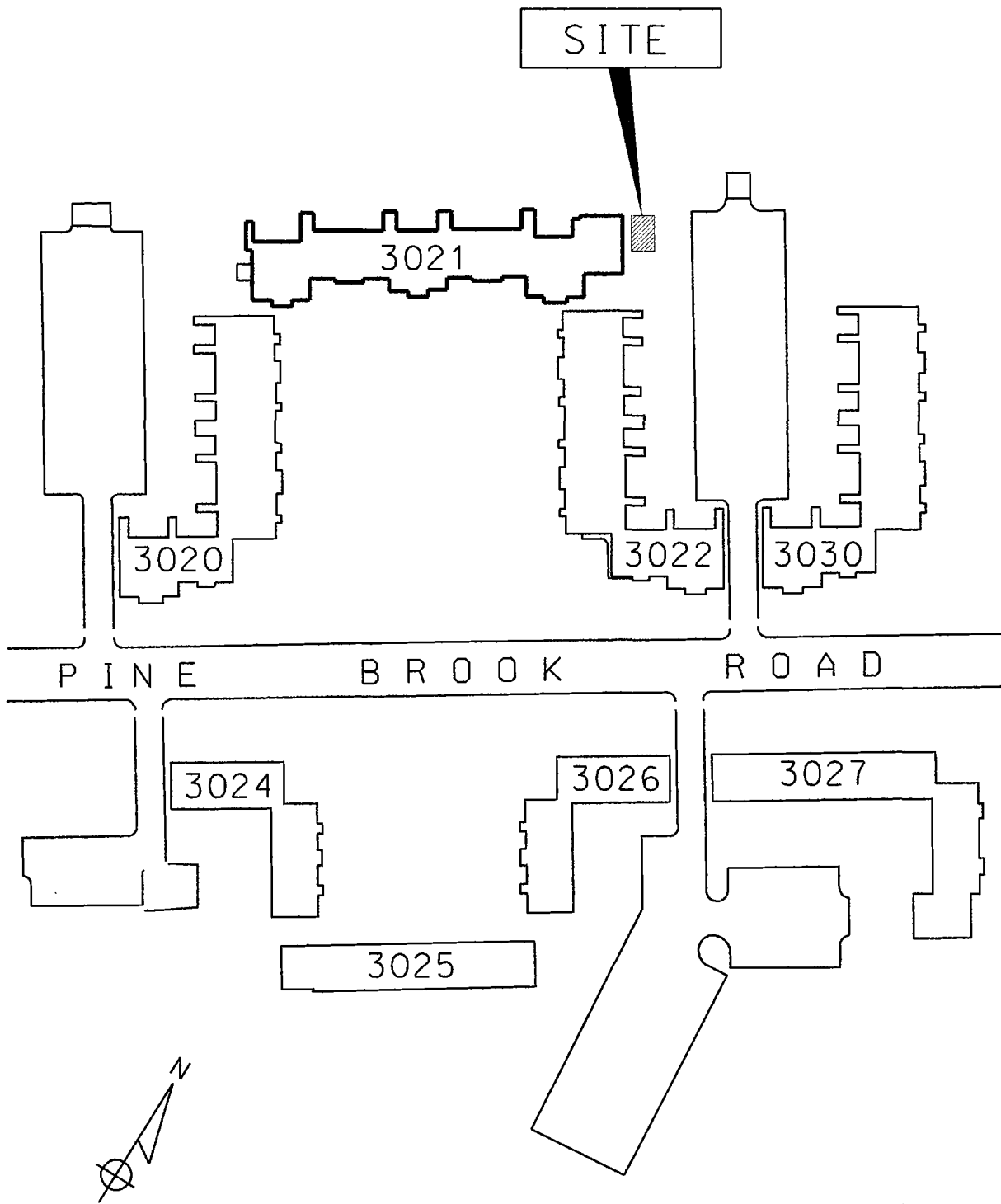


FIGURE 2
 SITE MAP
 BUILDING 3021
 FORT MONMOUTH ARMY BASE
 MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: MAY 1994

BUILDING
3021

3021-4/12.0' BGS
TPHC | ND

3021-3/12.0' BGS
TPHC | ND

3021-5/12.0' BGS
TPHC | ND

3021-1/12.0' BGS
TPHC | ND

DUP-1 /12.0' BGS
TPHC | ND

3021-6/12.0' BGS
TPHC | ND

3021-2/12.0' BGS
TPHC | ND



LEGEND

● SOIL SAMPLE LOCATION
(OCTOBER 5, 2000)

▣ LIMIT OF EXCAVATION

NOTES:

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

FIGURE 3
SOIL SAMPLING LOCATION MAP
BUILDING 3021
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: MAY 1994

3021 FIG3

APPENDIX B
ANALYTICAL DATA REPORTS

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-6224 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: IJO#00-0004

Bldg. 3021

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
3021-1 12"	5769.01	Soil	05-Oct-00 09:40	10/05/00
3021-2 12"	5769.02	Soil	05-Oct-00 10:00	10/05/00
3021-3 12"	5769.03	Soil	05-Oct-00 10:20	10/05/00
3021-4 12"	5769.04	Soil	05-Oct-00 10:50	10/05/00
3021-5 12"	5769.05	Soil	05-Oct-00 11:20	10/05/00
3021-6 12"	5769.06	Soil	05-Oct-00 11:45	10/05/00
F.D. 12"	5769.07	Soil	05-Oct-00	10/05/00

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
TPHC, %SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS


Daniel Wright/Date
Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-025-10/97

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

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

Twenty-five milliliters (25mL) Methylene Chloride is added to the flask and it is secured on a orbital 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.

000001

TPHC Conformance/Non-conformance Summary Report

- | | Indicate
Yes, No, N/A |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1. Method Detection Limits provided. | <u>Yes</u> |
| 2. Method Blank Contamination – If yes, list the sample and the Corresponding concentrations in each blank.

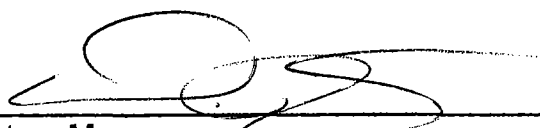
_____ | <u>NO</u> |
| 3. Matrix Spike Results Summary Meet Criteria
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).

_____ | <u>Yes</u> |
| 4. Duplicate Results Summary Meet Criteria
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).

_____ | <u>Yes</u> |
| 5. IR Spectra submitted for standards, blanks and samples. | <u>N/A</u> |
| 6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted. | <u>Yes</u> |
| 7. Analysis holding time met.
(If not met, list number of days exceeded for each sample).

_____ | <u>Yes</u> |

Additional comments: _____



Laboratory Manager

10-10-00
Date

000002



Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-4359 Fax (732)532-6263 EMail:wrightd@mail1.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: <u>D. DESAI</u>				Project No: <u>00-0004</u>				Analysis Parameters				Comments:			
Phone #: <u>12475</u>				Location: <u>BLDG. 3021</u>				T P H C	4 % S O I L S					P I D	F I D
() DERA (<input checked="" type="checkbox"/>) OMA () Other: _____				Samplers Name / Company: <u>MARK LAUREA - TVS-PWS 07</u>											
Lab Sample I.D.	Sample Location		Date	Time	Type	bottles						PPM	PPM	Remarks / Preservation Method	
<u>1 5769</u>	<u>1</u>	<u>3021-1</u>	<u>12'</u>	<u>10-5-00</u>	<u>0940</u>	<u>soil</u>	<u>1</u>	<u>X</u>	<u>X</u>			<u>22.58</u>	<u>1.90</u>	<u><40c</u>	
	<u>2</u>	<u>" - 2</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>			<u>11.00</u>	<u>2.30</u>	<u>"</u>	
	<u>3</u>	<u>" - 3</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>			<u>3.89</u>	<u>2.50</u>	<u>"</u>	
	<u>4</u>	<u>" - 4</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>			<u>1.71</u>	<u>9.04</u>	<u>"</u>	
	<u>5</u>	<u>" - 5</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>			<u>0.69</u>	<u>0.09</u>	<u>"</u>	
	<u>6</u>	<u>" - 6</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>			<u>1.09</u>	<u>0.12</u>	<u>"</u>	
	<u>7</u>	<u>F.I.D.</u>	<u>"</u>	<u>↓</u>	<u>-</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>-</u>	<u>-</u>	<u>"</u>	
Relinquished by (signature): <u>[Signature]</u>		Date/Time: <u>10-5-00 1300</u>		Received by (signature): <u>[Signature]</u>		Relinquished by (signature):		Date/Time:		Received by (signature):					
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):					
Report Type: () Full, () Reduced, (<input checked="" type="checkbox"/>) Standard, () Screen / non-certified, () EDD								Remarks: <u>ALL SAMPLES TAKEN @ 12'</u>							
Turnaround time: () Standard 3 wks, (<input checked="" type="checkbox"/>) Rush Days, () ASAP Verbal <u>24</u> Hrs.															

300000

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

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

Project # : 5769
Location : Bldg.3021
UST Reg. # :

Analysis : OQA-QAM-025
Matrix : Soil
Inst. ID. : GC TPHC INST. #1
Column Type : RTX-5, 0.32mm ID, 30M
Injection Volume : 1uL

Date Received : 05-Oct-00
Date Extracted : 05-Oct-00
Extraction Method : Shake
Analysis Complete : 06-Oct-00
Analyst : B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
5769.01	3021-1	1.00	15.45	77.93	195	ND
5769.02	3021-2	1.00	15.49	77.67	195	ND
5769.03	3021-3	1.00	15.35	80.67	190	ND
5769.04	3021-4	1.00	15.25	80.04	193	ND
5769.05	3021-5	1.00	15.28	75.90	203	ND
5769.06	3021-6	1.00	15.36	78.53	195	ND
5769.07	Field Dupe	1.00	15.46	79.68	191	ND
METHOD BLANK	TBLK430	1.00	15.00	100.00	157	ND

ND = Not Detected
 MDL = Method Detection Limit

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000

Calibration Files

100 =T012226.D 50 =T012230.D 20 =T012229.D
 10 =T012227.D 5 =T012228.D

Compound	100	50	20	10	5	Avg	%RSD
1) tC C8	1.835	1.861	1.771	1.778	1.709	1.791 E4	3.32
2) tC C10	1.976	1.856	1.722	1.850	1.994	1.880 E4	5.86
3) TC C12	2.051	2.056	2.055	1.986	2.013	2.032 E4	1.55
4) tC C14	2.126	2.127	2.061	1.994	1.909	2.043 E4	4.55
5) tC C16	2.181	2.198	2.122	2.087	2.050	2.128 E4	2.94
6) tC C18	2.069	2.147	1.850	1.705	2.084	1.971 E4	9.46
7) tC C20	2.260	2.235	2.053	1.927	1.891	2.073 E4	8.20
8) tC C22	2.359	2.375	2.319	2.303	2.267	2.324 E4	1.86
9) tC C24	2.389	2.413	2.343	2.306	2.246	2.339 E4	2.85
10) tC C26	2.406	2.420	2.352	2.282	2.205	2.333 E4	3.85
11) tC C28	2.426	2.425	2.300	2.167	2.154	2.294 E4	5.78
12) tC C30	2.528	2.507	2.350	2.282	2.270	2.387 E4	5.15
13) tC C32	2.451	2.410	2.268	2.233	2.217	2.316 E4	4.62
14) tC C34	2.411	2.376	2.268	2.225	2.240	2.304 E4	3.64
15) tC C36	2.369	2.349	2.285	2.236	2.225	2.293 E4	2.82
16) tC C38	2.385	2.372	2.314	2.306	2.253	2.326 E4	2.30
17) tC C40	2.260	2.248	2.186	2.126	2.168	2.198 E4	2.55
18) tC c42	2.322	2.308	2.128	2.133	1.999	2.178 E4	6.26
19) TC Pristane	2.316	2.388	2.557	2.254	2.352	2.373 E4	4.79
20) TC Phytane	2.377	2.407	2.512	2.476	2.832	2.521 E4	7.21
21) sC o-terphenyl	2.554	2.572	2.502	2.477	2.466	2.514 E4	1.86
22) tC TPHC - total	2.486	2.541	2.610	2.806	3.068	2.702 E4	8.79

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\001005\T012343.D
 Acq On : 5 Oct 2000 2:58 pm
 Sample : Tstd050
 Misc : 50 ppm std
 IntFile : TPHCINT.E

Vial: 1
 Operator: BPatel
 Inst : GC/MS Ins
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 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	17.911	17.754 E3	0.9	95	-0.02
2 tC C10	18.796	19.152 E3	-1.9	103	0.00
3 TC C12	20.323	19.418 E3	4.5	94	0.00
4 tC C14	20.435	19.822 E3	3.0	93	0.00
5 tC C16	21.276	20.207 E3	5.0	92	0.00
6 tC C18	19.711	18.859 E3	4.3	88	0.00
7 tC C20	20.734	20.938 E3	-1.0	94	0.00
8 tC C22	23.245	22.211 E3	4.4	94	0.00
9 tC C24	23.393	22.273 E3	4.8	92	0.00
10 tC C26	23.331	22.605 E3	3.1	93	0.00
11 tC C28	22.942	22.758 E3	0.8	94	0.00
12 tC C30	23.875	23.788 E3	0.4	95	0.00
13 tC C32	23.158	23.167 E3	-0.0	96	0.00
14 tC C34	23.040	23.175 E3	-0.6	98	0.00
15 tC C36	22.928	22.589 E3	1.5	96	0.00
16 tC C38	23.262	22.086 E3	5.1	93	0.00
17 tC C40	21.976	19.261 E3	12.4	86	0.00
18 tC c42	21.779	17.030 E3	21.8	74	0.00
19 TC Pristane	23.735	21.726 E3	8.5	91	0.00
20 TC Phytane	25.209	22.798 E3	9.6	95	0.00
21 sC o-terphenyl	25.142	25.211 E3	-0.3	98	0.00
22 tC TPHC - total	27.023	24.404 E3	9.7	96	0.49

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\001005\T012354.D Vial: 12
 Acq On : 5 Oct 2000 9:23 pm Operator: BPatel
 Sample : Tstd050 Inst : GC/MS Ins
 Misc : 50 ppm std Multiplr: 1.00
 IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 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	17.911	17.941 E3	-0.2	96	-0.01
2 tC C10	18.796	19.432 E3	-3.4	105	0.00
3 TC C12	20.323	19.179 E3	5.6	93	0.00
4 tC C14	20.435	20.045 E3	1.9	94	0.00
5 tC C16	21.276	20.171 E3	5.2	92	0.00
6 tC C18	19.711	20.085 E3	-1.9	94	0.00
7 tC C20	20.734	20.800 E3	-0.3	93	0.00
8 tC C22	23.245	21.521 E3	7.4	91	0.00
9 tC C24	23.393	22.295 E3	4.7	92	0.00
10 tC C26	23.331	22.682 E3	2.8	94	0.00
11 tC C28	22.942	22.799 E3	0.6	94	0.00
12 tC C30	23.875	23.787 E3	0.4	95	0.00
13 tC C32	23.158	23.089 E3	0.3	96	0.00
14 tC C34	23.040	22.903 E3	0.6	96	0.00
15 tC C36	22.928	22.324 E3	2.6	95	0.00
16 tC C38	23.262	21.596 E3	7.2	91	0.00
17 tC C40	21.976	18.786 E3	14.5	84	0.00
18 tC c42	21.779	15.907 E3	27.0#	69	-0.01
19 TC Pristane	23.735	22.275 E3	6.2	93	0.00
20 TC Phytane	25.209	23.409 E3	7.1	97	0.00
21 sC o-terphenyl	25.142	25.459 E3	-1.3	99	0.00
22 tC TPHC - total	27.023	23.838 E3	11.8	94	0.49

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\001005\T012364.D Vial: 22
 Acq On : 6 Oct 2000 3:13 am Operator: BPatel
 Sample : Tstd050 Inst : GC/MS Ins
 Misc : 50 ppm std Multiplr: 1.00
 IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 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	17.911	17.909 E3	0.0	96	-0.02
2 tC C10	18.796	19.427 E3	-3.4	105	0.00
3 TC C12	20.323	19.735 E3	2.9	96	0.00
4 tC C14	20.435	20.474 E3	-0.2	96	0.00
5 tC C16	21.276	20.661 E3	2.9	94	0.00
6 tC C18	19.711	18.840 E3	4.4	88	0.00
7 tC C20	20.734	21.094 E3	-1.7	94	0.00
8 tC C22	23.245	22.677 E3	2.4	95	0.00
9 tC C24	23.393	22.690 E3	3.0	94	0.00
10 tC C26	23.331	23.088 E3	1.0	95	0.00
11 tC C28	22.942	23.207 E3	-1.2	96	0.00
12 tC C30	23.875	24.181 E3	-1.3	96	0.00
13 tC C32	23.158	23.514 E3	-1.5	98	0.00
14 tC C34	23.040	23.227 E3	-0.8	98	0.00
15 tC C36	22.928	22.543 E3	1.7	96	0.00
16 tC C38	23.262	22.001 E3	5.4	93	0.00
17 tC C40	21.976	19.144 E3	12.9	85	0.00
18 tC c42	21.779	16.852 E3	22.6	73	0.00
19 TC Pristane	23.735	22.732 E3	4.2	95	0.00
20 TC Phytane	25.209	23.437 E3	7.0	97	0.00
21 sC o-terphenyl	25.142	25.890 E3	-3.0	101	0.00
22 tC TPHC - total	27.023	24.336 E3	9.9	96	0.49

Surrogate Recovery Report
U.S.Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461

Client :	US. Army	Project # :	5769
	DPW. SELFM-PW-EV	Location :	Bldg.3021
	Bldg. 173	UST Reg. # :	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	Date Received :	5-Oct-00
Matrix:	Soil	Date Extracted :	5-Oct-00
Inst. ID.	GC TPHC INST. #1	Extraction Method :	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	Analysis Complete :	6-Oct-00
Injection Volume :	1uL	Analyst :	B.Patel

Sample			Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
5769.01			10.00	10.24	102.43
5769.02			10.00	8.70	87.02
5769.03			10.00	8.96	89.63
5769.04			10.00	8.70	86.95
5769.05			10.00	10.31	103.11
5769.06			10.00	10.27	102.65
5769.07			10.00	8.85	88.46
METHOD BLANK	TBLK430		10.00	10.62	106.17

Surrogate Added : o-Terphenyl

**Matrix Spike/ Duplicate Recovery Report
U.S.Army, Fort Monmouth Environmental Laboratory
NJDEP Certification # 13461**

Client :	US. Army	Project # :	5769
	DPW. SELFM-PW-EV	Location :	Bldg.3021
	Bldg. 173	UST Reg. # :	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	Date Received :	5-Oct-00
Matrix:	Soil	Date Extracted :	5-Oct-00
Inst. ID.	GC TPHC INST. #1	Extraction Method :	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	Analysis Complete :	6-Oct-00
Injection Volume :	1uL	Analyst :	B.Patel

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
5769.06MS	1000	0.00	914.44	91.44	75-125
5769.06MSD	1000	0.00	889.68	88.97	75-125

RPD	2.74	20.00
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**Quality Control Check Standard Summary
 U.S.Army, Fort Monmouth Environmental Laboratory
 NJDEP Certification # 13461**

Client :	US. Army	Project # :	5769
	DPW. SELFM-PW-EV	Location :	Bldg.3021
	Bldg. 173	UST Reg. # :	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	Date Received :	5-Oct-00
Matrix:	Soil	Date Extracted :	5-Oct-00
Inst. ID.	GC TPHC INST. #1	Extraction Method :	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	Analysis Complete :	6-Oct-00
Injection Volume :	1uL	Analyst :	B.Patel

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
TBLK430BS	05-Oct-00	1000	899.34	89.93	75-125

Data File : C:\HPCHEM\1\DATA\001005\T012344.D Vial: 2
 Acq On : 5 Oct 2000 3:33 pm Operator: BPatel
 Sample : Tblk430 Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:00 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.M

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

Compound	R.T.	Response	Conc Units
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System Monitoring Compounds			
21) sC o-terphenyl	12.50	266940	10.617 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 106.17%#

Target Compounds

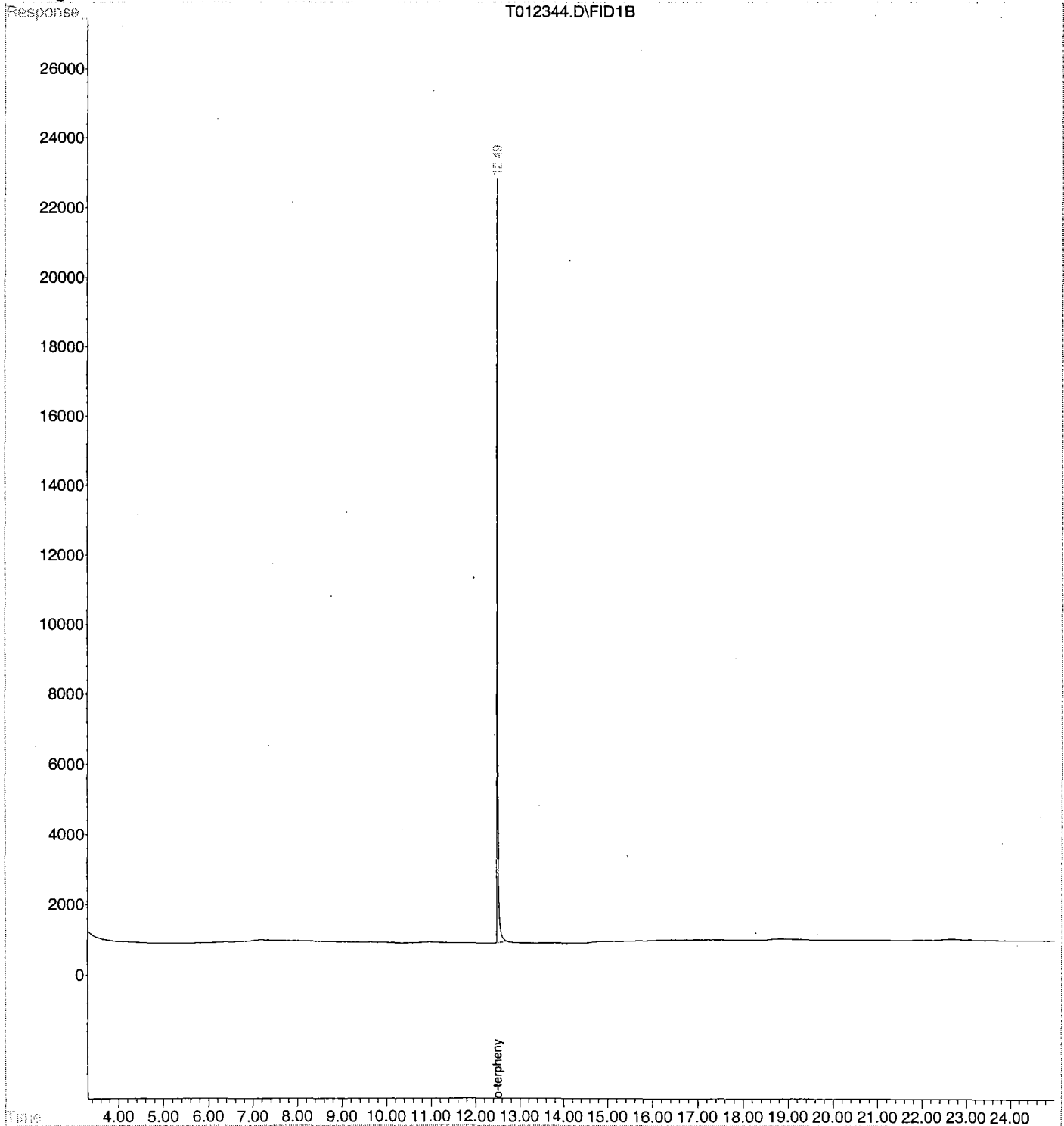
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012344.D
Acq On : 5 Oct 2000 3:33 pm
Sample : Tblk430
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:00 2000 Quant Results File: TPH84.RES

Vial: 2
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012355.D Vial: 13
 Acq On : 5 Oct 2000 9:58 pm Operator: BPatel
 Sample : 5769.01s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:01 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.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	12.50	257533	10.243 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 102.43%#

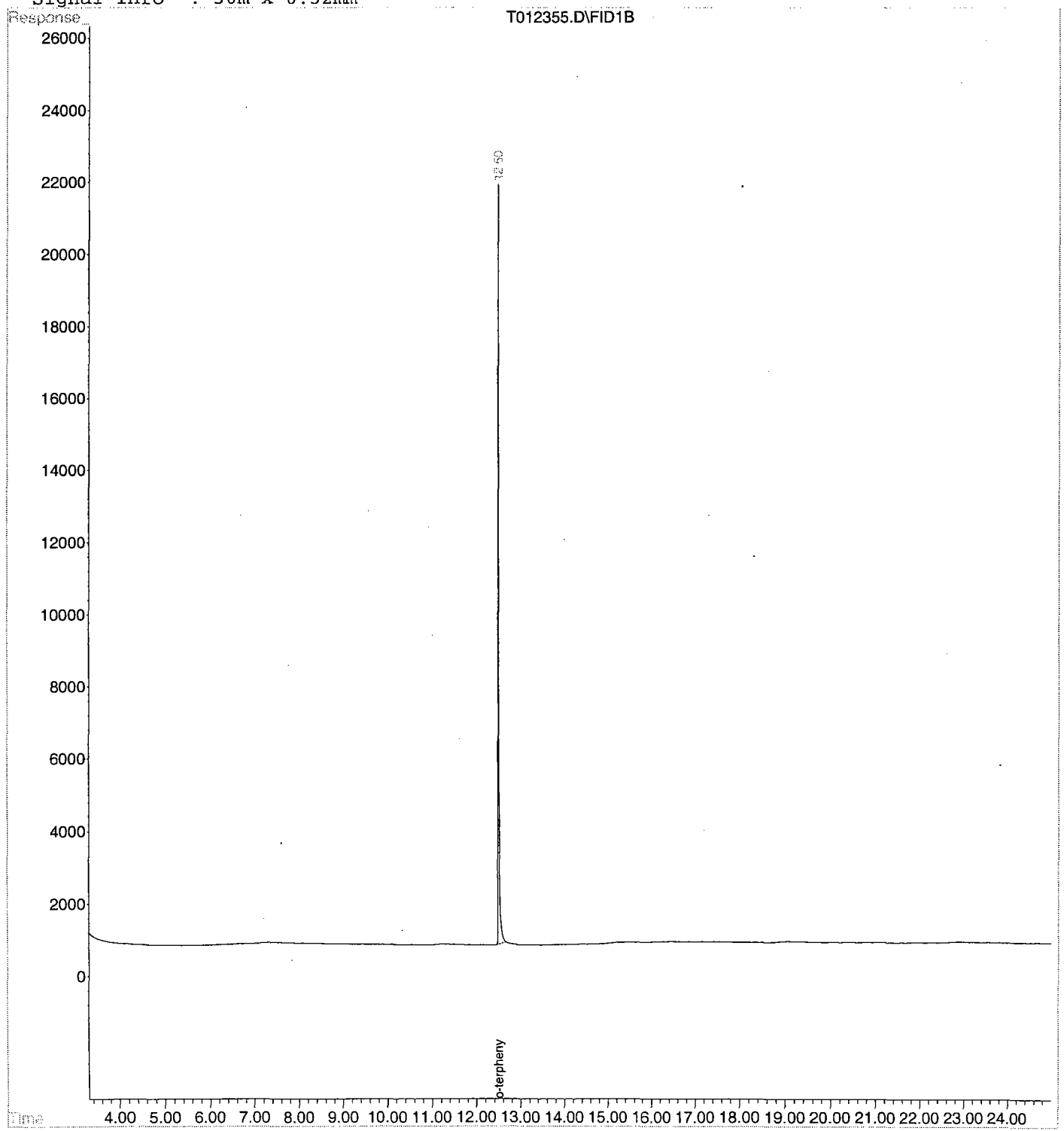
Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012355.D Vial: 13
Acq On : 5 Oct 2000 9:58 pm Operator: BPatel
Sample : 5769.01s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Oct 6 8:01 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012356.D Vial: 14
 Acq On : 5 Oct 2000 10:33 pm Operator: BPatel
 Sample : 5769.02s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:01 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.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	12.50	218792	8.702 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	87.02%#

Target Compounds

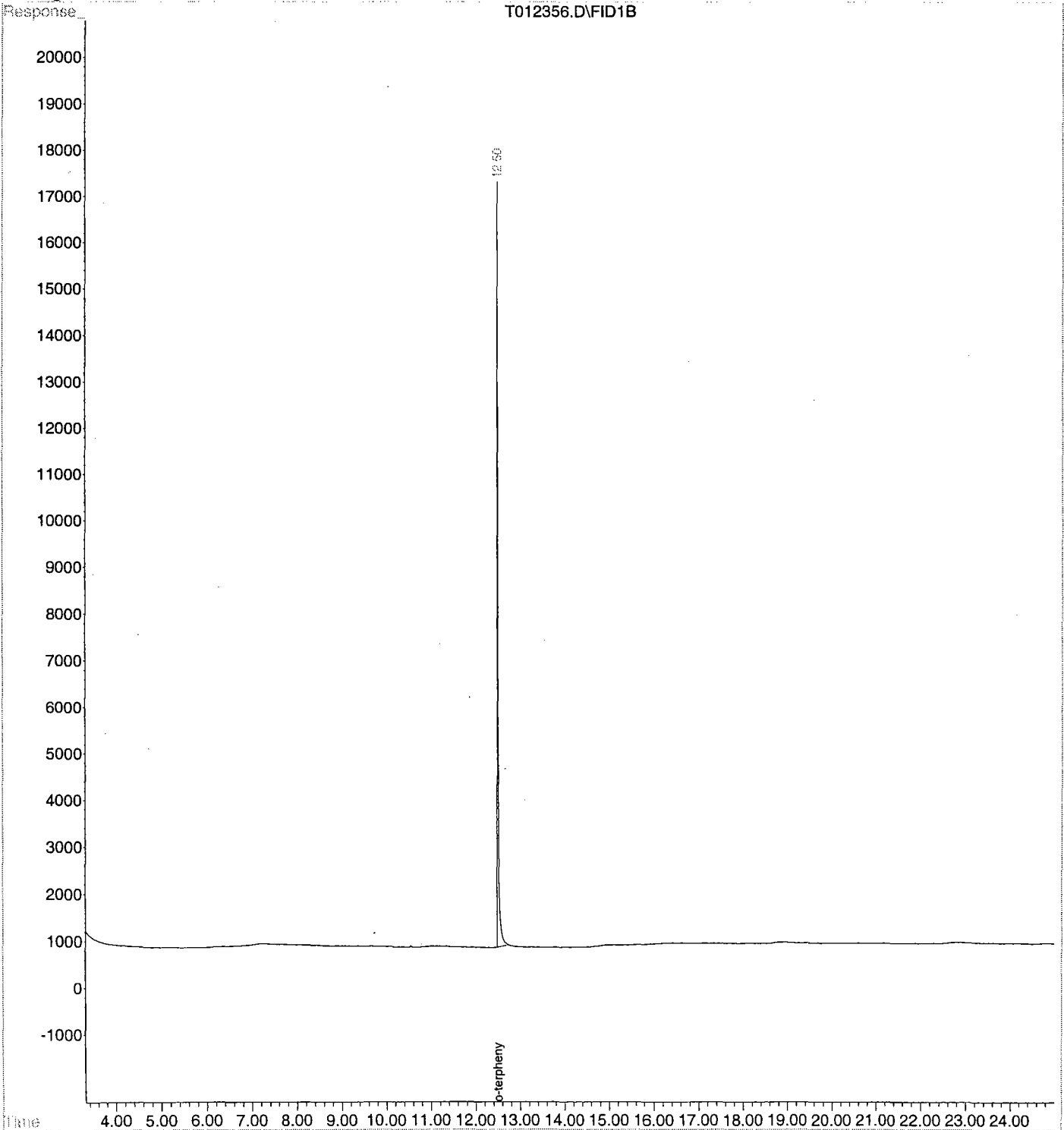
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012356.D
Acq On : 5 Oct 2000 10:33 pm
Sample : 5769.02s
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:01 2000 Quant Results File: TPH84.RES

Vial: 14
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



T012356.D\FID1B

Data File : C:\HPCHEM\1\DATA\001005\T012357.D Vial: 15
 Acq On : 5 Oct 2000 11:08 pm Operator: BPatel
 Sample : 5769.03s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.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	12.50	225348	8.963 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	89.63%#

Target Compounds

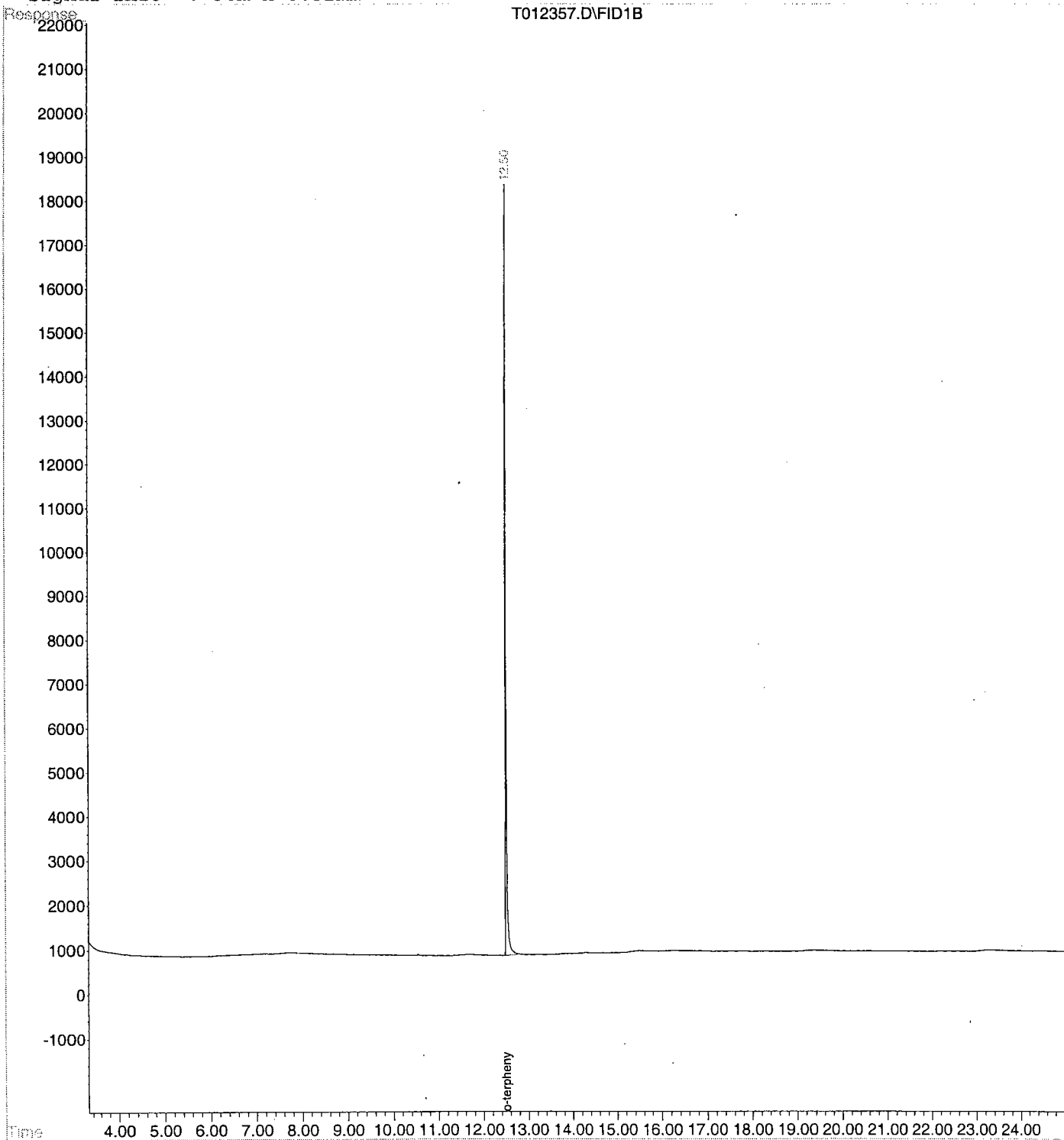
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012357.D
Acq On : 5 Oct 2000 11:08 pm
Sample : 5769.03s
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Vial: 15
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012358.D Vial: 16
 Acq On : 5 Oct 2000 11:43 pm Operator: BPatel
 Sample : 5769.04s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.M

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

Compound	R.T.	Response	Conc Units
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System Monitoring Compounds			
21) sC o-terphenyl	12.50	218605	8.695 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 86.95%#

Target Compounds

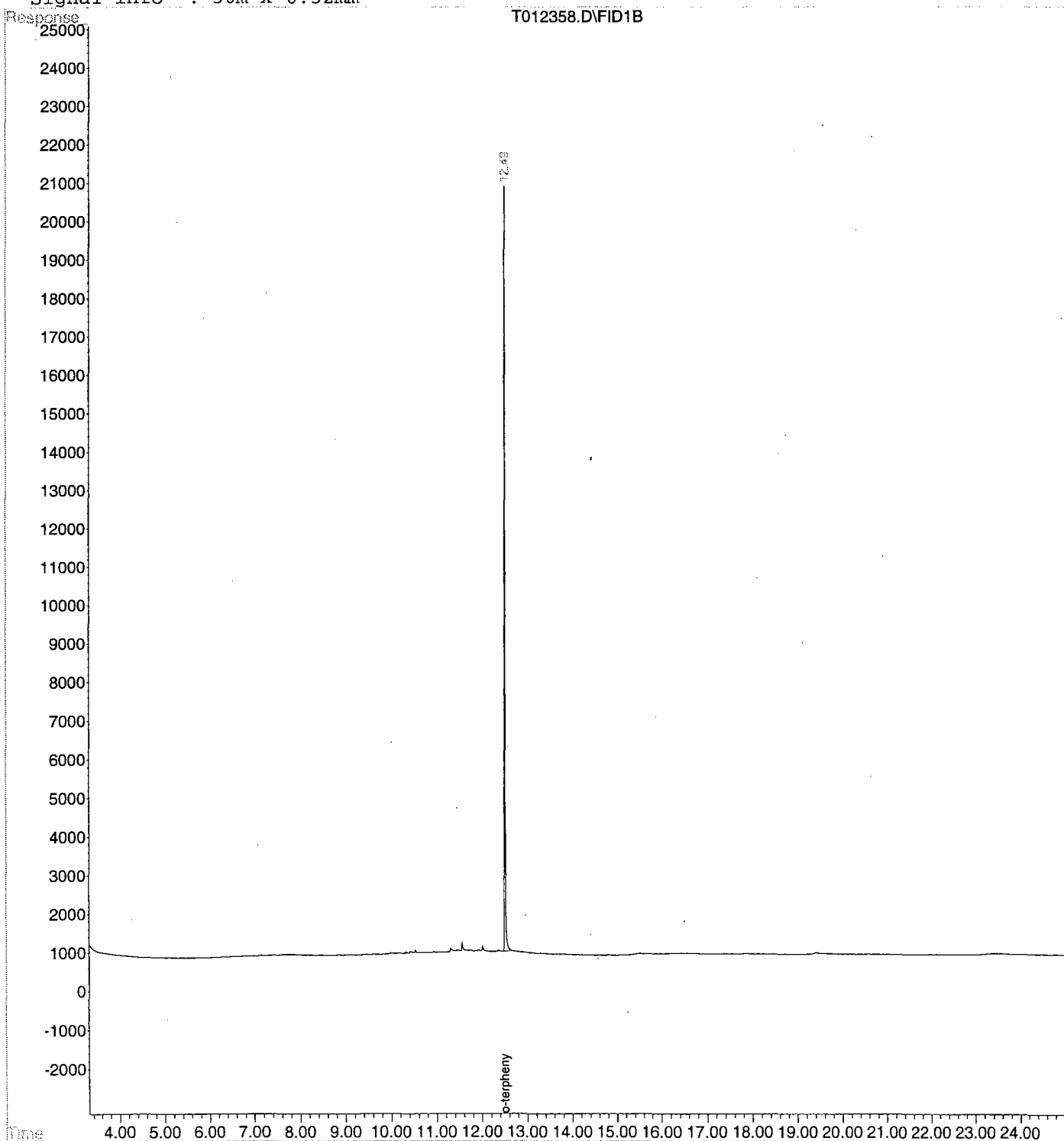
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012358.D
Acq On : 5 Oct 2000 11:43 pm
Sample : 5769.04s
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:02 2000

Vial: 16
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012359.D Vial: 17
 Acq On : 6 Oct 2000 12:18 am Operator: BPatel
 Sample : 5769.05s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.M

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

Compound	R.T.	Response	Conc Units
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System Monitoring Compounds

21) sC o-terphenyl	12.50	259248	10.311 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 103.11%#

Target Compounds

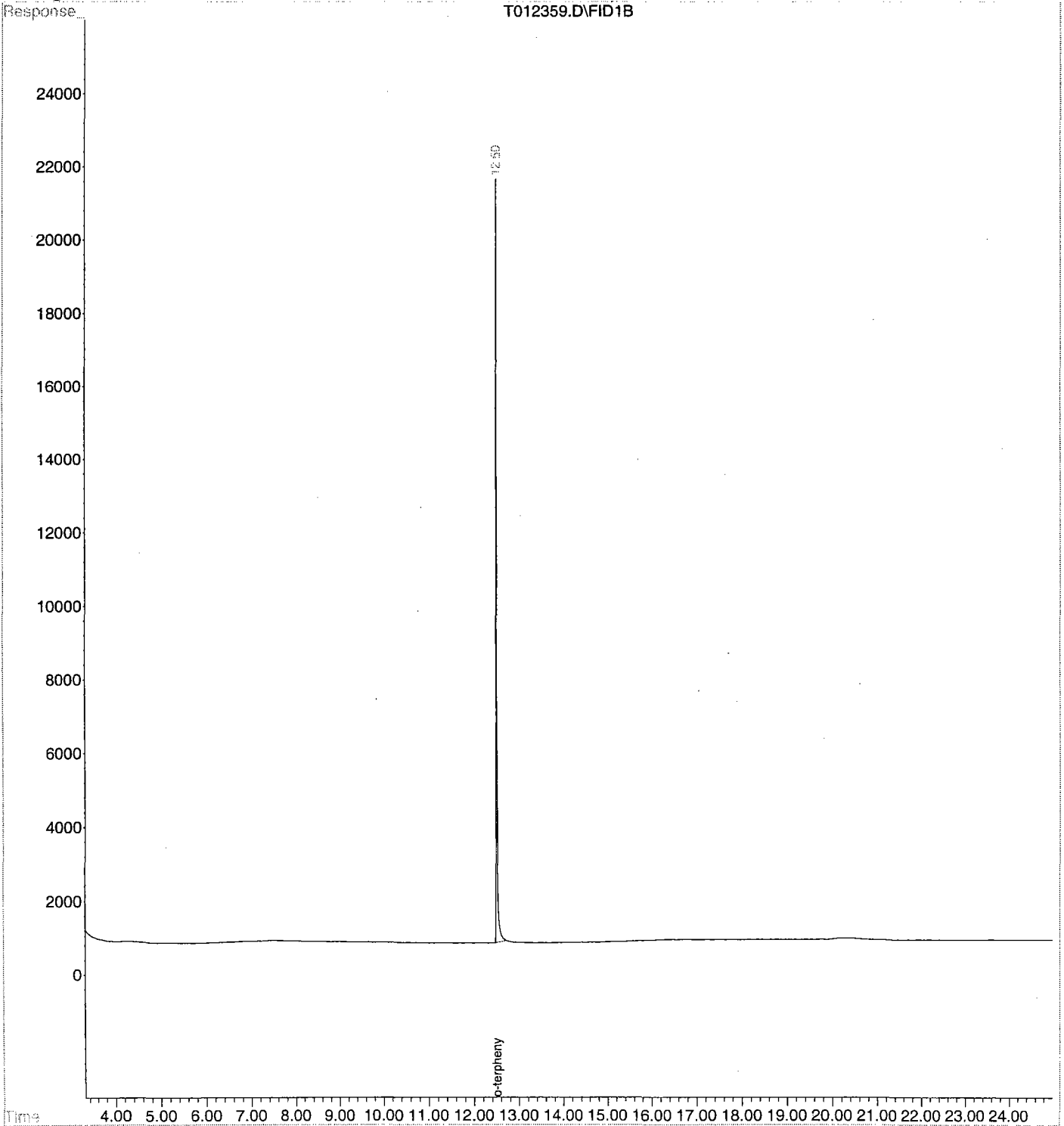
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012359.D
Acq On : 6 Oct 2000 12:18 am
Sample : 5769.05s
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:02 2000

Vial: 17
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012360.D Vial: 18
 Acq On : 6 Oct 2000 12:53 am Operator: BPatel
 Sample : 5769.06s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.M

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

Compound	R.T.	Response	Conc Units
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System Monitoring Compounds			
21) sC o-terphenyl	12.50	258071	10.265 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 102.65%#

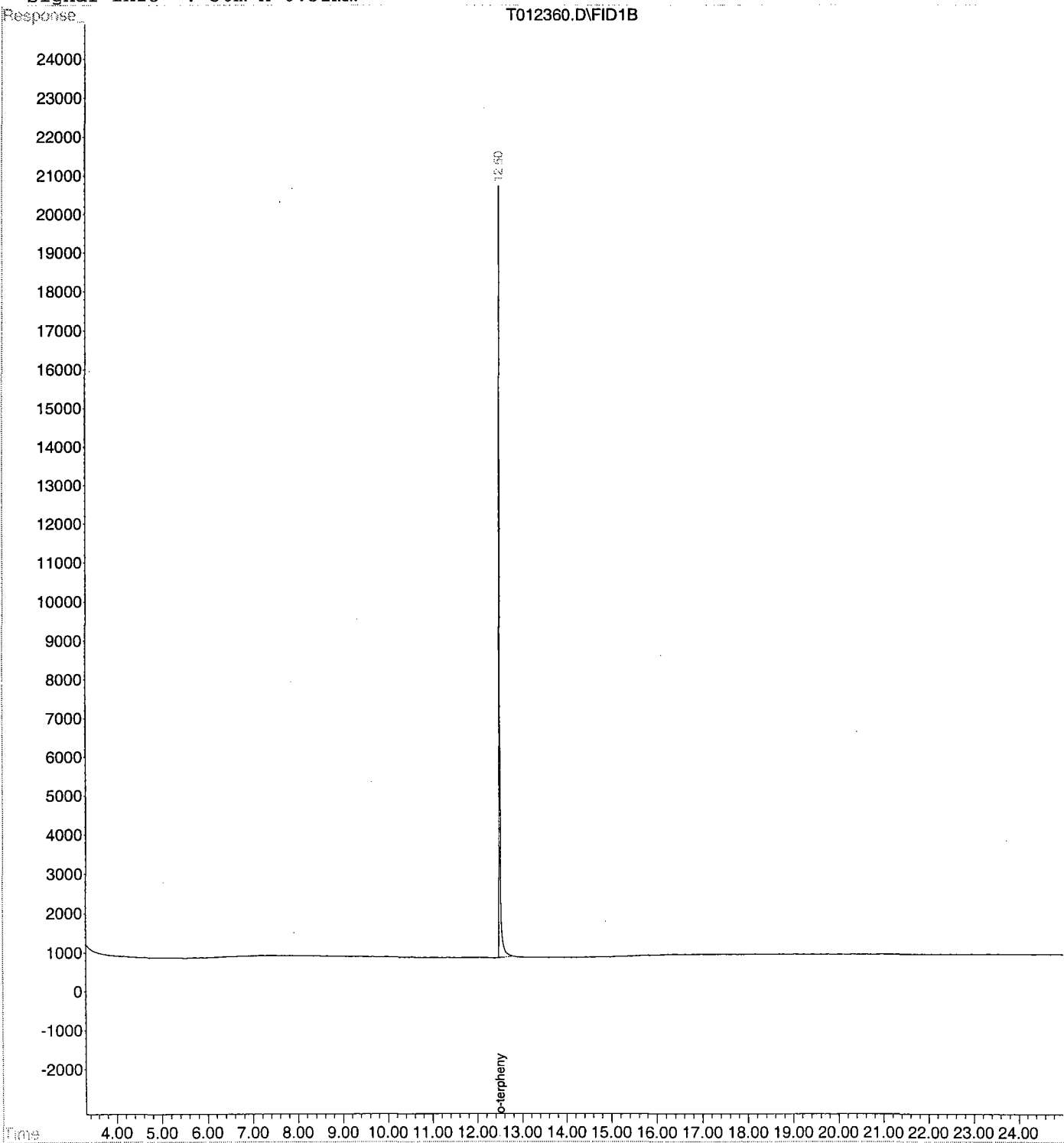
Target Compounds

Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012360.D Vial: 18
Acq On : 6 Oct 2000 12:53 am Operator: BPatel
Sample : 5769.06s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



Data File : C:\HPCHEM\1\DATA\001005\T012361.D Vial: 19
 Acq On : 6 Oct 2000 1:28 am Operator: BPatel
 Sample : 5769.07s Inst : GC/MS Ins
 Misc : Multiplr: 1.00
 IntFile : TPHCINT.E
 Quant Time: Oct 6 8:02 2000 Quant Results File: TPH84.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
 Title : TPHC Calibration 06/05/97 21 peaks
 Last Update : Thu Aug 10 16:02:08 2000
 Response via : Initial Calibration
 DataAcq Meth : TPH84.M

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

Compound	R.T.	Response	Conc Units
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System Monitoring Compounds			
21) sC o-terphenyl	12.50	222414	8.846 mg/L
Spiked Amount	10.000	Range 8 - 13	Recovery = 88.46%#

Target Compounds

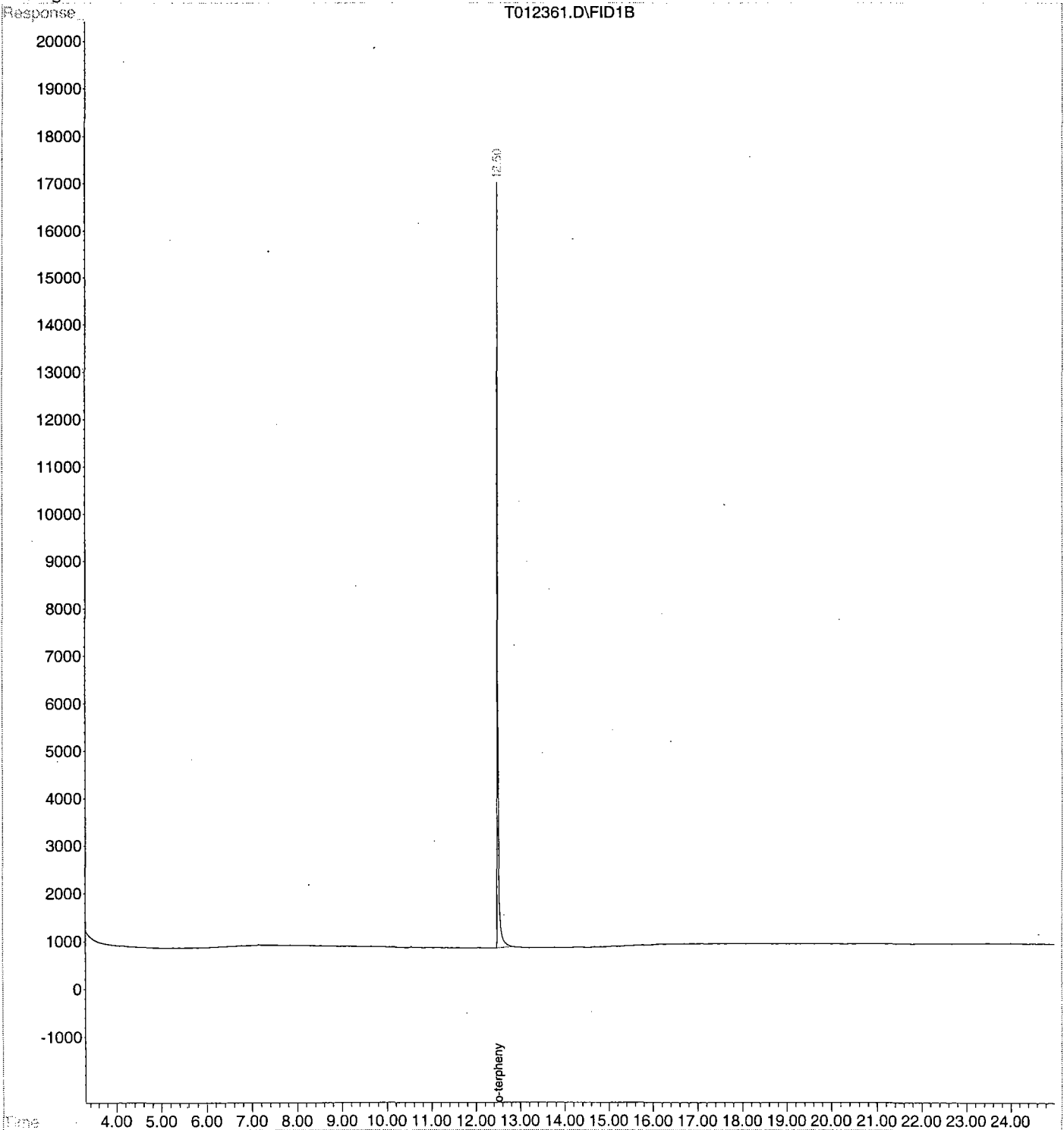
Quantitation Report

Data File : C:\HPCHEM\1\DATA\001005\T012361.D
Acq On : 6 Oct 2000 1:28 am
Sample : 5769.07s
Misc :
IntFile : TPHCINT.E
Quant Time: Oct 6 8:02 2000

Vial: 19
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH84.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Thu Aug 10 16:02:08 2000
Response via : Multiple Level Calibration
DataAcq Meth : TPH84.M

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



T012361.D\FID1B

000027

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 | <input checked="" type="checkbox"/> |
| 2. Table of Contents submitted | <input checked="" type="checkbox"/> |
| 3. Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted | <input checked="" type="checkbox"/> |
| 4. Document paginated and legible | <input checked="" type="checkbox"/> |
| 5. Chain of Custody submitted | <input checked="" type="checkbox"/> |
| 6. Samples submitted to lab within 48 hours of sample collection | <input checked="" type="checkbox"/> |
| 7. Methodology Summary submitted | <input checked="" type="checkbox"/> |
| 8. Laboratory Chronicle and Holding Time Check submitted | <input checked="" type="checkbox"/> |
| 9. Results submitted on a dry weight basis | <input checked="" type="checkbox"/> |
| 10. Method Detection Limits submitted | <input checked="" type="checkbox"/> |
| 11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP | <input checked="" type="checkbox"/> |

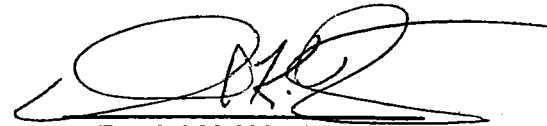
Laboratory Manager or Environmental Consultant's Signature _____
Date 10/10/00

Laboratory Certification #13461

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

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