U.S. Army Garrison
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Remedial Investigation Report

Main Post – 800 Area (UST No. 21)

NJDEP UST Registration No. 081533
NJDEP Case No. 03-09-11-0906-50
UST No. 800-21

November 2005

UNDERGROUND STORAGE TANK CLOSURE AND REMEDIAL INVESTIGATION REPORT

MAIN POST - 800 AREA (UST NO. 12)
NJDEP UST REGISTRATION NO. 081533
NJDEP CASE NO. 03-09-11-0906-50

NOVEMBER 2005

PROJECT NO.: 03-38200

PREPARED FOR:

U.S. ARMY GARRISON, FORT MONMOUTH, NJ
DIRECTORATE OF PUBLIC WORKS
BUILDING 173
FORT MONMOUTH, NJ 07703

PREPARED BY:

TECOM-VINNELL SERVICES, INC.
P.O. BOX 60
FT. MONMOUTH, NJ 07703

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EXECUTIVE SUMMARY

UST Closure

On July 28, 2003, a single wall steel underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Management Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The UST was located in an open field in the 800 area on the Main Post of Fort Monmouth. UST No. 800-21 was a 1,000-gallon No. 2 heating oil tank for residential use. The fill port, vent pipe and associated supply/return piping was not present in the excavation. The tank closure was performed by TECOM-Vinnell Services, Inc. (TVS).

Site Assessment

The site assessment was performed by TVS personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring instruments for evidence of contamination. Following removal, the UST was inspected for holes. Holes were noted in the UST and potentially contaminated soils were observed at the east end of the tank excavation.

Closure soil samples were collected after the removal of the UST. Samples 800-21A, 800-21B, 800-21C and 800-21 Duplicate were collected from a total of three (3) locations along the bottom/centerline of the UST excavation. All samples were analyzed for total petroleum hydrocarbons (TPH). Sample 800-21A was also analyzed for volatile organic compounds with a forward library search for 15 tentatively identified compounds (VO + 15) because the TPH result was above 1000 milligrams per kilogram (mg/kg).

On October 30, 2003, approximately 12 cubic yards of potentially contaminated soils were removed from the east end and bottom of the excavation, due to exceedance of TPH concentrations of the sample 800-21A from that location. Two post-remediation soil samples were collected from the sidewall and bottom of the expanded portion of the excavation and were analyzed for TPH. Groundwater was not encountered in the bottom of the excavation.

Findings

The initial post-remediation soil samples collected from the UST excavation associated with former UST No. 800-21, contained TPH concentrations above the NJDEP health based criterion of 10,000 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E and revisions dated February 3, 1994). Samples 800-21A and 800-21 Duplicate contained TPH concentrations of 18,052 mg/kg and 18,058 mg/kg, respectively. The contaminated area was excavated further and two post excavation samples were collected. Both of these sample results were below the NJDEP health based criterion of 10,000 mg/kg for TPH.

Site Restoration

Following receipt of all post-remediation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and clean fill in compacted lifts. The excavation site was then restored to its original grade with four inches of topsoil, seeded and mulched.

Conclusions and Recommendations

Based on the post-remediation soil sampling results, the UST excavation was remediated below the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants. In the sample analyzed for volatile organics, there are no detected compounds that exceed the NJDEP Residential Direct Contact Soil Cleanup Criteria.

No Further Action is proposed in regard to the closure and site assessment of UST No. 800-21 in the 800 Area of the Main Post.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 081533, was closed in the 800 area of Main Post at U.S. Army Garrison, Fort Monmouth, New Jersey on July 28, 2003. Refer to site location map on Figure 1. This report presents the results of the implementation of the DPW's UST Management Plan, March, 1996. The UST was a 1,000-gallon, single-wall steel tank containing No. 2 heating oil for residential consumption.

Decommissioning activities for UST No. 800-21 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. The closure and subsurface evaluation of the UST was conducted by a NJDEP licensed TVS employee.

This UST Closure and Remedial Investigation Report has been prepared by TVS to assist the U.S. Army Garrison-DPW in complying with the NJDEP - Underground Storage Tanks regulations. The applicable NJDEP regulations at the date of closure were the *Closure of Underground Storage Tank Systems* (N.J.A.C. 7:14B-9 et seq. December, 1987 and revisions dated April 20, 2003).

This report was prepared using information required by the *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) (*Technical Requirements*). Section 1 of this UST Closure and Remedial Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the remedial investigation activities. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in Section 3 of this report.

1.2 SITE DESCRIPTION

The 800 area is located in the eastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1. UST No. 800-21 was located in an open field approximately 300 feet southwest of Building 1006 (First Atlantic Federal Credit Union). Army barracks were previously located in the 800 area. The barracks were demolished in the 1960's. The fill port, vent pipe and appurtenant piping were not encountered in the excavation. A site map is provided on Figure 2. The 800 Area was assessed for potential abandoned USTs using a geophysical survey (electromagnetic and ground penetrating radar) and historical maps.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the 800 Area. 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, sand and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapecza, 1990).

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member

(Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium- to coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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

Hydrogeology

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

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

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

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

- 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 (e.g., streams, lakes)

Due to the fluvial nature of the overburden deposits (e.g., 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.

UST No. 800-21 is located approximately 1,000 feet southeast of Husky Brook, the nearest water body, which flows into Oceanport Creek. Based on the Main Post topography, the groundwater flow in the area of 800-21 is anticipated to be to the northwest.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas which posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionizer detector : Thermo Instruments Organic Vapor Monitor (OVM) – Model #580-B. The results of the air monitoring indicated that the air in the breathing zone was below OSHA permissible exposure limits (PEL's) during all phases of the UST removal and decommissioning procedures.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- All underground utilities were marked out by the respective trade shops or utility contractor prior to excavation activities.
- All activities were carried out with great 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.
- An NJDEP certified Subsurface Evaluator was present during all closure and remediation activities.

1.4.2 Underground Storage Tank Excavation

During decommissioning activities, surficial soil was carefully removed to expose the UST. The tank was emptied of all liquids prior to removal from the ground. Approximately 800 gallons of liquid was pumped out of the UST by Lorco Petroleum Services, Inc. into a tank truck and transported to their NJDEP-approved petroleum recycling and disposal facility located in Elizabeth, New Jersey. Refer to Appendix B for non-hazardous waste manifest (No. NJZ-49683).

After the UST was removed from the excavation, it was staged on an impervious surface, labeled and examined for holes. Holes in the tank were observed during the inspection by the Subsurface Evaluator. Soils surrounding the UST were screened visually and with an OVM for evidence of

contamination. Soil staining and an odor of petroleum hydrocarbons were observed. It was determined that remedial soil excavation would not be conducted prior to sampling. DPW personnel were made aware of the field conditions. The DPW called the NJDEP Spill Hotline, and Case No. 03-09-11-0906-50 was assigned to the site.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

The UST was purged with air to remove vapors prior to cutting. A 4 feet by 3 feet access hole was made in the UST using a pneumatic ripper gun with a non-sparking bit. The UST was cleaned first with rubber squeeges and adsorbent material broomed on the sidewalls and bottom. The adsorbent material was then drummed and subsequently put into Ft. Monmouth's 'Oil Spill Debris' roll-off container for proper disposal. The atmosphere in and around the tank was monitored using an OVM and an Oxygen/Lower Explosive Level (LEL) meter to ensure safe working conditions during cutting and cleaning activities.

The tank was then transported by TVS to Recycling Technology Center, Inc., Shafto Rd., Tinton Falls, NJ for disposal in compliance with all applicable regulations and laws. Refer to Appendix C for the UST disposal certificate.

The Subsurface Evaluator labeled the UST with the following information:

- site of origin
- NJDEP UST Facility ID number
- date of removal
- size of tank
- previous contents of tank

Photographic documentation of the UST is included in Appendix D.

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and visual observations, approximately 12 cubic yards of potentially contaminated soil were excavated from the area surrounding the UST. All potentially contaminated soil was loaded into a truck and transported to the Main Post ID 27 Soil Staging Area (located behind Bldg.166) prior to ultimate recycling at Soil Remediation of Philadelphia. Soils that did not exhibit signs of contamination were separated during the excavation and used as backfill following removal of the UST.

2.0 REMEDIAL INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Remedial Investigation was managed by U.S. Army DPW personnel. All analyses were performed and reported by Fort Monmouth Environmental Testing Laboratory, a NJDEP-certified testing laboratory. All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP Field Sampling Procedures Manual (1992). The soil sampling frequency and analysis complied with the NJDEP document *Technical Requirements for Site Remediation, 7:26E-3.9* (June 7, 1993 and revisions dated February 3, 2003) which was the applicable regulation at the date of the closure. All records of the Remedial Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Remedial Investigation Activities.

- Ft. Monmouth Directorate of Public Works-Environmental Division
  Contact Person: Douglas Guenther
  Phone Number: (732) 532-0986

- Subsurface Evaluator: Frank Accorsi
  Employer: TECOM-Vinnell Services, Inc. (TVS)
  Phone Number: (732) 532-5241
  NJDEP License No.: 0010042
  (TVS)NJDEP License No.: US252302

- Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory
  Contact Person: Dan Wright
  Phone Number: (732) 532-4359
  NJDEP Laboratory Certification No.: 13461

- Hazardous Waste Hauler: Lorco Petroleum Services, Inc., Elizabeth, NJ
  Contact Person: Dan MacKay
  Phone Number: (908) 820-8800
  US EPA ID No.: NJR000023036

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP certified Subsurface Evaluator using an OVM and visual observations to identify potentially contaminated material. Soils were removed from the excavation surrounding UST No. 800-21 until no evidence of contamination remained.

2.3 SOIL SAMPLING

On July 28, 2003, closure soil samples 800-21A, 800-21B, 800-21C and 800-21 Duplicate were collected from a total of three (3) locations along the bottom/centerline of the UST excavation. Groundwater was not encountered in the excavation. The results of the closure sampling indicated that further remediation was required. On October 30, 2003, soil remediation occurred along the east end and bottom of the UST excavation. Two (2) post-remediation soil samples 800-21PX1 and 800-21PX2 were collected in the excation. Refer to soil sampling location map in Figure 2. All samples were analyzed for TPH.

The site assessment was performed by TVS personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* and the NJDEP *Field Sampling Procedures Manual.* A summary of sampling activities including the sampling parameters is provided in Table 1. The post-remediation soil samples were collected using stainless steel trowels. After collection, the samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory for analysis.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

Closure soil samples were collected from a total of three locations on July 28, 2003 and post-remediation soil samples from two locations on October 30, 2003, to evaluate soil conditions following removal of the UST. All samples were analyzed for TPH and one sample was further analyzed for VOC's. The soil sample results were compared to the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants (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 on Table 2. The analytical data package, including associated quality control data, is provided in Appendix E.

Closure soil samples collected on July 28, 2003 from the UST remedial excavation contained concentrations of TPH below the NJDEP soil cleanup criteria, with the exception of 800-21A and 800-21 Duplicate which contained TPH concentrations of 18,052 mg/kg and 18,058 mg/kg, respectively. Soil sample 800-21A was further analyzed for for volatile organic compounds with a forward library search for 15 tentatively identified compounds (VO+ 15). The results of these sample indicated that no compounds were found above the detection limits.

One post-remediation soil sample contained concentrations of contaminants below the NJDEP soil cleanup criteria. Post-remediation samples 800-21PX1 and 800-21PX2 were collected on October 30, 2003 from the expanded UST remedial excavation. These samples contained a TPH concentration of Not Detected and 241 mg/kg, respectively.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all closure and post-remediation soil samples collected from the UST excavation at UST No. 800-21 were below the NJDEP soil cleanup criteria for total organic contaminants and volatile organic compounds.

Based on the post-remediation soil sampling results, soils with TPH concentrations exceeding the NJDEP soil cleanup criterion for total organic contaminants of 10,000 mg/kg have been excavated from the former location of UST No. 800-21.

No Further Action is proposed in regard to the closure and remedial investigation of UST No. 800-21 in the 800 Area of the Main Post.

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS
FT. MONMOUTH, 800 AREA, UST No.800-21
28-July-03, 30-Oct-03

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
800-21A	3043205	28-July-03	SOIL	TPH, VOA	OQA-QAM-25; SW-846, 8260
800-21B	3043206	28-July-03	SOIL	TPH	OQA-QAM-25
800-21C	3043207	28-July-03	SOIL	TPH	OQA-QAM-25
800-21Dupl	3043204	28-July-03	SOIL	TPH	OQA-QAM-25
TRIP BLANK	3043208	28-July-03	METHANOL	VOA	SW-846, 8260
800-21PX1	3068901	30-Oct-03	SOIL	TPH	OQA-QAM-25
800-21PX2	3068902	30-Oct-03	SOIL	TPH	OQA-QAM-25

ABBREVIATIONS:
TPH = Total Petroleum Hydrocarbons, NJDEP Method OQA-QAM-025 (10/97)
VOA = Volatile Organic Analysis, EPA SW-846 Method 8260

TABLE 2

SUMMARY OF LABORATORY ANALYTICAL RESULTS
FT. MONMOUTH, BUILDING 1006, UST No.800-21
28-July-03, 30-Oct-03

TOTAL PETROLEUM HYDROCARBONS

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH	MATRIX	TPH RESULT S
			(in feet)		mg/kg
800-21A	3043205	EAST END	6.5 – 7.0	Soil	18,052*
800-21B	3043206	CENTER	6.5 – 7.0	Soil	253
800-21C	3043207	WEST END	6.5 – 7.0	Soil	271
800-21Dupl.	3043204	DUPLICATE(21A)	6.5 – 7.0	Soil	18,058*
800-21PX1	3068901	EAST WALL	7.5 – 8.0	Soil	ND
800-21PX2	3068902	BOTTOM	8.0 – 8.5	Soil	241

ABBREVIATIONS:
mg/kg = Milligrams Per Kilogram = parts per million
ND = Compound Not Detected
NA = Compound Not Analyzed
*= Further Analyzed for Volatiles

Gray shading indicates exceedance of NJDEP
health based criterion of 10,000 ppm total organic contaminants

TABLE 3

SUMMARY OF LABORATORY ANALYTICAL RESULTS

FT. MONMOUTH, 800 AREA, UST No. 800-21
28-July-03

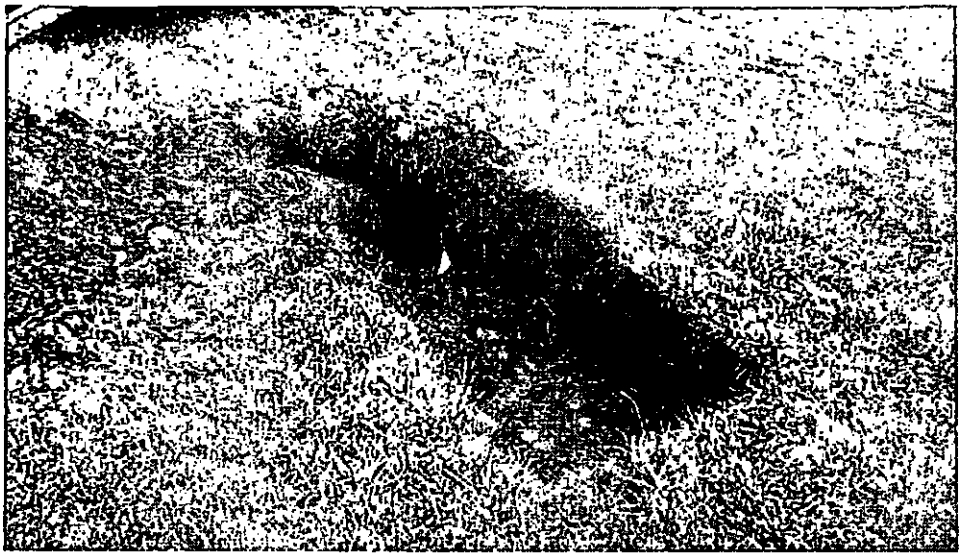
VOLATILE ORGANIC COMPOUNDS

SAMPLE ID	SAMPLE DATE	Benzene	Toluene	Ethylbenzene	Xylenes (total)
UNITS		mg/kg	mg/kg	mg/kg	mg/kg
800-21A	28-July-03	ND	ND	ND	ND
NJDEP Criteria	Residential	3	1,000	1,000	410

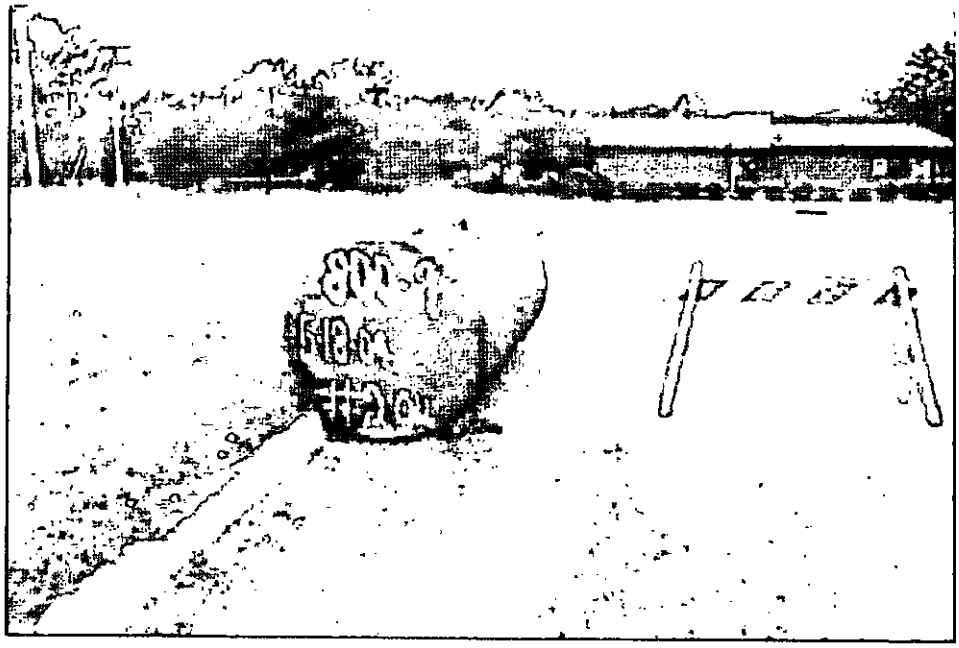
ABBREVIATIONS:
mg/kg = Milligrams Per Kilogram = parts per million
ND = Compound Not Detected
NA = Compound Not Analyzed

Notes:
Gray shading indicates exceedance of NJDEP
Residential Direct Contact Soil Cleanup Criteria

FIGURES



**Location of former UST No. 800-9
after soil samples were collected.
Facing sidewall (northeast) was excavated
an additional six feet.**



UST No. 800-9 : 1,000 gallon single wall steel

Location of UST No. 800-9 in Building 1006 (Credit Union) parking lot. View looking north.

APPENDIX A

CERTIFICATIONS

APPENDIX B

WASTE MANIFEST

APPENDIX C

UST DISPOSAL CERTIFICATE

APPENDIX D

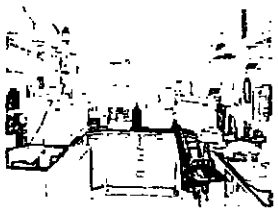
PHOTO DOCUMENTATION

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-4359 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: 03-38200

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Duplicate	3043204	Soil	28-July-03 15:00	07/28/03
800-21A, East End	3043205	Soil	28-July-03 15:00	07/28/03
800-21B, Center	3043206	Soil	28-July-03 15:15	07/28/03
800-21C, West End	3043207	Soil	28-July-03 15:30	07/28/03
Trip Blank	3043208	Methanol	28-July-03	07/28/03

FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, TPHC, % SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

11-28-05
Daniel Wright/Date
Laboratory Director

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CHAIN OF CUSTODY

For Monmou h Environmen al Testing Labora ory

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 / NYDOH Certification #11699

Chain of Custody Record

Customer: ~~Dinker Desai~~ JOE FALLON
Phone #: ~~X21475~~ X26223
( )DERA (X)OMA UST Assessment

Project No: ~~01-0001~~ 03-38200
Location: 800 AREA
UST# 800-22, 800-21

Samplers Name / Company : Frank Accorsi/TVS

Lab Sample I.D.	Sample Location	Depth	Date	Time	Sample Type	# Bottles	TPHC	% SOLIDS	VOA+10/15 *	VOA ID #	PID Reading	Remarks / Preservation Method
30432 01	800-22A, EAST END	6.5-7.0	7-28-03	1340	SOIL	2	X	X	X	3469	0	ICE
02	800-22B, CENTER	6.5-7.0		1355		2	X	X	X	3470	0	
03	800-22C, WEST END	6.5-7.0		1415		2	X	X	X	3471	0	
04	DUPLICATE	6.5-7.0		1500		2	X	X	X	3472	7.3	
05	800-21A, EAST END	6.5-7.0		1500		2	X	X	X	3473	4.0	
06	800-21B, CENTER	6.5-7.0		1515		2	X	X	X	3474	0	
07	800-21C, WEST END	6.5-7.0		1530		2	X	X	X	3475	0	
08	TRIP BLANK	—		—		1			X	3476	—	

* = Samples Kept <4°C

OVM sn#580U-64455.343 was calibrated with zero air & w/ 245 ppm Isobutylene read 245 ppm. 0800 7-28-03 FA (time/date & initial)

Relinquished by (signature):	Date/Time:	Received by (signature):	Comments:
Frank Accorsi	7-28-03 1600		* VO+15 ON 25% > 1,000 PPM TPH, ON HIGHEST, MIN. ONE.
Relinquished by (signature):	Date/Time:	Received by (signature):	

Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: ( )Standard 2 wks, ( )Rush 2 Days, ( )ASAP Verbal ___ Hrs.

Remarks: Dedicated Sampling Tools Used
All sample points have been GPS? (X)YES ( ) NO ( ) NA

200002

print legibly

USTcoc.xls6/22/01

Change of Chain o Custody

Lab Project ID#: 30432 Site/Project Name: 900 ALTA

Date Received: 7/28 Date of Change: 8/7

Requested by: print Doug G. Sign:

Turnaround Time: Standard

1. Were the correct containers and/or preservatives used for the tests indicated? Yes No
2. Was a sufficient amount of sample sent for the tests indicated? Yes No
3. Are samples Within Holding time for new analysis? Yes No
4. Was the change documented in the sample receipt log book? Yes No

Received by: print Sign:

Sample ID#	New Analysis		Sample ID#	New Analysis
3043201	VOA+15			

Comments:

US ARMY - FT. MONMOUTH, NJ

800 AREA - UST #800-21
SOIL SAMPLE GPS POSITIONS & COORDINATES
US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

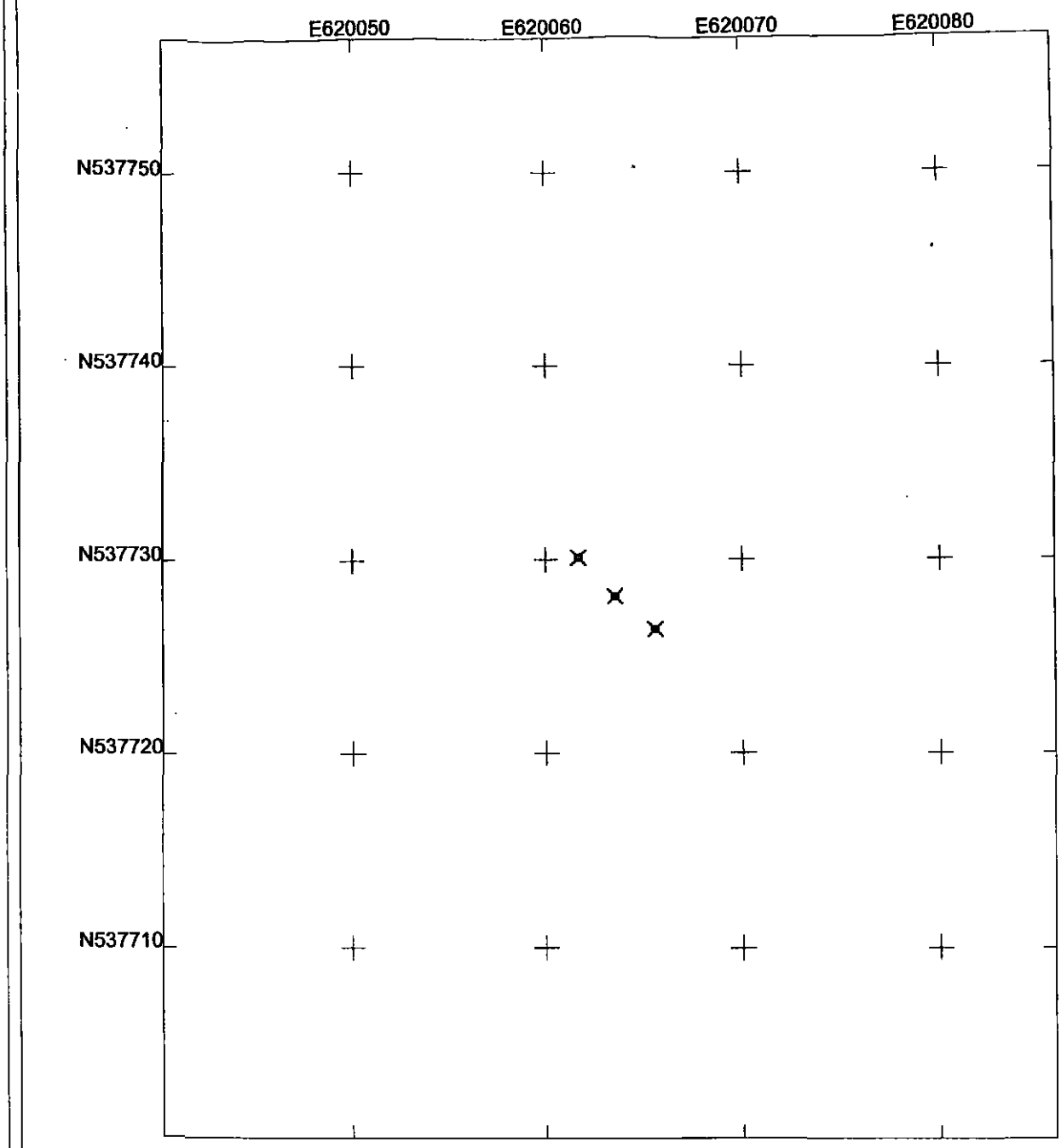
(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
800-21A east end	537726.457	620065.531
800-21B center	537728.162	620063.486
800-21C west end	537730.16	620061.627

REFERENCE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
B1006 CREDIT UNION WEST CORNER	537998.865	620157.192
B1006 CREDIT UNION NORTH CORNER	538043.64	620183.645
B1006 CREDIT UNION EAST CORNER	537988.336	620271.865
B1006 CREDIT UNION SOUTH CORNER	537943.187	620244.315



U.S. Army - Ft. Monmouth 800 Area
UST #800-21 Soil Sample GPS Map

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

N

Scale 1:100
0 0.002
Miles

800usts.cor
11/28/2005
GPS Pathfinder
Trimble

METHOD SUMMARY

Method Summary

EPA SW-846 Method 8260
Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 10/97
Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml 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 moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 30432

Site: 800 Area
UST #21

	Date	Hold Time
Date Sampled	07/28/03	NA
Receipt/Refrigeration	07/28/03	NA
Extraction		
1. TPHC	07/31/03	14 days
Analyses		
1. VOA	08/08/03	14 days
2. TPHC	08/07/03	40 days

CONFORMANCE/ NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	Indicate Yes, No, N/A
1. Chromatograms labeled/Compounds identified (Field samples and method blanks)	
2. Retention times for chromatograms provided	
3. GC/MS Tune Specifications	
a. BFB Meet Criteria	
b. DFTPP Meet Criteria	
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series	
5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	
6. GC/MS Calibration requirements	
a. Calibration Check Compounds Meet Criteria	
b. System Performance Check Compounds Meet Criteria	
7. Blank Contamination – If yes, List compounds and concentrations in each blank:	
a. VOA Fraction	
b. B/N Fraction	
c. Acid Fraction	
8. Surrogate Recoveries Meet Criteria	
If not met, list those compounds and their recoveries, which fall outside the acceptable range:	
a. VOA Fraction	
b. B/N Fraction	
c. Acid Fraction	
If not met, were the calculations checked and the results qualified as "estimated"?	
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	
a. VOA Fraction	
b. B/N Fraction	
c. Acid Fraction	

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria _____
(If not met, list those compounds, which fall outside the acceptable range)

a. VOA Fraction_____
b. B/N Fraction_____
c. Acid Fraction_____

11. Extraction Holding Time Met _____

If not met, list the number of days exceeded for each sample:_____
_____
_____

12. Analysis Holding Time Met YES

If not met, list the number of days exceeded for each sample:_____
_____
_____

Additional Comments:
_____
_____
_____

Laboratory Manager:_____ Date: 11-28-05

TPHC CONFORMANCE/NON–CONFORMANCE SUMMARY REPORT

		Indicate Yes, No, N/A
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	
5.	IR Spectra submitted for standards, blanks and 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)	Yes

Additional comments: _____

Laboratory Manager: _____ Date: 11-29-05

VOLATILE ORGANICS

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461

Definition of Qualifiers

U: **The compound was analyzed for but not detected.**

B: **Indicates that the compound was found in the associated method blank as well as in the sample.**

J: **Indicates an estimated value. This flag is used:**

(1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.

(2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.

D: **This flag is used to identify all compounds (target or TIC) that required a dilution.**

E: **Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.**

N: **This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.**

1A

FIELD ID:

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 08Aug03

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: MB 08Aug03

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014033.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
156-59-2	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
124-48-1	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID: **MB 08Aug03**

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: MB 08Aug03

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014033.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	300	U
95-47-6	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	300	U
95-50-1	1,2-Dichlorobenzene	300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **MB 08Aug03**

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: MB 08Aug03

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014033.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

FIELD ID:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043208

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014035.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
156-59-2	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
124-48-1	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043208

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014035.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	300	U
95-47-6	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	300	U
95-50-1	1,2-Dichlorobenzene	300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Trip Blank**

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043208

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB014035.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 0 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	22.27	3900	J
2.	unknown	25.10	2100	J
3.	unknown	25.54	820	J
4.	unknown	25.86	4500	J
5.	unknown hydrocarbon	26.68	770	J
6.	unknown	27.19	1300	J
7.	unknown hydrocarbon	27.92	1200	J
8.	unknown hydrocarbon	29.81	660	J
9.	unknown	29.91	1000	J
10.	unknown	30.48	1200	J

1A

FIELD ID:

VOLATILE ORGANICS ANALYSIS DATA SHEET

800-21A

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043205

Sample wt/vol: 11.7 (g/ml) G Lab File ID: VB014034.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 15.85 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	710	U
107131	Acrylonitrile	710	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	310	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	410	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	310	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	310	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	860	
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	310	U
78-93-3	2-Butanone	310	U
156-59-2	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
124-48-1	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID:

VOLATILE ORGANICS ANALYSIS DATA SHEET

800-21A

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043205

Sample wt/vol: 11.7 (g/ml) G Lab File ID: VB014034.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 15.85 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	310	U
95-47-6	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	310	U
106-46-7	1,4-Dichlorobenzene	310	U
95-50-1	1,2-Dichlorobenzene	310	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **800-21A**

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432 Location: 800Are SDG No.: UST

Matrix: (soil/water) SOIL Lab Sample ID: 3043205

Sample wt/vol: 11.7 (g/ml) G Lab File ID: VB014034.D

Level: (low/med) MED Date Received: 7/28/2003

% Moisture: not dec. 15.85 Date Analyzed: 8/8/2003

GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000-00-0	1-Ethyl-2,2,6-trimethylcyclohexan	28.54	3400	JN
2.	unknown hydrocarbon	28.94	5700	J
3.	unknown	29.26	5900	J
4.	unknown	29.48	2900	J
5.	unknown	29.73	2700	J
6.	unknown	29.88	3300	J
7.	unknown	30.06	2500	J
8.	unknown	30.12	7300	J
9.	unknown	30.47	22000	J
10.	unknown	30.65	3900	J

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Lab File ID: VB014025.D BFB Injection Date: 8/8/2003

Instrument ID: GCMS#2 BFB Injection Time: 10:55

GC Column: RTX502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.5
75	30.0 - 66.0% of mass 95	56.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	72.5
175	4.0 - 9.0% of mass 174	5.3 (7.3)1
176	93.0 - 101.0% of mass 174	70.5 (97.3)1
177	5.0 - 9.0% of mass 176	4.9 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

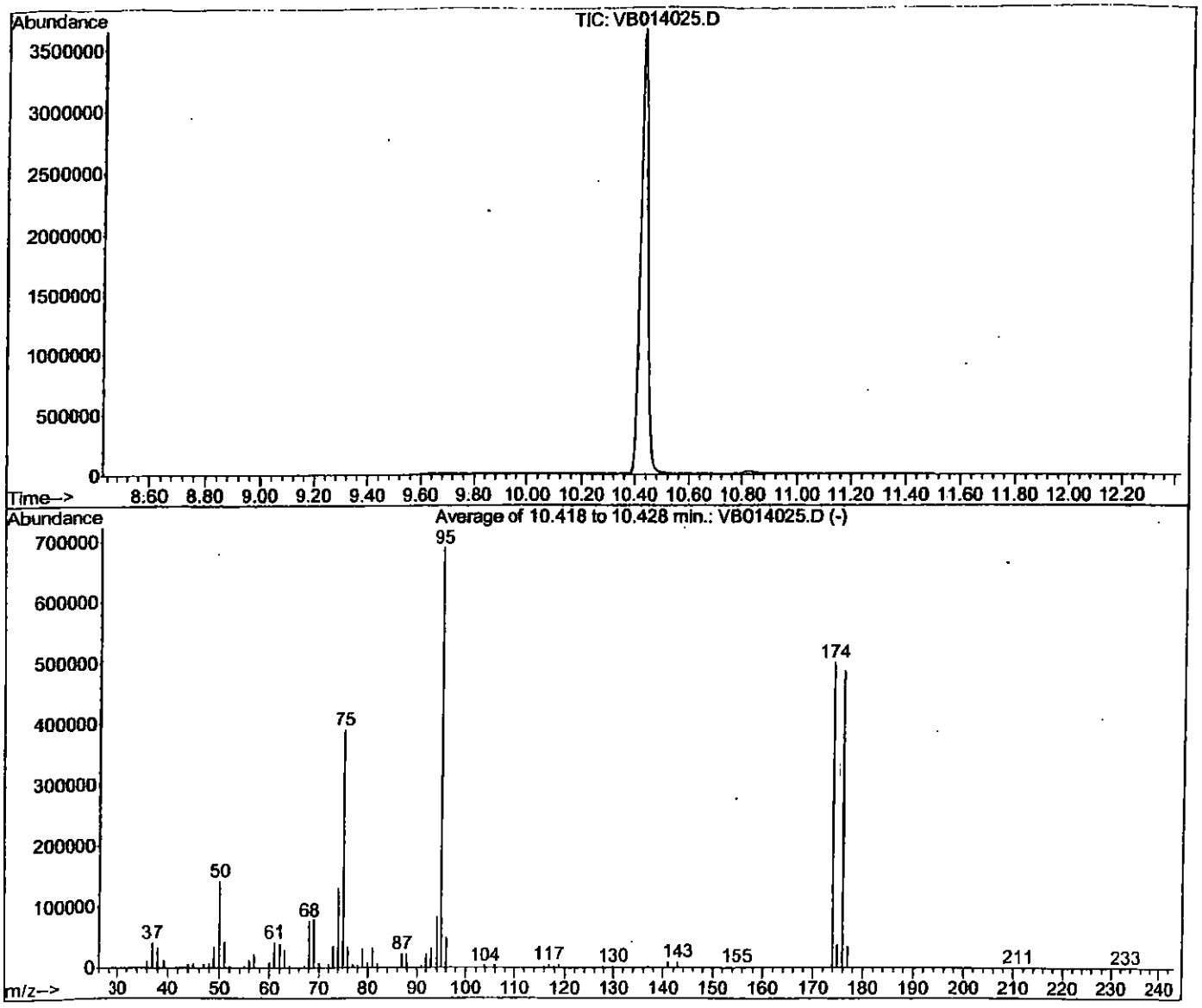
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	FIELD ID:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	VB014026.D	8/8/2003	11:43
02	VSTD010	VSTD010	VB014027.D	8/8/2003	12:19
03	VSTD002	VSTD002	VB014028.D	8/8/2003	12:55
04	VSTD005	VSTD005	VB014029.D	8/8/2003	13:41
05	VSTD020	VSTD020	VB014030.D	8/8/2003	14:26
06	MB 08AUG03	MB 08AUG03	VB014033.D	8/8/2003	16:19
07	800-21A	3043205	VB014034.D	8/8/2003	16:55
08	TRIP BLANK	3043208	VB014035.D	8/8/2003	17:31
09	800-15WESTEND	3043803	VB014036.D	8/8/2003	18:07
10	800-16WESTEND	3043807	VB014037.D	8/8/2003	18:43

BFB

Data File : C:\HPCHEM\1\DATA\030808\VB014025.D
Acq On : 8 Aug 2003 10:55 am
Sample : BFB Tune
Misc : BFB Tune
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP

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



AutoFind: Scans 158, 159, 160; Background Corrected with Scan 149

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.5	141387	PASS
75	95	30	60	56.5	389547	PASS
95	95	100	100	100.0	689067	PASS
96	95	5	9	6.9	47643	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	72.5	499733	PASS
175	174	5	9	7.3	36397	PASS
176	174	95	101	97.3	485995	PASS
177	176	5	9	7.0	33789	PASS

VB014025.D M2VOA18.M Wed Aug 13 15:36:21 2003

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration

Calibration Files
50 =VB014026.D 20 =VB014030.D 10 =VB014027.D
5 =VB014029.D 2 =VB014028.D

		Compound	50	20	10	5	2	Avg	%RSD
1)	I	Bromochloromethane	ISTD						
2)	t	Acrolein	0.251	0.236	0.227	0.209	0.216	0.228	7.29
3)	t	Acrylonitrile	0.990	1.021	0.993	0.940	0.909	0.970	4.63
4)	t	tert-Butyl alcohol	0.271	0.265	0.273	0.235	0.238	0.257	7.24
5)	t	Methyl-tert-Butyl eth	6.640	6.450	6.652	5.819	6.460	6.404	5.32
6)	t	Di-isopropyl ether	2.035	2.085	2.104	1.899	1.886	2.002	5.14
7)	T	Dichlorodifluorometha	3.167	2.843	3.714	3.101	3.437	3.252	10.26
8)	TP	Chloromethane	2.510	2.459	2.864	2.568	2.510	2.582	6.29
9)	TC	Vinyl Chloride	3.608	3.256	3.461	3.309	3.115	3.350	5.67
10)	T	Bromomethane	2.178	2.165	2.192	2.068	2.110	2.143	2.44
11)	T	Chloroethane	1.702	1.775	1.617	1.644	1.699	1.687	3.63
12)	T	Trichlorofluoromethan	2.819	4.056	6.203	5.659	5.939	4.935	29.34
13)	MC	1,1-Dichloroethene	3.283	3.299	3.273	3.056	3.007	3.184	4.41
14)	T	Acetone	1.074	1.495	1.564	2.689		1.706	40.47
15)	T	Carbon Disulfide	6.786	6.681	6.886	5.943	6.030	6.465	6.87
16)	T	Methylene Chloride	2.574	2.731	2.877	2.709	3.202	2.819	8.50
17)	T	trans-1,2-Dichloroeth	3.104	3.238	3.259	3.083	3.171	3.171	2.47
18)	TP	1,1-Dichloroethane	3.795	3.953	3.983	3.694	3.842	3.854	3.06
19)	T	Vinyl Acetate	3.943	3.833	3.673	3.262	3.042	3.551	10.83
20)	T	2-Butanone	1.080	1.148	0.965	1.024	0.906	1.024	9.23
21)	T	cis-1,2-Dichloroethen	3.207	3.308	3.308	3.096	3.229	3.230	2.71
22)	TC	Chloroform	4.400	4.583	4.656	4.510	4.701	4.570	2.62
23)	T	1,1,1-Trichloroethane	4.118	4.118	4.168	3.819	3.807	4.006	4.43
24)	T	Carbon Tetrachloride	3.468	3.376	3.425	3.119	3.062	3.290	5.66
25)	S	1,2-Dichloroethane-d4	3.325	3.556	3.595	3.522	3.742	3.548	4.24
26)	I	1,4-Difluorobenzene	ISTD						
27)	TM	Benzene	1.307	1.315	1.307	1.264	1.348	1.308	2.31
28)	T	1,2-Dichloroethane	0.501	0.524	0.517	0.504	0.537	0.517	2.86
29)	TM	Trichloroethene	0.367	0.358	0.361	0.342	0.368	0.359	2.93
30)	TC	1,2-Dichloropropane	0.282	0.288	0.280	0.279	0.293	0.284	2.08
31)	T	Bromodichloromethane	0.439	0.423	0.412	0.377	0.395	0.409	5.87
32)	T	2-Chloroethyl vinyl e	0.282	0.288	0.280	0.279	0.293	0.284	2.08
33)	T	cis-1,3-Dichloroprope	0.590	0.545	0.508	0.454	0.442	0.508	12.21
34)	T	4-Methyl-2-Pentanone	0.113	0.110	0.092	0.092	0.086	0.099	12.06
35)	S	Toluene-d8	1.338	1.341	1.339	1.300	1.387	1.341	2.33
36)	TCM	Toluene	1.573	1.577	1.577	1.501	1.572	1.560	2.11
37)	I	Chlorobenzene-d5	ISTD						
38)	T	trans-1,3-Dichloropro	1.956	1.810	1.691	1.524	1.467	1.689	11.94
39)	T	1,1,2-Trichloroethane	1.083	1.066	1.052	1.030	1.042	1.055	1.98
40)	T	Tetrachloroethene	1.385	1.322	1.316	1.279	1.317	1.324	2.88
41)	T	2-Hexanone	0.602	0.604	0.495	0.490	0.464	0.531	12.56
42)	T	Dibromochloromethane	1.130	1.024	0.969	0.901	0.910	0.987	9.54
43)	TMP	Chlorobenzene	3.637	3.529	3.535	3.434	3.627	3.553	2.33
44)	TC	Ethylbenzene	6.137	6.144	6.019	5.756	6.053	6.022	2.62
45)	T	m+p-Xylenes	2.355	2.240	2.167	2.057	2.086	2.181	5.53
46)	T	o-Xylene	4.693	4.574	4.454	4.132	4.198	4.410	5.45
47)	T	Styrene	3.660	3.385	3.140	2.902	2.848	3.187	10.65
48)	TP	Bromoform	0.831	0.720	0.685	0.599	0.618	0.690	13.38
49)	S	Bromofluorobenzene	1.848	1.792	1.760	1.712	1.863	1.795	3.48
50)	TP	1,1,2,2-Tetrachloroet	1.435	1.407	1.337	1.302	1.277	1.351	5.02
51)	T	1,3-Dichlorobenzene	2.853	2.672	2.679	2.534	2.656	2.679	4.25
52)	T	1,4-Dichlorobenzene	3.086	2.887	2.880	2.701	2.827	2.876	4.82
53)	T	1,2-Dichlorobenzene	2.649	2.483	2.521	2.359	2.483	2.499	4.16

(#) = Out of Range

4A

FIELD ID:

MB 08Aug03

VOLATILE METHOD BLANK SUMMARY

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Lab File ID: VB014033.D Lab Sample ID: MB 08Aug03

Date Analyzed: 8/8/2003 Time Analyzed: 16:19

GC Column: RTX502. ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS#2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	FIELD ID:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	800-21A	3043205	VB014034.D	16:55
02	TRIP BLANK	3043208	VB014035.D	17:31
03	800-15WESTEND	3043803	VB014036.D	18:07
04	800-16WESTEND	3043807	VB014037.D	18:43

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	FMETL	**Project**	30432
NJDEP #	13461	**Location**	800Area

	EPA SAMPLE NO.	SMC1 1,2-DCE-d4	SMC2 Tol-d8	SMC3 BFB
01	MB 08Aug03	74%	85%	87%
02	800-21A	91%	97%	111%
03	Trip Blank	88%	93%	104%

SMC1	1,2-DCE-d4	=	1,2-Dichloroethane-d4
SMC2	Tol-d8	=	Toluene-d8
SMC3	BFB	=	Bromofluorobenzene

D System Monitoring Compounds diluted out

Spike Recovery and RPD Summary Report - Soil

Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Aug 13 15:41:18 2003
Response via : Initial Calibration

Non-Spiked Sample: VB014037.D

	Spike Sample	Spike Duplicate Sample
File ID :	VB014038.D	VB014039.D
Sample :	3043807 MS	3043807 MSD
Acq Time:	8 Aug 2003 7:19 pm	8 Aug 2003 7:55 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	10	7	6	73	64	13	22	59-172
Benzene	0.0	10	8	7	76	68	11	21	66-142
Trichloroethene	0.0	10	8	7	79	74	7	24	62-137
Toluene	0.0	10	8	7	77	70	10	21	59-139
Chlorobenzene	0.0	10	9	8	85	78	9	21	60-133

- Fails Limit Check

M2VOA18.M Wed Aug 13 15:42:28 2003

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL NJDEP#: 13461

Project: 03-38200 Case No.: 30432/30 Location: 800Are SDG No.: UST

Lab File ID (Standard): VB014027.D Date Analyzed: 8/8/2003

Instrument ID: GCMS#2 Time Analyzed: 12:19

GC Column: RTX502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	362068	15.96	2823390	18.72	848110	24.28
	UPPER LIMIT	724136	16.46	5646780	19.22	1696220	24.78
	LOWER LIMIT	181034	15.46	1411695	18.22	424055	23.78
	FIELD ID:						
01	MB 08AUG03	404973	15.96	2769068	18.73	787149	24.29
02	800-21A	412085	15.98	2978834	18.72	840313	24.29
03	TRIP BLANK	544442	15.98	4098578	18.72	1272632	24.29
04	800-15WESTEND	596421	15.98	4329365	18.72	1227234	24.29
05	800-16WESTEND	599480	15.98	4361163	18.72	1206471	24.29

IS1 BCM = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030808\VB014033.D Vial: 4
Acq On : 8 Aug 2003 4:19 pm Operator: Skelton
Sample : MB 08Aug03 Inst : GC/MS Ins
Misc : MB 08Aug03 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2003 Quant Results File: M2VOA18.RES

Quant Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration
DataAcq Meth : M2VOA18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	15.96	128	404973	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	18.73	114	2769068	30.00	ug/L	0.01
37) Chlorobenzene-d5	24.29	119	787149	30.00	ug/L	0.01
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	17.72	65	1062849	22.19	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 73.97%			
35) Toluene-d8	21.40	98	3166318	25.58	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 85.27%			
49) Bromofluorobenzene	26.53	95	1234870	26.22	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 87.40%			

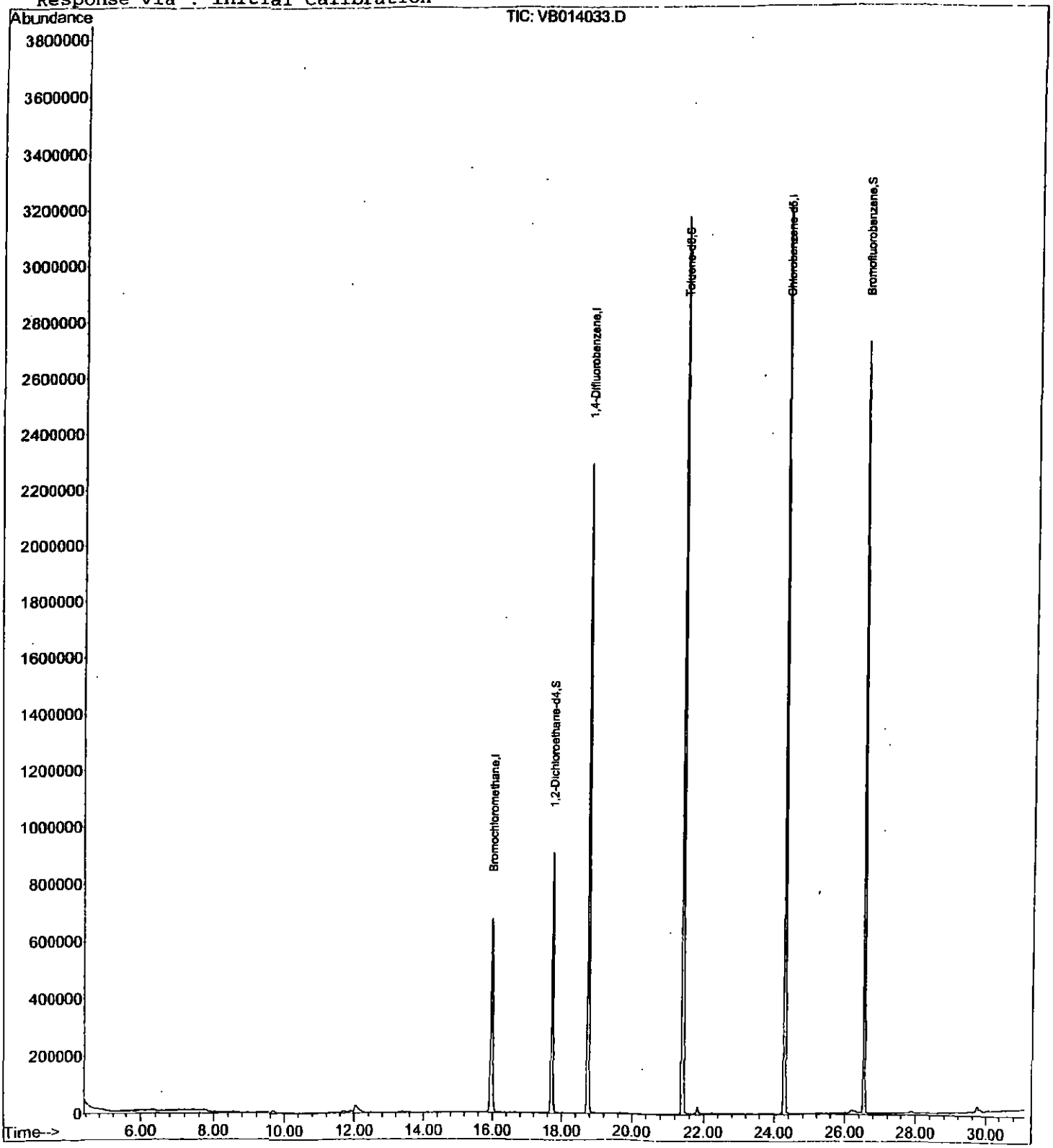
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030808\VB014033.D Vial: 4
Acq On : 8 Aug 2003 4:19 pm Operator: Skelton
Sample : MB 08Aug03 Inst : GC/MS Ins
Misc : MB 08Aug03 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2003 Quant Results File: M2VOA18.RES

Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration



000033

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030808\VB014034.D Vial: 5
Acq On : 8 Aug 2003 4:55 pm Operator: Skelton
Sample : 3043205 Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 13 15:02 2003 Quant Results File: M2VOA18.RES

Quant Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration
DataAcq Meth : M2VOA18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	15.98	128	412085	30.00	ug/L	0.02
26) 1,4-Difluorobenzene	18.72	114	2978834	30.00	ug/L	0.00
37) Chlorobenzene-d5	24.29	119	840313	30.00	ug/L	0.01
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	17.72	65	4116961	84.48	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 281.60%#			
35) Toluene-d8	21.40	98	11891641	89.31	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 297.70%#			
49) Bromofluorobenzene	26.53	95	5145704	102.34	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 341.13%#			
Target Compounds						Qvalue
14) Acetone	12.09	43	198147	8.46	ug/L	95

(#) = qualifier out of range (m) = manual integration
VB014034.D M2VOA18.M Wed Aug 13 15:02:26 2003

000034

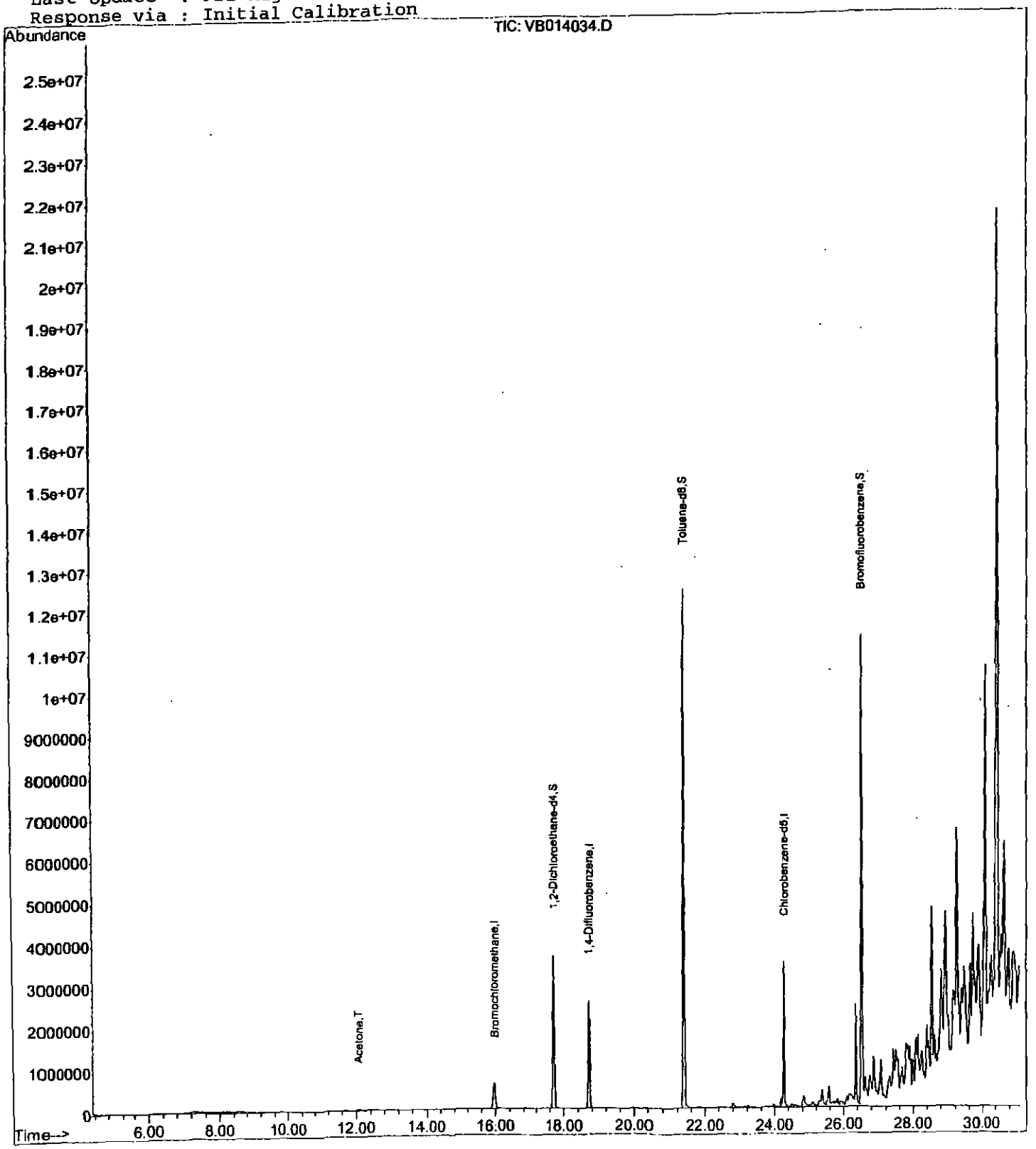
Quantitation Report

Data File : C:\HPCHEM\1\DATA\030808\VB014034.D
Acq On : 8 Aug 2003 4:55 pm
Sample : 3043205
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 13 15:02 2003

Vial: 5
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: M2VOA18.RES

Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration



000035

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030808\VB014035.D Vial: 6
Acq On : 8 Aug 2003 5:31 pm Operator: Skelton
Sample : 3043208 Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:34 2003 Quant Results File: M2VOA18.RES

Quant Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration
DataAcq Meth : M2VOA18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	15.98	128	544442	30.00	ug/L	0.02
26) 1,4-Difluorobenzene	18.72	114	4098578	30.00	ug/L	0.00
37) Chlorobenzene-d5	24.29	119	1272632	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	17.72	65	5212519	80.95	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 269.83%#			
35) Toluene-d8	21.40	98	15684938	85.62	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 285.40%#			
49) Bromofluorobenzene	26.53	95	7341207	96.41	ug/L	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 321.37%#			

Target Compounds Qvalue

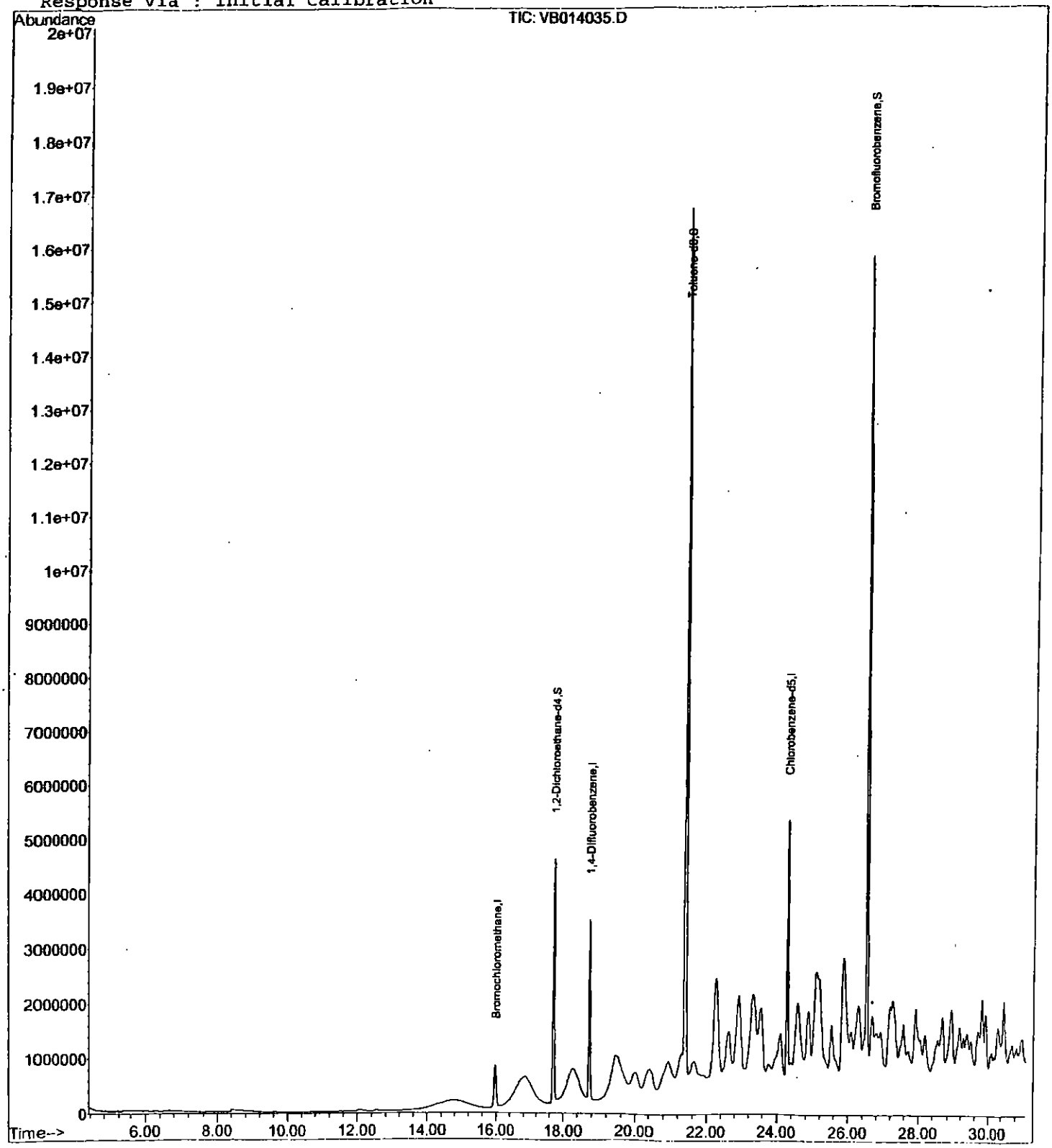
(#) = qualifier out of range (m) = manual integration
VB014035.D M2VOA18.M Wed Aug 13 15:01:14 2003

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030808\VB014035.D
Acq On : 8 Aug 2003 5:31 pm
Sample : 3043208
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:34 2003

Vial: 6
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: M2VOA18.RES

Method : C:\HPCHEM\1\METHODS\M2VOA18.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Aug 08 15:01:21 2003
Response via : Initial Calibration



TPHC

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

Client :	U.S. Army	**Project # :**	30432
	DPW. SELFM-PW-EV	**Location :**	800 Area
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis :	OQA-QAM-025	**Date Received :**	28-Jul-03
Matrix :	*Soil*	**Date Extracted :**	31-Jul-03
Inst. ID. :	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	07-Aug-03
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3043201	800-22A	1.00	15.06	84.31	178	419.89
3043202	800-22B	1.00	15.06	82.10	183	262.35
3043203	800-22C	1.00	15.36	83.35	177	183.07
3043204	Duplicate	5.00	15.35	82.68	178	18057.64
3043205	800-21A	5.00	15.41	84.15	175	18051.83
3043206	800-21B	1.00	15.33	83.53	177	253.31
3043207	800-21C	1.00	15.36	81.21	182	270.62
METHOD BLANK	MB-073103	1.00	15.00	100.00	151	ND

ND = Not Detected

MDL = Method Detection Limit

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003

Calibration Files
5 =T015737.D 100 =T015736.D 50 =T015735.D
20 =T015739.D 10 =T015738.D

		Compound	5	100	50	20	10	Avg		%RSD
1)	tC	C8	2.129	1.868	1.879	1.926	1.974	1.955	E4	5.41
2)	tC	C10	2.290	2.023	2.036	2.048	2.078	2.095	E4	5.29
3)	TC	C12	2.224	2.016	2.018	2.034	2.022	2.063	E4	4.38
4)	tC	C14	2.245	2.021	2.024	2.037	2.034	2.072	E4	4.66
5)	tC	C16	2.263	2.054	2.053	2.063	2.054	2.097	E4	4.42
6)	tC	C18	2.194	1.973	2.001	1.989	1.995	2.030	E4	4.54
7)	tC	C20	2.141	1.947	1.946	1.946	1.937	1.984	E4	4.46
8)	tC	C22	2.254	2.055	2.055	2.067	2.044	2.095	E4	4.26
9)	tC	C24	2.281	2.070	2.067	2.075	2.067	2.112	E4	4.47
10)	tC	C26	2.290	2.078	2.074	2.089	2.083	2.123	E4	4.42
11)	tC	C28	2.295	2.072	2.075	2.091	2.084	2.123	E4	4.53
12)	tC	C30	2.391	2.114	2.122	2.138	2.159	2.185	E4	5.34
13)	tC	C32	2.325	2.101	2.099	2.117	2.106	2.150	E4	4.58
14)	tC	C34	2.298	2.102	2.092	2.110	2.094	2.139	E4	4.16
15)	tC	C36	2.285	2.152	2.106	2.138	2.109	2.158	E4	3.42
16)	tC	C38	2.139	2.078	2.002	2.051	1.998	2.054	E4	2.85
17)	tC	C40	2.032	2.031	1.923	1.983	1.924	1.979	E4	2.74
18)	tC	c42	1.849	1.903	1.768	1.839	1.760	1.824	E4	3.29
19)	TC	Pristane	2.304	2.023	2.048	2.072	2.076	2.105	E4	5.40
20)	TC	Phytane	2.287	2.047	2.055	2.075	2.073	2.107	E4	4.80
21)	sC	o-terphenyl	2.654	2.376	2.382	2.405	2.407	2.445	E4	4.83
22)	tC	TPHC - total	2.872	2.208	2.212	2.298	2.496	2.417	E4	11.57

(#) = Out of Range

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003

Calibration Files
5 =T015826.D 100 =T015825.D 50 =T015827.D
20 =T015829.D 10 =T015828.D

		Compound	5	100	50	20	10	Avg		%RSD
1)	tC	C8	1.976	2.216	2.131	2.000	2.073	2.079	E4	4.71
2)	tC	C10	2.436	2.306	2.305	2.306	2.310	2.333	E4	2.48
3)	TC	C12	2.319	2.302	2.287	2.283	2.258	2.290	E4	1.00
4)	tC	C14	2.300	2.305	2.290	2.270	2.241	2.281	E4	1.15
5)	tC	C16	2.343	2.343	2.317	2.292	2.258	2.311	E4	1.56
6)	tC	C18	2.272	2.245	2.223	2.196	2.189	2.225	E4	1.56
7)	tC	C20	2.215	2.247	2.200	2.166	2.124	2.190	E4	2.17
8)	tC	C22	2.309	2.336	2.308	2.269	2.229	2.290	E4	1.83
9)	tC	C24	2.324	2.342	2.308	2.278	2.237	2.298	E4	1.80
10)	tC	C26	2.305	2.343	2.312	2.287	2.251	2.300	E4	1.48
11)	tC	C28	2.293	2.333	2.308	2.283	2.240	2.291	E4	1.50
12)	tC	C30	2.316	2.374	2.353	2.324	2.273	2.328	E4	1.66
13)	tC	C32	2.280	2.364	2.336	2.303	2.250	2.306	E4	1.96
14)	tC	C34	2.237	2.362	2.330	2.287	2.224	2.288	E4	2.58
15)	tC	C36	2.242	2.418	2.376	2.332	2.244	2.322	E4	3.38
16)	tC	C38	2.173	2.345	2.303	2.245	2.142	2.242	E4	3.81
17)	tC	C40	2.116	2.309	2.265	2.191	2.101	2.197	E4	4.14
18)	tC	c42	1.948	2.193	2.141	2.071	1.975	2.066	E4	5.07
19)	TC	Pristane	2.376	2.303	2.261	2.288	2.295	2.305	E4	1.86
20)	TC	Phytane	2.369	2.332	2.319	2.299	2.272	2.318	E4	1.57
21)	sC	o-terphenyl	2.736	2.688	2.671	2.653	2.631	2.676	E4	1.48
22)	tC	TPHC - total	2.959	2.510	2.495	2.554	2.636	2.631	E4	7.27

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\030804\T015793.D
Acq On : 4 Aug 2003 11:38 pm
Sample : Tstd050
Misc : TP080403.01
IntFile : TPHCINT.E

Vial: 90
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
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	19.552	17.919 E3	8.4	95	0.01
2	tC	C10	20.951	19.776 E3	5.6	97	0.00
3	TC	C12	20.627	19.894 E3	3.6	99	0.00
4	tC	C14	20.720	20.031 E3	3.3	99	0.00
5	tC	C16	20.974	20.402 E3	2.7	99	0.00
6	tC	C18	20.304	18.179 E3	10.5	91	0.00
7	tC	C20	19.836	19.259 E3	2.9	99	0.00
8	tC	C22	20.951	20.377 E3	2.7	99	0.00
9	tC	C24	21.122	20.482 E3	3.0	99	0.00
10	tC	C26	21.229	20.554 E3	3.2	99	0.00
11	tC	C28	21.234	20.500 E3	3.5	99	0.00
12	tC	C30	21.849	20.842 E3	4.6	98	0.00
13	tC	C32	21.497	20.596 E3	4.2	98	0.00
14	tC	C34	21.390	20.166 E3	5.7	96	0.00
15	tC	C36	21.578	19.185 E3	11.1	91	0.00
16	tC	C38	20.535	16.505 E3	19.6	82	0.00
17	tC	C40	19.787	14.286 E3	27.8#	74	-0.01
18	tC	c42	18.235	12.222 E3	33.0#	69	0.00
19	TC	Pristane	21.046	20.325 E3	3.4	99	0.00
20	TC	Phytane	21.074	20.388 E3	3.3	99	0.00
21	sC	o-terphenyl	24.447	22.087 E3	9.7	93	0.00
22	tC	TPHC - total	24.172	22.873 E3	5.4	103	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 2
T015793.D TPH103.M Tue Aug 12 10:33:23 2003

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030804\T015793.D Vial: 90
Acq On : 4 Aug 2003 11:38 pm Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : TP080403.01 Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 6 13:33 2003 Quant Results File: TPH103.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
Response via : Initial Calibration
DataAcq Meth : TPH103.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	12.78	1104364	45.173 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 451.73%#	
Target Compounds			
1) tC C8	4.46	895926	45.823 mg/L
2) tC C10	7.56	988797	47.197 mg/L
3) TC C12	9.17	994708	48.224 mg/L
4) tC C14	10.36	1001542	48.336 mg/L
5) tC C16	11.37	1020106	48.637 mg/L
6) tC C18	11.83	908939	44.766 mg/L
7) tC C20	12.27	962934	48.545 mg/L
8) tC C22	13.08	1018857	48.631 mg/L
9) tC C24	13.83	1024096	48.485 mg/L
10) tC C26	14.52	1027676	48.410 mg/L
11) tC C28	15.16	1025010	48.273 mg/L
12) tC C30	15.78	1042075	47.694 mg/L
13) tC C32	16.50	1029812	47.906 mg/L
14) tC C34	17.41	1008294	47.138 mg/L
15) tC C36	18.63	959232	44.453 mg/L
16) tC C38	20.34	825239	40.186 mg/L
17) tC C40	22.77	714317	36.100 mg/L
18) tC c42	26.30	611086	33.511 mg/L
19) TC Pristane	11.86	1016259	48.287 mg/L m
20) TC Phytane	12.31	1019398	48.373 mg/L
22) tC TPHC - total	12.78	22872887	946.238 mg/L m

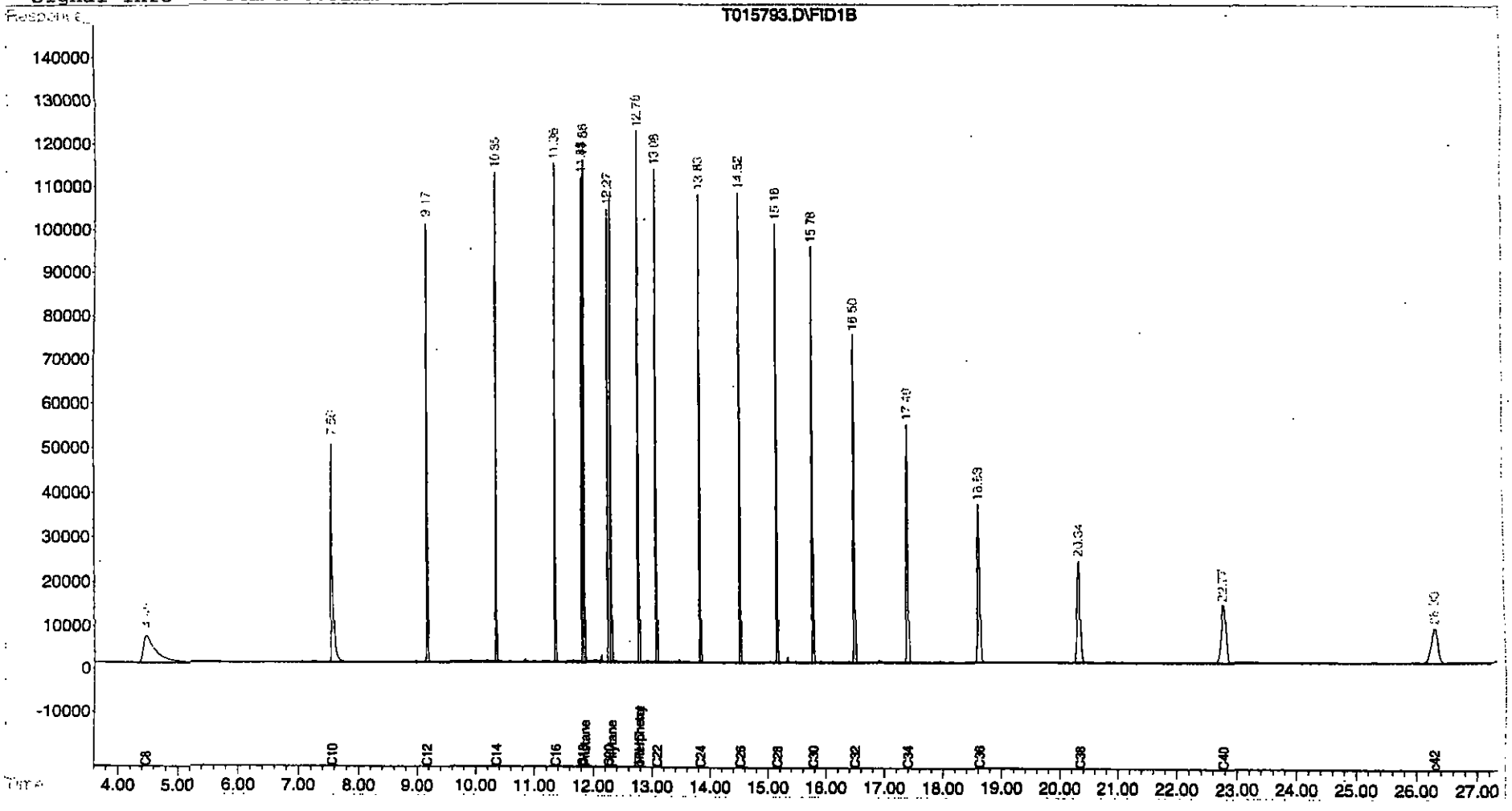
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030804\T015793.D Vial: 90
Acq On : 4 Aug 2003 11:38 pm Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : TP080403.01 Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 6 13:33 2003 Quant Results File: TPH103.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH103.M

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



000044

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\030804\T015803.D
Acq On : 5 Aug 2003 5:33 am
Sample : Tstd050
Misc : TP080403.01
IntFile : TPHCINT.E

Vial: 100
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
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	19.552	17.627 E3	9.8	94	0.00
2	tC	C10	20.951	19.982 E3	4.6	98	0.00
3	TC	C12	20.627	20.092 E3	2.6	100	0.00
4	tC	C14	20.720	20.161 E3	2.7	100	0.00
5	tC	C16	20.974	20.538 E3	2.1	100	0.00
6	tC	C18	20.304	20.293 E3	0.1	101	0.00
7	tC	C20	19.836	19.520 E3	1.6	100	0.00
8	tC	C22	20.951	20.592 E3	1.7	100	0.00
9	tC	C24	21.122	20.724 E3	1.9	100	0.00
10	tC	C26	21.229	20.790 E3	2.1	100	0.00
11	tC	C28	21.234	20.694 E3	2.5	100	0.00
12	tC	C30	21.849	21.110 E3	3.4	99	0.00
13	tC	C32	21.497	20.783 E3	3.3	99	0.00
14	tC	C34	21.390	20.383 E3	4.7	97	0.00
15	tC	C36	21.578	19.508 E3	9.6	93	0.00
16	tC	C38	20.535	16.905 E3	17.7	84	0.00
17	tC	C40	19.787	14.658 E3	25.9#	76	-0.01
18	tC	c42	18.235	12.570 E3	31.1#	71	0.00
19	TC	Pristane	21.046	20.425 E3	3.0	100	0.00
20	TC	Phytane	21.074	20.441 E3	3.0	99	0.00
21	sC	o-terphenyl	24.447	22.226 E3	9.1	93	0.00
22	tC	TPHC - total	24.172	21.637 E3	10.5	98	0.00

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

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030804\T015803.D Vial: 100
Acq On : 5 Aug 2003 5:33 am Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : TP080403.01 Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 6 13:34 2003 Quant Results File: TPH103.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
Response via : Initial Calibration
DataAcq Meth : TPH103.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	12.78	1111279	45.456 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 454.56%#	
Target Compounds			
1) tC C8	4.46	881329	45.076 mg/L
2) tC C10	7.56	999084	47.688 mg/L
3) TC C12	9.17	1004589	48.703 mg/L
4) tC C14	10.36	1008061	48.651 mg/L
5) tC C16	11.36	1026914	48.961 mg/L
6) tC C18	11.83	1014665	49.973 mg/L m
7) tC C20	12.27	976023	49.205 mg/L
8) tC C22	13.08	1029606	49.144 mg/L
9) tC C24	13.83	1036191	49.058 mg/L
10) tC C26	14.52	1039497	48.966 mg/L
11) tC C28	15.16	1034724	48.730 mg/L
12) tC C30	15.78	1055481	48.307 mg/L
13) tC C32	16.50	1039165	48.341 mg/L
14) tC C34	17.40	1019146	47.646 mg/L
15) tC C36	18.63	975401	45.203 mg/L
16) tC C38	20.34	845236	41.160 mg/L
17) tC C40	22.78	732913	37.040 mg/L
18) tC c42	26.30	628501	34.466 mg/L
19) TC Pristane	11.86	1021270	48.525 mg/L m
20) TC Phytane	12.31	1022062	48.499 mg/L
22) tC TPHC - total	12.78	21636557	895.092 mg/L m

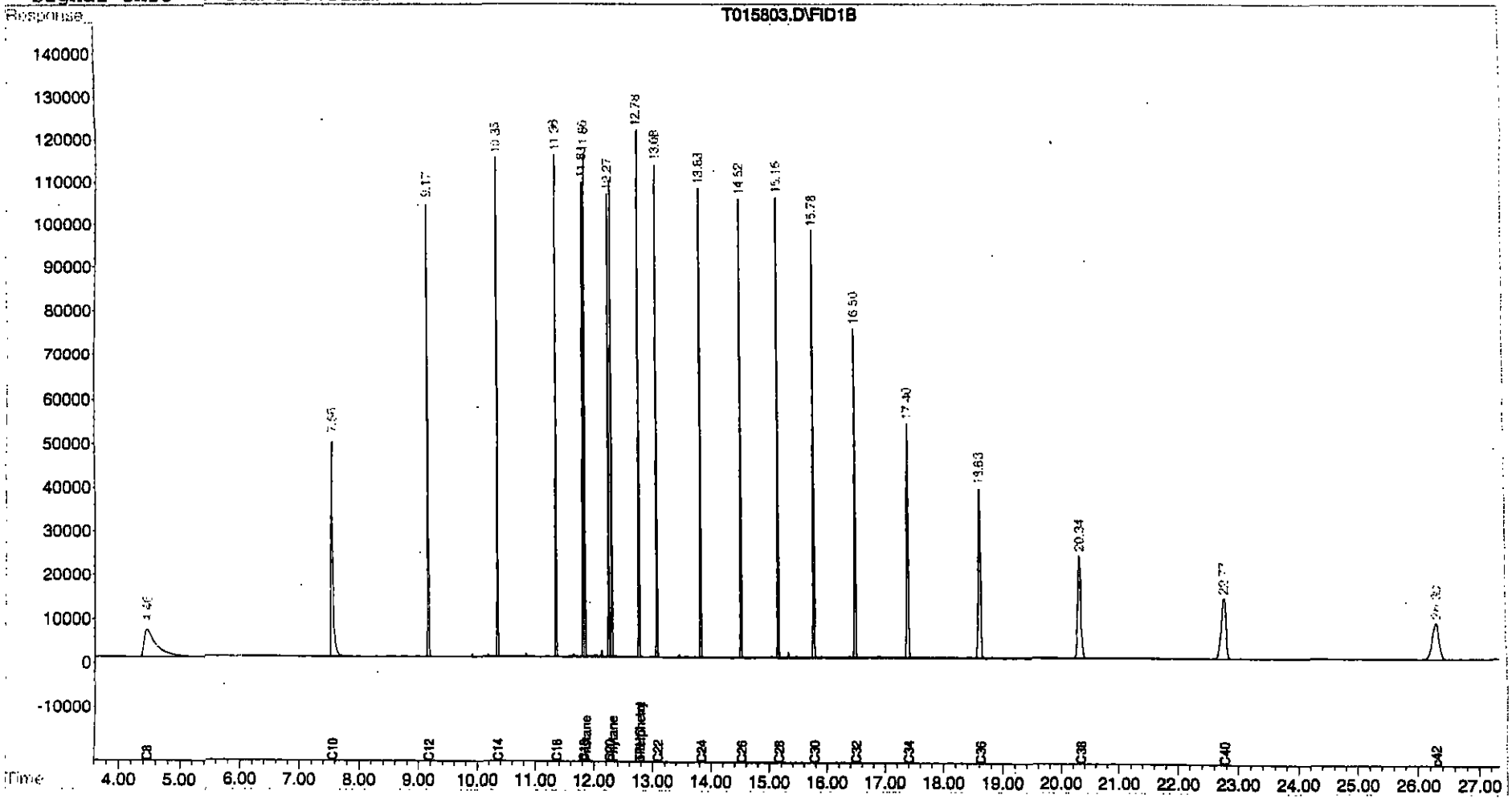
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030804\T015803.D Vial: 100
Acq On : 5 Aug 2003 5:33 am Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : TP080403.01 Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 6 13:34 2003 Quant Results File: TPH103.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH103.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Wed Jul 30 15:40:23 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH103.M

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



000047

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\030807\T015840.D Vial: 16
Acq On : 7 Aug 2003 7:20 pm Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
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	20.793	19.942 E3	4.1	94	0.00
2	tC	C10	23.326	23.009 E3	1.4	100	0.00
3	TC	C12	22.899	22.469 E3	1.9	98	0.00
4	tC	C14	22.810	22.473 E3	1.5	98	0.00
5	tC	C16	23.106	22.738 E3	1.6	98	0.00
6	tC	C18	22.250	21.809 E3	2.0	98	0.00
7	tC	C20	21.905	21.571 E3	1.5	98	0.00
8	tC	C22	22.902	22.578 E3	1.4	98	0.00
9	tC	C24	22.978	22.597 E3	1.7	98	0.00
10	tC	C26	22.996	22.661 E3	1.5	98	0.00
11	tC	C28	22.914	22.558 E3	1.6	98	0.00
12	tC	C30	23.280	22.936 E3	1.5	97	0.00
13	tC	C32	23.064	22.585 E3	2.1	97	0.00
14	tC	C34	22.880	21.385 E3	6.5	92	0.00
15	tC	C36	23.222	18.911 E3	18.6	80	0.00
16	tC	C38	22.418	14.743 E3	34.2#	64	-0.01
17	tC	C40	21.967	11.585 E3	47.3#	51	-0.02
18	tC	c42	20.657	9.204 E3	55.4#	43#	-0.05
19	TC	Pristane	23.046	22.602 E3	1.9	100	0.00
20	TC	Phytane	23.180	22.750 E3	1.9	98	0.00
21	sC	o-terphenyl	26.758	26.161 E3	2.2	98	0.00
22	tC	TPHC - total	26.307	22.872 E3	13.1	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 3
T015840.D TPH104.M Tue Aug 12 14:14:57 2003

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015840.D Vial: 16
Acq On : 7 Aug 2003 7:20 pm Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:12 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.80	1308053	48.884 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 488.84%#	
Target Compounds			
1) tC C8	4.39	997081	47.953 mg/L
2) tC C10	7.55	1150441	49.320 mg/L
3) TC C12	9.18	1123428	49.059 mg/L
4) tC C14	10.37	1123669	49.263 mg/L
5) tC C16	11.38	1136916	49.204 mg/L
6) tC C18	11.84	1090434	49.008 mg/L m
7) tC C20	12.28	1078571	49.239 mg/L
8) tC C22	13.10	1128915	49.293 mg/L
9) tC C24	13.85	1129853	49.171 mg/L
10) tC C26	14.55	1133072	49.272 mg/L
11) tC C28	15.19	1127909	49.223 mg/L
12) tC C30	15.81	1146786	49.260 mg/L
13) tC C32	16.54	1129270	48.962 mg/L
14) tC C34	17.46	1069242	46.732 mg/L
15) tC C36	18.70	945573	40.719 mg/L
16) tC C38	20.42	737160	32.883 mg/L
17) tC C40	22.90	579267	26.370 mg/L
18) tC c42	26.44	460202	22.278 mg/L
19) TC Pristane	11.87	1130089	49.037 mg/L m
20) TC Phytane	12.33	1137479	49.071 mg/L
22) tC TPHC - total	12.80	22871556	869.397 mg/L m

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

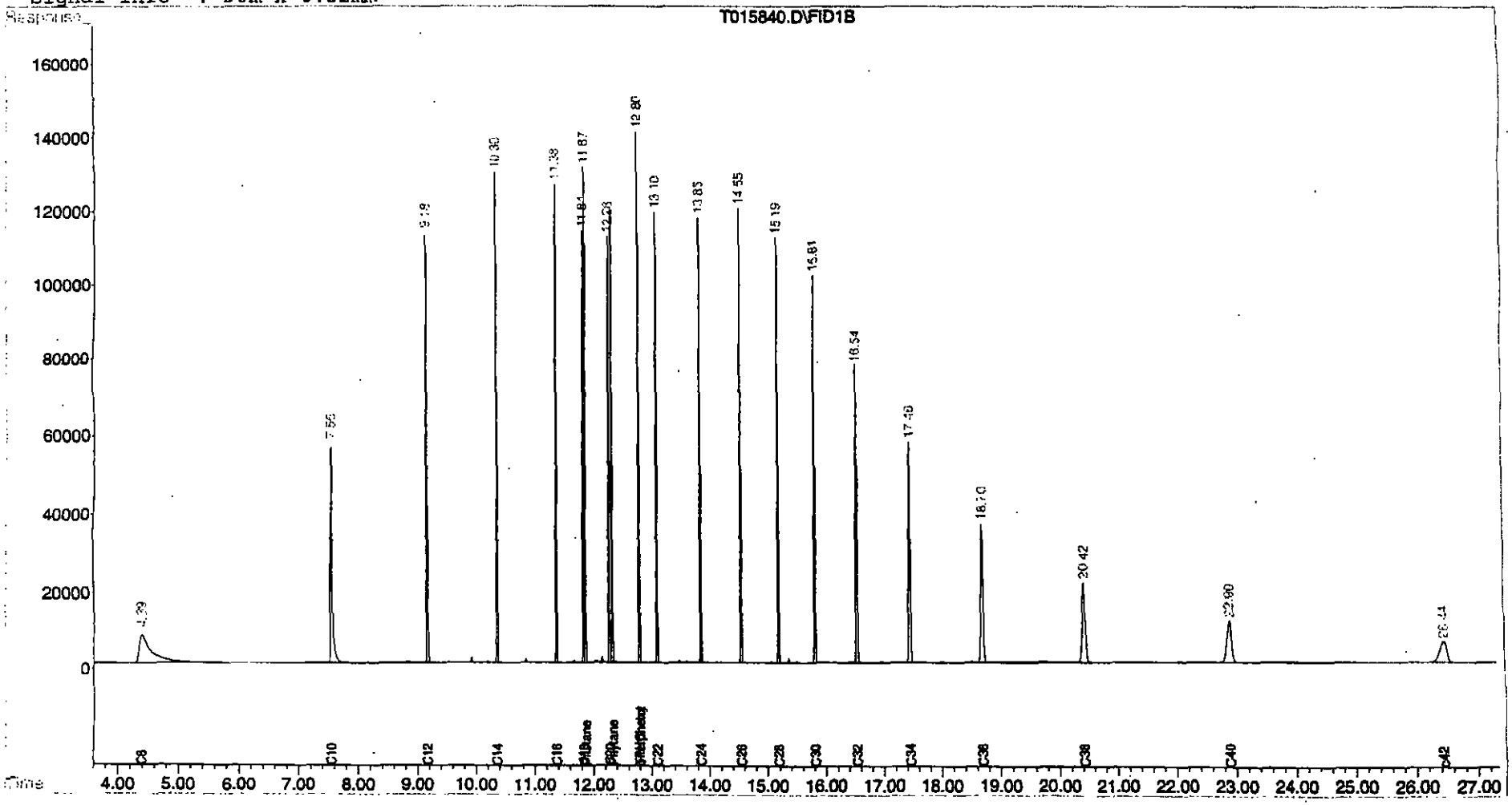
Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015840.D
Acq On : 7 Aug 2003 7:20 pm
Sample : Tstd050
Misc :
IntFile : TPHCINT.E
Quant Time: Aug 12 11:12 2003 Quant Results File: TPH104.RES

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

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



000050

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

Client :	U.S. Army	**Project # :**	30432
	DPW. SELFM-PW-EV	**Location :**	800 Area
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	**Date Received :**	28-Jul-03
Matrix:	Soil	**Date Extracted :**	31-Jul-03
Inst. ID.	GC-TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	7-Aug-03
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample			Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3043201			10.00	11.85	118.52
3043202			10.00	12.20	121.96
3043203			10.00	10.19	101.85
3043204			10.00	11.94	119.35
3043205			10.00	10.11	101.05
3043206			10.00	12.22	122.21
3043207			10.00	12.73	127.26
METHOD BLANK	MB-073103		10.00	9.81	98.11

Surrogate Added : o-Terphenyl

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

Client :	U.S. Army	**Project # :**	30447
	DPW. SELFM-PW-EV	**Location :**	800 Area
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	**Date Received :**	30-Jul-03
Matrix:	Soil	**Date Extracted :**	31-Jul-03
Inst. ID.	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	7-Aug-03
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
LCS-073103	31-Jul-03	1000	867.30	86.73	59.6-114.2

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

Client :	U.S. Army	**Project # :**	30432
	DPW. SELFM-PW-EV	**Location :**	800 Area
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	**Date Received :**	28-Jul-03
Matrix:	Soil	**Date Extracted :**	31-Jul-03
Inst. ID.	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	7-Aug-03
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3043205MS	1000	4681.50	4014.99	NC	40.1-139.6
3043205MSD	1000	4681.50	4988.89	NC	40.1-139.6
		RPD	NC		20.00

*NC: Not Calculated due to values are over the calibration range.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015830.D Vial: 6
Acq On : 7 Aug 2003 1:23 pm Operator: BPatel
Sample : MB-073103 Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.79	262517	9.811 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	98.11%#
Target Compounds			

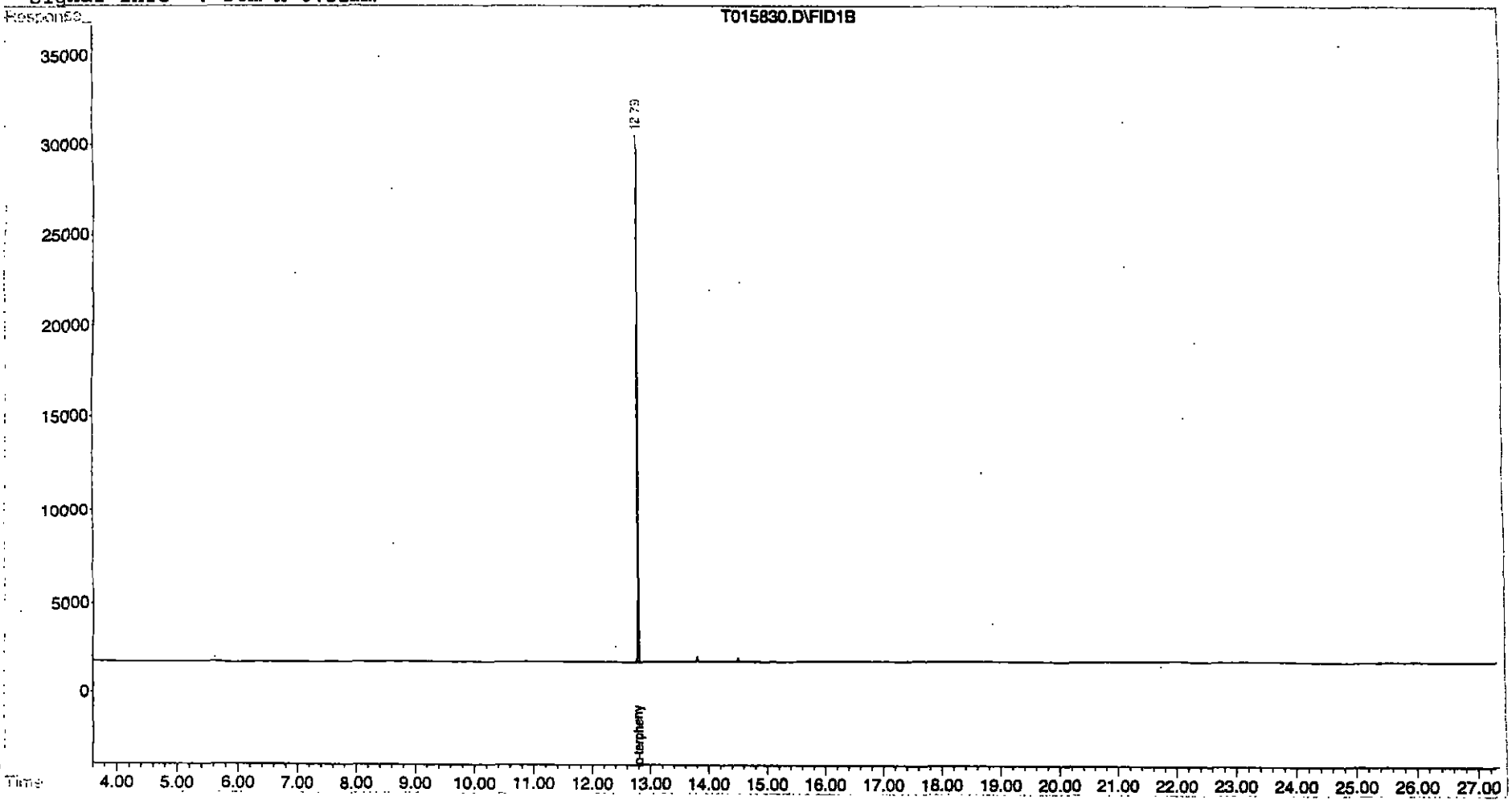
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015830.D Vial: 6
Acq On : 7 Aug 2003 1:23 pm Operator: BPatel
Sample : MB-073103 Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



000055

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015835.D Vial: 11
Acq On : 7 Aug 2003 4:23 pm Operator: BPatel
Sample : 3043204 (1:5) Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:10 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.79	63882	2.387 mg/L
Spiked Amount 10.000 Range 8 - 13 Recovery = 23.87%#			
Target Compounds			
4) tC C14	10.24	42106	1.846 mg/L
5) tC C16	11.37	31808	1.377 mg/L
6) tC C18	11.87	92020	4.136 mg/L
7) tC C20	12.33	62361	2.847 mg/L
12) tC C30	15.95	31375	1.348 mg/L
14) tC C34	17.68	101064	4.417 mg/L
15) tC C36	18.51	73990	3.186 mg/L
19) TC Pristane	11.87	92020	3.993 mg/L
20) TC Phytane	12.33	62361	2.690 mg/L
22) tC TPHC - total	11.87	24116219	916.710 mg/L m

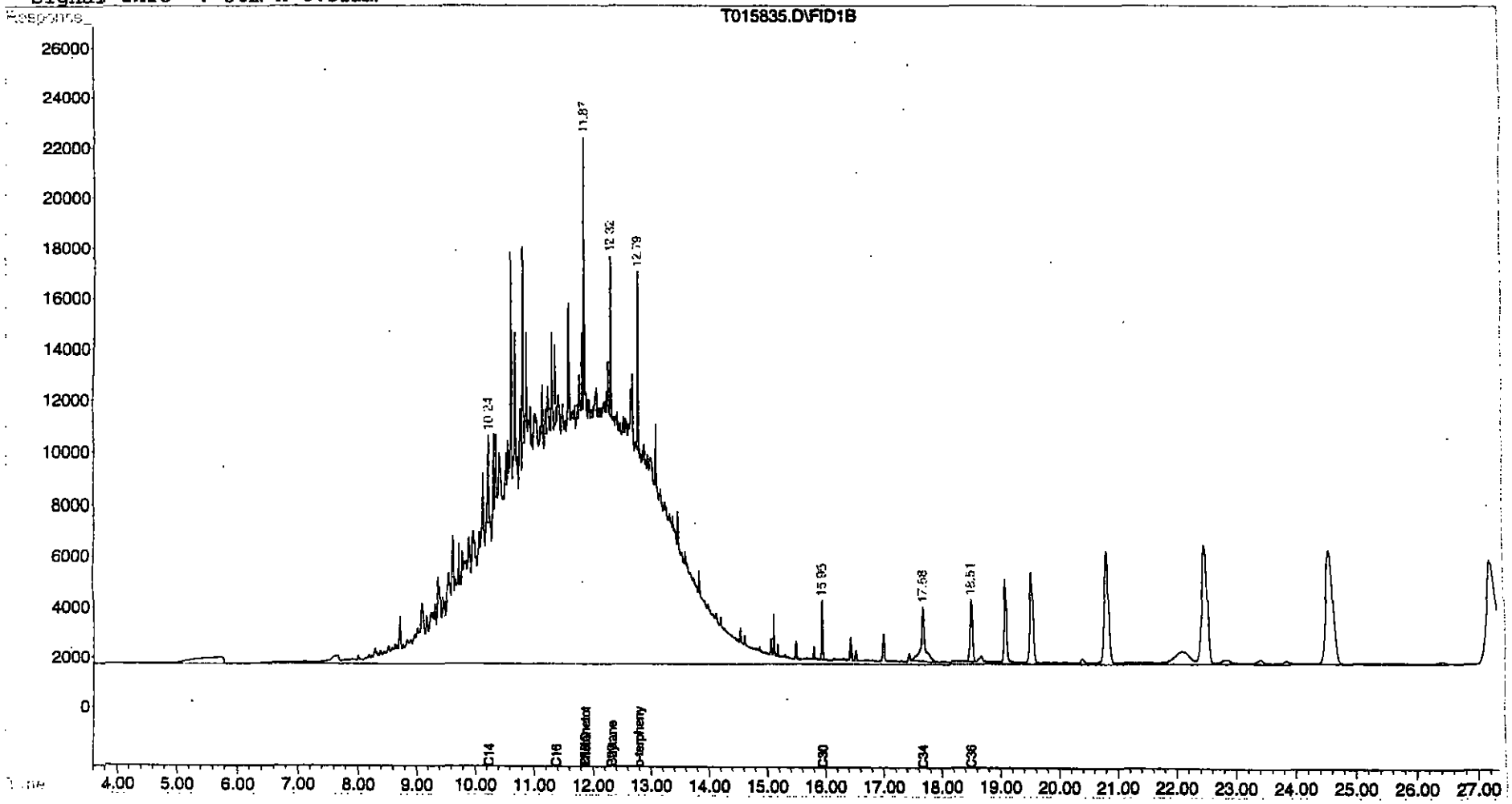
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015835.D Vial: 11
Acq On : 7 Aug 2003 4:23 pm Operator: BPatel
Sample : 3043204 (1:5) Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:10 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



0000057

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015832.D Vial: 8
Acq On : 7 Aug 2003 2:34 pm Operator: BPatel
Sample : 3043205 (1:5) Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.79	54068	2.021 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery =	20.21%#
Target Compounds			
3) TC C12	9.11	31668	1.383 mg/L
4) tC C14	10.36	53655	2.352 mg/L
5) tC C16	11.37	69593	3.012 mg/L
6) tC C18	11.84	52478	2.359 mg/L
7) tC C20	12.28	33733	1.540 mg/L
8) tC C22	13.10	32536	1.421 mg/L
19) TC Pristane	11.87	166414	7.221 mg/L
20) TC Phytane	12.32	101322	4.371 mg/L
22) tC TPHC - total	11.87	24631511	936.297 mg/L m

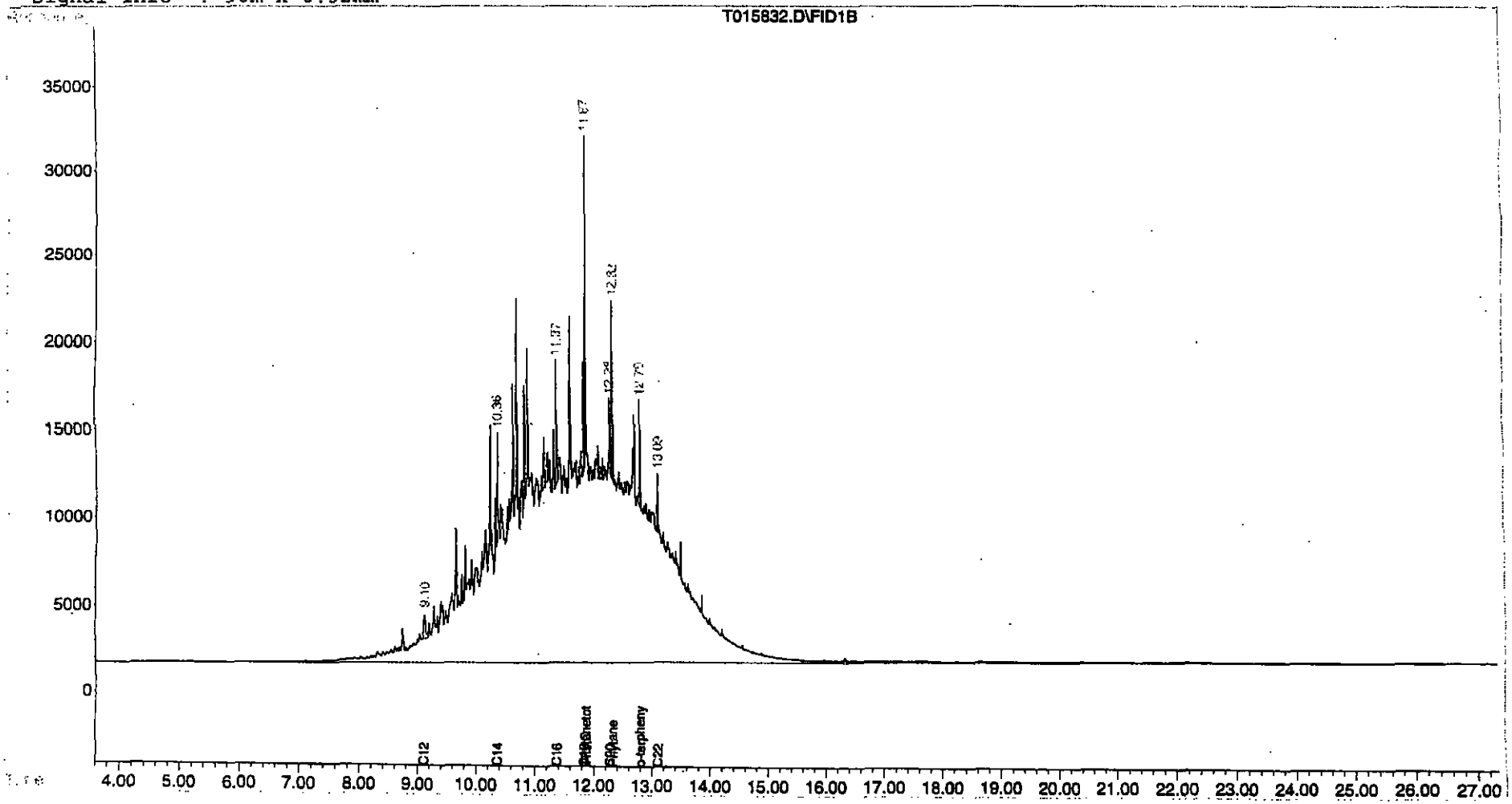
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015832.D Vial: 8
Acq On : 7 Aug 2003 2:34 pm Operator: BPatel
Sample : 3043205 (1:5) Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



000059

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015833.D Vial: 9
Acq On : 7 Aug 2003 3:10 pm Operator: BPatel
Sample : 3043206s Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.79	327011	12.221 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	122.21%#
Target Compounds			
22) tC TPHC - total	12.79	1706707	64.876 mg/L m

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

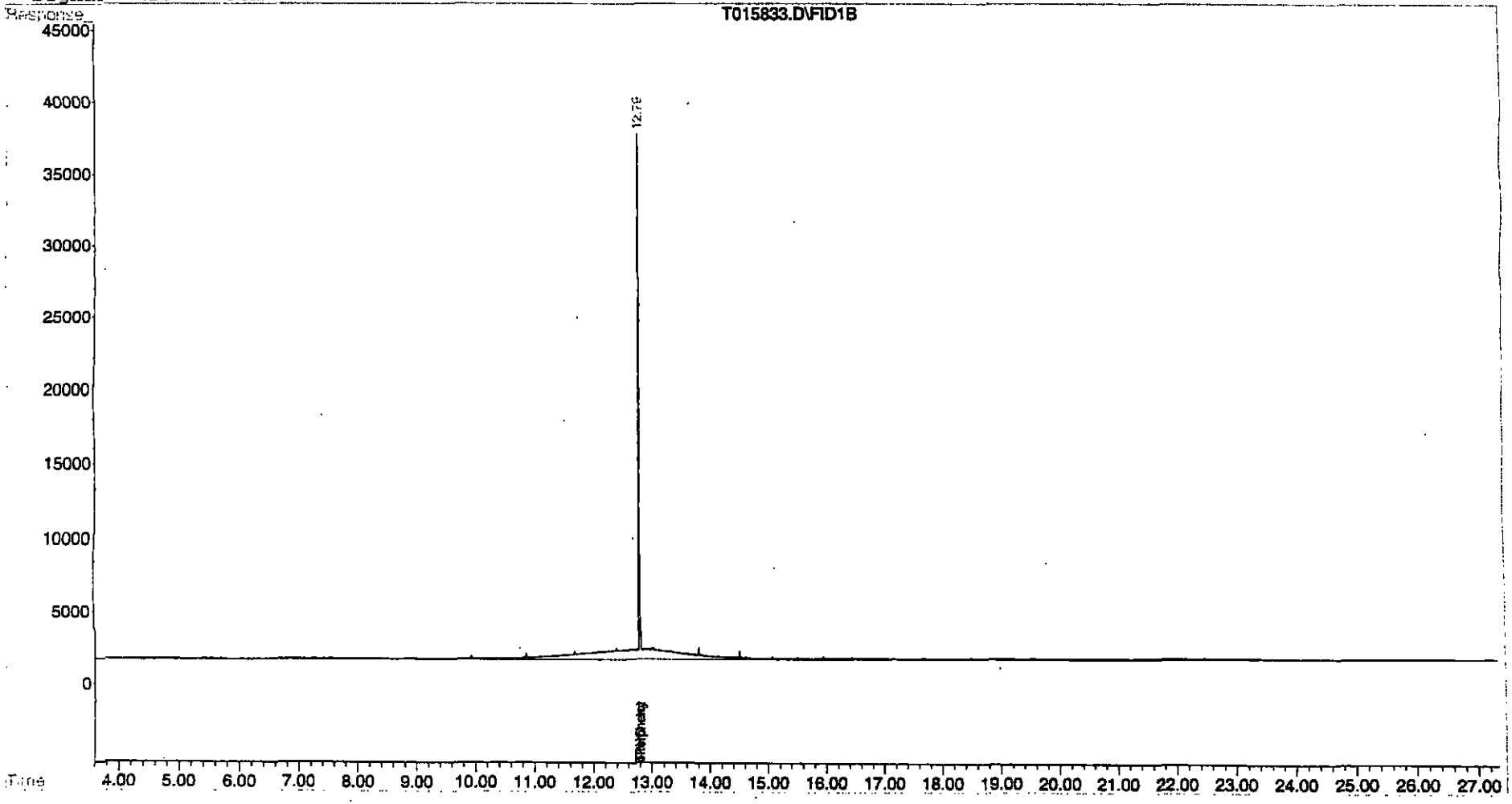
Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015833.D
Acq On : 7 Aug 2003 3:10 pm
Sample : 3043206s
Misc : Soil
IntFile : TPHCINT.E
Quant Time: Aug 12 11:09 2003 Quant Results File: TPH104.RES

Vial: 9
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



000061

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015834.D Vial: 10
Acq On : 7 Aug 2003 3:45 pm Operator: BPatel
Sample : 3043207s Inst : GC/MS Ins
Misc : Soil Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:10 2003 Quant Results File: TPH104.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Initial Calibration
DataAcq Meth : TPH104.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	12.79	340523	12.726 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 127.26%#	
Target Compounds			
22) tC TPHC - total	12.79	1776018	67.510 mg/L m

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

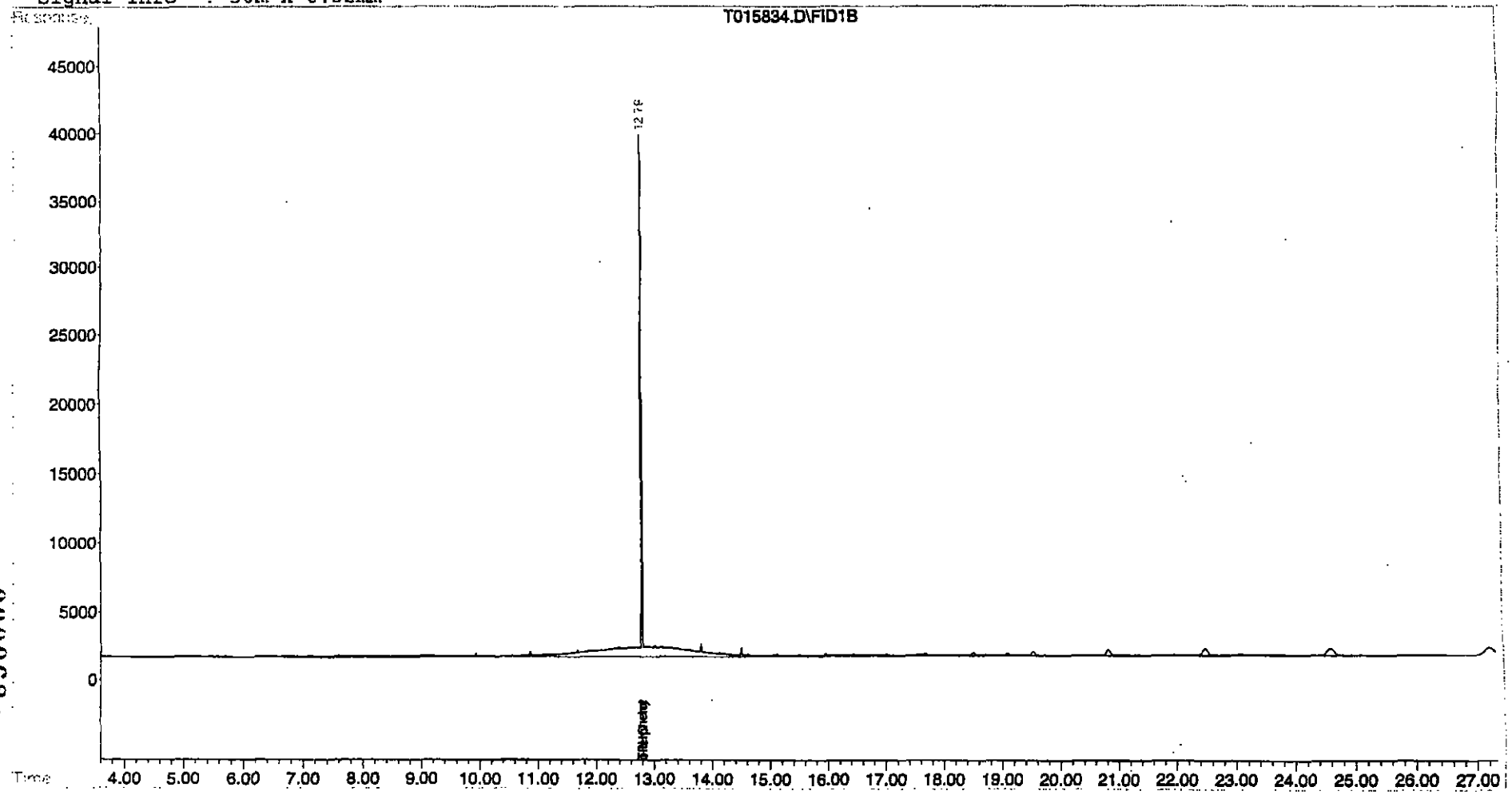
Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015834.D
Acq On : 7 Aug 2003 3:45 pm
Sample : 3043207s
Misc : Soil
IntFile : TPHCINT.E
Quant Time: Aug 12 11:10 2003 Quant Results File: TPH104.RES

Vial: 10
Operator: BPatel
Inst : GC/MS Ins
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\TPH104.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Tue Aug 12 10:44:01 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPH104.M

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



000063

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 data 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: 11/29/05

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

Fort Monmou h Environmental ' 'esting La oratory

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 / NYDOH Certification #11699

Chain of Custody Record

Customer: ~~Dinker Desai~~ JOE FALLON
Phone #: ~~X21475~~ X26223
( )DERA (X)OMA UST Assessment

Project No: ~~01-0001~~ 03-38200
Location: 800 AREA
UST# 800-22, 800-21

Samplers Name / Company : Frank Accorsi/TVS

Analysis Parameters

Lab Sample I.D.	Sample Location	Depth	Date	Time	Sample Type	# Bottles	TPHC	% SOLIDS	VOA+10/15 *	VOA ID #	PID Reading	Remarks / Preservation Method
30432 01	800-22A, EAST END	6.5-7.0	7-28-03	1340	SOIL	2	X	X	X	3469	0	ICE
02	800-22B, CENTER	6.5-7.0		1355		2	X	X	X	3470	0	
03	800-22C, WEST END	6.5-7.0		1415		2	X	X	X	3471	0	
04	DUPLICATE	6.5-7.0		1500		2	X	X	X	3472	7.3	
05	800-21A, EAST END	6.5-7.0		1500		2	X	X	X	3473	4.0	
06	800-21B, CENTER	6.5-7.0		1515		2	X	X	X	3474	0	
07	800-21C, WEST END	6.5-7.0		1530		2	X	X	X	3475	0	
08	TRIP BLANK	—		—		1			X	3476	—	

* = Samples Kept <4°C

OVM sn#580U-64455.343 was calibrated with zero air & w/245 ppm Isobutylene read 245 ppm. 0800 7-28-03 FA (time/date & initial)

Relinquished by (signature):	Date/Time:	Received by (signature):
Frank Accorsi	7-28-03 1600	
Relinquished by (signature):	Date/Time:	Received by (signature):

Comments: * VO+15 ON 25% > 1,000 PPM TPH, ON HIGHEST, MIN. ONE.

Report Type: ( )Full, (X) Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: ( )Standard 2 wks, ( )Rush 2 Days, ( )ASAP Verbal ___ Hrs.

Remarks: Dedicated Sampling Tools Used
All sample points have been GPS? (X)YES ( )NO ( )NA

print legibly

USTcoc.xls6/22/01

SAMPLE RECEIPT FORM

Date Received: 7-28-03 Work Order ID#: 30432

Site/Proj. Name: 800/Area Cooler Temp (°C): 1.0°C

Received By: J. Vergara Sign: J. Vergara
(Print name)

Check the appropriate box

1. Did the samples come in a cooler? ☑ yes ☐ no ☐ n/a
2. Was the chain of custody filled out correctly and legibly? ☑ yes ☐ no
3. Was the chain of custody signed in the appropriate place? ☑ yes ☐ no
4. Did the labels agree with the chain of custody? ☑ yes ☐ no
5. Were the correct containers/preservatives used? ☑ yes ☐ no
6. Was a sufficient amount of sample supplied? ☑ yes ☐ no
7. Were air bubbles present in VOA vials? ☐ yes ☐ no ☑ n/a
8. Were samples received on ice? ☑ yes ☐ no

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments:

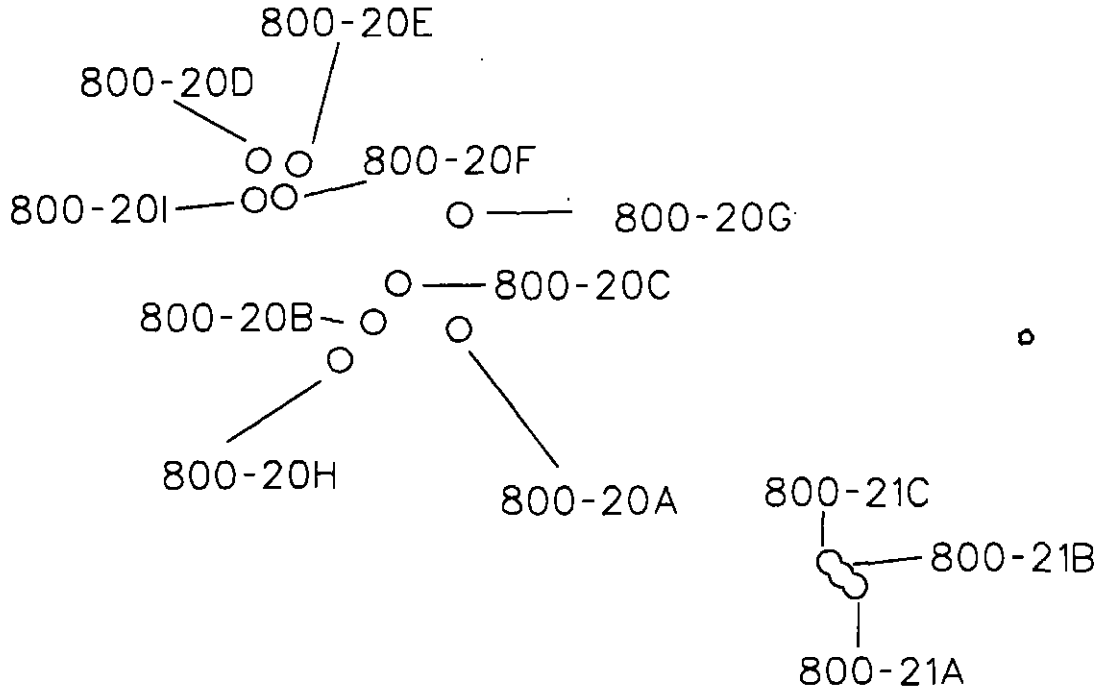


FIGURE 2 - Site Map
800-20 AND 800-21 AREA

U.S. Army Garrison
Fort Monmouth, New Jersey

SCALE: 1" = 28' Approx.

DATE: January 03, 2006

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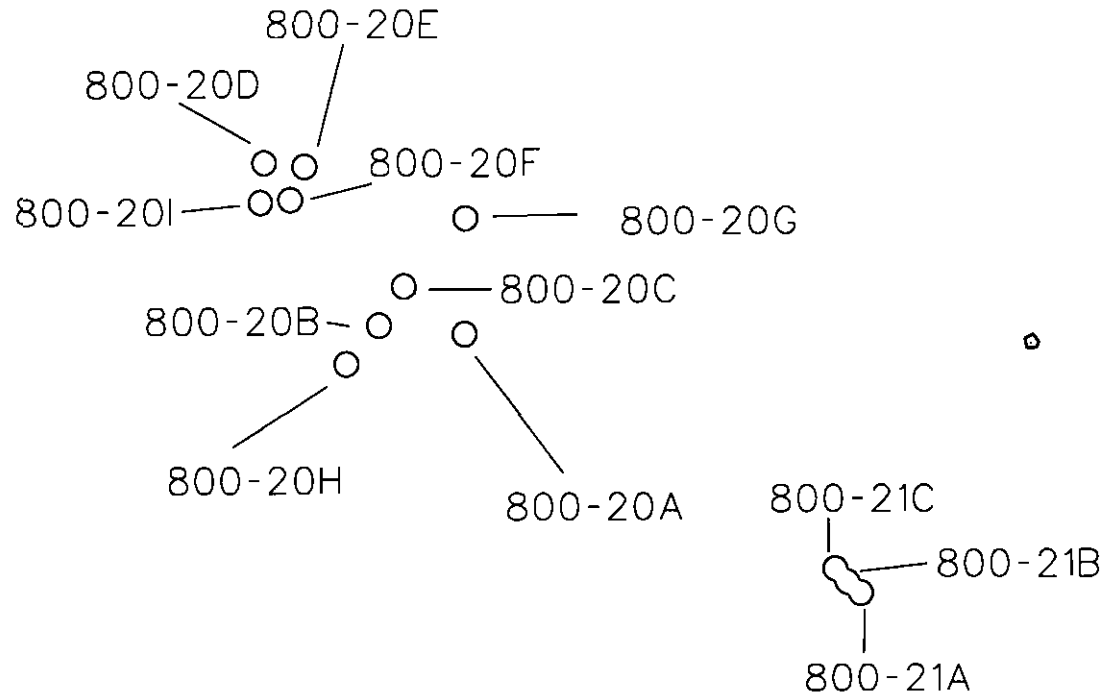

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800-20 AND 800-21 AREA

U.S. Army Garrison
Fort Monmouth, New Jersey

SCALE: 1" = 28' Approx.

DATE: January 03, 2006

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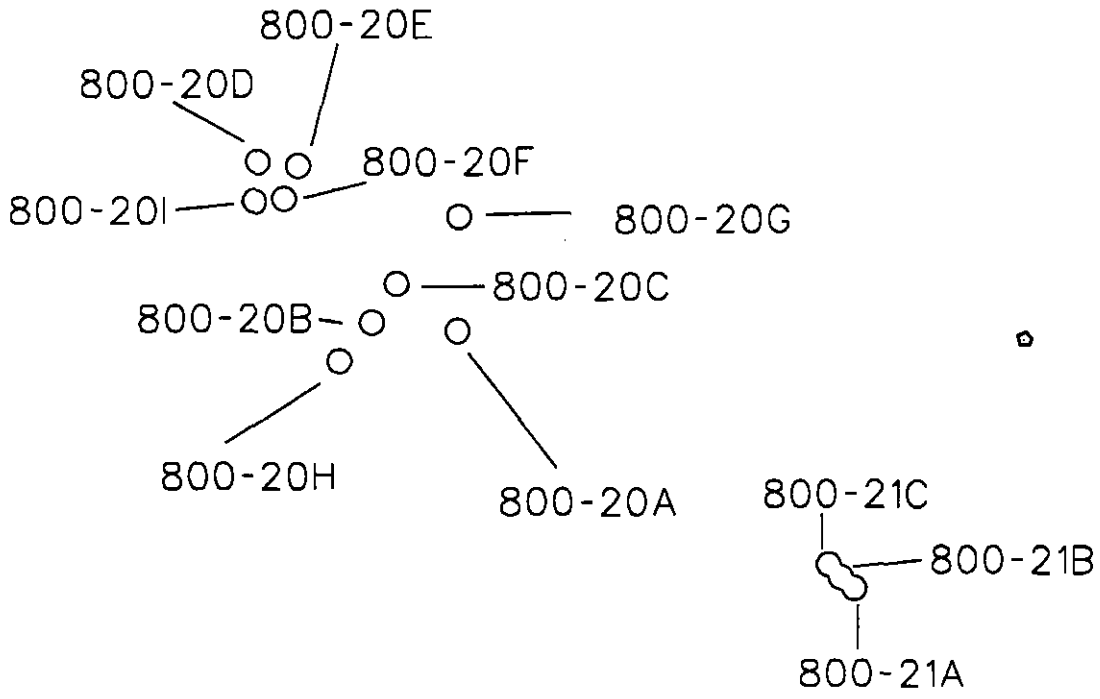

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800-20 AND 800-21 AREA

U.S. Army Garrison
Fort Monmouth, New Jersey

SCALE: 1" = 28' Approx.

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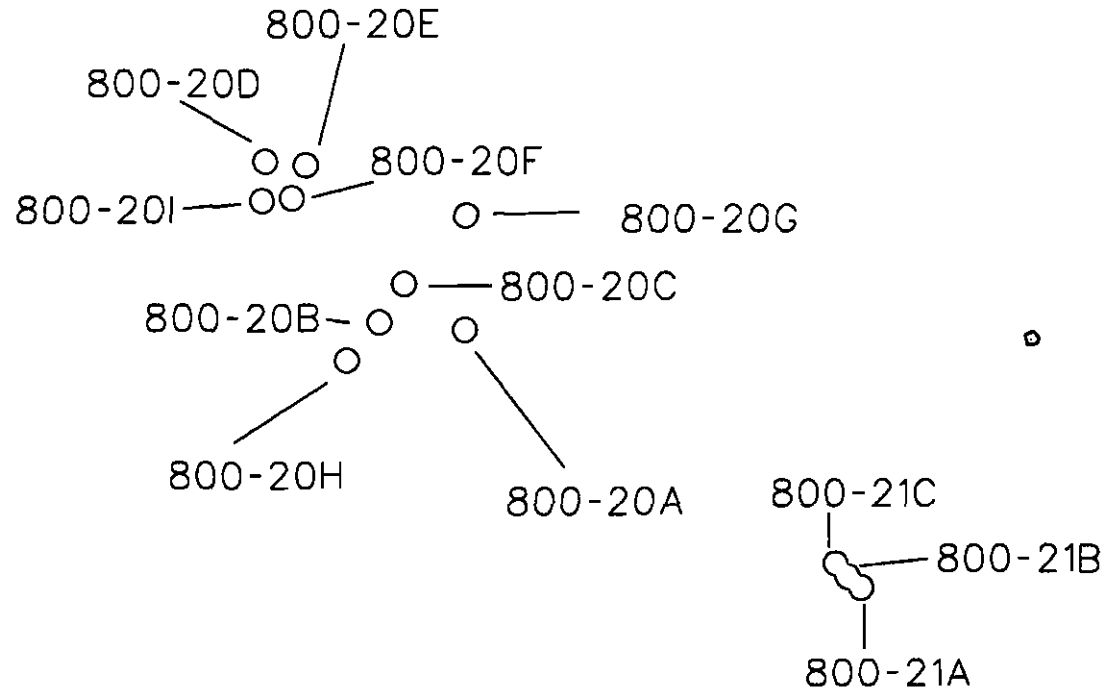

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800-20 AND 800-21 AREA

U.S. Army Garrison
Fort Monmouth, New Jersey

SCALE: 1" = 28' Approx.

DATE: January 03, 2006

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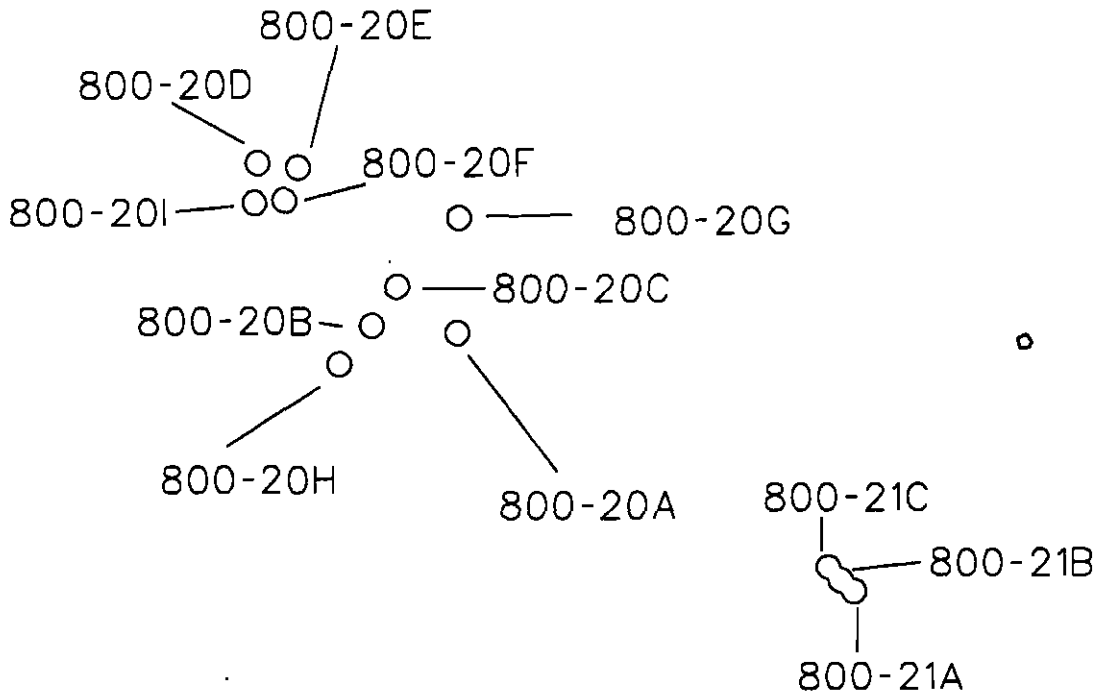

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800-20 AND 800-21 AREA

U.S. Army Garrison
Fort Monmouth, New Jersey

SCALE: 1" = 28' Approx.
DATE: January 03, 2006

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