U.S. Army Garrison
Fort Monmouth, New Jersey

NJDEP UST Registration No. 081533
NJDEP Case No. 03-07-30-1431
UST No. 800-1

November 2005

UNDERGROUND STORAGE TANK CLOSURE AND REMEDIAL INVESTIGATION REPORT

MAIN POST - 800 AREA (UST NO. 1)
NJDEP UST REGISTRATION NO. 081533
NJDEP CASE NO. 03-07-30-1431

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 30, 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 800-1 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 surrounding the tank Groundwater was not encountered in the bottom of the excavation

Post-remediation soil samples were collected after the removal of the UST and approximately 15 cubic yards of potentially contaminated soils were excavated Post-remediation samples 800-1A, 800-1B, 800-1C, 800-1D, 800-1E and a 800-1 Duplicate were collected from a total of five (5) locations along the sidewalls and bottom of the excavation All samples were analyzed for total petroleum hydrocarbons (TPH)

Findings

All of the post-remediation soil samples collected from the UST excavation associated with former UST No 800-1, contained TPH concentrations below 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) Sample 800-1B contained a TPH concentration of 246 mg/kg All other sample results indicated that TPH concentrations were Not Detected No samples exhibited concentrations exceeding 1,000 mg/kg and therefore were not analyzed for volatile organic compounds with a forward library search for 15 tentatively identified compounds (VO+ 15)

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, soils with TPH concentrations exceeding the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants do not remain in the former location of the UST

No Further Action is proposed in regard to the closure and site assessment of UST No 800-1 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 30, 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-walled steel tank containing No 2 heating oil

Decommissioning activities for UST No 800-1 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 10 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 800-1 was located approximately 300 feet west of Building 822 (Burger King) The fill port, vent pipe and appurtenant piping was 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

The 800-1 UST Area is located approximately 200 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 the 800 Area 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 individual ascertained if the area was properly vented to render the area safe, as defined by OSHA All work areas were properly vented to insure that there were no contaminants present in the breathing zone above permissible exposure limits (PEL's)

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 OVA for evidence of

contamination Soil staining and an odor of petroleum hydrocarbons were observed It was determined that remedial soil excavation would be conducted prior to sampling DPW personnel was made aware of the field conditions. The DPW called the NJDEP Spill Hotline and Case No 03-07-30-1431 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 cleaned 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 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 15 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) Sampling frequency and parameters analyzed 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 800-1 until no evidence of contamination remained

2.3. SOIL SAMPLING

On July 30, 2003, post-remediation soil samples 1A, 1B, 1C, 1D, 1E and 1-Duplicate were collected from a total of five (5) locations along the sidewalls and the bottom of the UST excavation Groundwater was not encountered in the excavation Refer to soil sampling location map in Figure 2 All samples were analyzed for TPH. No samples exhibited concentrations exceeding 1,000 mg/kg and therefore were not analyzed for volatile organic compounds with a forward library search for 15 tentatively identified compounds (VO+ 15)

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

Post-remediation soil samples were collected from a total of five locations on July 30, 2003, to evaluate soil conditions following removal of the UST All samples were analyzed for TPH The post-remediation 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

Post-remediation soil samples collected on July 30, 2003 from the UST remedial excavation contained concentrations of TPH well below the NJDEP soil cleanup criteria No samples exhibited concentrations exceeding 1,000 mg/kg and therefore were not analyzed for volatile organic compounds with a forward library search for 15 tentatively identified compounds (VO+ 15) The only sample that had a TPH concentration above the method detection limit was 800-1B, which was 246 mg/kg

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all of post-remediation soil samples collected from the UST closure excavation at UST No 800-1 were below the NJDEP soil cleanup criteria for total organic contaminants

Based on the post-remediation soil sampling results, No Further Action is proposed in regard to the closure and remedial investigation of UST No 800-1 in the 800 Area of the Main Post

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS
FT. MONMOUTH, 800 AREA, UST No.800-1
30-July-2003

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
800-1A	4037101	30-July-03	SOIL	TPH	OQA-QAM-25
800-1B	4037102	30-July-03	SOIL	TPH	OQA-QAM-25
800-1C	4037103	30-July-03	SOIL	TPH	OQA-QAM-25
800-1D	4037104	30-July-03	SOIL	TPH	OQA-QAM-25
800-1E	4037105	30-July-03	SOIL	TPH	OQA-QAM-25
800-1Dupl.	4037106	30-July-03	SOIL	TPH	OQA-QAM-25
TRIP BLANK	4037107	30-July-03	METHANOL	VOA	SW-846, 8260

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, 800 AREA, UST No.800-1
30-July-2003

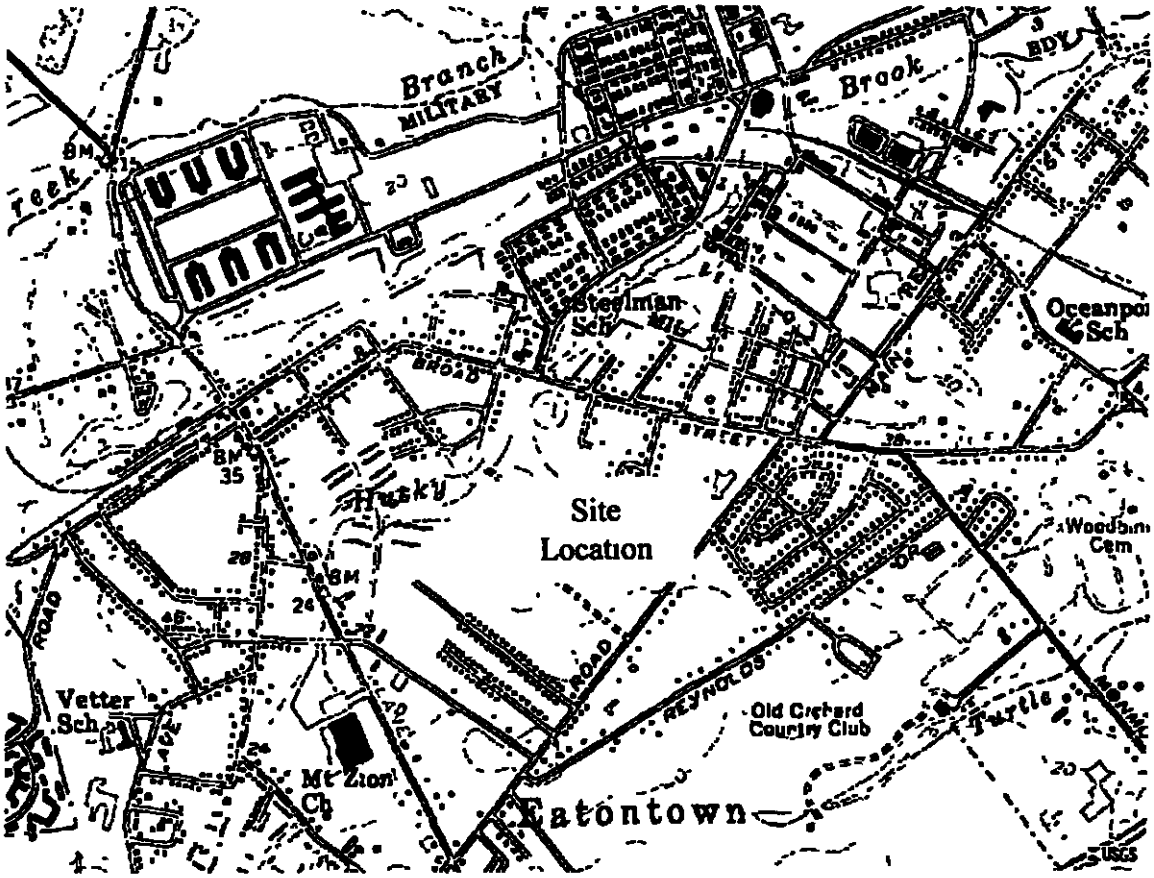
TOTAL PETROLEUM HYDROCARBONS

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH	MATRIX	TPH RESULT S
			(in feet)		mg/kg
800-1A	3044701	NORTH WALL	80 – 85	Soil	ND
800-1B	3044702	EAST WALL	80 – 85	Soil	246
800-1C	3044703	SOUTH WALL	80 – 85	Soil	ND
800-1D	3044704	WEST WALL	80 – 85	Soil	ND
800-1E	3044705	CENTER	80 – 85	Soil	ND
800-1 Dupl.	3044706	DUPLICATE (CENTER)	80 – 85	Soil	ND

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

FIGURES



SCALE 1 24,000

1 0 5 0 1 MILE

1 0 5 0 1 KILOMETER

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

SOURCE: USGS 7½-MINUTE SERIES (TOPOGRAPHIC)
LONG BRANCH QUADRANGLE, NEW JERSEY, 1981.

FIGURE 1
SITE LOCATION MAP
800 AREA, UST 800-1
FT. MONMOUTH, NJ

APPENDIX A

CERTIFICATIONS

Site Remediation Program

UST Site Remedial Investigation Report

A. Facility Name Ft Monmouth, Main Post, 800 Area, near Building 1006

Facility Street Address Alexander Ave

Municipality Oceanport County Monmouth

Block N/A Lot(s) N/A Telephone Number 732-532-6223

B. Owner (RP)'s Name U S Army Garrison - Directorate of Public Works

Street Address 173 Riverside Dr City Ft Monmouth

State NJ Zip 07703 Telephone Number 732-532-6226

C. (Check as appropriate)

☐ Site Investigation Report (SIR) $500 Fee

☐ Remedial Investigation Report (RIR) $1000 Fee

D. (Complete all that apply)

Assigned Case Manager Greg Zalaskus

UST Registration Number N/A - Residential UST (7 digits)

- Incident Report Number 03-07-30-1431 (10 or 12 digits)
- Tank Closure Number C(N)9____-____ C 9-____ C9____-_____(7 characters)

E. Certification by the Subsurface Evaluator:

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

Name Frank Accorsi Signature _____ UST Cert No 0010042

Firm TECOM-Vinnell Services, Inc Firm's UST Cert Number US252302

Firm Address P O Box 60 City Ft Monmouth

State NJ Zip 07724 Telephone Number 732-532-2577

(NOTE Certification numbers required only if work was conducted on USTs regulated per N J S A 58 10A-2 1 et seq)

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

The following certification shall be signed [according to the requirements of N J A C 7 14B-1 7(b)]as follows

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

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

Name (Print or Type) James Ott Title Dir. Public Works

Signature _____

Company Name _____ Date _____

APPENDIX B

WASTE MANIFEST

APPENDIX C

UST DISPOSAL CERTIFICATE

APPENDIX D

PHOTO DOCUMENTATION

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

US ARMY, FORT MONMOUTH

DAILY UST CLOSURE LOG

BLDG #: 800-1 REG #: NA -

DATE. 7-30-03 TOA 10:00 TOD 14:30

CLOSURE TECH: Harold Hornung NJDEP CERT.# 00111047

PERSONNEL Anthony Forgione, Mark Taylor

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAVE CURRENT TRAINING IAW ALL SAFETY REQ (E G 29CFR)	Y
ALL UTILITIES WERE MARKED OUT PRIOR TO ANY EXCAVATION (VISUAL CONFIRM YES/NO)	Y
HAND EXCAVATION WAS DONE WHEN EXCAVATING WITHIN 4 FT OF ANY UTILITIES	NA
ALL UST PIPING WAS BLOWN BACK AND DRAINED PRIOR TO ANY EXCAVATION WITH BACKHOE	NA
ALL UST PIPING WAS REMOVED PRIOR TO UST EXCAVATION	NA
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS ~~CLEANED~~ Pumped out AND NO RESIDUAL LIQUIDS WERE LEFT IN THE TANK	Y
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
_____ DRUMS OF WASTE WERE GENERATED AT THIS SITE TODAY (ID CARDS COMPLETED)	NA
_____ DRUMS OF WASTE WERE TRANSPORTED TO THE (MP, CW, EV) HWSA	NA
800 GALLONS OF water WASTE WERE Liquid Product REMOVED (MANIFEST# NHZ 49688)	Y
15 CUBIC YARDS OF PETROL CONT SOIL WERE EXCAVATED+TRANS TO (T-80, 2624)	Y
THE DPW WAS NOTIFIED OF ANY DISCHARGE TO THE ENVIRONMENT (WHO) Doug Guenther	Y
ALL PETROL. CONT. SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW AUTHORIZED BACKFILLING THE EXCAVATION SSE INITIAL REQUIRED HH	Y
THE UST WAS TRANSPORTED TO Bldg 166 Concrete Pad FOR DISPOSAL (ATTACH SCRAP TICKET)	Y
ADDITIONAL NOTES WERE TAKEN AND RECORDED ON THE BACK OF THIS FORM	N/
THE FOLLOWING DOCUMENTS WERE GIVEN TO THE SSE TODAY (CIRCLE EACH OR ADD ITEMS) SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, _____	

CHECK ALL BOXES, LEAVE NO BLANKS

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

CLOSURE TECH (PRINT NAME): Harold Hornung

SIGNATURE: _____ DATE. 7-30-03

ARMY, FORT MONMOUTH

DAILY UST CLOSURE LOG

BLDG.#: 800-1 REG.# NA -

DATE: 7-30-03 TOA: 10:00 TOD 1430

CLOSURE TECH: Harold Hornung NJDEP CERT.#. 0011647

PERSONNEL: Anthony Forgiore, Mark Taylor

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAVE CURRENT TRAINING IAW ALL SAFETY REQ (E G 29CFR)	Y
ALL UTILITIES WERE MARKED OUT PRIOR TO ANY EXCAVATION (VISUAL CONFIRM YES/NO)	Y
HAND EXCAVATION WAS DONE WHEN EXCAVATING WITHIN 4 FT OF ANY UTILITIES	NA
ALL UST PIPING WAS BLOWN BACK AND DRAINED PRIOR TO ANY EXCAVATION WITH BACKHOE	NA
ALL UST PIPING WAS REMOVED PRIOR TO UST EXCAVATION	NA
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS ~~CLEANED~~ Pumped out AND NO RESIDUAL LIQUIDS WERE LEFT IN THE TANK	Y
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
_____ DRUMS OF WASTE WERE GENERATED AT THIS SITE TODAY(ID CARDS COMPLETED)	NA
_____ DRUMS OF WASTE WERE TRANSPORTED TO THE (MP,CW,EV) HWSA	NA
800 GALLONS OF ~~water~~ WASTE WERE REMOVED (MANIFEST# NHZ 49686)	Y
15 CUBIC YARDS OF PETROL CONT SOIL WERE EXCAVATED+TRANS TO (T-80, 2624)	Y
THE DPW WAS NOTIFIED OF ANY DISCHARGE TO THE ENVIRONMENT (WHO) Doug Guenther	Y
ALL PETROL CONT. SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW AUTHORIZED BACKFILLING THE EXCAVATION SSE INITIAL REQUIRED HH	Y
THE UST WAS TRANSPORTED TO Bldg 166 Concrete Pad FOR DISPOSAL (ATTACH SCRAP TICKET)	Y
ADDITIONAL NOTES WERE TAKEN AND RECORDED ON THE BACK OF THIS FORM	N
THE FOLLOWING DOCUMENTS WERE GIVEN TO THE SSE TODAY (CIRCLE EACH OR ADD ITEMS) SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, _____	

CHECK ALL BOXES, LEAVE NO BLANKS

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

CLOSURE TECH (PRINT NAME) Harold Hornung

SIGNATURE. _____ DATE 7-30-03

DEPARTMENT OF THE ARMY
HEADQUARTERS, U S ARMY GARRISON FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5101

REPLY TO
ATTENTION OF

Directorate of Public Works

May 6, 2005

State of New Jersey
Department of Environmental Protection
Division of Responsible Party Site Remediation
Bureau of Case Management
401 East State Street, 5th Fl., West Wing
ATTN: Mr Greg Zalaskus
PO Box 028
Trenton, New Jersey 08625-0028

RE **800 and 400 Area Remedial Action Report Meeting Summary**

Dear Mr Zalaskus.

The following summary is based on the meeting between USAG Fort Monmouth Directorate of Public Works (FMDPW) personnel and New Jersey Department of Environmental Protection (NJDEP) personnel on April 19, 2005.

Attendees
Greg Zalaskus - Case Manager (NJDEP)
John Prendergast (NJDEP)
Doug Guenther (FMDPW)
Dinker Desai (FMDPW)
Joe Fallon (FMDPW)
Lou Benevides (FMDPW)

Discussed assessment and remediation activities performed at the "800" and "400" Areas in support of the Army's Residential Communities Initiative (RCI) which entails future family housing construction Ft Monmouth has contracted Tetra-Tech EM, Inc to prepare a Remedial Action Report (RAR) for the 800/700/400 Areas assessment and soil cleanup actions.

Site actions discussed

800 Area

Objectives

- Investigate and characterize environmental conditions at the 800 Area site, which has been designated for future residential housing construction (footprint approximately 13 acres)

Underground Storage Tanks and Closures

- Geophysical study performed (total area approximately 32 acres)-Eight anomalies confirmed as USTs in Area of Concern
- Tanks #1, #15, #16, #19, #20, #21, and #22 - 1,000-Gallon, Steel, Heating Oil USTs Supplied fuel for barracks around 1940s-60s Unregulated, residential Tank #2 - 500-Gallon, Steel Heating Oil UST.
- Eight tanks removed Three tank locations indicated releases and over-excavation performed as required. Soil closure samples collected. NJDEP contacted; reported three UST releases.
- All areas of petroleum impacted soils above NJDEP criteria removed

Geoprobe Investigation

- Geoprobe survey at approximately 100' Intervals (75 borings) within RCI footprint area Soil samples collected and logged from a 4' core
- 0 to 6" below ground surface (bgs) analyzed for semi-volatile organic compounds (SVOCs); Pesticides/PCBs, TAL Metals, 18-24" analyzed for volatile organic aromatics (VOAs); Below 24", PID reads 50 ppm or below collected one sample at highest reading, analyzed for total petroleum hydrocarbon concentrations (TPHC)

Geoprobe Follow-up

- Seven boring locations (19, 32, 35, 39, 44, 45, and 75) had soil above NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC) for SVOCs, Pesticides/PCBs, and/or arsenic.
- The SVOCs may be present from the breakdown of petroleum-based products historically used as a delivery matrix during normal application of pesticides to the ground One boring had an exceedence of PCBs and one other boring had an exceedence of arsenic above the RDCSCC No volatiles were reported above criteria in any soil sample
- As follow-up, collected four soil samples 0-6" bgs on each side of a 10' x 10' square area around each of 6 boring locations and one soil sample from directly adjacent to the original borehole at a depth of 12-18" for a vertical extent Continued step outs until NJDEP RDCSCC concentrations were met. Boring 35 had an exceedence of Dinitrotoluene 2,4 at a concentration of 1.6 ppm which was left in place (at the time of this meeting) as the concentration was just over the cleanup criteria of 1 0 ppm and was not identified in any of the other soil samples collected at the site Delineation of soil at all other locations was completed
- Excavated delineated areas of concern Work completed in November 2003

NOTE: *As follow-up, on April 28, 2005, DPW personnel excavated a 10'x10' square by 18" deep area centered on Boring 35 to remove soils above NJDEP RDCSCC One post excavation soil sample was collected and results indicate SVOC concentrations below RDCSCC*

800 Area – Outside of RCI footprint

Objectives

- Investigate remaining geophysical anomalies identified in First Atlantic Federal Credit Union Parking lot and drive-thru area (Main Post)

Underground Storage Tanks and Closures

- Geophysical study performed-Four anomalies confirmed as USTs in Area of Concern.
- Tanks #9, #10, #12, and #14 - 1,000-Gallon, Steel, Heating Oil USTs Supplied fuel for barracks around 1940s-60s Unregulated, residential.
- Four tanks removed Two tank locations indicate releases and over-excavation performed as required Soil closure samples collected NJDEP contacted, reported two UST releases
- All identified areas of petroleum impacted soils above NJDEP criteria removed Work completed in May 2004

400 Area

Objectives

- Investigate and characterize environmental conditions at the 400 Area site, which has been designated for future maintenance building construction (footprint approximately one acre)

Geophysical Survey

- Geophysical study performed on approximately 30 acres in and around the "400 Area"- only one anomaly identified which may be a UST in Area of Concern After investigation, no UST found.

Geoprobe Investigation

- Geoprobe survey at approximately 50' Intervals (17 borings) within the one acre footprint. Soil samples collected and logged from an 8' core
- 0 to 6" bgs and analyzed for SVOCs, Pesticides/PCBs, TAL Metals, TPHC, 18-24" analyzed for VOAs +15, Below 24", collected one sample analyzed for TPHC.

Geoprobe Follow-up

- Five boring locations have soil above NJDEP Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) for SVOCs and PCBs
- As stated previously, the SVOCs may be present from the breakdown of petroleum-based products which may have been used as a delivery matrix during normal application of pesticides to the ground One boring had PCBs above the NRDCSCC (source unknown) No other contaminants were reported above criteria in any soil sample
- As follow-up, collected four soil samples 0-6" bgs on each side of a 10' x 10' square area around each of the 5 boring locations and continued step outs until NJDEP criteria concentrations were met Also, collected one soil sample at each of the five borings from 12-18" bgs for vertical delineation of pertinent constituent
- All delineated areas of impacted soils above NJDEP NRDCSCC were removed Work completed in November 2004

Final Tasks

- Prepare and submit required report to NJDEP

The 700 Area Enhanced Use Lease project site which is part of the RAR was not discussed at the meeting, however this site will be discussed with NJDEP when the Final RAR is submitted.

Upon receipt of the Final RAR, based on supporting documentation demonstrating compliance with soil cleanup standards as discussed during this meeting, Mr Zalaskus indicated the NJDEP would provide a No Further Action letter for the 800 Area site and a No Further Action with Restrictions for the 400 Area (due to cleanup to non-residential standards) regarding soil conditions at these sites

UST Closure reports for the tanks with case numbers that were removed from the 803 Area (three tanks), the 800 Area Credit Union lot (two tanks) and the former Building 884 site (one tank) will be submitted in the near future As demonstrated in the meeting, cleanup of soils for all these cases has been completed in compliance with NJDEP requirements and, as discussed, closure will be approved by NJDEP upon receipt of said reports

Sincerely,

Douglas C Guenther
Environmental Protection Specialist
Directorate of Public Works

cc File

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 800-1 REG.#: NA -

DATE: 7 30-03 TOA 10:00 TOD:

SSE: Harold Hornung NJDEP CERT #. 0011047

REMOVAL CONTRACTOR TVS Inc. PWS-007

CLOSURE SUPERVISOR. Harold Hornung NJDEP CERT #: 0011047

WEATHER: Cloudy Low 80's, low Humidity 0-5mph east wind

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	Y
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (609-292-7172), CASE# Doug Gwenthler	Y
PHOTOS HAVE UST#, BLDG #, DATE, TIME, NAME OF SSE AND DESCR WRITTEN ON BACK	Y
GROUNDWATER WAS ENCOUNTERED AT ____ FEET BG, A SHEEN (WAS/WAS NOT) OBSERVED ON GW	NA
IF OVA WAS USED WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	Y
IF SAMPLES WERE TAKEN. COC, SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	Y
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM, 1992	Y
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seq	Y
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	Y
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	Y
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	Y
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH) SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE MAP (SAMPLING), SRF-CLOSURE, CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS (IN YDS^3), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	

CHECK ALL BOXES, LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A C. 7 14B-9 2(b)3 and 7 26 et seq. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment

Closure Tech (print Name): Harold Hornung Date 7-30-03

SIGNATURE Harold Hornung

Upon removal of the 1,000 gallon UST stained soil was found along the bottom of the excavation and along the southern wall. The UST has many holes and rusting on all sides.

11:00 AM Excavate 5 cu yds of petro contaminated soil and transport to 166 pad. (Stack piling clean over burden soil separately)

1200 Excavate next 5 cu yds of contaminated " "

1330 Excavate next 5 cu yds of contaminated " "

1340 Sampled excavation

1415 Backfilled

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 800-1 REG.#: NA -

DATE: 7 30-03 TOA: 10'00 TOD:

SSE Harold Hornung NJDEP CERT.# 0011047

REMOVAL CONTRACTOR: TVS Inc. PWS-007

CLOSURE SUPERVISOR Harold Hornung NJDEP CERT.# 0011047

WEATHER: Cloudy Low 80's, low Humidity 0-5mph east wind

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	Y
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (609-292-7172), CASE# _____ Doug Gwentler	Y
PHOTOS HAVE UST#, BLDG #, DATE, TIME, NAME OF SSE AND DESCR WRITTEN ON BACK	Y
GROUNDWATER WAS ENCOUNTERED AT ____ FEET BG, A SHEEN (WAS/WAS NOT) OBSERVED ON GW	NA
IF OVA WAS USED WAS IT CAL. AND FOUND TO BE OPERATIONAL (cal data on COC)	Y
IF SAMPLES WERE TAKEN: COC, SCALED SITE MAP (VERT. SOIL HORIZONS AND PLOT PLAN)	Y
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM, 1992	Y
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seq	Y
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	Y
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	Y
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	Y
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH)	
SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE MAP (SAMPLING), SRF-CLOSURE, CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS(IN YDS^3), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	

CHECK ALL BOXES, LEAVE NO BLANKS

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SIGNATURE: Harold Hornung

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1330 Excavate next 5 cuyds of contaminated " "

1340 Sampled excavation

1415 Backfilled

800 AREA,

UST's Known as

800-1

800-2

etc...

ENVIROSCAN, INC

Appleby

DPW

10-22-08

Compare Survey to Actual USTs Removed.

Appendix B

GPR Survey Results

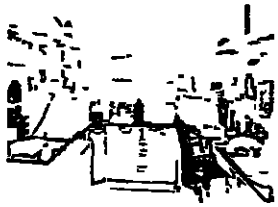
Project No. 030301, Fort Monmouth, NJ

Target Number	Easting	Northing	Description	Method	Confirmed UST
1	2173762.327	538474 106	7' x 14' High amplitude parabolic reflector	TW-6/GPR	1-K Removed
2	2173489.047	538275 903	6' x 10' High amplitude parabolic reflector	TW-6/GPR	500 gal Removed
3	2173474 031	538098 7216	Multiple utility lines, poor signal penetration using GPR	TW-6/GPR	
4	2173338 893	538014.6354	Linear anomaly from storm sewer line towards Building 814	TW-6	
5	2173350 905	537492 1004	3' x 4' High amplitude parabolic reflector	TW-6/GPR	
6	2174185 76	538504.1366	Reinforced concrete sidewalk, Poor signal penetration using GPR	TW-6/GPR	
7	2174218 794	538480 112	Reinforced concrete sidewalk, Poor signal penetration using GPR	TW-6/GPR	
8	2174161 736	538486.1182	Reinforced concrete sidewalk, Poor signal penetration using GPR	TW-6/GPR	
9	2174290 868	538314 943	8' x 13' EM anomaly	TW-6	1K Removed
10	2174356 935	538275 903	8' x 12' EM anomaly	TW-6	1-K Removed
11	2174386 966	538296 9244	Reinforced Concrete Sidewalk	TW-6/GPR	

TARGET NUMBER	EASTING	NORTHING	DESCRIPTION	METHOD	
12	2174419 548	538221 331	Multiple point target EM anomalies	TW-6	1K Removed
13	2174486 068	538176 8014	5' x 5' EM anomaly	TW-6	
14	2174444 025	538107 7308	8' x 14' High amplitude parabolic reflector	TW-6/GPR	1K Removed
15	2174227 803	538176 8014	8' x 14' High amplitude parabolic reflector	TW-6/GPR	1-K Removed.
16	2174152.726	538230 8568	7' x 14' High amplitude parabolic reflector	TW-6/GPR	1-K Removed
17	2174128 702	538215 8414	4' x 5' High amplitude parabolic reflector, near surface	TW-6/GPR	
18	2174113 686	538131 7554	5' x 6' High amplitude parabolic reflector	TW-6/GPR	
19	2174185 76	538089 7124	7' x 13' High amplitude parabolic reflector	TW-6/GPR	1-K Removed.
20	2174254 831	538047 6692	6' x 12' High amplitude parabolic reflector	TW-6/GPR	1-K Removed.
21	2174320 899	538002 6232	8' x 13' High amplitude parabolic reflector	TW-6/GPR	1-K Removed
22	2174386 966	537963 5832	6' x 14' High amplitude parabolic reflector	TW-6/GPR	1K Removed
23	2174510 092	537756 371	Small metal tube at surface, no Subsurface target detected	TW-6/GPR	
24	2174509 92368	537754 6006	Reinforced Concrete Sidewalk	TW-6/GPR	

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
800-1A, North Wall	3044701	Soil	30-July-03 13 40	07/30/03
800-1B, East Wall	3044702	Soil	30-July-03 13 45	07/30/03
800-1C, South Wall	3044703	Soil	30-July-03 13 55	07/30/03
800-20D, West Wall	3044704	Soil	30-July-03 14 10	07/30/03
800-20E, Center	3044705	Soil	30-July-03 14 00	07/30/03
800-1, Duplicate	3044706	Soil	30-July-03 14 00	07/30/03

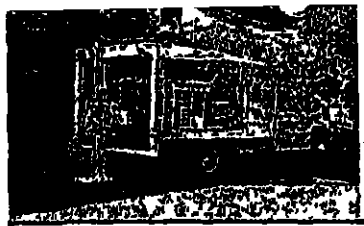
FORT MONMOUTH ENVIRONMENTAL LAB
TPHC, % SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

11-28-05
Daniel Wright/Date
Laboratory Director

Table of Contents

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-3484 EMail appleby@mail1 monmouth army mil
NJDEP Certification #13461

Chain of Custody Record

Customer: Joseph Fallon	Project No 03-38200	Analysis Parameters							Comments:
Phone #: (732) 532-6223	Location 800 Area								Methanol/ 4C
(X)DERA ( )OMA ( )Other: UST Assessment									
Samplers Name/Company: Harold Hornung/TVS	Sample	#	TPHC	VOA+15	%SOLIDS			VOA ID NUMBER	PID Reading	Remarks / Preservation Method
Lims I D # / Sample Location / Date / Time / Type / bottles										
30447 01 800-1A North wall 7.30-03 1340 Soil 2			X	X	X			3484	0	Ice Depth 8.5 bgs
02 800-1B East wall 1345 2			X	X	X			3485	0	
03 800-1C South wall 1355 2			X	X	X			3486	0	
04 800-1D West wall 1410 2			X	X	X			3487	0	
05 800-1E Center 1400 2			X	X	X			3488	0	
06 800-1 Duplicate 1400 2			X	X	X			3489	0	
07 Trip Blank 1340 Liquid 1				X	X			3490	0	NA

Relinquished by (signature)	Date/Time	Received by (signature)	Relinquished by (signature)	Date/Time	Received by (signature)
	7-30-03 1555				
Relinquished by (signature)	Date/Time	Received by (signature)	Relinquished by (signature)	Date/Time	Received by (signature)

Report Type ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified
Turnaround time ( )Standard 4 wks, (X)Rush 2 Days, ( )ASAP Verbal ___ Hrs

Remarks: TPHC all below 1000 no VOA

print legibly

800 Area rle7/29/2003

200002

US ARMY - FT MONMOUTH, NJ

800 AREA - UST #800-1
SOIL SAMPLE GPS POSITIONS & COORDINATES
US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

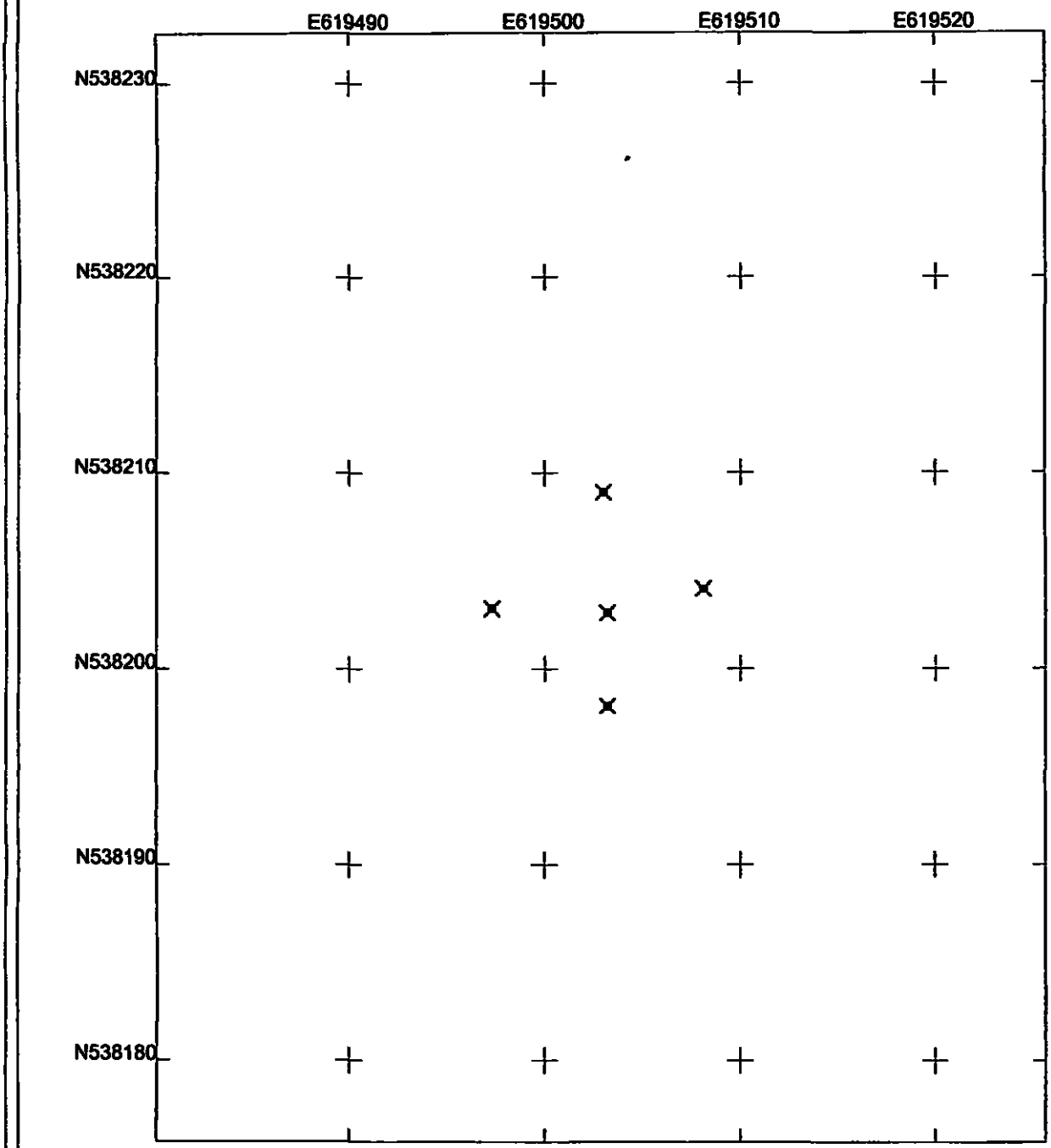
(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
800-1A North Wall	538209 04	619502 967
800-1B East Wall	538204 135	619508 073
800-1C South Wall	538198 129	619503 168
800-1D West Wall	538203 134	619497 262
800-1E Center	538202 913	619503 166

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 #800-1 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

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: 30447

Site: 800 Area
UST #1

	Date	Hold Time
Date Sampled	07/30/03	NA
Receipt/Refrigeration	07/30/03	NA
Extraction		
1 TPHC	07/31/03	14 days
Analyses		
1 TPHC	08/07/03	40 days

CONFORMANCE/ NON-CONFORMANCE SUMMARY

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	_____
6	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted	_____
7	Analysis holding time met (If not met list number of days exceeded for each sample) _____ _____	_____

Additional comments _____
_____
_____

Laboratory Manager _____ Date 11-28-05

TPHC

Report of Analysis
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***	*07-Aug-03*
Injection Volume .	1uL	**Analyst :**	B Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
3044701	800-1A	1 00	15 11	77 15	194	ND
3044702	800-1B	1.00	15 01	83 96	180	246.00
3044703	800-1C	1 00	15 18	84 10	177	ND
3044704	800-1D	1 00	15 07	86 71	173	ND
3044705	800-1E	1.00	15 54	70 62	206	ND
3044706	800-1 Duplicate	1.00	15 38	71.50	206	ND
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

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 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

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

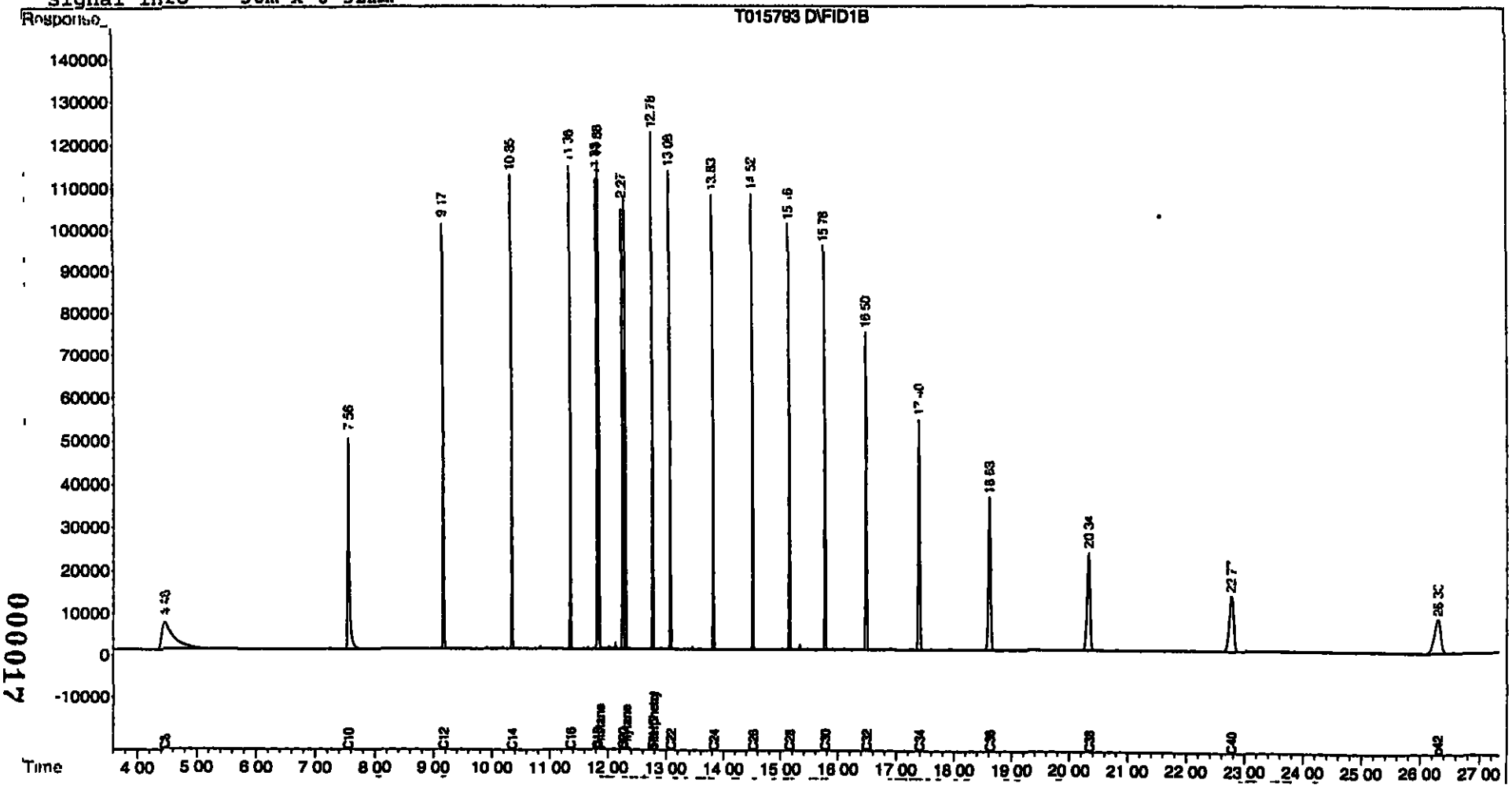
(f)=RT Delta > 1/2 Window (m)=manual int

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



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

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
Quant Time. Aug 6 13 34 2003 Quant Results File TPH103 RES

Vial 100
Operator BPatel
Inst GC/MS Ins
Multiplr 1 00

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

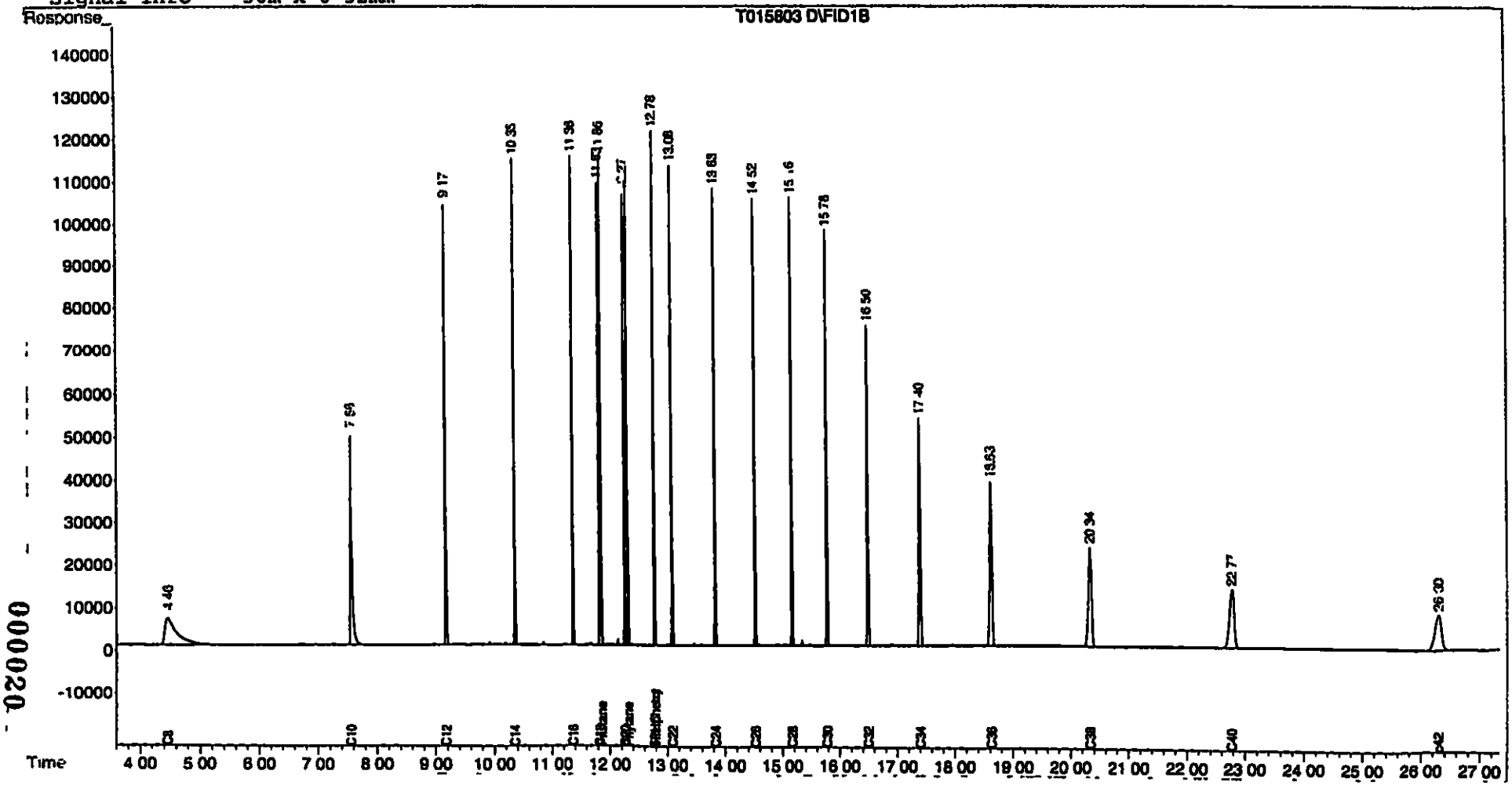
(f)=RT Delta > 1/2 Window (m)=manual int

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



Evaluate Continuing Calibration Report

Data File C:\HPCHEM\1\DATA\030807\T015840 D
Acq On 7 Aug 2003 7.20 pm
Sample Tstd050
Misc
IntFile TPHCINT E

Vial 16
Operator BPatel
Inst GC/MS Ins
Multiplr 1 00

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

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 : 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

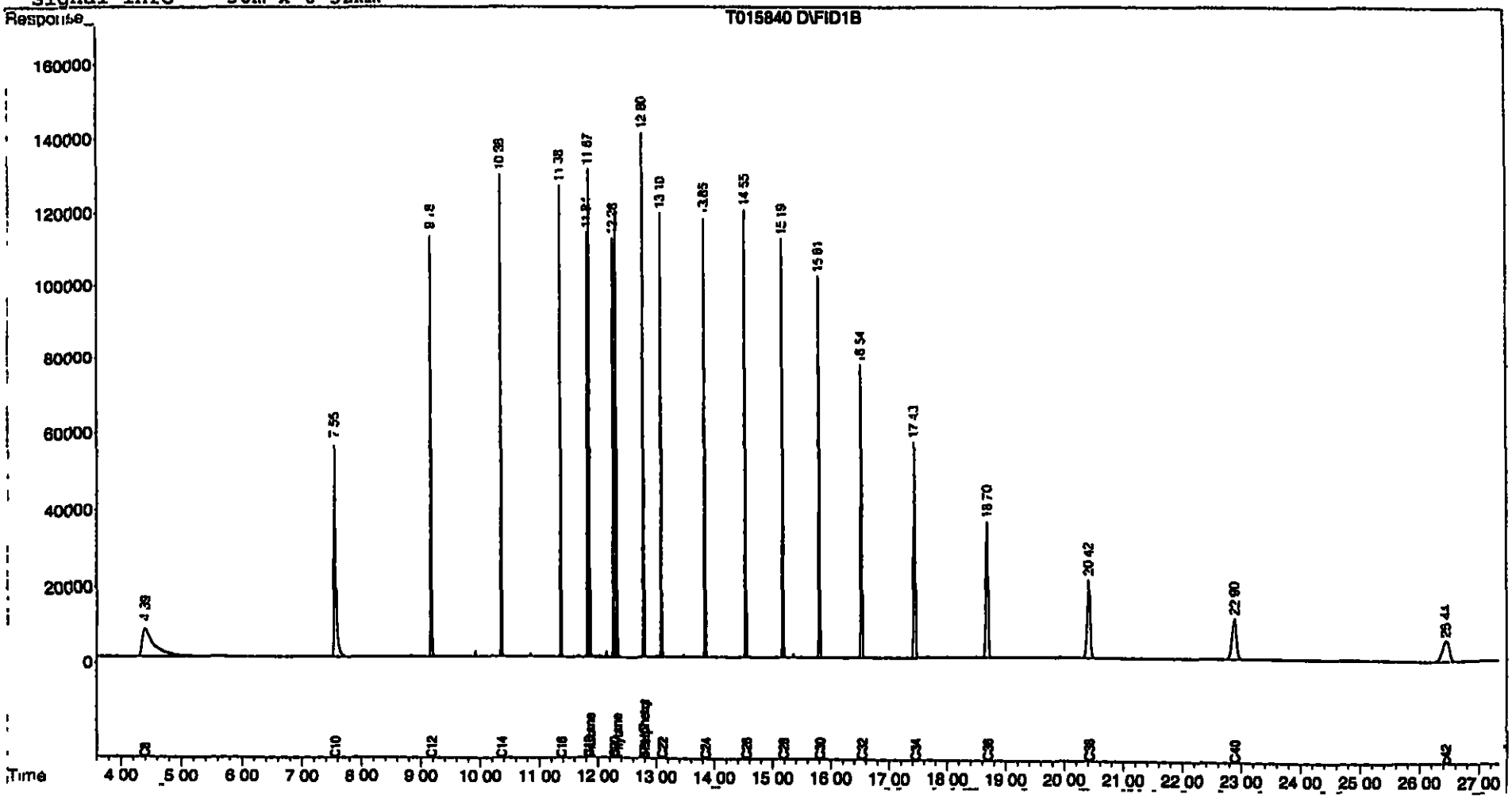
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030807\T015840.D 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 Multiple Level Calibration
DataAcq Meth TPH104 M

Volume Inj 1 ul
Signal Phase HP-5
Signal Info 30m x 0 32mm



T015840 D TPH104 M Tue Aug 12 11 37 57 2003

Evaluate Continuing Calibration Report

Data File C:\HPCHEM\1\DATA\030807\T015849 D Vial: 25
Acq On 8 Aug 2003 12:40 am 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	19.529 E3	6.1	92	0 00
2	tC C10	23 326	22.499 E3	3 5	98	0 00
3	TC C12	22 899	22 070 E3	3 6	97	0 00
4	tC C14	22.810	22 020 E3	3 5	96	0 00
5	tC C16	23.106	22 352 E3	3.3	96	0.00
6	tC C18	22.250	21.524 E3	3.3	97	0 00
7	tC C20	21.905	21.142 E3	3 5	96	0 00
8	tC C22	22.902	22 166 E3	3.2	96	0.00
9	tC C24	22 978	22 212 E3	3.3	96	0 00
10	tC C26	22.996	22.255 E3	3 2	96	0 00
11	tC C28	22.914	22.172 E3	3 2	96	0 00
12	tC C30	23.280	22.544 E3	3 2	96	0 00
13	tC C32	23.064	22.203 E3	3 7	95	0 00
14	tC C34	22.880	21.053 E3	8 0	90	0 00
15	tC C36	23 222	18.613 E3	19.8	78	0 00
16	tC C38	22.418	14.502 E3	35.3#	63	-0 01
17	tC C40	21 967	11 383 E3	48 2#	50	-0.02
18	tC c42	20 657	9.041 E3	56 2#	42#	-0 05
19	TC Pristane	23 046	22 364 E3	3 0	99	0 00
20	TC Phytane	23.180	22 286 E3	3 9	96	0 00
21	sC o-terphenyl	26.758	25.680 E3	4 0	96	0.00
22	tC TPHC - total	26 307	22.513 E3	14 4	90	0.00

Quantitation Report (QT Reviewed)

Data File C.\HPCHEM\1\DATA\030807\T015849 D Vial 25
Acq On 8 Aug 2003 12:40 am Operator BPatel
Sample Tstd050 Inst GC/MS Ins
Misc Multiplr 1.00
IntFile TPHCINT E
Quant Time. Aug 12 11.14 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	1284000	47.985 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 479 85%#	
Target Compounds			
1) tC C8	4.39	976473	46.962 mg/L
2) tC C10	7.55	1124966	48.228 mg/L
3) TC C12	9.18	1103517	48 190 mg/L
4) tC C14	10 36	1100994	48.268 mg/L
5) tC C16	11 38	1117582	48.367 mg/L
6) tC C18	11 84	1076212	48.369 mg/L m
7) tC C20	12 28	1057110	48.260 mg/L
8) tC C22	13.10	1108286	48.392 mg/L
9) tC C24	13 85	1110581	48 332 mg/L
10) tC C26	14 55	1112770	48.389 mg/L
11) tC C28	15.19	1108606	48.381 mg/L
12) tC C30	15.81	1127220	48.420 mg/L
13) tC C32	16.54	1110135	48.132 mg/L
14) tC C34	17.45	1052673	46.008 mg/L
15) tC C36	18 69	930644	40.076 mg/L
16) tC C38	20 42	725121	32 345 mg/L
17) tC C40	22 89	569129	25 909 mg/L
18) tC c42	26.44	452048	21.883 mg/L
19) TC Pristane	11.87	1118180	48 520 mg/L m
20) TC Phytane	12 33	1114311	48.071 mg/L
22) tC TPHC - total	12 80	22512666	855 755 mg/L m

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

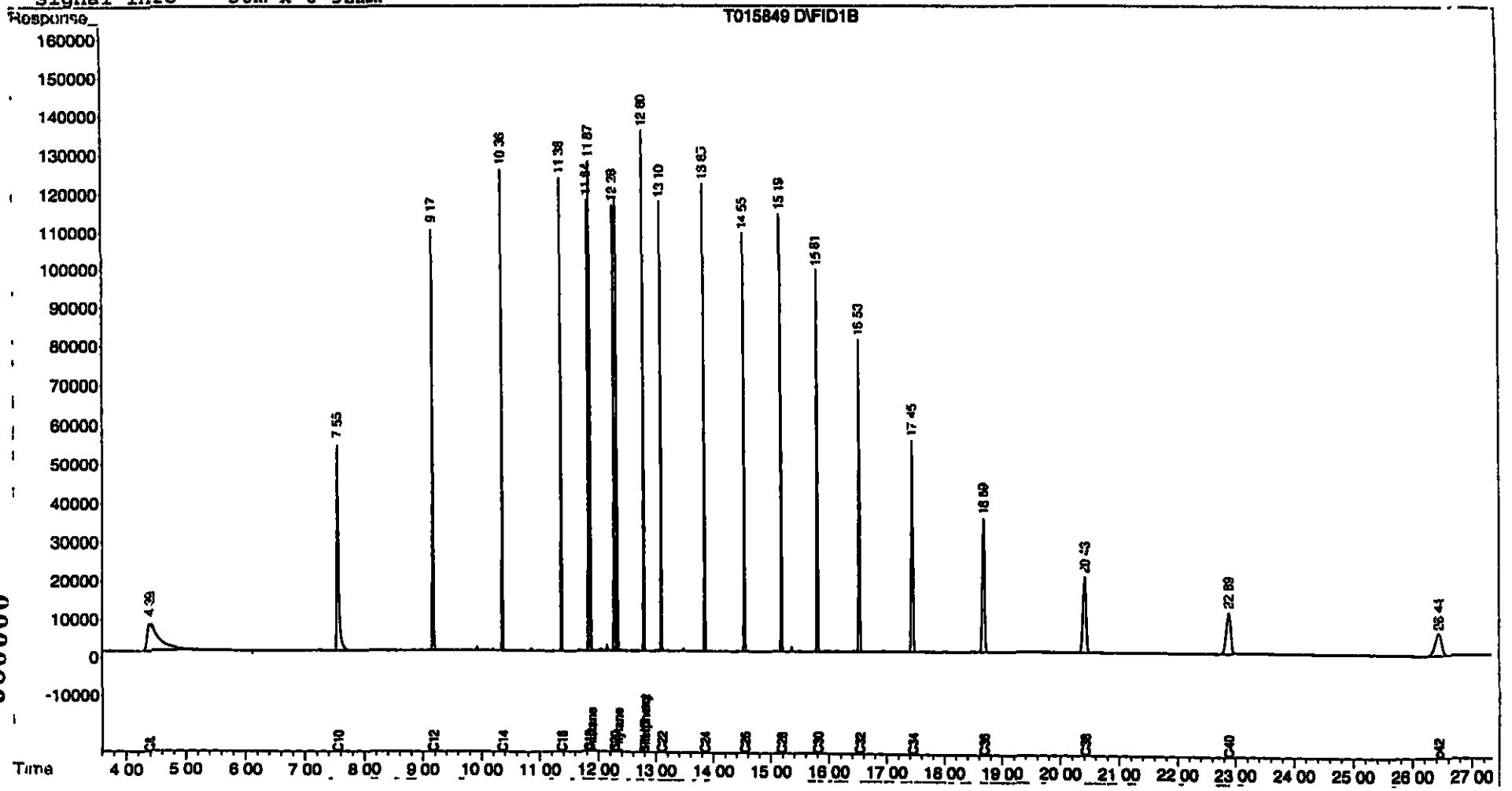
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030807\T015849 D
Acq On 8 Aug 2003 12 40 am
Sample Tstd050
Misc
IntFile TPHCINT E
Quant Time Aug 12 11 14 2003 Quant Results File TPH104 RES

Vial: 25
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



Evaluate Continuing Calibration Report

Data File C:\HPCHEM\1\DATA\030808\T015850 D Vial 76
Acq On 8 Aug 2003 2 03 pm Operator. BPatel
Sample Tstd050 Inst GC/MS Ins
Misc TP080803 01 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	20.532 E3	1.3	96	0.00
2	tC	C10	23 326	23 182 E3	0 6	101	0.00
3	TC	C12	22 899	22 962 E3	-0 3	100	0 00
4	tC	C14	22 810	23 001 E3	-0 8	100	0.00
5	tC	C16	23.106	23 378 E3	-1 2	101	0 00
6	tC	C18	22.250	22 591 E3	-1 5	102	0 00
7	tC	C20	21.905	22.009 E3	-0 5	100	0.00
8	tC	C22	22.902	23.222 E3	-1 4	101	0.00
9	tC	C24	22.978	23.275 E3	-1 3	101	0 00
10	tC	C26	22.996	23 304 E3	-1 3	101	0 00
11	tC	C28	22 914	23 199 E3	-1 2	101	0.00
12	tC	C30	23 280	23 632 E3	-1 5	100	0.00
13	tC	C32	23 064	23 443 E3	-1 6	100	0.00
14	tC	C34	22 880	23 443 E3	-2 5	101	0.00
15	tC	C36	23 222	24 107 E3	-3 8	101	0.00
16	tC	C38	22.418	23 559 E3	-5 1	102	0.00
17	tC	C40	21 967	23.310 E3	-6 1	103	0.00
18	tC	c42	20 657	21.983 E3	-6 4	103	0.00
19	TC	Pristane	23 046	23 287 E3	-1 0	103	0.00
20	TC	Phytane	23 180	23.255 E3	-0 3	100	0.00
21	sC	o-terphenyl	26.758	26 797 E3	-0 1	100	0.00
22	tC	TPHC - total	26.307	25.410 E3	3 4	102	0 00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
T015850 D TPH104 M Tue Aug 12 15 21 42 2003

Quantitation Report (QT Reviewed)

Data File : C \HPCHEM\1\DATA\030808\T015850.D Vial 76
Acq On : 8 Aug 2003 2 03 pm Operator BPatel
Sample . Tstd050 Inst GC/MS Ins
Misc : TP080803.01 Multiplr 1 00
IntFile : TPHCINT E
Quant Time. Aug 12 11 16 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	1339858	50.073 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 500 73%#	
Target Compounds			
1) tC C8	4 39	1026601	49 373 mg/L
2) tC C10	7 55	1159124	49 693 mg/L
3) TC C12	9 18	1148086	50 136 mg/L
4) tC C14	10 36	1150040	50 419 mg/L
5) tC C16	11 38	1168886	50 588 mg/L
6) tC C18	11 84	1129558	50 766 mg/L m
7) tC C20	12.28	1100470	50.239 mg/L
8) tC C22	13.10	1161085	50 697 mg/L
9) tC C24	13 85	1163750	50 646 mg/L
10) tC C26	14.55	1165189	50 669 mg/L
11) tC C28	15.19	1159955	50 622 mg/L
12) tC C30	15.81	1181591	50 755 mg/L
13) tC C32	16 54	1172150	50.821 mg/L
14) tC C34	17 46	1172168	51.230 mg/L
15) tC C36	18.70	1205364	51 906 mg/L
16) tC C38	20 44	1177956	52 545 mg/L
17) tC C40	22 91	1165499	53 058 mg/L
18) tC c42	26 48	1099138	53 209 mg/L
19) TC Pristane	11 87	1164332	50 523 mg/L m
20) TC Phytane	12 33	1162775	50 162 mg/L
22) tC TPHC - total	12.80	25410394	965 904 mg/L m

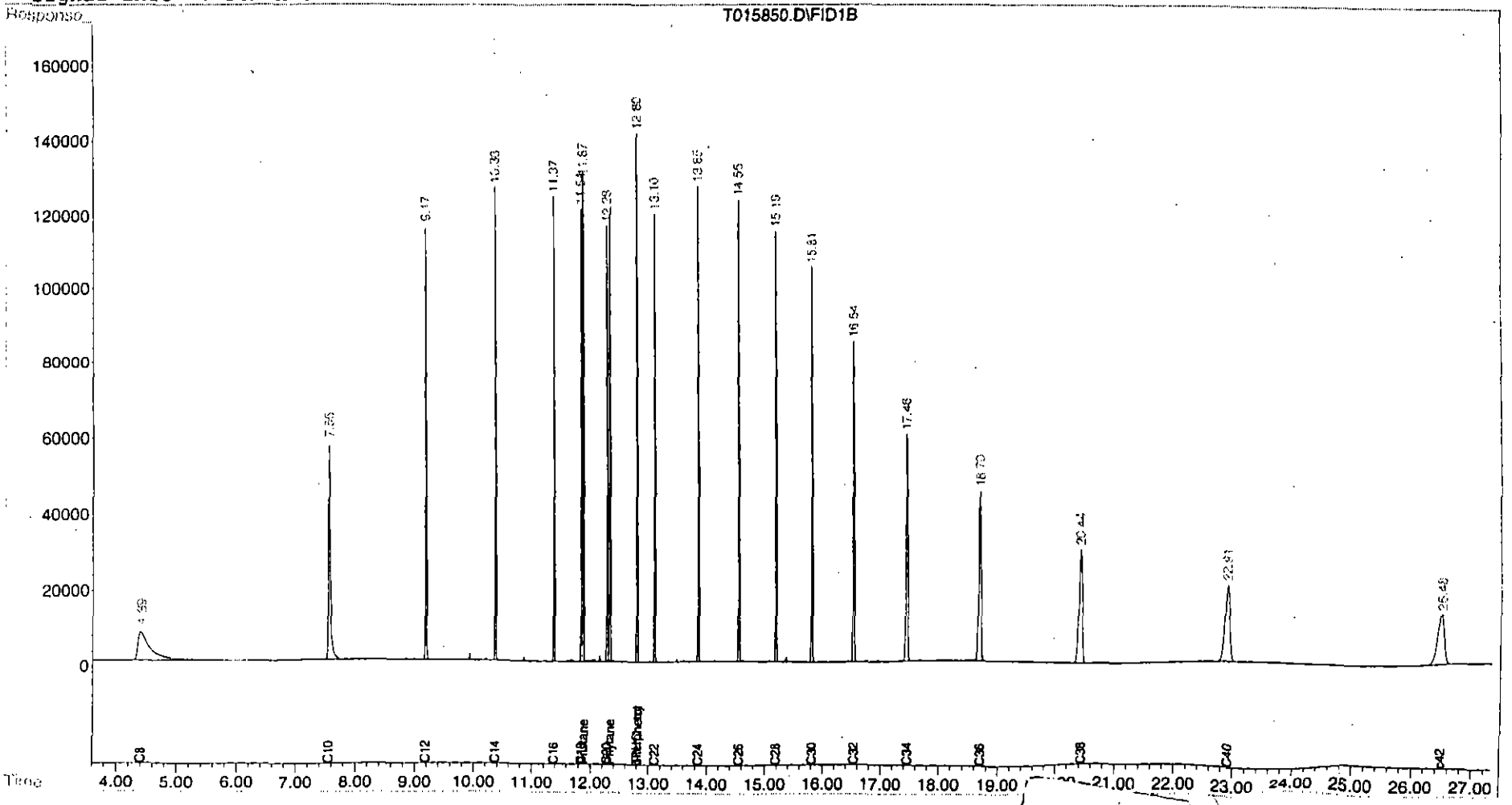
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030808\T015850.D Vial: 76
Acq On : 8 Aug 2003 2:03 pm Operator: BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc : TP080803.01 Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:16 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



620029

Evaluate Continuing Calibration Report

Data File C:\HPCHEM\1\DATA\030808\T015861 D
Acq On 8 Aug 2003 8 32 pm
Sample Tstd050
Misc
IntFile TPHCINT E

Vial 87
Operator BPatel
Inst GC/MS Ins
Multiplr 1 00

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	23.205 E3	-11 6	109	0.00
2	tC	C10	23.326	25.419 E3	-9 0	110	0.00
3	TC	C12	22 899	25.352 E3	-10.7	111	0 00
4	tC	C14	22 810	25.431 E3	-11.5	111	0 00
5	tC	C16	23.106	25 819 E3	-11 7	111	0.00
6	tC	C18	22 250	24 816 E3	-11 5	112	0.00
7	tC	C20	21.905	24 458 E3	-11 7	111	0.00
8	tC	C22	22.902	25.697 E3	-12 2	111	0 00
9	tC	C24	22.978	25.772 E3	-12 2	112	0 00
10	tC	C26	22 996	25.840 E3	-12 4	112	0 00
11	tC	C28	22 914	25.738 E3	-12.3	112	0 00
12	tC	C30	23.280	26.182 E3	-12 5	111	0.00
13	tC	C32	23.064	25.789 E3	-11.8	110	0.00
14	tC	C34	22.880	24.481 E3	-7.0	105	0 00
15	tC	C36	23.222	21.432 E3	7.7	90	0 00
16	tC	C38	22.418	16.411 E3	26.8#	71	0.00
17	tC	C40	21.967	12 745 E3	42.0#	56	-0 02
18	tC	c42	20 657	9 961 E3	51.8#	47#	-0.04
19	TC	Pristane	23 046	25.727 E3	-11.6	114	0.00
20	TC	Phytane	23 180	25 768 E3	-11 2	111	0.00
21	sC	o-terphenyl	26 758	29 730 E3	-11 1	111	0.00
22	tC	TPHC - total	26 307	25 624 E3	2 6	103	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 3

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030808\T015861.D Vial: 87
Acq On : 8 Aug 2003 8:32 pm Operator: BPatel
Sample : Tstd050 Inst: GC/MS Ins
Misc Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Aug 12 11:18 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	1486501	55.553 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery = 555.53%#	
Target Compounds			
1) tC C8	4.40	1160246	55.800 mg/L
2) tC C10	7.55	1270956	54.487 mg/L
3) TC C12	9.18	1267602	55.355 mg/L
4) tC C14	10.36	1271569	55.747 mg/L
5) tC C16	11.38	1290967	55.871 mg/L
6) tC C18	11.84	1240822	55.767 mg/L m
7) tC C20	12.28	1222899	55.828 mg/L
8) tC C22	13.10	1284847	56.101 mg/L
9) tC C24	13.85	1288619	56.080 mg/L
10) tC C26	14.55	1292002	56.183 mg/L
11) tC C28	15.19	1286890	56.161 mg/L
12) tC C30	15.81	1309080	56.232 mg/L
13) tC C32	16.54	1289457	55.907 mg/L
14) tC C34	17.46	1224035	53.497 mg/L
15) tC C36	18.70	1071602	46.146 mg/L
16) tC C38	20.43	820544	36.602 mg/L
17) tC C40	22.89	637228	29.009 mg/L
18) tC c42	26.45	498047	24.110 mg/L
19) TC Pristane	11.87	1286349	55.818 mg/L m
20) TC Phytane	12.33	1288400	55.582 mg/L
22) tC TPHC - total	12.80	25624444	974.040 mg/L m

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

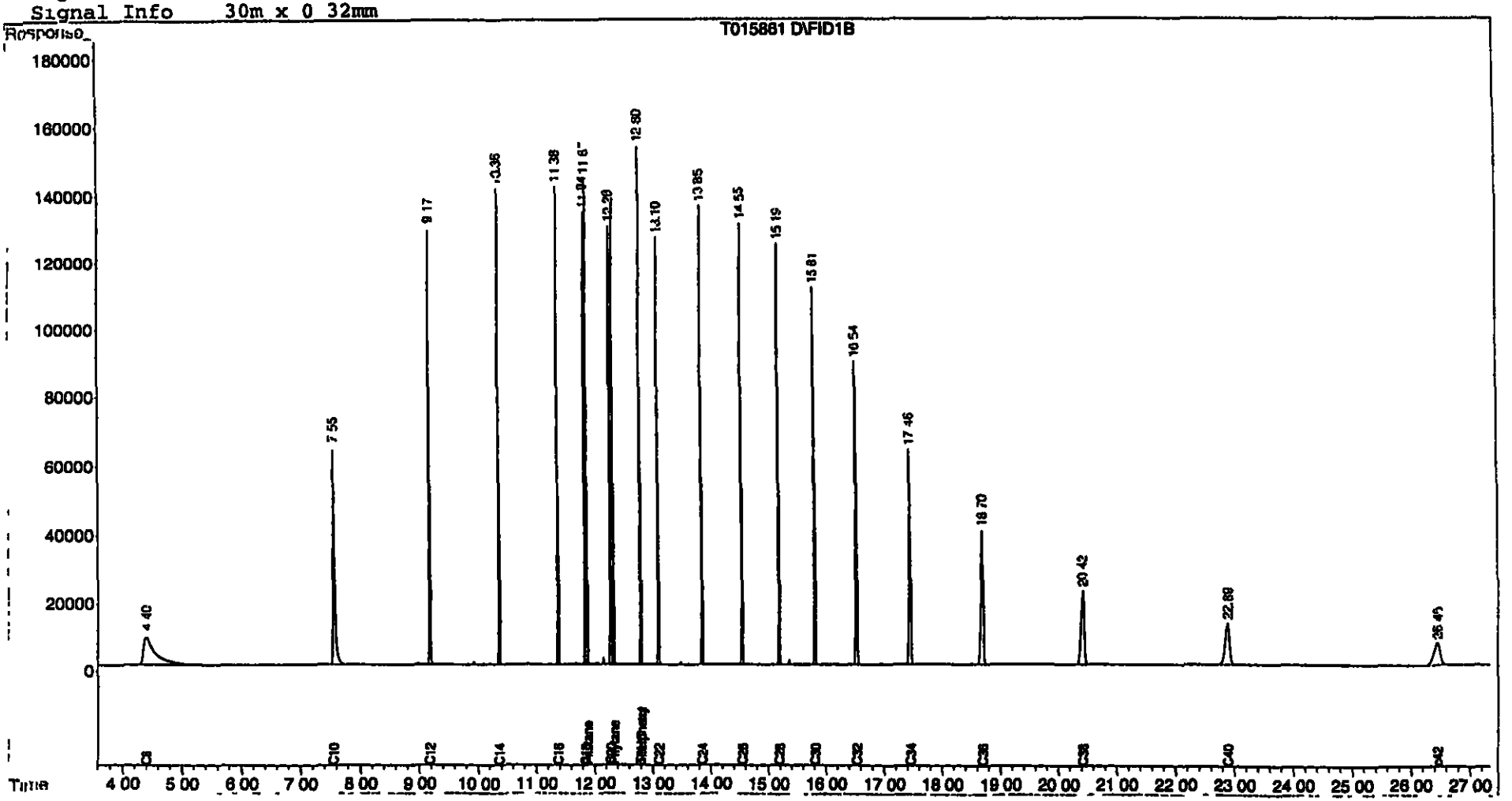
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030808\T015861 D
Acq On 8 Aug 2003 8.32 pm
Sample Tstd050
Misc
IntFile TPHCINT E
Quant Time Aug 12 11 18 2003 Quant Results File: TPH104 RES

Vial: 87
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



000032

Evaluate Continuing Calibration Report

Data File C \HPCHEM\1\DATA\030808\T015872 D
Acq On 9 Aug 2003 3 05 am
Sample Tstd050
Misc TP080803 01
IntFile TPHCINT E

Vial 98
Operator BPatel
Inst . GC/MS Ins
Multiplr 1.00

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	19 622 E3	5 6	92	0 00
2	tC	C10	23.326	22 898 E3	1 8	99	0.00
3	TC	C12	22 899	22 745 E3	0 7	99	0.00
4	tC	C14	22 810	22 730 E3	0 4	99	0 00
5	tC	C16	23.106	23 026 E3	0 3	99	0.00
6	tC	C18	22.250	22 273 E3	-0 1	100	0.00
7	tC	C20	21.905	21 788 E3	0 5	99	0.00
8	tC	C22	22 902	22 862 E3	0 2	99	0 00
9	tC	C24	22.978	22 907 E3	0 3	99	0 00
10	tC	C26	22 996	22 958 E3	0 2	99	0.00
11	tC	C28	22 914	22 885 E3	0 1	99	0.00
12	tC	C30	23 280	23 317 E3	-0 2	99	0.00
13	tC	C32	23 064	23 146 E3	-0 4	99	0.00
14	tC	C34	22 880	23 178 E3	-1 3	99	0.00
15	tC	C36	23 222	23 811 E3	-2 5	100	0.00
16	tC	C38	22 418	23 290 E3	-3.9	101	0 00
17	tC	C40	21.967	23 011 E3	-4 8	102	0 00
18	tC	c42	20 657	21 811 E3	-5 6	102	0.00
19	TC	Pristane	23 046	23 094 E3	-0.2	102	0.00
20	TC	Phytane	23.180	22 978 E3	0 9	99	0.00
21	sC	o-terphenyl	26.758	26 508 E3	0.9	99	0.00
22	tC	TPHC - total	26.307	24 827 E3	5 6	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
T015872 D TPH104 M Tue Aug 12 15 21 53 2003

Quantitation Report (QT Reviewed)

Data File : C.\HPCHEM\1\DATA\030808\T015872 D Vial: 98
Acq On : 9 Aug 2003 3.05 am Operator BPatel
Sample : Tstd050 Inst : GC/MS Ins
Misc TP080803 01 Multiplr 1 00
IntFile : TPHCINT E
Quant Time: Aug 12 11 20 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	1325391	49 532 mg/L
Spiked Amount 10 000 Range 8 - 13		Recovery = 495.32%#	
Target Compounds			
1) tC C8	4 39	981120	47.185 mg/L
2) tC C10	7 55	1144883	49 082 mg/L
3) TC C12	9 18	1137256	49.663 mg/L
4) tC C14	10.36	1136519	49 826 mg/L
5) tC C16	11.38	1151276	49 826 mg/L
6) tC C18	11.84	1113632	50.050 mg/L m
7) tC C20	12.28	1089400	49.734 mg/L
8) tC C22	13 10	1143080	49 911 mg/L
9) tC C24	13.85	1145330	49 844 mg/L
10) tC C26	14.55	1147922	49 918 mg/L
11) tC C28	15.19	1144235	49.936 mg/L
12) tC C30	15.81	1165839	50.079 mg/L
13) tC C32	16 54	1157290	50.177 mg/L
14) tC C34	17 46	1158914	50.651 mg/L
15) tC C36	18 70	1190570	51 269 mg/L
16) tC C38	20 44	1164518	51 946 mg/L
17) tC C40	22 92	1150527	52 376 mg/L
18) tC c42	26 48	1090563	52.794 mg/L
19) TC Pristane	11 87	1154681	50 104 mg/L m
20) TC Phytane	12 33	1148905	49 564 mg/L
22) tC TPHC - total	12 80	24826507	943 709 mg/L m

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

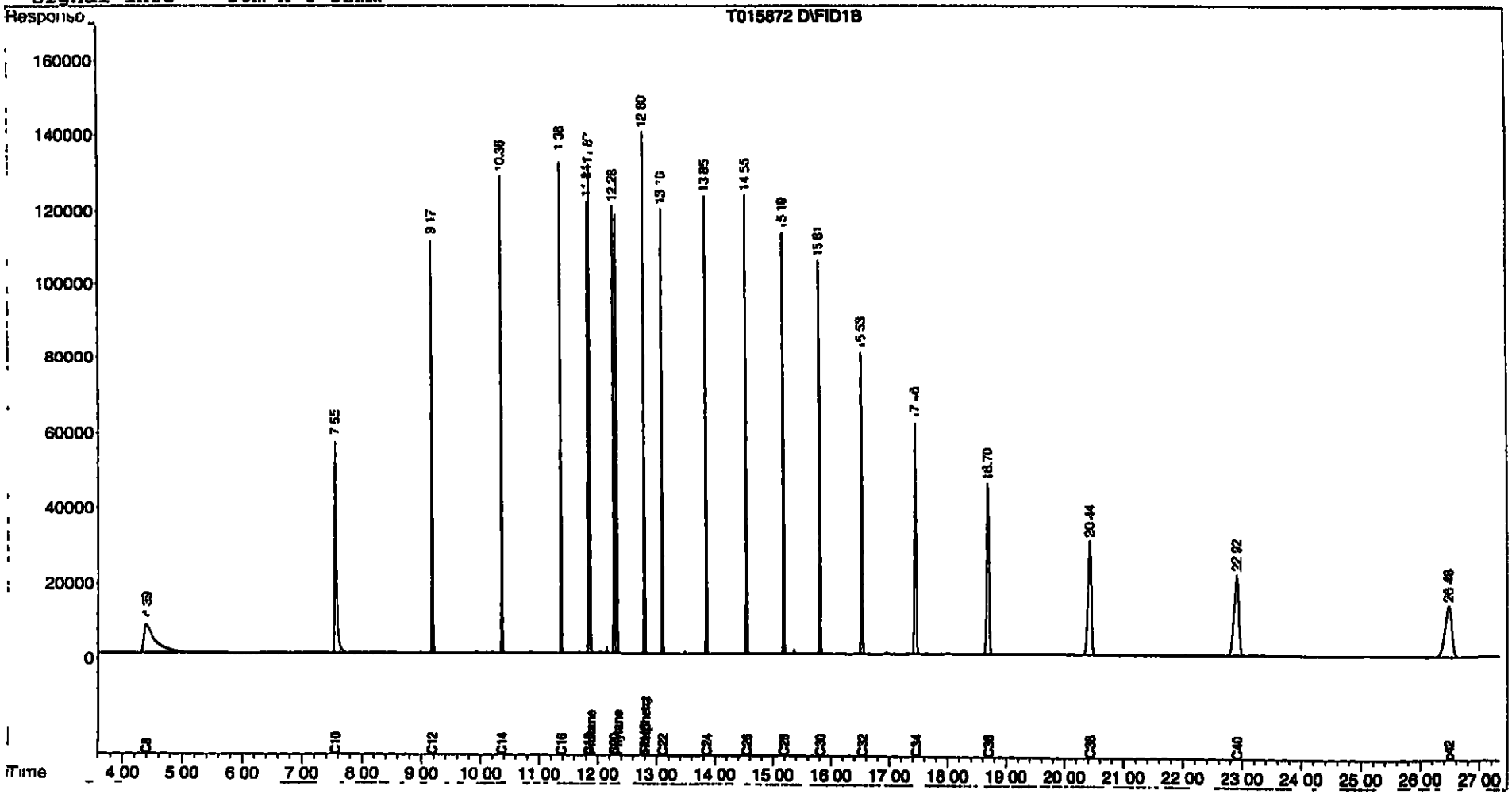
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030808\T015872 D
Acq On 9 Aug 2003 3·05 am
Sample Tstd050
Misc TP080803 01
IntFile TPHCINT E
Quant Time Aug 12 11 20 2003 Quant Results File TPH104 RES

Vial· 98
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



000035

Evaluate Continuing Calibration Report

Data File . C.\HPCHEM\1\DATA\030808\T015878.D Vial 4
Acq On 9 Aug 2003 6·39 am Operator· BPatel
Sample Tstd050 Inst GC/MS Ins
Misc TP080803.01 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	21.950 E3	-5 6	103	0 00
2	tC	C10	23.326	22.820 E3	2 2	99	0.00
3	TC	C12	22.899	22 663 E3	1 0	99	0.00
4	tC	C14	22 810	22 677 E3	0.6	99	0.00
5	tC	C16	23 106	23 021 E3	0.4	99	0.00
6	tC	C18	22 250	22 863 E3	-2.8	103	0.00
7	tC	C20	21 905	21 770 E3	0 6	99	0.00
8	tC	C22	22.902	22.833 E3	0 3	99	0 00
9	tC	C24	22.978	22.851 E3	0 6	99	0.00
10	tC	C26	22.996	22 914 E3	0 4	99	0.00
11	tC	C28	22.914	22 831 E3	0 4	99	0.00
12	tC	C30	23.280	23.234 E3	0 2	99	0.00
13	tC	C32	23 064	22 894 E3	0 7	98	0 00
14	tC	C34	22 880	21 733 E3	5 0	93	0.00
15	tC	C36	23 222	19.020 E3	18 1	80	0 00
16	tC	C38	22 418	14.479 E3	35 4#	63	-0 01
17	tC	C40	21.967	11.127 E3	49.3#	49#	-0 03
18	tC	c42	20.657	8.687 E3	57 9#	41#	-0 06
19	TC	Pristane	23.046	22.602 E3	1.9	100	0.00
20	TC	Phytane	23.180	22.948 E3	1 0	99	0.00
21	sC	o-terphenyl	26 758	26 490 E3	1 0	99	0.00
22	tC	TPHC - total	26.307	22 716 E3	13.7	91	0 00

(#) = Out of Range SPCC's out = 0 CCC's out = 3
T015878 D TPH104 M Tue Aug 12 15 21 59 2003

Quantitation Report (QT Reviewed)

Data File C.\HPCHEM\1\DATA\030808\T015878 D Vial. 4
Acq On 9 Aug 2003 6 39 am Operator BPatel
Sample Tstd050 Inst GC/MS Ins
Misc TP080803 01 Multiplr: 1 00
IntFile TPHCINT E
Quant Time Aug 12 11 22 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	1324478	49.498 mg/L
Spiked Amount 10 000 Range 8 - 13		Recovery = 494 98%#	
Target Compounds			
1) tC C8	4 38	1097515	52 783 mg/L m
2) tC C10	7 55	1140997	48 916 mg/L
3) TC C12	9 18	1133128	49.483 mg/L
4) tC C14	10 36	1133853	49 709 mg/L
5) tC C16	11 38	1151044	49 816 mg/L
6) tC C18	11 84	1143140	51 377 mg/L m
7) tC C20	12 28	1088511	49 693 mg/L
8) tC C22	13 10	1141644	49 848 mg/L
9) tC C24	13 85	1142545	49.723 mg/L
10) tC C26	14 55	1145695	49.821 mg/L
11) tC C28	15 19	1141574	49.819 mg/L
12) tC C30	15 81	1161697	49 901 mg/L
13) tC C32	16 54	1144684	49.630 mg/L
14) tC C34	17 46	1086639	47 492 mg/L
15) tC C36	18 69	951018	40 953 mg/L
16) tC C38	20 42	723935	32 293 mg/L
17) tC C40	22 89	556336	25 327 mg/L
18) tC c42	26.44	434347	21 027 mg/L
19) TC Pristane	11.87	1130125	49 039 mg/L m
20) TC Phytane	12.33	1147398	49 499 mg/L
22) tC TPHC - total	12 80	22715990	863.484 mg/L m

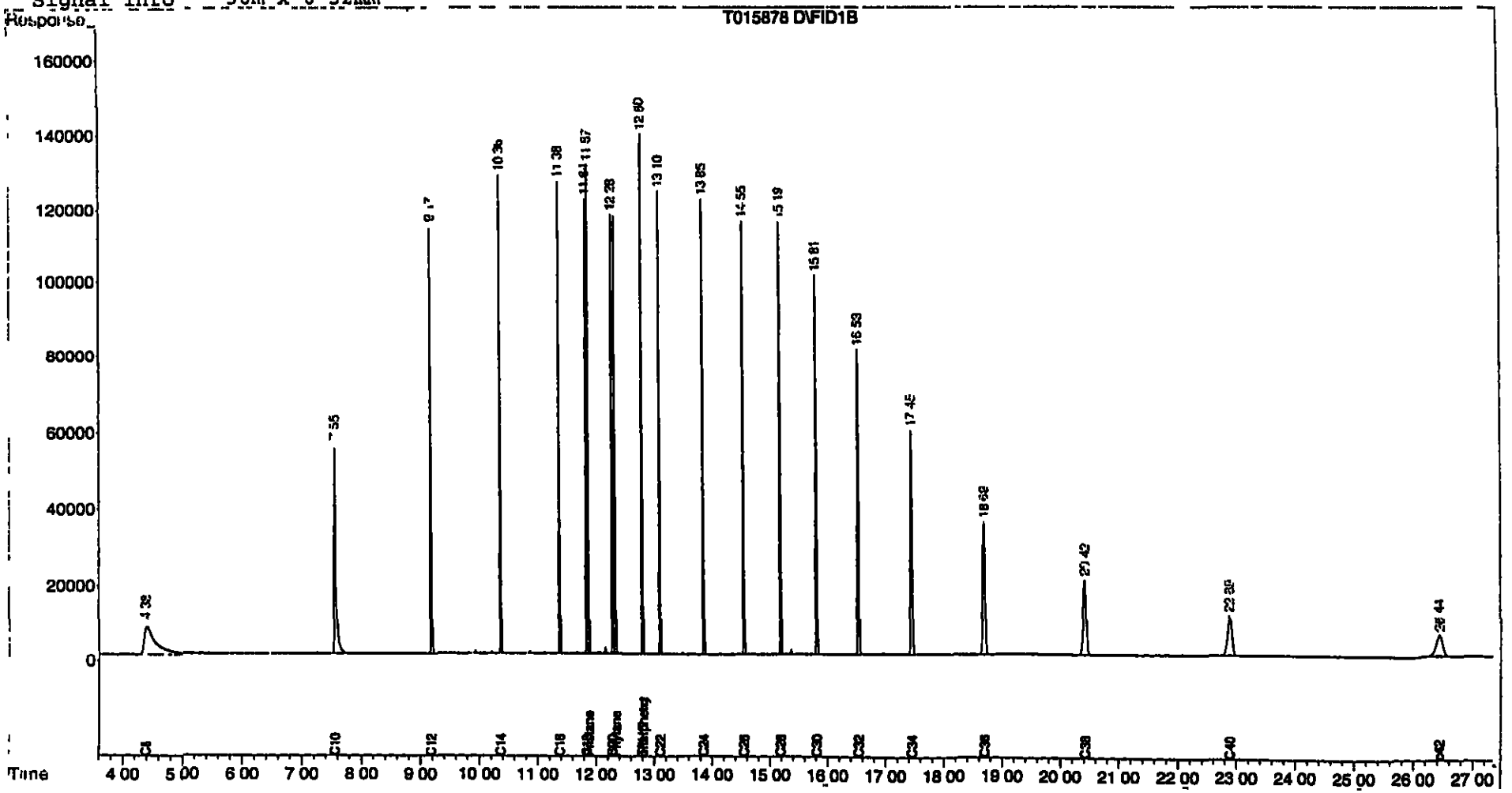
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File	C:\HPCHEM\1\DATA\030808\T015878.D	Vial:	4
Acq On	9 Aug 2003 6 39 am	Operator	BPatel
Sample	Tstd050	Inst	GC/MS Ins
Misc	TP080803 01	Multiplr	1.00
IntFile	TPHCINT.E		
Quant Time	Aug 12 11 22 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



T015878 D TPH104 M Tue Aug 12 15 03 16 2003

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\030811\T015890 D Vial. 87
Acq On . 11 Aug 2003 9 10 pm Operator: BPatel
Sample Tstd050 Inst : GC/MS Ins
Misc TP081103 01 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	20 621 E3	0.8	97	-0 06
2	tC	C10	23 326	23 344 E3	-0 1	101	-0 03
3	TC	C12	22 899	23 192 E3	-1 3	101	-0 03
4	tC	C14	22 810	23 225 E3	-1.8	101	-0 02
5	tC	C16	23 106	23 598 E3	-2 1	102	-0.02
6	tC	C18	22 250	22.659 E3	-1 8	102	-0.02
7	tC	C20	21.905	22.194 E3	-1.3	101	-0 02
8	tC	C22	22 902	23 411 E3	-2.2	101	-0.02
9	tC	C24	22 978	23 446 E3	-2.0	102	-0.02
10	tC	C26	22 996	23 563 E3	-2.5	102	-0.02
11	tC	C28	22 914	23 501 E3	-2.6	102	-0.02
12	tC	C30	23 280	23.994 E3	-3 1	102	-0 02
13	tC	C32	23 064	23 869 E3	-3 5	102	-0 02
14	tC	C34	22.880	24 059 E3	-5 2	103	-0 02
15	tC	C36	23 222	25.061 E3	-7.9	105	-0 03
16	tC	C38	22.418	24.932 E3	-11.2	108	-0 04
17	tC	C40	21.967	24.916 E3	-13.4	110	-0 07
18	tC	c42	20.657	23.577 E3	-14.1	110	-0 10
19	TC	Pristane	23.046	23.647 E3	-2.6	105	-0 02
20	TC	Phytane	23 180	23.488 E3	-1.3	101	-0.02
21	sC	o-terphenyl	26.758	27 142 E3	-1.4	102	-0 02
22	tC	TPHC - total	26.307	25 572 E3	2 8	103	-0 02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
T015890 D TPH104 M Tue Aug 12 15 20 53 2003 Page 1

Data File C:\HPCHEM\1\DATA\030811\T015890 D Vial 87
Acq On 11 Aug 2003 9 10 pm Operator BPatel
Sample Tstd050 Inst GC/MS Ins
Misc . TP081103 01 Multiplr 1 00
IntFile : TPHCINT E
Quant Time. Aug 12 11 23 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 78	1357078	50 716 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	507.16%#
Target Compounds			
1) tC C8	4 34	1031064	49 587 mg/L
2) tC C10	7 52	1167212	50 039 mg/L
3) TC C12	9 15	1159608	50 639 mg/L
4) tC C14	10 34	1161254	50 910 mg/L
5) tC C16	11 36	1179890	51 064 mg/L
6) tC C18	11.82	1132967	50 919 mg/L m
7) tC C20	12.26	1109721	50.662 mg/L
8) tC C22	13.08	1170570	51.111 mg/L
9) tC C24	13.84	1172297	51.018 mg/L
10) tC C26	14 53	1178173	51.234 mg/L
11) tC C28	15 17	1175071	51 281 mg/L
12) tC C30	15.80	1199707	51.534 mg/L
13) tC C32	16 52	1193453	51.745 mg/L
14) tC C34	17 43	1202944	52.576 mg/L
15) tC C36	18 67	1253072	53.961 mg/L
16) tC C38	20.39	1246603	55.607 mg/L
17) tC C40	22.84	1245801	56.714 mg/L
18) tC c42	26.39	1178839	57 067 mg/L
19) TC Pristane	11.85	1182365	51 306 mg/L m
20) TC Phytane	12.31	1174389	50 663 mg/L
22) tC TPHC - total	12 77	25571552	972 030 mg/L m

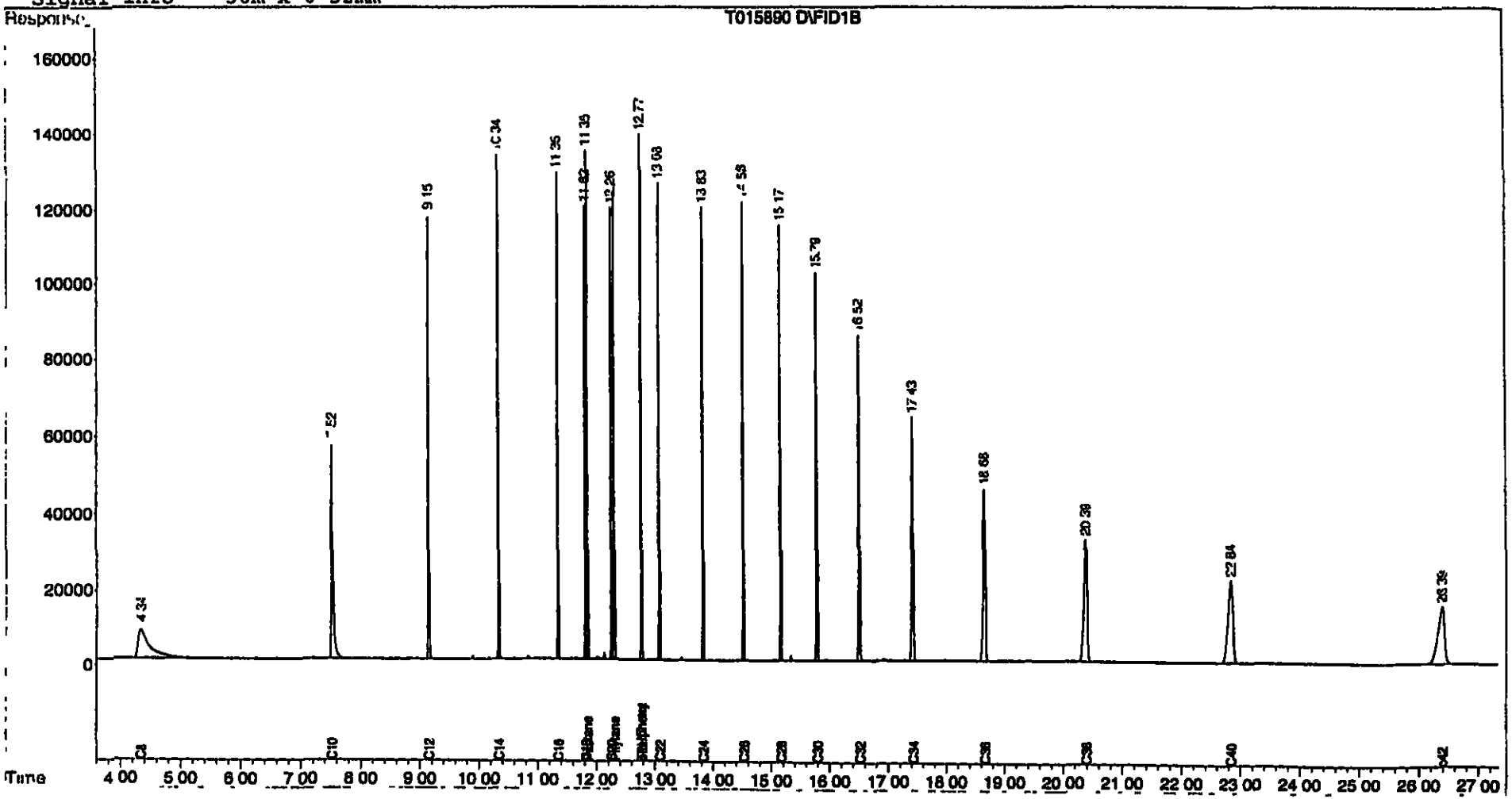
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030811\T015890 D Vial· 87
Acq On 11 Aug 2003 9 10 pm Operator: BPatel
Sample Tstd050 Inst · GC/MS Ins
Misc TP081103 01 Multiplr· 1 00
IntFile TPHCINT E
Quant Time Aug 12 11 23 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



000041

Evaluate Continuing Calibration Report

Data File C:\HPCHEM\1\DATA\030811\T015901 D Vial. 98
Acq On 12 Aug 2003 3 41 am 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	20 489 E3	1 5	96	-0 06
2	tC	C10	23 326	23.501 E3	-0 8	102	-0.03
3	TC	C12	22 899	23.382 E3	-2.1	102	-0.03
4	tC	C14	22 810	23.445 E3	-2 8	102	-0.02
5	tC	C16	23 106	23 820 E3	-3.1	103	-0.02
6	tC	C18	22 250	22 911 E3	-3.0	103	-0 02
7	tC	C20	21 905	22 507 E3	-2.7	102	-0.02
8	tC	C22	22 902	23 658 E3	-3.3	103	-0 02
9	tC	C24	22 978	23 751 E3	-3 4	103	-0.02
10	tC	C26	22 996	23 866 E3	-3 8	103	-0.02
11	tC	C28	22 914	23 841 E3	-4.0	103	-0.02
12	tC	C30	23 280	24 294 E3	-4.4	103	-0.02
13	tC	C32	23 064	24.167 E3	-4 8	103	-0.02
14	tC	C34	22 880	24.358 E3	-6.5	105	-0.03
15	tC	C36	23.222	25.387 E3	-9.3	107	-0 03
16	tC	C38	22.418	25.251 E3	-12.6	110	-0.04
17	tC	C40	21.967	25.255 E3	-15.0	111	-0 06
18	tC	c42	20.657	23 981 E3	-16.1	112	-0.10
19	TC	Pristane	23 046	23 756 E3	-3.1	105	-0 02
20	TC	Phytane	23 180	23.715 E3	-2.3	102	-0.02
21	sC	o-terphenyl	26 758	27.415 E3	-2.5	103	-0.02
22	tC	TPHC - total	26 307	26.061 E3	0.9	104	-0.02

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030811\T015901 D Vial. 98
Acq On 12 Aug 2003 3 41 am Operator BPatel
Sample Tstd050 Inst GC/MS Ins
Misc Multiplr 1 00
IntFile TPHCINT E
Quant Time Aug 12 11:26 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 78	1370757	51 228 mg/L
Spiked Amount 10 000 Range 8 - 13		Recovery = 512 28%#	
Target Compounds			
1) tC C8	4 34	1024455	49 270 mg/L
2) tC C10	7 52	1175071	50 376 mg/L
3) TC C12	9 15	1169084	51 053 mg/L
4) tC C14	10 34	1172239	51.392 mg/L
5) tC C16	11 36	1190982	51.544 mg/L
6) tC C18	11 82	1145540	51.484 mg/L m
7) tC C20	12 26	1125363	51.376 mg/L
8) tC C22	13 08	1182916	51.650 mg/L
9) tC C24	13 84	1187555	51.682 mg/L
10) tC C26	14.53	1193294	51.891 mg/L
11) tC C28	15.17	1192069	52.023 mg/L
12) tC C30	15.80	1214713	52.178 mg/L
13) tC C32	16.52	1208354	52 391 mg/L
14) tC C34	17 43	1217920	53.230 mg/L
15) tC C36	18.67	1269370	54 662 mg/L
16) tC C38	20 39	1262538	56.318 mg/L
17) tC C40	22.85	1262766	57.486 mg/L
18) tC c42	26.39	1199032	58.045 mg/L
19) TC Pristane	11.85	1187811	51.542 mg/L m
20) TC Phytane	12.31	1185765	51.154 mg/L
22) tC TPHC - total	12.78	26061254	990 645 mg/L m

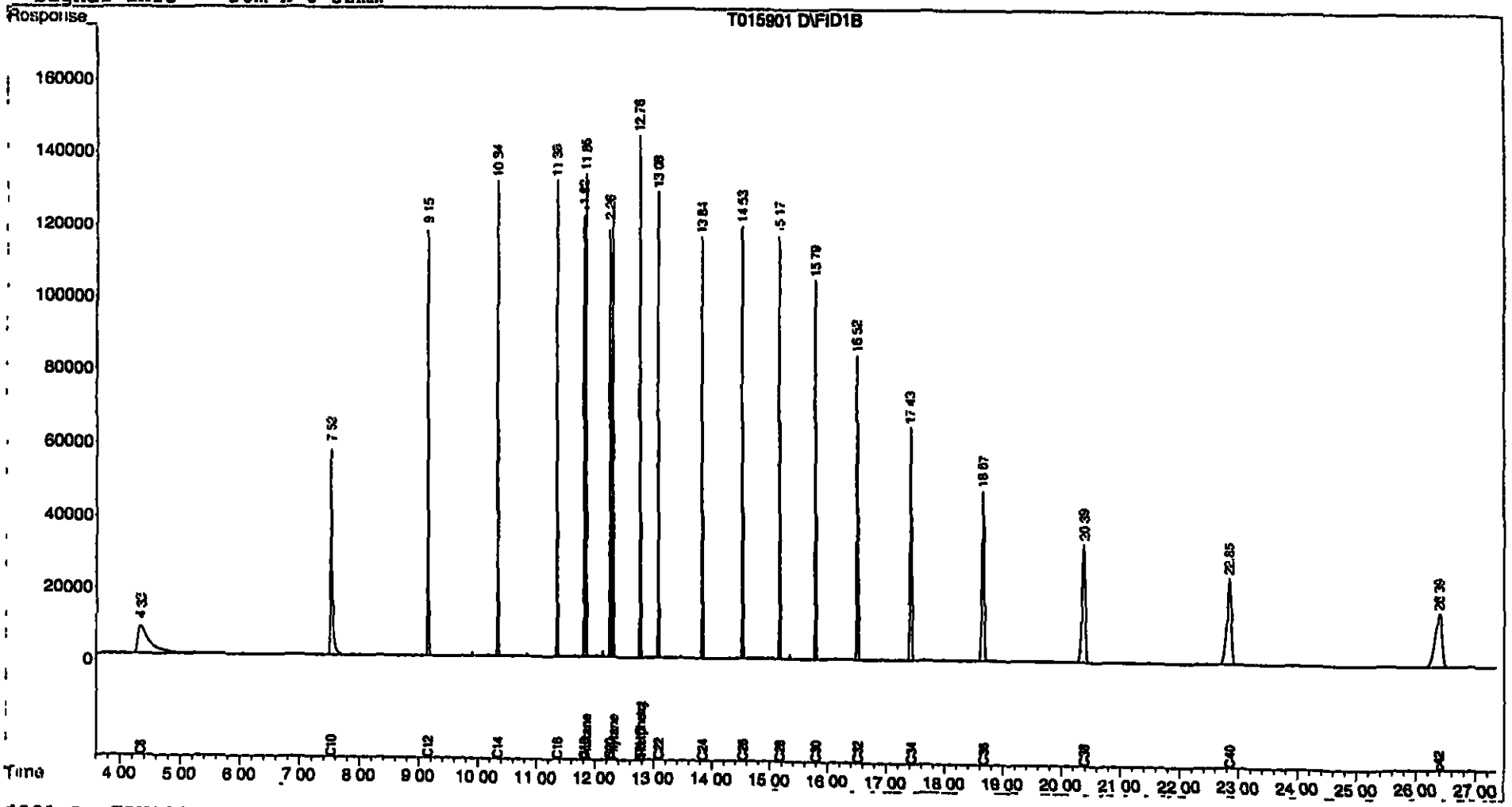
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030811\T015901.D Vial: 98
Acq On 12 Aug 2003 3 41 am Operator BPatel
Sample Tstd050 Inst · GC/MS Ins
Misc Multiplr 1 00
IntFile TPHCINT E
Quant Time Aug 12 11 26 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



000044

T015901 D TPH104 M Tue Aug 12 15 21:09 2003

Surrogate Recovery Report
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			Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3044701			10 00	9 74	97.41
3044702			10 00	11 74	117.41
3044703			10 00	9 63	96.29
3044704			10 00	12 11	121.10
3044705			10 00	11 34	113.43
3044706			10 00	9 65	96.46
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
T015830 D TPH104 M Tue Aug 12 13 10 32 2003

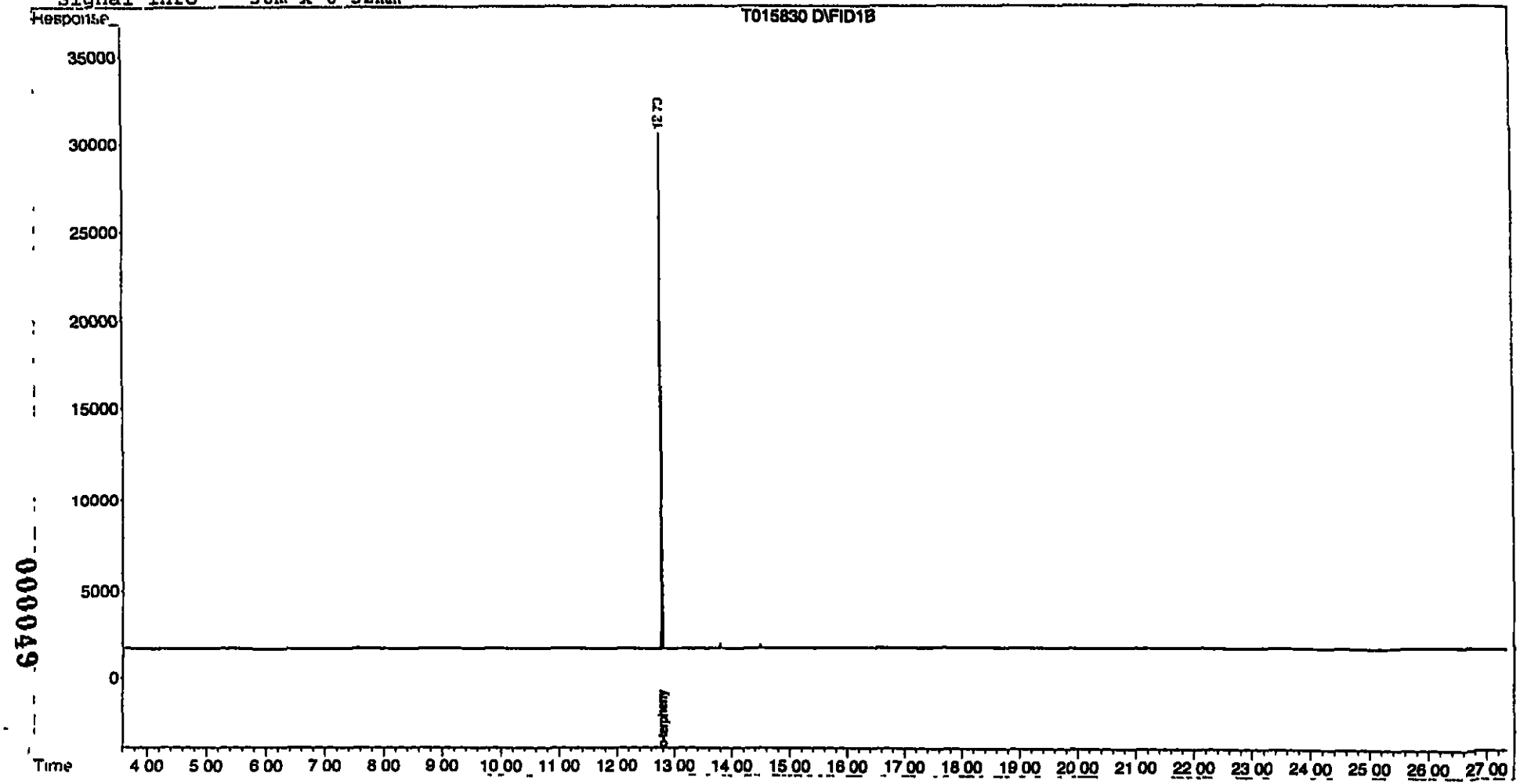
Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015830.D
Acq On 7 Aug 2003 1:23 pm
Sample MB-073103
Misc Soil
IntFile TPHCINT.E
Quant Time Aug 12 11:09 2003 Quant Results File: TPH104.RES

Vial: 6
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



Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030808\T015851 D Vial 77
Acq On 8 Aug 2003 2 38 pm Operator BPatel
Sample . MB-080803 Inst GC/MS Ins
Misc : Soil Multiplr 1 00
IntFile · TPHCINT E
Quant Time: Aug 12 11 16 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	245278	9 166 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	91.66%#
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int 000050
T015851 D TPH104 M Tue Aug 12 15 02 48 2003 Page 1

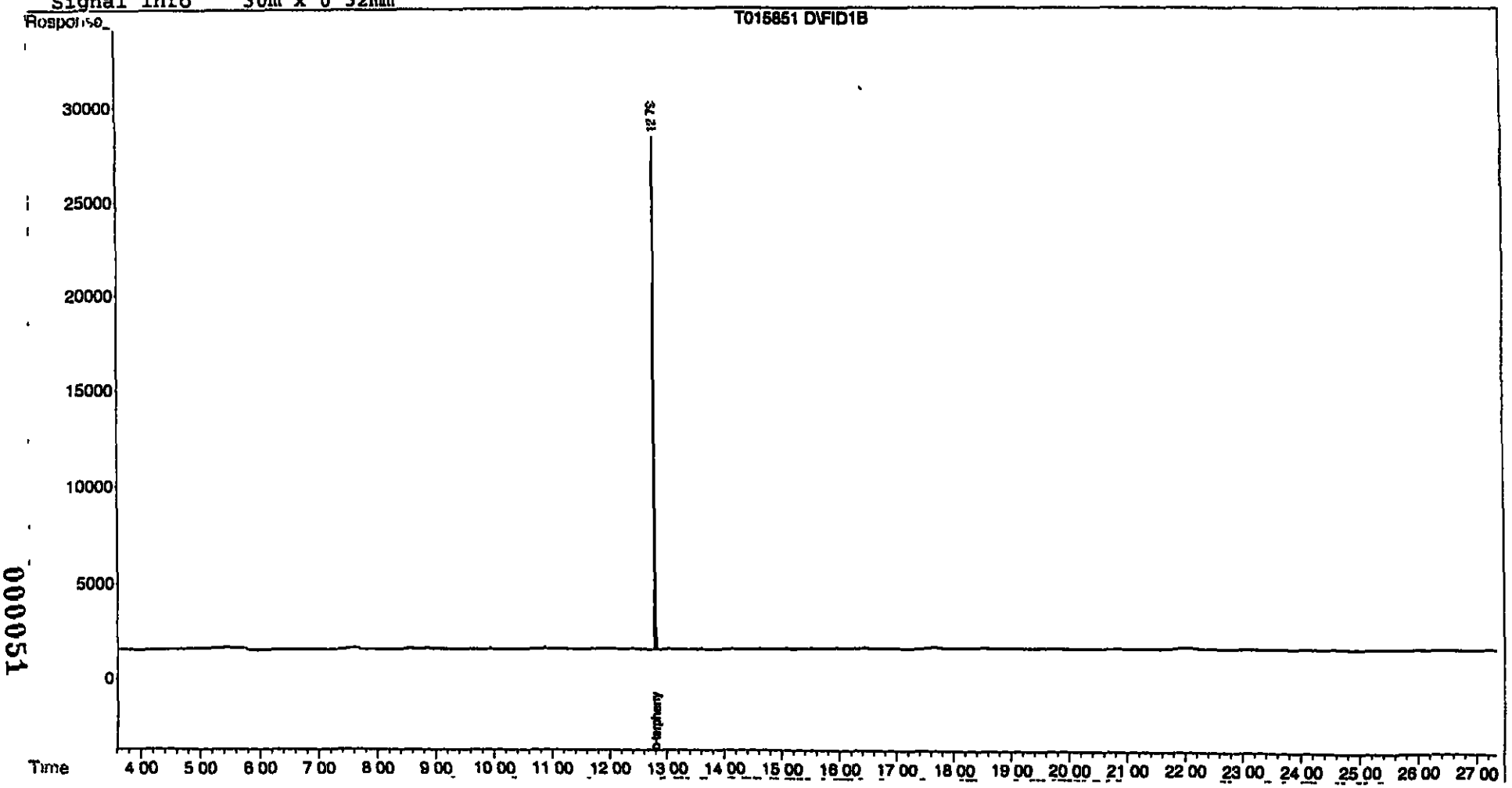
Quantitation Report (QT Reviewed)

Data File C:\HPCHEM\1\DATA\030808\T015851.D
Acq On 8 Aug 2003 2 38 pm
Sample MB-080803
Misc Soil
IntFile TPHCINT E
Quant Time Aug 12 11 16 2003 Quant Results File TPH104.RES

Vial: 77
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



0000051

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030807\T015847.D Vial 23
Acq On 7 Aug 2003 11·29 pm Operator BPatel
Sample · 3044701s Inst GC/MS Ins
Misc : Multiplr 1 00
IntFile TPHCINT E
Quant Time: Aug 12 11:13 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	260639	9 741 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	97 41%#
Target Compounds			

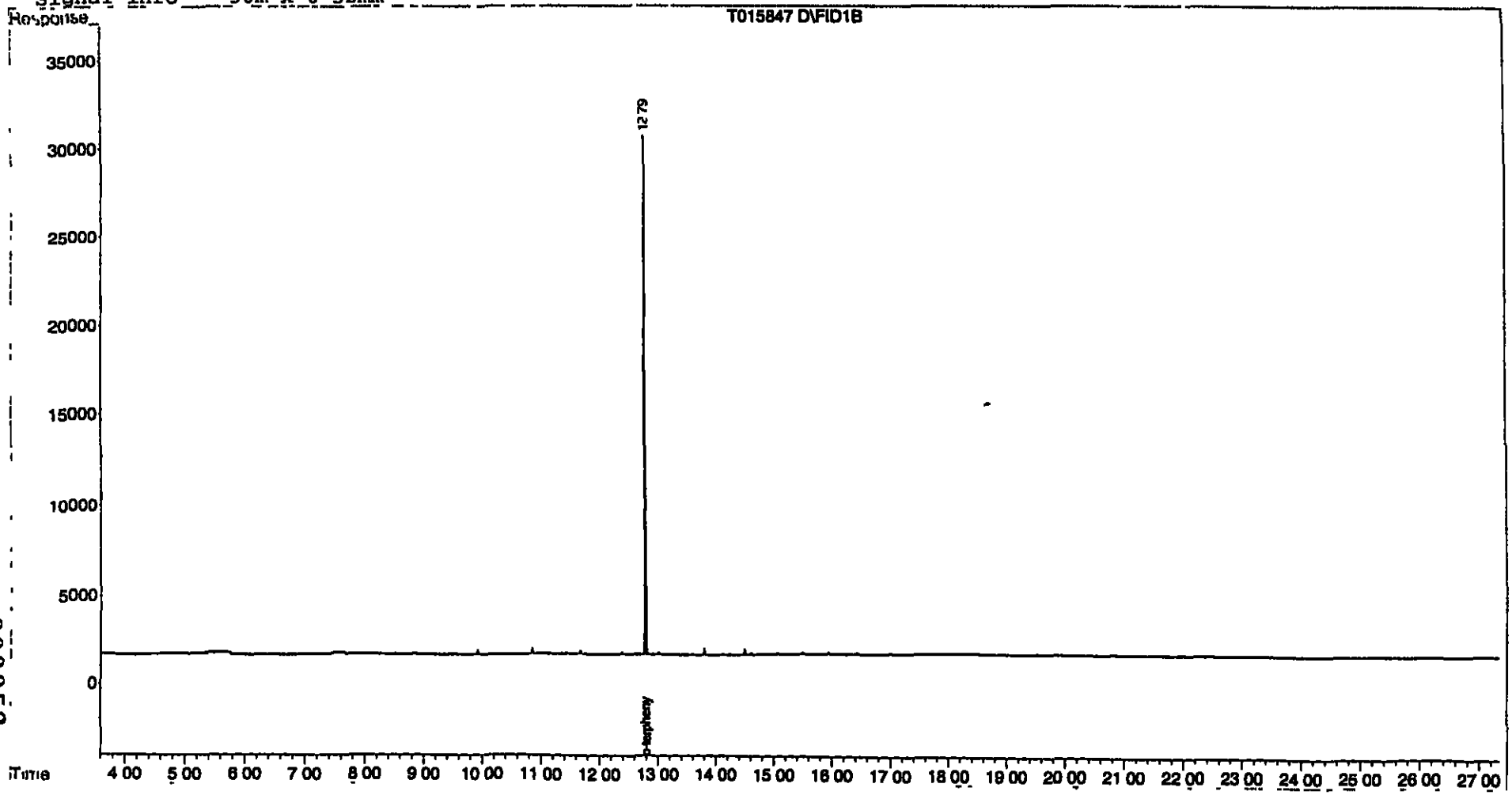
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030807\T015847 D
Acq On 7 Aug 2003 11 29 pm
Sample 3044701s
Misc
IntFile TPHCINT.E
Quant Time. Aug 12 11.13 2003 Quant Results File TPH104 RES

Vial 23
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



000053

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\030807\T015848 D
Acq On : 8 Aug 2003 12 05 am
Sample : 3044702s
Misc
IntFile : TPHCINT E
Quant Time: Aug 12 11·14 2003 Quant Results File· TPH104 RES

Vial 24
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 : 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	314178	11.741 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 117 41%#	
Target Compounds			
22) tC TPHC - total	12 79	1631241	62.007 mg/L m

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

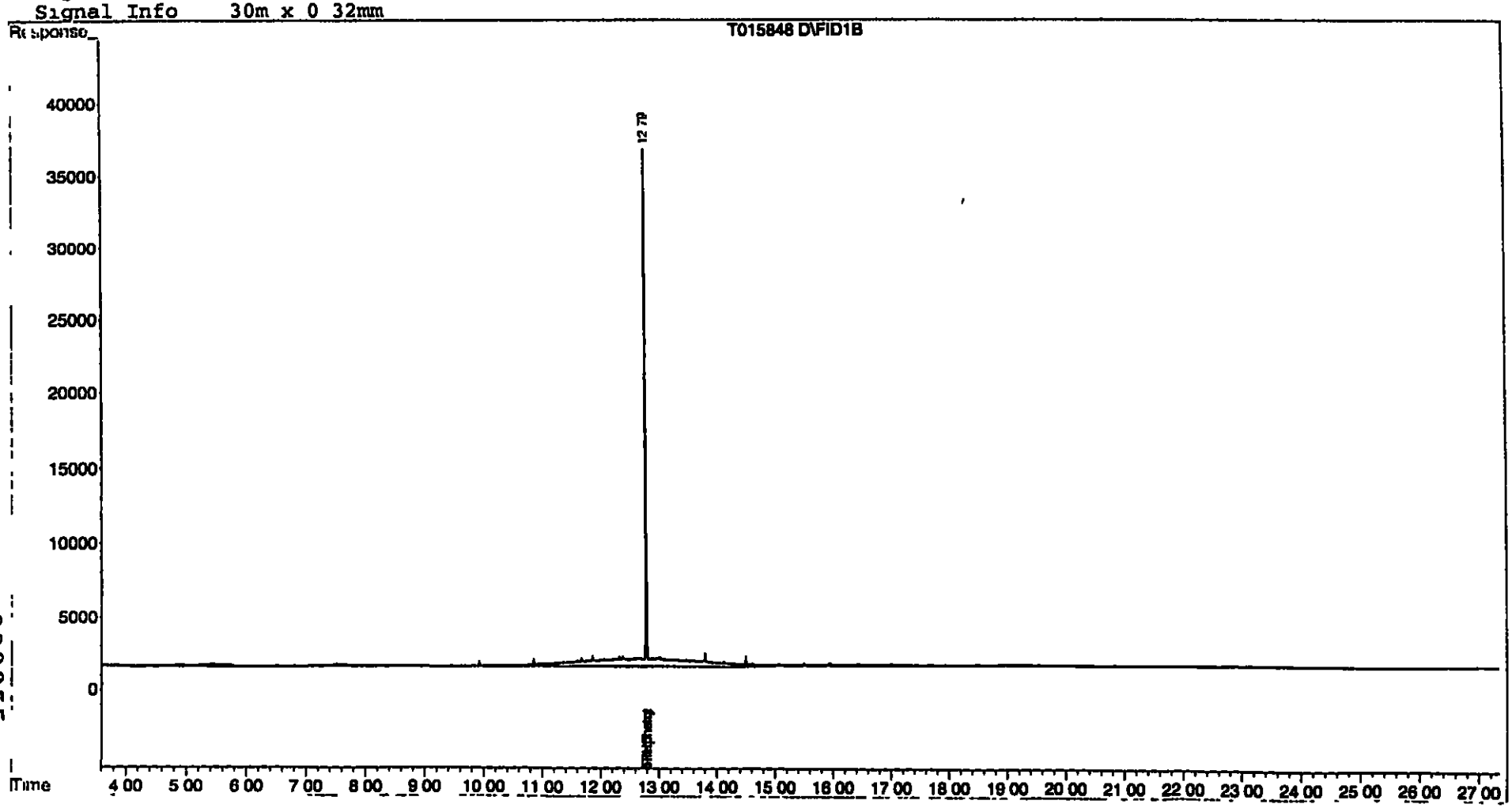
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030807\T015848.D
Acq On 8 Aug 2003 12 05 am
Sample 3044702s
Misc
IntFile TPHCINT E
Quant Time Aug 12 11 14 2003 Quant Results File TPH104 RES

Vial: 24
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



000055

Quantitation Report (QT Reviewed)

Data File : C \HPCHEM\1\DATA\030804\T015794 D
Acq On : 5 Aug 2003 12 14 am
Sample 3044703s
Misc
IntFile TPHCINT E
Quant Time Aug 12 10.26 2003 Quant Results File TPH103 RES

Vial 91
Operator BPatel
Inst . GC/MS Ins
Multiplr. 1 00

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	235410	9.629 mg/L
Spiked Amount 10 000	Range 8 - 13	Recovery =	96.29%#
Target Compounds			

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

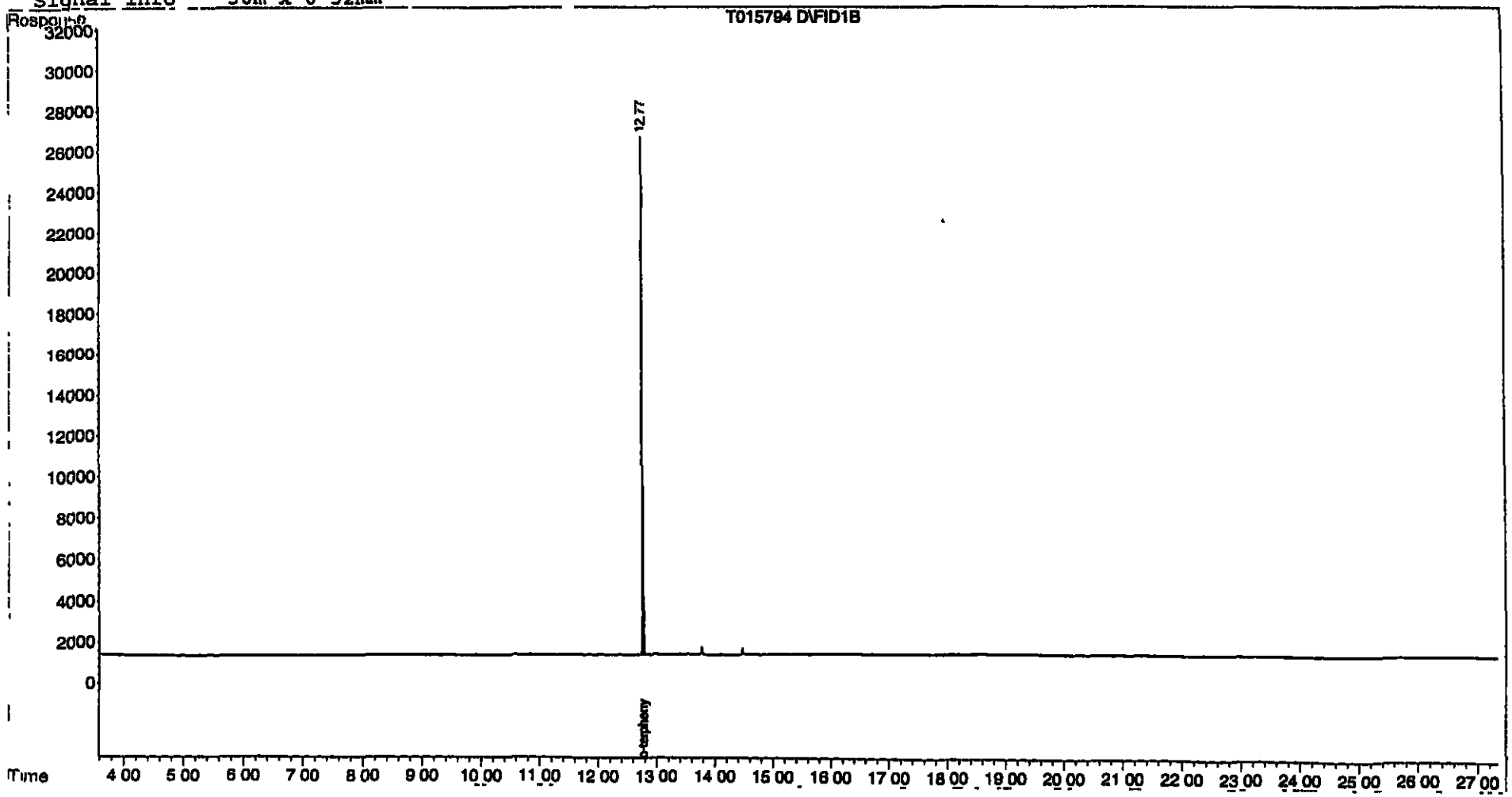
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030804\T015794 D
Acq On 5 Aug 2003 12 14 am
Sample 3044703s
Misc
IntFile · TPHCINT E
Quant Time· Aug 12 10 26 2003 Quant Results File TPH103.RES

Vial 91
Operator BPatel
Inst GC/MS Ins
Multiplr: 1 00

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



000057

Quantitation Report (QT Reviewed)

Data File C.\HPCHEM\1\DATA\030804\T015795 D Vial. 92
Acq On 5 Aug 2003 12 49 am Operator BPatel
Sample 3044704s Inst GC/MS Ins
Misc Multiplr 1 00
IntFile TPHCINT E
Quant Time Aug 12 10·26 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	296069	12 110 mg/L
Spiked Amount 10.000 Range 8 - 13	Recovery = 121 10%#		
Target Compounds			
22) tC TPHC - total	12 78	647116	26 771 mg/L m

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

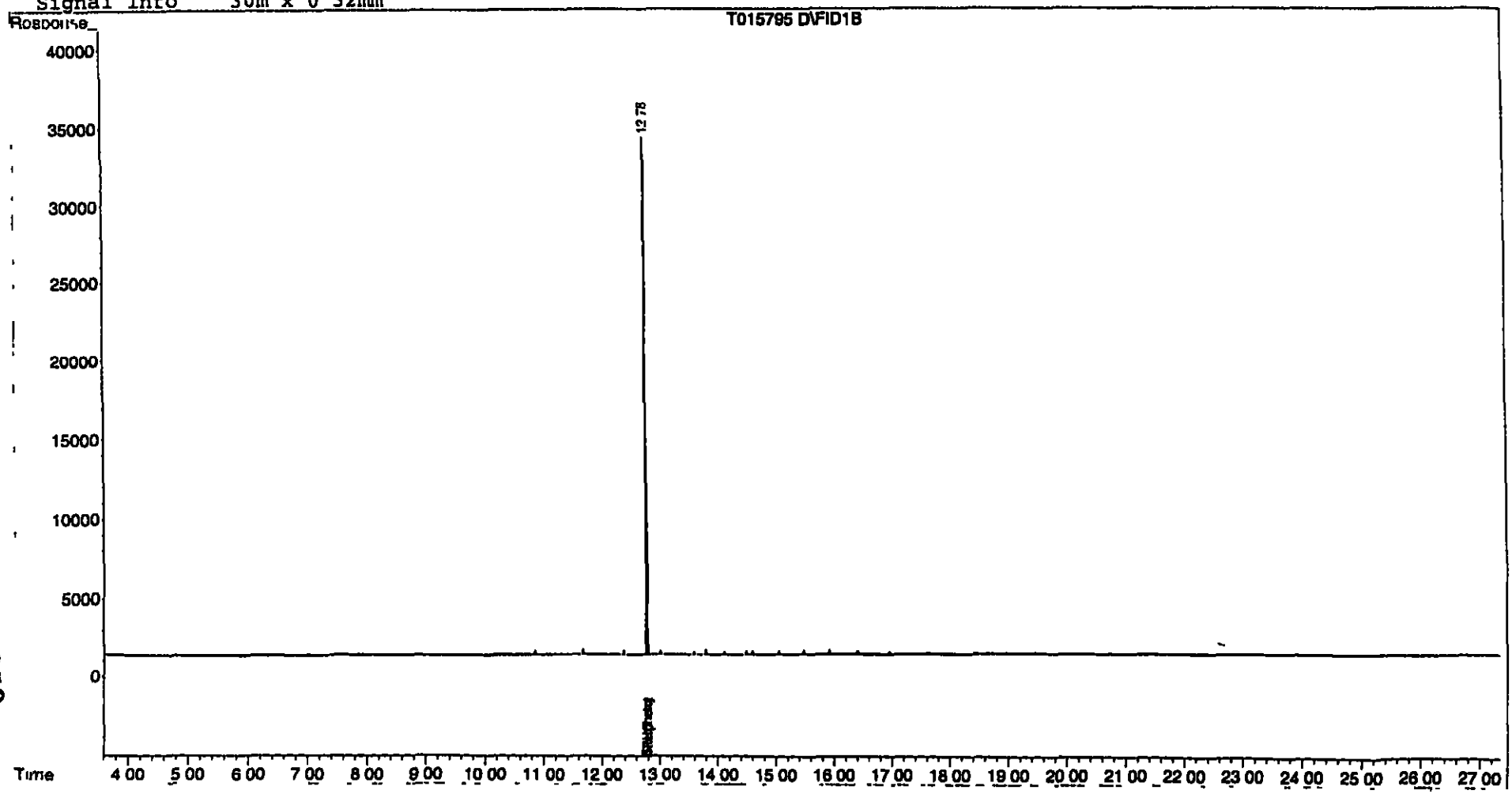
Quantitation Report (QT Reviewed)

Data File C:\HPCHEM\1\DATA\030804\T015795 D
Acq On 5 Aug 2003 12 49 am
Sample 3044704s
Misc
IntFile TPHCINT E
Quant Time Aug 12 10 26 2003 Quant Results File TPH103.RES

Vial: 92
Operator. BPatel
Inst GC/MS Ins
Multiplr: 1 00

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



0000059

Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030804\T015796.D Vial 93
Acq On 5 Aug 2003 1 24 am Operator BPatel
Sample 3044705s Inst GC/MS Ins
Misc Multiplr 1.00
IntFile : TPHCINT E
Quant Time: Aug 12 10.26 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	277304	11 343 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery = 113.43%#	
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int
T015796 D TPH103 M Tue Aug 12 10·27 04 2003 000060 Page 1

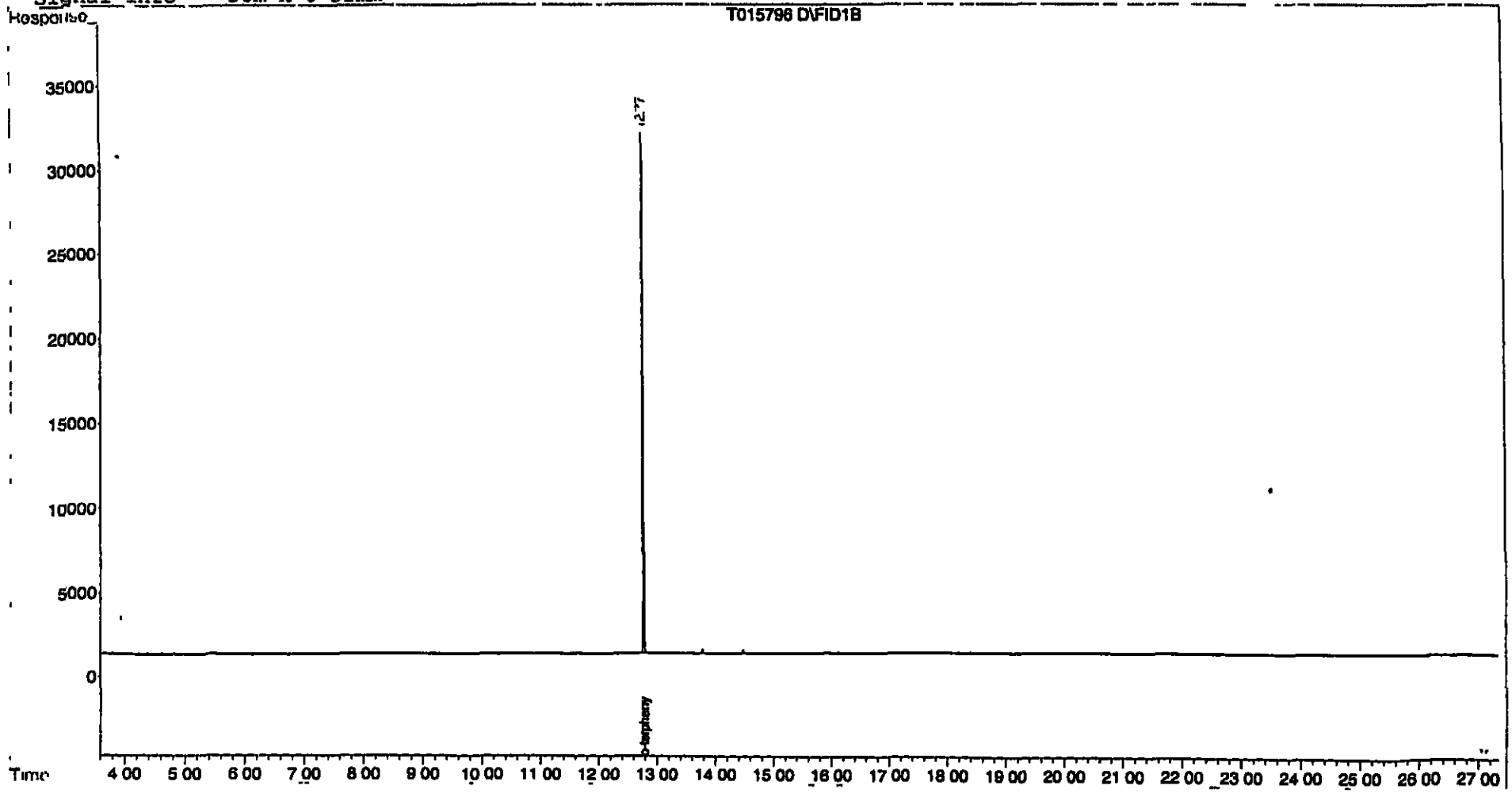
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030804\T015796 D
Acq On 5 Aug 2003 1 24 am
Sample 3044705s
Misc
IntFile TPHCINT E
Quant Time Aug 12 10 26 2003 Quant Results File TPH103 RES

Vial: 93
Operator BPatel
Inst GC/MS Ins
Multiplr 1 00

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



T90000

Quantitation Report (QT Reviewed)

Data File C:\HPCHEM\1\DATA\030804\T015797.D Vial 94
Acq On 5 Aug 2003 2 00 am Operator BPatel
Sample 3044706s Inst GC/MS Ins
Misc Multiplr 1.00
IntFile TPHCINT E
Quant Time. Aug 12 10 26 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	235832	9.646 mg/L
Spiked Amount 10 000	Range 8 - 13	Recovery =	96 46%#
Target Compounds			

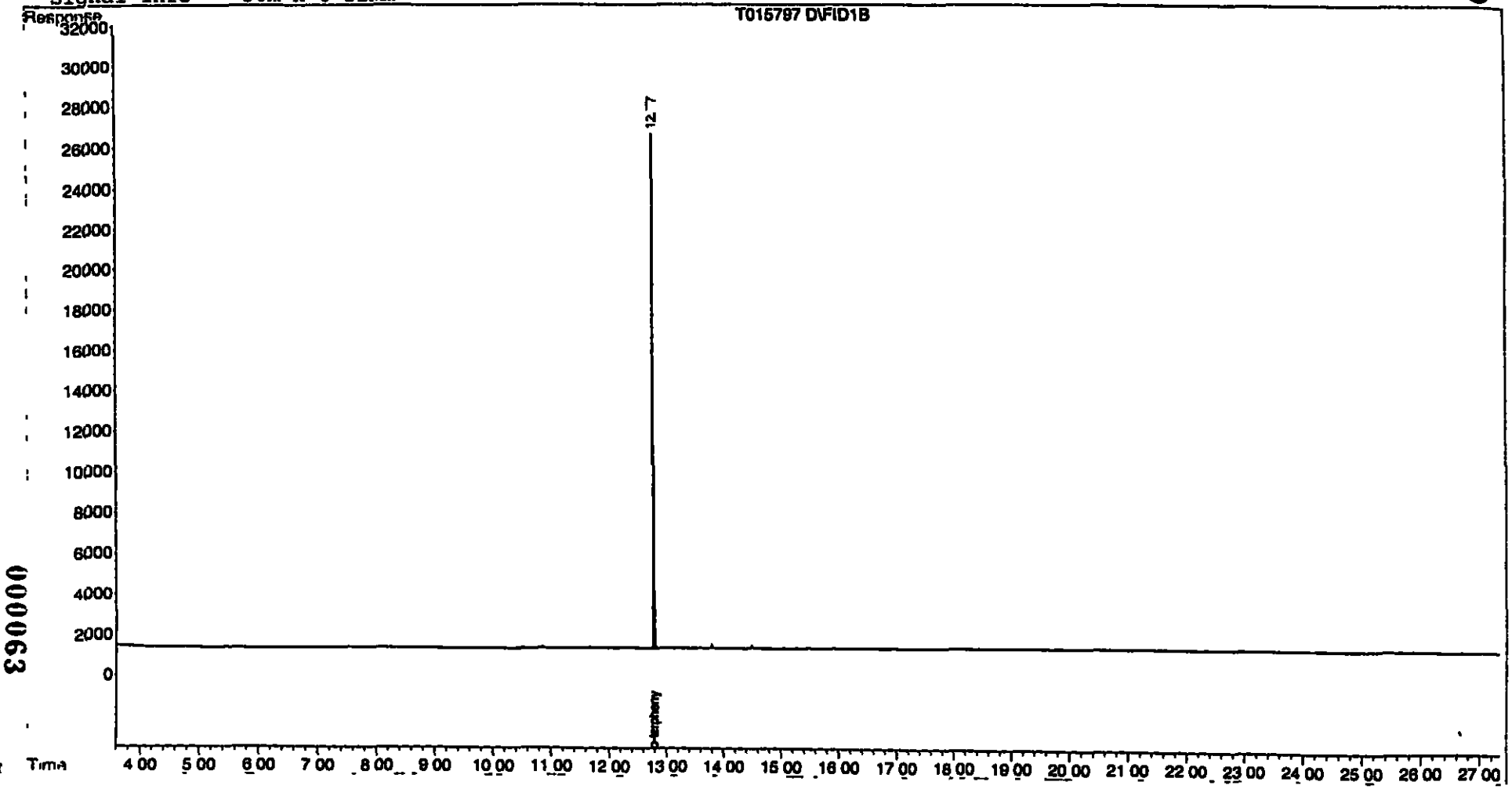
Quantitation Report (QT Reviewed)

Data File C \HPCHEM\1\DATA\030804\T015797 D
Acq On 5 Aug 2003 2 00 am
Sample 3044706s
Misc
IntFile TPHCINT E
Quant Time Aug 12 10 26 2003 Quant Results File TPH103 RES

Vial: 94
Operator: BPatel
Inst GC/MS Ins
Multiplr: 1 00

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



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 11/24/03

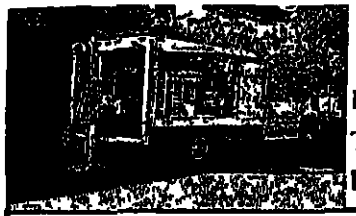
Laboratory Certification # 13461

*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 Monmouth Environmental Testing Laboratory

Bldg 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-3484 EMail appleby@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer. Joseph Fallon
Phone #: (732) 532-6223
(X)DERA (X)OMA ( )Other: UST Assessment
Samplers Name/Company: Harold Hocevar/TVS

Project No 03-38200
Location 800 Area

Analysis Parameters

Comments: Methanol/ 4C

Lims I D #	Sample Location	Date	Time	Sample Type	# bottles	TPHC	VOA+15	%SOLIDS			VOA ID NUMBER	PID Reading	Remarks / Preservation Method
30447 01	800-1A Northwall	7-30-03	13:40	Soil	2	X	X	X			3484	0	ICE Depth 8.5 BGS
02	800-1B Eastwall		13:45		2	X	X	X			3485	0	
03	800-1C Southwall		1355		2	X	X	X			3486	0	
04	800-1D Westwall		14:10		2	X	X	X			3487	0	
05	800-1E Center		1400		2	X	X	X			3488	0	
06	800-1 Duplicate		1400		2	X	X	X			3489	0	
07	Trip Blank		1340	Liquid	1		X	X			3490	0	NA

Relinquished by (signature)	Date/Time	Received by (signature)	Relinquished by (signature)	Date/Time	Received by (signature)
	7-30-03 1555				
Relinquished by (signature)	Date/Time	Received by (signature)	Relinquished by (signature)	Date/Time	Received by (signature)

Report Type ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified
Turnaround time ( )Standard 4 wks, (X)Rush 2 Days, ( )ASAP Verbal ___Hrs

Remarks

print legibly

800 Area xls7/29/2003

SAMPLE RECEIPT FORM

Date Received: 7-30-03 Work Order ID# 30447

Site/Proj Name 800 Area Cooler Temp (°C): 2.0°C

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

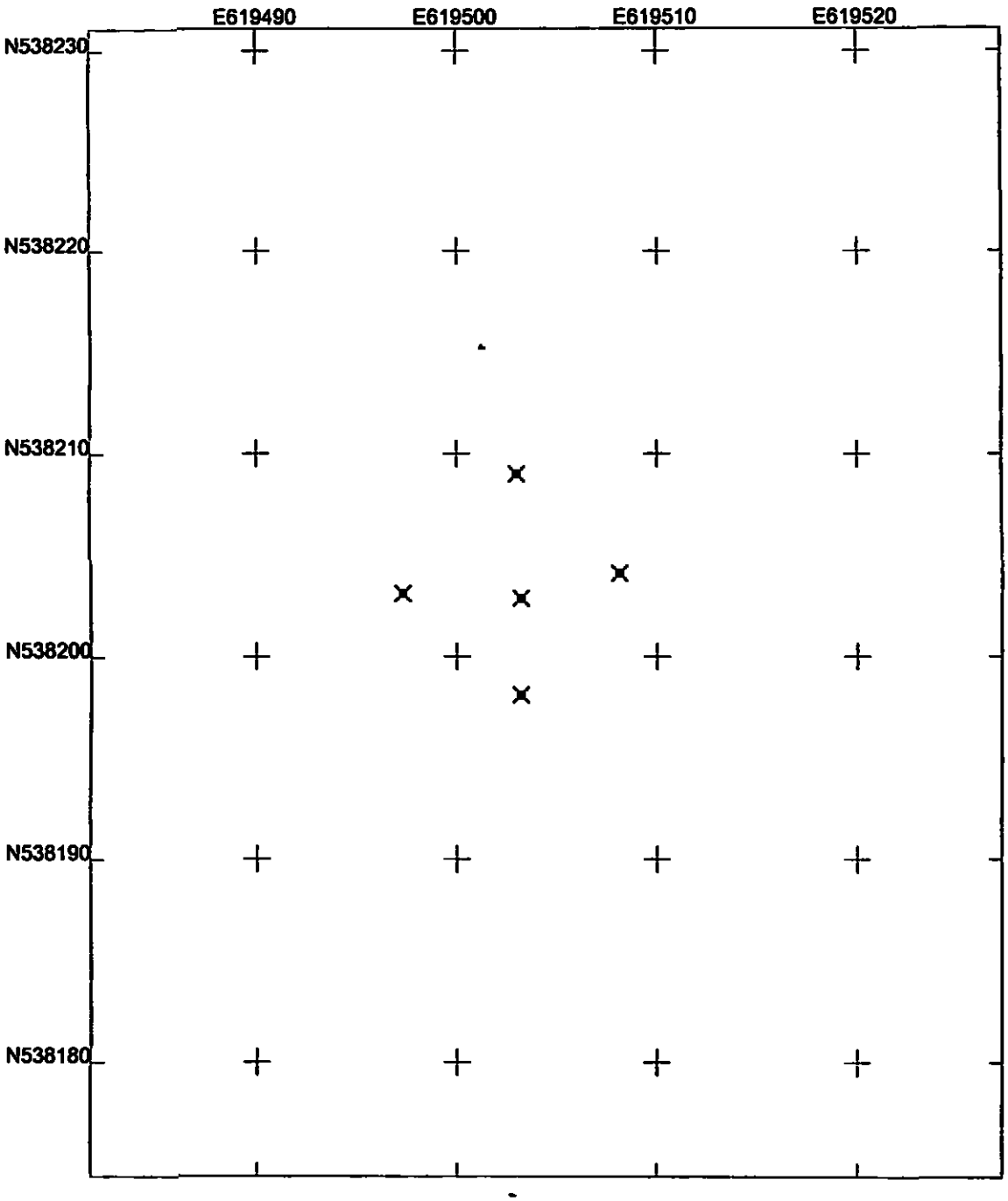
Check the appropriate box

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



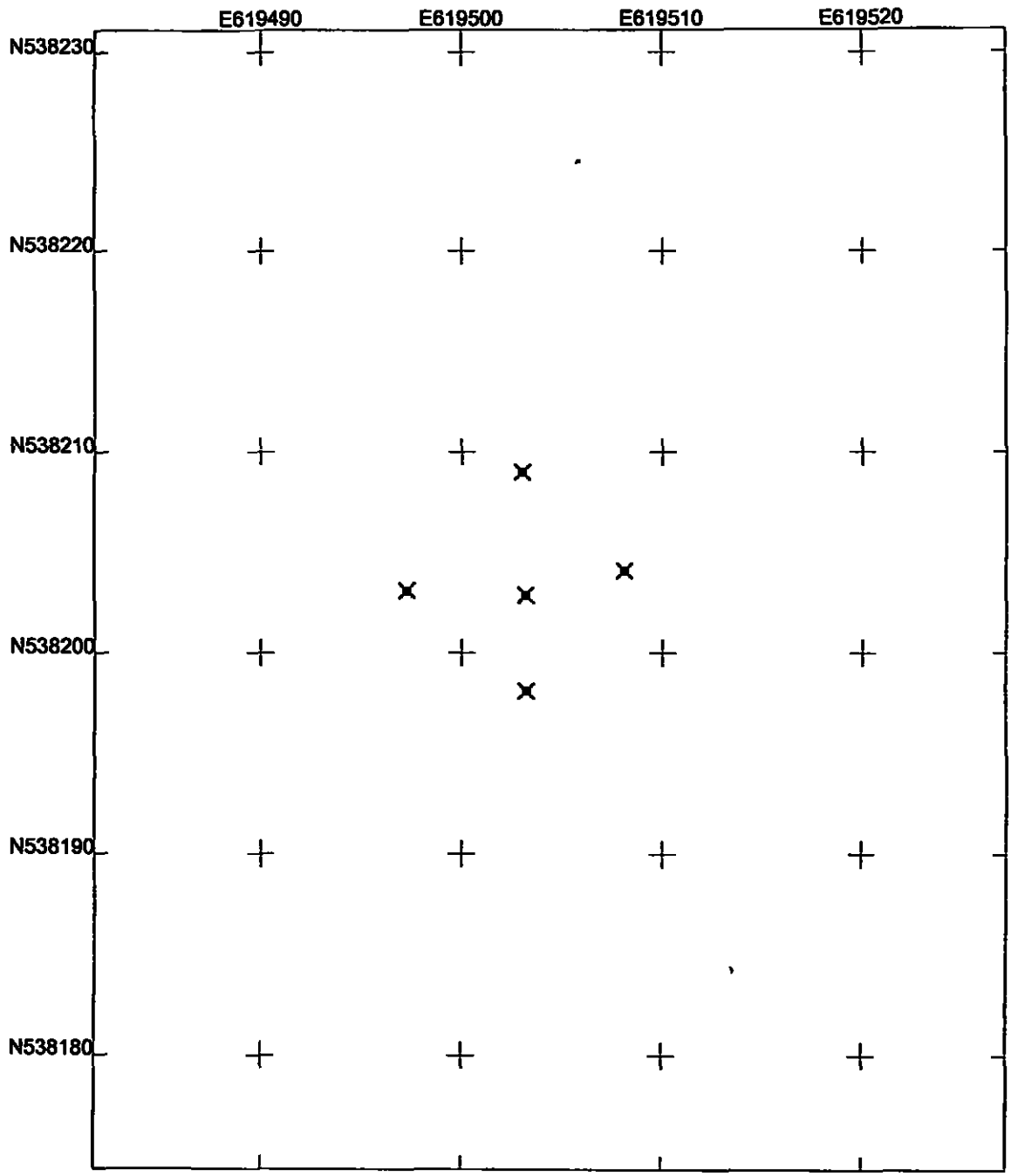
U.S.Army - Ft. Monmouth UST#800-1
Soil Sample GPS Map

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

N

Scale 1 100
0 0 002
Miles

800usts cor
11/16/2005
GPS Pathfinder
Trimble



U.S.Army - Ft. Monmouth UST#800-1
Soil Sample GPS Map

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

N

Scale 1.100
0 0 002
Miles

800usts cor
11/16/2005
GPS Pathfinder
Trimble