United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 271
Main Post-West Area

NJDEP UST Registration No. 81533-55
Dicar No. 94-06-09-1612-21

January 2002

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 271

MAIN POST-WEST AREA
NJDEP UST REGISTRATION NO. 81533-55
DICAR NO. 94-06-09-1612-21

JANUARY 2002

PREPARED FOR:

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

PREPARED BY:

VERSAR
1900 FROST ROAD
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BRISTOL, PA 19007

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EXECUTIVE SUMMARY

UST Closure

On June 9, 1994, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) underground storage tank closure procedures at the Main Post-West area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 81533-55 (Fort Monmouth ID No. 271), was located southeast of Building 271. UST No. 81533-55 was a 3,000-gallon No. 2 fuel oil UST. The fill port was located directly above the tank.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually for evidence of contamination. Following removal, the UST was inspected for corrosion holes. The UST had several holes located in the sides and bottom. Soil at the location of the holes was dark in color and appeared to be contaminated. The NJDEP hotline was notified and the case was assigned DICAR No. 94-06-09-1612-21. Potentially contaminated soil was removed from the excavation area. In total, approximately 100 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area.

All post excavation soil samples collected from the UST excavation at Building 271 contained TPH concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 milligrams per kilogram (mg/kg) (N.J.A.C. 7:26D and revisions dated February 3, 1994). Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and certified clean fill. The excavation site was then restored to its original condition.

In response to the observation of potentially contaminated soil and the potential of groundwater contamination, two (2) groundwater samples were collected at Building 271. On October 9, 1998, and November 13, 1998, groundwater at Building 271 was collected and analyzed for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). All groundwater analytical results were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

No further action is proposed in regard to the closure and site assessment of UST No. 81533-55 at Building 271.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81533-55, was closed at Building 271 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on Jne 9, 1994. Refer to the site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP August 26, 1993. The UST was a steel 3,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 81533-55 complied with all applicable Federal, State, and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP approved Decommissioning/Closure Plan were posted onsite for inspection. DPW personnel who are registered and certified by the NJDEP for performing UST closure activities conducted the decommissioning activities. Closure of UST No. 81533-55 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST).

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

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

1.2 SITE DESCRIPTION

Building 271 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 81533-55 was located southeast of Building 271 and appurtenant copper piping ran approximately ten feet north from the excavation. A site map is provided on Figure 2.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 271. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area.

Regional Geology

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

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

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

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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

Hydrogeology

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

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

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

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

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

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

Building 271 is located approximately 600 feet south of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 271 is anticipated to be to the north.

1.3 HEALTH AND SAFETY

Before, during, and after all decommissioning activities, hazards at the work site which may have posed a threat to the Health and Safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- The contractor performing the closure prior to excavation activities identified all underground obstructions (utilities, etc.).
- All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- All excavated soils were visually examined and screened with an OVA for evidence of contamination. Potentially contaminated soils were identified and logged during closure activities.
- Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged separately from all soil and recycled in accordance with all applicable regulations and laws.
- A Sub-Surface Evaluator from the DPW was present during all site assessment activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 40 gallons of liquid from the UST and its associated piping were transported by Freehold Cartage to Lionetti Oil Recovery Company, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. Numerous holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually for evidence of contamination. Potentially contaminated soils were observed. Approximately 100 cubic yards of potentially contaminated soil were removed from the excavated area. Soil screening was also performed along the piping run associated with the UST closure. Groundwater was encountered at approximately 10.5 feet BGS.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

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

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

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

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on visual observations, approximately 100 cubic yards of potentially contaminated soil were removed from the UST excavation. All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Groundwater was encountered at approximately 10.5 feet BGS. A total of 236 gallons of contaminated groundwater and soil mixture was removed from the excavation and transported off-site by Lionetti Oil Recovery Company, Inc. of Old Bridge New Jersey.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed and carried out by U.S. Army DPW personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEP Certified Sub-Surface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP-BUST document *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. The Fort Monmouth DPW Environmental Office maintains all records of the Site Investigation activities.

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using visual observations to identify potentially contaminated material. Soil excavated from around the tank-exhibited evidence of potential contamination. Soils and groundwater were removed from the excavation until no evidence of contamination remained.

2.3 SOIL SAMPLING

On June 9 and 10,1994, following the removal of the UST and all potentially contaminated soils, post-excavation soil samples 271-A through 271-O were collected from a total of 15 locations of the UST and piping excavation. On June 9, 2001, supplemental samples 271-J1 and 271-J2, were collected along the piping and sample 271-O was resampled. All samples were analyzed for TPH and total solids. Two samples, 271-O and 271-J1, were also analyzed for VOC.

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

2.4 GROUNDWATER SAMPLING

On October 9, 1998, and November 13, 1998, groundwater at Building 271 was collected and analyzed for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). Sampling and analysis were performed in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements For Site Remediation.*

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated piping, post-excavation soil samples were collected from a total of 15 locations on July 9 and 10,1994 and from two locations on June 9, 2001. All samples were analyzed for TPH and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 3.

All post-excavation soil samples collected on July 9 and 10,1994, from the UST excavation and from below piping associated with the UST contained concentrations of TPH below the NJDEP soil cleanup criteria. Samples contained TPH concentrations ranging from non-detect to 2256.25 mg/kg. Results from two sample locations, 271-O and 271-J1, exceeded 1,000 mg/kg. Those locations were resampled and analyzed for VOCs. There were no VOCs detected at either location.

3.2 GROUNDWATER SAMPLING RESULTS

No compounds were detected in the sample collected from Building 271 on October 9, 1998. The sample collected from Building 271 on November 13, 1998, contained two volatile compounds and several semivolatile compounds. A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria (GWQC) is provided in Table 3. Groundwater samples collected on October 9, 1998, and November 13,1998, were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

3.3 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 271 were below the NJDEP soil cleanup criteria for total organic contaminants and VOCs.

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

Based on the analytical results of the groundwater samples collected at Building 271 on October 9, 1998, and November 13, 1998, groundwater quality at Building 271 was either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria.

No further action is proposed in regard to the closure and site assessment of UST No. 81533-55 at Building 271.

TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 271, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	NJDEP Method
A	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
B	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
C	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
D	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
E	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
F	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
G)	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
H	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
I	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
J	6/9/94	6/10/94	Soil	Post-Excavation	TPH	418.1
K	6/10/94	6/10/94	Soil	Post-Excavation	TPH	418.1
L	6/10/94	6/10/94	Soil	Post-Excavation	TPH	418.1
M	6/10/94	6/10/94	Soil	Post-Excavation	TPH	418.1
N	6/10/94	6/10/94	Soil	Post-Excavation	TPH	418.1
O	6/10/94	6/10/94	Soil	Post-Excavation	TPH	418.1
J1	6/11/01	6/11/01	Soil	Post-Excavation	TPH	418.1
J2	6/11/01	6/11/01	Soil	Post-Excavation	TPH	418.1
O	6/11/01	6/11/01	Soil	Post-Excavation	TPH, VOC	418.1, 8260
J1	1/29/02	1/29/02	Soil	Post-Excavation	VOC	8260
271	10/9/98	10/9/98	Aquious	Geoprobe	VOC, SVOC	8270, 624
271	11/13/98	11/13/98	Aquious	Geoprobe	VOC, SVOC	8270, 624

Note:
*VOCs: Volatile Organic Compounds plus 15 tentatively identified compounds
*SVOCs: Semivolatile organic compounds plus 15 tentatively identified compounds
**PPNDP: Passively Placed Narrow Diameter Point

TABLE 2

TPH AND TOTAL SOLID RESULTS IN SOIL
BUILDING 271, MAIN POST-WEST AREA
FORT MONMOUTH, NEW JERSEY

Sample ID/ Depth	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Parameters	Compound of Concern	Results (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
A	1522.1	6/9/98	6/10/98	Total Solid	--	89 %	--	--
				TPH	yes	ND	10,000	No
B	1522.2	6/9/98	6/10/98	Total Solid	--	73 %	--	--
				TPH	yes	ND	10,000	No
C	1522.3	6/9/98	6/10/98	Total Solid	--	74 %	--	--
				TPH	yes	6.15	10,000	No
D	1522.4	6/9/98	6/10/98	Total Solid	--	86 %	--	--
				TPH	yes	8.42	10,000	No
E	1522.5	6/9/98	6/10/98	Total Solid	--	87 %	--	--
				TPH	yes	8.32	10,000	No
F	1522.6	6/9/98	6/10/98	Total Solid	--	83 %	--	--
				TPH	yes	ND	10,000	No
G	1522.7	6/9/98	6/10/98	Total Solid	--	90 %	--	--
				TPH	yes	ND	10,000	No
H	1522.8	6/9/98	6/10/98	Total Solid	--	87 %	--	--
				TPH	yes	123.0	10,000	No
I	1522.9	6/9/98	6/10/98	Total Solid	--	98 %	--	--
				TPH	yes	10.1	10,000	No
J	1522.10	6/9/98	6/10/98	Total Solid	--	84 %	--	--
				TPH	yes	377.0	10,000	No
K	1523.1	6/10/98	6/10/98	Total Solid	--	85 %	--	--
				TPH	yes	ND	10,000	No
L	1523.2	6/10/98	6/10/98	Total Solid	--	90 %	--	--
				TPH	yes	105.0	10,000	No
M	1523.3	6/10/98	6/10/98	Total Solid	--	82 %	--	--
				TPH	yes	ND	10,000	No
N	1523.4	6/10/98	6/10/98	Total Solid	--	87 %	--	--
				TPH	yes	ND	10,000	No
O	1523.5	6/10/98	6/10/98	Total Solid	--	85 %	--	--
				TPH	yes	1270	10,000	No
J1	16181.01	6/9/01	6/10/01	Total Solid	--	93 %	--	--
				TPH	yes	2256.25	10,000	No
J2	16181.02	6/9/01	6/10/01	Total Solid	--	88 %	--	--
				TPH	yes	ND	10,000	No
O	16181.03	6/9/01	6/10/01	Total Solid	--	84 %	--	--
				TPH	yes	ND	10,000	No

Note:

* Total Solid results are expressed as a percentage.

** NJDEP Residential Direct Contact soil cleanup criteria for total organics

ND Not detected above stated method detection limit

TPH Total Petroleum Hydrocarbons

-- Not Applicable

TABLE 3

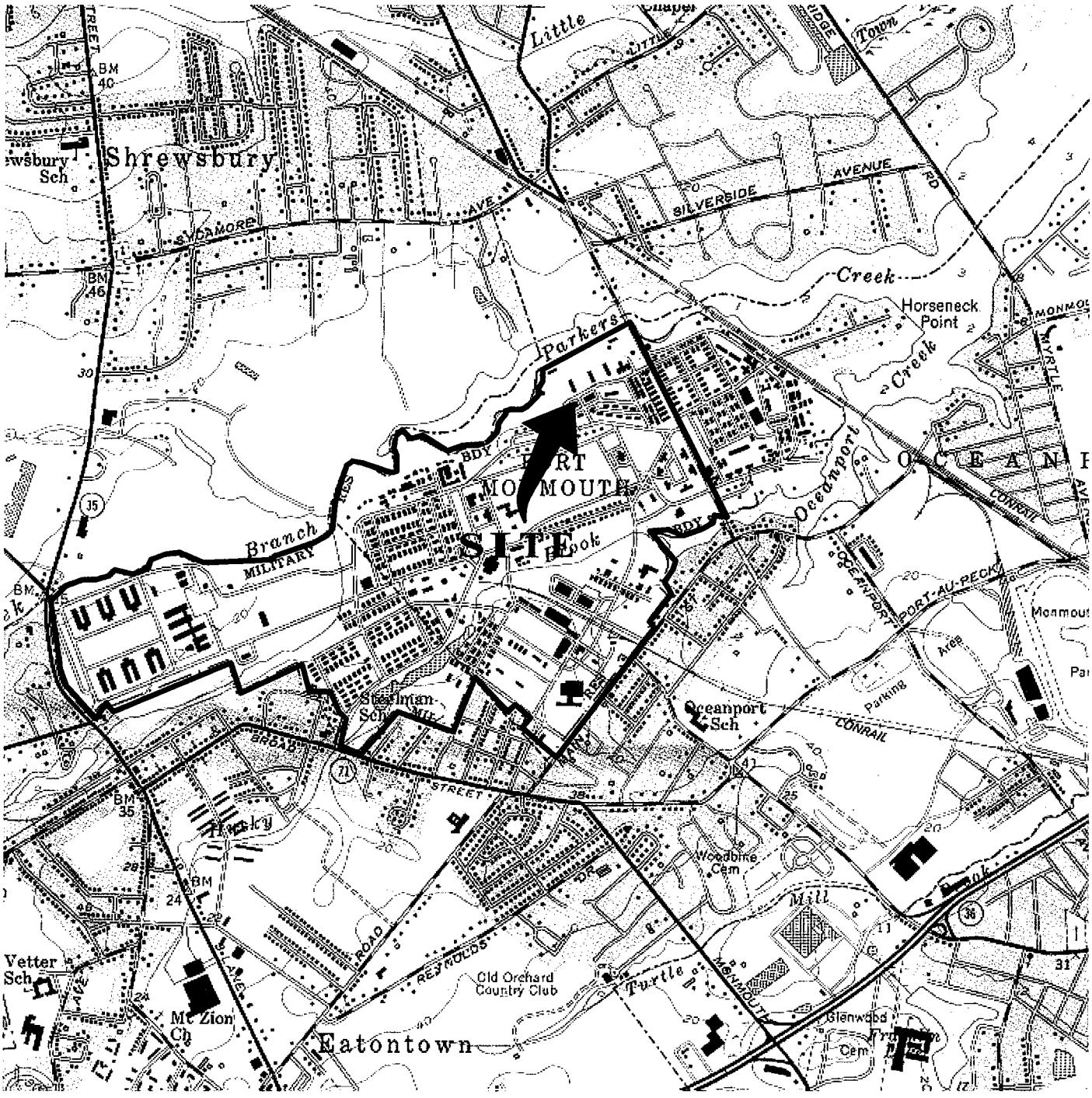
SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 271
FORT MONMOUTH, NEW JERSEY

Sample ID	Sample Date	Ethylbenzene	Total Xylenes	Naphthalene	2-Methylnaphthalene	Acenaphthene	Fluorene	Phenanthrene
UNITS:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NJDEP CRITERIA:		700	NLE	NLE	NLE	400	300	NLE
Bldg271	11/13/98	**10.37**	**23.22**	**17.54**	**60.96**	**3.27**	**3.78**	**8.04**

Abbreviations:

MW:	Monitoring Well.
ND:	Not Detected.
ug/L:	Micrograms per liter.
NLE:	No Limit Established

FIGURES



LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW JERSEY

QUADRANGLE LOCATION

Mapped, edited and published by the Geological Survey

FIGURE 1

LOCATION MAP
Building 271
Main-Post West
Fort Monmouth Army Base
Monmouth County, NJ

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

Scale: 1" = 2000'

Date: June 1994

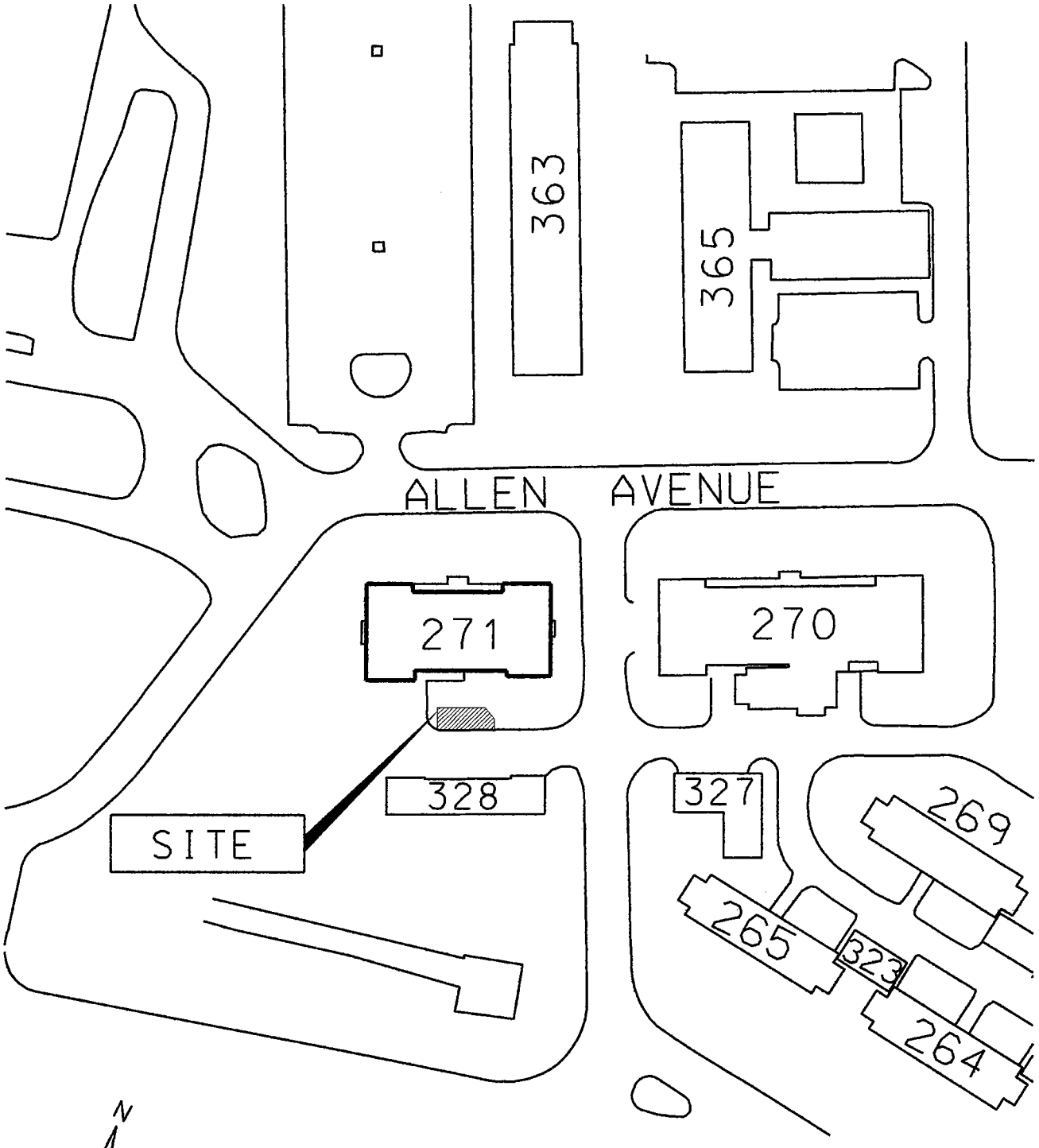


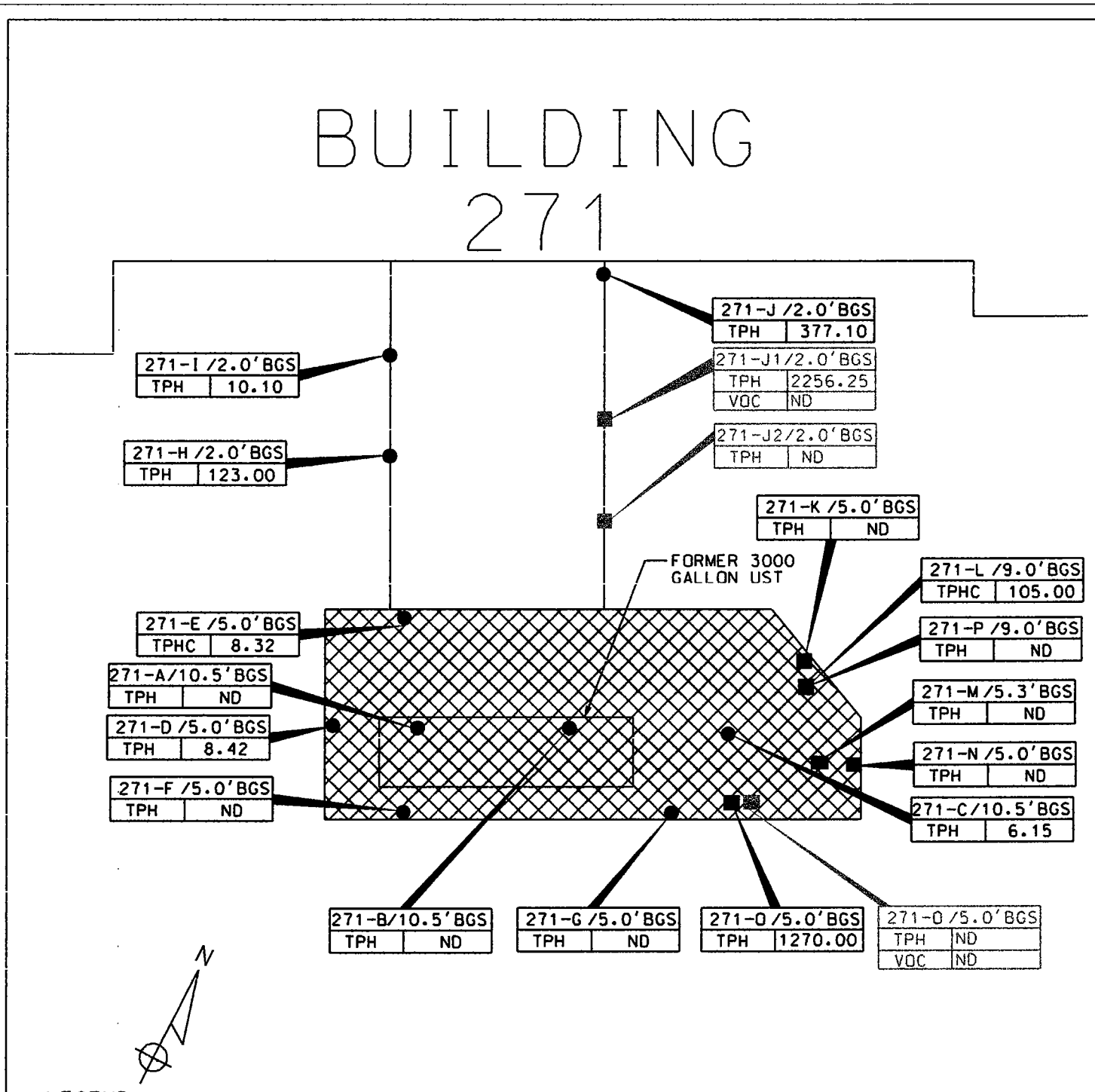
FIGURE 2
SITE MAP
BUILDING 271
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: JUNE 1994

271 FIG2



LEGEND

- SOIL SAMPLE LOCATION (JUNE 9, 1994)
- SOIL SAMPLE LOCATION (JUNE 10, 1994)
- SOIL SAMPLE LOCATION (JUNE 9, 2001)
- LIMIT OF EXCAVATION (JULY 10, 1994)

NOTES:

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

FIGURE 3
SOIL SAMPLING LOCATION MAP
BUILDING 271
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10' | DATE: JAN 2002

271 FIG4

APPENDIX A

NJDEP UST REPORT CERTIFICATION FORM

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

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

A. Facility Name : U.S. Army Fort Monmouth New Jersey
Facility Street Address : Directorate of Public Works Building 173
Municipality: Oceanport County: Monmouth

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

B. Owner (RP)'s Name: _____

Street Address: _____ City : _____

State: _____ Zip: _____ Telephone Number : _____

C. (Check as appropriate)

- ☐ Site Investigation Report (SIR) $500 Fee
- ☐ Remedial Investigation Report (RIR) $1000 Fee

D. (Complete all that apply)

- Assigned Case Manager: Ian Curtis, Federal Case Manager
- UST Registration Number : 81533-55
- Incident Report Number : 94-06-09-1612-21
- Tank Closure Number: _____

E. Certification by the Subsurface Evaluator:

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

Name: Dinker Desai Signature: _____ UST Cert. No.: _____

Firm: U.S. Army Fort Monmouth Firm's UST Cert. Number: N/A – U.S. Army

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

State:NJ Zip:07703 Telephone Number : 732-532-6224

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

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

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

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

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

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

Signature: _____

Company Name: U.S. Army Fort Monmouth Date: _____

APPENDIX B

WASTE MANIFEST

U.S. ARMY, FORT MONMOUTH UST HAZARDOUS WASTE TRACKING FORM
(ONE PER EACH CONTAINER)

WASTE DESCRIPTION	SOURCE (BLDG.#)	NJDEPE WASTE CODE	QUANT. (GAL.)	HANDLERS NAME/COMPANY	DATE/TIME
2 #2 fuel	[illegible]	x[illegible]	5	[illegible]	[illegible]
20 lbs H	271	x722	40	CWE	6-7-94 2:00p
#2 oil	117	X722	27-55 gal drums	Casie generation	
tank	↳	Jersey Oil Co		date 4/28/94	
Bottoms				disposal date	

THIS CONTAINER WAS ACCEPTED INTO (CIRCLE ONE) MP / CW / EA HAZARDOUS WASTE STORAGE AREA ON 4/28/94

#009001 (DATE) - 72 BY

(GOV. REP.)_____

THIS FORM MUST ACCOMPANY THE CONTAINER UNTIL A MANIFEST IS COMPLETED AND SIGNED BY THE GOVERNMENT HAZARDOUS WASTE COORDINATOR OR HIS REPRESENTAITIVE

Bldg 271 x722 - 40 gal - NJA 1908880

State of New Jersey
Department of Environmental Protection and Energy
Hazardous Waste Regulation Program
Manifest Section
CN 028, Trenton, NJ 08625-0028

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

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N J 3 2 1 0 0 2 0 5 9 7 — Manifest Document No. 03191

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: US Army Communications Electronics Command
Main Post, c/o James Shirghio, Bldg 2504
ATTN: SELFM-DL-EM-MS, Fort Monmouth, NJ 07703

4. Generator's Phone (908) 532-6223

A. State Manifest Document Number: NJA 1603191

B. State Generator's ID: SAME

5. Transporter 1 Company Name: Freehold Cartage, Inc.

6. US EPA ID Number: N J D 0 5 4 1 2 6 1 6 4

C. State Trans. ID: NJDEPE 522 65

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone (908) 462-1001

E. State Trans. ID

9. Designated Facility Name and Site Address
Lionetti Oil RecoveryCo., Inc.
Runyon & Cheesequake Rds.
Old Bridge, NJ 08857

10. US EPA ID Number: N J D 0 8 4 0 4 4 0 6 4

F. Transporter's Phone ( )

G. State Facility's ID

H. Facility's Phone (908) 721-0900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	X	Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	001	TT	XX236	G	X 7 2 2
b.	X	Petroleum Oil NOS Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	001	TT	XX300	G	X 7 2 2
c.							
d.							

J. Additional Descriptions for Materials Listed Above
a. Petroleum Oil 95 % Water 5 % L,T
b. Petroleum Oil 95 % Water 5 % L.T.
c.
d.

K. Handling Codes for Wastes Listed Above
a. T04 Filtration
b. T04 Filtration
c.
d.

15. Special Handling Instructions and Additional Information
NOT EPA REGULATED. REGULATED BY NJ AS HAZARDOUS WASTE. 11a. ERG #27
24 HOUR EMERGENCY PHONE: 201-427-2881
NJ DECAL# 55182
a) Bldg 271 5/5 33-55 B) Bldg 270

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

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR,** if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Joseph M. Fallon	Joseph M. Fallon	05	12	94

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
David S. Smith	David S. Smith	05	12	94

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Davi DS				

FACILITY

19. Discrepancy Indication Space

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

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 3/88) Previous editions are obsolete.

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

1 — TSD MAIL TO - TSD'S STATE

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection and Energy. (609) 292-7172

Bldg 271 - 05T File Copy

APPENDIX C

UST DISPOSAL CERTIFICATE

Bldg 167 - UST 009001O-18
" 80 - UST 009001O-06
" 277 - UST 008N33-55
BLDG 117 TRENCH PIPE

MAZZA & SONS, INC.

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

NO. _____

DATE 28 Jun 94

Customer's Name Cute INC

Address _____

Make of Autos

Tires

Tank

Price:

45220 LB G

39240 LB G

5910

PAID

28

	Weight	Price
Cast Iron		
Steel	119.60	
Lt. Iron		
Copper #1		
Copper #2		
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT:		

BLDG 117 TRENCH

Weigher _____ Customer Dan Ellis

APPENDIX D

SOIL ANALYTICAL DATA PACKAGE

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1522.1-.10
Sample Rec'd: 06/09/94
Analysis Start: 06/10/94
Analysis Comp: 06/10/94

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard
Ext. Meth: Sonc.

NJDEPE UST Reg.#: **0081533-55**
Closure #: **C-93-3183**
DICAR #: **94-6-9-1612-21**
Location #: **Bldg. 271**

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1522.1	Site A, OVA= ND	89	ND	6.6
1522.2	Site B, OVA= ND	73	ND	9.9
1522.3	Site C, OVA= ND	74	6.15	6.6
1522.4	Site D, OVA= ND	86	8.42	6.6
1522.5	Site E, OVA= ND	87	8.32	6.6
1522.6	Site F, OVA= ND	83	ND	6.6
1522.7	Site G, OVA= 10.	90	ND	6.6
1522.8	Site H, OVA= ND	87	123.	6.6
1522.9	Site I, OVA= ND	98	10.1	6.6
1522.10	Site J, OVA= ND	84	377.	6.6
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
1522.8 dup= 113% 1522.8 s= 97% 1522.8 sd= 104% RPD= 6.1%

Brian K. McKee
Laboratory Director

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1522.1-.10
Sample Rec'd: 06/09/94
Analysis Start: 06/10/94
Analysis Comp: 06/10/94

Analysis: Munsel

Lab ID#	Soil Color
1522.1	5YR 4/4 Reddish Brown
1522.2	5YR 5/1 Reddish Brown
1522.3	5YR 4/1 Dark Gray
1522.4	2.5Y 4/3 Olive Brown
1522.5	2.5Y 4/4 Olive Brown
1522.6	2.5Y 4/4 Olive Brown
1522.7	2.5Y 4/2 Dark Grayish Brown
1522.8	2.5Y 3/3 Dark Olive Brown
1522.9	2.5Y 6/6 Olive Yellow
1522.10	2.5Y 3/2 Very dark Grayish Brown

Brian K. McKee
Laboratory Director

U.S. ARMY FORT MONMOUTH

P.O. #: PWS-007

Chain of Custody

Project #: C-93-3183	Sampler: Cate Inc.	Date / Time 6-9-94 | 1410	Analysis Parameters
Customer: C. Appleby SELFM-PW-EV	Site Name: Bldg. 271 UST # 0081533-55 C-93-3183 dlcar-94-6-9-1612-21		Start: Finish:
Phone: x 26224			Preservation Method

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	% Solid	mussel	OVM	Remarks
15221	6-9-94 1520	Site A	Soil	1	X	X	X	ND	Sample kept 4°C
.2	1515	Site B		1	X	X	X	ND	
.3	1510	Site C		1	X	X	X	ND	
.4	1527	Site D		1	X	X	X	ND	
.5	1530	Site E		1	X	X	X	ND	
.6	1534	Site F		1	X	X	X	ND	OVM-128 SN-52114
.7	1545	Site G		1	X	X	X	10	Cal. heated w/ Zero Air
.8	1547	Site H		1	X	X	X	ND	and 95 ppm methane
.9	1549	Site I		1	X	X	X	ND	read 78 ppm at
.10	1551	Site J		1	X	X	X	ND	6-9-94 C. Appl
									Gas select at 300.

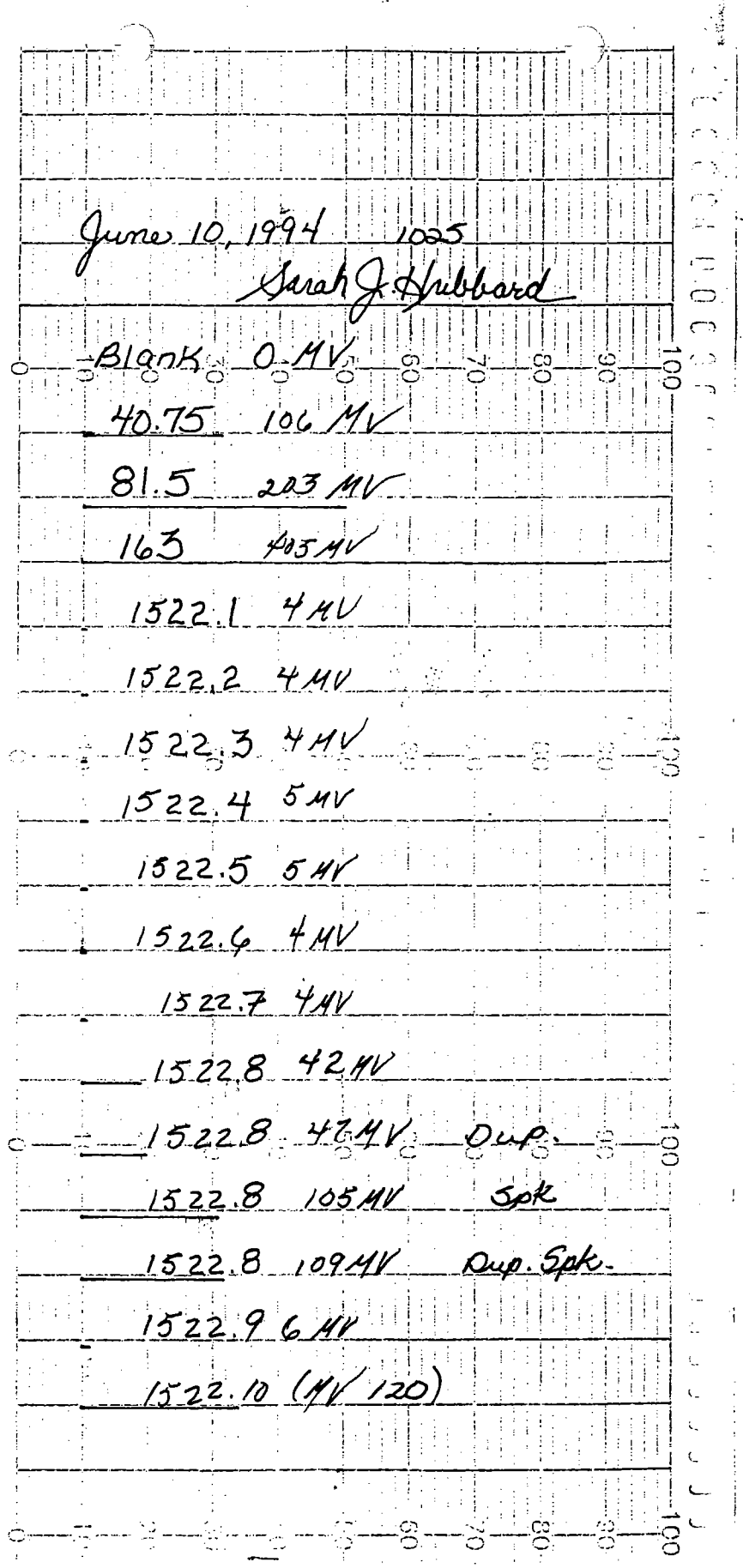
Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:

Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time
[signature]	6-9-94 | 1605	Brian K. Mc[illegible]	6-9-94 | 1605

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. Not - Attached

Enviornmental Laboratory

Certification Number 13461



PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	✓	
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		✓
3. IR Spectra submitted for standards, blanks, & samples		✓
4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.		N/A
5. Extraction holding time met. (If not met, list number of days exceeded for each sample)		✓
6. Analysis holding time met. (If not met,list number of days exceeded for each sample)		✓

Comments: _____

Laboratory Authentication Statement

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

Project #1522

Brian K. McKee
Laboratory Manager

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1523.1-.6
Sample Rec'd: 06/10/94
Analysis Start: 06/10/94
Analysis Comp: 06/10/94

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard
Ext. Meth: Sonc.

NJDEPE UST Reg.#: **0081533-55**
Closure #: **C-93-3183**
DICAR #: **94-6-9-1612-21**
Location #: **Bldg. 271**

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1523.1	Site K, OVA= 100.	85	ND	6.6
1523.2	Site L, OVA= 60.	90	105.	9.9
1523.3	Site M, OVA= 10.	82	ND	6.6
1523.4	Site N, OVA= 70.	87	ND	6.6
1523.5	Site O, OVA= 90.	85	1270.	6.6
1523.6	Site P, DUPE OVA= NA	87	ND	6.6
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
1523.6 dup= 100% 1523.6 s= 114% 1523.6 sd= 133% RPD=15.4%

Brian K. McKee
Laboratory Director

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1523.1-.6
Sample Rec'd: 06/10/94
Analysis Start: 06/10/94
Analysis Comp: 06/10/94

Analysis: Munsel

Lab ID#	Soil Color
1523.1	5Y 4/2 Olive Gray
1523.2	2.5Y 3/3 Dark Olive Brown
1523.3	5Y 4/2 Olive Gray
1523.4	2.5Y 3/3 Dark Olive Gray
1523.5	5Y 4/2 Olive Gray
1523.6	2.5Y 3/3 Dark Olive Brown

Brian K. McKee
Laboratory Director

U.S. ARMY FORT MONMOUTH

P.O. #: PWS-007

Chain of Custody

Project #: C-93-3183
Customer: C. Appleby SELFM-PW-EV
Phone: x 26224
Sampler: Cole Inc.
Date / Time: 6-10-94 10am
Site Name: Bldg. 271 UST # 0081533-55 C-93-3183 DICAR # 94-6-9-1612-21
Analysis Parameters
Start:
Finish:
Preservation Method

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	% Solids	Munsell				OVA	Remarks
1523.1	6-10-94 1045	Site K	Soil	1	X	X	X				100	Sample Kept <4°C
.2	1050	Site L		1	X	X	X				60	
.3	1050	Site M		1	X	X	X				80	
.4	1055	Site N		1	X	X	X				70	
.5	1100	Site O		1	X	X	X				90	
.6	NA	Site P Dupe		1	X	X	X				NA	

OVA - SN: AS2114
Calibrated w/ Zero Air and 95 PPM Methane - Reel
77 PPM - Gas Select 300
6-10-94 C. Appleby

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:

Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time
	6-10-94 1150	Sarah J. Hubbard	6/10/94 1150

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. not Attached

SAI-ENV COC form 01 Page 1 of 1 Pages Rev. A Date: 02 Apr 93

Enviornmental Laboratory

Certification Number 13461

PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	✓	
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		✓
3. IR Spectra submitted for standards, blanks, & samples		✓
4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.	N/A	
5. Extraction holding time met. (If not met, list number of days exceeded for each sample)		✓
6. Analysis holding time met. (If not met,list number of days exceeded for each sample)		✓

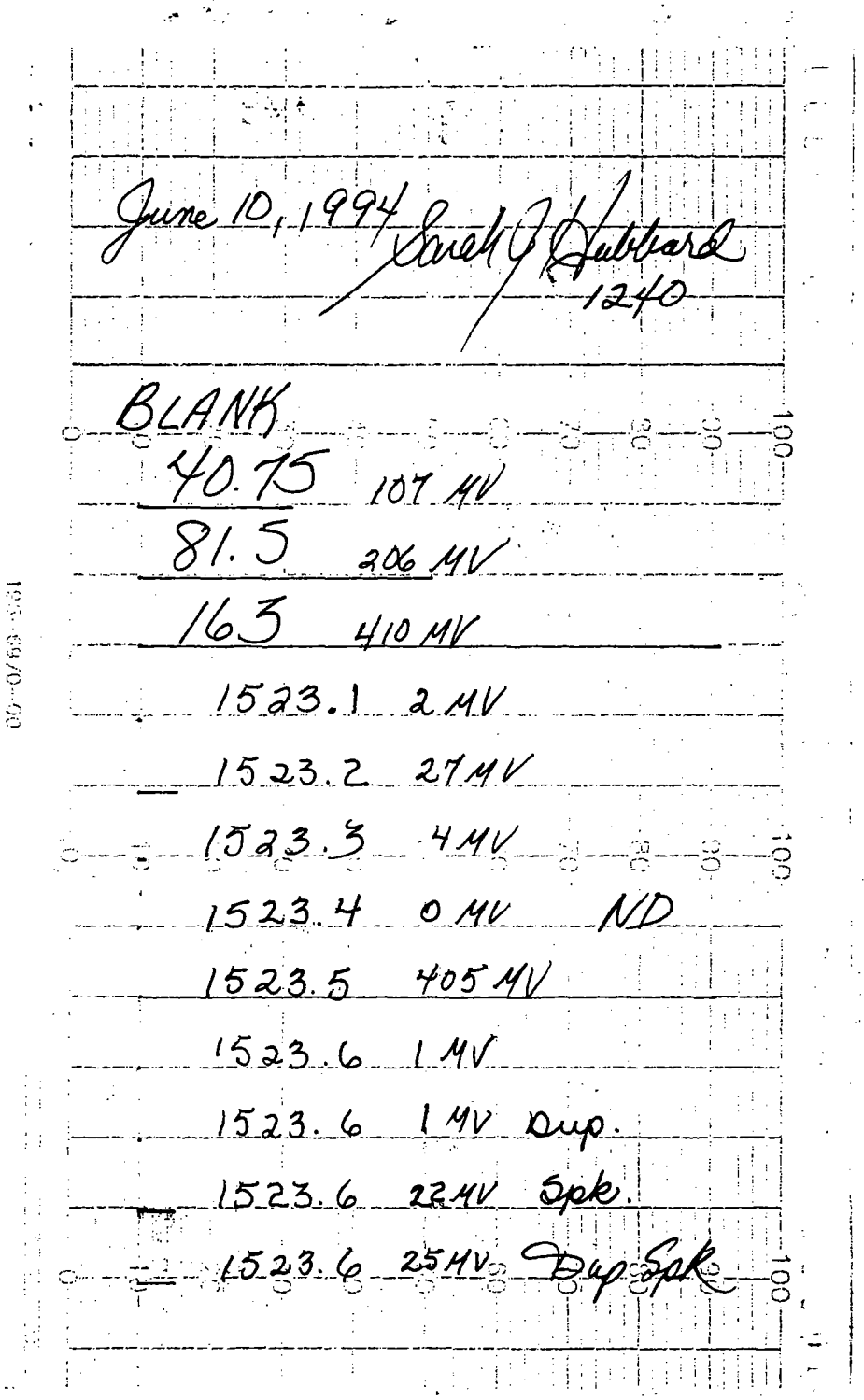
Comments:

Laboratory Authentication Statement

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

Project #1523

Brian K. McKee
Laboratory Manager



June 10, 1994 Sarah J. Hubbard
1240

BLANK

40.75 107 MV

81.5 206 MV

163 410 MV

1523.1 2 MV

1523.2 27 MV

1523.3 4 MV

1523.4 0 MV ND

1523.5 405 MV

1523.6 1 MV

1523.6 1 MV Dup.

1523.6 22 MV Spk.

1523.6 25 MV Dup Spk

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699

ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: IJO# 01-0001

Bldg. 271

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
T. B.	16181.01	Methanol	09-Jun-01	06/11/01
271 "J"-1 2'	16181.02	Soil	09-Jun-01 09:20	06/11/01
271 "J"-2	16181.03	Soil	09-Jun-01 09:35	06/11/01
271 "O" 5'	16181.04	Soil	09-Jun-01 09:45	06/11/01
F. D. 2'	16181.05	Soil	09-Jun-01	06/11/01

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

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

6-26-01
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)532-6263 EMail:wrightd@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: D. OESAI - VOESAE
Phone #:
( )DERA (√)OMA ( )Other:_____

Project No: 01-0001
Location: BLDG. 271

Samplers Name / Company: Manny Lanza - TVS-PW507

Lims Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	Analysis Parameters: VOA + 15	TPHC	a/o SOLIDS					HNU	Comments: Remarks / Preservation Method
1	T.B.	6-9-01	—	METH.	1	X								V02482
2	271"J"-1 2'	"	0920	soil	1		X	X					0-PPM	
3	271"J"-2	"	0935	"	1		X	X					"	
4	271"J"- 5'	"	0945	"	2	X	X	X					"	V02483
5	F.D. 2'	"	—	"			X	X					"	

Cal. #1 HNU O.K. (MW) METH. 95ppm

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	6-11-01 0730	[signature]			
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]		[signature]			

Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (X)Standard 3 wks, ( )Rush ____ Days, ( )ASAP Verbal ____ Hrs.

Remarks:

000002

print legibly

Coc.xls2/6/01

METHOD SUMMARY

Method Summary

NJDEP Method 8260

Gas Chromatographic Determination of Volatiles in Soil

A 50uL volume of Methanol Samples soil is added to 5mL aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system.

Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent solid, methanol volume and concentration.

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

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

Twenty-five milliliters (25mL) Methylene Chloride is added to the flask and it is secured on a orbital shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL-autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 16181 Site: Bldg. 271

	Date	Hold Time
Date Sampled	06/09/01	NA
Receipt/Refrigeration	06/09/01*	NA
Extractions		
1. TPHC	06/18/01	14 days
Analyses		
1. Volatile Organics	06/11/01	14 days
2. TPHC	06/18/01	40 days

* Sampled and refrigerated on 06/09/01, received on 06/11/01.

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

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

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

Indicate
Yes, No, N/A

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

a. VOA Fraction _____
b. B/N Fraction NA
c. Acid Fraction NA

11. Extraction Holding Time Met — NA

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

12. Analysis Holding Time Met — yes

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

Additional Comments:

Laboratory Manager: _____ Date: _____

TPHC Conformance/Non-conformance Summary Report

		Indicate Yes, No, N/A
1.	Method Detection Limits provided.	Yes
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank.	NO
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	Yes
4.	Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). RPD @ 21.93	NO
5.	IR Spectra submitted for standards, blanks and samples.	NA
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	Yes
7.	Analysis holding time met. (If not met, list number of days exceeded for each sample).	Yes

Additional comments: _____

Laboratory Manager _____ Date 6-26-01

VOLATILE ORGANICS

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461

Definition of Qualifiers

MDL	**:**	**Method Detection Limit**
J	**:**	**Compound identified below detection limit**
B	**:**	**Compound found in blank**
D	**:**	**Results are from a dilution of the sample**
U	**:**	**Compound searched for but not detected**
E	**:**	**Compound exceeds calibration limit**
PQL	**:**	**Practical Quantitation Limit**
NLE	**:**	**No limit established**
RT	**:**	**Retention time**

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 1915

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006097.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-35-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
75-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
126-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 1915

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006097.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB 1915

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006097.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618101

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006102.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-35-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
75-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
126-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618101

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006102.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

TB

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618101

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006102.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 0 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

271-"O"

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618104

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006103.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 15.89 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	830	U
107131	Acrylonitrile	830	U
75650	tert-Butyl alcohol	1500	U
1634044	Methyl-tert-Butyl ether	360	U
108203	Di-isopropyl ether	240	U
75718	Dichlorodifluoromethane	480	U
74-87-3	Chloromethane	120	U
75-01-4	Vinyl Chloride	360	U
74-83-9	Bromomethane	240	U
75-00-3	Chloroethane	360	U
75-69-4	Trichlorofluoromethane	240	U
75-35-4	1,1-Dichloroethene	120	U
67-64-1	Acetone	240	U
75-15-0	Carbon Disulfide	120	U
75-09-2	Methylene Chloride	240	U
156-60-5	trans-1,2-Dichloroethene	240	U
75-35-3	1,1-Dichloroethane	120	U
108-05-4	Vinyl Acetate	360	U
78-93-3	2-Butanone	360	U
	cis-1,2-Dichloroethene	120	U
67-66-3	Chloroform	120	U
75-55-6	1,1,1-Trichloroethane	120	U
56-23-5	Carbon Tetrachloride	240	U
71-43-2	Benzene	120	U
107-06-2	1,2-Dichloroethane	240	U
79-01-6	Trichloroethene	120	U
78-87-5	1,2-Dichloropropane	120	U
75-27-4	Bromodichloromethane	120	U
110-75-8	2-Chloroethyl vinyl ether	240	U
10061-01-5	cis-1,3-Dichloropropene	120	U
108-10-1	4-Methyl-2-Pentanone	240	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	240	U
79-00-5	1,1,2-Trichloroethane	240	U
127-18-4	Tetrachloroethene	120	U
591-78-6	2-Hexanone	240	U
126-48-1	Dibromochloromethane	240	U
108-90-7	Chlorobenzene	120	U
100-41-4	Ethylbenzene	240	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

271-"O"

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618104

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006103.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 15.89 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	360	U
1330-20-7	o-Xylene	240	U
100-42-5	Styrene	240	U
75-25-2	Bromoform	240	U
79-34-5	1,1,2,2-Tetrachloroethane	240	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

271-"O"

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1618104

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC006103.D

Level: (low/med) MED Date Received: 6/11/01

% Moisture: not dec. 15.89 Date Analyzed: 6/11/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Lab File ID: VC005963.D BFB Injection Date: 5/30/01

Instrument ID: GCMSVoa BFB Injection Time: 13:52

GC Column: Rtx502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

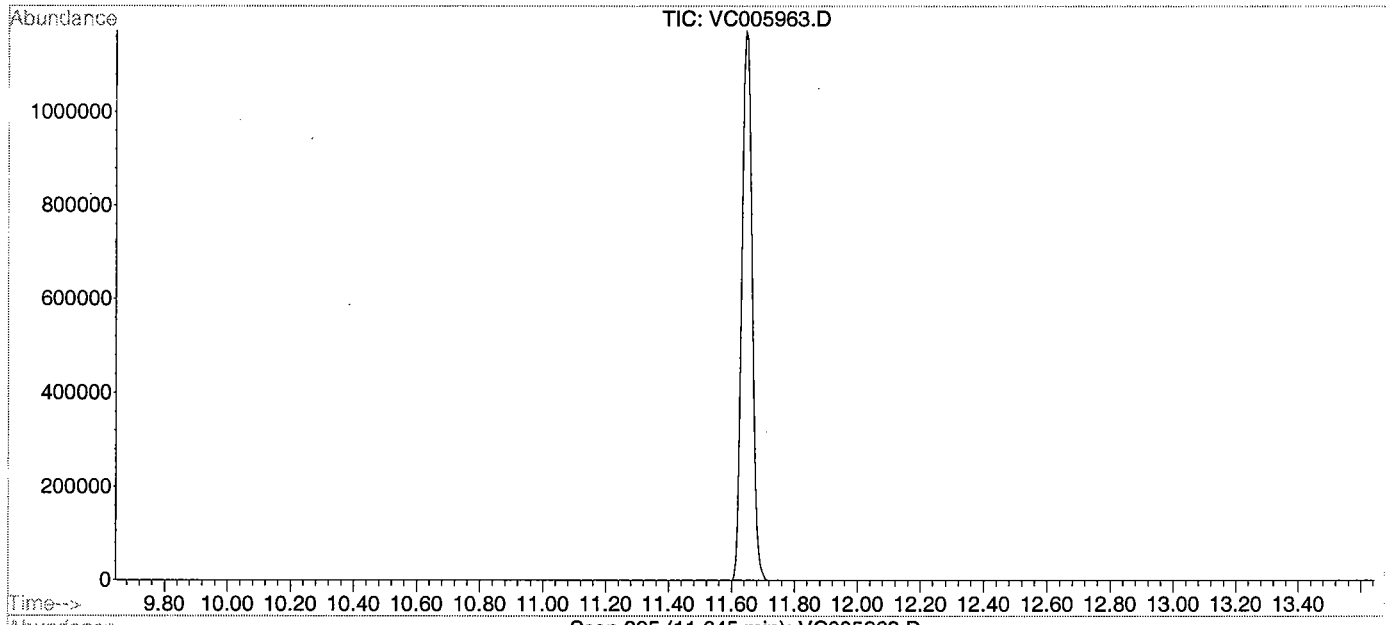
m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.8
75	30.0 - 66.0% of mass 95	52.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	67.6
175	4.0 - 9.0% of mass 174	5.0 (7.4)1
176	93.0 - 101.0% of mass 174	66.1 (97.9)1
177	5.0 - 9.0% of mass 176	4.4 (6.6)2

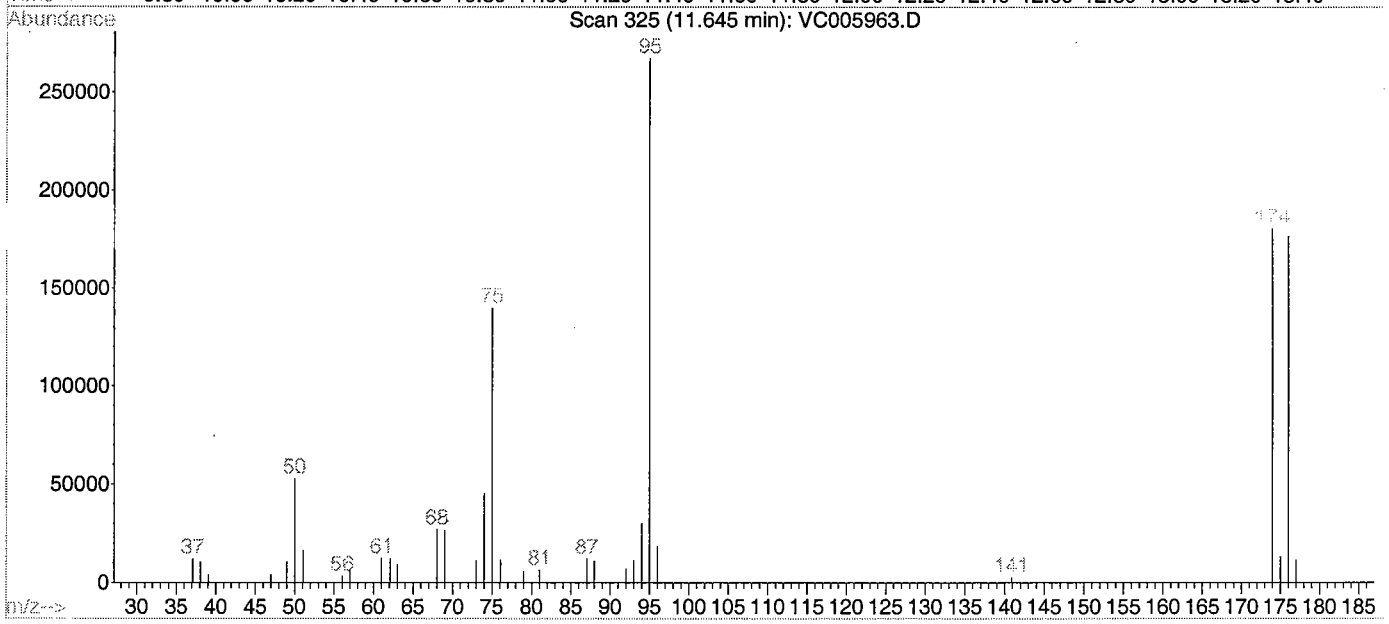
1-Value is % mass 174 2-Value is % mass 176

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

	FIELD ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD100	VSTD100	VC005964.D	5/30/01	14:21
02	VSTD050	VSTD050	VC005965.D	5/30/01	15:03
03	VSTD020	VSTD020	VC005966.D	5/30/01	15:44
04	VSTD010	VSTD010	VC005967.D	5/30/01	16:25
05	VSTD005	VSTD005	VC005968.D	5/30/01	17:06

Data File : D:\HPCHEM\1\DATA\010530\VC005963.D Vial: 2
Acq On : 30 May 2001 1:52 pm Operator: Skelton
Sample : BFB Tune Inst : GC/MS Ins
Misc : BFB Tune Multiplr: 1.00
MS Integration Params: ACETONE.P
Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP





Spectrum Information: Scan 325

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.8	52848	PASS
75	95	30	60	52.4	140096	PASS
95	95	100	100	100.0	267520	PASS
96	95	5	9	6.9	18496	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	67.6	180736	PASS
175	174	5	9	7.4	13443	PASS
176	174	95	101	97.9	176896	PASS
177	176	5	9	6.6	11645	PASS

Response Factor Report GC/MS Ins

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Initial Calibration

Calibration Files
50 =VC005965.D 5 =VC005968.D 10 =VC005967.D
20 =VC005966.D 100 =VC005964.D

		Compound	50	5	10	20	100	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------						
2)	t	Acrolein	0.655	0.600	0.650	0.602	0.627	0.627	4.14
3)	t	Acrylonitrile	1.332	1.316	1.406	1.285	1.236	1.315	4.75
4)	t	tert-Butyl alcohol	0.269	0.190	0.235	0.230	0.285	0.242	15.22
5)	t	Methyl-tert-Butyl eth	7.186	6.328	6.860	6.596	7.107	6.815	5.24
6)	t	Di-isopropyl ether	1.946	1.637	1.831	1.812	1.925	1.830	6.68
7)	T	Dichlorodifluorometha	2.492	2.322	2.337	2.309	2.439	2.380	3.40
8)	TP	Chloromethane	2.152	2.189	2.197	2.036	2.105	2.136	3.11
9)	TC	Vinyl Chloride	1.918	2.114	2.032	1.874	1.810	1.950	6.29
10)	T	Bromomethane	1.479	1.516	1.508	1.421	1.416	1.468	3.23
11)	T	Chloroethane	1.714	1.654	1.680	1.610	1.700	1.672	2.47
12)	T	Trichlorofluoromethan	3.002	2.910	2.946	2.835	2.913	2.921	2.08
13)	MC	1,1-Dichloroethene	3.457	3.282	3.392	3.241	3.395	3.353	2.65
14)	T	Acetone	0.954	1.353	1.152	0.932	1.069	1.092	15.64
15)	T	Carbon Disulfide	6.478	5.906	6.262	6.140	6.406	6.239	3.64
16)	T	Methylene Chloride	2.206	2.134	2.248	2.110	2.175	2.175	2.54
17)	T	trans-1,2-Dichloroeth	3.358	3.243	3.357	3.193	3.283	3.287	2.19
18)	TP	1,1-Dichloroethane	4.191	4.040	4.181	3.965	4.094	4.094	2.33
19)	T	Vinyl Acetate	5.818	4.756	5.355	5.281	5.680	5.378	7.68
20)	T	2-Butanone	1.373	1.129	1.279	1.215	1.480	1.295	10.53
21)	T	cis-1,2-Dichloroethen	3.293	3.124	3.303	3.130	3.203	3.211	2.67
22)	TC	Chloroform	3.802	3.710	3.816	3.627	3.678	3.726	2.18
23)	T	1,1,1-Trichloroethane	3.189	2.877	3.074	2.971	3.116	3.045	4.03
24)	T	Carbon Tetrachloride	2.661	2.394	2.481	2.447	2.651	2.527	4.84
25)	S	1,2-Dichloroethane-d4	2.823	2.824	2.794	2.806	2.806	2.811	0.46
26)	I	1,4-Difluorobenzene	----------ISTD----------						
27)	TM	Benzene	1.341	1.358	1.398	1.312	1.259	1.334	3.90
28)	T	1,2-Dichloroethane	0.482	0.509	0.511	0.471	0.468	0.488	4.21
29)	TM	Trichloroethene	0.331	0.319	0.331	0.317	0.325	0.324	2.03
30)	TC	1,2-Dichloropropane	0.365	0.353	0.367	0.349	0.357	0.358	2.24
31)	T	Bromodichloromethane	0.386	0.337	0.367	0.361	0.388	0.368	5.74
32)	T	2-Chloroethyl vinyl e	0.130	0.129	0.133	0.126	0.128	0.129	2.04
33)	T	cis-1,3-Dichloroprope	0.530	0.438	0.486	0.487	0.529	0.494	7.67
34)	T	4-Methyl-2-Pentanone	0.166	0.130	0.156	0.149	0.171	0.154	10.28
35)	S	Toluene-d8	1.212	1.214	1.207	1.208	1.219	1.212	0.40
36)	TCM	Toluene	1.318	1.368	1.388	1.304	1.227	1.321	4.76
37)	I	Chlorobenzene-d5	----------ISTD----------						
38)	T	trans-1,3-Dichloropro	1.731	1.351	1.568	1.586	1.730	1.593	9.78
39)	T	1,1,2-Trichloroethane	0.985	0.956	1.014	0.958	0.958	0.974	2.60
40)	T	Tetrachloroethene	1.006	0.992	1.028	0.977	0.973	0.995	2.26
41)	T	2-Hexanone	0.872	0.628	0.787	0.779	0.902	0.794	13.43
42)	T	Dibromochloromethane	0.887	0.680	0.789	0.791	0.905	0.810	11.16
43)	TMP	Chlorobenzene	2.876	2.962	3.067	2.866	2.749	2.904	4.08
44)	TC	Ethylbenzene	5.054	5.148	5.347	5.082	4.595	5.045	5.48
45)	T	m+p-Xylenes	1.927	1.979	2.049	1.933	1.805	1.939	4.59
46)	T	o-Xylene	3.958	3.815	4.074	3.912	3.732	3.898	3.38
47)	T	Styrene	3.339	3.010	3.346	3.248	3.212	3.231	4.22
48)	TP	Bromoform	0.571	0.373	0.469	0.486	0.596	0.499	17.81
49)	S	Bromofluorobenzene	1.669	1.658	1.672	1.672	1.694	1.673	0.77
50)	TP	1,1,2,2-Tetrachloroet	1.303	1.248	1.365	1.289	1.273	1.295	3.36
51)	T	1,3-Dichlorobenzene	2.092	1.991	2.132	2.050	2.001	2.053	2.91
52)	T	1,4-Dichlorobenzene	2.078	1.952	2.102	2.033	1.989	2.031	3.05
53)	T	1,2-Dichlorobenzene	1.966	1.847	1.999	1.933	1.881	1.925	3.22

(#) = Out of Range

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Lab File ID: VC006095.D BFB Injection Date: 6/11/01

Instrument ID: GCMSVoa BFB Injection Time: 13:33

GC Column: Rtx502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

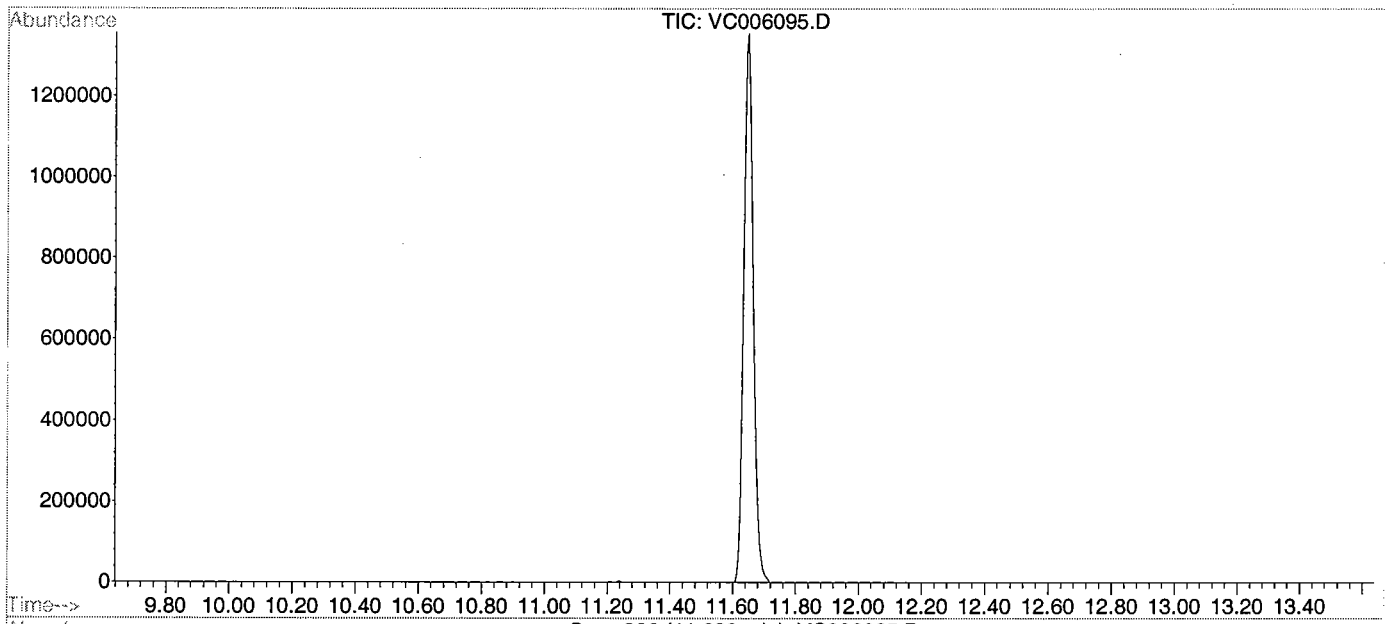
m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.0
75	30.0 - 66.0% of mass 95	46.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	58.8
175	4.0 - 9.0% of mass 174	4.2 (7.2)1
176	93.0 - 101.0% of mass 174	56.7 (96.4)1
177	5.0 - 9.0% of mass 176	4.0 (7.0)2

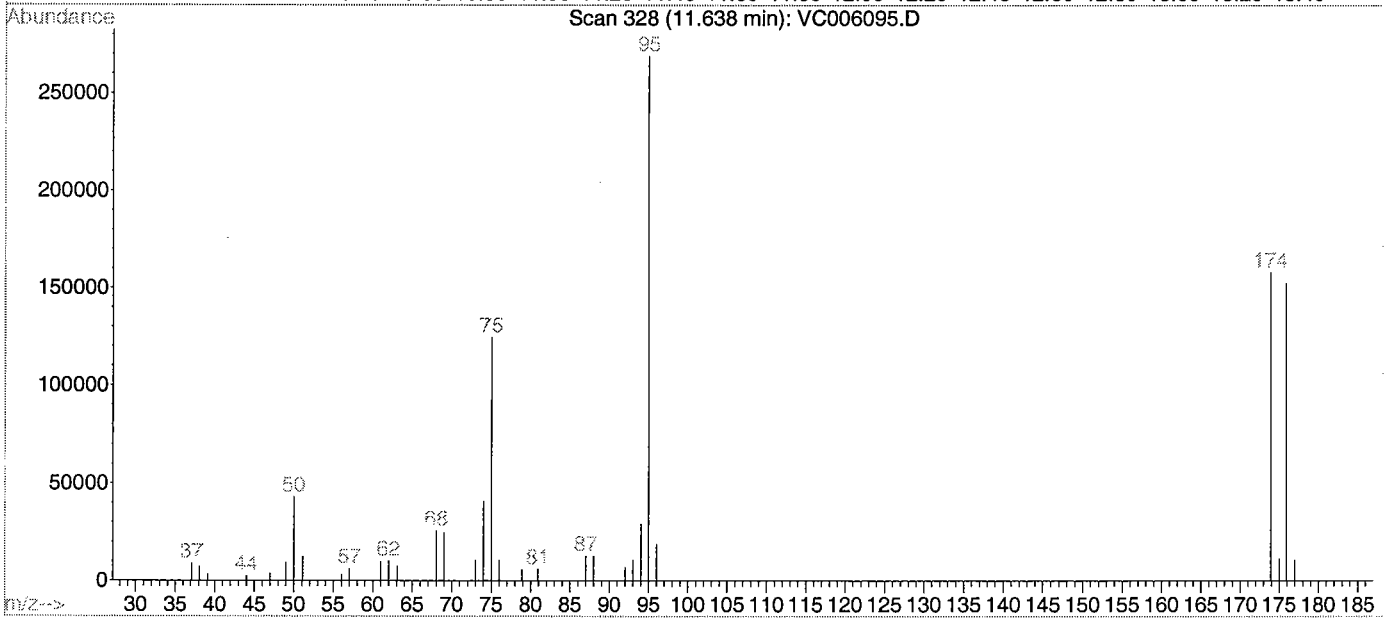
1-Value is % mass 174 2-Value is % mass 176

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

	FIELD ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	VSTD020	VC006096.D	6/11/01	14:03
02	MB 1915	MB	VC006097.D	6/11/01	14:53
03	TB	1618101	VC006102.D	6/11/01	18:32
04	271-"O"	1618104	VC006103.D	6/11/01	19:14
05	1618104MS	1618104MS	VC006104.D	6/11/01	19:55
06	1618104MSD	1618104MSD	VC006105.D	6/11/01	20:37

Data File : D:\HPCHEM\1\DATA\010611\VC006095.D Vial: 1
Acq On : 11 Jun 2001 1:33 pm Operator: Skelton
Sample : BFB Tune Inst : GC/MS Ins
Misc : BFB Tune Multiplr: 1.00
MS Integration Params: ACETONE.P
Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP





Spectrum Information: Scan 328

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.0	43008	PASS
75	95	30	60	46.4	124624	PASS
95	95	100	100	100.0	268864	PASS
96	95	5	9	7.0	18776	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	58.8	158208	PASS
175	174	5	9	7.2	11341	PASS
176	174	95	101	96.4	152448	PASS
177	176	5	9	7.0	10680	PASS

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\010611\VC006096.D Vial: 2
Acq On : 11 Jun 2001 2:03 pm Operator: Skelton
Sample : Vstd020 Inst : GC/MS Ins
Misc : Vstd020 Multiplr: 1.00
MS Integration Params: ACETONE.P

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Multiple Level Calibration

Min. RRF : 0.025 Min. Rel. Area : 25% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	129	0.00
2	t	Acrolein	0.627	0.576	8.1	124	0.00
3	t	Acrylonitrile	1.315	1.249	5.0	126	0.00
4	t	tert-Butyl alcohol	0.242	0.162	33.1#	91	-0.01
5	t	Methyl-tert-Butyl ether	6.815	5.783	15.1	113	-0.01
6	t	Di-isopropyl ether	1.830	1.741	4.9	124	0.01
7	T	Dichlorodifluoromethane	2.380	2.667	-12.1	149	0.00
8	TP	Chloromethane	2.136	2.140	-0.2	136	0.00
9	TC	Vinyl Chloride	1.950	2.158	-10.7	149	0.00
10	T	Bromomethane	1.468	1.447	1.4	132	0.00
11	T	Chloroethane	1.672	1.621	3.1	130	0.00
12	T	Trichlorofluoromethane	2.921	2.824	3.3	129	-0.01
13	MC	1,1-Dichloroethene	3.353	2.994	10.7	120	0.00
14	T	Acetone	1.092	0.783	28.3#	109	0.00
15	T	Carbon Disulfide	6.239	6.547	-4.9	138	0.00
16	T	Methylene Chloride	2.175	2.346	-7.9	144	0.00
17	T	trans-1,2-Dichloroethene	3.287	3.024	8.0	123	0.00
18	TP	1,1-Dichloroethane	4.094	3.891	5.0	127	0.00
19	T	Vinyl Acetate	5.378	3.951	26.5#	97	0.01
20	T	2-Butanone	1.295	0.908	29.9#	97	0.00
21	T	cis-1,2-Dichloroethene	3.211	2.901	9.7	120	0.00
22	TC	Chloroform	3.726	3.769	-1.2	134	0.00
23	T	1,1,1-Trichloroethane	3.045	2.989	1.8	130	0.01
24	T	Carbon Tetrachloride	2.527	2.614	-3.4	138	0.00
25	S	1,2-Dichloroethane-d4	2.811	2.297	18.3	106	0.00
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	129	0.00
27	TM	Benzene	1.334	1.430	-7.2	141	0.01
28	T	1,2-Dichloroethane	0.488	0.422	13.5	116	0.00
29	TM	Trichloroethene	0.324	0.344	-6.2	140	0.00
30	TC	1,2-Dichloropropane	0.358	0.343	4.2	127	-0.01
31	T	Bromodichloromethane	0.368	0.386	-4.9	138	0.00
32	T	2-Chloroethyl vinyl ether	0.129	0.120	7.0	123	-0.01
33	T	cis-1,3-Dichloropropene	0.494	0.487	1.4	129	0.00
34	T	4-Methyl-2-Pentanone	0.154	0.134	13.0	116	-0.01
35	S	Toluene-d8	1.212	1.195	1.4	128	0.00
36	TCM	Toluene	1.321	1.443	-9.2	143	0.00
37	I	Chlorobenzene-d5	1.000	1.000	0.0	127	0.00
38	T	trans-1,3-Dichloropropene	1.593	1.559	2.1	125	0.00
39	T	1,1,2-Trichloroethane	0.974	1.115	-14.5	148	0.00
40	T	Tetrachloroethene	0.995	1.009	-1.4	131	0.00
41	T	2-Hexanone	0.794	0.611	23.0	99	0.00
42	T	Dibromochloromethane	0.810	0.914	-12.8	146	0.00
43	TMP	Chlorobenzene	2.904	3.252	-12.0	144	0.01
44	TC	Ethylbenzene	5.045	5.591	-10.8	140	0.00
45	T	m+p-Xylenes	1.939	2.093	-7.9	137	0.01
46	T	o-Xylene	3.898	3.960	-1.6	128	0.00
47	T	Styrene	3.231	3.486	-7.9	136	0.00
48	TP	Bromoform	0.499	0.568	-13.8	148	0.00
49	S	Bromofluorobenzene	1.673	1.580	5.6	120	0.00
50	TP	1,1,2,2-Tetrachloroethane	1.295	1.431	-10.5	141	0.00
51	T	1,3-Dichlorobenzene	2.053	2.003	2.4	124	0.00
52	T	1,4-Dichlorobenzene	2.031	1.970	3.0	123	0.00
53	T	1,2-Dichlorobenzene	1.925	1.898	1.4	125	0.00

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

4A

VOLATILE METHOD BLANK SUMMARY

FIELD ID.

MB 1915

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Lab File ID: VC006097.D Lab Sample ID: MB

Date Analyzed: 6/11/01 Time Analyzed: 14:53

GC Column: Rtx502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMSVoa

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

	FIELD ID.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TB	1618101	VC006102.D	18:32
02	271-"O"	1618104	VC006103.D	19:14
03	1618104MS	1618104MS	VC006104.D	19:55
04	1618104MSD	1618104MSD	VC006105.D	20:37

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FMETL **Project** 01-0001

NJDEP # 13461 **Location** Bldg271

	EPA SAMPLE NO.	SMC1 1,2-DCE-d4	SMC2 Tol-d8	SMC3 BFB	TOT OUT
01	MB 1915	83.0%	97.6%	88.7%	0
02	TB	114.8%	118.3%	125.0%	0
03	271-"O"	101.3%	107.1%	115.6%	0

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

D System Monitoring Compounds diluted out

Spike Recovery and RPD Summary Report - Soil

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Initial Calibration

Non-Spiked Sample: VC006103.D

	Spike Sample	Spike Duplicate Sample
File ID :	VC006104.D	VC006105.D
Sample :	1618104MS	1618104MSD
Acq Time:	11 Jun 2001 7:55 pm	11 Jun 2001 8:37 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	20	18	19	89	94	5	22	59-172
Benzene	0.0	20	21	21	103	106	3	21	66-142
Trichloroethene	0.0	20	26	27	131	136	4	24	62-137
Toluene	0.0	20	21	22	106	109	3	21	59-139
Chlorobenzene	0.0	20	21	22	106	110	4	21	60-133

- Fails Limit Check

M362444.M Thu Jun 21 11:24:44 2001

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16181 Location: 271 SDG No.:

Lab File ID (Standard): VC006096.D Date Analyzed: 6/11/01

Instrument ID: GCMSVoa Time Analyzed: 14:03

GC Column: Rtx502.2 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	757601	16.70	5102597	19.42	1476091	27.25
	UPPER LIMIT	1515202	17.20	10205194	19.92	2952182	27.75
	LOWER LIMIT	378801	16.20	2551299	18.92	738046	26.75
	FIELD ID.						
01	MB 1915	703030	16.70	4701478	19.42	1338453	27.25
02	TB	797247	16.70	5544368	19.42	1764151	27.24
03	271-"O"	807927	16.70	5595202	19.42	1705626	27.25
04	1618104MS	833518	16.70	5698287	19.42	1730220	27.25
05	1618104MSD	818574	16.69	5639779	19.42	1701028	27.25

IS1 BCM = Bromochloromethane

IS2 DFB = 1,4-Difluorobenzene

IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\010611\VC006097.D Vial: 2
Acq On : 11 Jun 2001 2:53 pm Operator: Skelton
Sample : MB Inst : GC/MS Ins
Misc : MB Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 11 15:29 2001 Quant Results File: M362444.RES

Quant Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Mon Jun 11 14:41:14 2001
Response via : Initial Calibration
DataAcq Meth : M362444

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.70	128	703030	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	19.42	114	4701478	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.25	119	1338453	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.31	65	1639305	24.89	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 82.97%			
35) Toluene-d8	23.42	98	5563271	29.29	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 97.63%			
49) Bromofluorobenzene	30.25	95	1985282	26.60	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 88.67%			
Target Compounds						Qvalue

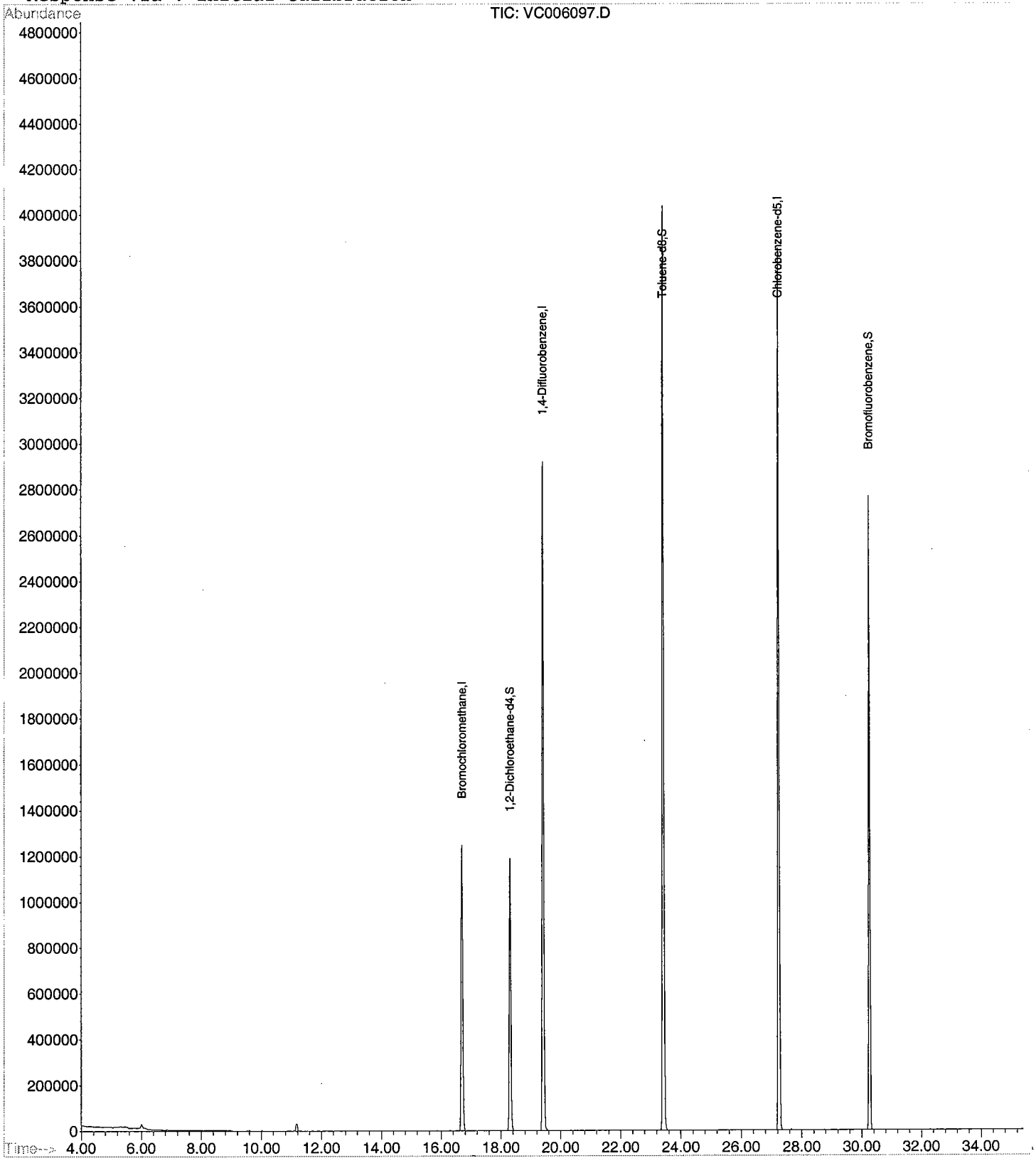
(#) = qualifier out of range (m) = manual integration
VC006097.D M362444.M Thu Jun 21 09:51:30 2001 Page 1

000082

Quantitation Report

Data File : D:\HPCHEM\1\DATA\010611\VC006097.D Vial: 2
Acq On : 11 Jun 2001 2:53 pm Operator: Skelton
Sample : MB Inst : GC/MS Ins
Misc : MB Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 11 15:29 2001 Quant Results File: M362444.RES

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Initial Calibration



000033

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\010611\VC006102.D Vial: 5
Acq On : 11 Jun 2001 6:32 pm Operator: Skelton
Sample : 1618101 Inst : GC/MS Ins
Misc : TB Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 21 11:05 2001 Quant Results File: M362444.RES

Quant Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Mon Jun 11 14:41:14 2001
Response via : Initial Calibration
DataAcq Meth : M362444

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.70	128	797247	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	19.42	114	5544368	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.24	119	1764151	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.30	65	6857272	91.81	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 306.03%#			
35) Toluene-d8	23.42	98	21200008	94.66	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 315.53%#			
49) Bromofluorobenzene	30.25	95	9838325	100.01	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 333.37%#			

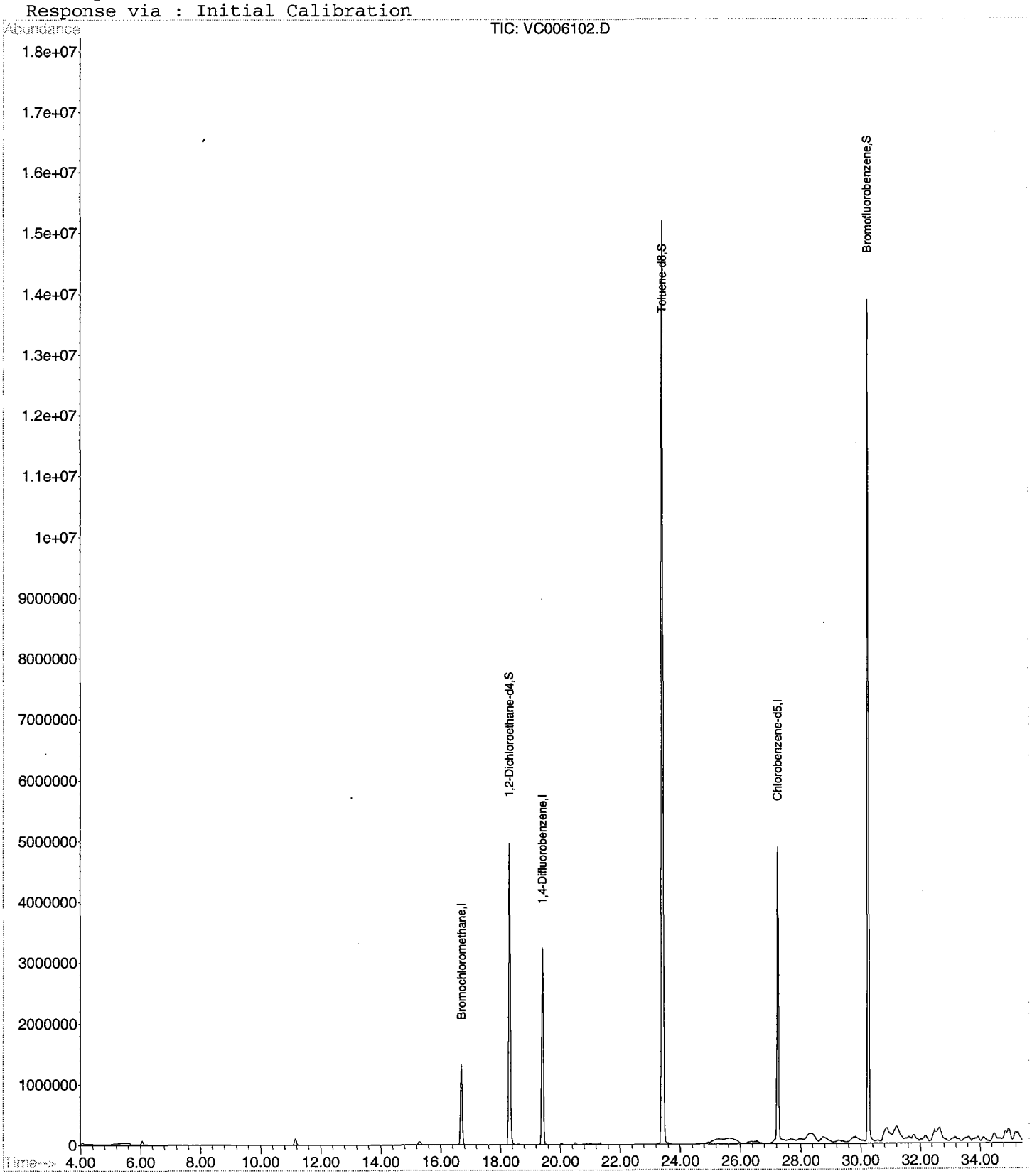
Target Compounds Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\010611\VC006102.D Vial: 5
Acq On : 11 Jun 2001 6:32 pm Operator: Skelton
Sample : 1618101 Inst : GC/MS Ins
Misc : TB Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 21 11:05 2001 Quant Results File: M362444.RES

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\010611\VC006103.D Vial: 6
Acq On : 11 Jun 2001 7:14 pm Operator: Skelton
Sample : 1618104 Inst : GC/MS Ins
Misc : 271-O Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 21 11:05 2001 Quant Results File: M362444.RES

Quant Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Mon Jun 11 14:41:14 2001
Response via : Initial Calibration
DataAcq Meth : M362444

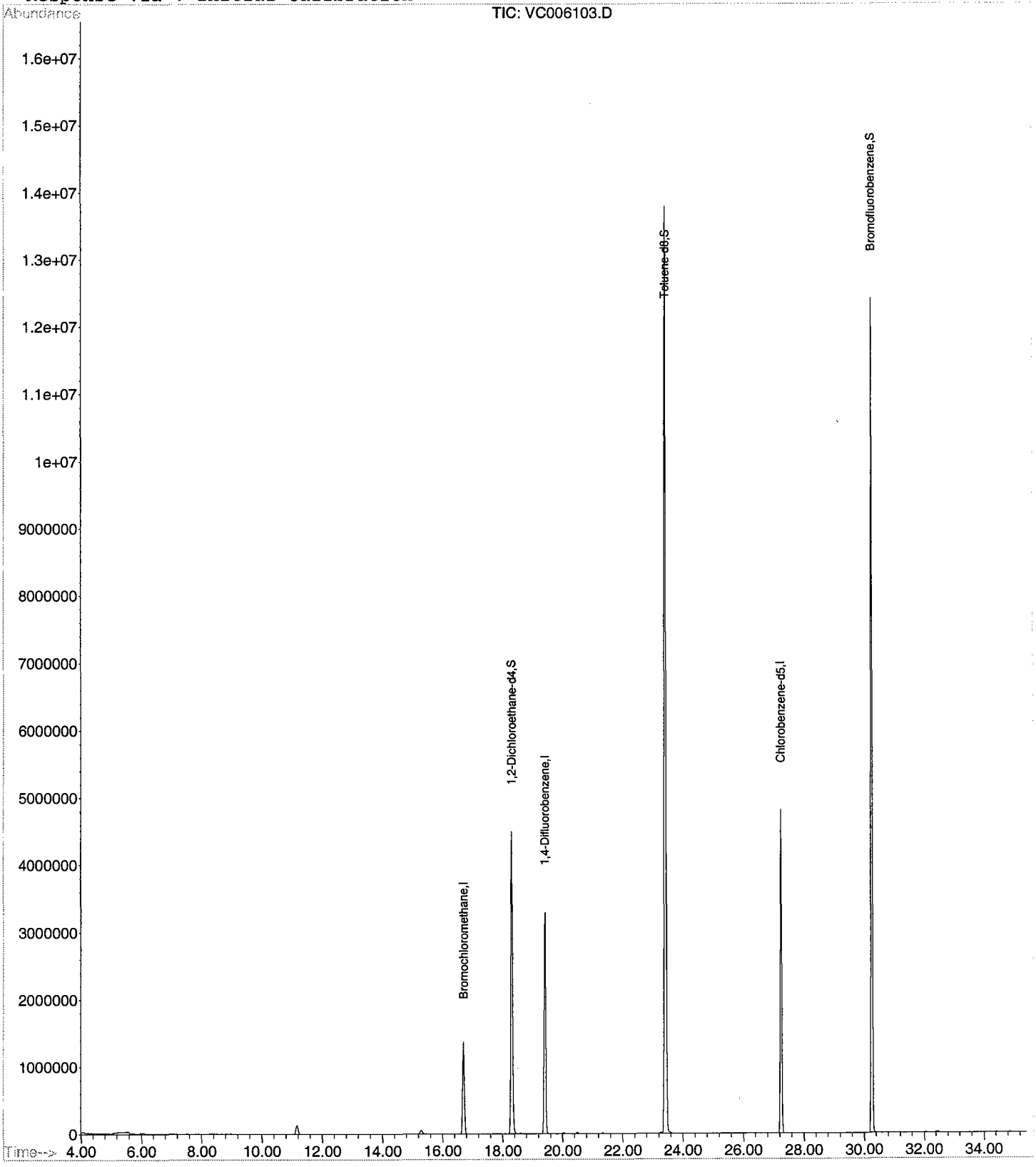
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.70	128	807927	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	19.42	114	5595202	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.25	119	1705626	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.30	65	6132037	81.01	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 270.03%#			
35) Toluene-d8	23.42	98	19368523	85.70	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 285.67%#			
49) Bromofluorobenzene	30.25	95	8794214	92.47	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 308.23%#			
Target Compounds						Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\010611\VC006103.D Vial: 6
Acq On : 11 Jun 2001 7:14 pm Operator: Skelton
Sample : 1618104 Inst : GC/MS Ins
Misc : 271-O Multiplr: 1.00
MS Integration Params: ACETONE.P
Quant Time: Jun 21 11:05 2001 Quant Results File: M362444.RES

Method : D:\HPCHEM\1\METHODS\M362444.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Jun 20 14:04:20 2001
Response via : Initial Calibration



000037

TPHC

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

Client :	U.S. Army	**Project # :**	16181
	DPW. SELFM-PW-EV	**Location :**	Bldg271
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis :	OQA-QAM-025	**Date Received :**	11-Jun-01
Matrix :	Soil	**Date Extracted :**	18-Jun-01
Inst. ID. :	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	18-Jun-01
Injection Volume :	1uL	**Analyst :**	Skelton

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
1618102	271"J"-1	**1.00**	15.79	93.01	160	**2256.25**
1618103	271"J"-2	**1.00**	15.98	88.28	167	**ND**
1618104	271"O"	**1.00**	15.39	84.11	182	**ND**
1618105	FD	**1.00**	17.23	91.20	150	**547.68**
METHOD BLANK	MB-1908	**1.00**	15.00	100.00	157	**ND**

ND = Not Detected

MDL = Method Detection Limit

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001

Calibration Files
200 =T013081.D 100 =T013082.D 50 =T013083.D
20 =T013084.D 10 =T013085.D 5 =T013086.D

		Compound	200	100	50	20	10	5	Avg		%RSD
1)	tC	C8	1.912	1.920	1.914	1.819	1.721	1.757	1.840	E4	4.77
2)	tC	C10	2.206	2.226	2.156	2.028	1.927	1.695	2.040	E4	9.98
3)	TC	C12	2.391	2.417	2.394	2.381	2.223	2.409	2.369	E4	3.07
4)	tC	C14	2.493	2.539	2.492	2.549	2.413	2.329	2.469	E4	3.40
5)	tC	C16	2.548	2.602	2.579	2.636	2.546	2.661	2.595	E4	1.80
6)	tC	C18	2.392	2.552	2.432	2.589	2.265	2.006	2.373	E4	9.02
7)	tC	C20	2.635	2.690	2.665	2.686	2.541	2.481	2.616	E4	3.29
8)	tC	C22	2.732	2.789	2.780	2.854	2.780	2.936	2.812	E4	2.57
9)	tC	C24	2.768	2.823	2.815	2.880	2.813	2.937	2.839	E4	2.11
10)	tC	C26	2.782	2.839	2.833	2.897	2.847	2.994	2.865	E4	2.55
11)	tC	C28	2.794	2.848	2.838	2.893	2.814	2.915	2.851	E4	1.62
12)	tC	C30	2.919	2.955	2.943	2.962	2.874	2.936	2.931	E4	1.08
13)	tC	C32	2.850	2.890	2.883	2.903	2.817	2.903	2.874	E4	1.19
14)	tC	C34	2.789	2.828	2.812	2.813	2.715	2.809	2.794	E4	1.47
15)	tC	C36	2.452	2.495	2.473	2.456	2.332	2.367	2.429	E4	2.66
16)	tC	C38	1.830	1.876	1.848	1.812	1.674	1.677	1.786	E4	4.96
17)	tC	C40	1.131	1.166	1.131	1.087	0.970	0.980	1.077	E4	7.75
18)	tC	c42	7.582	7.846	7.431	6.759	5.911	5.538	6.845	E3	13.82
19)	TC	Pristane	2.657	2.671	2.668	2.845	2.911	3.125	2.813	E4	6.63
20)	TC	Phytane	2.707	2.788	2.793	2.935	2.958	3.170	2.892	E4	5.75
21)	sC	o-terphenyl	2.962	3.020	3.012	3.096	3.040	3.165	3.049	E4	2.35
22)	tC	TPHC - total	2.746	2.758	2.861	3.048	3.223	3.872	3.085	E4	13.84

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\010618\T013088.D Vial: 100
Acq On : 18 Jun 2001 8:39 am Operator: Skelton
Sample : Tstd050s Inst : GC/MS Ins
Misc : Tstd050s Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
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	18.405	19.704 E3	-7.1	103	0.00
2	tC	C10	20.397	22.886 E3	-12.2	106	0.00
3	TC	C12	23.689	25.256 E3	-6.6	106	0.00
4	tC	C14	24.693	26.603 E3	-7.7	107	0.00
5	tC	C16	25.954	27.551 E3	-6.2	107	0.00
6	tC	C18	23.728	27.995 E3	-18.0	115	0.00
7	tC	C20	26.164	27.957 E3	-6.9	105	0.00
8	tC	C22	28.117	29.801 E3	-6.0	107	0.00
9	tC	C24	28.392	30.106 E3	-6.0	107	0.00
10	tC	C26	28.655	30.295 E3	-5.7	107	0.00
11	tC	C28	28.505	30.328 E3	-6.4	107	0.00
12	tC	C30	29.314	31.378 E3	-7.0	107	0.00
13	tC	C32	28.742	30.632 E3	-6.6	106	0.00
14	tC	C34	27.943	30.101 E3	-7.7	107	0.00
15	tC	C36	24.291	27.115 E3	-11.6	110	0.00
16	tC	C38	17.862	20.730 E3	-16.1	112	0.00
17	tC	C40	10.774	12.641 E3	-17.3	112	0.00
18	tC	c42	6.845	7.942 E3	-16.0	107	0.00
19	TC	Pristane	28.129	29.623 E3	-5.3	111	0.00
20	TC	Phytane	28.918	29.829 E3	-3.2	107	0.00
21	sC	o-terphenyl	30.493	32.073 E3	-5.2	106	0.00
22	tC	TPHC - total	30.846	30.813 E3	0.1	108	-1.22#

(#) = Out of Range SPCC's out = 0 CCC's out = 0
T013088.D TPH87.M Wed Jun 20 15:08:34 2001

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\010618\T013099.D Vial: 11
Acq On : 18 Jun 2001 7:58 pm Operator: Skelton
Sample : Tstd050s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
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	18.405	23.152 E3	-25.8#	121	0.00
2	tC	C10	20.397	27.050 E3	-32.6#	125	0.00
3	TC	C12	23.689	29.425 E3	-24.2	123	0.00
4	tC	C14	24.693	30.815 E3	-24.8	124	0.00
5	tC	C16	25.954	31.660 E3	-22.0	123	0.00
6	tC	C18	23.728	31.141 E3	-31.2#	128	0.00
7	tC	C20	26.164	32.079 E3	-22.6	120	0.00
8	tC	C22	28.117	33.909 E3	-20.6	122	0.00
9	tC	C24	28.392	34.308 E3	-20.8	122	0.00
10	tC	C26	28.655	34.439 E3	-20.2	122	0.00
11	tC	C28	28.505	34.484 E3	-21.0	121	0.00
12	tC	C30	29.314	35.708 E3	-21.8	121	0.00
13	tC	C32	28.742	34.883 E3	-21.4	121	0.00
14	tC	C34	27.943	34.455 E3	-23.3	123	0.00
15	tC	C36	24.291	31.504 E3	-29.7#	127	0.00
16	tC	C38	17.862	24.979 E3	-39.8#	135	0.00
17	tC	C40	10.774	16.366 E3	-51.9#	145	0.01
18	tC	c42	6.845	11.853 E3	-73.2#	160	0.00
19	TC	Pristane	28.129	33.030 E3	-17.4	124	0.00
20	TC	Phytane	28.918	33.069 E3	-14.4	118	0.00
21	sC	o-terphenyl	30.493	36.883 E3	-21.0	122	0.00
22	tC	TPHC - total	30.846	35.340 E3	-14.6	124	-0.27

(#) = Out of Range SPCC's out = 0 CCC's out = 7
T013099.D TPH87.M Wed Jun 20 15:09:46 2001

000042

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\010618\T013110.D Vial: 22
Acq On : 19 Jun 2001 2:03 am Operator: Skelton
Sample : Tstd050s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E

Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
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	18.405	19.374 E3	-5.3	101	0.00
2	tC	C10	20.397	22.934 E3	-12.4	106	0.00
3	TC	C12	23.689	25.152 E3	-6.2	105	0.00
4	tC	C14	24.693	26.449 E3	-7.1	106	0.00
5	tC	C16	25.954	27.213 E3	-4.9	106	0.00
6	tC	C18	23.728	25.262 E3	-6.5	104	0.00
7	tC	C20	26.164	27.878 E3	-6.6	105	0.00
8	tC	C22	28.117	29.086 E3	-3.4	105	0.00
9	tC	C24	28.392	29.354 E3	-3.4	104	0.00
10	tC	C26	28.655	29.429 E3	-2.7	104	0.00
11	tC	C28	28.505	29.393 E3	-3.1	104	0.00
12	tC	C30	29.314	30.406 E3	-3.7	103	0.00
13	tC	C32	28.742	29.716 E3	-3.4	103	0.00
14	tC	C34	27.943	29.266 E3	-4.7	104	0.00
15	tC	C36	24.291	26.744 E3	-10.1	108	0.00
16	tC	C38	17.862	21.188 E3	-18.6	115	0.00
17	tC	C40	10.774	13.956 E3	-29.5#	123	0.00
18	tC	c42	6.845	10.138 E3	-48.1#	136	0.01
19	TC	Pristane	28.129	29.165 E3	-3.7	109	0.00
20	TC	Phytane	28.918	29.552 E3	-2.2	106	0.00
21	sC	o-terphenyl	30.493	31.617 E3	-3.7	105	0.00
22	tC	TPHC - total	30.846	32.908 E3	-6.7	115	-0.27

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

Client :	U.S. Army	**Project # :**	16181
	DPW. SELFM-PW-EV	**Location :**	Bldg271
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	**Date Received :**	11-Jun-01
Matrix:	Soil	**Date Extracted :**	18-Jun-01
Inst. ID.	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	18-Jun-01
Injection Volume :	1uL	**Analyst :**	Skelton

Sample			Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
1618102			10.00	7.77	**77.71**
1618103			10.00	7.42	**74.21**
1618104			10.00	7.52	**75.20**
1618105			10.00	15.24	**152.36**
METHOD BLANK	MB-1908		10.00	7.76	**77.64**

Surrogate Added : **o-Terphenyl**

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

Client :	U.S. Army	**Project # :**	16181
	DPW. SELFM-PW-EV	**Location :**	Bldg271
	Bldg. 173	**UST Reg. # :**	
	Ft. Monmouth, NJ 07703		
Analysis:	OQA-QAM-025	**Date Received :**	11-Jun-01
Matrix:	Soil	**Date Extracted :**	18-Jun-01
Inst. ID.	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	18-Jun-01
Injection Volume :	1uL	**Analyst :**	Skelton

Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
MS-1910	1000	1212.65	2121.50	90.89	75-125
MSD-1911	1000	1212.65	2345.38	113.27	75-125
			RPD	**21.93**	**20.00**

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\010618\T013089.D Vial: 1
Acq On : 18 Jun 2001 2:25 pm Operator: Skelton
Sample : MB 1908s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:28 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Initial Calibration
DataAcq Meth : TPH87.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	12.49	236761	7.764 mg/L m
Spiked Amount 10.000	Range 8 - 13	Recovery =	77.64%#
Target Compounds			

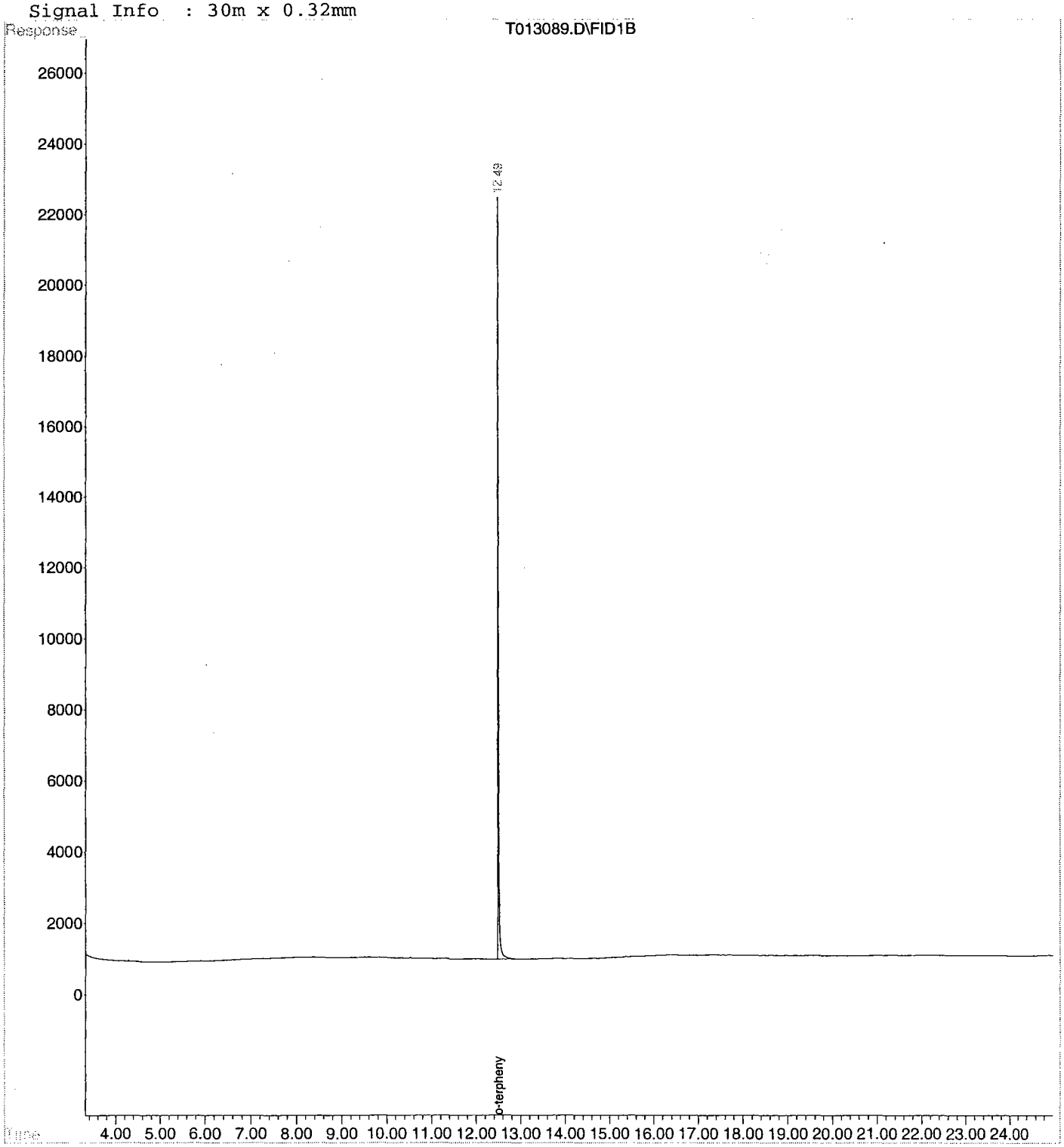
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\010618\T013089.D Vial: 1
Acq On : 18 Jun 2001 2:25 pm Operator: Skelton
Sample : MB 1908s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:28 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPH87.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\010618\T013098.D Vial: 10
Acq On : 18 Jun 2001 7:25 pm Operator: Skelton
Sample : 1618102s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:34 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Initial Calibration
DataAcq Meth : TPH87.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	12.49	236969	7.771 mg/L
Spiked Amount 10.000 Range 8 - 13	Recovery = 77.71%#		
Target Compounds			
8) tC C22	12.69	72171	2.567 mg/L
9) tC C24	13.48	1054937	37.156 mg/L
10) tC C26	14.34	99968	3.489 mg/L
11) tC C28	14.79	40946	1.436 mg/L
12) tC C30	15.40	48705	1.661 mg/L
13) tC C32	16.09	85921	2.989 mg/L
15) tC C36	17.87	40684	1.675 mg/L
17) tC C40	20.70	30355	2.817 mg/L
20) TC Phytane	12.09	844972	29.219 mg/L
22) tC TPHC - total	13.27	20442543	662.719 mg/L m

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

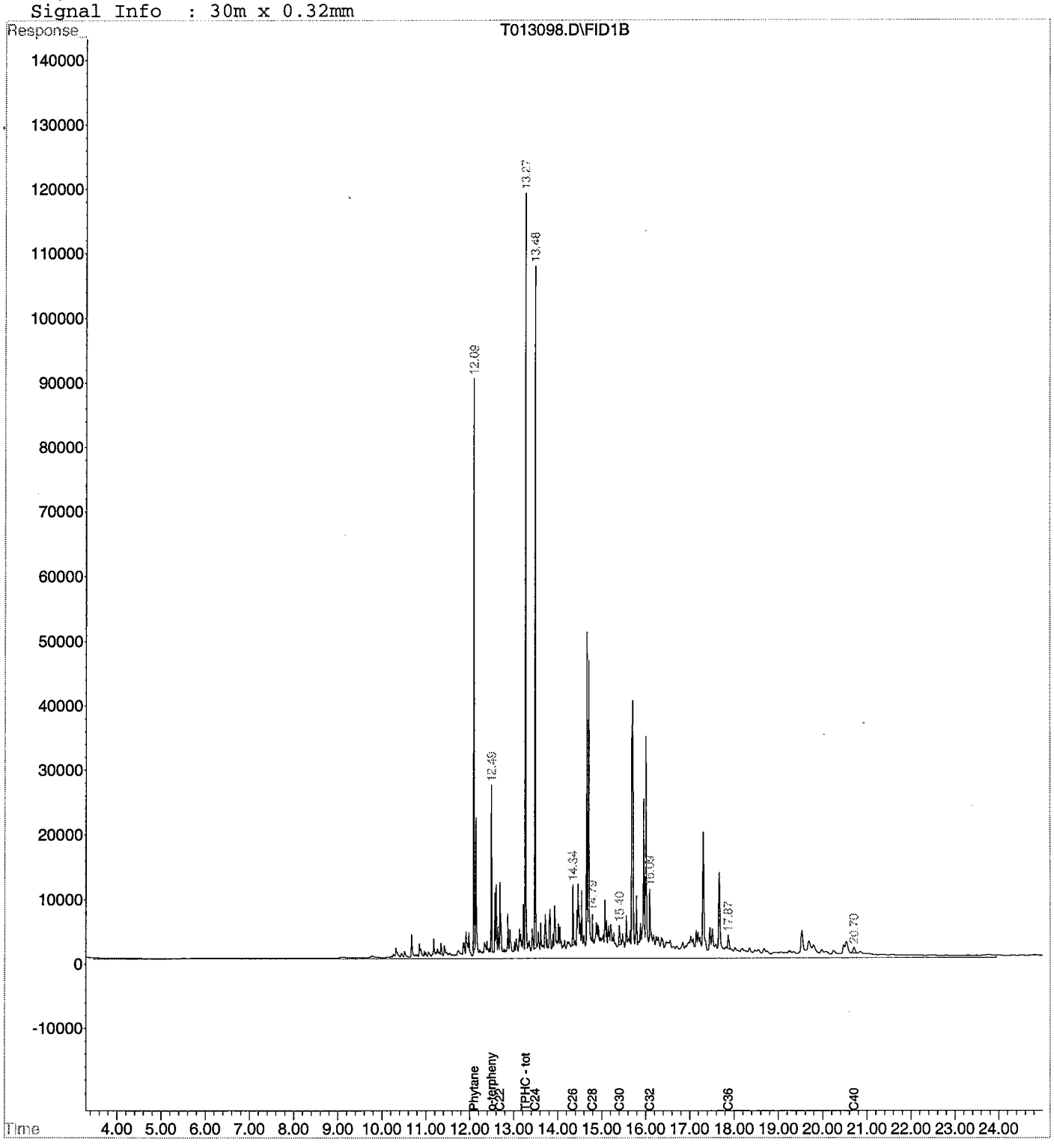
000048

Quantitation Report

Data File : C:\HPCHEM\1\DATA\010618\T013098.D Vial: 10
Acq On : 18 Jun 2001 7:25 pm Operator: Skelton
Sample : 1618102s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:34 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPH87.M

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



000049

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\010618\T013100.D Vial: 12
Acq On : 18 Jun 2001 8:31 pm Operator: Skelton
Sample : 1618103s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 7:51 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Initial Calibration
DataAcq Meth : TPH87.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	12.49	226265	7.420 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	74.20%#
Target Compounds			

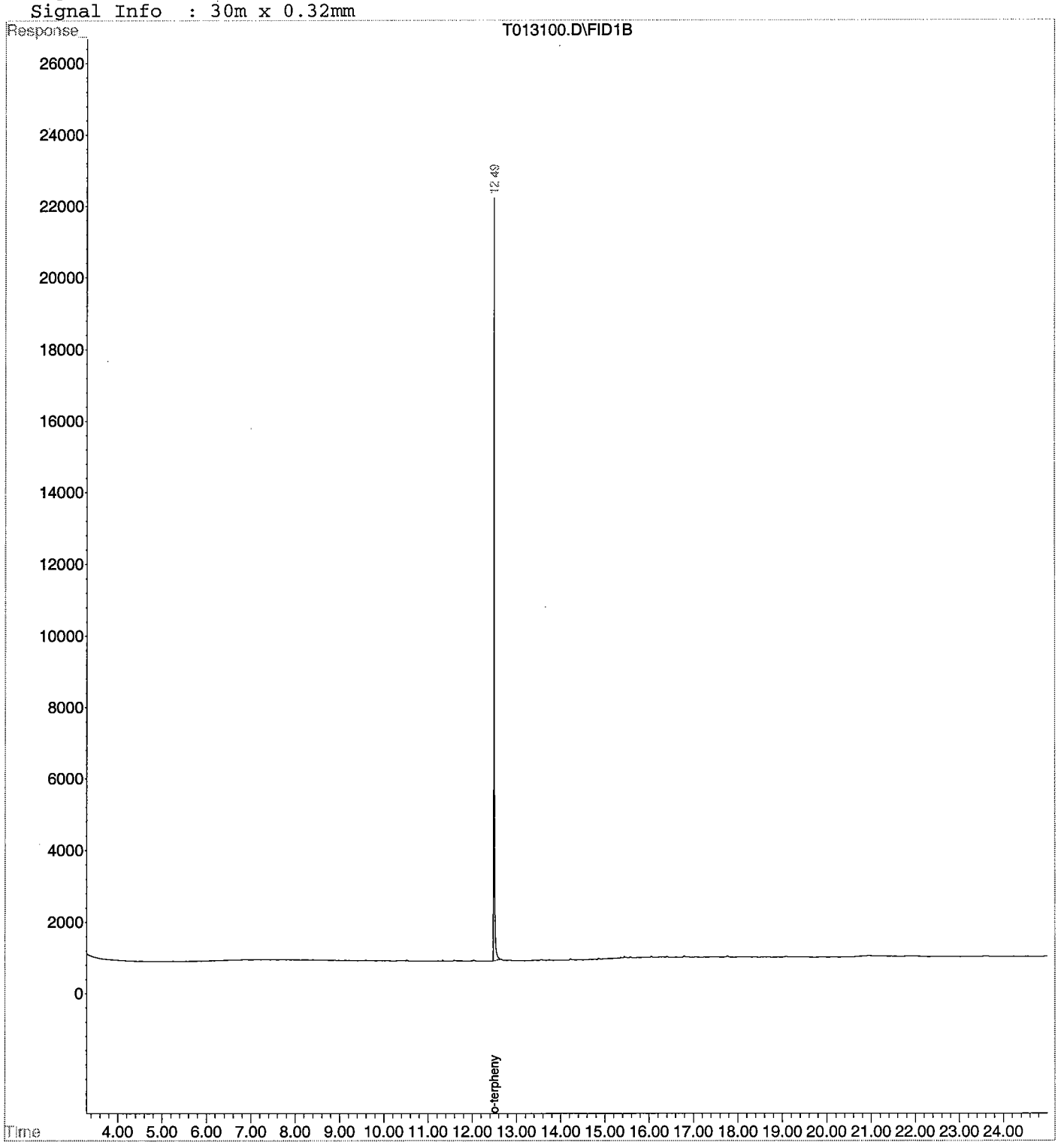
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\010618\T013100.D Vial: 12
Acq On : 18 Jun 2001 8:31 pm Operator: Skelton
Sample : 1618103s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 7:51 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPH87.M

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



000051

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\010618\T013101.D Vial: 13
Acq On : 18 Jun 2001 9:04 pm Operator: Skelton
Sample : 1618104s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 7:51 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Initial Calibration
DataAcq Meth : TPH87.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	12.49	229292	7.520 mg/L
Spiked Amount 10.000	Range 8 - 13	Recovery =	75.20%#
Target Compounds			

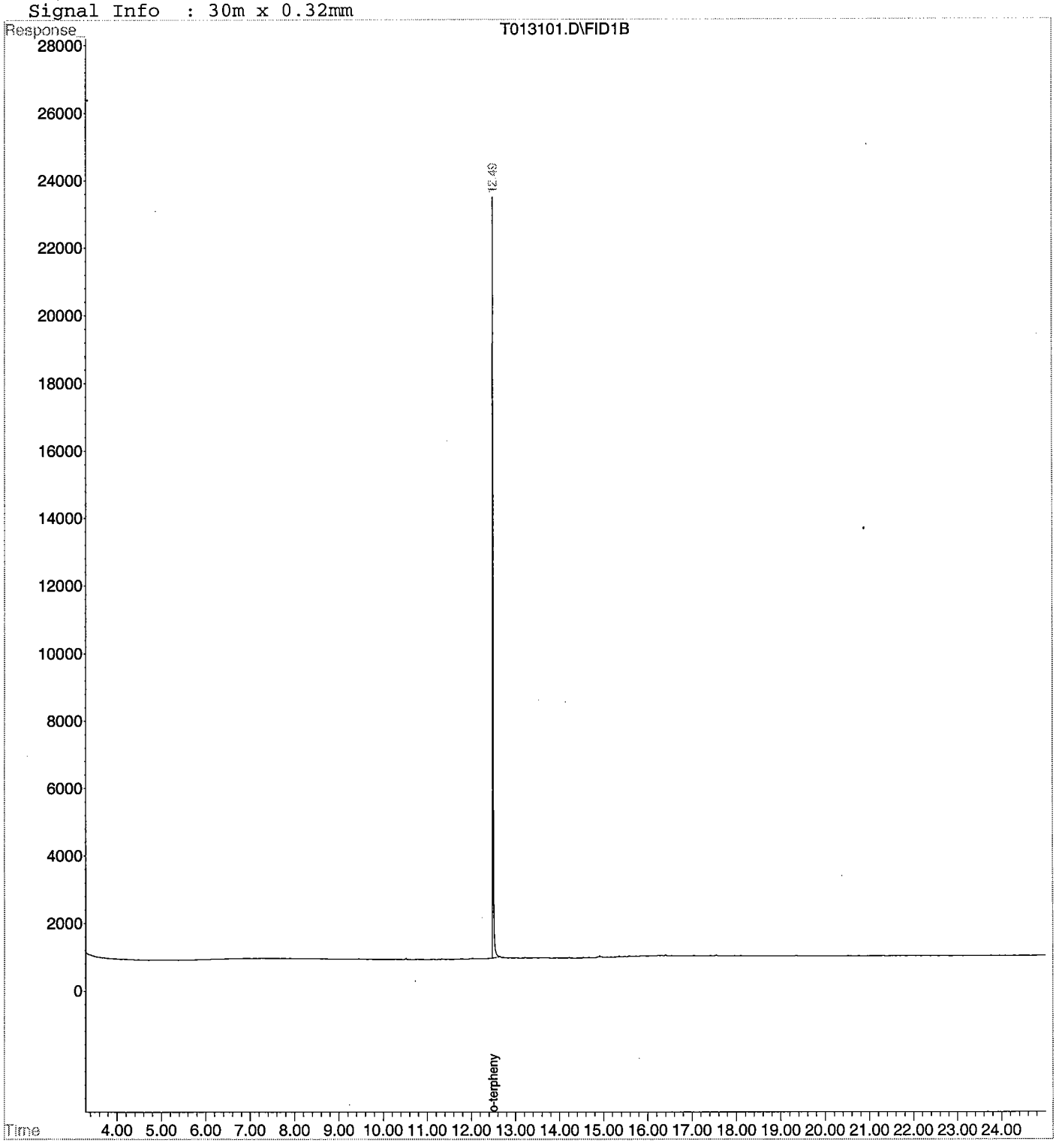
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\010618\T013101.D Vial: 13
Acq On : 18 Jun 2001 9:04 pm Operator: Skelton
Sample : 1618104s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 7:51 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPH87.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\010618\T013102.D Vial: 14
Acq On : 18 Jun 2001 9:37 pm Operator: Skelton
Sample : 1618105s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:36 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Initial Calibration
DataAcq Meth : TPH87.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	12.49	464579	15.236 mg/L
Spiked Amount 10.000 Range 8 - 13		Recovery =	152.36%#
Target Compounds			
9) tC C24	13.48	134360	4.732 mg/L
11) tC C28	14.71	57768	2.027 mg/L
13) tC C32	16.01	73741	2.566 mg/L
15) tC C36	17.67	44512	1.832 mg/L
20) TC Phytane	12.11	36499	1.262 mg/L
22) tC TPHC - total	12.49	5309312	172.121 mg/L m

000054

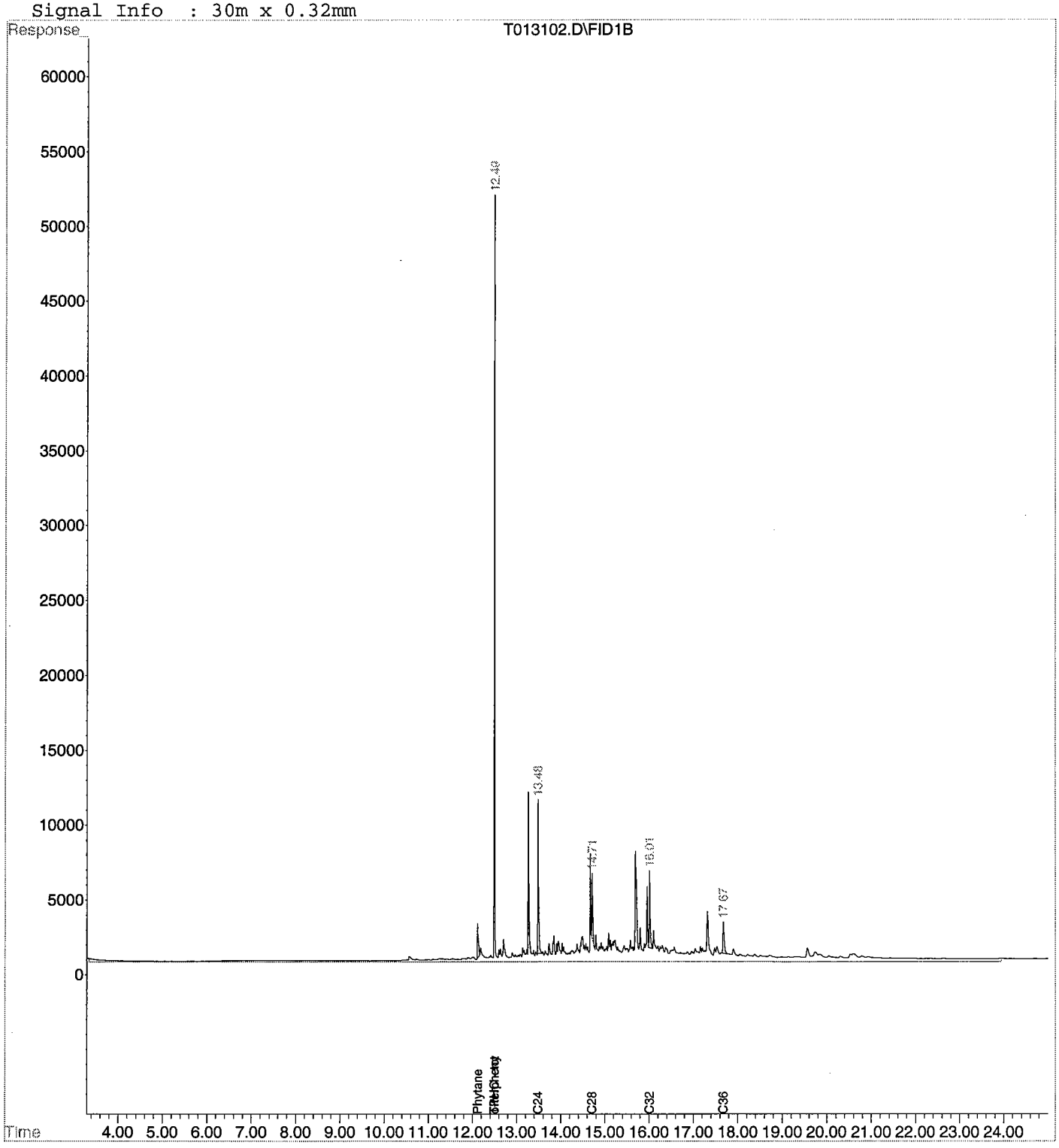
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\010618\T013102.D Vial: 14
Acq On : 18 Jun 2001 9:37 pm Operator: Skelton
Sample : 1618105s Inst : GC/MS Ins
Misc : Multiplr: 1.00
IntFile : TPHCINT.E
Quant Time: Jun 19 15:36 2001 Quant Results File: TPH87.RES

Quant Method : C:\HPCHEM\1\METHODS\TPH87.M (Chemstation Integrator)
Title : TPHC Calibration 06/05/97 21 peaks
Last Update : Mon Jun 18 09:16:27 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPH87.M

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



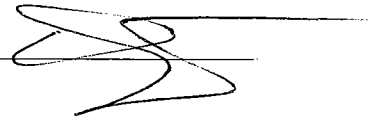
LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature 

Date 6/26/01

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

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: UST Program

Bldg. 271

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
T. B.	2006101	Methanol	29-Jan-02	01/29/02
271J1/2'	2006102	Soil	29-Jan-02 13:35	01/29/02

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, %SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

3-12-02
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)532-6263 EMail:wrightd@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: D. DESAI
Phone #: 12 1475
( )DERA (✓)OMA ( )Other:_____

Project No: 02-12539
Location: BLDG. 271

Samplers Name / Company: MARK LAURA - TVS-PWS 07

Comments: NO FID/PID

LIMS/Work Order #	Sample Location	Date	Time	Sample Type	# bottles	VOA+15	%SOLIDS						Remarks / Preservation Method
20061 01	T.B.	1-29-02	—	METH.	1	X							2998 <4oc
02	27151 2'	"	1335	SOIL	2	X	X						2999 <4oc

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	1415 1-29-02				
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, ( )EDD
Turnaround time: (X)Standard 3 wks, ( )Rush ____ Days, ( )ASAP Verbal ____ Hrs.

Remarks:

000002

print legibly

Coc.xls1/23/02

METHOD SUMMARY

Method Summary

NJDEP Method 8260

Gas Chromatographic Determination of Volatiles in Soil

A 5-gram volume of soil sample is added to 5mL aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent solid, moisture and concentration.

CONFORMANCE-
NON-
CONFORMANCE

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate Yes, No, N/A

1. Chromatograms labeled/Compounds identified (Field samples and method blanks) — Yes

2. Retention times for chromatograms provided — Yes

3. GC/MS Tune Specifications
   a. BFB Meet Criteria — Yes
   b. DFTPP Meet Criteria — NA

4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series — yes

5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — Yes

6. GC/MS Calibration requirements
   a. Calibration Check Compounds Meet Criteria — Yes
   b. System Performance Check Compounds Meet Criteria — Yes

7. Blank Contamination – If yes, List compounds and concentrations in each blank: — No
   a. VOA Fraction _____
   b. B/N Fraction NA
   c. Acid Fraction NA

8. Surrogate Recoveries Meet Criteria — YES

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:
   a. VOA Fraction _____
   b. B/N Fraction NA
   c. Acid Fraction NA

   If not met, were the calculations checked and the results qualified as "estimated"? _____

9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) — Yes
   a. VOA Fraction _____
   b. B/N Fraction NA
   c. Acid Fraction NA

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

Indicate
Yes, No, N/A

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

a. VOA Fraction _____
b. B/N Fraction NA
c. Acid Fraction NA

11. Extraction Holding Time Met — NA

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

12. Analysis Holding Time Met — Yes

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

Additional Comments:

Laboratory Manager: _____ Date: 3-12-02

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 20061

Site: Bldg. 271

	Date	Hold Time
Date Sampled	01/29/02	NA
Receipt/Refrigeration	01/29/02	NA

Analyses

1. Volatile Organics	02/05/02	14 days

VOLATILE ORGANICS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab ID.

MB 5Feb02

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: MB 5Feb02

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB010726.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 0 Date Analyzed: 2/5/02

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

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

CONCENTRATION UNITS:

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab ID.

MB 5Feb02

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: MB 5Feb02

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB010726.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 0 Date Analyzed: 2/5/02

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

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

CONCENTRATION UNITS:

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

MB 5Feb02

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: MB 5Feb02

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB010726.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 0 Date Analyzed: 2/5/02

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

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

Lab ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 2006101

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB010727.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 0 Date Analyzed: 2/5/02

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

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

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

1A

Lab ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 2006101

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VB010727.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 0 Date Analyzed: 2/5/02

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

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab ID. **271J1 2'**

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 2006102

Sample wt/vol: 10.1 (g/ml) G Lab File ID: VB010728.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 15.25 Date Analyzed: 2/5/02

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

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	820	U
107131	Acrylonitrile	820	U
75650	tert-Butyl alcohol	1500	U
1634044	Methyl-tert-Butyl ether	350	U
108203	Di-isopropyl ether	230	U
75718	Dichlorodifluoromethane	470	U
74-87-3	Chloromethane	120	U
75-01-4	Vinyl Chloride	350	U
74-83-9	Bromomethane	230	U
75-00-3	Chloroethane	350	U
75-69-4	Trichlorofluoromethane	230	U
75-35-4	1,1-Dichloroethene	120	U
67-64-1	Acetone	230	U
75-15-0	Carbon Disulfide	120	U
75-09-2	Methylene Chloride	230	U
156-60-5	trans-1,2-Dichloroethene	230	U
75-34-3	1,1-Dichloroethane	120	U
108-05-4	Vinyl Acetate	350	U
78-93-3	2-Butanone	350	U
156-59-2	cis-1,2-Dichloroethene	120	U
67-66-3	Chloroform	120	U
71-55-6	1,1,1-Trichloroethane	120	U
56-23-5	Carbon Tetrachloride	230	U
71-43-2	Benzene	120	U
107-06-2	1,2-Dichloroethane	230	U
79-01-6	Trichloroethene	120	U
78-87-5	1,2-Dichloropropane	120	U
124-48-1	Bromodichloromethane	120	U
110-75-8	2-Chloroethyl vinyl ether	230	U
10061-01-5	cis-1,3-Dichloropropene	120	U
108-10-1	4-Methyl-2-Pentanone	230	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	230	U
79-00-5	1,1,2-Trichloroethane	230	U
127-18-4	Tetrachloroethene	120	U
591-78-6	2-Hexanone	230	U
124-48-1	Dibromochloromethane	230	U
108-90-7	Chlorobenzene	120	U
100-41-4	Ethylbenzene	230	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab ID. **271J1 2'**

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 2006102

Sample wt/vol: 10.1 (g/ml) G Lab File ID: VB010728.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 15.25 Date Analyzed: 2/5/02

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	350	U
95-47-6	o-Xylene	230	U
100-42-5	Styrene	230	U
75-25-2	Bromoform	230	U
79-34-5	1,1,2,2-Tetrachloroethane	230	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab ID.

271J1 2'

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 2006102

Sample wt/vol: 10.1 (g/ml) G Lab File ID: VB010728.D

Level: (low/med) MED Date Received: 1/29/02

% Moisture: not dec. 15.25 Date Analyzed: 2/5/02

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

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Lab File ID: VB010720.D BFB Injection Date: 2/5/02

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

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.3
75	30.0 - 66.0% of mass 95	51.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	80.6
175	4.0 - 9.0% of mass 174	6.3 (7.8)1
176	93.0 - 101.0% of mass 174	78.3 (97.2)1
177	5.0 - 9.0% of mass 176	5.2 (6.6)2

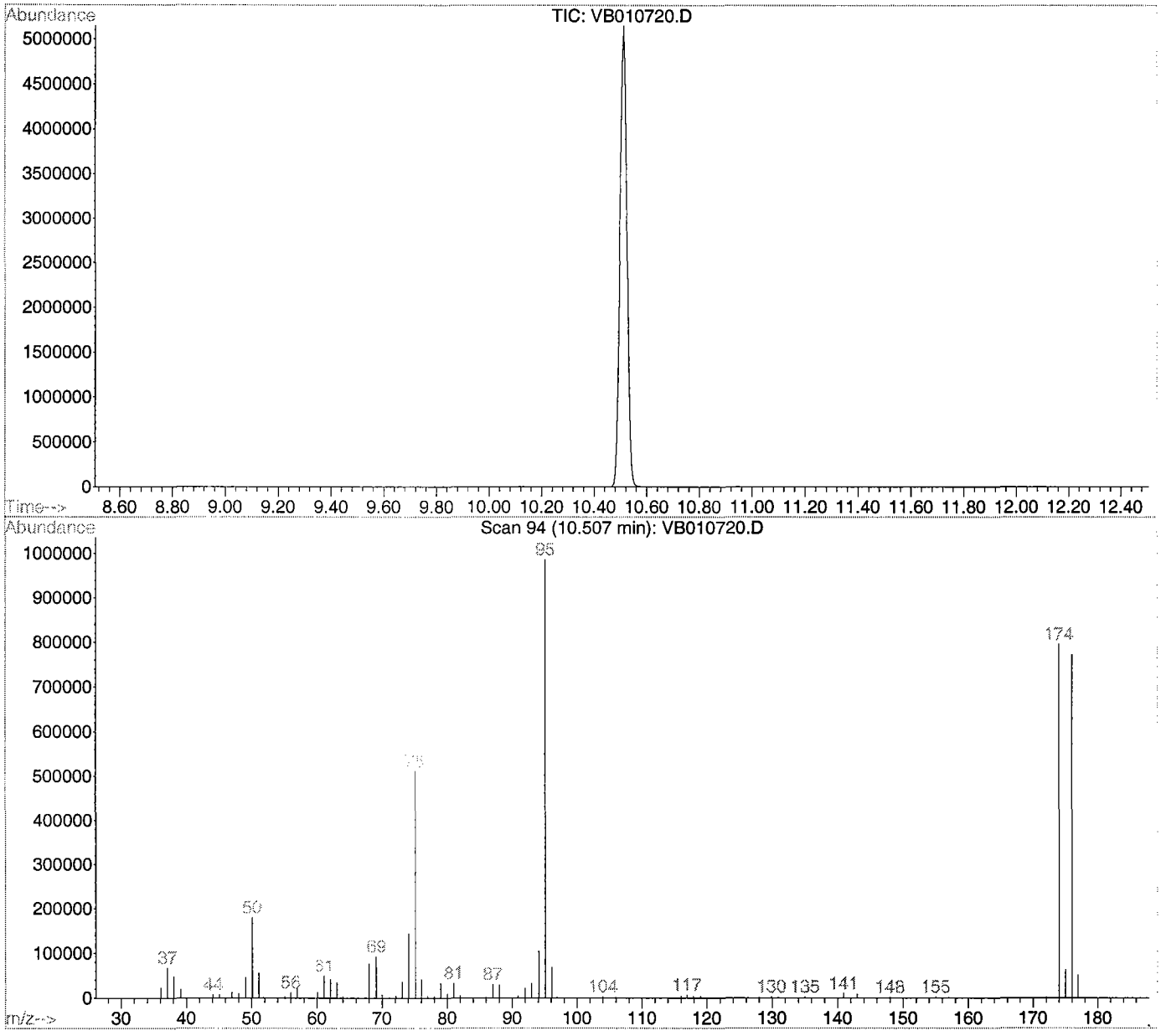
1-Value is % mass 174 2-Value is % mass 176

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

	Lab ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD100	VSTD100	VB010721.D	2/5/02	11:33
02	VSTD050	VSTD050	VB010722.D	2/5/02	12:14
03	VSTD020	VSTD020	VB010723.D	2/5/02	12:55
04	VSTD010	VSTD010	VB010724.D	2/5/02	13:35
05	VSTD005	VSTD005	VB010725.D	2/5/02	14:16
06	MB 5FEB02	MB 5FEB02	VB010726.D	2/5/02	15:11
07	TRIP BLANK	2006101	VB010727.D	2/5/02	16:04
08	271J1 2'	2006102	VB010728.D	2/5/02	16:45
09	271J1 2' MS	2006102 MS	VB010729.D	2/5/02	17:26
10	271J1 2' MSD	2006102 MSD	VB010730.D	2/5/02	18:07

BFB

Data File : C:\HPCHEM\1\DATA\020205\VB010720.D Vial: 1
Acq On : 5 Feb 2002 10:55 am Operator: Skelton
Sample : BFB Tune Inst : GC VOA 2
Misc : BFB Tune Multiplr: 1.00
MS Integration Params: TBA.P
Method : C:\HPCHEM\1\METHODS\M262478.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP



Spectrum Information: Scan 94

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.3	180544	PASS
75	95	30	60	51.9	511808	PASS
95	95	100	100	100.0	987072	PASS
96	95	5	9	7.0	68616	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	80.6	795904	PASS
175	174	5	9	7.8	62432	PASS
176	174	95	101	97.2	773248	PASS
177	176	5	9	6.6	50864	PASS

Response Factor Report GC VOA 2

Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Feb 27 11:24:07 2002
Response via : Initial Calibration

Calibration Files
100 =VB010721.D 50 =VB010722.D 20 =VB010723.D
10 =VB010724.D 5 =VB010725.D

		Compound	100	50	20	10	5	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------						
2)	t	Acrolein	0.365	0.264	0.272	0.266	0.244	0.282	16.83
3)	t	Acrylonitrile	1.382	0.741	0.807	0.758	0.750	0.888	31.27
4)	t	tert-Butyl alcohol	0.147	0.137	0.152	0.131	0.118	0.137	9.93
5)	t	Methyl-tert-Butyl eth	5.641	5.292	5.476	5.206	4.989	5.321	4.71
6)	t	Di-isopropyl ether	1.580	1.452	1.515	1.403	1.263	1.443	8.35
7)	T	Dichlorodifluorometha	3.273	3.393	3.700	3.052	2.964	3.276	8.91
8)	TP	Chloromethane	2.828	2.832	3.095	2.840	2.851	2.889	3.99
9)	TC	Vinyl Chloride	2.757	2.814	3.068	2.757	2.703	2.820	5.12
10)	T	Bromomethane	1.436	1.405	1.518	1.408	1.434	1.440	3.17
11)	T	Chloroethane	1.429	1.377	1.481	1.371	1.351	1.402	3.75
12)	T	Trichlorofluoromethan	4.333	4.227	4.547	4.367	4.361	4.367	2.64
13)	MC	1,1-Dichloroethene	3.300	3.165	3.336	3.119	2.937	3.171	5.02
14)	T	Acetone	0.795	0.613	0.720	0.672	0.654	0.691	10.11
15)	T	Carbon Disulfide	5.576	5.385	5.673	5.277	4.820	5.346	6.22
16)	T	Methylene Chloride	1.990	1.926	2.080	2.111	1.291	1.879	17.93
17)	T	trans-1,2-Dichloroeth	2.941	2.886	3.168	3.027	2.830	2.970	4.45
18)	TP	1,1-Dichloroethane	3.170	3.012	3.169	3.435	3.401	3.237	5.48
19)	T	Vinyl Acetate	4.625	4.309	3.882	3.862	3.255	3.987	13.00
20)	T	2-Butanone	0.918	0.768	0.835	0.784	0.722	0.805	9.27
21)	T	cis-1,2-Dichloroethen	2.979	2.892	3.016	2.950	2.804	2.928	2.83
22)	TC	Chloroform	3.613	3.561	3.874	3.782	3.727	3.711	3.41
23)	T	1,1,1-Trichloroethane	3.282	3.199	3.304	3.162	3.025	3.195	3.48
24)	T	Carbon Tetrachloride	2.870	2.780	2.893	2.727	2.491	2.752	5.85
25)	S	1,2-Dichloroethane-d4	2.536	2.734	2.783	2.856	2.773	2.737	4.39
26)	I	1,4-Difluorobenzene	----------ISTD----------						
27)	TM	Benzene	1.131	1.121	1.211	1.153	1.108	1.145	3.56
28)	T	1,2-Dichloroethane	0.468	0.455	0.492	0.481	0.491	0.477	3.30
29)	TM	Trichloroethene	0.334	0.319	0.334	0.320	0.310	0.324	3.27
30)	TC	1,2-Dichloropropane	0.293	0.277	0.294	0.270	0.270	0.280	4.25
31)	T	Bromodichloromethane	0.388	0.365	0.373	0.349	0.345	0.364	4.89
32)	T	2-Chloroethyl vinyl e	0.119	0.117	0.124	0.115	0.119	0.119	2.82
33)	T	cis-1,3-Dichloroprope	0.472	0.435	0.428	0.385	0.323	0.409	13.91
34)	T	4-Methyl-2-Pentanone	0.093	0.083	0.083	0.079	0.066	0.081	11.97
35)	S	Toluene-d8	1.133	1.135	1.128	1.139	1.138	1.135	0.38
36)	TCM	Toluene	1.170	1.211	1.319	1.240	1.207	1.230	4.52
37)	I	Chlorobenzene-d5	----------ISTD----------						
38)	T	trans-1,3-Dichloropro	1.770	1.587	1.513	1.325	1.155	1.470	16.17
39)	T	1,1,2-Trichloroethane	1.022	0.968	1.029	0.979	0.935	0.987	3.95
40)	T	Tetrachloroethene	1.390	1.307	1.366	1.283	1.297	1.329	3.51
41)	T	2-Hexanone	0.721	0.571	0.566	0.471	0.466	0.559	18.50
42)	T	Dibromochloromethane	1.036	0.950	0.914	0.802	0.739	0.888	13.34
43)	TMP	Chlorobenzene	3.078	3.006	3.208	3.040	3.116	3.089	2.53
44)	TC	Ethylbenzene	4.832	5.277	5.538	5.137	5.005	5.158	5.20
45)	T	m+p-Xylenes	1.838	1.829	1.908	1.784	1.730	1.818	3.62
46)	T	o-Xylene	3.935	3.972	4.139	3.721	3.413	3.836	7.28
47)	T	Styrene	3.353	3.263	3.295	2.893	2.702	3.101	9.25
48)	TP	Bromoform	0.629	0.563	0.495	0.413	0.355	0.491	22.50
49)	S	Bromofluorobenzene	1.727	1.735	1.674	1.693	1.677	1.701	1.66
50)	TP	1,1,2,2-Tetrachloroet	1.276	1.184	1.264	1.169	1.119	1.203	5.52
51)	T	1,3-Dichlorobenzene	2.624	2.583	2.648	2.452	2.338	2.529	5.17
52)	T	1,4-Dichlorobenzene	2.762	2.774	2.841	2.594	2.501	2.694	5.23
53)	T	1,2-Dichlorobenzene	2.593	2.544	2.614	2.441	2.314	2.501	4.96

(#) = Out of Range

4A

Lab ID.

VOLATILE METHOD BLANK SUMMARY

MB 5Feb02

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Lab File ID: VB010726.D Lab Sample ID: MB 5Feb02

Date Analyzed: 2/5/02 Time Analyzed: 15:11

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

Instrument ID: GCMS#2

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

	Lab ID.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TRIP BLANK	2006101	VB010727.D	16:04
02	271J1 2'	2006102	VB010728.D	16:45
03	271J1 2' MS	2006102 MS	VB010729.D	17:26
04	271J1 2' MSD	2006102 MSD	VB010730.D	18:07

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	FMETL	**Project**	02-12539
NJDEP #	13461	**Location**	Bldg271

	EPA SAMPLE NO.	SMC1 1,2-DCE-d4	SMC2 Tol-d8	SMC3 BFB
01	MB 5Jan02	105.0	96.0	95.0
02	Trip Blank	135.0	106.0	118.7
03	271J1 2'	131.0	102.3	113.0

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

D System Monitoring Compounds diluted out

Spike Recovery and RPD Summary Report - Soil

Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Wed Feb 27 11:24:07 2002
Response via : Initial Calibration

Non-Spiked Sample: VB010728.D

	Spike Sample	Spike Duplicate Sample
File ID :	VB010729.D	VB010730.D
Sample :	2006102 MS	2006102 MSD
Acq Time:	5 Feb 2002 5:26 pm	5 Feb 2002 6:07 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	20	19	20	96	101	5	22	59-172
Benzene	0.0	20	19	20	97	99	2	21	66-142
Trichloroethene	0.0	20	18	19	92	96	4	24	62-137
Toluene	0.0	20	20	20	100	102	3	21	59-139
Chlorobenzene	0.0	20	19	19	95	96	1	21	60-133

- Fails Limit Check

M262477.M Wed Feb 27 11:25:23 2002

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Project: 0212539

NJDEP#: 13461 Case No.: 20061 Location: Bldg27 SDG No.:

Lab File ID (Standard): VB010723.D Date Analyzed: 2/5/02

Instrument ID: GCMS#2 Time Analyzed: 12:55

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

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	720769	16.76	5171833	19.48	1348190	27.32
	UPPER LIMIT	1441538	17.26	10343666	19.98	2696380	27.82
	LOWER LIMIT	360385	16.26	2585917	18.98	674095	26.82
	Lab ID.						
01	MB 5FEB02	677256	16.76	4772704	19.48	1256518	27.32
02	TRIP BLANK	646098	16.76	4882601	19.48	1287710	27.32
03	271J1 2'	622221	16.77	4840783	19.48	1263518	27.33
04	271J1 2' MS	655746	16.77	4991466	19.48	1302682	27.33
05	271J1 2' MSD	654520	16.78	4930401	19.48	1296974	27.33

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

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

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

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\020205\VB010726.D Vial: 5
Acq On : 5 Feb 2002 3:11 pm Operator: Skelton
Sample : MB 5Feb02 Inst : GC VOA 2
Misc : MB 5Feb02 Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 5 15:48 2002 Quant Results File: M262477.RES

Quant Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Feb 05 14:54:49 2002
Response via : Initial Calibration
DataAcq Meth : M262477

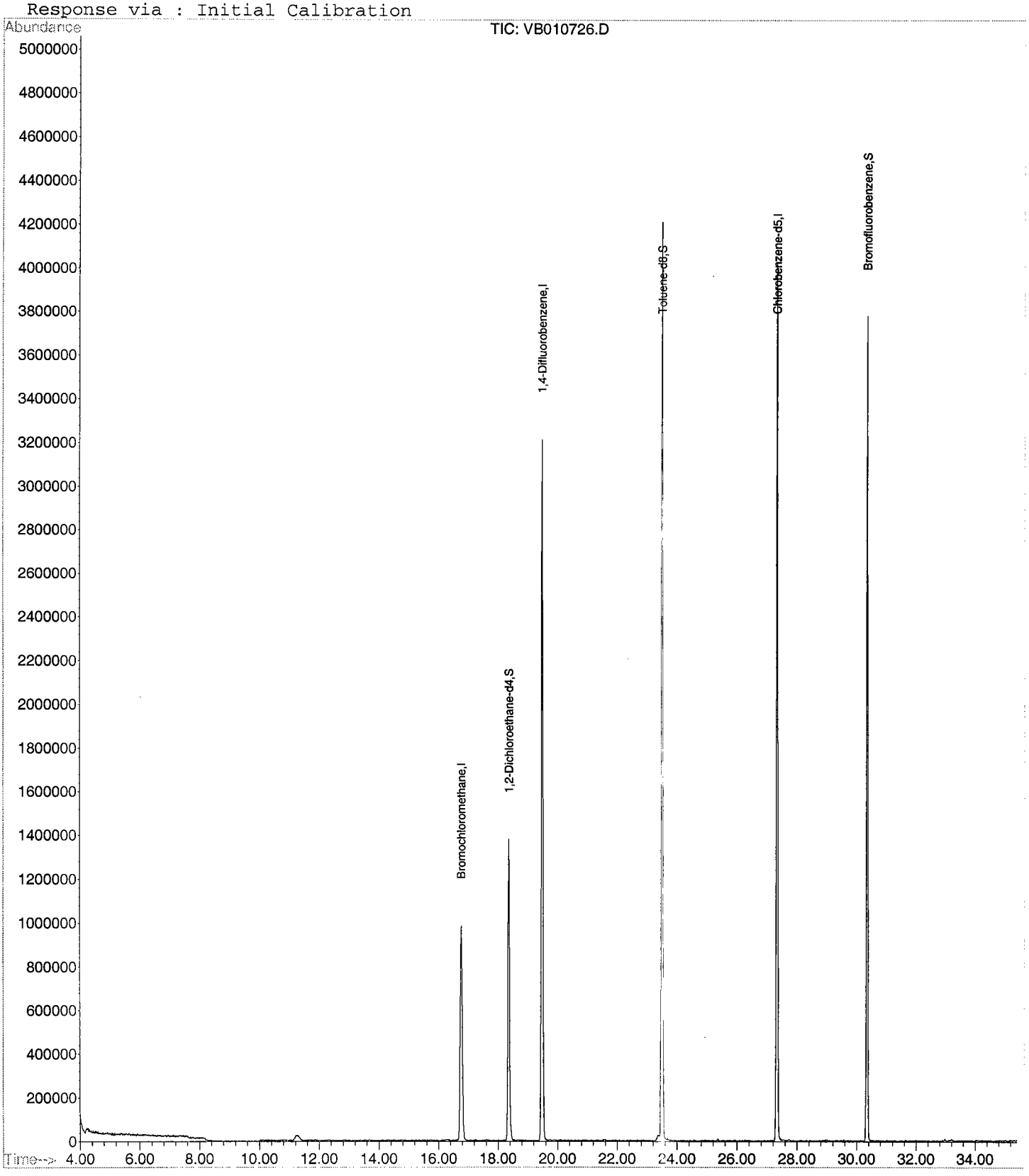
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.76	128	677256	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	19.48	114	4772704	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.32	119	1256518	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.36	65	1920693	31.09	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 103.63%			
35) Toluene-d8	23.50	98	5406289	29.95	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 99.83%			
49) Bromofluorobenzene	30.34	95	2052585	28.81	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 96.03%			
Target Compounds						Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\020205\VB010726.D Vial: 5
Acq On : 5 Feb 2002 3:11 pm Operator: Skelton
Sample : MB 5Feb02 Inst : GC VOA 2
Misc : MB 5Feb02 Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 5 15:48 2002 Quant Results File: M262477.RES

Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Feb 15 06:19:47 2002
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\020205\VB010727.D Vial: 1
Acq On : 5 Feb 2002 4:04 pm Operator: Skelton
Sample : 2006101 Inst : GC VOA 2
Misc : TB Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 27 11:19 2002 Quant Results File: M262477.RES

Quant Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Feb 05 14:54:49 2002
Response via : Initial Calibration
DataAcq Meth : M262477

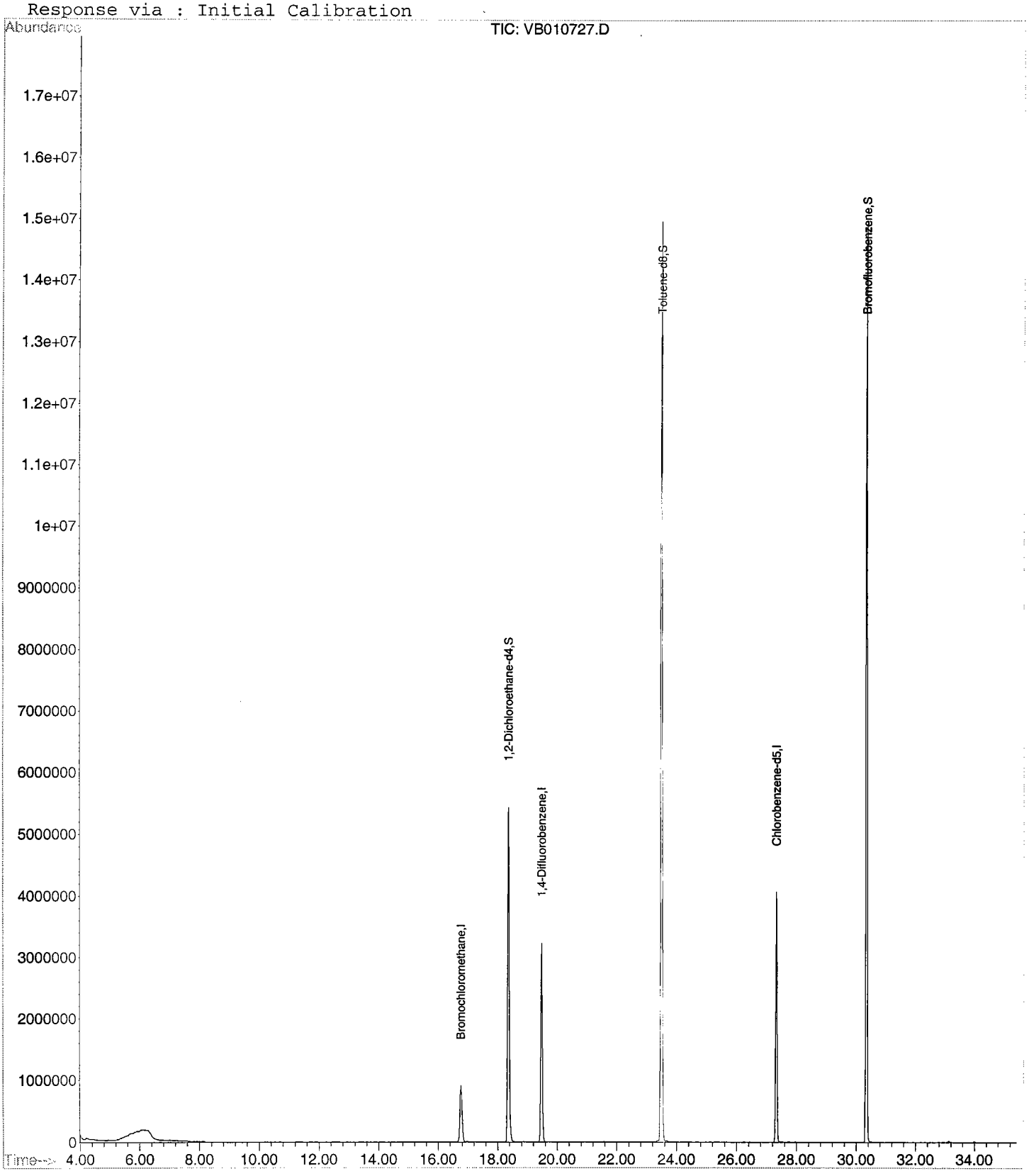
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.76	128	646098	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	19.48	114	4882601	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.32	119	1287710	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.36	65	7692779	130.53	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 435.10%#			
35) Toluene-d8	23.50	98	19299943	104.50	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 348.33%#			
49) Bromofluorobenzene	30.34	95	8448707	115.71	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 385.70%#			
Target Compounds						Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\020205\VB010727.D Vial: 1
Acq On : 5 Feb 2002 4:04 pm Operator: Skelton
Sample : 2006101 Inst : GC VOA 2
Misc : TB Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 27 11:19 2002 Quant Results File: M262477.RES

Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Feb 15 06:19:47 2002
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\020205\VB010728.D Vial: 2
Acq On : 5 Feb 2002 4:45 pm Operator: Skelton
Sample : 2006102 Inst : GC VOA 2
Misc : 271J1 Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 27 11:20 2002 Quant Results File: M262477.RES

Quant Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Feb 05 14:54:49 2002
Response via : Initial Calibration
DataAcq Meth : M262477

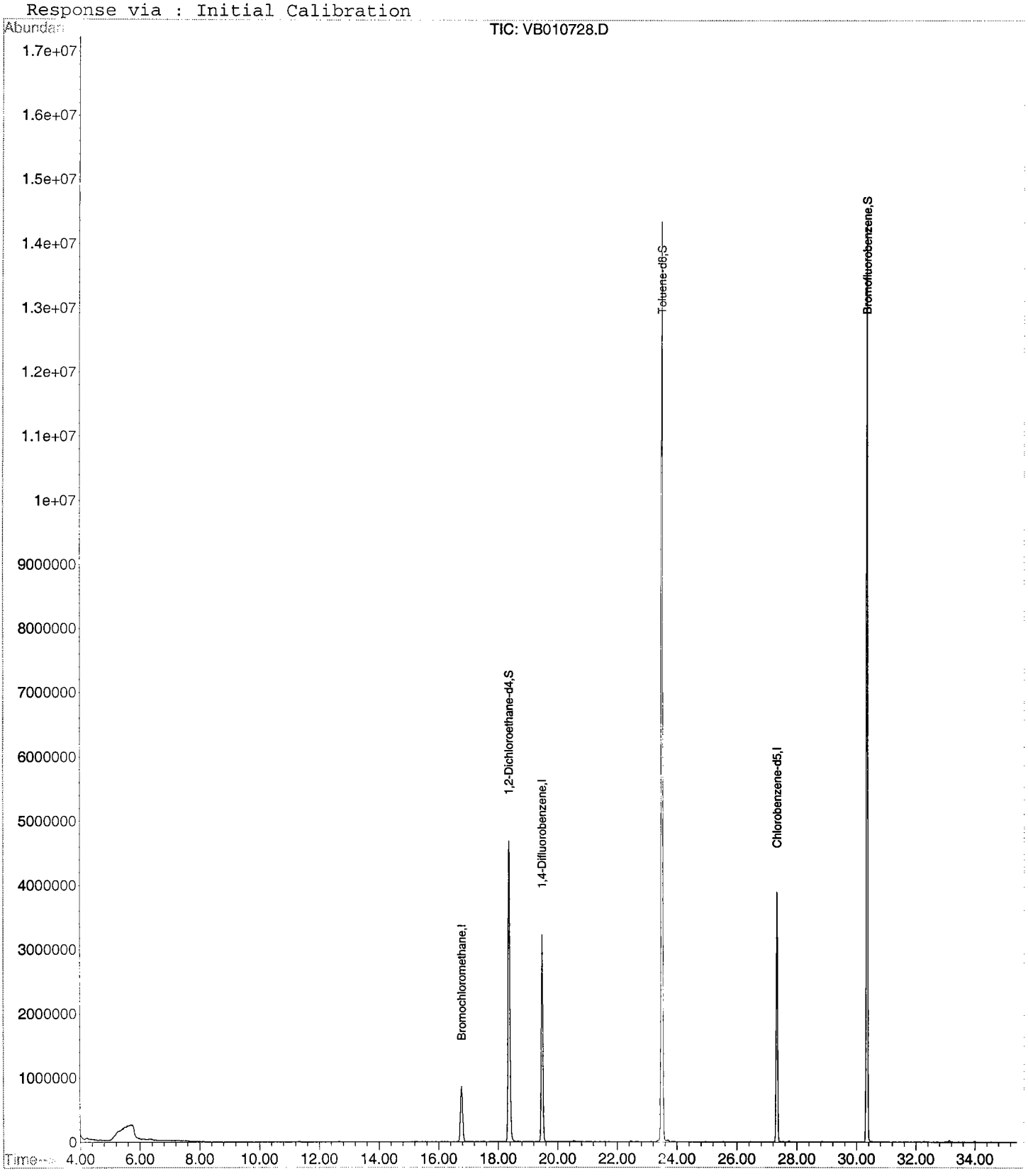
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	16.77	128	622221	30.00	ug/L	0.01
26) 1,4-Difluorobenzene	19.48	114	4840783	30.00	ug/L	0.00
37) Chlorobenzene-d5	27.33	119	1263518	30.00	ug/L	0.01
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	18.36	65	7202355	126.90	ug/L	0.00
Spiked Amount 30.000	Range 70 - 121		Recovery = 423.00%#			
35) Toluene-d8	23.50	98	18484163	100.95	ug/L	0.00
Spiked Amount 30.000	Range 81 - 117		Recovery = 336.50%#			
49) Bromofluorobenzene	30.34	95	7930948	110.70	ug/L	0.00
Spiked Amount 30.000	Range 74 - 121		Recovery = 369.00%#			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration
VB010728.D M262477.M Wed Feb 27 11:21:03 2002

Quantitation Report

Data File : C:\HPCHEM\1\DATA\020205\VB010728.D Vial: 2
Acq On : 5 Feb 2002 4:45 pm Operator: Skelton
Sample : 2006102 Inst : GC VOA 2
Misc : 271J1 Multiplr: 1.00
MS Integration Params: TBA.P
Quant Time: Feb 27 11:20 2002 Quant Results File: M262477.RES

Method : C:\HPCHEM\1\METHODS\M262477.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Feb 15 06:19:47 2002
Response via : Initial Calibration



LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature 

Date 3/12/02

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

APPENDIX E

GROUNDWATER ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732)532-6224 FAX: (732)532-3484
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
NJDEP LABORATORY CERTIFICATION # 13461

ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

BLDG. 271

Field Location No. & Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
Trip Blank	3972.01	Aqueous	09-Oct-98	10/09/98
Field Blank	3972.02	Aqueous	09-Oct-98 13:30	10/09/98
Bldg. 271 – 11-14'	3972.03	Aqueous	09-Oct-98 15:00	10/09/98

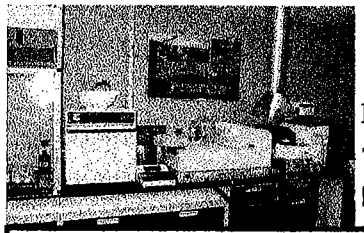
ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB.
VOA+15, BN+15

11/24/98
Daniel Wright/Date
Laboratory Director

ENCLOSURE:
CHAIN OF CUSTODY
FIELD DOCUMENTATION
RESULTS

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@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: CHAS. APPLEBY / SMC.
Phone #: X26224
( )DERA ( )OMA ( )Other:_____

Project No:
Location: BLDGS. 271 + 270

Samplers Name / Company : MARK LAURA

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	VOA + 15	BN + 15							Comments: / Remarks / Preservation Method
3972. 1	TRIP BLANK	10-8-98	—	AQ.	2	x								NO HNU
2	FIELD BLANK		1330	"	3	x	x							
3	BLDG. 271 - 11-14'		1500	"	3	x	x							
* (MW) 4	~~BLDG. 270~~			"	~~3~~	~~x~~	~~x~~	(MW)						

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Mark	10/9/98 1515				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	10/20/98				

Report Type: (_)Full, (✓)Reduced, (✓)Standard, (_)Screen / non-certified
Turnaround time: (✓)Standard 4 wks, (_)Rush ____ Days, (_)ASAP Verbal ____Hrs.

Remarks: COULD NOT EXTRACT WATER - NO WATER UNTIL 16' - WILL TRY @ LATER DATE - SCREEN IN HOLE 14-17' - 2 HRS. NO WATER.

2002

print legibly

coc.XLS8/24/98

FIELD DOCUMENTATION

Post Remedial Groundwater Sampling at Former Underground Storage Tank Site

FOR BLDG. # 271

Ground Water Sampling with the use of a Passively Placed Narrow Diameter Point (PPNDP)

Objective:

To collect a representative groundwater sample utilizing a narrow diameter point [PPNDP] This is a small diameter [1-inch OD] screened casing passively placed in a borehole. The casing is of p.v.c. construction.

1. Methods

A. A solid push - rod (bull point) is used to create a narrow diameter hole to a depth below the water table. A piece of schedule 40 PVC screen with 0.010-inch slots and an end cap is placed to the bottom of the hole. Glues or adhesives are not used for joining the casing. Threaded PVC casing is used. No filter or gravel pack is used.

2. Installation

A. Using a Geoprobe, a borehole was advanced with a pre-probe with a diameter slightly larger than the casing. The hole was made to a depth of 14 feet. The water table was at 11 feet below ground surface.

B. The screened section of PVC was placed into the borehole so the screened section was across the ground water table from 9 - 14 feet. Riser casing from 9 - +3 feet.

3. Purging

A. Three volumes of the standing water in the point were purged. The amount of water extracted was app. 0.123 gal. Three to five volumes are purged due to the potential for cross contamination of the screen from upper soil horizons. This was accomplished utilizing a peristaltic pump, and utilizing food grade tubing.

4. Sampling

A. Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks conform to applicable industry methods such as those specified in the NJDEP "Field Sampling Procedures Manual" in effect as of the date on which sampling is performed. Any deviations from the methods in the "Field Sampling Procedures Manual" pursuant to N.J.A.C. 7:26E-1.6(c) has been approved by the person responsible for conducting the remediation.

All samples were preserved in the field immediately after collection and submitted to the laboratory as soon as possible and no later than 48 hours after sample collection.

The acquisition of samples and water level measurements were performed as recommended and described in the May 1992 edition of NJDEP Field Sampling Procedures Manual.

5. Quality Assurance/Quality Control

A. Decontamination

The associated equipment (bull point, riser pipe, etc.) was decontaminated between borings using the following procedure:

1. Remove all adherent soil material.
2. Wash with a laboratory grade glassware detergent.
3. Rinsed with potable water.
4. Rinse with distilled and deionized ASTM Type II water.

B. Field Blanks

1 Field blank was taken at this site.

C. Sample bottles: Supplied by Environmental Sampling Supply, Oakland, Calif. The sample bottles are certified clean and are sealed upon delivery.

D. P.V.C. Screens: Supplied by Bedrock Enterprises, Forked River N.J.

Geoprobe Operator: Mark Laura
Employer: U.S. Army, Fort Monmouth
Phone Number: [732] 532-8990
NJDEP License #: J-1486

11-23-98
Mark Laura / Date

METHODOLOGY REVIEW

Methodology Summary

EPA Method 624
Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5 ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA Method 3510/8270
Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to a measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene Chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 3972 **Site:** Bldg. 271

	Date	Hold Time
Date Sampled	10/9/98	NA
Receipt/Refrigeration	10/9/98	NA
Extractions		
1. Base Neutrals	10/13/98	14 days
Analyses		
1. Volatiles	10/21/98	14 days
2. Base Neutrals	10/26,27/98	40 days

CONFORMANCE/ NON-CONFORMANCE SUMMARIES

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate Yes, No, N/A

1. Chromatograms labeled/Compounds identified (Field samples and method blanks) — Yes

2. Retention times for chromatograms provided — Yes

3. GC/MS Tune Specifications

   a. BFB Meet Criteria — Yes
   b. DFTPP Meet Criteria — Yes

4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series — Yes

5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — Yes

6. GC/MS Calibration requirements

   a. Calibration Check Compounds Meet Criteria — Yes
   b. System Performance Check Compounds Meet Criteria — Yes

7. Blank Contamination – If yes, List compounds and concentrations in each blank: — NO

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

8. Surrogate Recoveries Meet Criteria — Yes

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:

   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

   If not met, were the calculations checked and the results qualified as "estimated"? _____

9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) — Yes

   a. VOA Fraction _____
   b. B/N Fraction See Comments
   c. Acid Fraction NA

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

Indicate
Yes, No, N/A

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

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

11. Extraction Holding Time Met — yes

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

12. Analysis Holding Time Met — yes

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

Additional Comments:
No BATCH Duplicate performed for the B/N fraction.

Laboratory Manager:_____ Date: 11/24/98

Volatiles

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

Definition of Qualifiers

MDL : Method Detection Limit
J : Compound identified below detection limit
B : Compound in both sample and blank
D : Results from dilution of sample
U : Compound searched for but not detected

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

Data File Nam	**VB01773.D**	Sample Name	**VBLK56**
Operator	**Skelton**	Field ID	**VBLK56**
Date Acquired	**21 Oct 98 12:14 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **VBLK56**

Lab Name: FMETL Project

NJDEP# 13461 Case No.: 3972 SDG No Location UST

Matrix: (soil/water) WATER Lab Sample ID: VBLK56

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB01773.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: not dec. Date Analyzed: 10/21/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File Nam	**vb01774.d**	Sample Name	**3972.01**
Operator	**Skelton**	Field ID	**Trip Blank**
Date Acquired	**21 Oct 98 1:56 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes	29.00	288522	2.92 ug/L	nle	1.14 ug/L	
1330-20-7	o-Xylene	30.10	389395	2.07 ug/L	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Trip Blank**

Lab Name: FMETL Project

NJDEP# 13461 Case No.: 3972 SDG No Location UST

Matrix: (soil/water) WATER Lab Sample ID: 3972.01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB01774.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: not dec. Date Analyzed: 10/21/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 2

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000095-63-6	Benzene, 1,2,4-trimethyl-	33.37	7	JN
2. 000108-67-8	Benzene, 1,3,5-trimethyl-	34.59	4	JN

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

Data File Nam	**vb01775.d**	Sample Name	**3972.02**
Operator	**Skelton**	Field ID	**Field Blank**
Date Acquired	**21 Oct 98 2:40 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes	29.00	133551	1.34 ug/L	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Field Blank**

Lab Name: FMETL Project

NJDEP# 13461 Case No.: 3972 SDG No Location UST

Matrix: (soil/water) WATER Lab Sample ID: 3972.02

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB01775.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: not dec. Date Analyzed: 10/21/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 1

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	37.35	4	JN

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

Data File Nam	**vb01776.d**	Sample Name	**3972.03**
Operator	**Skelton**	Field ID	**Bldg 271 11-14'**
Date Acquired	**21 Oct 98 3:25 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Bldg271 11-14'**

Lab Name: FMETL Project

NJDEP# 13461 Case No.: 3972 SDG No Location UST

Matrix: (soil/water) WATER Lab Sample ID: 3972.03

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB01776.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: not dec. Date Analyzed: 10/21/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

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

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

0022

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 3972 SDG No _____ Location 271/270

Lab File ID: VB01713.D BFB Injection Date: 10/14/98

Instrument ID: GCMSVoa2 BFB Injection Time: 11:18

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.7
75	30.0 - 66.0% of mass 95	51.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	74.8
175	4.0 - 9.0% of mass 174	5.6 (7.5)1
176	93.0 - 101.0% of mass 174	74.1 (99.1)1
177	5.0 - 9.0% of mass 176	5.0 (6.7)2

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

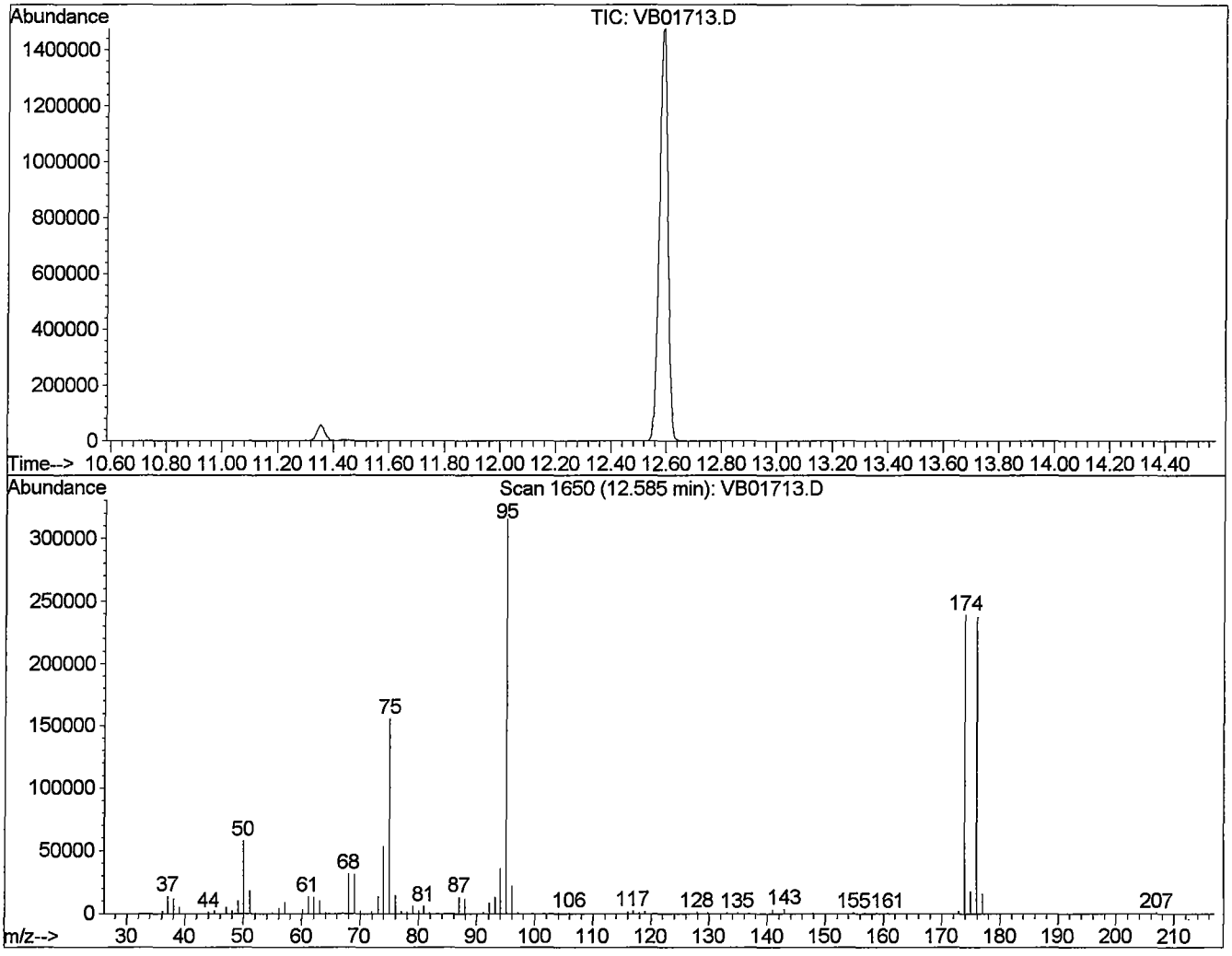
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD100	100 PPB STD	VB01714.D	10/14/98	12:01
02	VSTD050	50 PPB STD	VB01715.D	10/14/98	12:46
03	VSTD020	20 PPB STD	VB01716.D	10/14/98	13:32
04	VSTD010	10 PPB STD	VB01717.D	10/14/98	14:17
05	VSTD005	5 PPB STD	VB01718.D	10/14/98	15:03

BFB

Data File : C:\HPCHEM\1\DATA\981014\VB01713.D
Acq On : 14 Oct 98 11:18 am
Sample : BFB Tune
Misc : 100-54-59/1143296
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP

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



Spectrum Information: Scan 1650

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.3	57712	PASS
75	95	30	60	49.5	155776	PASS
95	95	100	100	100.0	314880	PASS
96	95	5	9	6.9	21872	PASS
173	174	0.00	2	0.7	1610	PASS
174	95	50	100	75.9	238848	PASS
175	174	5	9	7.4	17736	PASS
176	174	95	101	99.3	237248	PASS
177	176	5	9	6.8	16024	PASS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 3972 SDG No _____ Location 271/270

Lab File ID: VB01771.D BFB Injection Date: 10/21/98

Instrument ID: GCMSVoa2 BFB Injection Time: 09:23

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.8
75	30.0 - 66.0% of mass 95	48.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	82.4
175	4.0 - 9.0% of mass 174	5.7 (6.9)1
176	93.0 - 101.0% of mass 174	81.3 (98.6)1
177	5.0 - 9.0% of mass 176	6.4 (7.9)2

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

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

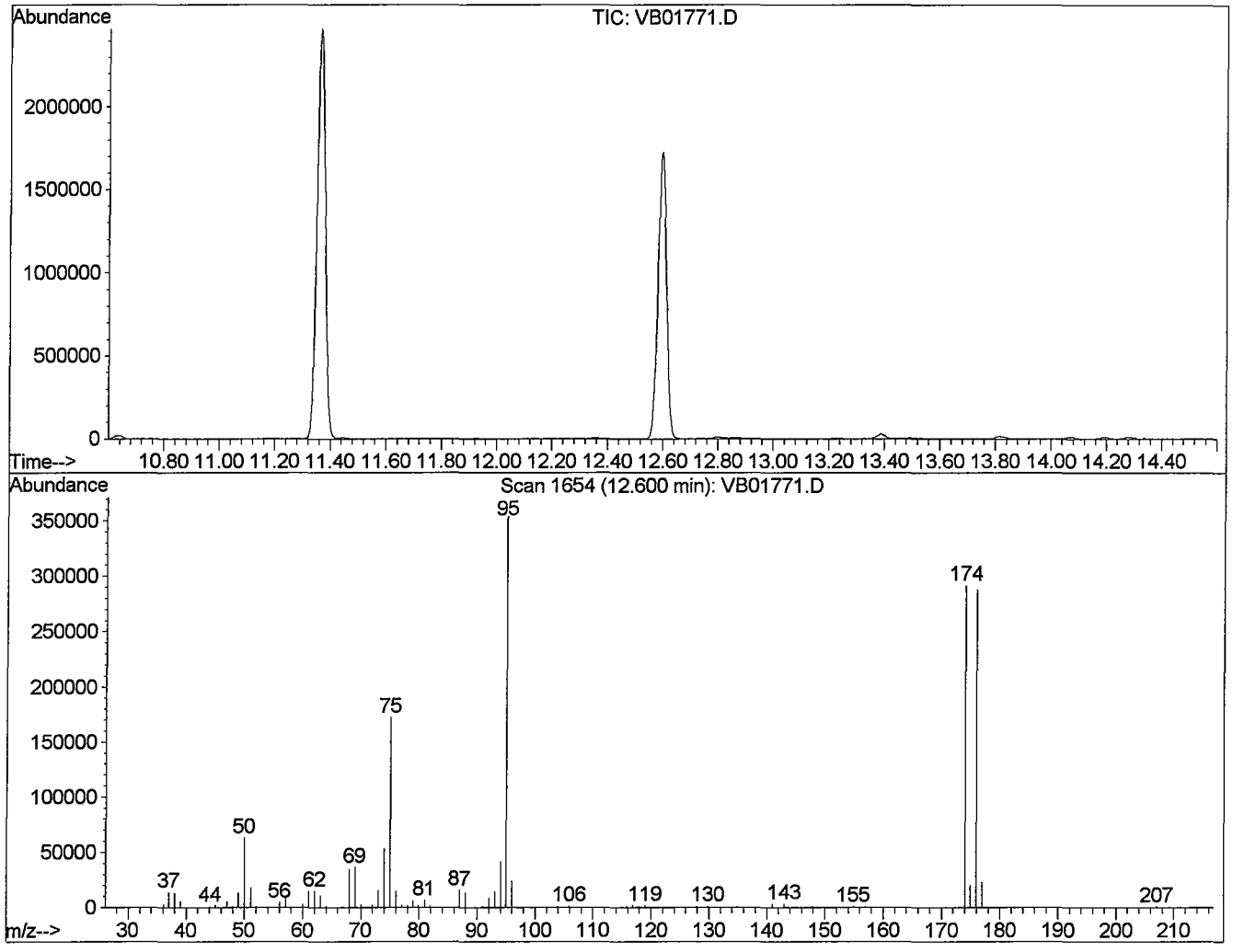
	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	DAILY CAL	VB01772.D	10/21/98	11:19
02	VBLK56	VBLK56	VB01773.D	10/21/98	12:14
03	TRIP BLANK	3972.01	VB01774.D	10/21/98	13:56
04	FIELD BLANK	3972.02	VB01775.D	10/21/98	14:40
05	BLDG271 11-14'	3972.03	VB01776.D	10/21/98	15:25
06	3983.08MS	3983.08MS	VB01796.D	10/22/98	06:22
07	3983.08DUP	3983.08DUP	VB01797.D	10/22/98	07:07

0025

BFB

Data File : C:\HPCHEM\1\DATA\981021\VB01771.D
Acq On : 21 Oct 98 9:23 am
Sample : BFB Tune
Misc : 100-56-63/1769472
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP

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



Spectrum Information: Scan 1654

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.8	63184	PASS
75	95	30	60	48.7	172480	PASS
95	95	100	100	100.0	354176	PASS
96	95	5	9	6.7	23736	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	82.4	291776	PASS
175	174	5	9	6.9	20096	PASS
176	174	95	101	98.6	287808	PASS
177	176	5	9	7.9	22744	PASS

4A

VOLATILE METHOD BLANK SUMMARY

FIELD ID: **VBLK56**

Lab Name: FMETL Project

NJDEP# 13461 Case No.: 3972 SDG No Location UST

Lab File ID: VB01773.D Lab Sample ID: VBLK56

Date Analyzed: 10/21/98 Time Analyzed: 12:14

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMSVoa2

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TRIP BLANK	3972.01	VB01774.D	13:56
02	FIELD BLANK	3972.02	VB01775.D	14:40
03	BLDG271 11-14'	3972.03	VB01776.D	15:25
04	3983.08MS	3983.08MS	VB01796.D	06:22
05	3983.08DUP	3983.08DUP	VB01797.D	07:07

COMMENTS:

0027

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Nov 06 12:42:43 1998
Response via : Initial Calibration

Calibration Files
50 =VB01715.D 5 =VB01718.D 10 =VB01717.D
20 =VB01716.D 100 =VB01714.D

		Compound	50	5	10	20	100	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------						
2)	t	Acrolein	0.234	0.206	0.216	0.245	0.224	0.225	6.78
3)	t	Acrylonitrile	0.512	0.488	0.517	0.538	0.473	0.506	5.00
4)	t	tert-Butyl alcohol	0.245	0.230	0.233	0.252	0.227	0.237	4.51
5)	t	Methyl-tert-Butyl eth	4.490	4.028	4.279	4.636	4.362	4.359	5.26
6)	t	Di-isopropyl ether	3.207	2.734	2.992	3.319	3.205	3.091	7.51
7)	T	Dichlorodifluorometha	3.445	3.070	3.138	3.447	3.587	3.337	6.65
8)	TP	Chloromethane	2.728	2.491	2.478	2.680	2.833	2.642	5.84
9)	TC	Vinyl Chloride	2.022	1.925	1.912	2.029	2.041	1.986	3.12
10)	T	Bromomethane	1.259	1.246	1.264	1.296	1.236	1.260	1.82
11)	T	Chloroethane	1.475	1.337	1.346	1.458	1.531	1.429	5.92
12)	T	Trichlorofluoromethan	3.859	3.495	3.567	3.872	3.965	3.752	5.52
13)	MC	1,1-Dichloroethene	2.926	2.782	2.869	3.084	2.915	2.915	3.78
14)	T	Acetone	0.443	0.732	0.719	0.500	0.392	0.557	28.40
15)	T	Carbon Disulfide	6.054	5.453	5.846	6.261	5.935	5.910	5.06
16)	T	Methylene Chloride	2.038	3.413	2.625	2.367	1.951	2.479	23.70
17)	T	trans-1,2-Dichloroeth	2.607	2.532	2.659	2.727	2.548	2.615	3.08
18)	TP	1,1-Dichloroethane	3.285	3.199	3.298	3.478	3.240	3.300	3.24
19)	T	Vinyl Acetate	3.341	2.944	2.442	3.441	3.131	3.060	12.91
20)	T	2-Butanone	0.620	0.594	0.704	0.618	0.581	0.623	7.73
21)	T	cis-1,2-Dichloroethen	2.639	2.493	2.626	2.780	2.591	2.626	3.93
22)	TC	Chloroform	3.277	3.197	3.309	3.463	3.215	3.292	3.20
23)	T	1,1,1-Trichloroethane	3.045	2.773	2.906	3.128	3.016	2.973	4.62
24)	T	Carbon Tetrachloride	2.371	1.886	2.150	2.346	2.422	2.235	9.88
25)	S	1,2-Dichloroethane-d4	2.084	2.157	2.112	2.109	2.057	2.104	1.78
26)	I	1,4-Difluorobenzene	----------ISTD----------						
27)	TM	Benzene	1.096	1.083	1.148	1.196	1.010	1.107	6.36
28)	T	1,2-Dichloroethane	0.353	0.344	0.364	0.379	0.336	0.355	4.73
29)	TM	Trichloroethene	0.315	0.290	0.313	0.327	0.309	0.311	4.35
30)	TC	1,2-Dichloropropane	0.286	0.273	0.282	0.300	0.281	0.284	3.47
31)	T	Bromodichloromethane	0.340	0.275	0.307	0.340	0.342	0.321	9.24
32)	T	2-Chloroethyl vinyl e	0.131	0.110	0.118	0.134	0.127	0.124	7.95
33)	T	cis-1,3-Dichloroprope	0.433	0.332	0.385	0.431	0.428	0.402	10.87
34)	T	4-Methyl-2-Pentanone	0.074	0.065	0.070	0.078	0.070	0.071#	6.96
35)	S	Toluene-d8	1.056	1.053	1.055	1.059	1.067	1.058	0.53
36)	TCM	Toluene	1.196	1.213	1.276	1.333	1.042	1.212	9.04
37)	I	Chlorobenzene-d5	----------ISTD----------						
38)	T	trans-1,3-Dichloropro	1.405	1.080	1.217	1.382	1.399	1.297	11.11
39)	T	1,1,2-Trichloroethane	0.794	0.770	0.789	0.835	0.762	0.790	3.57
40)	T	Tetrachloroethene	1.174	1.066	1.135	1.210	1.176	1.152	4.79
41)	T	2-Hexanone	0.452	0.375	0.467	0.458	0.429	0.436	8.46

(#) = Out of Range

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Nov 06 12:42:43 1998
Response via : Initial Calibration

Calibration Files
50 =VB01715.D 5 =VB01718.D 10 =VB01717.D
20 =VB01716.D 100 =VB01714.D

		Compound	50	5	10	20	100	Avg	%RSD
42)	T	Dibromochloromethane	0.786	0.518	0.614	0.726	0.822	0.693	18.09
43)	TMP	Chlorobenzene	2.917	2.928	3.020	3.155	2.695	2.943	5.72
44)	TC	Ethylbenzene	4.819	4.983	5.233	5.453	4.026	4.903	11.15
45)	T	m+p-Xylenes	1.969	1.919	2.037	2.126	1.763	1.963	6.95
46)	T	o-Xylene	3.749	3.648	3.892	4.090	3.356	3.747	7.32
47)	T	Styrene	3.317	3.096	3.281	3.538	3.037	3.254	6.10
48)	TP	Bromoform	0.386	0.212	0.251	0.322	0.426	0.320	28.06
49)	S	Bromofluorobenzene	1.457	1.447	1.425	1.445	1.469	1.449	1.10
50)	TP	1,1,2,2-Tetrachloroet	0.883	0.812	0.825	0.933	0.841	0.859	5.73
51)	T	1,3-Dichlorobenzene	2.350	2.159	2.298	2.471	2.256	2.307	5.00
52)	T	1,4-Dichlorobenzene	2.410	2.240	2.421	2.535	2.296	2.380	4.84
53)	T	1,2-Dichlorobenzene	2.148	2.042	2.119	2.274	2.061	2.129	4.32

0029

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981021\VB01772.D Vial: 1
Acq On : 21 Oct 98 11:19 am Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 20 ppb std Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Nov 06 12:42:43 1998
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 25% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	132	0.00
2	t	Acrolein	0.225	0.215	4.4	116	-0.02
3	t	Acrylonitrile	0.506	0.466	7.9	114	-0.02
4	t	tert-Butyl alcohol	0.237	0.213	10.1	112	-0.03
5	t	Methyl-tert-Butyl ether	4.359	4.317	1.0	123	-0.01
6	t	Di-isopropyl ether	3.091	3.409	-10.3	136	0.00
7	T	Dichlorodifluoromethane	3.337	2.615	21.6	100	0.01
8	TP	Chloromethane	2.642	2.271	14.0	112	-0.04
9	TC	Vinyl Chloride	1.986	2.068	-4.1	135	0.00
10	T	Bromomethane	1.260	1.385	-9.9	141	-0.06
11	T	Chloroethane	1.429	1.426	0.2	129	-0.09
12	T	Trichlorofluoromethane	3.752	3.471	7.5	118	-0.02
13	MC	1,1-Dichloroethene	2.915	2.831	2.9	121	-0.02
14	T	Acetone	0.557	0.346	37.9#	92	-0.03
15	T	Carbon Disulfide	5.910	5.856	0.9	124	-0.02
16	T	Methylene Chloride	2.479	2.021	18.5	113	0.00
17	T	trans-1,2-Dichloroethene	2.615	2.592	0.9	126	-0.02
18	TP	1,1-Dichloroethane	3.300	3.304	-0.1	126	-0.02
19	T	Vinyl Acetate	3.060	2.973	2.8	114	0.00
20	T	2-Butanone	0.623	0.537	13.8	115	-0.02
21	T	cis-1,2-Dichloroethene	2.626	2.650	-0.9	126	0.00
22	TC	Chloroform	3.292	3.299	-0.2	126	0.00
23	T	1,1,1-Trichloroethane	2.973	2.902	2.4	123	0.00
24	T	Carbon Tetrachloride	2.235	2.213	1.0	125	-0.02
25	S	1,2-Dichloroethane-d4	2.104	1.798	14.5	113	0.00
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	133	0.00
27	TM	Benzene	1.107	1.160	-4.8	129	0.00
28	T	1,2-Dichloroethane	0.355	0.329	7.3	115	0.00
29	TM	Trichloroethene	0.311	0.328	-5.5	133	0.00
30	TC	1,2-Dichloropropane	0.284	0.289	-1.8	128	0.00
31	T	Bromodichloromethane	0.321	0.319	0.6	124	0.00
32	T	2-Chloroethyl vinyl ether	0.124	0.123	0.8	122	0.00
33	T	cis-1,3-Dichloropropene	0.402	0.430	-7.0	133	0.00
34	T	4-Methyl-2-Pentanone	0.071	0.068#	4.2	116	0.00
35	S	Toluene-d8	1.058	1.001	5.4	126	0.00
36	TCM	Toluene	1.212	1.266	-4.5	126	0.00
37	I	Chlorobenzene-d5	1.000	1.000	0.0	133	0.00
38	T	trans-1,3-Dichloropropene	1.297	1.325	-2.2	127	0.00
39	T	1,1,2-Trichloroethane	0.790	0.784	0.8	125	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981021\VB01772.D Vial: 1
Acq On : 21 Oct 98 11:19 am Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 20 ppb std Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Nov 06 12:42:43 1998
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 25% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	Tetrachloroethene	1.152	1.186	-3.0	130	0.00
41	T	2-Hexanone	0.436	0.400	8.3	116	0.00
42	T	Dibromochloromethane	0.693	0.732	-5.6	134	0.00
43	TMP	Chlorobenzene	2.943	3.041	-3.3	128	0.00
44	TC	Ethylbenzene	4.903	5.027	-2.5	123	0.00
45	T	m+p-Xylenes	1.963	2.011	-2.4	126	0.00
46	T	o-Xylene	3.747	3.806	-1.6	124	0.00
47	T	Styrene	3.254	3.291	-1.1	124	0.00
48	TP	Bromoform	0.320	0.332	-3.8	137	0.00
49	S	Bromofluorobenzene	1.449	1.349	6.9	124	0.00
50	TP	1,1,2,2-Tetrachloroethane	0.859	0.807	6.1	115	0.00
51	T	1,3-Dichlorobenzene	2.307	2.346	-1.7	126	0.00
52	T	1,4-Dichlorobenzene	2.380	2.415	-1.5	127	0.00
53	T	1,2-Dichlorobenzene	2.129	2.130	-0.0	125	0.00

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 3972 SDG No _____ Location 271/270

	FIELD ID	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	TOT OUT
01	VBLK56	88	98	96	0
02	TRIP BLANK	90	97	95	0
03	FIELD BLANK	92	97	95	0
04	BLDG271 11-14'	91	97	96	0
05	3983.08MS	95	97	96	0
06	3983.08DUP	97	98	97	0

				QC LIMITS
SMC1	DCE	=	1,2-Dichloroethane-d4	(76-121)
SMC2	TOL	=	Toluene-d8	(88-110)
SMC3	BFB	=	Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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

Data File Nam **VB01796.D** Sample Name **3983.08ms**
Date Acquired **22 Oct 98 6:22 am**

CAS#	Compound Name			Amount Recovered	Percent Recovered
107028	Acrolein			173.53 ug/L	86.8
107131	Acrylonitrile			181.96 ug/L	91.0
75650	tert-Butyl alcohol			76.72 ug/L	76.7
1634044	Methyl-tert-Butyl ether			18.70 ug/L	93.5
108203	Di-isopropyl ether			9.43 ug/L	94.3
	Dichlorodifluoromethane			7.22 ug/L	36.1
74-87-3	Chloromethane			15.12 ug/L	75.6
75-01-4	Vinyl Chloride			15.71 ug/L	78.5
74-83-9	Bromomethane			17.63 ug/L	88.2
75-00-3	Chloroethane			16.22 ug/L	81.1
75-69-4	Trichlorofluoromethane			10.28 ug/L	51.4
75-35-4	1,1-Dichloroethene			12.85 ug/L	64.2
67-64-1	Acetone			12.15 ug/L	60.7
75-15-0	Carbon Disulfide			12.06 ug/L	60.3
75-09-2	Methylene Chloride			14.51 ug/L	72.6
156-60-5	trans-1,2-Dichloroethene			14.55 ug/L	72.8
75-35-3	1,1-Dichloroethane			16.86 ug/L	84.3
108-05-4	Vinyl Acetate			17.14 ug/L	85.7
78-93-3	2-Butanone			16.85 ug/L	84.3
	cis-1,2-Dichloroethene			16.98 ug/L	84.9
67-66-3	Chloroform			16.82 ug/L	84.1
75-55-6	1,1,1-Trichloroethane			12.66 ug/L	63.3
56-23-5	Carbon Tetrachloride			10.51 ug/L	52.6
71-43-2	Benzene			15.35 ug/L	76.7
107-06-2	1,2-Dichloroethane			16.92 ug/L	84.6
79-01-6	Trichloroethene			12.53 ug/L	62.6
78-87-5	1,2-Dichloropropane			16.40 ug/L	82.0
75-27-4	Bromodichloromethane			16.00 ug/L	80.0
110-75-8	2-Chloroethyl vinyl ether			15.35 ug/L	76.8
10061-01-5	cis-1,3-Dichloropropene			14.76 ug/L	73.8
108-10-1	4-Methyl-2-Pentanone			18.31 ug/L	91.6
108-88-3	Toluene			13.16 ug/L	65.8
10061-02-6	trans-1,3-Dichloropropen			14.08 ug/L	70.4
79-00-5	1,1,2-Trichloroethane			16.85 ug/L	84.3
127-18-4	Tetrachloroethene			9.96 ug/L	49.8
591-78-6	2-Hexanone			16.68 ug/L	83.4
126-48-1	Dibromochloromethane			15.37 ug/L	76.8
108-90-7	Chlorobenzene			12.63 ug/L	63.2
100-41-4	Ethylbenzene			11.33 ug/L	56.6
1330-20-7	m+p-Xylenes			22.14 ug/L	55.3
1330-20-7	o-Xylene			12.08 ug/L	60.4
100-42-5	Styrene			12.23 ug/L	61.2
75-25-2	Bromoform			14.80 ug/L	74.0
79-34-5	1,1,2,2-Tetrachloroethane			15.71 ug/L	78.6
541-73-1	1,3-Dichlorobenzene			10.64 ug/L	53.2
106-46-7	1,4-Dichlorobenzene			10.53 ug/L	52.6
95-50-1	1,2-Dichlorobenzene			11.37 ug/L	56.8

Aqueous Duplicate Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Nam **VB01797.D** Sample Name **3983.08dup**
Date Acquired **22 Oct 98 7:07 am**

CAS#	Compound Name			Amount Recovered
107028	Acrolein			not detected
107131	Acrylonitrile			not detected
75650	tert-Butyl alcohol			not detected
1634044	Methyl-tert-Butyl ether			not detected
108203	Di-isopropyl ether			not detected
	Dichlorodifluoromethane			not detected
74-87-3	Chloromethane			not detected
75-01-4	Vinyl Chloride			not detected
74-83-9	Bromomethane			not detected
75-00-3	Chloroethane			not detected
75-69-4	Trichlorofluoromethane			not detected
75-35-4	1,1-Dichloroethene			not detected
67-64-1	Acetone			5.86 ug/L
75-15-0	Carbon Disulfide			not detected
75-09-2	Methylene Chloride			not detected
156-60-5	trans-1,2-Dichloroethene			not detected
75-35-3	1,1-Dichloroethane			not detected
108-05-4	Vinyl Acetate			not detected
78-93-3	2-Butanone			7.88 ug/L
	cis-1,2-Dichloroethene			not detected
67-66-3	Chloroform			not detected
75-55-6	1,1,1-Trichloroethane			not detected
56-23-5	Carbon Tetrachloride			not detected
71-43-2	Benzene			not detected
107-06-2	1,2-Dichloroethane			not detected
79-01-6	Trichloroethene			not detected
78-87-5	1,2-Dichloropropane			not detected
75-27-4	Bromodichloromethane			not detected
110-75-8	2-Chloroethyl vinyl ether			not detected
10061-01-5	cis-1,3-Dichloropropene			not detected
108-10-1	4-Methyl-2-Pentanone			not detected
108-88-3	Toluene			not detected
10061-02-6	trans-1,3-Dichloropropen			not detected
79-00-5	1,1,2-Trichloroethane			not detected
127-18-4	Tetrachloroethene			not detected
591-78-6	2-Hexanone			not detected
126-48-1	Dibromochloromethane			not detected
108-90-7	Chlorobenzene			not detected
100-41-4	Ethylbenzene			not detected
1330-20-7	m+p-Xylenes			not detected
1330-20-7	o-Xylene			not detected
100-42-5	Styrene			not detected
75-25-2	Bromoform			not detected
79-34-5	1,1,2,2-Tetrachloroethane			not detected
541-73-1	1,3-Dichlorobenzene			not detected
106-46-7	1,4-Dichlorobenzene			not detected
95-50-1	1,2-Dichlorobenzene			not detected

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 3972 SDG No _____ Location 271/270

Lab File ID (Standard): VB01772.D Date Analyzed: 10/21/98

Instrument ID: GCMSVoa2 Time Analyzed: 11:19

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	820290	18.15	5689500	20.79	1584099	28.62
	UPPER LIMIT	1640580	17.65	11379000	20.29	3168198	28.12
	LOWER LIMIT	410145	18.65	2844750	21.29	792050	29.12
	FIELD ID						
01	VBLK56	794519	18.15	5402127	20.79	1510876	28.62
02	TRIP BLANK	769436	18.14	5390490	20.78	1507877	28.61
03	FIELD BLANK	775481	18.14	5475486	20.78	1519652	28.62
04	BLDG271 11-14'	763988	18.15	5401359	20.79	1494384	28.62
05	3983.08MS	690724	18.16	4937511	20.79	1380194	28.62
06	3983.08DUP	651795	18.15	4755021	20.79	1336861	28.62

IS1 BCM = Bromochloromethane

IS2 DFB = 1,4-Difluorobenzene

IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981021\VB01773.D Vial: 1
Acq On : 21 Oct 98 12:14 pm Operator: Skelton
Sample : VBLK56 Inst : GC/MS Ins
Misc : VBLK56 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 21 13:05 1998 Quant Results File: M62417.RES

Quant Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 09 07:56:43 1998
Response via : Initial Calibration
DataAcq Meth : M62417

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.15	128	794519	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.79	114	5402127	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1510876	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.71	65	1476393	26.50	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 88.33%			
35) Toluene-d8	24.79	98	5580253	29.29	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 97.63%			
49) Bromofluorobenzene	31.64	95	2093553	28.70	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 95.67%			

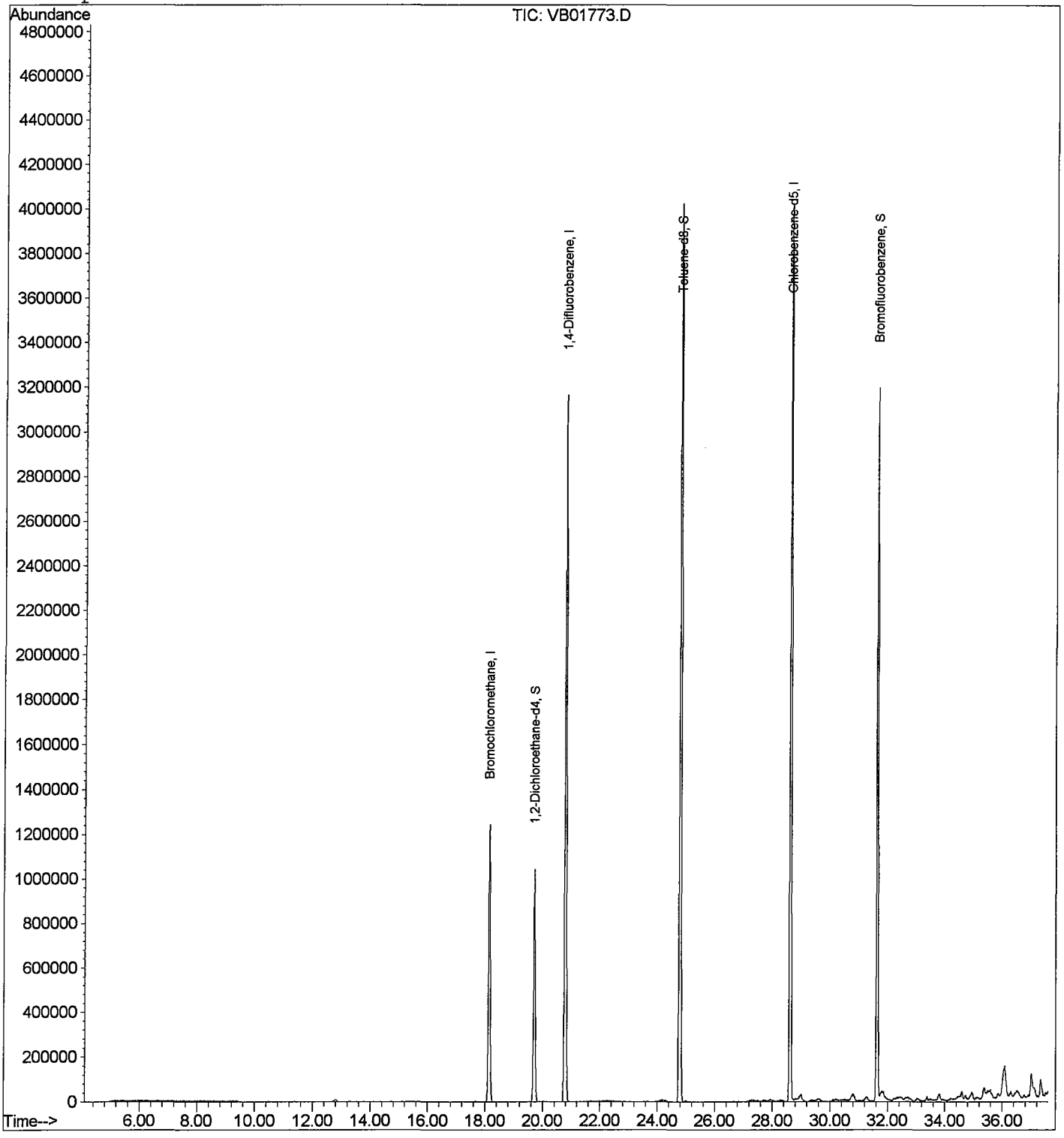
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981021\VB01773.D Vial: 1
Acq On : 21 Oct 98 12:14 pm Operator: Skelton
Sample : VBLK56 Inst : GC/MS Ins
Misc : VBLK56 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 21 13:05 1998 Quant Results File: M62417.RES

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 23 12:50:29 1998
Response via : Initial Calibration



0037

Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981021\VB01774.D Vial: 1
Acq On : 21 Oct 98 1:56 pm Operator: Skelton
Sample : 3972.01 Inst : GC/MS Ins
Misc : Trip Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:52 1998 Quant Results File: M62417.RES

Quant Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 09 07:56:43 1998
Response via : Initial Calibration
DataAcq Meth : M62417

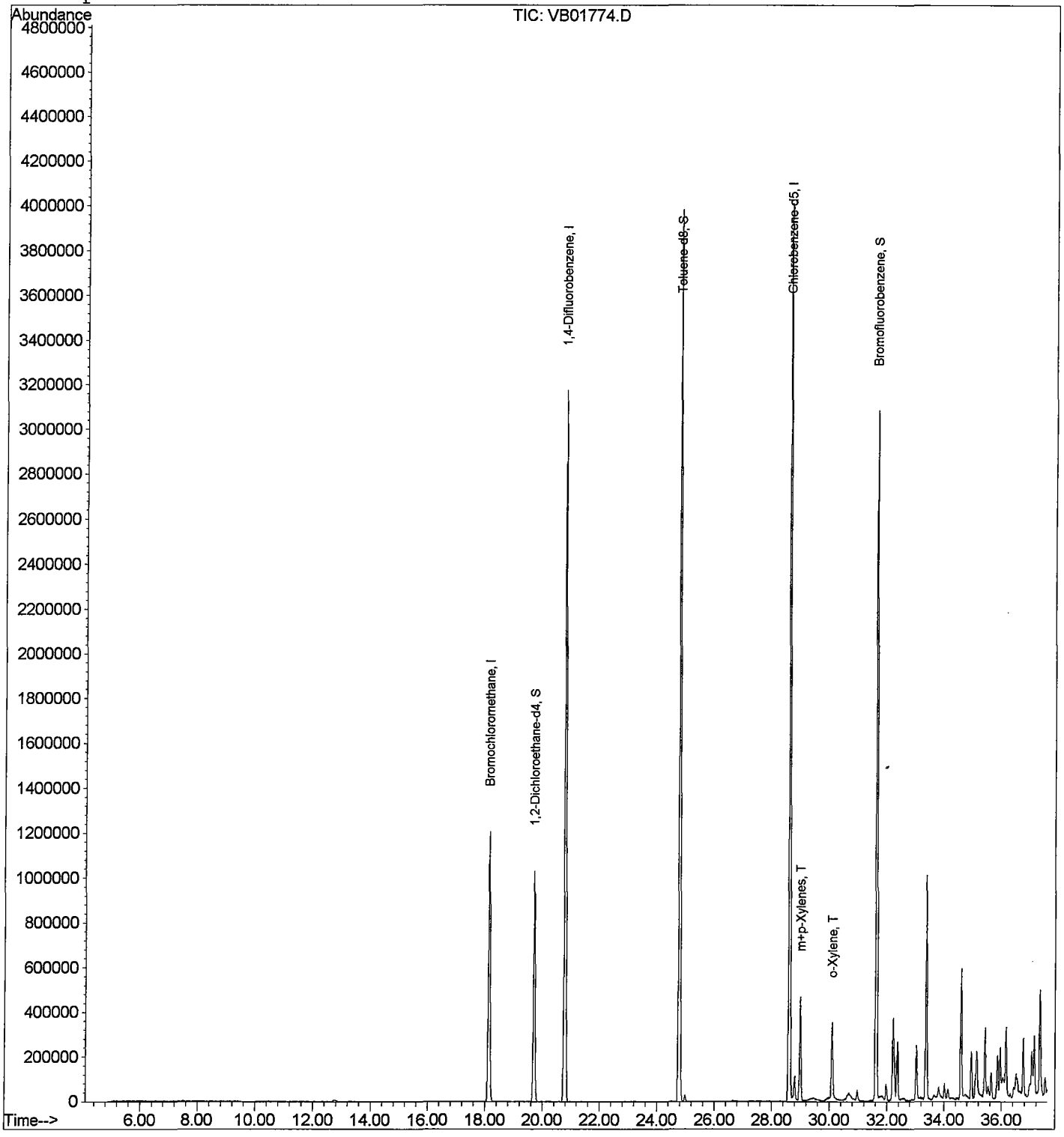
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.14	128	769436	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.78	114	5390490	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.61	119	1507877	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.71	65	1451325	26.90	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 89.67%			
35) Toluene-d8	24.78	98	5526266	29.07	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 96.90%			
49) Bromofluorobenzene	31.63	95	2076903	28.53	ug/L	-0.01
Spiked Amount 30.000	Range 86 - 115		Recovery = 95.10%			
Target Compounds						Qvalue
45) m+p-Xylenes	29.00	106	288522	2.92	ug/L	98
46) o-Xylene	30.10	91	389395	2.07	ug/L	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981021\VB01774.D Vial: 1
Acq On : 21 Oct 98 1:56 pm Operator: Skelton
Sample : 3972.01 Inst : GC/MS Ins
Misc : Trip Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:52 1998 Quant Results File: M62417.RES

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 23 12:50:29 1998
Response via : Initial Calibration



0039

Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981021\VB01775.D Vial: 2
Acq On : 21 Oct 98 2:40 pm Operator: Skelton
Sample : 3972.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:54 1998 Quant Results File: M62417.RES

Quant Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 09 07:56:43 1998
Response via : Initial Calibration
DataAcq Meth : M62417

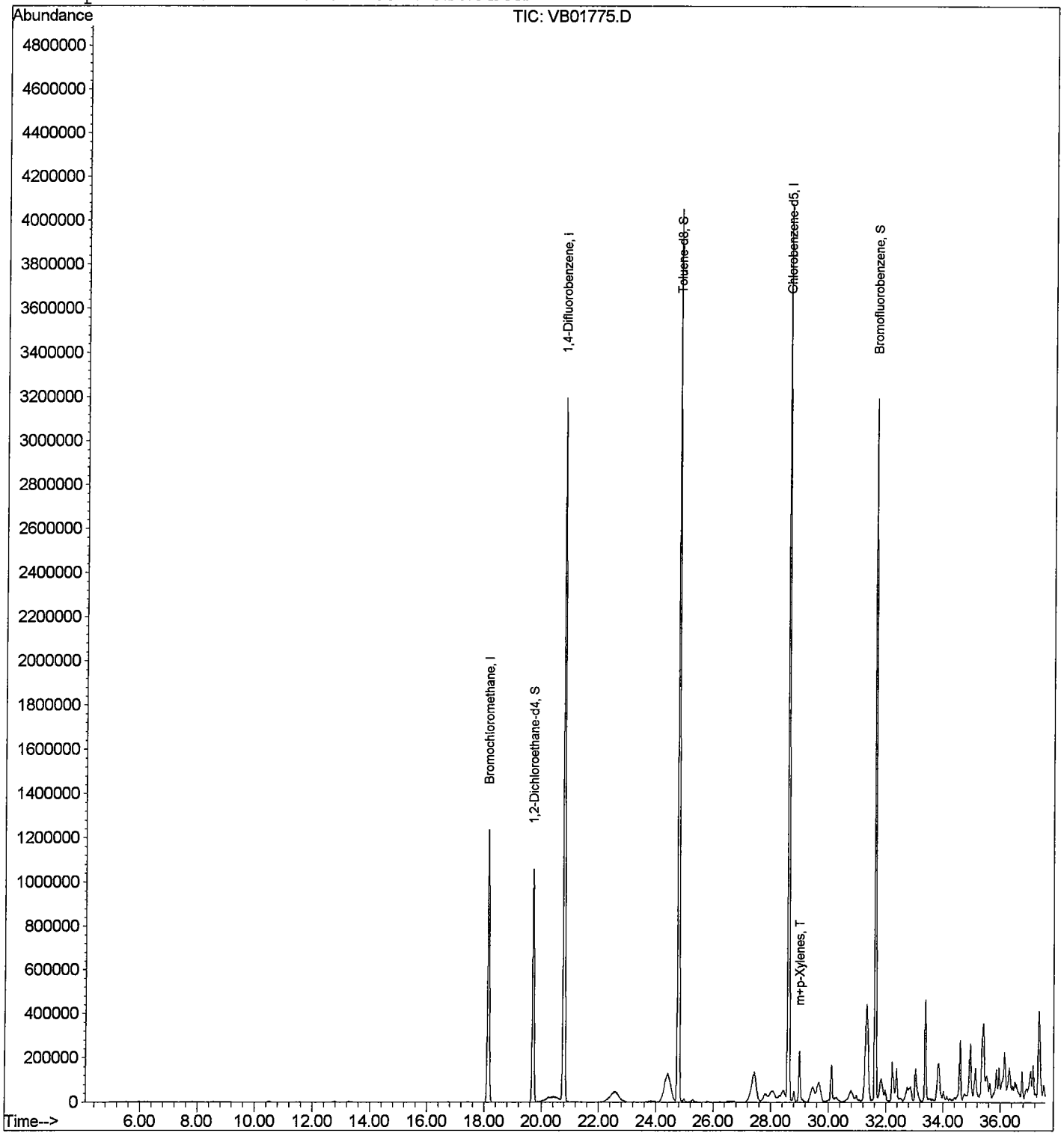
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.14	128	775481	30.00	ug/L	-0.01
26) 1,4-Difluorobenzene	20.78	114	5475486	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1519652	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.71	65	1495700	27.50	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 91.67%			
35) Toluene-d8	24.78	98	5596226	28.98	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 96.60%			
49) Bromofluorobenzene	31.63	95	2097781	28.59	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 95.30%			
Target Compounds						Qvalue
45) m+p-Xylenes	29.00	106	133551	1.34	ug/L	92

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981021\VB01775.D Vial: 2
Acq On : 21 Oct 98 2:40 pm Operator: Skelton
Sample : 3972.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:54 1998 Quant Results File: M62417.RES

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 23 12:50:29 1998
Response via : Initial Calibration



0041

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981021\VB01776.D Vial: 3
Acq On : 21 Oct 98 3:25 pm Operator: Skelton
Sample : 3972.03 Inst : GC/MS Ins
Misc : Bldg 271 11-14' Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:55 1998 Quant Results File: M62417.RES

Quant Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 09 07:56:43 1998
Response via : Initial Calibration
DataAcq Meth : M62417

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.15	128	763988	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.79	114	5401359	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1494384	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.72	65	1465054	27.35	ug/L	0.01
Spiked Amount 30.000	Range 76 - 114		Recovery = 91.17%			
35) Toluene-d8	24.78	98	5551213	29.14	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 97.13%			
49) Bromofluorobenzene	31.63	95	2082423	28.86	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 96.20%			

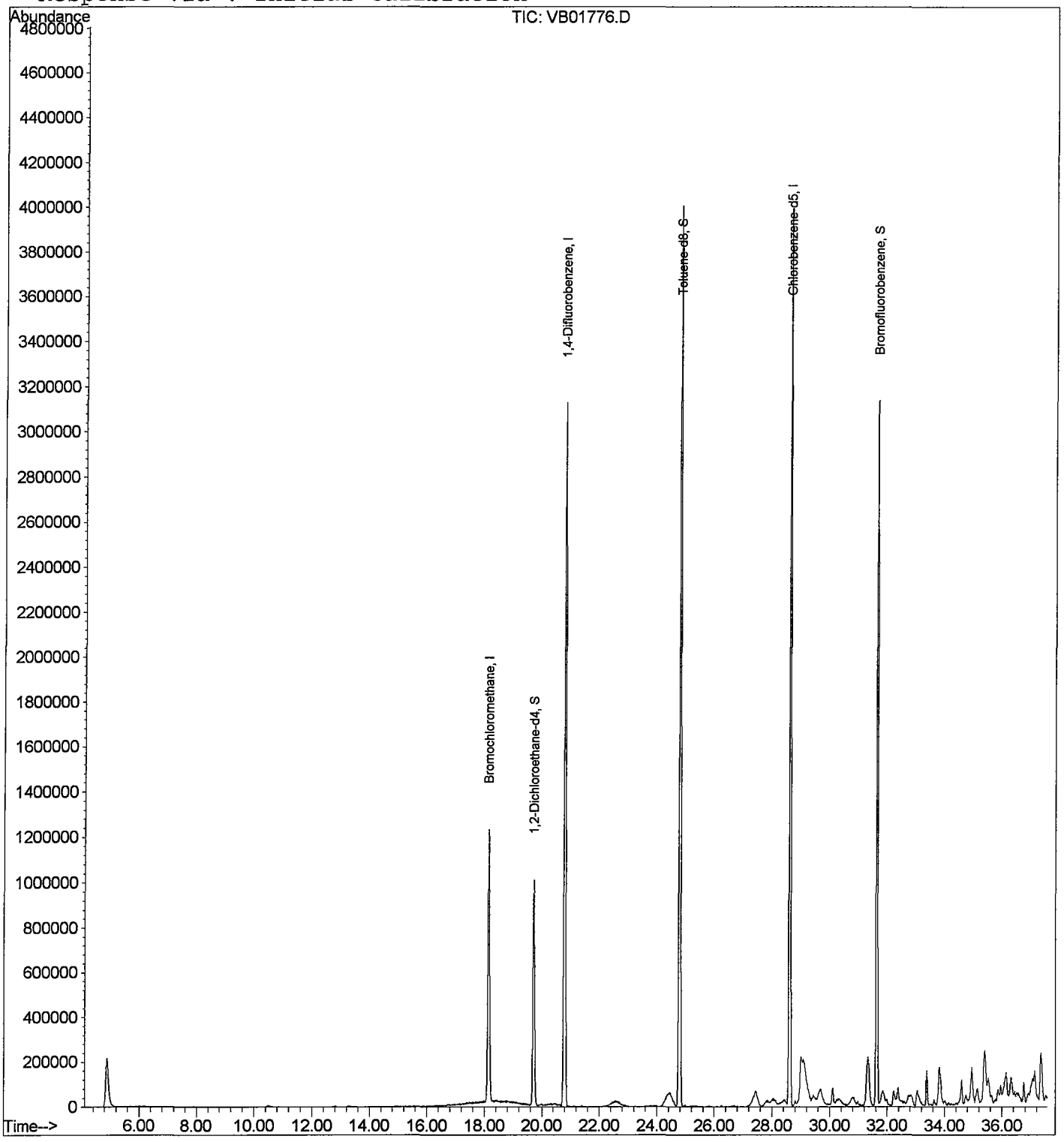
Target Compounds Qvalue

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981021\VB01776.D Vial: 3
Acq On : 21 Oct 98 3:25 pm Operator: Skelton
Sample : 3972.03 Inst : GC/MS Ins
Misc : Bldg 271 11-14' Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 23 13:55 1998 Quant Results File: M62417.RES

Method : C:\HPCHEM\1\METHODS\M62417.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Fri Oct 23 12:50:29 1998
Response via : Initial Calibration



BASE NEUTRALS

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna00991.d**	Sample Name	**Sblk144**
Operator	**Skelton**	Misc Info	**Sblk144 A 981013**
Date Acquired	**10/27/19 -1:6:**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene			not detected	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene			not detected	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna00991.d**	Sample Name	**Sblk144**
Operator	**Skelton**	Misc Info	**Sblk144 A 981013**
Date Acquired	**10/27/19 -1:6:**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene			not detected	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceeded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Sblk144

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: Sblk144

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA00991.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: decanted: (Y/N) N Date Extracted: 10/13/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/27/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna00972.d**	Sample Name	**3972.02**
Operator	**Skelton**	Misc Info	**Field Blank**
Date Acquired	**10/26/19 -1:8:**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene			not detected	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene			not detected	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna00972.d**	Sample Name	**3972.02**
Operator	**Skelton**	Misc Info	**Field Blank**
Date Acquired	**10/26/19 -1:8:**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene			not detected	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceeded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Field Blank

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3972.02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA00972.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: decanted: (Y/N) N Date Extracted: 10/13/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/26/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna00973.d**	Sample Name	**3972.03**
Operator	**Skelton**	Misc Info	**Bldg 271 11-14'**
Date Acquired	**10/26/19 -1:9:**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene			not detected	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene			not detected	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna00973.d**	Sample Name	**3972.03**
Operator	**Skelton**	Misc Info	**Bldg 271 11-14'**
Date Acquired	**10/26/19 -1:9:**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene			not detected	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceeded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Bldg271 11-14'

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3972.03

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA00973.D

Level: (low/med) LOW Date Received: 10/09/98

% Moisture: decanted: (Y/N) N Date Extracted: 10/13/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/26/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID: BNA00800.D DFTPP Injection Date: 10/01/98

Instrument ID: BNA#2 DFTPP Injection Time: 15:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	35.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	45.0
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	25.0 - 75.0% of mass 198	51.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	23.6
365	Greater than 0.75% of mass 198	3.2
441	Present, but less than mass 443	12.3
442	40.0 - 110.0% of mass 198	81.5
443	15.0 - 24.0% of mass 442	16.3 (20.0)2

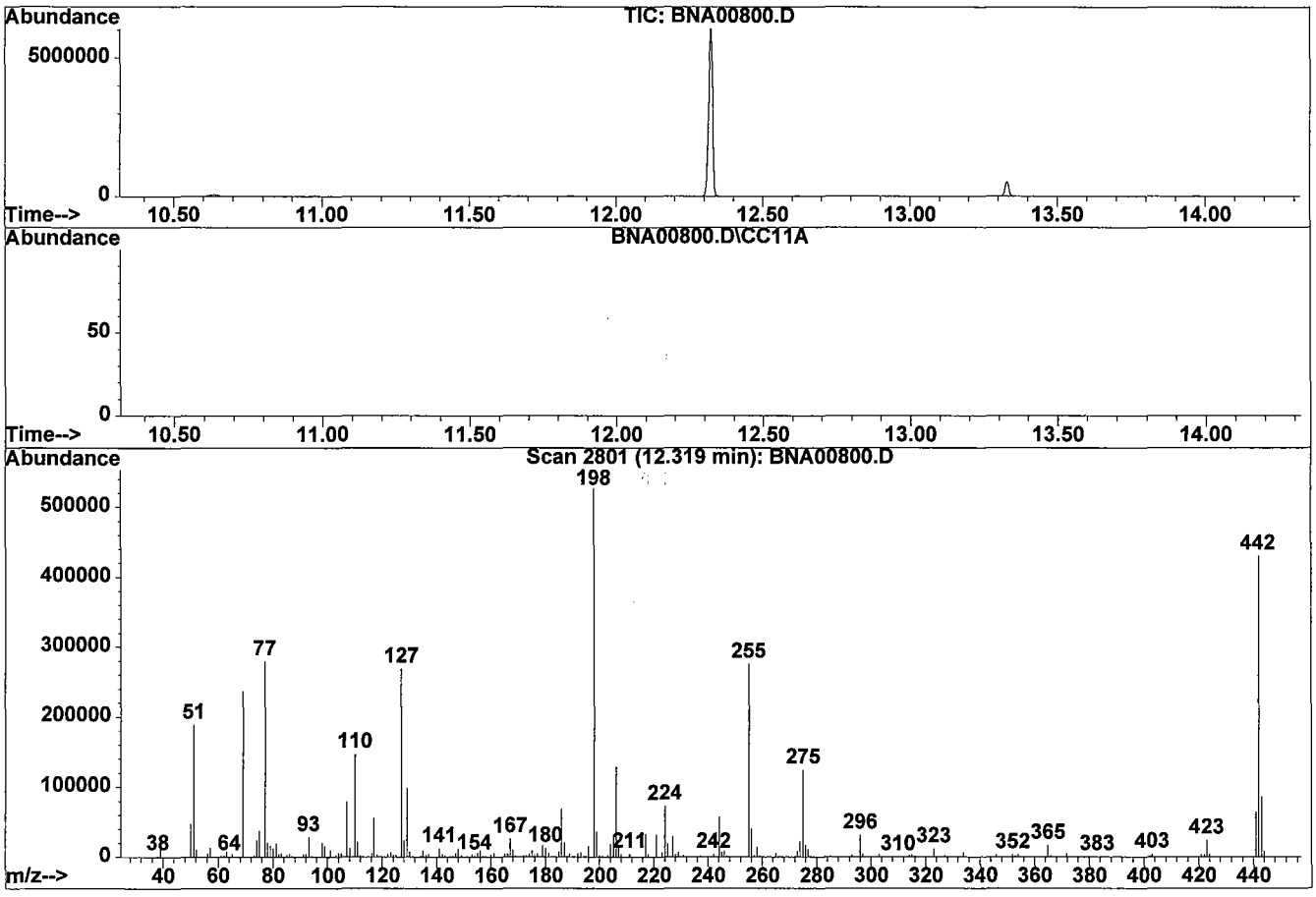
1-Value is % mass 69 2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD120	120 PPM STD	BNA00801.D	10/01/98	15:45
02	SSTD080	80 PPM STD	BNA00802.D	10/01/98	16:30
03	SSTD050	50 PPM STD	BNA00803.D	10/01/98	17:14
04	SSTD020	20 PPM STD	BNA00804.D	10/01/98	17:59
05	SSTD010	10 PPM STD	BNA00805.D	10/01/98	18:42

DFTPP

Data File : C:\HPCHEM\1\DATA\981001\BNA00800.D Vial: 100
Acq On : 1 Oct 1998 3:16 pm Operator: Skelton
Sample : DFTPP Tune Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 2801

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	35.8	188672	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.0	236992	PASS
70	69	0.00	2	0.7	1583	PASS
127	198	40	60	51.0	268800	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	526912	PASS
199	198	5	9	6.9	36352	PASS
275	198	10	30	23.6	124328	PASS
365	198	1	100	3.2	16952	PASS
441	443	0.01	100	75.2	64720	PASS
442	198	40	100	81.5	429568	PASS
443	442	17	23	20.0	86104	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID: BNA00964.D DFTPP Injection Date: 10/26/98

Instrument ID: BNA#2 DFTPP Injection Time: 14:39

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	36.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	45.4
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	25.0 - 75.0% of mass 198	50.9
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	24.3
365	Greater than 0.75% of mass 198	3.4
441	Present, but less than mass 443	13.1
442	40.0 - 110.0% of mass 198	84.3
443	15.0 - 24.0% of mass 442	16.9 (20.0)2

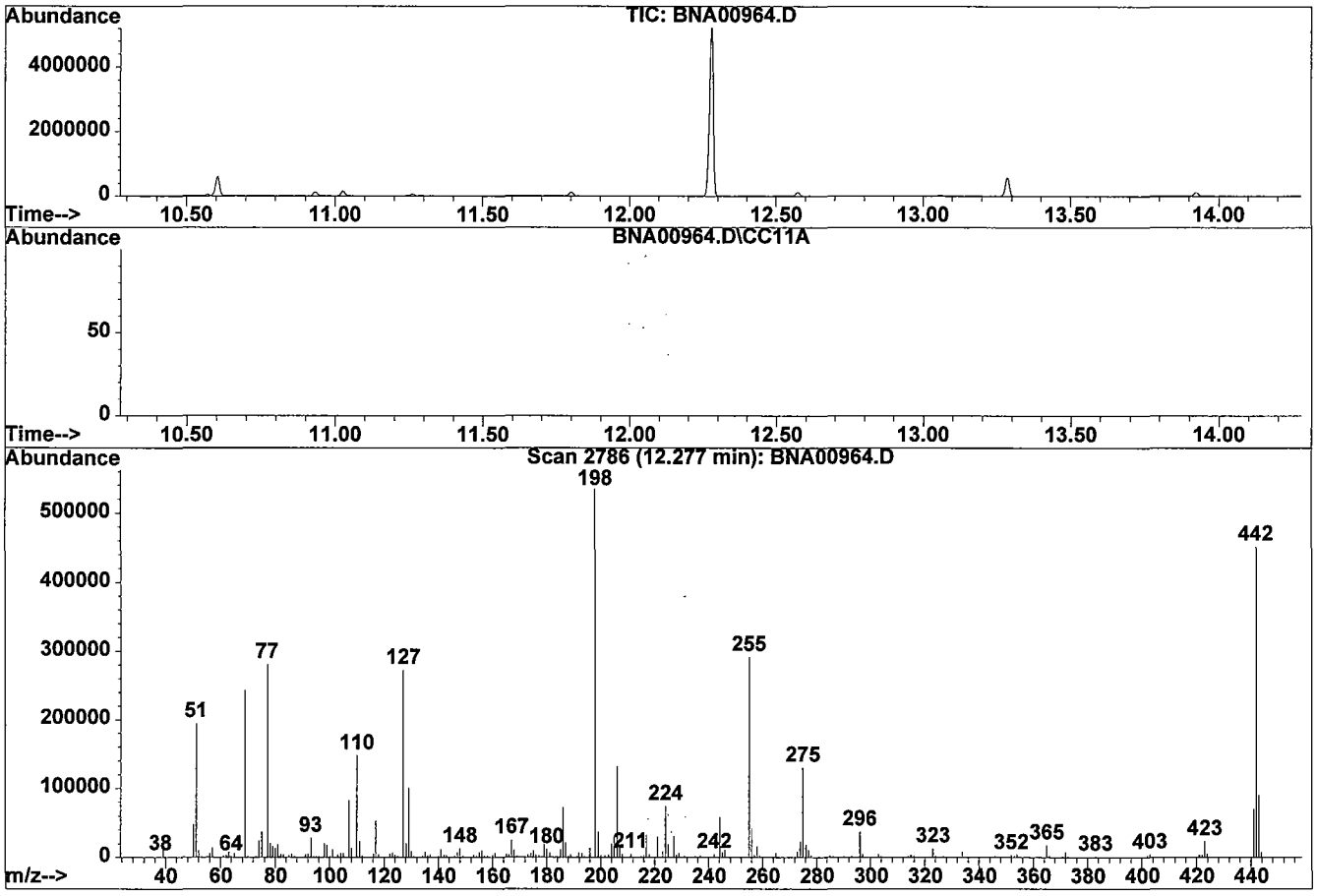
1-Value is % mass 69 2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	DAILY CAL	BNA00965.D	10/26/98	15:06
02	FIELD BLANK	3972.02	BNA00972.D	10/26/98	20:31
03	BLDG271 11-14'	3972.03	BNA00973.D	10/26/98	21:14

DFTPP

Data File : C:\HPCHEM\1\DATA\981026\BNA00964.D Vial: 24
Acq On : 26 Oct 1998 2:39 pm Operator: Skelton
Sample : DFTPP Tune Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 2786

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	36.3	194240	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.4	243136	PASS
70	69	0.00	2	0.4	865	PASS
127	198	40	60	50.9	272384	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	535360	PASS
199	198	5	9	7.0	37376	PASS
275	198	10	30	24.3	130048	PASS
365	198	1	100	3.4	18152	PASS
441	443	0.01	100	77.4	69904	PASS
442	198	40	100	84.3	451072	PASS
443	442	17	23	20.0	90288	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID: BNA00982.D DFTPP Injection Date: 10/27/98

Instrument ID: BNA#2 DFTPP Injection Time: 12:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	39.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	46.8
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	25.0 - 75.0% of mass 198	50.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	24.2
365	Greater than 0.75% of mass 198	3.5
441	Present, but less than mass 443	10.9
442	40.0 - 110.0% of mass 198	75.4
443	15.0 - 24.0% of mass 442	14.6 (19.3)2

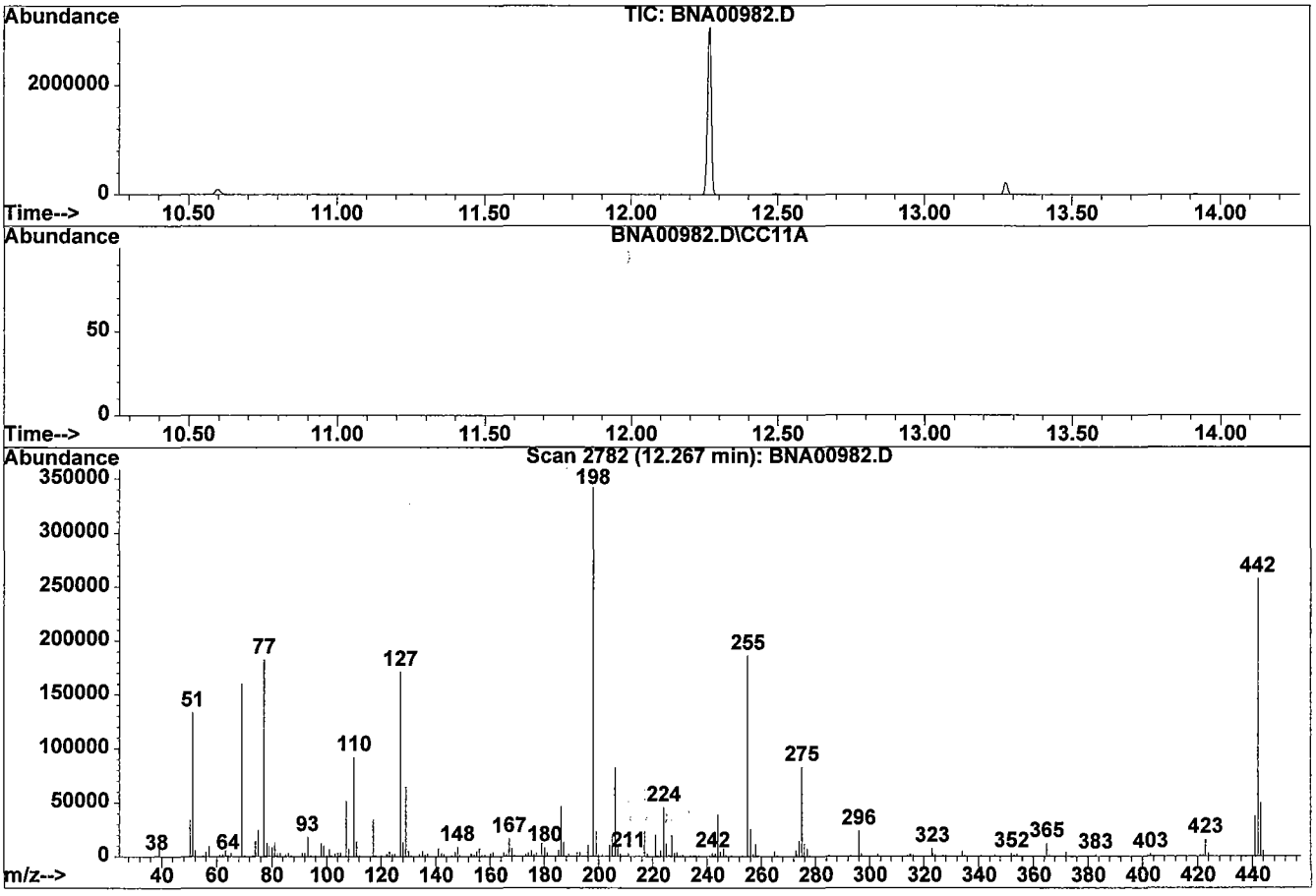
1-Value is % mass 69 2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	DAILY CAL	BNA00983.D	10/27/98	12:27
02	SBLK144	SBLK144	BNA00991.D	10/27/98	18:45
03	SBLK144MS	SBLK144MS	BNA00992.D	10/27/98	19:28

DFTPP

Data File : C:\HPCHEM\1\DATA\981027\BNA00982.D Vial: 24
Acq On : 27 Oct 1998 12:01 pm Operator: Skelton
Sample : DFTPP Tune Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 2782

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	39.0	133248	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.8	159936	PASS
70	69	0.00	2	0.6	1027	PASS
127	198	40	60	50.1	171072	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	341696	PASS
199	198	5	9	6.8	23368	PASS
275	198	10	30	24.2	82640	PASS
365	198	1	100	3.5	12021	PASS
441	443	0.01	100	74.6	37104	PASS
442	198	40	100	75.4	257536	PASS
443	442	17	23	19.3	49736	PASS

4B

SEMIVOLATILE METHOD BLANK SUMMARY

FIELD ID

Sblk144

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID: BNA00991.D Lab Sample ID: Sblk144

Instrument ID: GC/MS Ins Date Extracted: 10/13/98

Matrix: (soil/water) WATER Date Analyzed: 10/27/98

Level: (low/med) LOW Time Analyzed: 18:45

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	FIELD BLANK	3972.02	BNA00972.D	10/26/98
02	BLDG271 11-14'	3972.03	BNA00973.D	10/26/98
03	SBLK144MS	SBLK144MS	BNA00992.D	10/27/98

COMMENTS:

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration

Calibration Files
10 =BNA00805.D 20 =BNA00804.D 50 =BNA00803.D
80 =BNA00802.D 120 =BNA00801.D

		Compound	10	20	50	80	120	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------						
2)	T	Pyridine	1.981	2.021	2.190	2.195	2.093	2.096	4.62
3)	T	N-nitroso-dimethylami	1.272	1.374	1.328	1.367	1.462	1.360	5.11
4)	S	2-Fluorophenol	1.576	1.584	1.572	1.429	1.500	1.532	4.37
5)	T	Aniline	2.290	2.306	2.347	2.405	2.387	2.347	2.12
6)	S	Phenol-d6	2.076	2.103	2.098	2.124	2.086	2.098	0.87
7)	TCM	Phenol	1.957	2.106	2.080	2.115	2.064	2.064	3.06
8)	T	bis(2-Chloroethyl)eth	1.590	1.717	1.858	1.869	1.825	1.772	6.65
9)	TM	2-Chlorophenol	1.415	1.468	1.484	1.507	1.477	1.470	2.34
10)	T	1,3-Dichlorobenzene	1.479	1.482	1.455	1.473	1.446	1.467	1.10
11)	TCM	1,4-Dichlorobenzene	1.676	1.672	1.790	1.817	1.753	1.742	3.77
12)	T	Benzyl alcohol	0.869	0.957	1.007	1.026	1.026	0.977	6.81
13)	T	1,2-Dichlorobenzene	1.517	1.558	1.537	1.558	1.518	1.538	1.31
14)	T	2-Methylphenol	1.433	1.463	1.445	1.468	1.430	1.448	1.17
15)	T	bis(2-chloroisopropyl	1.938	1.941	1.849	1.825	1.726	1.856	4.80
16)	T	4-Methylphenol	1.391	1.436	1.430	1.449	1.408	1.423	1.62
17)	TPM	n-Nitroso-di-n-propyl	0.258	0.255	0.257	0.259	0.249	0.256	1.44
18)	T	Hexachloroethane	0.602	0.623	0.636	0.648	0.631	0.628	2.74
19)	I	Naphthalene-d8	----------ISTD----------						
20)	S	Nitrobenzene-d5	0.472	0.496	0.478	0.480	0.460	0.477	2.74
21)	T	Nitrobenzene	0.465	0.486	0.467	0.468	0.447	0.467	2.97
22)	T	Isophorone	0.868	0.899	0.860	0.863	0.843	0.867	2.37
23)	TC	2-Nitrophenol	0.195	0.210	0.210	0.210	0.203	0.206	3.15
24)	T	2,4-Dimethylphenol	0.435	0.451	0.435	0.438	0.421	0.436	2.51
25)	T	bis(2-Chloroethoxy)me	0.500	0.513	0.497	0.499	0.478	0.498	2.55
26)	TC	2,4-Dichlorophenol	0.298	0.320	0.314	0.317	0.305	0.311	2.89
27)	T	Benzoic Acid	0.242	0.290	0.317	0.325	0.309	0.297	11.09
28)	TM	1,2,4-Trichlorobenzen	0.331	0.347	0.341	0.344	0.333	0.339	2.04
29)	T	Naphthalene	1.090	1.128	1.059	1.033	0.942	1.050	6.69
30)	T	4-Chloroaniline	0.441	0.463	0.434	0.461	0.449	0.449	2.84
31)	TC	Hexachlorobutadiene	0.196	0.203	0.198	0.200	0.193	0.198	1.98
32)	TCM	4-Chloro-3-methylphen	0.371	0.394	0.378	0.384	0.366	0.379	2.88
33)	T	2-Methylnaphthalene	0.788	0.814	0.735	0.662	0.541	0.708	15.51
34)	I	Acenaphthene-d10	----------ISTD----------						
35)	TP	Hexachlorocyclopentad	0.158	0.197	0.229	0.249	0.255	0.218	18.64
36)	TC	2,4,6-Trichlorophenol	0.345	0.377	0.366	0.375	0.365	0.366	3.43
37)	T	2,4,5-Trichlorophenol	0.369	0.399	0.391	0.403	0.387	0.390	3.35
38)	S	2-Fluorobiphenyl	1.260	1.308	1.229	1.217	1.133	1.229	5.23
39)	T	2-Chloronaphthalene	1.063	1.105	1.047	1.042	0.980	1.047	4.31
40)	T	2-Nitroaniline	0.375	0.406	0.393	0.402	0.386	0.392	3.16
41)	T	Dimethylphthalate	1.297	1.331	1.255	1.255	1.188	1.265	4.23

0061

(#) = Out of Range

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration

Calibration Files
10 =BNA00805.D 20 =BNA00804.D 50 =BNA00803.D
80 =BNA00802.D 120 =BNA00801.D

		Compound	10	20	50	80	120	Avg	%RSD
42)	T	Acenaphthylene	1.722	1.780	1.637	1.589	1.442	1.634	7.99
43)	T	2,6-Dinitrotoluene	0.279	0.296	0.284	0.281	0.268	0.282	3.57
44)	T	3-Nitroaniline	0.375	0.406	0.393	0.402	0.386	0.392	3.16
45)	TCM	Acenaphthene	1.086	1.117	1.052	1.051	0.985	1.058	4.63
46)	TP	2,4-Dinitrophenol	0.099	0.129	0.157	0.170	0.170	0.145	21.34
47)	T	Dibenzofuran	1.531	1.604	1.503	1.474	1.366	1.496	5.83
48)	TMP	4-Nitrophenol	0.228	0.254	0.259	0.268	0.260	0.254	6.07
49)	TM	2,4-Dinitrotoluene	0.395	0.423	0.410	0.419	0.400	0.409	2.87
50)	T	Diethylphthalate	1.399	1.424	1.307	1.286	1.186	1.320	7.22
51)	T	Fluorene	1.317	1.371	1.297	1.287	1.213	1.297	4.40
52)	T	4-Chlorophenyl-phenyl	0.626	0.658	0.637	0.652	0.624	0.640	2.42
53)	T	4-Nitroaniline	0.287	0.297	0.245	0.251	0.251	0.266	9.00
54)	I	Phenanthrene-d10	----------ISTD----------						
55)	T	4,6-Dinitro-2-methylp	0.105	0.126	0.134	0.142	0.142	0.130	11.83
56)	TC	n-Nitrosodiphenylamin	0.524	0.542	0.508	0.502	0.469	0.509	5.37
57)	T	Azobenzene	0.910	0.934	0.841	0.842	0.763	0.858	7.84
58)	S	2,4,6-Tribromophenol	0.092	0.099	0.103	0.111	0.114	0.104	8.58
59)	T	4-Bromophenyl-phenyle	0.192	0.207	0.204	0.213	0.211	0.205	4.03
60)	T	Hexachlorobenzene	0.181	0.190	0.191	0.200	0.201	0.193	4.29
61)	TCM	Pentachlorophenol	0.114	0.131	0.138	0.150	0.150	0.137	11.07
62)	T	Phenanthrene	1.024	1.058	0.970	0.951	0.885	0.978	6.83
63)	T	Anthracene	1.061	1.097	1.001	0.977	0.895	1.006	7.77
64)	T	Di-n-butylphthalate	1.278	1.313	1.174	1.116	0.996	1.176	10.87
65)	TC	Fluoranthene	1.103	1.153	1.063	1.049	0.980	1.070	6.01
66)	I	Chrysene-d12	----------ISTD----------						
67)	T	Benzidine		0.015	0.014	0.013	0.013	0.014	6.70
68)	TM	Pyrene	1.293	1.337	1.237	1.223	1.150	1.248	5.70
69)	S	p-Terphenyl-d14	0.889	0.938	0.909	0.925	0.884	0.909	2.53
70)	T	Butylbenzylphthalate	0.668	0.693	0.653	0.646	0.608	0.653	4.78
71)	T	Benzo[a]anthracene	1.166	1.234	1.199	1.211	1.155	1.193	2.72
72)	T	3,3'-Dichlorobenzidin	0.369	0.369	0.347	0.369	0.377	0.366	3.04
73)	T	Chrysene	0.761	0.806	0.789	0.817	0.794	0.793	2.67
74)	T	bis(2-Ethylhexyl)phth	0.884	0.925	0.881	0.872	0.806	0.873	4.93
75)	I	Perylene-d12	----------ISTD----------						
76)	TC	Di-n-octylphthalate	1.552	1.675	1.547	1.473	1.288	1.507	9.43
77)	T	Benzo[b]fluoranthene	1.102	1.199	1.210	1.494	1.608	1.323	16.38
78)	T	Benzo[k]fluoranthene	1.089	1.166	1.129	0.944	0.744	1.014	17.05
79)	TC	Benzo[a]pyrene	1.007	1.091	1.089	1.143	1.103	1.086	4.55
80)	T	Indeno[1,2,3-cd]pyren	0.996	1.090	1.113	1.187	1.169	1.111	6.81
81)	T	Dibenz[a,h]anthracene	0.514	0.569	0.593	0.653	0.660	0.597	10.18
82)	T	Benzo[g,h,i]perylene	0.941	1.025	1.033	1.100	1.070	1.034	5.79

0062

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981026\BNA00965.D Vial: 25
Acq On : 26 Oct 1998 3:06 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	67	0.04
2	T	Pyridine	2.096	1.885	10.1	57	0.03
3	T	N-nitroso-dimethylamine	1.360	1.262	7.2	63	0.03
4	S	2-Fluorophenol	1.532	1.544	-0.8	65	0.02
5	T	Aniline	2.347	2.083	11.2	59	0.03
6	S	Phenol-d6	2.098	2.178	-3.8	69	0.03
7	TCM	Phenol	2.064	2.182	-5.7	70	0.03
8	T	bis(2-Chloroethyl)ether	1.772	1.871	-5.6	67	0.04
9	TM	2-Chlorophenol	1.470	1.513	-2.9	68	0.04
10	T	1,3-Dichlorobenzene	1.467	1.457	0.7	67	0.04
11	TCM	1,4-Dichlorobenzene	1.742	1.723	1.1	64	0.04
12	T	Benzyl alcohol	0.977	1.044	-6.9	69	0.04
13	T	1,2-Dichlorobenzene	1.538	1.548	-0.7	67	0.04
14	T	2-Methylphenol	1.448	1.499	-3.5	69	0.03
15	T	bis(2-chloroisopropyl)ether	1.856	2.024	-9.1	73	0.04
16	T	4-Methylphenol	1.423	1.472	-3.4	69	0.03
17	TPM	n-Nitroso-di-n-propylamine	0.256	0.272	-6.3	71	0.04
18	T	Hexachloroethane	0.628	0.643	-2.4	67	0.04
19	I	Naphthalene-d8	1.000	1.000	0.0	69	0.04
20	S	Nitrobenzene-d5	0.477	0.490	-2.7	71	0.04
21	T	Nitrobenzene	0.467	0.479	-2.6	71	0.04
22	T	Isophorone	0.867	0.885	-2.1	71	0.04
23	TC	2-Nitrophenol	0.206	0.190	7.8	62	0.04
24	T	2,4-Dimethylphenol	0.436	0.456	-4.6	72	0.03
25	T	bis(2-Chloroethoxy)methane	0.498	0.501	-0.6	69	0.04
26	TC	2,4-Dichlorophenol	0.311	0.316	-1.6	69	0.04
27	T	Benzoic Acid	0.297	0.303	-2.0	66	0.04
28	TM	1,2,4-Trichlorobenzene	0.339	0.340	-0.3	69	0.04
29	T	Naphthalene	1.050	1.085	-3.3	71	0.04
30	T	4-Chloroaniline	0.449	0.402	10.5	64	0.04
31	TC	Hexachlorobutadiene	0.198	0.203	-2.5	71	0.04
32	TCM	4-Chloro-3-methylphenol	0.379	0.397	-4.7	72	0.03
33	T	2-Methylnaphthalene	0.708	0.753	-6.4	71	0.05
34	I	Acenaphthene-d10	1.000	1.000	0.0	68	0.04
35	TP	Hexachlorocyclopentadiene	0.218	0.239	-9.6	71	0.04
36	TC	2,4,6-Trichlorophenol	0.366	0.380	-3.8	71	0.04
37	T	2,4,5-Trichlorophenol	0.390	0.403	-3.3	70	0.04
38	S	2-Fluorobiphenyl	1.229	1.283	-4.4	71	0.04
39	T	2-Chloronaphthalene	1.047	1.068	-2.0	69	0.04

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981026\BNA00965.D Vial: 25
Acq On : 26 Oct 1998 3:06 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.392	0.381	2.8	66	0.04
41	T	Dimethylphthalate	1.265	1.285	-1.6	70	0.04
42	T	Acenaphthylene	1.634	1.597	2.3	66	0.04
43	T	2,6-Dinitrotoluene	0.282	0.318	-12.8	76	0.04
44	T	3-Nitroaniline	0.392	0.381	2.8	66	0.04
45	TCM	Acenaphthene	1.058	1.089	-2.9	70	0.05
46	TP	2,4-Dinitrophenol	0.145	0.134	7.6	58	0.05
47	T	Dibenzofuran	1.496	1.534	-2.5	69	0.04
48	TMP	4-Nitrophenol	0.254	0.262	-3.1	69	0.03
49	TM	2,4-Dinitrotoluene	0.409	0.419	-2.4	70	0.05
50	T	Diethylphthalate	1.320	1.432	-8.5	75	0.04
51	T	Fluorene	1.297	1.342	-3.5	70	0.05
52	T	4-Chlorophenyl-phenylether	0.640	0.662	-3.4	71	0.04
53	T	4-Nitroaniline	0.266	0.213	19.9	59	0.04
54	I	Phenanthrene-d10	1.000	1.000	0.0	69	0.05
55	T	4,6-Dinitro-2-methylphenol	0.130	0.123	5.4	63	0.05
56	TC	n-Nitrosodiphenylamine	0.509	0.527	-3.5	71	0.04
57	T	Azobenzene	0.858	0.936	-9.1	77	0.05
58	S	2,4,6-Tribromophenol	0.104	0.102	1.9	68	0.04
59	T	4-Bromophenyl-phenylether	0.205	0.206	-0.5	70	0.04
60	T	Hexachlorobenzene	0.193	0.193	0.0	70	0.05
61	TCM	Pentachlorophenol	0.137	0.149	-8.8	74	0.05
62	T	Phenanthrene	0.978	1.004	-2.7	71	0.05
63	T	Anthracene	1.006	1.022	-1.6	70	0.05
64	T	Di-n-butylphthalate	1.176	1.221	-3.8	72	0.04
65	TC	Fluoranthene	1.070	1.110	-3.7	72	0.05
66	I	Chrysene-d12	1.000	1.000	0.0	71	0.06
67	T	Benzidine	0.014	0.014	0.0	74	0.05
68	TM	Pyrene	1.248	1.260	-1.0	72	0.05
69	S	p-Terphenyl-d14	0.909	0.916	-0.8	72	0.05
70	T	Butylbenzylphthalate	0.653	0.647	0.9	70	0.05
71	T	Benzo[a]anthracene	1.193	1.206	-1.1	71	0.06
72	T	3,3'-Dichlorobenzidine	0.366	0.319	12.8	65	0.05
73	T	Chrysene	0.793	0.811	-2.3	73	0.06
74	T	bis(2-Ethylhexyl)phthalate	0.873	0.878	-0.6	71	0.05
75	I	Perylene-d12	1.000	1.000	0.0	69	0.06
76	TC	Di-n-octylphthalate	1.507	1.618	-7.4	72	0.05
77	T	Benzo[b]fluoranthene	1.323	1.234	6.7	70	0.07

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981026\BNA00965.D Vial: 25
Acq On : 26 Oct 1998 3:06 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[k]fluoranthene	1.014	1.164	-14.8	71	0.07
79	TC	Benzo[a]pyrene	1.086	1.113	-2.5	70	0.07
80	T	Indeno[1,2,3-cd]pyrene	1.111	1.003	9.7	62	0.08
81	T	Dibenz[a,h]anthracene	0.597	0.599	-0.3	69	0.08
82	T	Benzo[g,h,i]perylene	1.034	1.051	-1.6	70	0.09

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981027\BNA00983.D Vial: 25
Acq On : 27 Oct 1998 12:27 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	66	0.03
2	T	Pyridine	2.096	1.960	6.5	59	0.02
3	T	N-nitroso-dimethylamine	1.360	1.407	-3.5	70	0.03
4	S	2-Fluorophenol	1.532	1.577	-2.9	66	0.01
5	T	Aniline	2.347	2.354	-0.3	66	0.03
6	S	Phenol-d6	2.098	2.126	-1.3	67	0.01
7	TCM	Phenol	2.064	2.134	-3.4	68	0.02
8	T	bis(2-Chloroethyl)ether	1.772	1.862	-5.1	66	0.03
9	TM	2-Chlorophenol	1.470	1.480	-0.7	66	0.03
10	T	1,3-Dichlorobenzene	1.467	1.488	-1.4	67	0.03
11	TCM	1,4-Dichlorobenzene	1.742	1.797	-3.2	66	0.03
12	T	Benzyl alcohol	0.977	1.008	-3.2	66	0.03
13	T	1,2-Dichlorobenzene	1.538	1.558	-1.3	67	0.03
14	T	2-Methylphenol	1.448	1.454	-0.4	66	0.02
15	T	bis(2-chloroisopropyl)ether	1.856	1.970	-6.1	70	0.03
16	T	4-Methylphenol	1.423	1.436	-0.9	66	0.02
17	TPM	n-Nitroso-di-n-propylamine	0.256	0.270	-5.5	69	0.03
18	T	Hexachloroethane	0.628	0.643	-2.4	67	0.03
19	I	Naphthalene-d8	1.000	1.000	0.0	67	0.04
20	S	Nitrobenzene-d5	0.477	0.490	-2.7	68	0.04
21	T	Nitrobenzene	0.467	0.481	-3.0	69	0.03
22	T	Isophorone	0.867	0.886	-2.2	69	0.03
23	TC	2-Nitrophenol	0.206	0.195	5.3	62	0.03
24	T	2,4-Dimethylphenol	0.436	0.439	-0.7	67	0.02
25	T	bis(2-Chloroethoxy)methane	0.498	0.504	-1.2	68	0.03
26	TC	2,4-Dichlorophenol	0.311	0.313	-0.6	66	0.03
27	T	Benzoic Acid	0.297	0.285	4.0	60	0.00
28	TM	1,2,4-Trichlorobenzene	0.339	0.338	0.3	66	0.03
29	T	Naphthalene	1.050	1.075	-2.4	68	0.03
30	T	4-Chloroaniline	0.449	0.433	3.6	67	0.03
31	TC	Hexachlorobutadiene	0.198	0.198	0.0	67	0.04
32	TCM	4-Chloro-3-methylphenol	0.379	0.385	-1.6	68	0.02
33	T	2-Methylnaphthalene	0.708	0.706	0.3	64	0.04
34	I	Acenaphthene-d10	1.000	1.000	0.0	66	0.03
35	TP	Hexachlorocyclopentadiene	0.218	0.244	-11.9	71	0.04
36	TC	2,4,6-Trichlorophenol	0.366	0.366	0.0	66	0.03
37	T	2,4,5-Trichlorophenol	0.390	0.392	-0.5	66	0.02
38	S	2-Fluorobiphenyl	1.229	1.253	-2.0	67	0.03
39	T	2-Chloronaphthalene	1.047	1.045	0.2	66	0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981027\BNA00983.D Vial: 25
Acq On : 27 Oct 1998 12:27 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.392	0.387	1.3	65	0.03
41	T	Dimethylphthalate	1.265	1.258	0.6	66	0.03
42	T	Acenaphthylene	1.634	1.652	-1.1	67	0.03
43	T	2,6-Dinitrotoluene	0.282	0.299	-6.0	70	0.03
44	T	3-Nitroaniline	0.392	0.387	1.3	65	0.03
45	TCM	Acenaphthene	1.058	1.055	0.3	66	0.03
46	TP	2,4-Dinitrophenol	0.145	0.135	6.9	57	0.03
47	T	Dibenzofuran	1.496	1.496	0.0	66	0.03
48	TMP	4-Nitrophenol	0.254	0.253	0.4	65	0.00
49	TM	2,4-Dinitrotoluene	0.409	0.407	0.5	66	0.03
50	T	Diethylphthalate	1.320	1.341	-1.6	68	0.03
51	T	Fluorene	1.297	1.298	-0.1	66	0.03
52	T	4-Chlorophenyl-phenylether	0.640	0.639	0.2	66	0.03
53	T	4-Nitroaniline	0.266	0.248	6.8	67	0.03
54	I	Phenanthrene-d10	1.000	1.000	0.0	66	0.03
55	T	4,6-Dinitro-2-methylphenol	0.130	0.120	7.7	60	0.03
56	TC	n-Nitrosodiphenylamine	0.509	0.508	0.2	66	0.03
57	T	Azobenzene	0.858	0.875	-2.0	69	0.03
58	S	2,4,6-Tribromophenol	0.104	0.099	4.8	64	0.03
59	T	4-Bromophenyl-phenylether	0.205	0.203	1.0	66	0.03
60	T	Hexachlorobenzene	0.193	0.190	1.6	66	0.03
61	TCM	Pentachlorophenol	0.137	0.140	-2.2	67	0.03
62	T	Phenanthrene	0.978	0.978	0.0	67	0.03
63	T	Anthracene	1.006	1.019	-1.3	68	0.03
64	T	Di-n-butylphthalate	1.176	1.189	-1.1	67	0.03
65	TC	Fluoranthene	1.070	1.084	-1.3	68	0.03
66	I	Chrysene-d12	1.000	1.000	0.0	68	0.03
67	T	Benzidine	0.014	0.014	0.0	69	0.04
68	TM	Pyrene	1.248	1.243	0.4	68	0.03
69	S	p-Terphenyl-d14	0.909	0.897	1.3	67	0.03
70	T	Butylbenzylphthalate	0.653	0.640	2.0	66	0.03
71	T	Benzo[a]anthracene	1.193	1.190	0.3	67	0.04
72	T	3,3'-Dichlorobenzidine	0.366	0.324	11.5	63	0.03
73	T	Chrysene	0.793	0.787	0.8	68	0.03
74	T	bis(2-Ethylhexyl)phthalate	0.873	0.867	0.7	67	0.03
75	I	Perylene-d12	1.000	1.000	0.0	69	0.04
76	TC	Di-n-octylphthalate	1.507	1.528	-1.4	68	0.03
77	T	Benzo[b]fluoranthene	1.323	1.155	12.7	66	0.04

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981027\BNA00983.D Vial: 25
Acq On : 27 Oct 1998 12:27 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[k]fluoranthene	1.014	1.121	-10.6	68	0.04
79	TC	Benzo[a]pyrene	1.086	1.054	2.9	67	0.04
80	T	Indeno[1,2,3-cd]pyrene	1.111	0.953	14.2	59	0.04
81	T	Dibenz[a,h]anthracene	0.597	0.563	5.7	65	0.04
82	T	Benzo[g,h,i]perylene	1.034	1.008	2.5	67	0.05

2C

WATER SEMI-VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FMETL **Project** 980932

NJDEP # 13461 **Location** B.271-270

Case No.: 3972

	EPA SAMPLE NO.	SMC1 NBZ-d5	SMC2 2FP	SMC3 TER-d14	TOT OUT
01	SBLK144	69	66	81	0
02	3972.02	79	80	90	0
03	3972.03	82	79	89	0

				QC LIMITS
SMC1	NBZ-d5	=	Nitrobenzene-d5	(35-114)
SMC2	2-FBP	=	2-Flourobiphenyl	(43-116)
SMC3	TER-d14	=	p-Terphenyl-d14	(33-141)

Column to be used to flag recovery

*Values outside of contract required QC limits

D System Monitoring Compounds diluted out

Base Neutral Spike Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name **BNA00992.D** Sample Name **Sblk144ms**

Date Acquired **27 Oct 1998 7:28 pm**

CAS#	Name		Amount Recovered	Percent Recovered
110-86-1	Pyridine		6.38 ug/L	31.88
62-75-9	N-nitroso-dimethylamine		5.42 ug/L	27.11
62-53-3	Aniline		12.36 ug/L	61.79
111-44-4	bis(2-Chloroethyl)ether		11.18 ug/L	55.91
541-73-1	1,3-Dichlorobenzene		13.42 ug/L	67.11
106-46-7	1,4-Dichlorobenzene		13.48 ug/L	67.42
100-51-6	Benzyl alcohol		7.21 ug/L	36.06
95-50-1	1,2-Dichlorobenzene		13.60 ug/L	68.00
108-60-1	bis(2-chloroisopropyl)ether		15.09 ug/L	75.46
621-64-7	n-Nitroso-di-n-propylamine		13.86 ug/L	69.28
67-72-1	Hexachloroethane		11.52 ug/L	57.61
98-95-3	Nitrobenzene		14.28 ug/L	71.40
111-91-1	bis(2-Chloroethoxy)methane		12.32 ug/L	61.59
120-82-1	1,2,4-Trichlorobenzene		12.56 ug/L	62.81
91-20-3	Naphthalene		12.79 ug/L	63.94
106-47-8	4-Chloroaniline		12.26 ug/L	61.32
87-68-3	Hexachlorobutadiene		12.46 ug/L	62.28
91-57-6	2-Methylnaphthalene		12.84 ug/L	64.19
77-47-4	Hexachlorocyclopentadiene		2.93 ug/L	14.63
91-58-7	2-Chloronaphthalene		14.02 ug/L	70.11
88-74-4	2-Nitroaniline		12.59 ug/L	62.96
131-11-3	Dimethylphthalate		5.77 ug/L	28.86
208-96-8	Acenaphthylene		13.53 ug/L	67.64
606-20-2	2,6-Dinitrotoluene		11.37 ug/L	56.83
99-09-2	3-Nitroaniline		12.59 ug/L	62.96
83-32-9	Acenaphthene		13.43 ug/L	67.16
132-64-9	Dibenzofuran		13.26 ug/L	66.31
121-14-2	2,4-Dinitrotoluene		14.27 ug/L	71.35
84-66-2	Diethylphthalate		9.89 ug/L	49.46
86-73-7	Fluorene		13.71 ug/L	68.54
7005-72-3	4-Chlorophenyl-phenylether		13.05 ug/L	65.23
100-01-6	4-Nitroaniline		15.28 ug/L	76.38
86-30-6	n-Nitrosodiphenylamine		14.59 ug/L	72.95
103-33-3	Azobenzene		17.17 ug/L	85.85
101-55-3	4-Bromophenyl-phenylether		13.49 ug/L	67.45
118-74-1	Hexachlorobenzene		13.34 ug/L	66.68
85-01-8	Phenanthrene		15.35 ug/L	76.74
120-12-7	Anthracene		15.18 ug/L	75.89
84-74-2	Di-n-butylphthalate		15.89 ug/L	79.47
206-44-0	Fluoranthene		15.30 ug/L	76.48
92-87-5	Benzidine		43.69 ug/L	218.47
129-00-0	Pyrene		14.87 ug/L	74.36
85-68-7	Butylbenzylphthalate		14.19 ug/L	70.93
56-55-3	Benzo[a]anthracene		13.84 ug/L	69.19
91-94-1	3,3'-Dichlorobenzidine		15.67 ug/L	78.33
218-01-9	Chrysene		9.18 ug/L	45.89
117-81-7	bis(2-Ethylhexyl)phthalate		14.80 ug/L	74.01
117-84-0	Di-n-octylphthalate		14.52 ug/L	72.59
205-99-2	Benzo[b]fluoranthene		11.37 ug/L	56.85
207-08-9	Benzo[k]fluoranthene		14.60 ug/L	73.00
50-32-8	Benzo[a]pyrene		12.64 ug/L	63.20
193-39-5	Indeno[1,2,3-cd]pyrene		10.75 ug/L	53.76
53-70-3	Dibenz[a,h]anthracene		8.83 ug/L	44.16
191-24-2	Benzo[g,h,i]perylene		10.13 ug/L	50.66

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID (Standard): BNA00983.D Date Analyzed: 10/27/98

Instrument ID: BNA#2 Time Analyzed: 12:27

		IS1DCB AREA #	RT #	IS2NAP AREA #	RT #	IS3ANE AREA #	RT #
	12 HOUR STD	504254	7.59	1992430	10.42	1316626	14.51
	UPPER LIMIT	1008508	7.09	3984860	9.92	2633252	14.01
	LOWER LIMIT	252127	8.09	996215	10.92	658313	15.01
	FIELD ID						
01	SBLK144	485707	7.59	2013951	10.41	1275392	14.50
02	SBLK144MS	444245	7.59	1940645	10.41	1224110	14.50

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

0071

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID (Standard): BNA00983.D Date Analyzed: 10/27/98

Instrument ID: BNA#2 Time Analyzed: 12:27

		IS4PNE AREA #	RT #	IS5CYS AREA #	RT #	IS6PRL AREA #	RT #
	12 HOUR STD	2409924	17.92	2114649	24.15	2015608	27.27
	UPPER LIMIT	4819848	17.42	4229298	23.65	4031216	26.77
	LOWER LIMIT	1204962	18.42	1057325	24.65	1007804	27.77
	EPA SAMPLE NO.						
01	SBLK144	2244791	17.91	2080684	24.13	2119150	27.25
02	SBLK144MS	2101439	17.91	1902218	24.14	1923428	27.25

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

0072

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID (Standard): BNA00965.D Date Analyzed: 10/26/98

Instrument ID: BNA#2 Time Analyzed: 15:06

		IS1DCB AREA #	RT #	IS2NAP AREA #	RT #	IS3ANE AREA #	RT #
	12 HOUR STD	510017	7.59	2057642	10.43	1354718	14.52
	UPPER LIMIT	1020034	7.09	4115284	9.93	2709436	14.02
	LOWER LIMIT	255009	8.09	1028821	10.93	677359	15.02
	FIELD ID						
01	FIELD BLANK	466291	7.59	1945884	10.41	1220047	14.51
02	BLDG271 11-14'	431846	7.59	1799821	10.42	1135436	14.51

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

0073

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 3972 Location UST SDG No.:

Lab File ID (Standard): BNA00965.D Date Analyzed: 10/26/98

Instrument ID: BNA#2 Time Analyzed: 15:06

		IS4PNE AREA #	RT #	IS5CYS AREA #	RT #	IS6PRL AREA #	RT #
	12 HOUR STD	2499069	17.93	2215616	24.18	2008360	27.29
	UPPER LIMIT	4998138	17.43	4431232	23.68	4016720	26.79
	LOWER LIMIT	1249535	18.43	1107808	24.68	1004180	27.79
	EPA SAMPLE NO.						
01	FIELD BLANK	2086244	17.92	1852257	24.14	1910568	27.26
02	BLDG271 11-1	1936310	17.91	1744315	24.14	1792216	27.26

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981027\BNA00991.D Vial: 8
Acq On : 27 Oct 1998 6:45 pm Operator: Skelton
Sample : Sblk144 Inst : GC/MS Ins
Misc : Sblk144 A 981013 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Oct 27 19:17 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.59	152	485707	40.00	ug/L	-0.06
19) Naphthalene-d8	10.41	136	2013951	40.00	ug/L	-0.08
34) Acenaphthene-d10	14.50	164	1275392	40.00	ug/L	-0.08
54) Phenanthrene-d10	17.91	188	2244791	40.00	ug/L	-0.09
66) Chrysene-d12	24.13	240	2080684	40.00	ug/L	-0.10
75) Perylene-d12	27.25	264	2119150	40.00	ug/L	-0.10
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
20) Nitrobenzene-d5	8.89	82	822995	34.25	ug/L	-0.08
Spiked Amount 50.000	Range 35 - 114		Recovery =	68.50%		
38) 2-Fluorobiphenyl	13.05	172	1293775	33.00	ug/L	-0.08
Spiked Amount 50.000	Range 43 - 116		Recovery =	66.00%		
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
69) p-Terphenyl-d14	21.84	244	1918231	40.57	ug/L	-0.09
Spiked Amount 50.000	Range 33 - 141		Recovery =	81.14%		

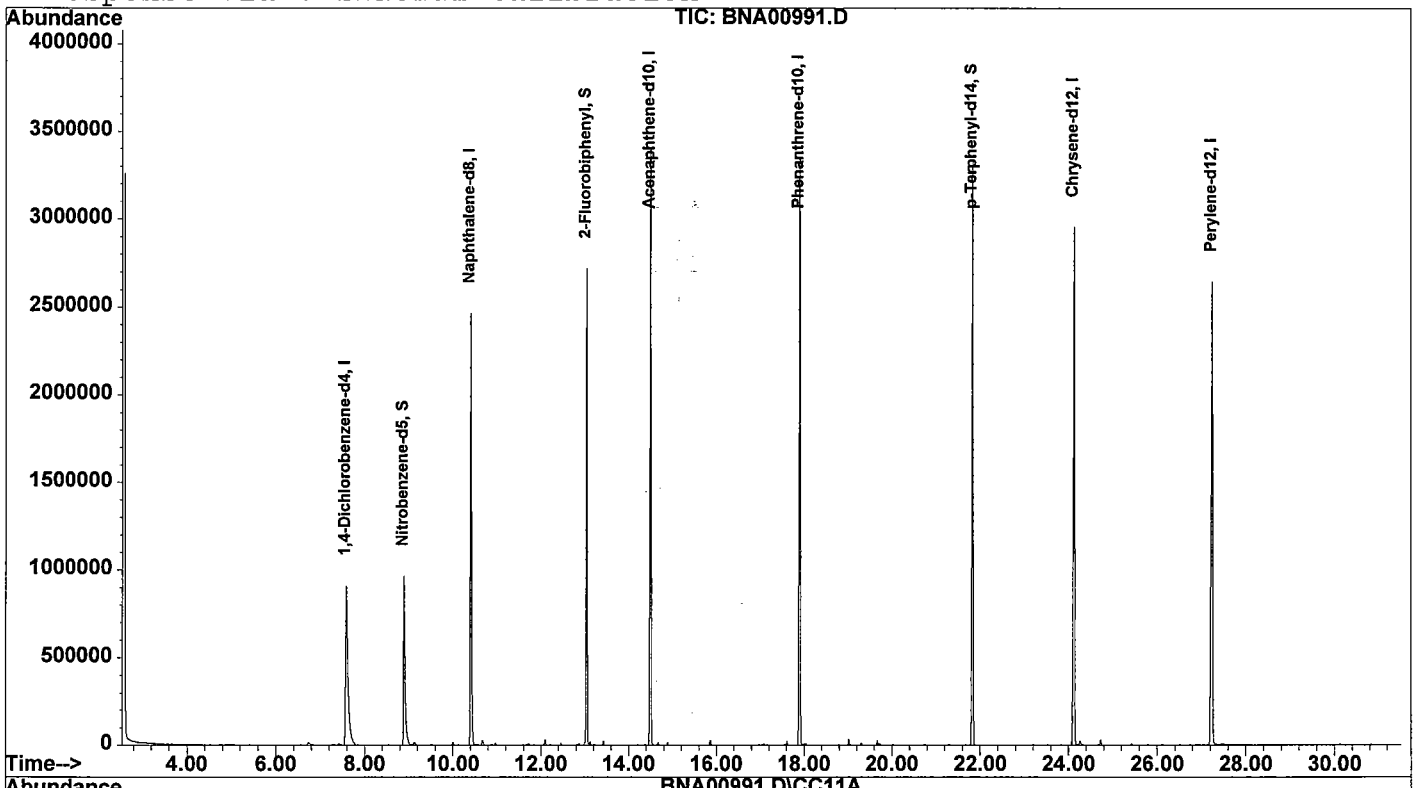
Target Compounds Qvalue

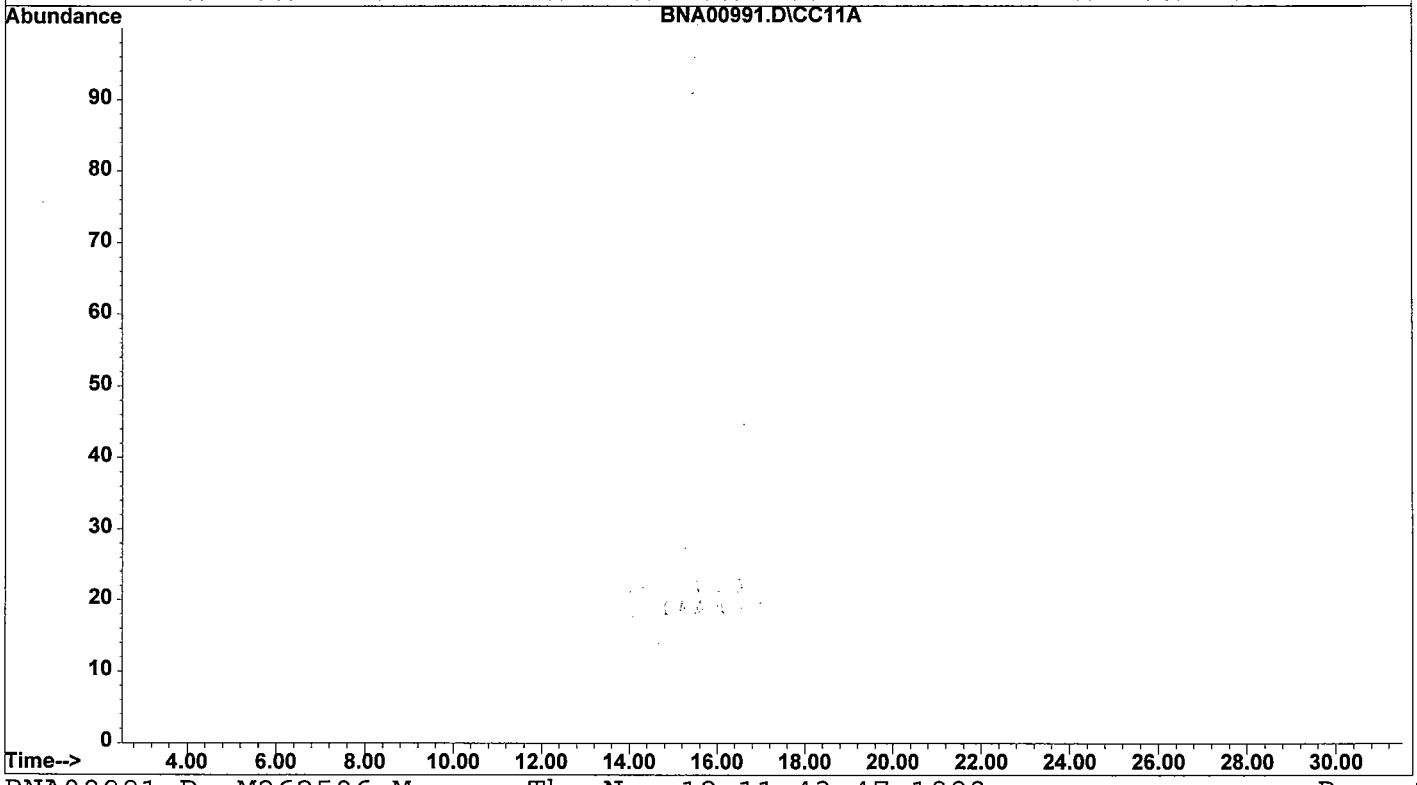
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981027\BNA00991.D Vial: 8
Acq On : 27 Oct 1998 6:45 pm Operator: Skelton
Sample : Sblk144 Inst : GC/MS Ins
Misc : Sblk144 A 981013 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Oct 27 19:17 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981026\BNA00972.D Vial: 7
Acq On : 26 Oct 1998 8:31 pm Operator: Skelton
Sample : 3972.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 12 11:29 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.59	152	466291	40.00	ug/L	0.03
19) Naphthalene-d8	10.41	136	1945884	40.00	ug/L	0.03
34) Acenaphthene-d10	14.51	164	1220047	40.00	ug/L	0.03
54) Phenanthrene-d10	17.92	188	2086244	40.00	ug/L	0.03
66) Chrysene-d12	24.14	240	1852257	40.00	ug/L	0.02
75) Perylene-d12	27.26	264	1910568	40.00	ug/L	0.03
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery = 0.00%#			
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery = 0.00%#			
20) Nitrobenzene-d5	8.90	82	914553	39.39	ug/L	0.03
Spiked Amount 50.000	Range 35 - 114		Recovery = 78.78%			
38) 2-Fluorobiphenyl	13.06	172	1507145	40.19	ug/L	0.02
Spiked Amount 50.000	Range 43 - 116		Recovery = 80.38%			
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery = 0.00%#			
69) p-Terphenyl-d14	21.84	244	1888651	44.87	ug/L	0.04
Spiked Amount 50.000	Range 33 - 141		Recovery = 89.74%			

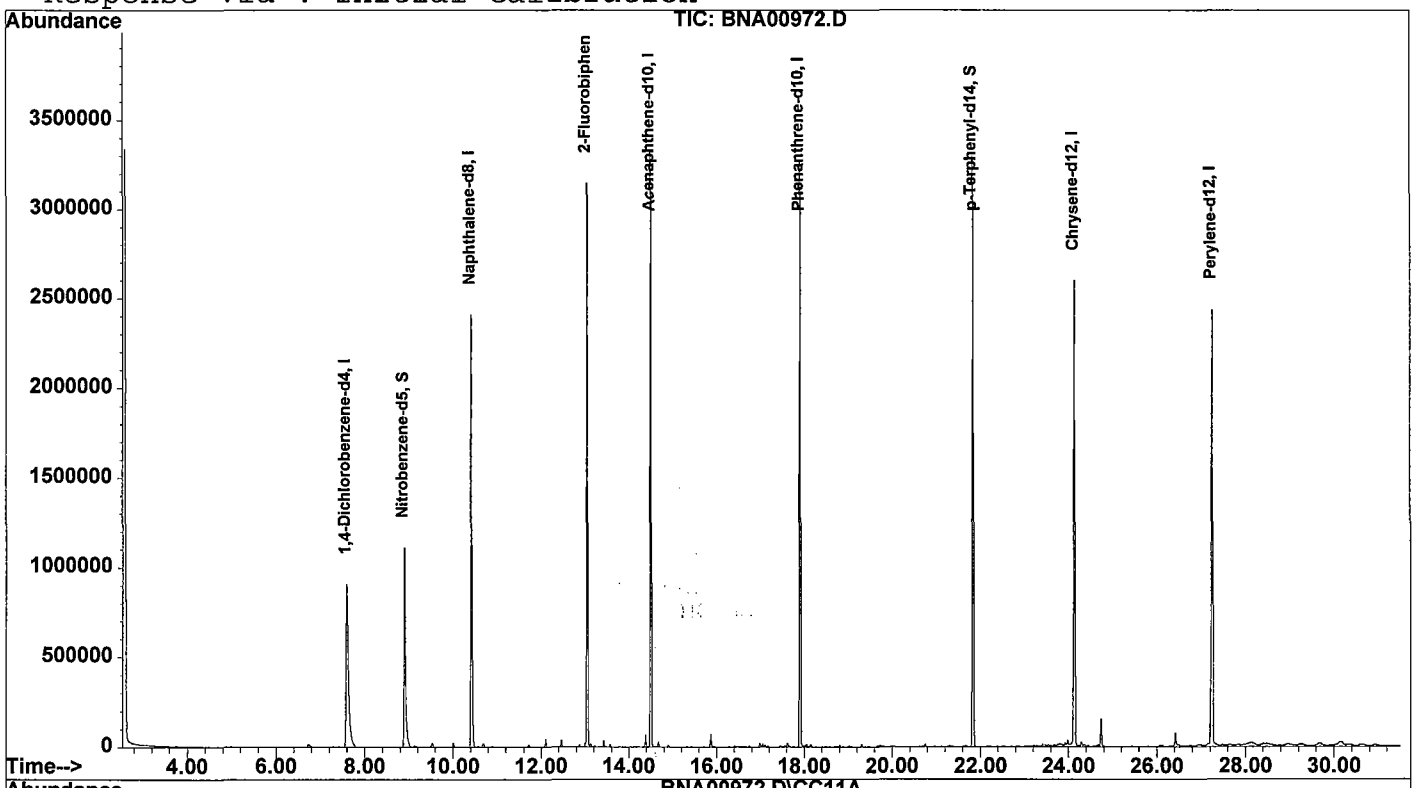
Target Compounds Qvalue

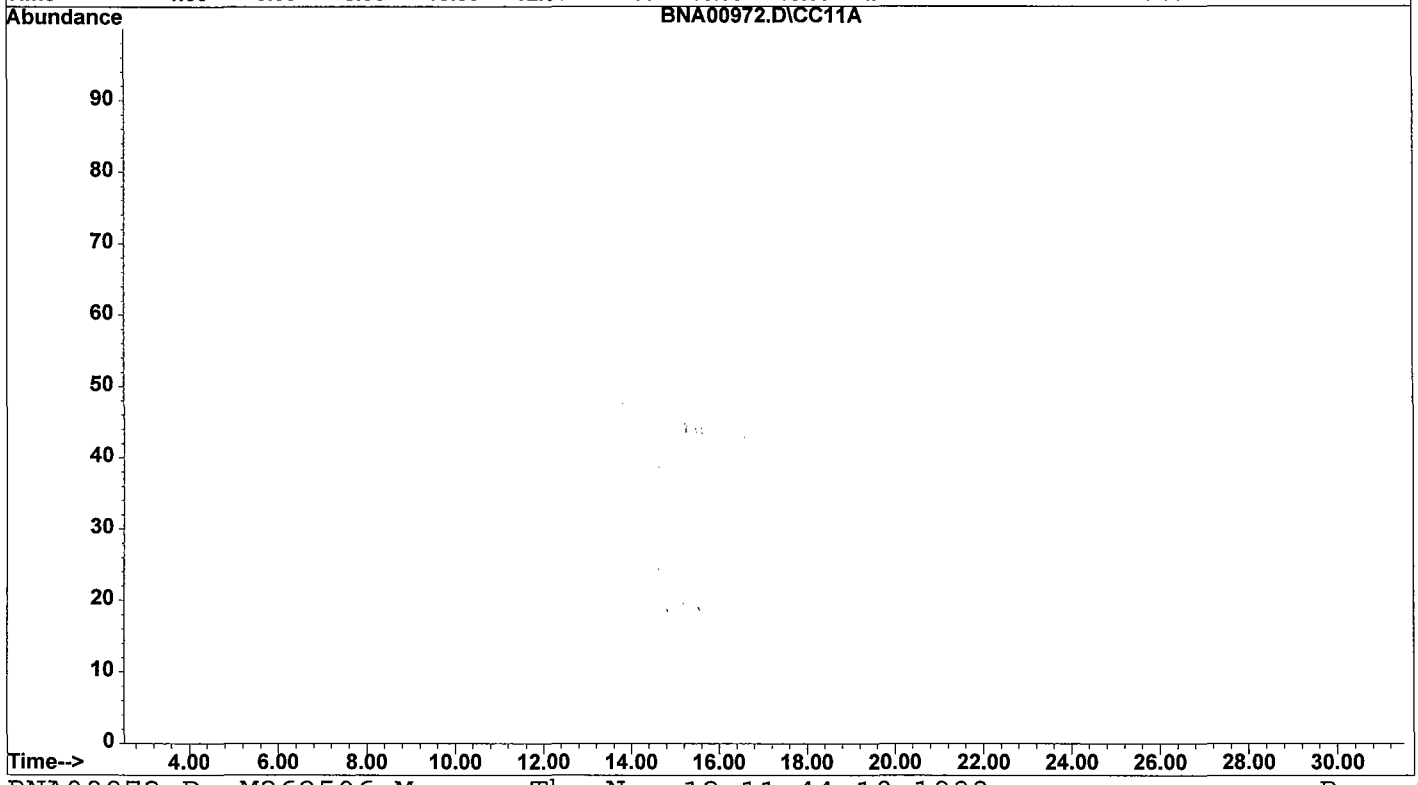
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981026\BNA00972.D Vial: 7
Acq On : 26 Oct 1998 8:31 pm Operator: Skelton
Sample : 3972.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 12 11:29 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration





0078

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\981026\BNA00973.D Vial: 8
Acq On : 26 Oct 1998 9:14 pm Operator: Skelton
Sample : 3972.03 Inst : GC/MS Ins
Misc : Bldg 271 11-14' Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 12 11:28 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.59	152	431846	40.00	ug/L	0.03
19) Naphthalene-d8	10.42	136	1799821	40.00	ug/L	0.03
34) Acenaphthene-d10	14.51	164	1135436	40.00	ug/L	0.03
54) Phenanthrene-d10	17.91	188	1936310	40.00	ug/L	0.03
66) Chrysene-d12	24.14	240	1744315	40.00	ug/L	0.02
75) Perylene-d12	27.26	264	1792216	40.00	ug/L	0.03
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
20) Nitrobenzene-d5	8.90	82	877247	40.85	ug/L	0.03
Spiked Amount 50.000	Range 35 - 114		Recovery =	81.70%		
38) 2-Fluorobiphenyl	13.06	172	1380695	39.56	ug/L	0.03
Spiked Amount 50.000	Range 43 - 116		Recovery =	79.12%		
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
69) p-Terphenyl-d14	21.84	244	1756591	44.31	ug/L	0.03
Spiked Amount 50.000	Range 33 - 141		Recovery =	88.62%		

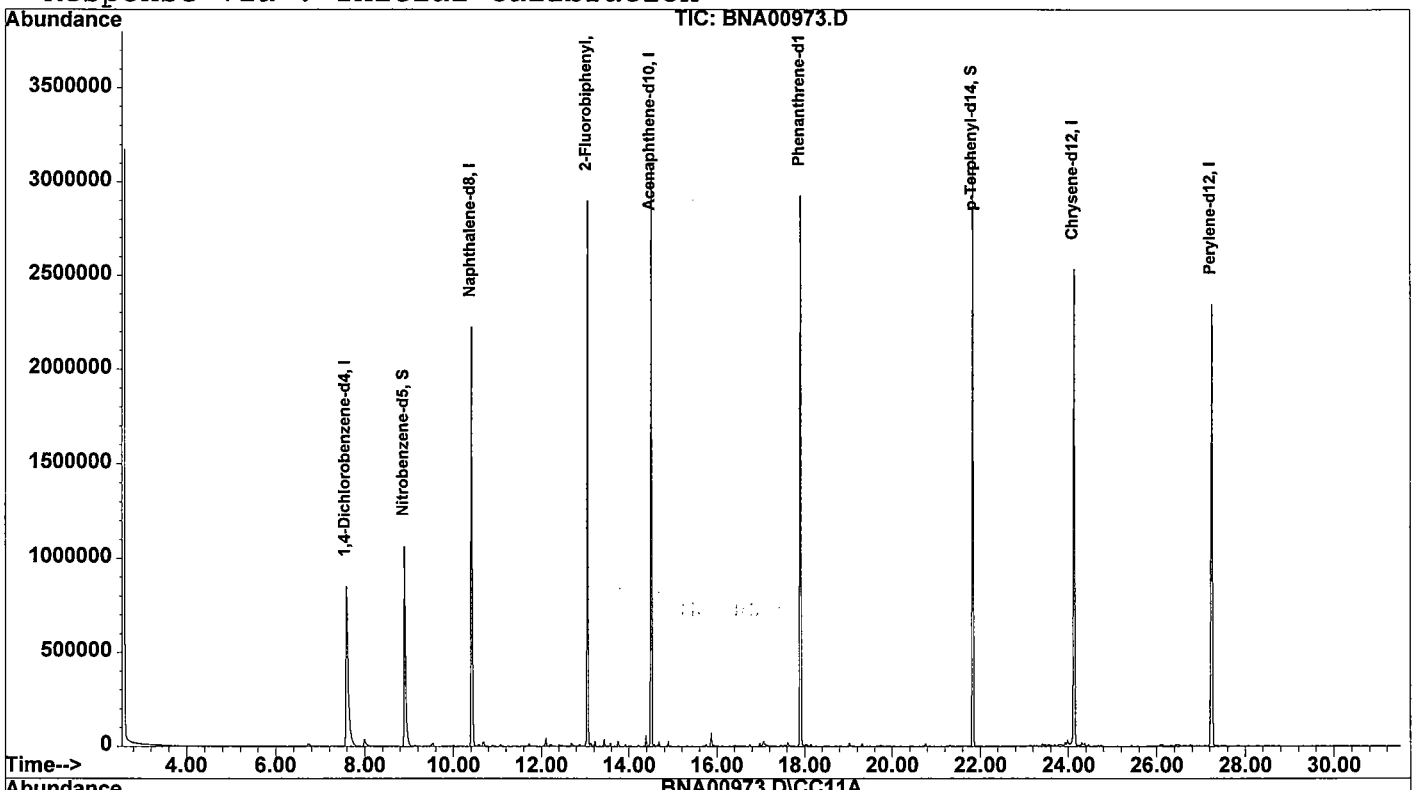
Target Compounds Qvalue

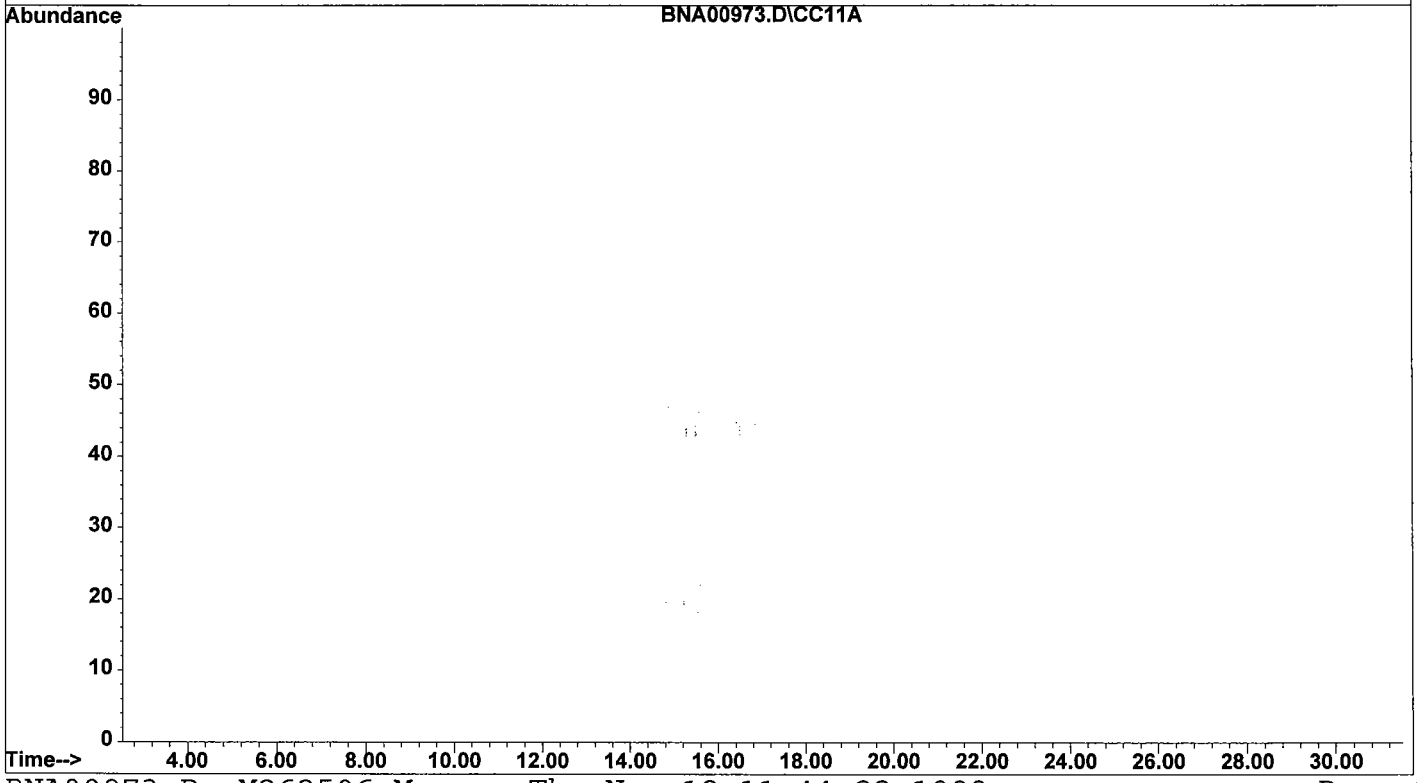
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981026\BNA00973.D Vial: 8
Acq On : 26 Oct 1998 9:14 pm Operator: Skelton
Sample : 3972.03 Inst : GC/MS Ins
Misc : Bldg 271 11-14' Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 12 11:28 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration





0080

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature _____

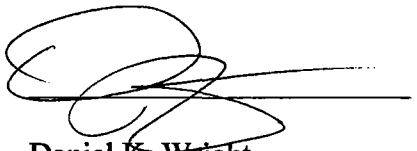
Date 11/24/95

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

DIRECTORATE OF PUBLIC WORKS
PHONE: (732)532-6224 FAX: (732)532-3484
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
NJDEP LABORATORY CERTIFICATION # 13461

ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

BLDG. 271

Field Location No. & Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
Trip Blank	4052.01	Aqueous	13-Nov-98	11/13/98
Field Blank	4052.02	Aqueous	13-Nov-98 09:30	11/13/98
Bldg. 271 13-15'	4052.05	Aqueous	13-Nov-98 15:15	11/13/98

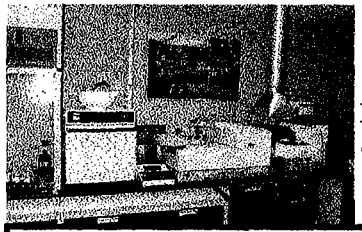
ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB.
VOA+15, BN+15

12-5-98
Daniel Wright/Date
Laboratory Director

ENCLOSURE:
CHAIN OF CUSTODY
FIELD DOCUMENTATION
RESULTS

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@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: CHAS. APPLEBY/VERSAR
Phone #: X26224
( )DERA (✓)OMA ( )Other:_____
Project No:
Location: BLDGS 2700 270 + 271

Samplers Name / Company :

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	VOA + IS	BN + IS							Comments: Remarks / Preservation Method
						Analysis Parameters								
4052. 1	TRIP BLANK	11-12-98	—	AQ.	2	X								HCL
2	FIELD BLANK	"	930	"	3	X	X							HCL/4°C
3	BLDG. 2700 - 8-11'	"	1000	"	"	X	X							"
4	BLDG. 270 - 8-11'	"	1450	"	"	X	X							"
5	BLDG. 271 - 13-15'	"	1515	"	"	X	X							"
6	FIELD DUP. —	"		"	"	X	X							"

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	11-12-98 1540				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: (_)Full, (✓)Reduced, (_)Standard, (_)Screen / non-certified
Turnaround time: (✓)Standard 4 wks, (_)Rush ____ Days, (_)ASAP Verbal ____ Hrs.

Remarks:

2000

print legibly

coc.XLS11/10/98

FIELD DOCUMENTATION

Post Remedial Groundwater Sampling at Former Underground Storage Tank Site

FOR BLDG. # 271

Ground Water Sampling with the use of a Passively Placed Narrow Diameter Point (PPNDP)

Objective:

To collect a representative groundwater sample utilizing a narrow diameter point [PPNDP] This is a small diameter [1-inch OD] screened casing passively placed in a borehole. The casing is of p.v.c. construction.

1. Methods

A. A solid push - rod (bull point) is used to create a narrow diameter hole to a depth below the water table. A piece of schedule 40 PVC screen with 0.010-inch slots and an end cap is placed to the bottom of the hole. Glues or adhesives are not used for joining the casing. Threaded PVC casing is used. No filter or gravel pack is used.

2. Installation

A. Using a Geoprobe, a borehole was advanced with a pre-probe with a diameter slightly larger than the casing. The hole was made to a depth of 14 feet. The water table was at 11 feet below ground surface.

B. The screened section of PVC was placed into the borehole so the screened section was across the ground water table from 9 - 14 feet. Riser casing from 9 - +3 feet.

3. Purging

A. Three volumes of the standing water in the point were purged. The amount of water extracted was app. 0.123 gal. Three to five volumes are purged due to the potential for cross contamination of the screen from upper soil horizons. This was accomplished utilizing a peristaltic pump, and utilizing food grade tubing.

4. Sampling

A. Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks conform to applicable industry methods such as those specified in the NJDEP "Field Sampling Procedures Manual" in effect as of the date on which sampling is performed. Any deviations from the methods in the "Field Sampling Procedures Manual" pursuant to N.J.A.C. 7:26E-1.6(c) has been approved by the person responsible for conducting the remediation.

All samples were preserved in the field immediately after collection and submitted to the laboratory as soon as possible and no later than 48 hours after sample collection.

The acquisition of samples and water level measurements were performed as recommended and described in the May 1992 edition of NJDEP Field Sampling Procedures Manual.

5. Quality Assurance/Quality Control

A. Decontamination

The associated equipment (bull point, riser pipe, etc.) was decontaminated between borings using the following procedure:

1. Remove all adherent soil material.
2. Wash with a laboratory grade glassware detergent.
3. Rinsed with potable water.
4. Rinse with distilled and deionized ASTM Type II water.

B. Field Blanks

1 Field blank was taken at this site.

C. Sample bottles: Supplied by Environmental Sampling Supply, Oakland, Calif. The sample bottles are certified clean and are sealed upon delivery.

D. P.V.C. Screens: Supplied by Bedrock Enterprises, Forked River N.J.

Geoprobe Operator: Mark Laura
Employer: U.S. Army, Fort Monmouth
Phone Number: [732] 532-8990
NJDEP License #: J-1486

11-23-98
Mark Laura / Date

METHODOLOGY SUMMARY

Methodology Summary

EPA Method 624
Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5 ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA Method 3510/8270
Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to a measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene Chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate Yes, No, N/A

1. Chromatograms labeled/Compounds identified (Field samples and method blanks) — Yes
2. Retention times for chromatograms provided — yes
3. GC/MS Tune Specifications
   a. BFB Meet Criteria — Yes
   b. DFTPP Meet Criteria — Yes
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series — Yes
5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — Yes
6. GC/MS Calibration requirements
   a. Calibration Check Compounds Meet Criteria — Yes
   b. System Performance Check Compounds Meet Criteria — Yes
7. Blank Contamination – If yes, List compounds and concentrations in each blank: — No
   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA
8. Surrogate Recoveries Meet Criteria — Yes

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:
   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

   If not met, were the calculations checked and the results qualified as "estimated"? _____
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) — Yes
   a. VOA Fraction _____
   b. B/N Fraction _____
   c. Acid Fraction NA

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

Indicate
Yes, No, N/A

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

    a. VOA Fraction _____
    b. B/N Fraction _____
    c. Acid Fraction N/A

11. Extraction Holding Time Met — Yes

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

12. Analysis Holding Time Met — Yes

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

Additional Comments:
Field dup performed on 4052.03 Bldg 2700 S/L

Laboratory Manager: _____ Date: 12-8-98

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 4052 **Site:** Bldg. 271

	Date	Hold Time
Date Sampled	11/13/98	NA
Receipt/Refrigeration	11/13/98	NA
Extractions		
1. Base Neutrals	11/15/98	14 days
Analyses		
1. Volatile Organics	11/17,18/98	14 days
2. Base Neutrals	11/20/98	40 days

VOLATILE ORGANICS

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEPE # 13461

Definition of Qualifiers

MDL : Method Detection Limit
J : Compound identified below detection limit
B : Compound in both sample and blank
D : Results from dilution of sample
U : Compound searched for but not detected

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

Data File Nam	**vb02128.d**	Sample Name	**Vblk65**
Operator	**Skelton**	Field ID	**Vblk65**
Date Acquired	**17 Nov 98 3:32 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Vblk65**

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

Matrix: (soil/water) WATER Lab Sample ID: Vblk65

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB02128.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: not dec. _____ Date Analyzed: 11/17/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File Nam	**vb02143.d**	Sample Name	**4052.01**
Operator	**Skelton**	Field ID	**Trip Blank**
Date Acquired	**18 Nov 98 3:00 am**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Trip Blank**

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

Matrix: (soil/water) WATER Lab Sample ID: 4052.01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB02143.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: not dec. _____ Date Analyzed: 11/18/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File Nam	**vb02144.d**	Sample Name	**4052.02**
Operator	**Skelton**	Field ID	**Field Blank**
Date Acquired	**18 Nov 98 3:45 am**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride	12.82	77677	2.15 ug/L	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1.14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Field Blank**

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

Matrix: (soil/water) WATER Lab Sample ID: 4052.02

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB02144.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: not dec. _____ Date Analyzed: 11/18/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File Nam	**vb02147.d**	Sample Name	**4052.05**
Operator	**Skelton**	Field ID	**Bldg271**
Date Acquired	**18 Nov 98 5:59 am**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8.52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane			not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1.06 ug/L	
74-83-9	Bromomethane			not detected	10	1.10 ug/L	
75-00-3	Chloroethane			not detected	nle	1.01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0.37 ug/L	
10061-02-6	trans-1,3-Dichloroprope			not detected	nle	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene	28.81	1998157	10.37 ug/L	700	0.65 ug/L	
1330-20-7	m+p-Xylenes	29.00	1792605	23.22 ug/L	nle	1.14 ug/L	
1330-20-7	o-Xylene	30.11	456565	3.09 ug/L	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **Bldg. 271**

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

Matrix: (soil/water) WATER Lab Sample ID: 4052.05

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VB02147.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: not dec. _____ Date Analyzed: 11/18/98

GC Column: HP5MS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000108-67-8	Benzene, 1,3,5-trimethyl-	32.22	31	JN
2. 000526-73-8	Benzene, 1,2,3-trimethyl-	32.38	14	JN
3.	unknown	33.04	18	J
4. 000108-67-8	Benzene, 1,3,5-trimethyl-	33.38	50	JN
5. 000526-73-8	Benzene, 1,2,3-trimethyl-	34.60	14	JN
6. 001074-43-7	Benzene, 1-methyl-3-propyl-	34.96	19	JN
7. 001758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	35.14	22	JN
8. 000496-11-7	Indane	35.43	17	JN
9. 001074-55-1	Benzene, 1-methyl-4-propyl-	35.65	8	JN
10. 001758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	35.87	11	JN
11. 000527-84-4	Benzene, 1-methyl-2-(1-methylet	35.97	12	JN
12. 000933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	36.17	17	JN
13. 000767-58-8	Indan, 1-methyl-	36.76	14	JN
14. 000488-23-3	Benzene, 1,2,3,4-tetramethyl-	37.15	9	JN
15. 000095-93-2	Benzene, 1,2,4,5-tetramethyl-	37.35	23	JN

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4086 SDG No _____ Location UST

Lab File ID: VB02061.D BFB Injection Date: 11/10/98

Instrument ID: GCMSVoa2 BFB Injection Time: 10:45

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.6
75	30.0 - 66.0% of mass 95	51.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	77.6
175	4.0 - 9.0% of mass 174	5.9 (7.6)1
176	93.0 - 101.0% of mass 174	76.2 (98.2)1
177	5.0 - 9.0% of mass 176	5.1 (6.6)2

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

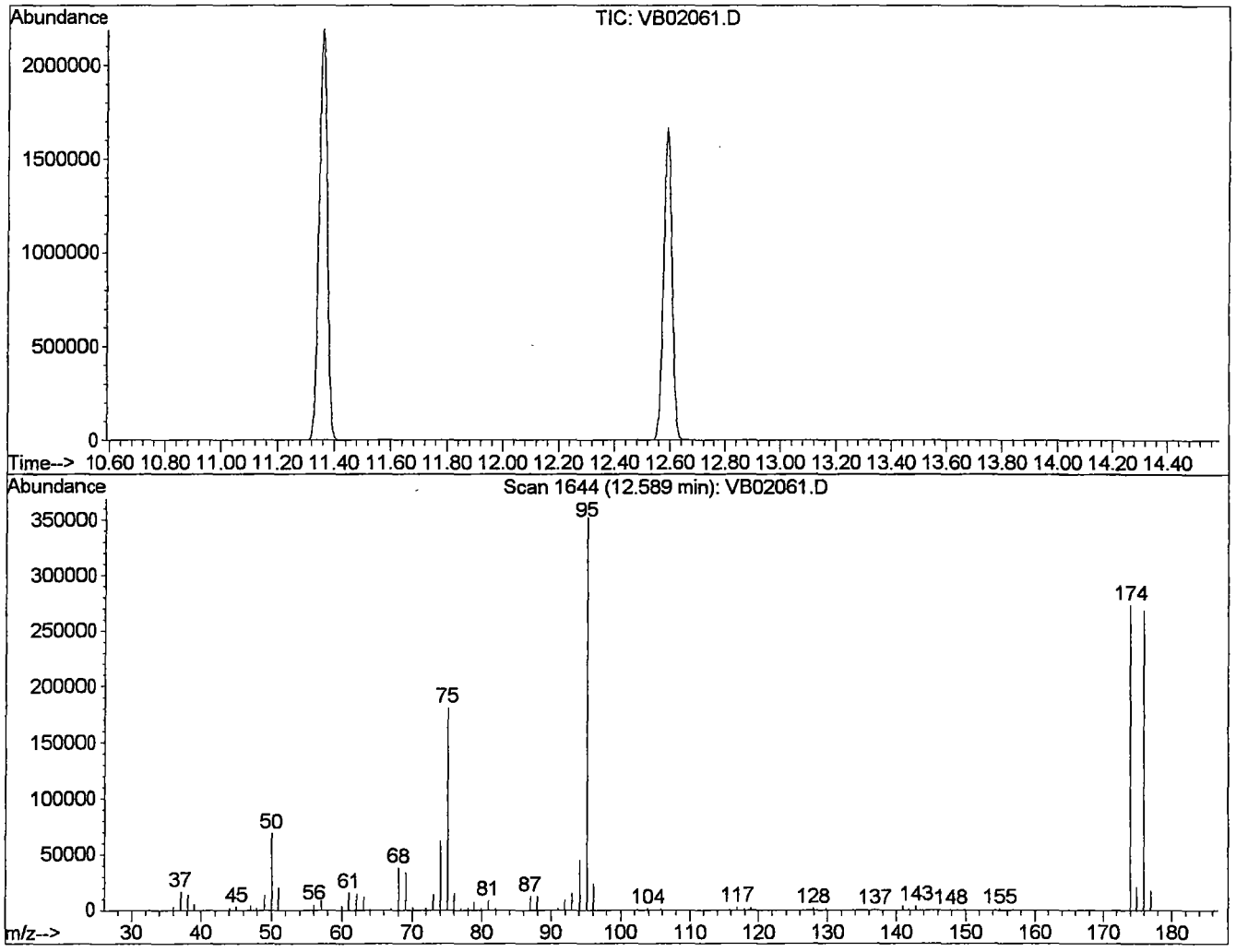
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	20 PPB STD	VB02062.D	11/10/98	11:19
02	VSTD010	10 PPB STD	VB02063.D	11/10/98	12:16
03	VSTD005	5 PPB STD	VB02064.D	11/10/98	13:04
04	VSTD100	100 PPB STD	VB02065.D	11/10/98	13:49
05	VSTD050	50 PPB STD	VB02066.D	11/10/98	14:34

BFB

Data File : C:\HPCHEM\1\DATA\981110\VB02061.D
Acq On : 10 Nov 98 10:45 am
Sample : BFB Tune
Misc :
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP

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



Spectrum Information: Scan 1644

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.6	69016	PASS
75	95	30	60	51.4	180928	PASS
95	95	100	100	100.0	351936	PASS
96	95	5	9	6.6	23392	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	77.6	273024	PASS
175	174	5	9	7.6	20624	PASS
176	174	95	101	98.2	268160	PASS
177	176	5	9	6.6	17776	PASS

VB02061.D M62418.M Thu Dec 03 08:13:10 1998

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4086 SDG No _____ Location UST

Lab File ID: VB02126.D BFB Injection Date: 11/17/98

Instrument ID: GCMSVoa2 BFB Injection Time: 13:53

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.2
75	30.0 - 66.0% of mass 95	48.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	77.6
175	4.0 - 9.0% of mass 174	5.3 (6.8)1
176	93.0 - 101.0% of mass 174	77.3 (99.5)1
177	5.0 - 9.0% of mass 176	5.2 (6.8)2

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

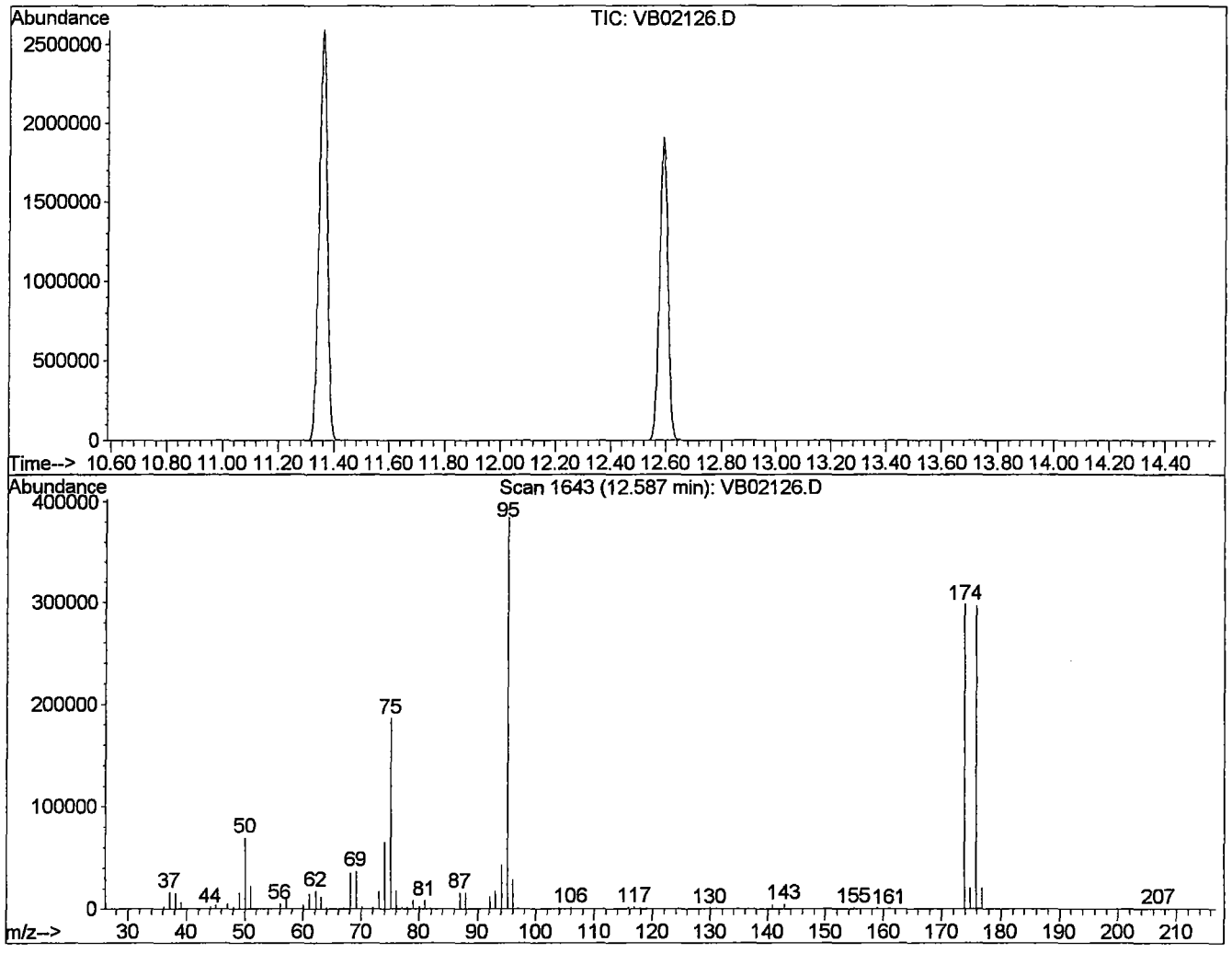
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	DAILY CAL	VB02127.D	11/17/98	14:27
02	VBLK65	VBLK65	VB02128.D	11/17/98	15:32
03	4093.03MS	4049.03MS	VB02132.D	11/17/98	18:45
04	4049.03DUP	4049.03DUP	VB02133.D	11/17/98	19:30
05	TRIP BLANK	4052.01	VB02143.D	11/18/98	03:00
06	FIELD BLANK	4052.02	VB02144.D	11/18/98	03:45
07	BLDG. 2700	4052.03	VB02145.D	11/18/98	04:30
08	BLDG. 270	4052.04	VB02146.D	11/18/98	05:15
09	BLDG. 271	4052.05	VB02147.D	11/18/98	05:59
10	FIELD DUP.	4052.06	VB02148.D	11/18/98	06:44

BFB

Data File : C:\HPCHEM\1\DATA\981117\VB02126.D
Acq On : 17 Nov 98 1:53 pm
Sample : BFB Tune
Misc :
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP

Vial: 3
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00



Spectrum Information: Scan 1643

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.2	70040	PASS
75	95	30	60	48.6	186368	PASS
95	95	100	100	100.0	383808	PASS
96	95	5	9	7.3	28176	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	77.6	297984	PASS
175	174	5	9	6.8	20344	PASS
176	174	95	101	99.5	296576	PASS
177	176	5	9	6.8	20040	PASS

VB02126.D M62418.M Thu Dec 03 08:13:42 1998

4A

VOLATILE METHOD BLANK SUMMARY

FIELD ID

Vblk65

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

Lab File ID: VB02128.D Lab Sample ID: Vblk65

Date Analyzed: 11/17/98 Time Analyzed: 15:32

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMSVoa2

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TRIP BLANK	4052.01	VB02143.D	03:00
02	FIELD BLANK	4052.02	VB02144.D	03:45
03	BLDG. 2700	4052.03	VB02145.D	04:30
04	BLDG. 270	4052.04	VB02146.D	05:15
05	BLDG. 271	4052.05	VB02147.D	05:59
06	FIELD DUP.	4052.06	VB02148.D	06:44

COMMENTS

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration

Calibration Files
50 =VB02066.D 5 =VB02064.D 10 =VB02063.D
20 =VB02062.D 100 =VB02065.D

		Compound	50	5	10	20	100	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------						
2)	t	Acrolein	0.244	0.214	0.225	0.184	0.241	0.222	11.03
3)	t	Acrylonitrile	0.516	0.471	0.493	0.409	0.498	0.478	8.64
4)	t	tert-Butyl alcohol	0.252	0.198	0.206	0.170	0.244	0.214	15.87
5)	t	Methyl-tert-Butyl eth	4.545	3.878	4.189	3.414	4.614	4.128	12.03
6)	t	Di-isopropyl ether	2.966	2.471	2.728	2.264	3.116	2.709	12.87
7)	T	Dichlorodifluorometha	2.122	2.563	2.743	2.670	2.317	2.483	10.40
8)	TP	Chloromethane	2.123	2.165	2.317	2.289	2.138	2.207	4.07
9)	TC	Vinyl Chloride	1.745	1.970	1.954	1.945	1.759	1.875	5.98
10)	T	Bromomethane	1.209	1.175	1.216	1.199	1.230	1.206	1.70
11)	T	Chloroethane	1.155	1.103	1.155	1.159	1.239	1.162	4.20
12)	T	Trichlorofluoromethan	3.419	3.422	3.740	3.743	3.678	3.600	4.62
13)	MC	1,1-Dichloroethene	2.599	2.550	2.752	2.185	2.854	2.588	9.88
14)	T	Acetone	0.388	0.400	0.417	0.294	0.393	0.378	12.75
15)	T	Carbon Disulfide	4.997	5.007	5.458	4.393	5.350	5.041	8.25
16)	T	Methylene Chloride	1.740	1.525	1.885	1.451	1.798	1.680	10.98
17)	T	trans-1,2-Dichloroeth	2.358	2.287	2.503	1.961	2.508	2.323	9.64
18)	TP	1,1-Dichloroethane	2.973	2.936	3.144	2.480	3.178	2.942	9.48
19)	T	Vinyl Acetate	3.396	2.696	3.012	2.482	3.456	3.008	14.16
20)	T	2-Butanone	0.591	0.544	0.569	0.451	0.609	0.553	11.16
21)	T	cis-1,2-Dichloroethen	2.411	2.295	2.518	1.968	2.554	2.349	10.04
22)	TC	Chloroform	3.093	3.176	3.353	2.621	3.222	3.093	9.05
23)	T	1,1,1-Trichloroethane	2.909	2.842	3.139	2.447	3.172	2.902	10.05
24)	T	Carbon Tetrachloride	2.344	2.254	2.439	1.964	2.627	2.325	10.53
25)	S	1,2-Dichloroethane-d4	2.383	2.418	2.429	2.386	2.399	2.403	0.83
26)	I	1,4-Difluorobenzene	----------ISTD----------						
27)	TM	Benzene	1.025	1.050	1.094	0.889	0.986	1.009	7.68
28)	T	1,2-Dichloroethane	0.372	0.368	0.386	0.312	0.375	0.363	8.04
29)	TM	Trichloroethene	0.296	0.290	0.307	0.246	0.314	0.291	9.15
30)	TC	1,2-Dichloropropane	0.266	0.247	0.264	0.216	0.275	0.254	9.16
31)	T	Bromodichloromethane	0.347	0.319	0.348	0.288	0.366	0.333	9.07
32)	T	2-Chloroethyl vinyl e	0.131	0.093	0.107	0.093	0.134	0.111	17.76
33)	T	cis-1,3-Dichloroprope	0.431	0.362	0.401	0.334	0.442	0.394	11.55
34)	T	4-Methyl-2-Pentanone	0.076	0.059	0.064	0.055	0.076	0.066#	14.33
35)	S	Toluene-d8	1.129	1.156	1.151	1.154	1.137	1.145	1.02
36)	TCM	Toluene	1.102	1.185	1.265	1.010	1.004	1.113	10.12
37)	I	Chlorobenzene-d5	----------ISTD----------						
38)	T	trans-1,3-Dichloropro	1.431	1.128	1.267	1.084	1.449	1.272	13.21
39)	T	1,1,2-Trichloroethane	0.794	0.754	0.777	0.621	0.794	0.748	9.75
40)	T	Tetrachloroethene	1.049	1.055	1.140	0.901	1.140	1.057	9.23
41)	T	2-Hexanone	0.459	0.346	0.379	0.323	0.456	0.393	15.88

(#) = Out of Range

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration

Calibration Files
50 =VB02066.D 5 =VB02064.D 10 =VB02063.D
20 =VB02062.D 100 =VB02065.D

		Compound	50	5	10	20	100	Avg	%RSD
42)	T	Dibromochloromethane	0.863	0.677	0.738	0.645	0.905	0.765	14.88
43)	TMP	Chlorobenzene	2.665	2.784	2.975	2.351	2.573	2.669	8.73
44)	TC	Ethylbenzene	4.376	4.713	5.155	4.044	3.744	4.406	12.57
45)	T	m+p-Xylenes	1.784	1.814	1.998	1.578	1.653	1.765	9.17
46)	T	o-Xylene	3.494	3.363	3.786	3.037	3.189	3.374	8.54
47)	T	Styrene	3.076	2.928	3.272	2.611	2.887	2.955	8.27
48)	TP	Bromoform	0.476	0.347	0.391	0.346	0.521	0.417	18.95
49)	S	Bromofluorobenzene	1.576	1.547	1.569	1.567	1.563	1.564	0.70
50)	TP	1,1,2,2-Tetrachloroet	0.916	0.860	0.885	0.730	0.899	0.858	8.65
51)	T	1,3-Dichlorobenzene	2.213	2.093	2.309	1.870	2.219	2.141	7.92
52)	T	1,4-Dichlorobenzene	2.293	2.156	2.367	1.926	2.277	2.204	7.84
53)	T	1,2-Dichlorobenzene	2.083	1.987	2.181	1.754	2.082	2.018	8.05

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981117\VB02127.D Vial: 4
Acq On : 17 Nov 98 2:27 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 25% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	121	0.00
2	t	Acrolein	0.222	0.224	-0.9	147	0.00
3	t	Acrylonitrile	0.478	0.507	-6.1	149	0.00
4	t	tert-Butyl alcohol	0.214	0.216	-0.9	153	0.00
5	t	Methyl-tert-Butyl ether	4.128	3.974	3.7	140	0.00
6	t	Di-isopropyl ether	2.709	2.582	4.7	138	0.00
7	T	Dichlorodifluoromethane	2.483	2.369	4.6	107	0.01
8	TP	Chloromethane	2.207	2.096	5.0	110	0.02
9	TC	Vinyl Chloride	1.875	2.099	-11.9	130	0.02
10	T	Bromomethane	1.206	1.142	5.3	115	-0.08
11	T	Chloroethane	1.162	0.834	28.2#	87	0.02
12	T	Trichlorofluoromethane	3.600	3.536	1.8	114	0.02
13	MC	1,1-Dichloroethene	2.588	2.670	-3.2	147	0.00
14	T	Acetone	0.378	0.389	-2.9	159	-0.02
15	T	Carbon Disulfide	5.041	5.166	-2.5	142	0.02
16	T	Methylene Chloride	1.680	1.486	11.5	124	0.00
17	T	trans-1,2-Dichloroethene	2.323	2.386	-2.7	147	0.00
18	TP	1,1-Dichloroethane	2.942	2.951	-0.3	144	0.00
19	T	Vinyl Acetate	3.008	3.285	-9.2	160	0.00
20	T	2-Butanone	0.553	0.597	-8.0	160	-0.01
21	T	cis-1,2-Dichloroethene	2.349	2.416	-2.9	148	0.00
22	TC	Chloroform	3.093	3.091	0.1	142	0.00
23	T	1,1,1-Trichloroethane	2.902	2.902	0.0	143	0.02
24	T	Carbon Tetrachloride	2.325	2.285	1.7	140	0.00
25	S	1,2-Dichloroethane-d4	2.403	2.205	8.2	111	0.00
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	120	0.00
27	TM	Benzene	1.009	1.082	-7.2	146	0.00
28	T	1,2-Dichloroethane	0.363	0.374	-3.0	144	0.00
29	TM	Trichloroethene	0.291	0.307	-5.5	149	0.00
30	TC	1,2-Dichloropropane	0.254	0.266	-4.7	147	0.00
31	T	Bromodichloromethane	0.333	0.331	0.6	137	0.00
32	T	2-Chloroethyl vinyl ether	0.111	0.144	-29.7#	186	0.00
33	T	cis-1,3-Dichloropropene	0.394	0.410	-4.1	147	0.00
34	T	4-Methyl-2-Pentanone	0.066	0.077#	-16.7	166	0.00
35	S	Toluene-d8	1.145	1.075	6.1	111	0.00
36	TCM	Toluene	1.113	1.191	-7.0	141	0.00
37	I	Chlorobenzene-d5	1.000	1.000	0.0	117	0.00
38	T	trans-1,3-Dichloropropene	1.272	1.338	-5.2	144	0.00
39	T	1,1,2-Trichloroethane	0.748	0.801	-7.1	151	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981117\VB02127.D Vial: 4
Acq On : 17 Nov 98 2:27 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 25% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	Tetrachloroethene	1.057	1.111	-5.1	144	0.00
41	T	2-Hexanone	0.393	0.452	-15.0	164	0.00
42	T	Dibromochloromethane	0.765	0.763	0.3	138	0.00
43	TMP	Chlorobenzene	2.669	2.841	-6.4	141	0.00
44	TC	Ethylbenzene	4.406	4.751	-7.8	137	0.00
45	T	m+p-Xylenes	1.765	1.915	-8.5	142	0.00
46	T	o-Xylene	3.374	3.680	-9.1	142	0.00
47	T	Styrene	2.955	3.177	-7.5	142	0.00
48	TP	Bromoform	0.417	0.406	2.6	137	0.00
49	S	Bromofluorobenzene	1.564	1.468	6.1	110	0.00
50	TP	1,1,2,2-Tetrachloroethane	0.858	0.920	-7.2	147	0.00
51	T	1,3-Dichlorobenzene	2.141	2.284	-6.7	143	0.00
52	T	1,4-Dichlorobenzene	2.204	2.355	-6.9	143	0.00
53	T	1,2-Dichlorobenzene	2.018	2.130	-5.6	142	0.00

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4052 SDG No _____ Location UST

	FIELD ID	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	TOT OUT
01	VBLK65	96	94	92	0
02	4093.03MS	93	94	93	0
03	4049.03DUP	97	93	92	0
04	TRIP BLANK	102	95	93	0
05	FIELD BLANK	102	95	94	0
06	BLDG. 2700	106	96	95	0
07	BLDG. 270	103	96	95	0
08	BLDG. 271	103	97	95	0
09	FIELD DUP.	103	97	95	0

QC LIMITS

SMC1	DCE	=	1,2-Dichloroethane-d4	(76-121)
SMC2	TOL	=	Toluene-d8	(88-110)
SMC3	BFB	=	Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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

Data File Nam **VB02132.D** Sample Name **4049.03ms**
Date Acquired **17 Nov 98 6:45 pm**

CAS#	Compound Name			Amount Recovered	Percent Recovered
107028	Acrolein			161.27 ug/L	80.6
107131	Acrylonitrile			193.63 ug/L	96.8
75650	tert-Butyl alcohol			82.36 ug/L	82.4
1634044	Methyl-tert-Butyl ether			18.01 ug/L	90.0
108203	Di-isopropyl ether			9.31 ug/L	93.1
	Dichlorodifluoromethane			17.97 ug/L	89.8
74-87-3	Chloromethane			15.16 ug/L	75.8
75-01-4	Vinyl Chloride			19.62 ug/L	98.1
74-83-9	Bromomethane			11.24 ug/L	56.2
75-00-3	Chloroethane			11.81 ug/L	59.0
75-69-4	Trichlorofluoromethane			16.60 ug/L	83.0
75-35-4	1,1-Dichloroethene			17.77 ug/L	88.8
67-64-1	Acetone			18.70 ug/L	93.5
75-15-0	Carbon Disulfide			17.59 ug/L	88.0
75-09-2	Methylene Chloride			18.63 ug/L	93.2
156-60-5	trans-1,2-Dichloroethene			18.74 ug/L	93.7
75-35-3	1,1-Dichloroethane			19.57 ug/L	97.8
108-05-4	Vinyl Acetate			20.15 ug/L	100.8
78-93-3	2-Butanone			18.96 ug/L	94.8
	cis-1,2-Dichloroethene			20.39 ug/L	102.0
67-66-3	Chloroform			19.61 ug/L	98.0
75-55-6	1,1,1-Trichloroethane			17.89 ug/L	89.5
56-23-5	Carbon Tetrachloride			16.34 ug/L	81.7
71-43-2	Benzene			19.17 ug/L	95.8
107-06-2	1,2-Dichloroethane			19.49 ug/L	97.4
79-01-6	Trichloroethene			18.01 ug/L	90.0
78-87-5	1,2-Dichloropropane			19.42 ug/L	97.1
75-27-4	Bromodichloromethane			18.76 ug/L	93.8
110-75-8	2-Chloroethyl vinyl ether			20.66 ug/L	103.3
10061-01-5	cis-1,3-Dichloropropene			17.51 ug/L	87.5
108-10-1	4-Methyl-2-Pentanone			20.62 ug/L	103.1
108-88-3	Toluene			19.06 ug/L	95.3
10061-02-6	trans-1,3-Dichloropropen			17.10 ug/L	85.5
79-00-5	1,1,2-Trichloroethane			19.42 ug/L	97.1
127-18-4	Tetrachloroethene			17.21 ug/L	86.0
591-78-6	2-Hexanone			20.46 ug/L	102.3
126-48-1	Dibromochloromethane			17.53 ug/L	87.7
108-90-7	Chlorobenzene			18.77 ug/L	93.9
100-41-4	Ethylbenzene			18.41 ug/L	92.0
1330-20-7	m+p-Xylenes			36.42 ug/L	91.0
1330-20-7	o-Xylene			18.97 ug/L	94.9
100-42-5	Styrene			18.20 ug/L	91.0
75-25-2	Bromoform			15.28 ug/L	76.4
79-34-5	1,1,2,2-Tetrachloroethane			19.14 ug/L	95.7
541-73-1	1,3-Dichlorobenzene			17.79 ug/L	88.9
106-46-7	1,4-Dichlorobenzene			17.87 ug/L	89.4
95-50-1	1,2-Dichlorobenzene			18.07 ug/L	90.4

Aqueous Duplicate Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Nam **VB02133.D** Sample Name **4049.03dup**
Date Acquired **17 Nov 98 7:30 pm**

CAS#	Compound Name			Amount Recovered
107028	Acrolein			not detected
107131	Acrylonitrile			not detected
75650	tert-Butyl alcohol			not detected
1634044	Methyl-tert-Butyl ether			not detected
108203	Di-isopropyl ether			not detected
	Dichlorodifluoromethane			not detected
74-87-3	Chloromethane			not detected
75-01-4	Vinyl Chloride			not detected
74-83-9	Bromomethane			not detected
75-00-3	Chloroethane			not detected
75-69-4	Trichlorofluoromethane			not detected
75-35-4	1,1-Dichloroethene			not detected
67-64-1	Acetone			not detected
75-15-0	Carbon Disulfide			not detected
75-09-2	Methylene Chloride			not detected
156-60-5	trans-1,2-Dichloroethene			not detected
75-35-3	1,1-Dichloroethane			not detected
108-05-4	Vinyl Acetate			not detected
78-93-3	2-Butanone			not detected
	cis-1,2-Dichloroethene			not detected
67-66-3	Chloroform			not detected
75-55-6	1,1,1-Trichloroethane			not detected
56-23-5	Carbon Tetrachloride			not detected
71-43-2	Benzene			not detected
107-06-2	1,2-Dichloroethane			not detected
79-01-6	Trichloroethene			not detected
78-87-5	1,2-Dichloropropane			not detected
75-27-4	Bromodichloromethane			not detected
110-75-8	2-Chloroethyl vinyl ether			not detected
10061-01-5	cis-1,3-Dichloropropene			not detected
108-10-1	4-Methyl-2-Pentanone			not detected
108-88-3	Toluene			not detected
10061-02-6	trans-1,3-Dichloropropen			not detected
79-00-5	1,1,2-Trichloroethane			not detected
127-18-4	Tetrachloroethene			not detected
591-78-6	2-Hexanone			not detected
126-48-1	Dibromochloromethane			not detected
108-90-7	Chlorobenzene			3.98 ug/L
100-41-4	Ethylbenzene			not detected
1330-20-7	m+p-Xylenes			not detected
1330-20-7	o-Xylene			not detected
100-42-5	Styrene			not detected
75-25-2	Bromoform			not detected
79-34-5	1,1,2,2-Tetrachloroethane			not detected
541-73-1	1,3-Dichlorobenzene			not detected
106-46-7	1,4-Dichlorobenzene			1.06 ug/L
95-50-1	1,2-Dichlorobenzene			not detected

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Project 980932

NJDEP# 13461 Case No.: 4086 SDG No _____ Location UST

Lab File ID (Standard): VB02127.D Date Analyzed: 11/17/98

Instrument ID: GCMSVoa2 Time Analyzed: 14:27

GC Column: HP5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	804922	18.16	5254505	20.79	1496130	28.62
	UPPER LIMIT	1609844	17.66	10509010	20.29	2992260	28.12
	LOWER LIMIT	402461	18.66	2627253	21.29	748065	29.12
	FIELD ID						
01	VBLK65	771736	18.16	5061887	20.79	1458530	28.62
02	4093.03MS	738745	18.15	4993388	20.79	1428907	28.62
03	4049.03DUP	712703	18.16	4902476	20.79	1395284	28.62
04	TRIP BLANK	649540	18.16	4377177	20.78	1260274	28.62
05	FIELD BLANK	645114	18.15	4332405	20.79	1246569	28.62
06	BLDG. 2700	626942	18.16	4272771	20.79	1222114	28.62
07	BLDG. 270	630531	18.15	4289922	20.79	1249495	28.61
08	BLDG. 271	627351	18.15	4411267	20.78	1311868	28.62
09	FIELD DUP.	661209	18.15	4584342	20.78	1381329	28.62

IS1 BCM = Bromochloromethane

IS2 DFB = 1,4-Difluorobenzene

IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981117\VB02128.D Vial: 4
Acq On : 17 Nov 98 3:32 pm Operator: Skelton
Sample : Vblk65 Inst : GC/MS Ins
Misc : Vblk65 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 17 16:10 1998 Quant Results File: M62418.RES

Quant Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration
DataAcq Meth : M62418

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.16	128	771736	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.79	114	5061887	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1458530	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.72	65	1774513	28.71	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 95.70%			
35) Toluene-d8	24.79	98	5428498	28.09	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 93.63%			
49) Bromofluorobenzene	31.64	95	2102780	27.65	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 92.17%			

Target Compounds Qvalue

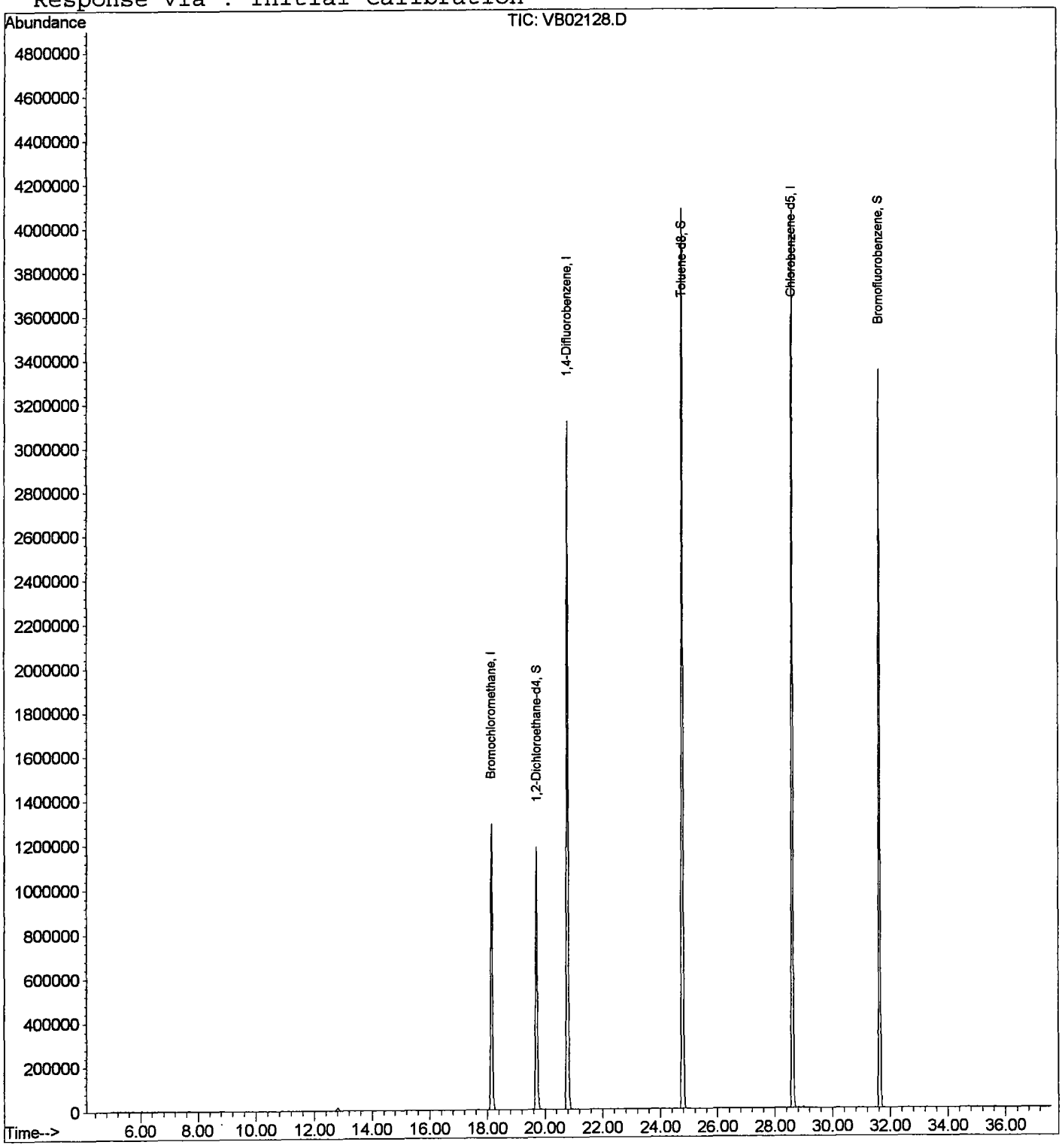
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981117\VB02128.D
Acq On : 17 Nov 98 3:32 pm
Sample : Vblk65
Misc : Vblk65
MS Integration Params: RTEINT.P
Quant Time: Nov 17 16:10 1998

Vial: 4
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: M62418.RES

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration



0037

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981117\VB02143.D Vial: 15
Acq On : 18 Nov 98 3:00 am Operator: Skelton
Sample : 4052.01 Inst : GC/MS Ins
Misc : Trip Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:01 1998 Quant Results File: M62418.RES

Quant Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration
DataAcq Meth : M62418

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.16	128	649540	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.78	114	4377177	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1260274	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.71	65	1588328	30.53	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 101.77%			
35) Toluene-d8	24.78	98	4775691	28.58	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 95.27%			
49) Bromofluorobenzene	31.64	95	1837522	27.96	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 93.20%			

Target Compounds Qvalue

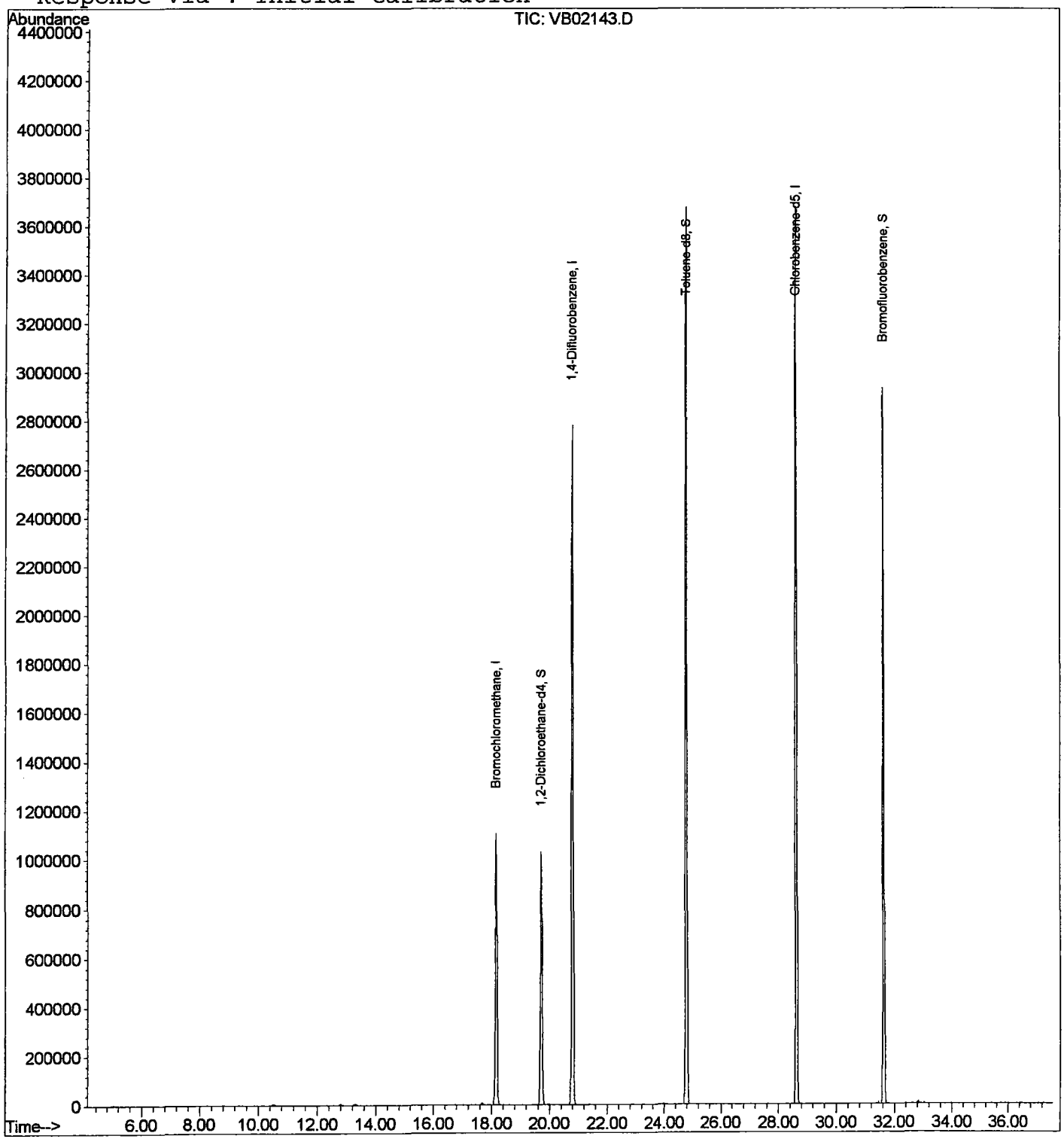
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981117\VB02143.D
Acq On : 18 Nov 98 3:00 am
Sample : 4052.01
Misc : Trip Blank
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:01 1998

Vial: 15
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: M62418.RES

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\981117\VB02144.D Vial: 16
Acq On : 18 Nov 98 3:45 am Operator: Skelton
Sample : 4052.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:59 1998 Quant Results File: M62418.RES

Quant Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration
DataAcq Meth : M62418

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.15	128	645114	30.00	ug/L	-0.01
26) 1,4-Difluorobenzene	20.79	114	4332405	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1246569	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.72	65	1581842	30.61	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 102.03%			
35) Toluene-d8	24.78	98	4714163	28.50	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 95.00%			
49) Bromofluorobenzene	31.64	95	1826806	28.10	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 93.67%			
Target Compounds						Qvalue
16) Methylene Chloride	12.82	84	77677m	2.15	ug/L	86

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

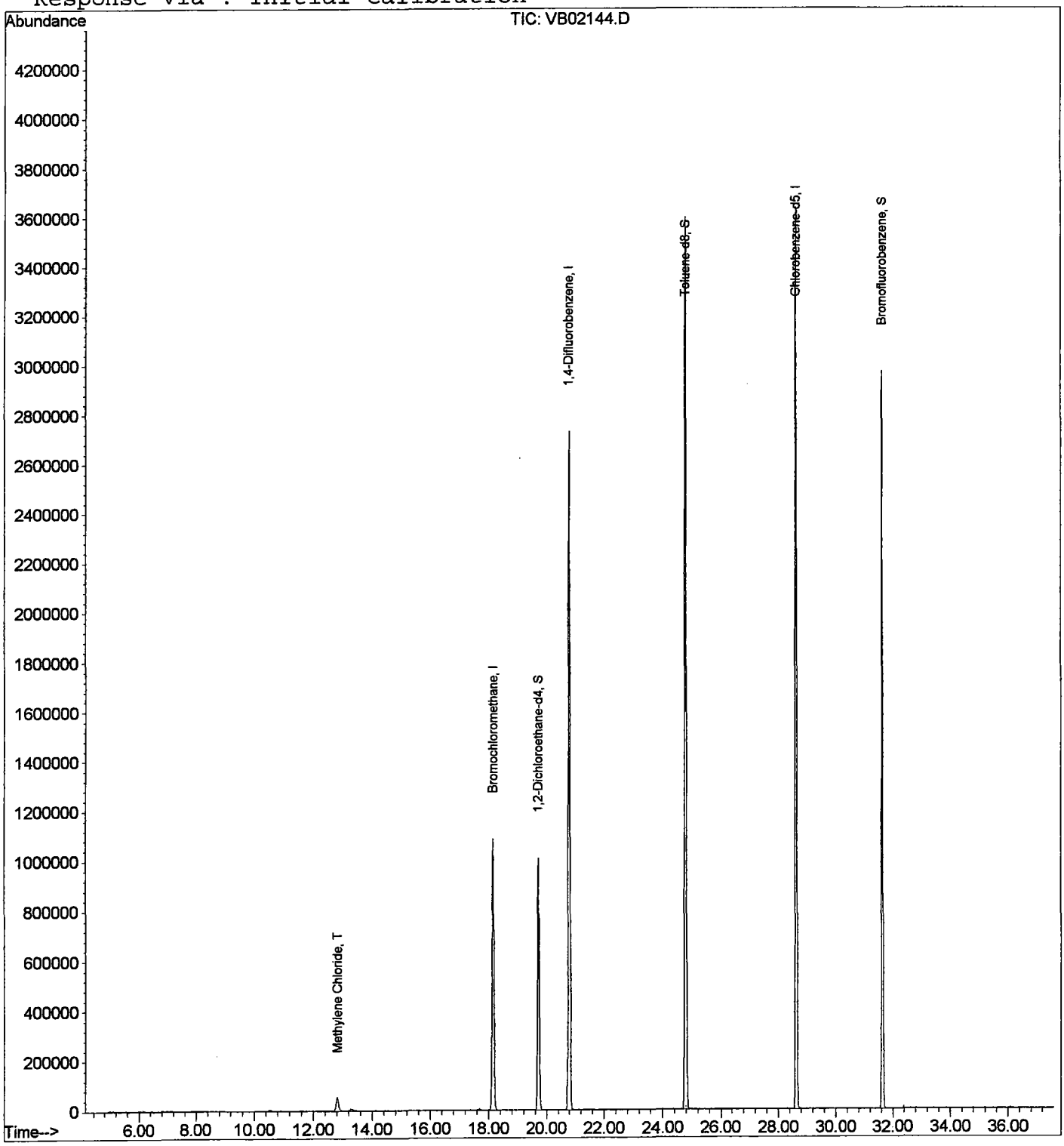
Quantitation Report

Data File : C:\HPCHEM\1\DATA\981117\VB02144.D
Acq On : 18 Nov 98 3:45 am
Sample : 4052.02
Misc : Field Blank
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:59 1998

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

Quant Results File: M62418.RES

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration



Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981117\VB02147.D Vial: 19
Acq On : 18 Nov 98 5:59 am Operator: Skelton
Sample : 4052.05 Inst : GC/MS Ins
Misc : Bldg271 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 9:12 1998 Quant Results File: M62418.RES

Quant Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration
DataAcq Meth : M62418

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	18.15	128	627351	30.00	ug/L	0.00
26) 1,4-Difluorobenzene	20.78	114	4411267	30.00	ug/L	0.00
37) Chlorobenzene-d5	28.62	119	1311868	30.00	ug/L	0.00
System Monitoring Compounds						
25) 1,2-Dichloroethane-d4	19.71	65	1550134	30.85	ug/L	0.00
Spiked Amount 30.000	Range 76 - 114		Recovery = 102.83%			
35) Toluene-d8	24.78	98	4903331	29.11	ug/L	0.00
Spiked Amount 30.000	Range 88 - 110		Recovery = 97.03%			
49) Bromofluorobenzene	31.64	95	1948249	28.48	ug/L	0.00
Spiked Amount 30.000	Range 86 - 115		Recovery = 94.93%			
Target Compounds						Qvalue
44) Ethylbenzene	28.81	91	1998157	10.37	ug/L	92
45) m+p-Xylenes	29.00	106	1792605	23.22	ug/L	91
46) o-Xylene	30.11	91	456565	3.09	ug/L	93

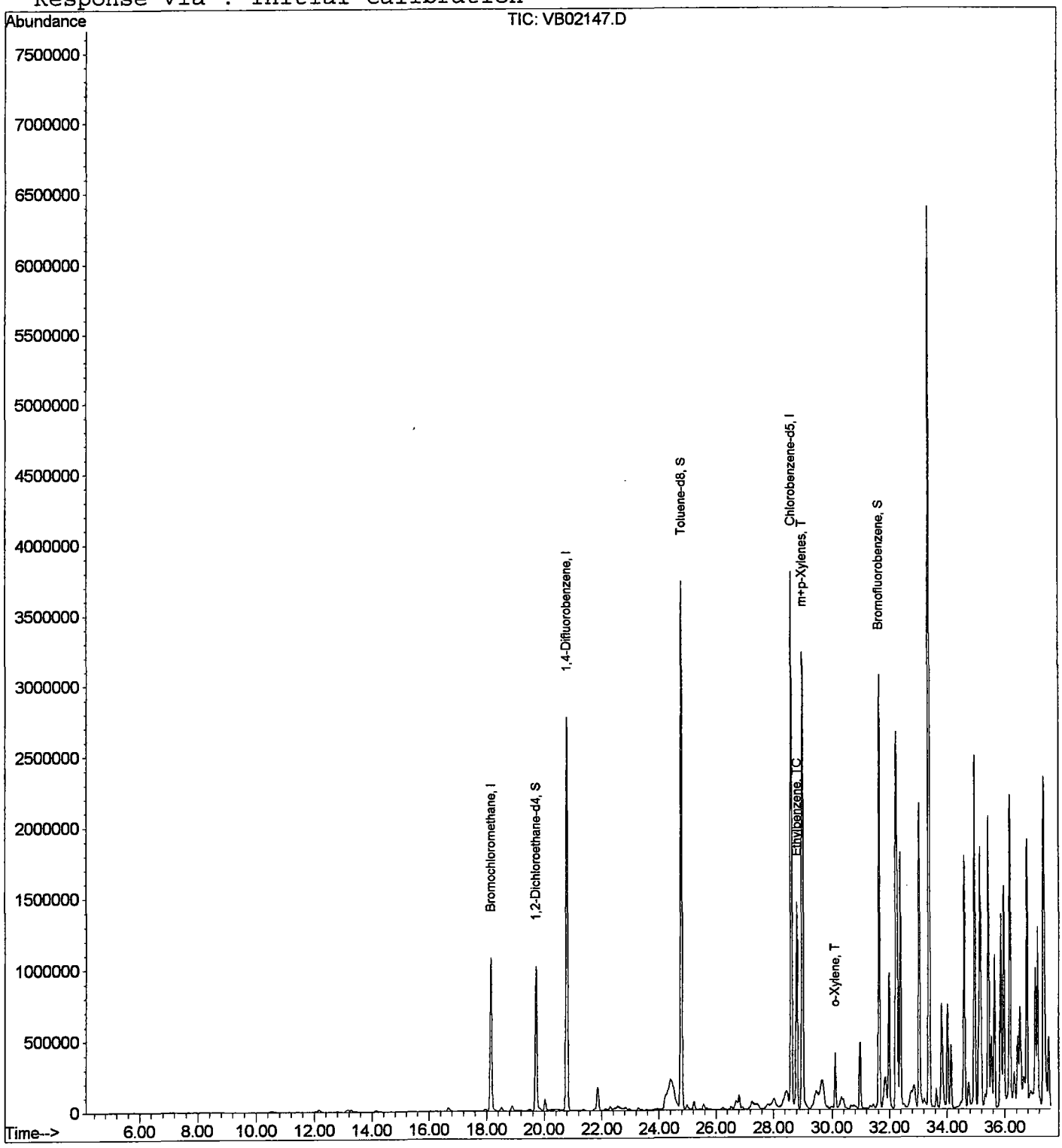
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981117\VB02147.D
Acq On : 18 Nov 98 5:59 am
Sample : 4052.05
Misc : Bldg271
MS Integration Params: RTEINT.P
Quant Time: Dec 1 9:12 1998

Vial: 19
Operator: Skelton
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: M62418.RES

Method : C:\HPCHEM\1\METHODS\M62418.M (RTE Integrator)
Title : Volatile Organics by GC/MS Method 624/8260/TCLP
Last Update : Tue Nov 10 13:48:43 1998
Response via : Initial Calibration



BASE NEUTRALS

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna01324.d**	Sample Name	**Sblk166**
Operator	**Skelton**	Misc Info	**Sblk166 A 981115**
Date Acquired	**20 Nov 1998 1:23 am**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene			not detected	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene			not detected	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna01324.d**	Sample Name	**Sblk166**
Operator	**Skelton**	Misc Info	**Sblk166 A 981115**
Date Acquired	**20 Nov 1998 1:23 am**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene			not detected	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Sblk166

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: Sblk166

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA01324.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: decanted: (Y/N) N Date Extracted: 11/15/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/20/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	26.38	15	J

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna01331.d**	Sample Name	**4052.02**
Operator	**Skelton**	Misc Info	**Field Blank**
Date Acquired	**20 Nov 1998 6:16 am**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene			not detected	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene			not detected	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna01331.d**	Sample Name	**4052.02**
Operator	**Skelton**	Misc Info	**Field Blank**
Date Acquired	**20 Nov 1998 6:16 am**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene			not detected	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene			not detected	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Field Blank

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 4052.02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA01331.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: decanted: (Y/N) N Date Extracted: 11/15/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/20/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	23.22	12	J
2.	unknown	26.38	28	J

Semi-Volatile Analysis Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name	**bna01334.d**	Sample Name	**4052.05**
Operator	**Skelton**	Misc Info	**Bldg271**
Date Acquired	**20 Nov 1998 8:22 am**	Sample Multiplier	**1**

CAS#	Name	R.T.	Response	Result	GW Criteria	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	2.52	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	2.64	ug/L	
62-53-3	Aniline			not detected	NLE	2.90	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	2.45	ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	2.65	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	2.50	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	2.09	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	2.44	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	2.96	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	2.22	ug/L	
67-72-1	Hexachloroethane			not detected	10	2.59	ug/L	
98-95-3	Nitrobenzene			not detected	10	2.45	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	2.54	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	2.58	ug/L	
91-20-3	Naphthalene	10.41	631122	17.54 ug/L	NLE	3.03	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	2.55	ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.64	ug/L	
91-57-6	2-Methylnaphthalene	12.04	1478556	60.96 ug/L	NLE	2.49	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.59	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	2.15	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	1.62	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	2.74	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	2.35	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	1.54	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.62	ug/L	
83-32-9	Acenaphthene	14.54	77900	3.27 ug/L	400	1.98	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	2.13	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**bna01334.d**	Sample Name	**4052.05**
Operator	**Skelton**	Misc Info	**Bldg271**
Date Acquired	**20 Nov 1998 8:22 am**	Sample Multiplier	**1**

121-14-2	2,4-Dinitrotoluene			not detected	10	1.22	ug/L	
84-66-2	Diethylphthalate			not detected	5000	1.68	ug/L	
86-73-7	Fluorene	15.72	110386	3.78 ug/L	300	1.93	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1.53	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	2.70	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	1.73	ug/L	
103-33-3	Azobenzene			not detected	NLE	1.92	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	1.54	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	1.88	ug/L	
85-01-8	Phenanthrene	17.93	305617	8.04 ug/L	NLE	1.67	ug/L	
120-12-7	Anthracene			not detected	2000	1.79	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1.83	ug/L	
206-44-0	Fluoranthene			not detected	300	1.85	ug/L	
92-87-5	Benzidine			not detected	50	4.11	ug/L	
129-00-0	Pyrene			not detected	200	1.02	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1.15	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1.57	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	2.28	ug/L	
218-01-9	Chrysene			not detected	20	2.32	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.29	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.30	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1.31	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1.57	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1.36	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	1.22	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	3.12	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	1.13	ug/L	

Qualifiers

E = Value exceeded linear range

D = Value from dilution

B = Compound in related blank

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS

Bldg271

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 4052.05

Sample wt/vol: 1000 (g/ml) ML Lab File ID: BNA01334.D

Level: (low/med) LOW Date Received: 11/12/98

% Moisture: decanted: (Y/N) N Date Extracted: 11/15/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/20/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

Number TICs found: 25 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000095-36-3	1,2,4-Trimethylbenzene	7.26	21	JN
2. 000112-40-3	Dodecane	10.64	61	JN
3. 006682-71-9	1H-Indene, 2,3-dihydro-4,7-dimet	11.39	18	JN
4. 000090-12-0	Naphthalene, 1-methyl-	12.27	35	JN
5. 000000-00-0	1,4-Dimethyl-1,2,3,4-tetrahydrona	12.37	17	JN
6. 074645-98-0	Dodecane, 2,7,10-trimethyl-	13.10	23	JN
7. 001127-76-0	Naphthalene, 1-ethyl-	13.37	21	JN
8. 000629-59-4	Tetradecane	13.42	70	JN
9. 000581-42-0	Naphthalene, 2,6-dimethyl-	13.52	43	JN
10. 000581-40-8	Naphthalene, 2,3-dimethyl-	13.72	43	JN
11. 000575-37-1	Naphthalene, 1,7-dimethyl-	13.76	34	JN
12. 000575-37-1	Naphthalene, 1,7-dimethyl-	14.01	21	JN
13. 000629-62-9	Pentadecane	14.67	96	JN
14. 002131-42-2	Naphthalene, 1,4,6-trimethyl-	15.10	20	JN
15. 002131-42-2	Naphthalene, 1,4,6-trimethyl-	15.29	26	JN
16. 000544-76-3	Hexadecane	15.85	83	JN
17. 017312-81-1	Undecane, 3,5-dimethyl-	16.39	32	JN
18. 000629-78-7	Heptadecane	16.97	75	JN
19. 001921-70-6	Pentadecane, 2,6,10,14-tetramet	17.03	59	JN
20. 000593-45-3	Octadecane	18.04	61	JN
21. 031295-56-4	Dodecane, 2,6,11-trimethyl-	18.13	30	JN
22. 000629-92-5	Nonadecane	19.05	47	JN
23. 000112-95-8	Eicosane	20.01	35	JN
24. 000629-94-7	Heneicosane	20.93	23	JN
25.	unknown	26.38	31	J

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Lab File ID: BNA00800.D DFTPP Injection Date: 10/01/98

Instrument ID: BNA#2 DFTPP Injection Time: 15:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	35.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	45.0
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	25.0 - 75.0% of mass 198	51.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	23.6
365	Greater than 0.75% of mass 198	3.2
441	Present, but less than mass 443	12.3
442	40.0 - 110.0% of mass 198	81.5
443	15.0 - 24.0% of mass 442	16.3 (20.0)2

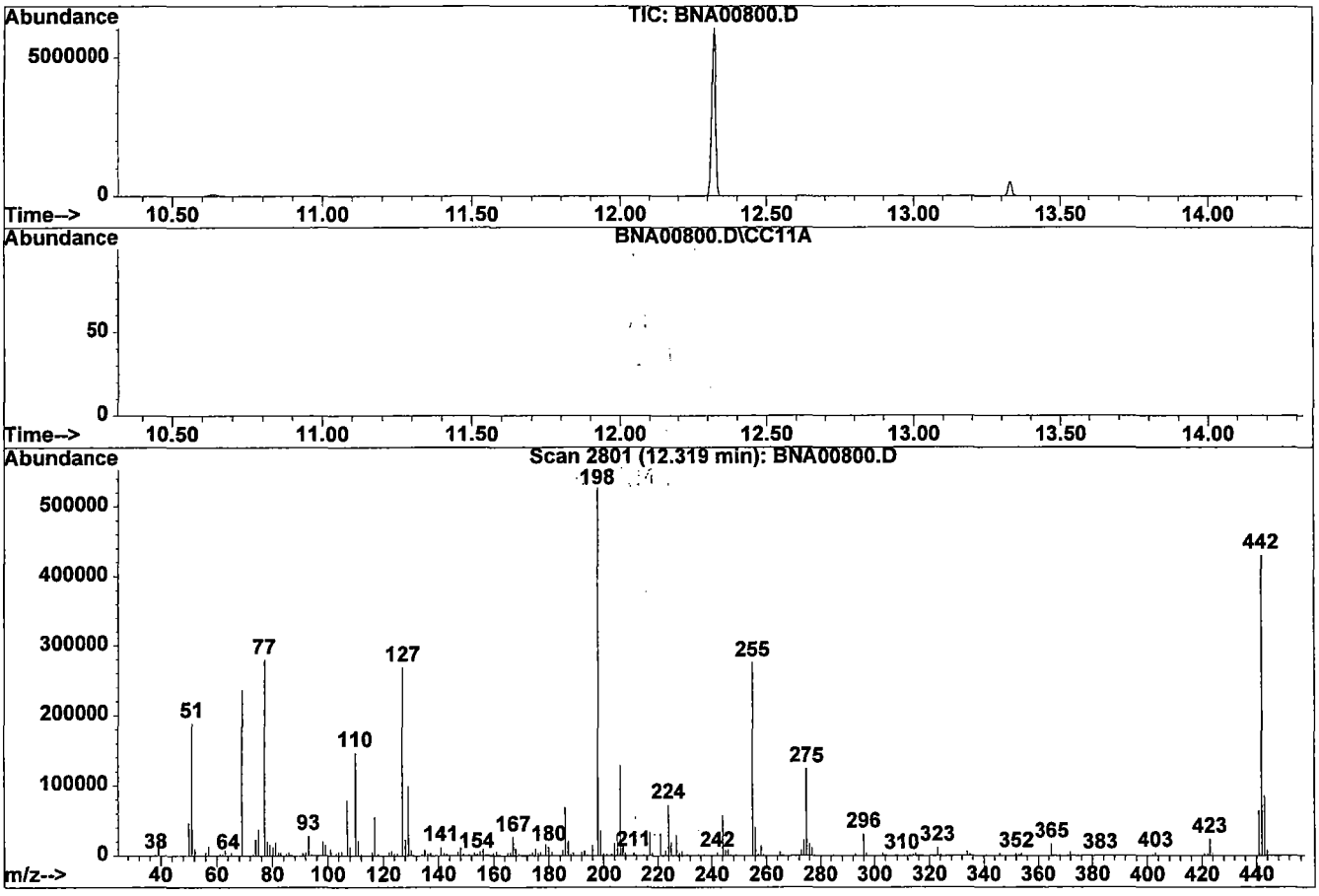
1-Value is % mass 69 2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD120	120 PPM STD	BNA00801.D	10/01/98	15:45
02	SSTD080	80 PPM STD	BNA00802.D	10/01/98	16:30
03	SSTD050	50 PPM STD	BNA00803.D	10/01/98	17:14
04	SSTD020	20 PPM STD	BNA00804.D	10/01/98	17:59
05	SSTD010	10 PPM STD	BNA00805.D	10/01/98	18:42

DFTPP

Data File : C:\HPCHEM\1\DATA\981001\BNA00800.D Vial: 100
Acq On : 1 Oct 1998 3:16 pm Operator: Skelton
Sample : DFTPP Tune Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: 2fp.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 2801

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	35.8	188672	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.0	236992	PASS
70	69	0.00	2	0.7	1583	PASS
127	198	40	60	51.0	268800	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	526912	PASS
199	198	5	9	6.9	36352	PASS
275	198	10	30	23.6	124328	PASS
365	198	1	100	3.2	16952	PASS
441	443	0.01	100	75.2	64720	PASS
442	198	40	100	81.5	429568	PASS
443	442	17	23	20.0	86104	PASS

BNA00800.D M262506.M Wed Dec 02 23:12:03 1998

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Lab File ID: BNA01305.D DFTPP Injection Date: 11/19/98

Instrument ID: BNA#2 DFTPP Injection Time: 12:11

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	42.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 Relative abundance	48.8
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	25.0 - 75.0% of mass 198	51.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.2
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 0.75% of mass 198	3.7
441	Present, but less than mass 443	11.4
442	40.0 - 110.0% of mass 198	80.1
443	15.0 - 24.0% of mass 442	14.7 (18.3)2

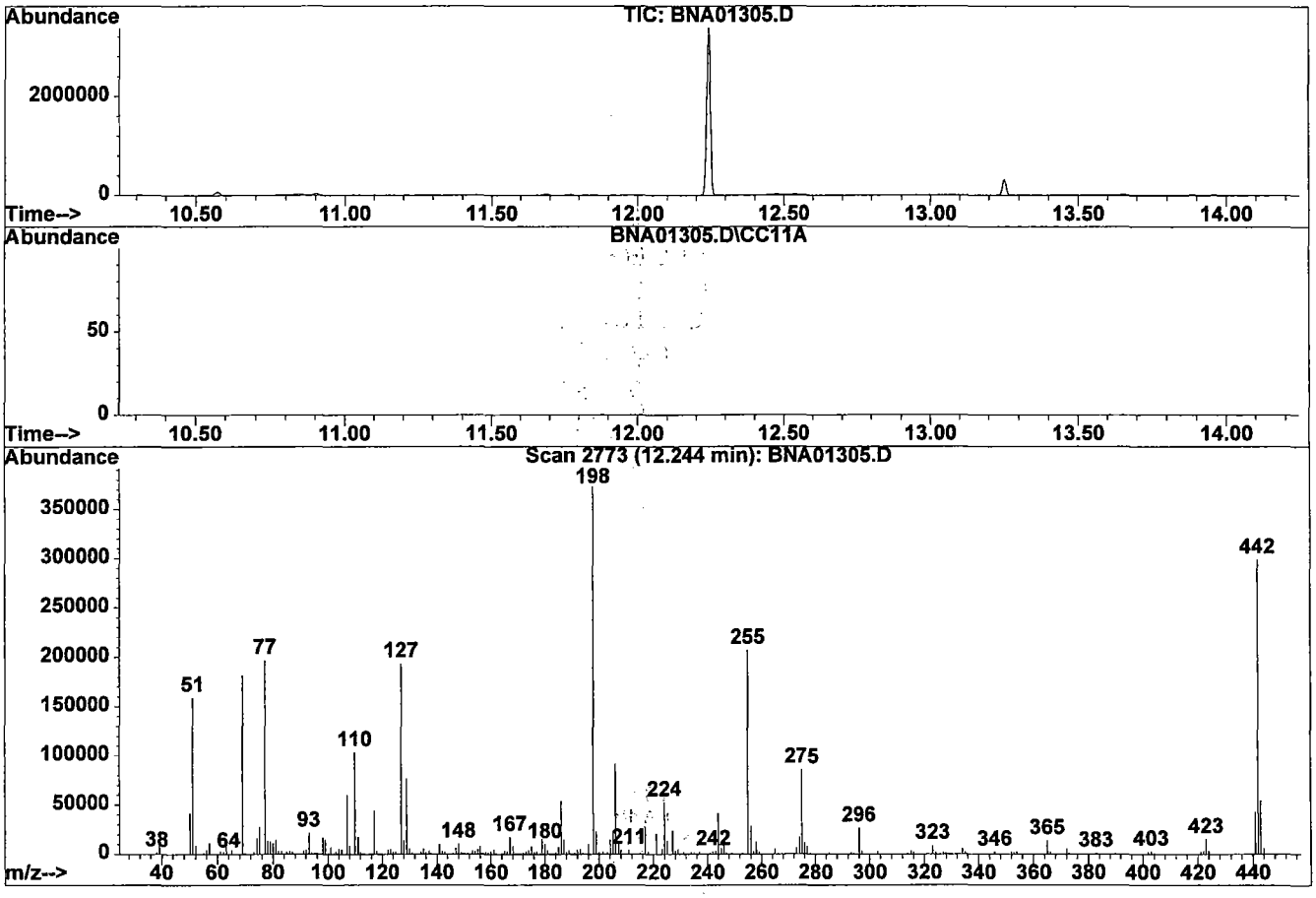
1-Value is % mass 69 2-Value is % mass 442

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	DAILY CAL	BNA01306.D	11/19/98	12:37
02	SBLK166	SBLK166	BNA01324.D	11/20/98	01:23
03	SBLK166MS	SBLK166MS	BNA01325.D	11/20/98	02:05
04	FIELD BLANK	4052.02	BNA01331.D	11/20/98	06:16
05	BLDG2700	4052.03	BNA01332.D	11/20/98	06:58
06	BLDG270	4052.04	BNA01333.D	11/20/98	07:39
07	BLDG271	4052.05	BNA01334.D	11/20/98	08:22
08	FIELD DUP	4052.06	BNA01335.D	11/20/98	09:03

DFTPP

Data File : C:\HPCHEM\1\DATA\981119\BNA01305.D Vial: 99
Acq On : 19 Nov 1998 12:11 pm Operator: Skelton
Sample : DFTPP Tune Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: 2fp.P GC Integration Params: rteint2.p
Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration



Spectrum Information: Scan 2773

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	42.7	159296	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	48.8	181952	PASS
70	69	0.00	2	0.5	968	PASS
127	198	40	60	51.8	193344	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	373056	PASS
199	198	5	9	6.2	23120	PASS
275	198	10	30	23.0	85912	PASS
365	198	1	100	3.7	13716	PASS
441	443	0.01	100	77.9	42664	PASS
442	198	40	100	80.1	298752	PASS
443	442	17	23	18.3	54792	PASS

BNA01305.D M262506.M Wed Dec 02 23:18:47 1998

4B

SEMIVOLATILE METHOD BLANK SUMMARY

FIELD ID: **Sblk166**

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Lab File ID: BNA01324.D Lab Sample ID: Sblk166

Instrument ID: GC/MS Ins Date Extracted: 11/15/98

Matrix: (soil/water) WATER Date Analyzed: 11/20/98

Level: (low/med) LOW Time Analyzed: 01:23

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

	FIELD ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SBLK166MS	SBLK166MS	BNA01325.D	11/20/98
02	FIELD BLANK	4052.02	BNA01331.D	11/20/98
03	BLDG2700	4052.03	BNA01332.D	11/20/98
04	BLDG270	4052.04	BNA01333.D	11/20/98
05	BLDG271	4052.05	BNA01334.D	11/20/98
06	FIELD DUP	4052.06	BNA01335.D	11/20/98

COMMENTS:

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Initial Calibration

Calibration Files
10 =BNA00805.D 20 =BNA00804.D 50 =BNA00803.D
80 =BNA00802.D 120 =BNA00801.D

		Compound	10	20	50	80	120	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------						
2)	T	Pyridine	1.907	1.945	2.009	1.985	2.062	1.982	3.00
3)	T	N-nitroso-dimethylami	1.253	1.307	1.352	1.311	1.442	1.333	5.27
4)	S	2-Fluorophenol	1.576	1.584	1.571	1.429	1.500	1.532	4.37
5)	T	Aniline	2.290	2.306	2.347	2.405	2.387	2.347	2.12
6)	S	Phenol-d6	2.076	2.103	2.098	2.124	2.086	2.098	0.87
7)	TCM	Phenol	1.957	2.106	2.080	2.115	2.064	2.064	3.06
8)	T	bis(2-Chloroethyl)eth	1.590	1.717	1.858	1.869	1.825	1.772	6.65
9)	TM	2-Chlorophenol	1.415	1.468	1.484	1.507	1.477	1.470	2.34
10)	T	1,3-Dichlorobenzene	1.479	1.482	1.455	1.473	1.446	1.467	1.10
11)	TCM	1,4-Dichlorobenzene	1.676	1.672	1.790	1.817	1.753	1.742	3.77
12)	T	Benzyl alcohol	0.869	0.957	1.007	1.026	1.026	0.977	6.81
13)	T	1,2-Dichlorobenzene	1.517	1.558	1.537	1.558	1.518	1.538	1.31
14)	T	2-Methylphenol	1.433	1.463	1.445	1.468	1.430	1.448	1.17
15)	T	bis(2-chloroisopropyl	1.938	1.941	1.849	1.825	1.726	1.856	4.80
16)	T	4-Methylphenol	1.391	1.436	1.430	1.449	1.408	1.423	1.62
17)	TPM	n-Nitroso-di-n-propyl	0.258	0.255	0.257	0.259	0.249	0.256	1.44
18)	T	Hexachloroethane	0.602	0.623	0.636	0.648	0.631	0.628	2.74
19)	I	Naphthalene-d8	----------ISTD----------						
20)	S	Nitrobenzene-d5	0.472	0.496	0.478	0.480	0.460	0.477	2.74
21)	T	Nitrobenzene	0.465	0.486	0.467	0.468	0.447	0.467	2.97
22)	T	Isophorone	0.868	0.899	0.860	0.863	0.843	0.867	2.37
23)	TC	2-Nitrophenol	0.195	0.210	0.210	0.210	0.203	0.206	3.15
24)	T	2,4-Dimethylphenol	0.435	0.451	0.435	0.438	0.421	0.436	2.51
25)	T	bis(2-Chloroethoxy)me	0.500	0.513	0.497	0.499	0.478	0.498	2.55
26)	TC	2,4-Dichlorophenol	0.298	0.320	0.314	0.317	0.305	0.311	2.89
27)	T	Benzoic Acid	0.249	0.290	0.314	0.325	0.309	0.297	10.10
28)	TM	1,2,4-Trichlorobenzen	0.331	0.347	0.341	0.344	0.333	0.339	2.04
29)	T	Naphthalene	1.090	1.128	1.059	1.033	0.942	1.050	6.69
30)	T	4-Chloroaniline	0.441	0.463	0.434	0.461	0.449	0.449	2.84
31)	TC	Hexachlorobutadiene	0.196	0.203	0.198	0.200	0.193	0.198	1.98
32)	TCM	4-Chloro-3-methylphen	0.371	0.394	0.378	0.384	0.366	0.379	2.88
33)	T	2-Methylnaphthalene	0.810	0.827	0.739	0.660	0.538	0.715	16.62
34)	I	Acenaphthene-d10	----------ISTD----------						
35)	TP	Hexachlorocyclopentad	0.158	0.197	0.229	0.249	0.255	0.218	18.64
36)	TC	2,4,6-Trichlorophenol	0.345	0.377	0.366	0.375	0.365	0.366	3.43
37)	T	2,4,5-Trichlorophenol	0.369	0.399	0.391	0.403	0.387	0.390	3.35
38)	S	2-Fluorobiphenyl	1.260	1.308	1.229	1.217	1.133	1.229	5.23
39)	T	2-Chloronaphthalene	1.063	1.105	1.047	1.042	0.980	1.047	4.31
40)	T	2-Nitroaniline	0.375	0.406	0.393	0.402	0.386	0.392	3.16
41)	T	Dimethylphthalate	1.297	1.331	1.255	1.255	1.188	1.265	4.23

(#) = Out of Range

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Initial Calibration

Calibration Files
10 =BNA00805.D 20 =BNA00804.D 50 =BNA00803.D
80 =BNA00802.D 120 =BNA00801.D

		Compound	10	20	50	80	120	Avg	%RSD
42)	T	Acenaphthylene	1.722	1.780	1.637	1.589	1.442	1.634	7.99
43)	T	2,6-Dinitrotoluene	0.279	0.296	0.284	0.281	0.268	0.282	3.57
44)	T	3-Nitroaniline	0.375	0.406	0.393	0.402	0.386	0.392	3.16
45)	TCM	Acenaphthene	1.086	1.117	1.052	1.051	0.985	1.058	4.63
46)	TP	2,4-Dinitrophenol	0.095	0.129	0.157	0.170	0.170	0.144	22.42
47)	T	Dibenzofuran	1.531	1.604	1.503	1.474	1.366	1.496	5.83
48)	TMP	4-Nitrophenol	0.228	0.254	0.259	0.268	0.260	0.254	6.07
49)	TM	2,4-Dinitrotoluene	0.395	0.423	0.410	0.419	0.400	0.409	2.87
50)	T	Diethylphthalate	1.399	1.424	1.307	1.286	1.186	1.320	7.22
51)	T	Fluorene	1.317	1.371	1.297	1.287	1.213	1.297	4.40
52)	T	4-Chlorophenyl-phenyl	0.626	0.658	0.637	0.652	0.624	0.640	2.42
53)	T	4-Nitroaniline	0.287	0.297	0.245	0.251	0.251	0.266	9.00
54)	I	Phenanthrene-d10	ISTD						
55)	T	4,6-Dinitro-2-methylp	0.105	0.126	0.134	0.142	0.142	0.130	11.83
56)	TC	n-Nitrosodiphenylamin	0.524	0.542	0.508	0.502	0.469	0.509	5.37
57)	T	Azobenzene	0.910	0.934	0.841	0.842	0.763	0.858	7.84
58)	S	2,4,6-Tribromophenol	0.092	0.099	0.103	0.111	0.114	0.104	8.58
59)	T	4-Bromophenyl-phenyle	0.192	0.207	0.204	0.213	0.211	0.205	4.03
60)	T	Hexachlorobenzene	0.181	0.190	0.191	0.200	0.201	0.193	4.29
61)	TCM	Pentachlorophenol	0.114	0.131	0.138	0.150	0.150	0.137	11.07
62)	T	Phenanthrene	1.024	1.058	0.970	0.951	0.885	0.978	6.83
63)	T	Anthracene	1.024	1.097	1.001	0.977	0.895	0.999	7.34
64)	T	Di-n-butylphthalate	1.278	1.313	1.174	1.116	0.996	1.176	10.87
65)	TC	Fluoranthene	1.103	1.153	1.063	1.049	0.980	1.070	6.01
66)	I	Chrysene-d12	ISTD						
67)	T	Benzidine	0.015	0.015	0.014	0.013	0.013	0.014#	7.09
68)	TM	Pyrene	1.293	1.337	1.237	1.223	1.150	1.248	5.70
69)	S	p-Terphenyl-d14	0.889	0.938	0.909	0.925	0.884	0.909	2.53
70)	T	Butylbenzylphthalate	0.668	0.693	0.653	0.646	0.608	0.653	4.78
71)	T	Benzo[a]anthracene	1.166	1.234	1.199	1.211	1.155	1.193	2.72
72)	T	3,3'-Dichlorobenzidin	0.369	0.369	0.347	0.369	0.377	0.366	3.04
73)	T	Chrysene	0.761	0.806	0.789	0.817	0.794	0.793	2.67
74)	T	bis(2-Ethylhexyl)phth	0.884	0.925	0.881	0.872	0.806	0.873	4.93
75)	I	Perylene-d12	ISTD						
76)	TC	Di-n-octylphthalate	1.552	1.675	1.547	1.473	1.288	1.507	9.43
77)	T	Benzo[b]fluoranthene	1.102	1.199	1.210	1.494	1.608	1.323	16.38
78)	T	Benzo[k]fluoranthene	1.089	1.166	1.129	0.944	0.744	1.014	17.06
79)	TC	Benzo[a]pyrene	1.007	1.091	1.089	1.143	1.103	1.086	4.55
80)	T	Indeno[1,2,3-cd]pyren	0.861	0.949	0.991	1.072	0.686	0.912	16.17
81)	T	Dibenz[a,h]anthracene	0.463	0.520	0.593	0.653	0.660	0.578	14.76
82)	T	Benzo[g,h,i]perylene	0.941	1.025	1.033	1.100	1.070	1.034	5.79

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981119\BNA01306.D Vial: 100
Acq On : 19 Nov 1998 12:37 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: 2fp.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	58	-0.10
2	T	Pyridine	1.982	1.846	6.9	53	-0.09
3	T	N-nitroso-dimethylamine	1.333	1.327	0.5	57	-0.08
4	S	2-Fluorophenol	1.532	1.207	21.2	44#	-0.08
5	T	Aniline	2.347	2.349	-0.1	58	-0.09
6	S	Phenol-d6	2.098	2.216	-5.6	61	-0.07
7	TCM	Phenol	2.064	2.186	-5.9	61	-0.07
8	T	bis(2-Chloroethyl)ether	1.772	1.901	-7.3	59	-0.10
9	TM	2-Chlorophenol	1.470	1.488	-1.2	58	-0.09
10	T	1,3-Dichlorobenzene	1.467	1.437	2.0	57	-0.11
11	TCM	1,4-Dichlorobenzene	1.742	1.801	-3.4	58	-0.10
12	T	Benzyl alcohol	0.977	1.021	-4.5	59	-0.10
13	T	1,2-Dichlorobenzene	1.538	1.549	-0.7	58	-0.10
14	T	2-Methylphenol	1.448	1.472	-1.7	59	-0.08
15	T	bis(2-chloroisopropyl)ether	1.856	2.304	-24.1	72	-0.10
16	T	4-Methylphenol	1.423	1.430	-0.5	58	-0.08
17	TPM	n-Nitroso-di-n-propylamine	0.256	0.271	-5.9	61	-0.09
18	T	Hexachloroethane	0.628	0.669	-6.5	61	-0.11
19	I	Naphthalene-d8	1.000	1.000	0.0	64	-0.11
20	S	Nitrobenzene-d5	0.477	0.493	-3.4	66	-0.10
21	T	Nitrobenzene	0.467	0.497	-6.4	68	-0.10
22	T	Isophorone	0.867	0.903	-4.2	67	-0.10
23	TC	2-Nitrophenol	0.206	0.177	14.1	54	-0.10
24	T	2,4-Dimethylphenol	0.436	0.433	0.7	64	-0.09
25	T	bis(2-Chloroethoxy)methane	0.498	0.482	3.2	62	-0.10
26	TC	2,4-Dichlorophenol	0.311	0.307	1.3	62	-0.09
27	T	Benzoic Acid	0.297	0.264	11.1	54	-0.08
28	TM	1,2,4-Trichlorobenzene	0.339	0.335	1.2	63	-0.10
29	T	Naphthalene	1.050	1.070	-1.9	65	-0.10
30	T	4-Chloroaniline	0.449	0.425	5.3	63	-0.10
31	TC	Hexachlorobutadiene	0.198	0.208	-5.1	67	-0.11
32	TCM	4-Chloro-3-methylphenol	0.379	0.432	-14.0	73	-0.08
33	T	2-Methylnaphthalene	0.715	0.802	-12.2	69	-0.11
34	I	Acenaphthene-d10	1.000	1.000	0.0	67	-0.11
35	TP	Hexachlorocyclopentadiene	0.218	0.243	-11.5	71	-0.11
36	TC	2,4,6-Trichlorophenol	0.366	0.364	0.5	66	-0.10
37	T	2,4,5-Trichlorophenol	0.390	0.383	1.8	65	-0.10
38	S	2-Fluorobiphenyl	1.229	1.255	-2.1	68	-0.11
39	T	2-Chloronaphthalene	1.047	1.055	-0.8	67	-0.11

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981119\BNA01306.D Vial: 100
Acq On : 19 Nov 1998 12:37 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: 2fp.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.392	0.364	7.1	62	-0.10
41	T	Dimethylphthalate	1.265	1.231	2.7	66	-0.11
42	T	Acenaphthylene	1.634	1.665	-1.9	68	-0.11
43	T	2,6-Dinitrotoluene	0.282	0.360	-27.7#	85	-0.10
44	T	3-Nitroaniline	0.392	0.364	7.1	62	-0.10
45	TCM	Acenaphthene	1.058	1.074	-1.5	68	-0.11
46	TP	2,4-Dinitrophenol	0.144	0.121	16.0	51	-0.10
47	T	Dibenzofuran	1.496	1.518	-1.5	67	-0.11
48	TMP	4-Nitrophenol	0.254	0.239	5.9	62	-0.08
49	TM	2,4-Dinitrotoluene	0.409	0.415	-1.5	68	-0.10
50	T	Diethylphthalate	1.320	1.355	-2.7	69	-0.11
51	T	Fluorene	1.297	1.352	-4.2	70	-0.11
52	T	4-Chlorophenyl-phenylether	0.640	0.642	-0.3	67	-0.11
53	T	4-Nitroaniline	0.266	0.234	12.0	64	-0.10
54	I	Phenanthrene-d10	1.000	1.000	0.0	66	-0.11
55	T	4,6-Dinitro-2-methylphenol	0.130	0.105	19.2	52	-0.10
56	TC	n-Nitrosodiphenylamine	0.509	0.542	-6.5	70	-0.11
57	T	Azobenzene	0.858	1.028	-19.8	81	-0.11
58	S	2,4,6-Tribromophenol	0.104	0.107	-2.9	69	-0.11
59	T	4-Bromophenyl-phenylether	0.205	0.207	-1.0	67	-0.12
60	T	Hexachlorobenzene	0.193	0.239	-23.8	83	-0.11
61	TCM	Pentachlorophenol	0.137	0.134	2.2	64	-0.10
62	T	Phenanthrene	0.978	1.021	-4.4	69	-0.12
63	T	Anthracene	0.999	1.033	-3.4	68	-0.11
64	T	Di-n-butylphthalate	1.176	1.192	-1.4	67	-0.11
65	TC	Fluoranthene	1.070	1.089	-1.8	68	-0.12
66	I	Chrysene-d12	1.000	1.000	0.0	66	-0.12
67	T	Benzidine	0.014	0.016#	-14.3	79	-0.12
68	TM	Pyrene	1.248	1.312	-5.1	70	-0.12
69	S	p-Terphenyl-d14	0.909	0.921	-1.3	67	-0.12
70	T	Butylbenzylphthalate	0.653	0.634	2.9	64	-0.12
71	T	Benzo[a]anthracene	1.193	1.176	1.4	64	-0.12
72	T	3,3'-Dichlorobenzidine	0.366	0.348	4.9	66	-0.12
73	T	Chrysene	0.793	0.737	7.1	61	-0.12
74	T	bis(2-Ethylhexyl)phthalate	0.873	0.855	2.1	64	-0.12
75	I	Perylene-d12	1.000	1.000	0.0	60	-0.12
76	TC	Di-n-octylphthalate	1.507	1.645	-9.2	64	-0.12
77	T	Benzo[b]fluoranthene	1.323	1.245	5.9	62	-0.12

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\981119\BNA01306.D Vial: 100
Acq On : 19 Nov 1998 12:37 pm Operator: Skelton
Sample : Daily Cal Inst : GC/MS Ins
Misc : 50 ppm std Multiplr: 1.00
MS Integration Params: 2fp.P GC Integration Params: rteint2.p

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[k]fluoranthene	1.014	1.121	-10.6	60	-0.13
79	TC	Benzo[a]pyrene	1.086	1.071	1.4	59	-0.12
80	T	Indeno[1,2,3-cd]pyrene	0.912	0.889	2.5	54	-0.14
81	T	Dibenz[a,h]anthracene	0.578	0.567	1.9	58	-0.14
82	T	Benzo[g,h,i]perylene	1.034	0.853	17.5	50#	-0.15

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.: _____

	FIELD ID	S1 NBZ #	S2 2FP #	S3 TPL #	TOT OUT
01	SBLK166	61	56	89	0
02	SBLK166MS	65	61	83	0
03	FIELD BLANK	59	56	89	0
04	BLDG2700	61	54	80	0
05	BLDG270	68	60	86	0
06	BLDG271	75	73	88	0
07	FIELD DUP	71	63	84	0

				QC LIMITS
S1	NBZ	=	Nitrobenzene-d5	(35-114)
S2	2FP	=	2-Fluorobiphenyl	(43-116)
S3	TPL	=	p-Terphenyl-d14	(33-141)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

Base Neutral Spike Report
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEP Certification #13461

Data File Name **BNA01325.D** Sample Name **Sblk166MS**
Date Acquired **20 Nov 1998 2:05 am**

CAS#	Name		Amount Recovered	Percent Recovered
110-86-1	Pyridine		4.84 ug/L	24.22
62-75-9	N-nitroso-dimethylamine		3.91 ug/L	19.57
62-53-3	Aniline		10.59 ug/L	52.94
111-44-4	bis(2-Chloroethyl)ether		9.36 ug/L	46.80
541-73-1	1,3-Dichlorobenzene		9.47 ug/L	47.35
106-46-7	1,4-Dichlorobenzene		9.06 ug/L	45.32
100-51-6	Benzyl alcohol		8.07 ug/L	40.35
95-50-1	1,2-Dichlorobenzene		10.03 ug/L	50.13
108-60-1	bis(2-chloroisopropyl)ether		16.54 ug/L	82.68
621-64-7	n-Nitroso-di-n-propylamine		12.90 ug/L	64.48
67-72-1	Hexachloroethane		7.70 ug/L	38.48
98-95-3	Nitrobenzene		13.23 ug/L	66.13
111-91-1	bis(2-Chloroethoxy)methane		11.44 ug/L	57.20
120-82-1	1,2,4-Trichlorobenzene		9.35 ug/L	46.75
91-20-3	Naphthalene		10.56 ug/L	52.78
106-47-8	4-Chloroaniline		11.27 ug/L	56.37
87-68-3	Hexachlorobutadiene		9.01 ug/L	45.03
91-57-6	2-Methylnaphthalene		11.20 ug/L	55.99
77-47-4	Hexachlorocyclopentadiene		1.01 ug/L	5.04
91-58-7	2-Chloronaphthalene		11.35 ug/L	56.76
88-74-4	2-Nitroaniline		11.72 ug/L	58.61
131-11-3	Dimethylphthalate		2.79 ug/L	13.94
208-96-8	Acenaphthylene		12.59 ug/L	62.93
606-20-2	2,6-Dinitrotoluene		11.84 ug/L	59.18
99-09-2	3-Nitroaniline		11.72 ug/L	58.61
83-32-9	Acenaphthene		12.40 ug/L	61.99
132-64-9	Dibenzofuran		12.41 ug/L	62.04
121-14-2	2,4-Dinitrotoluene		11.96 ug/L	59.82
84-66-2	Diethylphthalate		6.94 ug/L	34.72
86-73-7	Fluorene		13.12 ug/L	65.62
7005-72-3	4-Chlorophenyl-phenylether		12.68 ug/L	63.39
100-01-6	4-Nitroaniline		14.68 ug/L	73.39
86-30-6	n-Nitrosodiphenylamine		14.13 ug/L	70.66
103-33-3	Azobenzene		17.24 ug/L	86.22
101-55-3	4-Bromophenyl-phenylether		13.18 ug/L	65.90
118-74-1	Hexachlorobenzene		13.43 ug/L	67.14
85-01-8	Phenanthrene		14.59 ug/L	72.93
120-12-7	Anthracene		14.35 ug/L	71.73
84-74-2	Di-n-butylphthalate		14.79 ug/L	73.96
206-44-0	Fluoranthene		14.80 ug/L	74.00
92-87-5	Benzidine		53.56 ug/L	267.79
129-00-0	Pyrene		15.61 ug/L	78.04
85-68-7	Butylbenzylphthalate		14.65 ug/L	73.25
56-55-3	Benzo[a]anthracene		13.48 ug/L	67.41
91-94-1	3,3'-Dichlorobenzidine		14.78 ug/L	73.91
218-01-9	Chrysene		12.15 ug/L	60.76
117-81-7	bis(2-Ethylhexyl)phthalate		14.94 ug/L	74.69
117-84-0	Di-n-octylphthalate		18.30 ug/L	91.48
205-99-2	Benzo[b]fluoranthene		11.61 ug/L	58.07
207-08-9	Benzo[k]fluoranthene		14.79 ug/L	73.97
50-32-8	Benzo[a]pyrene		12.31 ug/L	61.56
193-39-5	Indeno[1,2,3-cd]pyrene		7.14 ug/L	35.68
53-70-3	Dibenz[a,h]anthracene		8.39 ug/L	41.95
191-24-2	Benzo[g,h,i]perylene		6.92 ug/L	34.61

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Lab File ID (Standard): BNA01306.D Date Analyzed: 11/19/98

Instrument ID: BNA#2 Time Analyzed: 12:37

		IS1DCB AREA #	RT #	IS2NAP AREA #	RT #	IS3ANE AREA #	RT #
	12 HOUR STD	441873	7.54	1907707	10.38	1330320	14.47
	UPPER LIMIT	883746	7.04	3815414	9.88	2660640	13.97
	LOWER LIMIT	220937	8.04	953854	10.88	665160	14.97
	FIELD ID						
01	SBLK166	332427	7.55	1624425	10.37	1120112	14.47
02	SBLK166MS	342855	7.54	1611001	10.37	1101028	14.47
03	FIELD BLANK	332828	7.55	1549675	10.37	1054837	14.46
04	BLDG2700	357723	7.55	1670339	10.37	1127490	14.46
05	BLDG270	328627	7.55	1478102	10.37	972957	14.47
06	BLDG271	318106	7.55	1370454	10.37	900350	14.48
07	FIELD DUP	309398	7.55	1415819	10.37	952447	14.46

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FMETL Lab Code 13461

Project 980932 Case No.: 4052 Location UST SDG No.:

Lab File ID (Standard): BNA01306.D Date Analyzed: 11/19/98

Instrument ID: BNA#2 Time Analyzed: 12:37

		IS4PNE AREA #	RT #	IS5CYS AREA #	RT #	IS6PRL AREA #	RT #
	12 HOUR STD	2398434	17.88	2050352	24.11	1770857	27.23
	UPPER LIMIT	4796868	17.38	4100704	23.61	3541714	26.73
	LOWER LIMIT	1199217	18.38	1025176	24.61	885429	27.73
	EPA SAMPLE NO.						
01	SBLK166	1897344	17.87	1510489	24.10	1211190	27.20
02	SBLK166MS	1918159	17.87	1546331	24.10	1226565	27.21
03	FIELD BLANK	1788446	17.87	1418417	24.09	1137653	27.20
04	BLDG2700	1914208	17.87	1545712	24.09	1260089	27.20
05	BLDG270	1653440	17.87	1410517	24.09	1152728	27.20
06	BLDG271	1554887	17.89	1282890	24.10	1113548	27.20
07	FIELD DUP	1600868	17.87	1294609	24.09	1046088	27.20

IS1 DCB = 1,4-Dichlorobenzene-d4
IS2 NAP = Naphthalene-d8
IS3 ANE = Acenaphthene-d10
IS4 PNE = Phenanthrene-d10
IS5 CYS = Chrysene-d12
IS6 PRL = Perylene-d12

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

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

Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981119\BNA01324.D Vial: 18
Acq On : 20 Nov 1998 1:23 am Operator: Skelton
Sample : Sblk166 Inst : GC/MS Ins
Misc : Sblk166 A 981115 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 20 1:55 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

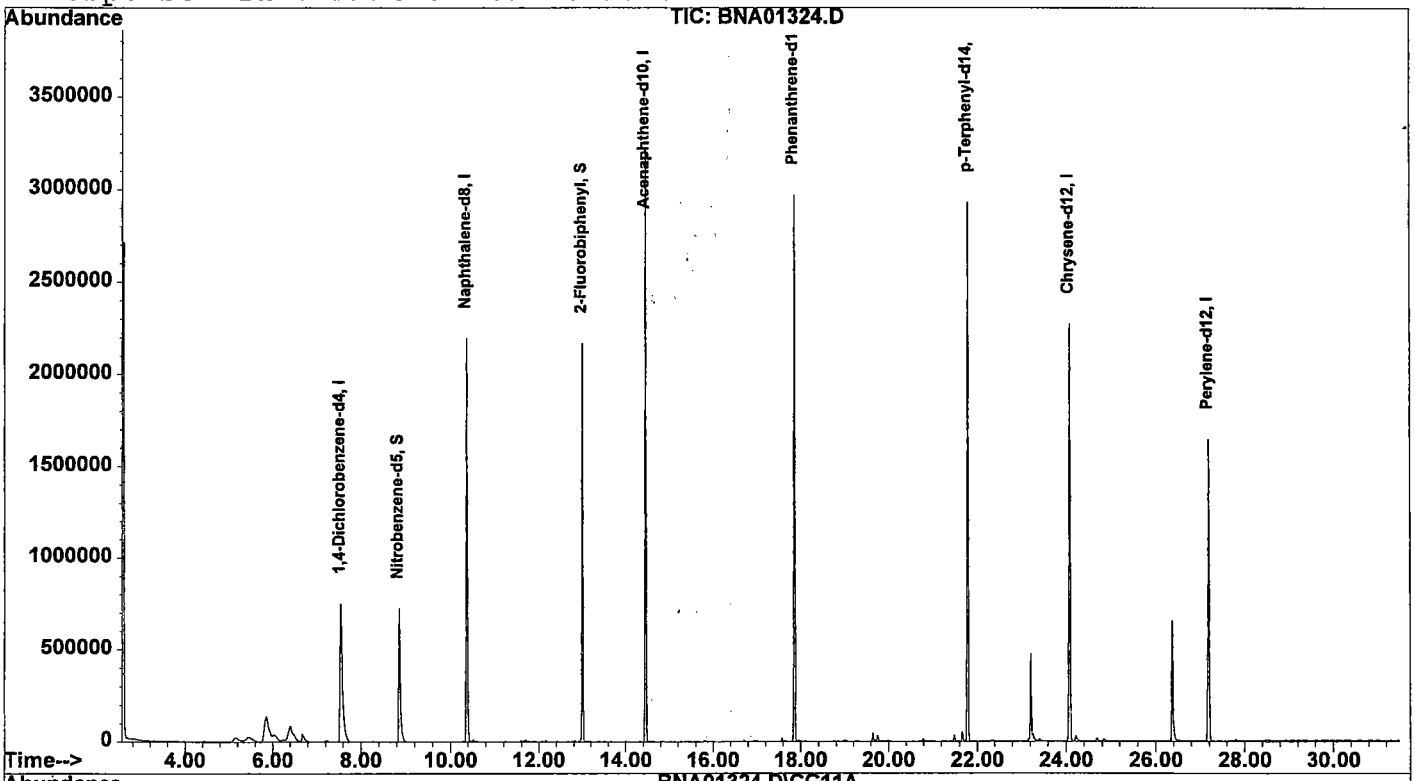
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.55	152	332427	40.00	ug/L	-0.10
19) Naphthalene-d8	10.37	136	1624425	40.00	ug/L	-0.12
34) Acenaphthene-d10	14.47	164	1120112	40.00	ug/L	-0.12
54) Phenanthrene-d10	17.87	188	1897344	40.00	ug/L	-0.13
66) Chrysene-d12	24.10	240	1510489	40.00	ug/L	-0.14
75) Perylene-d12	27.20	264	1211190	40.00	ug/L	-0.15
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
20) Nitrobenzene-d5	8.85	82	592016	30.54	ug/L	-0.12
Spiked Amount 50.000	Range 35 - 114		Recovery =	61.08%		
38) 2-Fluorobiphenyl	13.01	172	957115	27.80	ug/L	-0.12
Spiked Amount 50.000	Range 43 - 116		Recovery =	55.60%		
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
69) p-Terphenyl-d14	21.80	244	1519706	44.27	ug/L	-0.13
Spiked Amount 50.000	Range 33 - 141		Recovery =	88.54%		

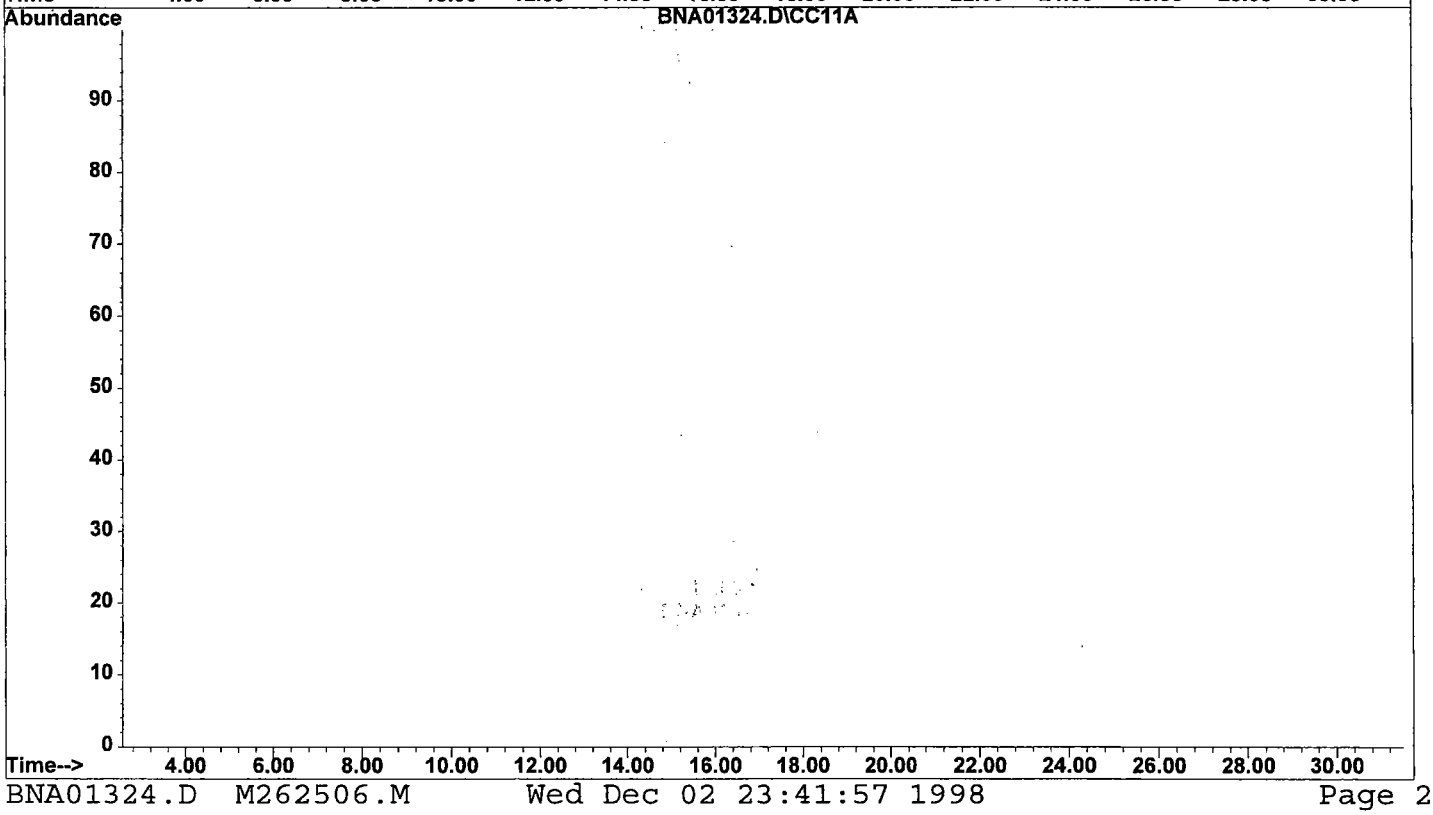
Target Compounds Qvalue

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

Data File : C:\HPCHEM\1\DATA\981119\BNA01324.D Vial: 18
Acq On : 20 Nov 1998 1:23 am Operator: Skelton
Sample : Sblk166 Inst : GC/MS Ins
Misc : Sblk166 A 981115 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 20 1:55 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Initial Calibration





Quantitation Report (LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981119\BNA01331.D Vial: 25
Acq On : 20 Nov 1998 6:16 am Operator: Skelton
Sample : 4052.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 20 6:48 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.55	152	332828	40.00	ug/L	-0.10
19) Naphthalene-d8	10.37	136	1549675	40.00	ug/L	-0.12
34) Acenaphthene-d10	14.46	164	1054837	40.00	ug/L	-0.12
54) Phenanthrene-d10	17.87	188	1788446	40.00	ug/L	-0.13
66) Chrysene-d12	24.09	240	1418417	40.00	ug/L	-0.15
75) Perylene-d12	27.20	264	1137653	40.00	ug/L	-0.15
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
20) Nitrobenzene-d5	8.85	82	546158	29.54	ug/L	-0.12
Spiked Amount 50.000	Range 35 - 114		Recovery =	59.08%		
38) 2-Fluorobiphenyl	13.01	172	900043	27.76	ug/L	-0.12
Spiked Amount 50.000	Range 43 - 116		Recovery =	55.52%		
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
69) p-Terphenyl-d14	21.79	244	1439516	44.66	ug/L	-0.13
Spiked Amount 50.000	Range 33 - 141		Recovery =	89.32%		

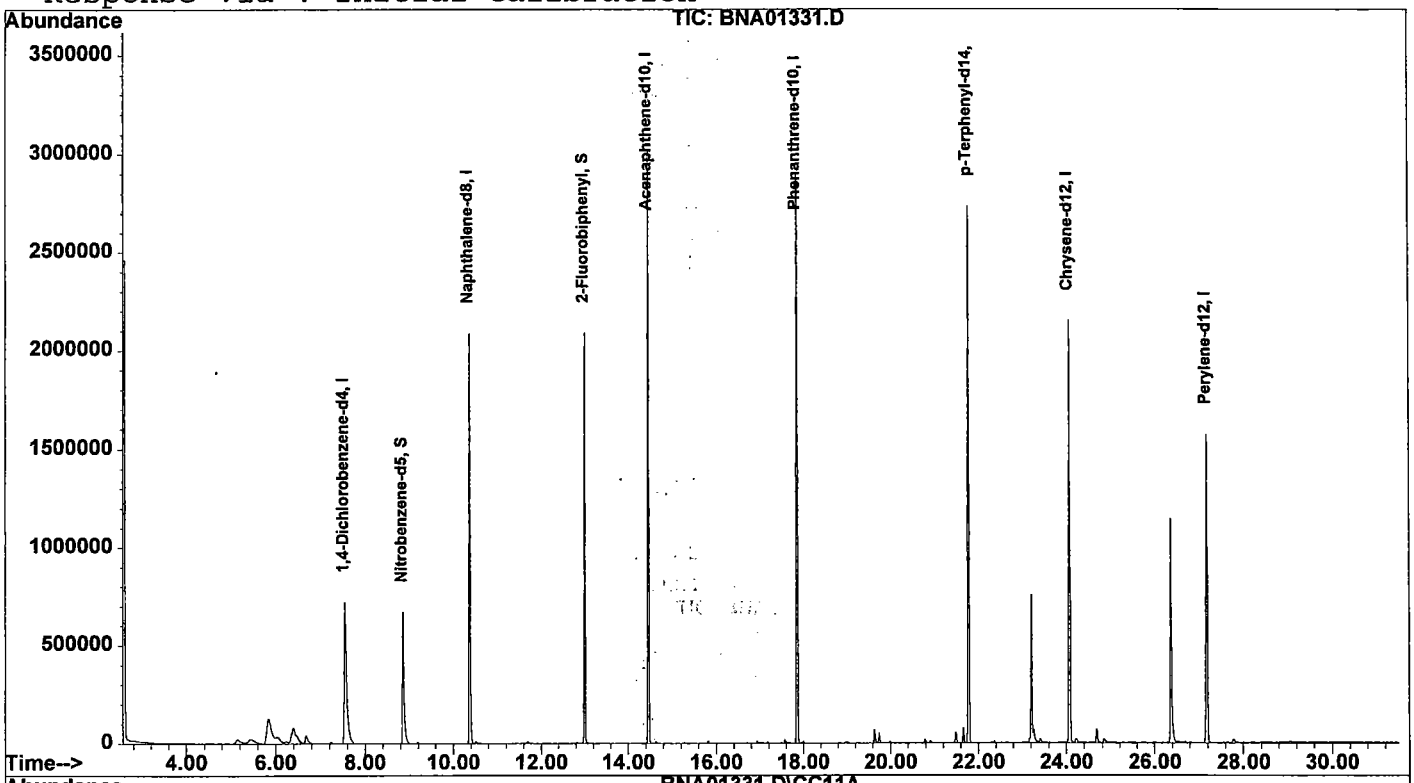
Target Compounds Qvalue

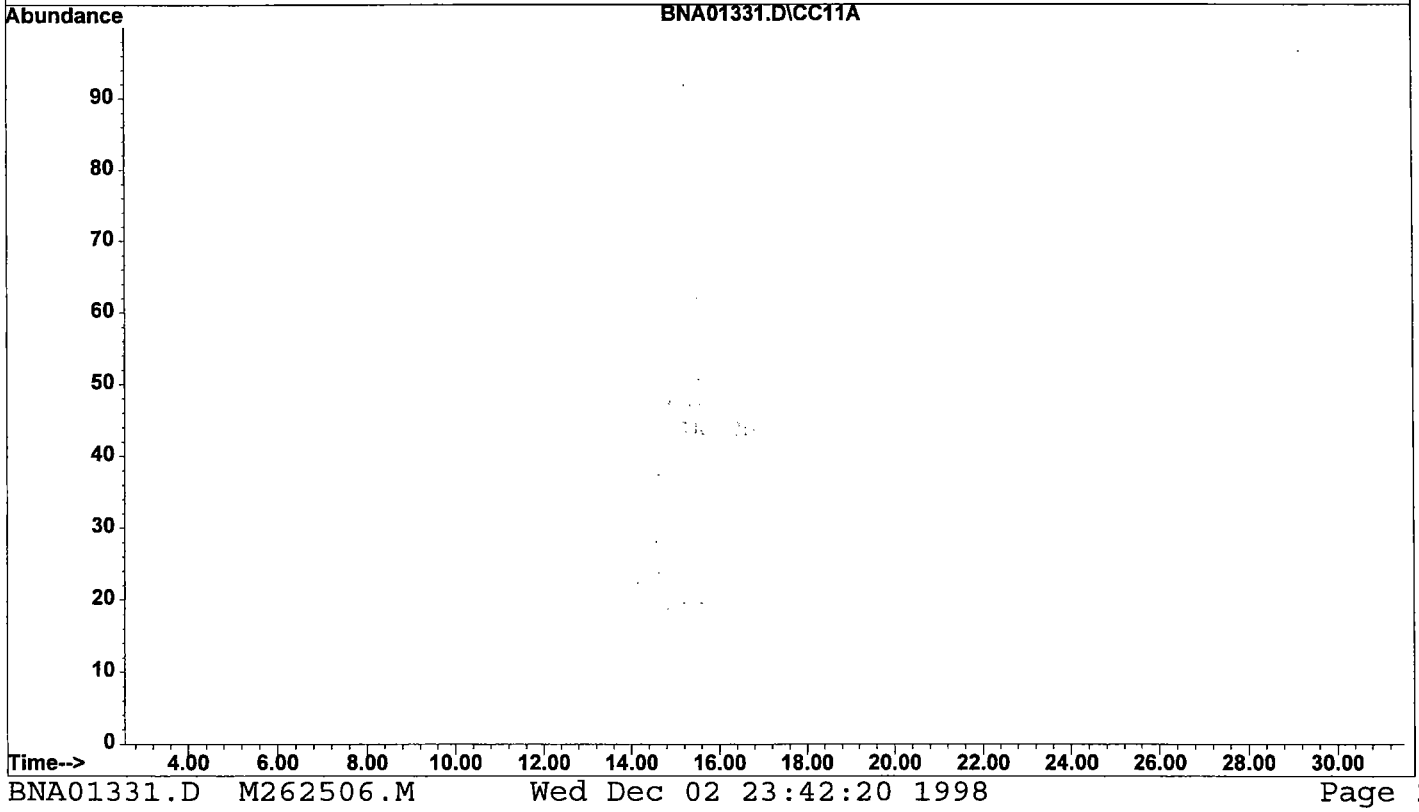
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981119\BNA01331.D Vial: 25
Acq On : 20 Nov 1998 6:16 am Operator: Skelton
Sample : 4052.02 Inst : GC/MS Ins
Misc : Field Blank Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Nov 20 6:48 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Initial Calibration





0071

Quantitation Report (QT/LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\981119\BNA01334.D Vial: 28
Acq On : 20 Nov 1998 8:22 am Operator: Skelton
Sample : 4052.05 Inst : GC/MS Ins
Misc : Bldg271 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Dec 2 23:32 1998 Quant Results File: M262506.RES

Quant Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Fri Oct 02 14:12:05 1998
Response via : Initial Calibration
DataAcq Meth : M262506

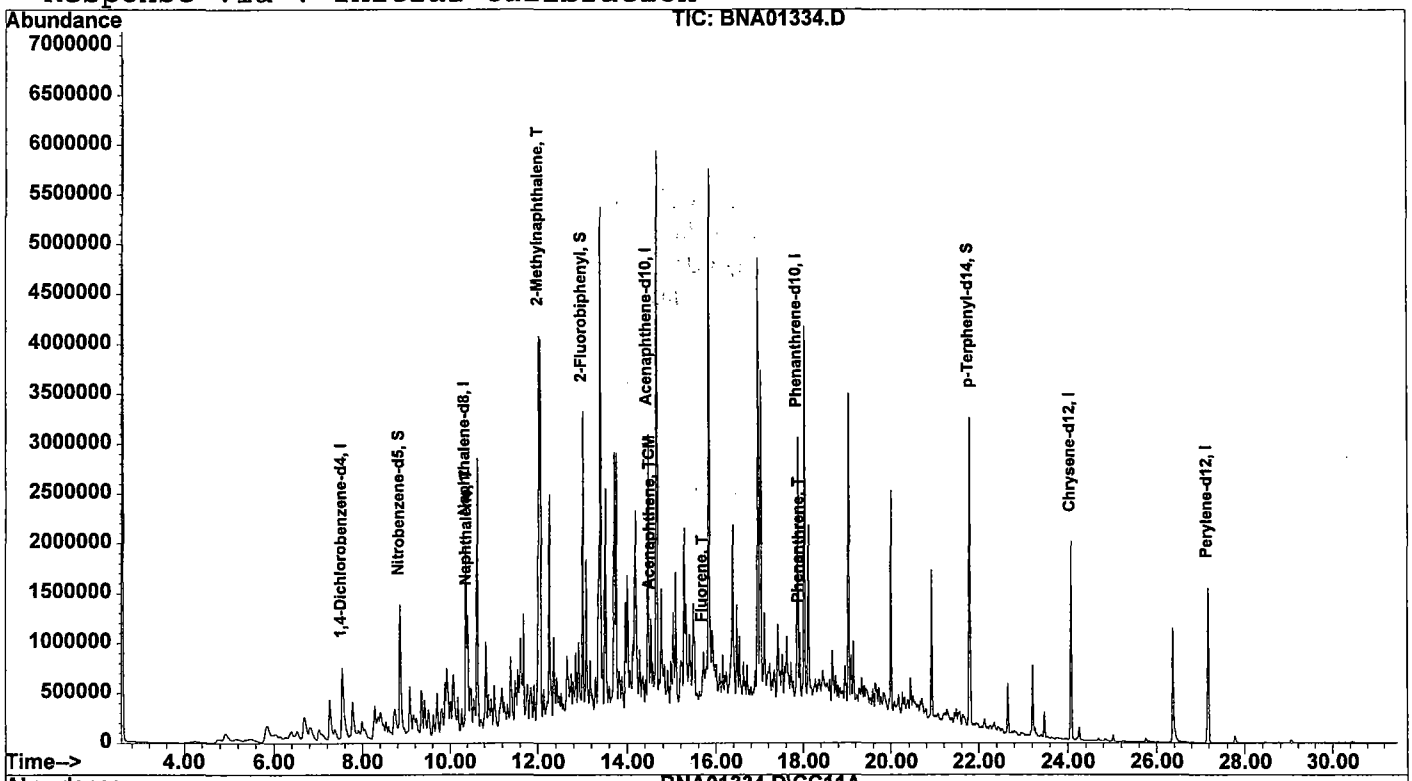
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.55	152	318106	40.00	ug/L	-0.10
19) Naphthalene-d8	10.37	136	1370454	40.00	ug/L	-0.12
34) Acenaphthene-d10	14.48	164	900350	40.00	ug/L	-0.10
54) Phenanthrene-d10	17.89	188	1554887	40.00	ug/L	-0.11
66) Chrysene-d12	24.10	240	1282890	40.00	ug/L	-0.14
75) Perylene-d12	27.20	264	1113548	40.00	ug/L	-0.15
System Monitoring Compounds						
4) 2-Fluorophenol	0.00	112	0	0.00	ug/L	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
6) Phenol-d6	0.00	99	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
20) Nitrobenzene-d5	8.85	82	615067	37.61	ug/L	-0.12
Spiked Amount 50.000	Range 35 - 114		Recovery =	75.22%		
38) 2-Fluorobiphenyl	13.02	172	1006029	36.35	ug/L	-0.12
Spiked Amount 50.000	Range 43 - 116		Recovery =	72.70%		
58) 2,4,6-Tribromophenol	0.00	330	0	0.00	ug/L	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
69) p-Terphenyl-d14	21.80	244	1279277	43.88	ug/L	-0.12
Spiked Amount 50.000	Range 33 - 141		Recovery =	87.76%		
Target Compounds						Qvalue
29) Naphthalene	10.41	128	631122	17.54	ug/L	87
33) 2-Methylnaphthalene	12.04	142	1478556	60.96	ug/L	87
45) Acenaphthene	14.54	153	77900	3.27	ug/L	66
51) Fluorene	15.72	166	110386	3.78	ug/L	95
62) Phenanthrene	17.93	178	305617	8.04	ug/L	74

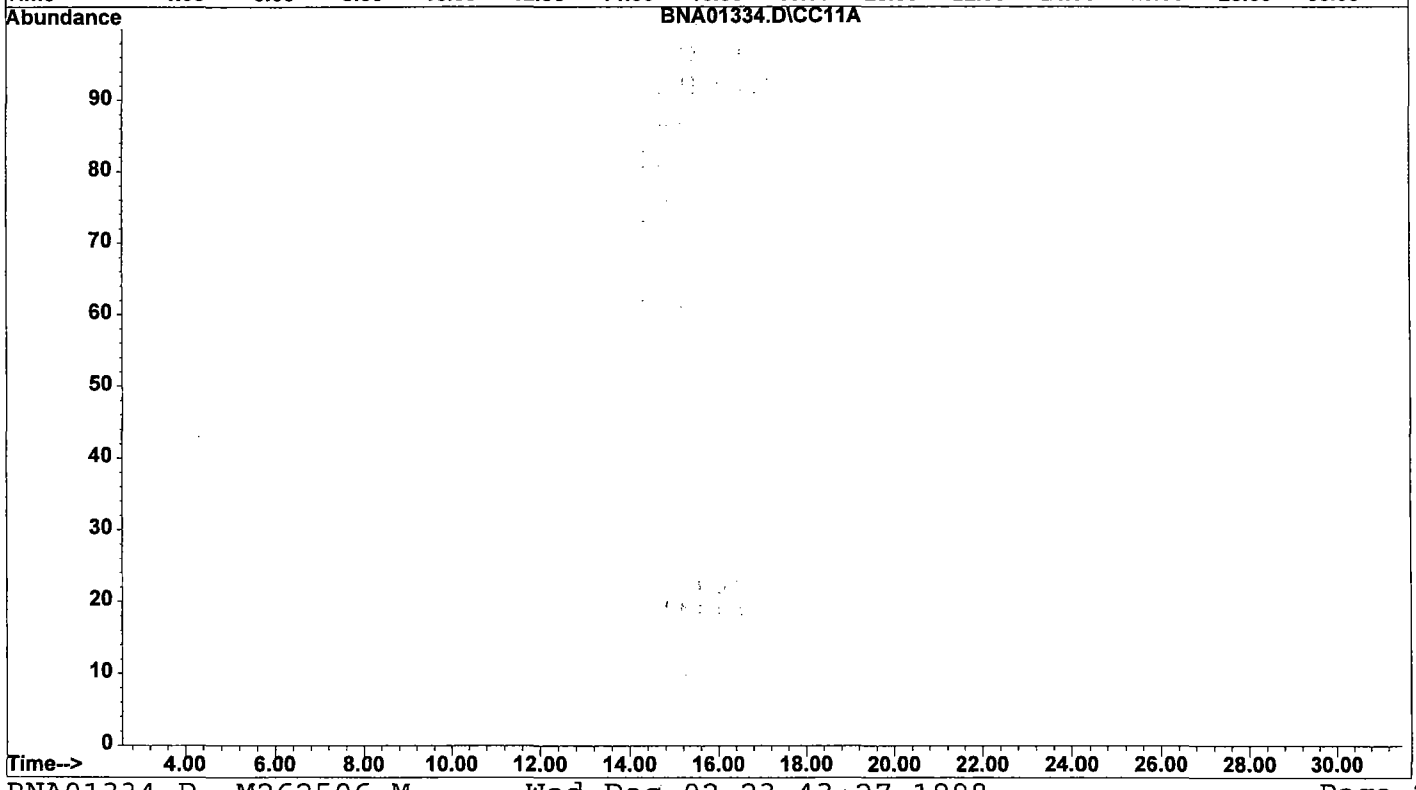
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\981119\BNA01334.D Vial: 28
Acq On : 20 Nov 1998 8:22 am Operator: Skelton
Sample : 4052.05 Inst : GC/MS Ins
Misc : Bldg271 Multiplr: 1.00
MS Integration Params: ODD.P GC Integration Params: rteint2.p
Quant Time: Dec 2 23:32 1998 Quant Results File: M262506.RES

Method : C:\HPCHEM\1\METHODS\M262506.M (RTE Integrator)
Title : BNA Calibration
Last Update : Wed Dec 02 21:31:31 1998
Response via : Initial Calibration





LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature _____

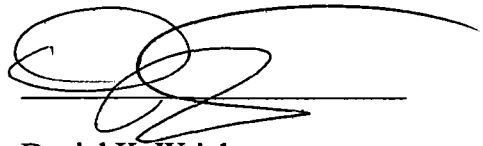
Date 12/4/96

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

APPENDIX F

PHOTOGRAPHS

JUNE 9, 1994

PHOTOGRAPHIC LOG

UST NO. 81533-55

Building 271
Main Post-West
Fort Monmouth

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, PA