UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT
BUILDING 3050
NJDEPE UST REGISTRATION NO. 192486-30
CLOSURE APPROVAL NO. C-91-2839

April 1, 1994

W.O. No.: 03886-088-001

Prepared For:

UNITED STATES ARMY, FORT MONMOUTH NEW JERSEY
DIRECTORATE OF PUBLIC WORKS
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EXECUTIVE SUMMARY

On 26 November 1991, a single wall steel, underground storage tank (UST) (Closure Approval No. C-91-2839) was closed by removal at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, New Jersey Department of Environmental Protection and Energy (NJDEPE) Registration No. 192486-30, was located immediately adjacent to Building 3050 in the Charles Wood area of U.S. Army, Fort Monmouth. UST No. 192486-30 was a 7,500-gallon No. 2 Fuel oil UST. A remote fill for the UST was located approximately 55 feet northeast of the tank. The tank closure was performed by Fabiano and Son, Inc.

Soils surrounding the tank were screened visually and with air monitoring instruments for evidence of contamination. The UST was inspected following removal for corrosion holes. No corrosion holes were noted in the UST and no potentially contaminated soils were identified surrounding the tank. Following the removal of the UST, seven post-excavation soil samples were collected from the sidewalls and base of the excavation. All samples were analyzed for total petroleum hydrocarbons (TPHC). Seven (7) samples were collected from beneath tank piping and the remote fill.

In accordance with NJDEPE requirements, at the time of closure, those samples which exhibited a TPHC concentration exceeding 100 milligrams per kilograms (mg/kg) were also analyzed for base neutral compounds with a forward library search for 15 tentatively identified compounds (BN+15). Based on the concentrations of TPHC detected in the post excavation samples, two samples (C91-638 and C91-632) were analyzed for BN+15. Sample C91-638 was collected immediately below the former location of piping which led from UST No. 192486-30 to Building 3050. C91-632 was collected from the base of the excavation surrounding the former location of the fill port associated with the UST following removal of potentially contaminated soils.

All samples collected from the UST excavation and from below piping associated with the UST, with the exception of sample C91-632, contained either non-detectable concentrations of contaminants or concentrations below proposed NJDEPE subsurface cleanup criteria (NJAC 7:26D and revisions dated 3 February 1994). Sample C91-632, the sample collected below piping immediately adjacent to the remote fill port for the UST, contained a concentration of total organic compounds which exceeded the NJDEPE subsurface cleanup criteria for total organic compounds of 10,000 mg/kg.

Based on the elevated concentrations of total organic compounds detected in sample C91-632, a discharge was reported to the NJDEPE by the DPW on 28 January 1992, Spill Case No. 92-1-28-1324-37 was assigned.

Because of the presence of contamination around the remote fill port soils were excavated in an attempt to remove the contaminated material. Following removal of approximately 23 cubic yards of potentially contaminated soils, five post-excavation soil samples (Samples C92-747, C92-748, C92-749, C92-750 and C92-751) were collected from the base and sidewalls of the excavation and analyzed for TPHC. Four samples, Nos. C92-747, C92-748, C92-749 and C92-750, collected from the sidewalls of the excavation contained elevated levels of TPHC, ranging in concentration from 2,100 mg/kg to 7,200 mg/kg. Sample C92-751, which was collected from the base of the excavation (approximately four feet below ground surface (BGS)), contained a concentration of TPHC of 20 mg/kg.

Based on the analytical results of the post-excavation samples collected on 26 November 1991, 27 November 1992 and 13 March 1992, it has been determined that no soils remain in the former location of the UST, associated piping or remote fill port with concentrations of contaminants exceeding NJDEPE subsurface criteria.

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SECTION 1.0

UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 Overview:

One underground storage tank (UST), New Jersey Department of Environmental Protection and Energy (NJDEPE) Registration No. 192486-30, was closed at Building 3050 at U.S. Army Fort Monmouth, New Jersey on 26 November 1991. This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plan submitted to the NJDEPE on 12 July 1991. The Plan was approved on 31 October, 1991 and assigned TMS. #C91-2839. UST No. 192486-30 was a single wall steel, 7,500-gallon No. 2 Fuel oil tank.

All activities associated with the decommissioning of UST No. 192486-30 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: NJAC 7:14B-1 et seq., NJAC 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 &1910.120. All permits including but not limited to the NJDEPE-approved Decommissioning/ Closure Plan were posted onsite for inspection. Fabiano and Son Inc., the contractor that conducted the decommissioning activities, are registered and certified by the NJDEPE for performing UST closure activities. Closure of UST No. 192486-30 proceeded under approval from the NJDEPE Bureau of Underground Storage Tanks (NJDEPE-BUST). The NJDEPE-BUST closure approval and the UST Site Assessment Summary Form for UST No. 192486-30 have been included in Appendices A and B, respectively.

Based on an inspection of the UST, field screening of subsurface soils and analytical results of soil samples collected, DPW concluded that no historical discharges are associated with the UST. A historical discharge was however noted around the tank fill port. Based on this observation a spill was reported to the NJDEPE "Hotline" for UST No. 192486-30 and assigned Spill Case No. C92-1-28-1324-37.

This UST Closure and Site Investigation Report was prepared by Roy F. Weston Inc. (WESTON®), to assist the United States Army Directorate of Public Works (DPW) in complying with NJDEPE Bureau of Underground Storage Tanks (NJDEPE-BUST) regulations. The applicable NJDEPE-BUST regulations at the date of closure were the "Interim Closure Requirements for Underground Storage Tank Systems" (NJAC 7:14B-1 et seq. September 1990 and revisions dated 1 November 1991).

The following UST Closure and Site Investigation Report was prepared using information required at the time of closure. Where possible, information required by the Technical Requirements for Site Remediation (NJAC 7:26 E) was included. Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in the

final section of this report.

1.2 Site Description

Building 3050 is located in the southeastern portion of the Charles Wood area of Fort Monmouth. A site location map is provided in Figure 1-1. Building 3050 is a central boiler plant for housing. UST No. 192486-30 is located northeast of Building 3050. The USTs appurtenant piping runs northeast for approximately 55 feet to a remote fill port area. The fill port area is located adjacent to an asphalt parking lot for easy access. A site plan is provided in Figure 1-2

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 3050. Included is description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Charles Wood area.

Regional Geology

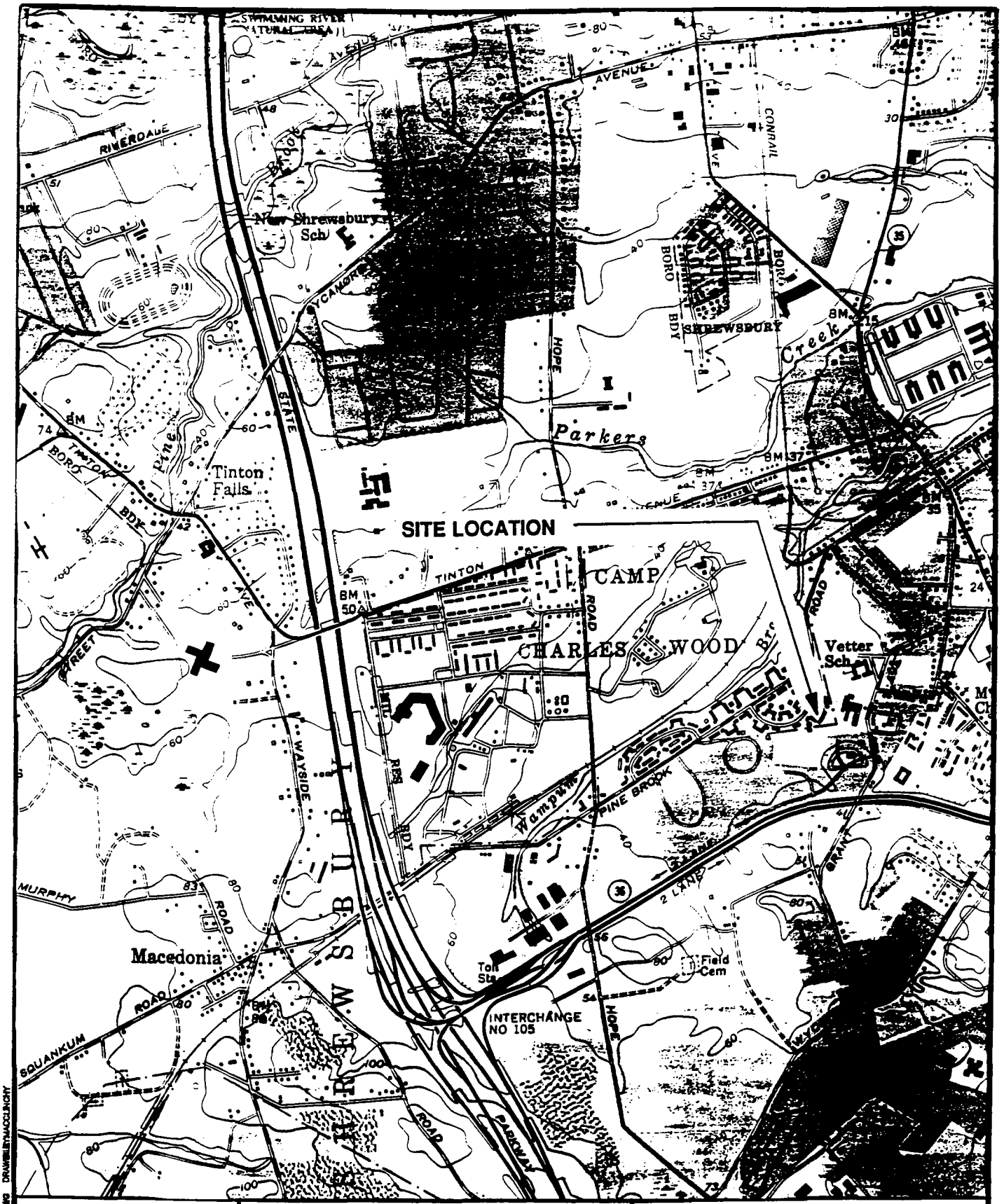
Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

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

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

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Charles Wood area. The Red Bank sand conformably overlies the



WESTON MANAGERS / ENGINEERS/CONSULTANTS	PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 3050 – TANK NO. 30 FORT MONMOUTH, NEW JERSEY CLIENT NAME: U.S. ARMY–DEH FORT MONMOUTH	SITE LOCATION MAP UST NO. 192486–30 DATE: 12/03/93 FIGURE #: 1–1

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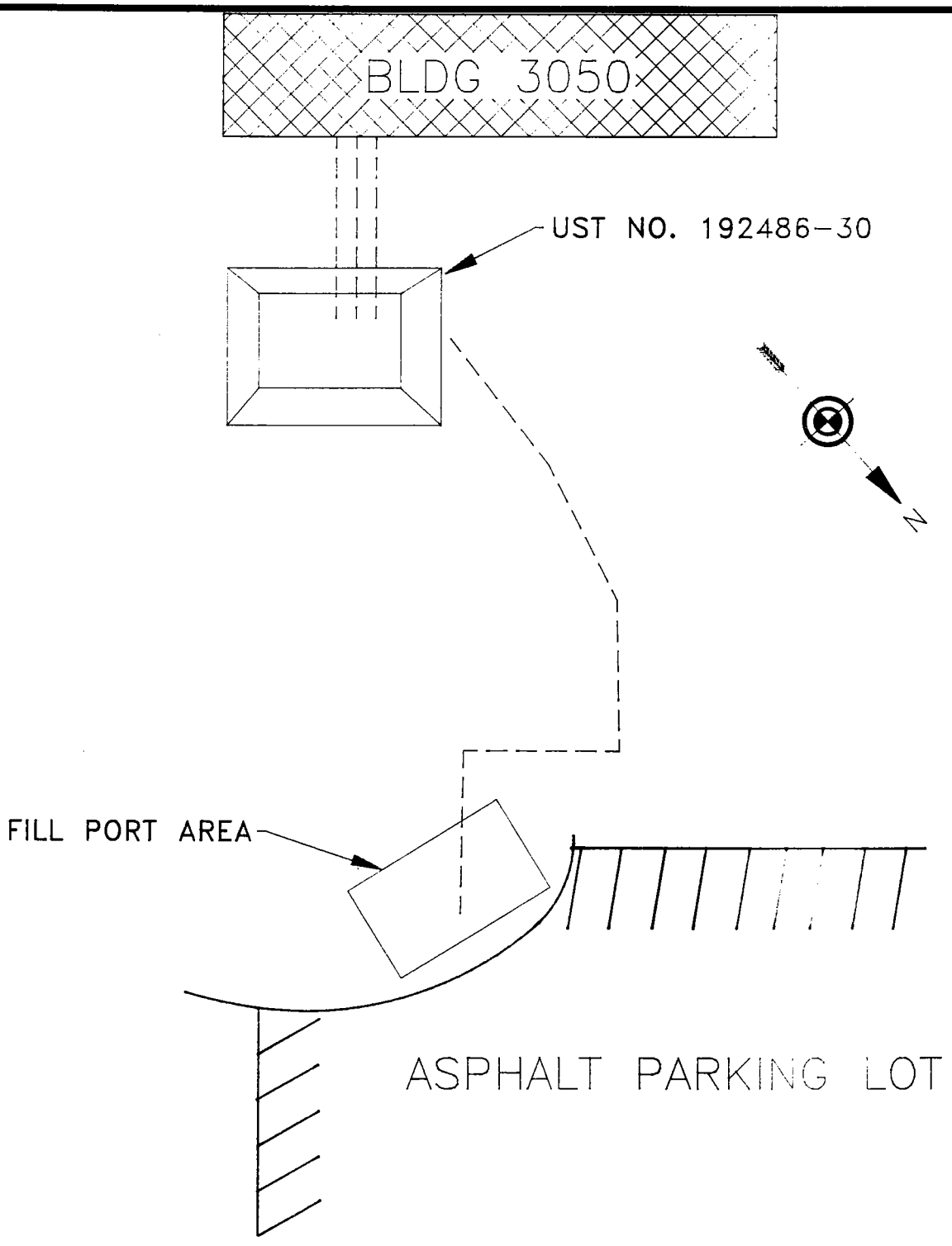
FILE NAME: DEH-3050.DWG DATE: PLOT NAME: DRAWBLEY/MACCLINCHY



REVISION #: 0000 DATE: 12-13-93 PLOT NAME: BLDG3050-1
FILE NAME: BLDG3050-1.DWG DRAWN BY: MACOLINCHY

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 3050 – UST NO. 192486-30
FORT MONMOUTH NEW JERSEY
CLIENT NAME: U.S. ARMY-DEH FORT MONMOUTH

SITE PLAN
FAC.REG.NO. 00192486-30

DATE: 12-15-93
FIGURE #: 1-2

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 grey 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).

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. Topographic elevations for the Charles Wood area range from 20 feet above mean sea level (MSL) to 71 feet above MSL.

Hydrogeology

The water table aquifer at the Charles Wood 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.

Six well records for monitor wells installed at locations within the Charles Wood area in February 1981 were used for reference. The wells were completed to total depths ranging from 20 to 25 feet below ground surface (BGS). Water was encountered at depths ranging from 5 to 12 feet BGS.

The lithologic descriptions for these borings described deposits that were primarily fine to coarse, glauconitic sands, with traces of gravel, silt, and clay. These sediments are part of the Hornerstown Marl, from the Tertiary Period (Paleocene Series, approximately 58 to 66 Ma). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce from 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Shallow groundwater is locally influenced within the Charles Wood 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 Charles Wood area,
- presence of clay and silt lenses in the natural overburden deposits, and
- 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 Charles Wood area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of gravel silt and/or clay.

Building 3050 is located approximately 3.0 miles south of Lafetras Brook, the nearest water body. The groundwater flow in the area of Building 3050 has been determined to be the west.

1.3 Health and Safety

Before, during, and after all activities, hazards at the work site which may have posed a threat to the health and safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.4 Removal of Underground Storage Tanks

1.4.1 General Procedures

- All underground obstructions (utilities,... etc.) were marked out by the contractor performing the closure prior to excavation activities.
- All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- All excavated soils were screened visually and 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 separate from all soil and recycled in accordance with all applicable regulations and laws.
- A Sub-Surface Evaluator from the DPW was present during all closure activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Soil was excavated to expose the UST and associated piping. The piping was not removed/disturbed until all free product was drained into the UST. The UST was rendered vapor free by purging prior to any cutting or access. After the 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. Liquids were transported and disposed of by L&L Oil Service, Inc., Aberdeen, N.J., a NJDEPE-approved petroleum recycling and disposal

company.

The UST was cleaned prior to removal from the excavation in accordance with NJDEPE-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for corrosion holes. No cracks, puncture or corrosion holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. No evidence of contamination was noted.

Soil screening was also performed along the piping length from the UST to the remote fill port. No contamination was noted between the tank and the fill port. Soils below the fill port, however, exhibited signs of potential contamination. Potentially contaminated soil was excavated and stockpiled.

1.5 Underground Storage Tank Transportation and Disposal:

The tank was transported by Fabiano and Sons, Inc. to Mazza and Sons, Inc., for recycling in compliance with all applicable regulations and laws.

The Subsurface Evaluator labelled the UST prior to transport with the following information:

- site of origin,
- contact person,
- NJDEPE UST Facility ID number,
- name of transporter/contact person, and
- destination site/contact person.

1.6 Management of Excavated Soils:

Based on OVA air monitoring and visual observations, approximately 23 cubic yards of potentially contaminated soils were excavated from the area surrounding the former location of the remote fill port. Potentially contaminated soils were stockpiled separately from other excavated material. Potentially contaminated soils were transported to Soil Remediation of Philadelphia for disposal. The hazardous waste manifest for this soil is included in Appendix C. Soils that did not exhibit signs of contamination were used as backfill following removal of the UST.

SECTION 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 Environmental Profile Laboratories, a NJDEPE-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEPE Certified Sub-Surface Evaluator according to the methods described in the NJDEPE Field Sampling Procedures Manual (1988). Sampling frequency and parameters analyzed complied with the NJDEPE-BUST document "Interim Closure Requirements for Underground Storage Tank Systems" (September 1990 and revisions dated 1 November 1991) which was the applicable regulation at the date of the closure. All records of the Site Investigation activities are maintained by Fort Monmouth DPW: Environmental Office.

The following Parties participated in Closure and Site Investigation activities.

- Closure Contractor: Fabiano and Son, Inc.
  Contact Person: Anthony Fabiano
  Phone Number: (908) 571-1004
  NJDEPE Company Certification No.: PLE 01349

- Subsurface Evaluator: Dinkerrai Desai
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (908) 532-1475
  NJDEPE Certification No.: 2266

- Analytical Laboratory: Environmental Profile Laboratories
  Contact Person: Daniel Wright
  Phone Number: (908) 244-6278
  NJDEPE Company Certification No.: 15526

- Hazardous Waste Hauler: L&L Oil Service, Inc.
  Contact Person: Frank Labella
  Phone Number: (908) 566-2785
  NJDEPE Company Certification No.: NJD01427895

2.2 Field Screening/Monitoring

Field screening was performed by an NJDEPE certified sub-surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom, were found to be free of potential contamination.

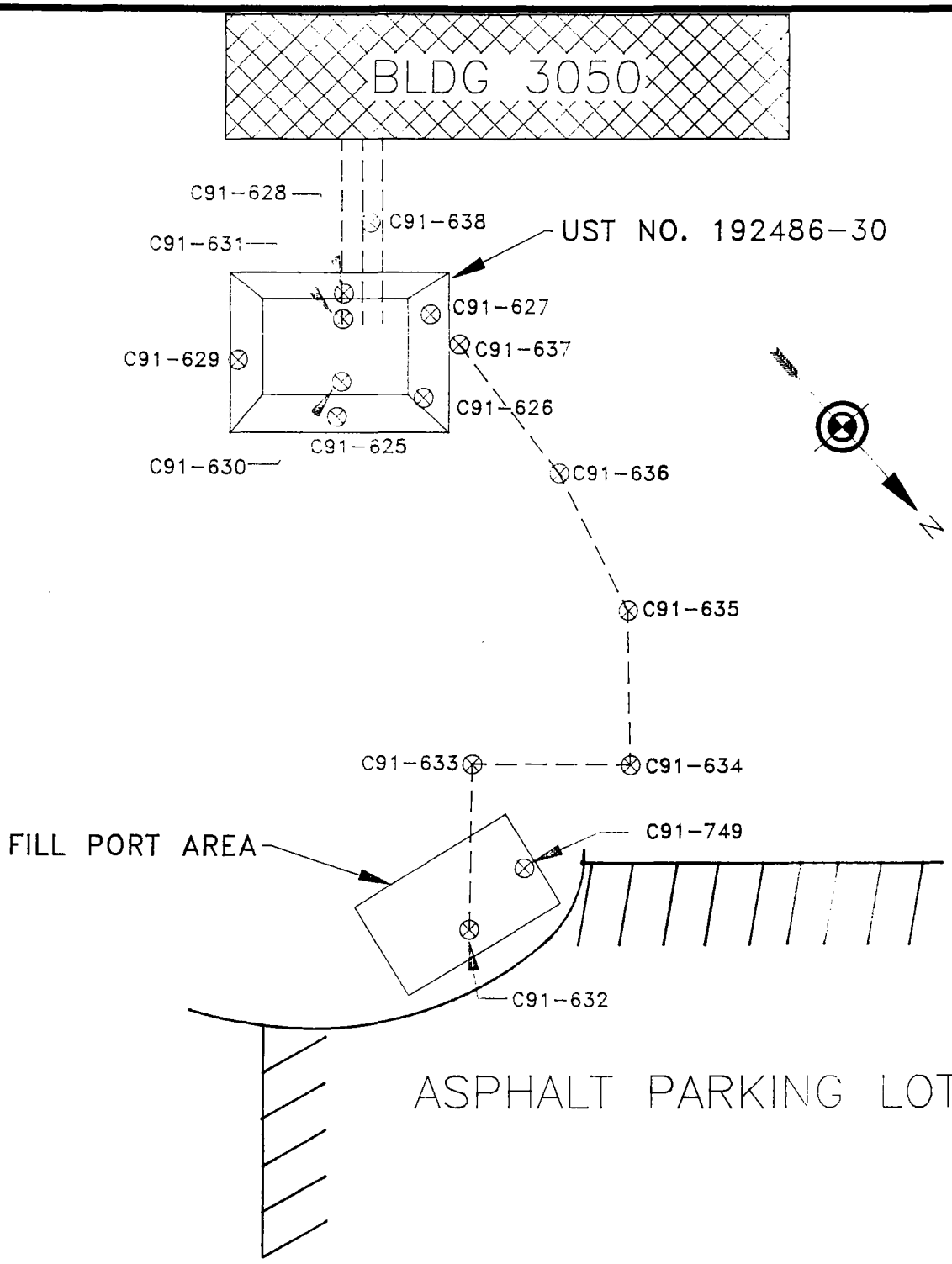
Soil located around the remote fill port exhibited evidence of potential contamination and an unrecorded volume excavated. On 13 March 1992 approximately 23 yards of potentially contaminated soils were excavated from around the former fill port and stockpiled for disposal.

2.3 Soil Sampling

On 26 November 1991, seven (7) post-excavation soil samples were collected from the sidewalls and base of the UST excavation. Six (6) post-excavation soil samples were collected immediately below the former location of piping associated with the UST. Additionally, one (1) post-excavation sample was collected from the base of the excavation surrounding the former location of the fill port following removal of potentially contaminated soils. All samples were analyzed for total petroleum hydrocarbons (TPHC). In accordance with NJDEPE requirements, those samples which exhibited a TPHC concentration exceeding 100 milligrams per kilograms (mg/kg) were also analyzed for base neutral compounds with a forward library search for 15 tentatively identified compounds (BN+15).

An additional round of excavation and sampling was performed on 13 March 1992 in the area surrounding the former location of the remote fill port associated with the UST. Five post-excavation samples were collected from the sidewalls and base of the excavation and were analyzed for TPHC.

A summary of sampling activities including parameters analyzed is provided in Table 2-1. Figure 2-1 depicts the location of the post-excavation samples. Figure 2-2 depicts the location of the post-remediation samples. The samples were collected along the base and sidewalls of the excavation using decontaminated stainless steel scoops. Following soil sampling activities, the samples were chilled and delivered to Environmental Profile Laboratories located in Toms River, New Jersey.



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SCALE

LEGEND

FORMER LOCATION OF APPURTENANT PIPING

POST-EXCAVATION SAMPLE LOCATION

REVISION #: 1 DATE: 3-28-94 PLOT NAME: BLDG3050-1
FILE NAME: BLDG3050-1.DWG DRAWN BY: B. MAC

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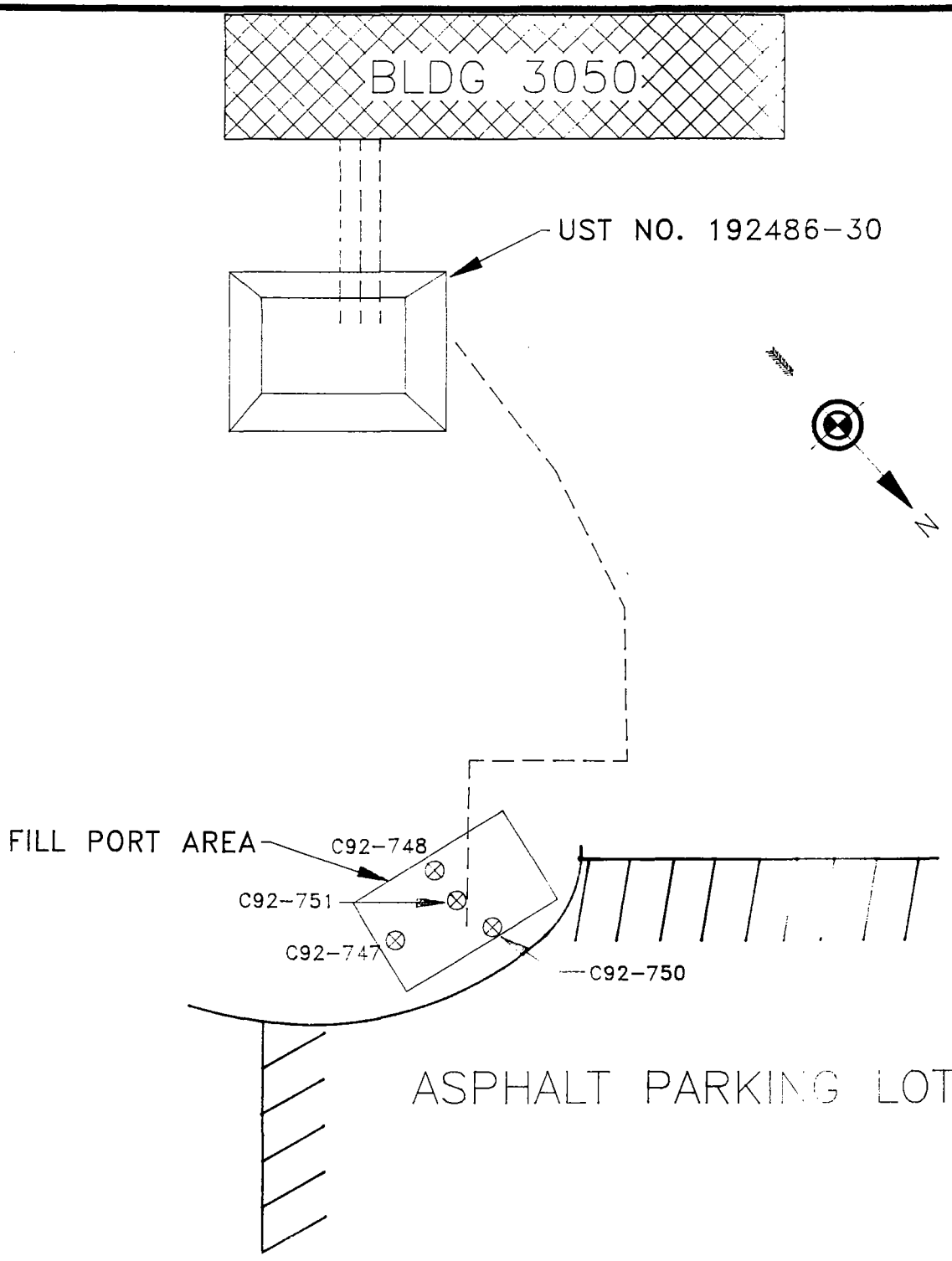
PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 3050 - UST NO. 192486-30
FORT MONMOUTH NEW JERSEY

CLIENT NAME: U.S. ARMY-DPW FORT MONMOUTH

POST-EXCAVATION SAMPLE LOCATIONS FAC.REG.NO. 00192486-30

DATE: 3-28-94

FIGURE #: 2-1



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FILE NAME: BLDG3050-1.DWG DRAWN BY: B. MAC

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FORT MONMOUTH NEW JERSEY

CLIENT NAME: U.S. ARMY-DPW FORT MONMOUTH

POST-REMEDIATION SAMPLE LOCATIONS FAC.REG.NO. 00192486-30

DATE: 3-28-94

FIGURE #: 2-2

TABLE 2-1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample I.D No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
C91-625	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-626	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-627	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-628	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-629	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-630	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-631	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-632	11/27/91	Soil	Post-Excavation	TPHC, BN+15	Stainless Steel Scoop
C91-633	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-634	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-635	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-636	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-637	11/27/91	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C91-638	11/27/91	Soil	Post-Excavation	TPHC, BN+15	Stainless Steel Scoop

Note:

TPHC: - Total Petroleum Hydrocarbons.
BN+15: - Base neutral compounds plus 15 tentatively compounds.

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample I.D No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
C92-747	3/13/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-748	3/13/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-749	3/13/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-750	3/13/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-751	3/13/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop

Note:

TPHC - Total Petroleum Hydrocarbons.

SECTION 3.0

CONCLUSIONS AND RECOMMENDATIONS

3.1 Soil Sampling Results

To evaluate soil conditions following removal of the UST and associated piping, fourteen (14) post-excavation soil samples were collected on 26 November 1991 and analyzed for TPHC. Those samples which exhibited a TPHC concentration exceeding 100 mg/kg were also analyzed for BN+15. Based on the analytical results, two samples were analyzed for BN+15. The post-excavation sample results were compared to NJDEPE subsurface cleanup criteria (NJAC 7:26D and revisions dated 3 February 1994). A summary of the analytical results and comparison to the NJDEPE subsurface cleanup criteria is provided in Table 3-1. The analytical data package summary is provided in Appendix D. The full data package, including associated quality control and chromatograph data, is on file at U.S. Army Fort Monmouth, DPW.

With the exception of sample C91-632, all samples collected from the UST excavation and from below piping associated with the UST, contained either non-detectable concentrations of contaminants or concentrations below NJDEPE subsurface cleanup criteria. Sample C91-632, the sample collected below piping immediately adjacent to the fill port, contained a concentration of total organic compounds which exceeds the NJDEPE subsurface cleanup criteria for total organic compounds of 10,000 mg/kg.

Based on the elevated concentrations of total organic compounds detected in sample C91-632, a discharge was reported to the NJDEPE by the DPW on 28 January 1992 (Case No. 92-1-28-1324-37).

On 13 March 1992 soil surrounding the former fill port were excavated. Following removal of potentially contaminated soils, five post-excavation soil samples (Samples C92-747, C92-748, C92-749, C92-750 and C92-751) were collected from the base and sidewalls of the excavation and were analyzed for TPHC. The four samples (Samples C92-747, C92-748, C92-749 and C92-750) collected from the sidewalls of the excavation contained levels of TPHC, ranging in concentration from 2,100 mg/kg to 7,200 mg/kg. Sample C92-751, which was collected from the base of the excavation (approximately four feet below ground surface (BGS)), contained a TPHC concentration of 20 mg/kg.

3.2 Conclusions and Recommendations:

Based on the TPHC analytical results for the first round of soil samples around the tank and piping and the second round of TPHC results from around the fill port all soils samples were below the NJDEPE cleanup criteria for total organics. Noting however, that the Technical Requirements for Site Remediation (NJAC 7:26E) requires 25 percent of all samples exceeding 1,000 mg/kg also be analyzed for volatile organic compounds (VOCs) and that the regulations at the time of UST closure did not, the tank cannot be closed in compliance with current regulations.

Considering the above discrepancy, it is recommended that one (1) soil sample be obtained from the location of the highest TPHC level and analyzed for VOC's. If the analysis indicates compliance with the cleanup criteria, NJDEPE will be provided with the results and requested to require no further action. If the cleanup criteria is not met then additional soil will be removed and a third round of TPHC and VOA analysis performed.

TABLE 3-1

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample ID No.		C92-747	C92-748	C92-749	C92-750	C92-751	Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		8137.10	8137.11	8137.12	8137.13	8137.14	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	
Date of Collection		3/13/92	3/13/92	3/13/92	3/13/92	3/13/92	
Analytical Parameters	Units						mg/kg
Total Petroleum Hydrocarbons (TPHC)	mg/kg						
TPHC		7200	2100	4300	5500	20	NC*

Notes:

NC*: - No cleanup criterion has been proposed by NJDEPE; however, the NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg.
NC: - No subsurface cleanup criterion has been proposed for this analyte by NJDEPE.
J: - Indicates an estimated value.
ND: - Indicates compound not detected.
TPHC: - Total Petroleum Hydrocarbons.
PE: - Post-Excavation.
mg/kg: - Milligrams per Kilograms.
NA: - Not analyzed.

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample ID No.		C91-625	C91-626	C91-627	C91-628	C91-629	C91-630	C91-631	Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		6920.1	6920.2	6920.3	6920.4	6920.5	6920.6	6920.7	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	PE	
Date of Collection		11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	
Analytical Parameters	Units								mg/kg
Total Petroleum Hydrocarbons (TPHC)	mg/kg								
TPHC		ND	ND	ND	ND	ND	25	ND	NC*
Base Neutral Compounds	mg/kg								
Naphthalene		NA	NA	NA	NA	NA	NA	NA	100
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NC
Dibenzofuran		NA	NA	NA	NA	NA	NA	NA	NC
Fluorene		NA	NA	NA	NA	NA	NA	NA	100
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NC

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample ID No.		C91-625	C91-626	C91-627	C91-628	C91-629	C91-630	C91-631	Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		6920.1	6920.2	6920.3	6920.4	6920.5	6920.6	6920.7	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	PE	
Date of Collection		11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	
Base Neutral Compounds (Continued)	mg/kg								
Pyrene		NA	NA	NA	NA	NA	NA	NA	500
Bis(2-Ethylhexyl)phthalate		NA	NA	NA	NA	NA	NA	NA	100

Notes:

NC*: - No cleanup criterion has been proposed by NJDEPE; however, the NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg.
NC: - No subsurface cleanup criterion has been proposed for this analyte by NJDEPE.
J: - Indicates an estimated value.
ND: - Indicates compound not detected.
TPHC: - Total Petroleum Hydrocarbons.
PE: - Post-Excavation.
mg/kg: - Milligrams per Kilograms.
NA: - Not analyzed.

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample ID No.		C91-632	C91-633	C91-634	C91-635	C91-636	C91-637	C91-638	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		6920.8	6920.9	6920.10	6920.11	6920.12	6920.13	6920.14	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	PE	
Date of Collection		11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	
Analytical Parameters	Units								mg/kg
Total Petroleum Hydrocarbons (TPHC)	mg/kg								
TPHC		26000	ND	ND	ND	25	ND	200	NC*
Base Neutral Compounds	mg/kg								
Naphthalene		3.6	NA	NA	NA	NA	NA	ND	100
2-Methylnaphthalene		12.0	NA	NA	NA	NA	NA	ND	NC
Dibenzofuran		0.52	NA	NA	NA	NA	NA	ND	NC
Fluorene		1.5	NA	NA	NA	NA	NA	ND	100
Phenanthrene		6.0	NA	NA	NA	NA	NA	ND	NC
Pyrene		0.37J	NA	NA	NA	NA	NA	ND	500

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Sample ID No.		C91-632	C91-633	C91-634	C91-635	C91-636	C91-637	C91-638	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		6920.8	6920.9	6920.10	6920.11	6920.12	6920.13	6920.14	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	PE	
Date of Collection		11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	11/27/91	
Base Neutral Compounds (Continued)	mg/kg								
Bis(2-ethylhexyl)phthalate		2.4	NA	NA	NA	NA	NA	ND	100

Notes:

NC*: - No cleanup criterion has been proposed by NJDEPE; however, the NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg.

NC: - No subsurface cleanup criterion has been proposed for this analyte by NJDEPE.

J: - Indicates an estimated value.

ND: - Indicates compound not detected.

TPHC: - Total Petroleum Hydrocarbons.

PE: - Post-Excavation.

mg/kg: - Milligrams per Kilograms.

NA: - Not analyzed.

TABLE 3-2

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE
UST REGISTRATION NO. 0192486-30
BUILDING NO. 3050
FORT MONMOUTH, NEW JERSEY

Analytical Parameters	No. of Samples Collected	Matrix	Date Collected	Date Analysis Started	Preservation Method	USEPA SW-846 Analytical Method
TPHC	14	S	11/27/91	12/3/91	Cool to 4^0C	418.1
BNAs	2	S	11/27/91	12/4/91	Cool to 4^0C	8270
TPHC	5	S	3/13/92	3/19/92	Cool to 4^0C	418.1

Notes:

TPHC: - Total petroleum hydrocarbons.
C: - Celsius.
BNAs: - Base Neutral Compounds.

APPENDIX A

NJDEPE-BUST CLOSURE APPROVAL

UNDERGROUND STORAGE TANK SYSTEM
CLOSURE APPROVAL

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
BUREAU OF UNDERGROUND STORAGE TANKS
CN-029, TRENTON, NJ 08625-0029

TMS #: C-91-2839 **UST #:** 0192486

U.S. Army Fort Monmouth
Building 3050
Fort Monmouth

(Monmouth County)

THE ABOVE LISTED FACILITY IS HEREBY GRANTED APPROVAL TO PERFORM THE FOLLOWING ACTIVITY IN ACCORDANCE WITH N.J.A.C. 7:14B-1 et. seq.:

Removal of: 1- 7500 gallon heating oil storage tank

Site assessment: Seven (7) soil samples will be taken for the tank, and six (6) for the piping; samples will be collected and analyzed as per the Technical Guidance Document (TPHC).

ON-SITE MANAGER: Dinkerrai Desai TELEPHONE: 908 532-[illegible]

OWNER: U.S. Army TELEPHONE:

EFFECTIVE DATE: October 31, 1991

THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.

Kenneth Goldstein

KENNETH GOLDSTEIN, P.E., CHIEF
BUREAU OF UNDERGROUND STORAGE TANKS

UST-011 GREEN- APPLICANT COPY- APPLICANT COPY- LCO COPY- TMS COPY- R&B

APPENDIX B

NJDEPE UST SITE ASSESSMENT SUMMARY FORM

UST-014
2/91

UST #	
Date Rec'd	
TMS #	
Staff	

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES
BUREAU OF UNDERGROUND STORAGE TANKS
TANK MANAGEMENT SECTION

CN 029, 401 EAST STATE STREET
TRENTON, N.J. 08625-0029

UNDERGROUND STORAGE TANK SITE ASSESSMENT SUMMARY

Under the provisions of the Underground Storage of Hazardous Substances Act in accordance with N.J.A.C. 7:14B

This Summary form shall be used by all owners and operators of Underground Storage Tank Systems (USTS) who have either reported a release and are subject to the site assessment requirements of N.J.A.C. 7:14B-8.2 or who have closed USTS pursuant to N.J.A.C. 7:14B-9.1 et seq. and are subject to the site assessment requirements of N.J.A.C. 7:14B-9.2 and 9.3.

INSTRUCTIONS:

- *Please print legibly or type.*
- *Fill in all applicable blanks. This form will require various attachments in order to complete the Summary. The technical guidance document, Interim Closure Requirements for UST's, explains the regulatory (and technical) requirements for closure and the Scope of Work, Investigation and Corrective Action Requirements for Discharges from Underground Storage Tanks and Piping Systems explains the regulatory (and technical) requirements for corrective action.*
- *Return one original of the form and all required attachments to the above address.*
- *Attach a scaled site diagram of the subject facility which shows the information specified in Item IV B of this form.*
- *Explain any "No" or "N/A" response on a separate sheet.*

Date of Submission 02 February 1994

0192486-30
FACILITY REGISTRATION #

I. FACILITY NAME AND ADDRESS

U S Army Fort Monmouth
Building 167 DEH
Fort Monmouth, NJ 07703 County Monmouth
Telephone No. (908) 532-1475

OWNER'S NAME AND ADDRESS, if different from above

Telephone No. _____

II. DISCHARGE REPORTING REQUIREMENTS

A. Was contamination found? X Yes ___ No If Yes, Case No. 92-1-28-1324-37
(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B. The substance(s) discharged was(were) #2 Fuel Oil

C. Have any vapor hazards been mitigated? X Yes ___ No ___ N/A

III. DECOMMISSIONING OF TANK SYSTEMS Closure Approval No. C-91-2839

The site assessment requirements associated with tank decommissioning are explained in the Technical Guidance Document, **Interim Closure Requirements for UST's,** Section V. A-D. Attach complete documentation of the methods used and the results obtained for each of the steps of tank decommissioning used. Please include a site map which shows the locations of all samples and borings, the location of all tanks and piping runs at the facility at the beginning of the tank closure operation and annotated to differentiate the status of all tanks and piping (e.g., removed, abandoned, temporarily closed, etc.). The same site map can be used to document other parts of the site assessment requirements, if it is properly and legibly annotated.

IV. SITE ASSESSMENT REQUIREMENTS

A. Excavated Soil

Any evidence of contamination in excavated soil will require that the soil be classified as either Hazardous Waste or Non-Hazardous Waste. Please include all required **documentation** of compliance with the requirements for handling contaminated **excavated** soil (if any was present) as explained in the technical guidance documents for closure and corrective action. Describe amount of soil removed, its classification, and disposal location.

B. Scaled Site Diagrams

1. Scaled site diagrams must be attached which include the following information:

   a. North arrow and scale
   b. The locations of the ground water monitoring wells
   c. Location and depth of each soil sample and boring
   d. All major surface and sub-surface structures and utilities
   e. Approximate property boundaries
   f. All existing or closed underground storage tank systems, including appurtenant piping
   g. A cross-sectional view indicating depth of tank, stratigraphy and location of water table
   h. Locations of surface water bodies

C. Soil samples and borings (check appropriate answer)

1. Were soil samples taken from the excavation as prescribed? X Yes ___ No ___ N/A

2. Were soil borings taken at the tank system closure site as prescribed? ___ Yes ___ No X N/A

3. Attach the analytical results in tabular form and include the following information about each sample:
   a. Customer sample number (keyed to the site map)
   b. The depth of the soil sample
   c. Soil boring logs
   d. Method detection limit of the method used
   e. QA/QC Information as required

D. Ground Water Monitoring

1. Number of ground water monitoring wells installed N/A

2. Attach the analytical results of the ground water samples in tabular form. Include the following information for each sample from each well:

   a. Site diagram number for each well installed
   b. Depth of ground water surface
   c. Depth of screened interval
   d. Method detection limit of the method used
   e. Well logs
   f. Well permit numbers
   g. QA/QC information as required

V. SOIL CONTAMINATION

A. Was soil contamination found? X Yes ___ No
If "Yes", please answer Question B-E
If "No", please answer Question B

B. The highest soil contamination still remaining in the ground has been determined to be:
1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. 7,200 ppm TPHC
4. N/A ppb N/A (for non-petroleum substance)

C. Remediation of free product contaminated soils

1. All free product contaminated soil on the property boundaries and above the water table are believed to have been removed from the subsurface X Yes ___ No
2. Free product contaminated soils are suspected to exist below the water table ___ Yes X No
3. Free product contaminated soils are suspected to exist off the property boundaries. ___ Yes X No

D. Was the vertical and horizontal extent of contamination determined? ___ Yes X No ___ N/A

E. Does soil contamination intersect ground water? ___ Yes ___ No X N/A

VI. GROUND WATER CONTAMINATION

A. Was ground water contamination found? ___ Yes X No
If "Yes", please answer Questions B-G.
If "No", please answer only Question B.

B. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be:

1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. N/A ppb total MTBE, N/A ppb total TBA
4. N/A ppb N/A (for non-petroleum substance)
5. greatest thickness of separate phase product found N/A
6. separate phase product has been delineated ___ Yes ___ No X N/A

C. Result(s) of well search

1. A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of Work. X Yes ___ No ___ N/A

2. The number of these wells identified is 10.

D. Proximity of wells and contaminant plume

1. The shallowest depth of any well noted in the well search which may be in the horizontal or vertical potential path(s) of the contaminant plume(s) is _____ feet below grade (consideration has been given for the effects of pumping, subsurface structures, etc. on the direction(s) of contaminant migration). This well is _____ feet from the source and its screening begins at a depth of _____ feet.

2. The shallowest depth to the top of the well screen for any well in the potential path of the plume(s) (as described in D1 above) is _____ feet below grade. This well is located _____ feet from the source.

3. The closest horizontal distance of a private, commercial or municipal well in the potential path of the plume (as determined in D1) is _____ feet from the source. This well is _____ feet deep and screening begins at a depth of _____ feet.

E. A plan for separate phase product recovery has been included. ___ Yes ___ No ___ N/A

F. A ground water contour map has been submitted which includes the ground water elevations for each well. ___ Yes ___ No ___ N/A

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. ___ Yes ___ No

2. The plume is suspected to continue off the property at concentrations greater than MCLs. ___ Yes ___ No

3. Off property access (circle one): is being sought has been approved has been denied

VII. **SITE ASSESSMENT CERTIFICATION** [preparer of site assessment plan - N.J.A.C. 7:14B-8.3(b) &9.5(a)3]

The person signing this certification as the "Qualified Ground Water Consultant" (as defined in N.J.A.C.7:14B-1.6) responsible for the design and implementation of the site assessment plan as specified in N.J.A.C. 7:14B-8.3(a) & 9.2(b)2, must supply the name of the certifying organization and certification number.

"I certify under penalty of law that the information provided in this document is true, accurate, and complete and was obtained by procedures in compliance with N.J.A.C. 7:14B-8 and 9. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) Dinkerrai DeSai SIGNATURE _____

COMPANY NAME U.S. Army Fort Monouth DATE 15 February 1994
(Preparer of Site Assessment Plan)

CERTIFYING ORGANIZATION NJDEPE CERTIFICATION NUMBER 2266

VIII. **TANK DECOMMISSIONING CERTIFICATION** [person performing tank decommissioning portion of closure plan - N.J.A.C. 7:14B-9.5(a)4]

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

NAME (Print or Type) Dinkerrai DeSai SIGNATURE _____

COMPANY NAME U.S. Army Ft Monmouth DATE 15 February 1994
(Performer of Tank Decommissioning)

IX. **CERTIFICATIONS BY THE RESPONSIBLE PARTY(IES) OF THE FACILITY**

A. The following certification shall be signed by the highest ranking individual with overall responsibility for that facility [N.J.A.C. 7:14B-2.3(c)1i].

"I certify under penalty of law that the information provided in this document is true, accurate, and complete . I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) James Ott, P.E. SIGNATURE _____

COMPANY NAME U.S. Army Ft. Monmouth DATE 15 February 1993

B. The following certification shall be signed as follows [according to the requirements of N.J.A.C. 7:14B-2.3(C)2i]:

1. For a corporation, by a principal executive officer of at least the level of vice president.
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 the principal executive officer or ranking elected official.
4. In cases where the highest ranking corporate partnership, governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made. In all other cases, the certifications of A and B shall be made.

"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 immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) _____ SIGNATURE _____

COMPANY NAME _____ DATE _____

ATTACHMENT I

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
IIA.	No	No contaminants were identified in soil samples at concentrations exceeding NJDEPE cleanup criteria.
IIB.	N/A	Same as above.
IIC.	N/A	Same as above.
III.	N/A	Closure of Facility Registration No. 192486-30 was conducted under approval and onsite supervision of the NJDEPE Division of Hazardous Waste Management.
IV.C.2	N/A	No soil borings were proposed in the closure plan.
V.A	No	No contaminants were identified in soil samples at concentrations exceeding NJDEPE cleanup criteria.
V.B.1-4	N/A	In compliance with current regulations, one (1) soil sample shall be obtained from the location of the highest TPHC level and analyzed for VOC's.
V.C.1-3	N/A	Same as V.A.
V.D	N/A	Same as V.A.
V.E	N/A	Same as V.A.
VI.A	No	No groundwater monitoring wells were installed as part of closure of Facility Registration No. 192486-30; therefore, no groundwater samples were collected.
VI.B. 1-6	N/A	Same as above.

APPENDIX C

HAZARDOUS WASTE MANIFEST

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

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. | Manifest Document No. | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
P.O. BOX 260
ROUTE # 1130 + 619

4. Generator's Phone ( ) 530-4359

A. State Manifest Document Number: **NJA 1391411**

B. State Generator's ID: SAME

5. Transporter 1 Company Name: L & L OIL SERVICE | 6. US EPA ID Number: NJD011142737915 | C. State Trans. ID: NJDEPS6601

7. Transporter 2 Company Name | 8. US EPA ID Number | D. Transporter's Phone (908)566-2753 | E. State Trans. ID

9. Designated Facility Name and Site Address
L & L OIL SERVICE
740 LIVINGSTON AVE
ABERDEEN NJ 07747

10. US EPA ID Number: NJD011142737915 | F. Transporter's Phone ( ) | G. State Facility's ID | H. Facility's Phone (908)566-2785

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. PETROLEUM OIL N.O.S. COMBUSTIBLE LIQUID NA 1993	01	TT	5000	G	X7121
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. LT. OIL 71% WATER 17%
c.
b.
d.

K. Handling Codes for Wastes Listed Above
a. S02
c.
b. T01
d.

15. Special Handling Instructions and Additional Information
Decal # 14955 ERG # 27
24 hour Emergency # (908)566-2785

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
GEORGE W. ROCKOWSKY	George W. Rockowsky	10	31	92

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Gary LaBella	Gary LaBella	10	31	92

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
[illegible] N/A	[illegible] N/A	11	1	92

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. 9/88) Previous editions are obsolete.

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

4 — TSD FACILITY COPY

SOIL REMEDIATION of Philadelphia, Inc.

3201 South 61st Street
Philadelphia, PA 19153
Pennsylvania Department of Environmental Resources Permitted Facility

CERTIFICATE OF SOIL REMEDIATION

Soil Remediation of Philadelphia, Inc. certifies that 2422.69 tons of non-hazardous petroleum contaminated soil delivered by ALLIED ENVIRONMENTAL and identified as Lot # 471 has been processed to destroy the hydrocarbon contamination. This soil has been remediated to meet Level A Protection as established by the Pennsylvania Department of Environmental Resources Cleanup Standards issued October 18, 1991. This states that the hydrocarbons are removed so that they are non-detectable thereby allowing the soil to be considered clean fill.

Certificate Issued To: U.S. ARMY FORT MONMOUTH

Authorized Signature: Albert J. Masters

Date: 8-3-93

APPENDIX D

ANALYTICAL DATA PACKAGE

ENVIRONMENTAL PROFILE LABORATORIES

ROUTE 37 BUSINESS PARK
SUITE 13
TOMS RIVER, NJ 08755
OFFICE: (908) 244-6278
FAX: (908) 244-6372

REPORT OF ANALYSIS

EPL# : 6920.1-.14
SAMPLE RECEIVED: 12/03/91
ANALYSIS START : 12/03/91
ANALYSIS COMP : 12/04/91

MATRIX: SOIL

TEST PARAMETERS: PETROLEUM HYDROCARBONS

These samples were analyzed by Infrared Spectrophometry.
Prep Analyses: EPA METHOD 418.1 Results expressed in ppm. (mg/Kg)

CLIENT I.D.	EPL#	RESULTS	MS % REC.	MSD % REC.	DET. LIMIT
EXTRACTION BLANK	NA	ND			10 mg/l
SB1-635	6920.1	ND	98	97	"
SB1-636	6920.2	ND			"
SB1-637	6920.3	ND			"
SB1-638	6920.4	ND			"
SB1-639	6920.5	ND			"
SB1-640	6920.6	25			"
SB1-641	6920.7	ND			"
SB1-642	6920.8	26300			1000 mg/K
SB1-643	6920.9	ND			"
SB1-644	6920.10	ND			"
SB1-645	6920.11	ND	78	78	"
SB1-646	6920.12	25			"
SB1-647	6920.13	ND			"
SB1-648	6920.14	200			"

ND= NOT DETECTED

Daniel K Wright

LABORATORY DIRECTOR
DANIEL K. WRIGHT

ENVIRONMENTAL PROFILE LABORATORIES

ROUTE 37 BUSINESS PARK
SUITE 13
TOMS RIVER, NJ 08755
OFFICE: (908) 244-6278
FAX: (908) 244-6372

REPORT OF ANALYSIS

SERV-AIR INC.	EPL ID # : 8137.10-.:
PO BOX 369	SAMPLE RECEIVED: 03/19/92
FT. MONMOUTH, NJ	ANALYSIS START : 03/19/92
	ANALYSIS COMPD. : 03/19/92
	PO # : R2-1414

MATRIX: SOIL

TEST PARAMETERS: PETROLEUM HYDROCARBONS

These samples were analyzed by Infrared Spectrophotometry.
Infrared Analyses: EPA METHOD 418.1 Results expressed as mg/Kg (ppm)

CLIENT ID	EPL#	RESULTS (mg/Kg)	METHOD DETECTION LIMI (mg/Kg)
C92-747	8137.10	7200	200 mg/Kg
C92-748	8137.11	2100	100 "
C92-749	8137.12	4300	100 "
C92-750	8137.13	5500	200 "
C92-751	8137.14	20	10 "

Daniel K. Wright

LABORATORY DIRECTOR
DANIEL WRIGHT

Sarah J. Hubbard
rec. 4-22-92

ENVIRONMENTAL PROFILE LABORATORIES
ROUTE 37 BUSINESS PARK
SUITE 13
TOMS RIVER, NJ 08755
OFFICE: (908) 244-6278
FAX: (908) 244-6372

LABORATORY ANALYSIS REPORT

CLIENT : Serv-Air Inc.

PROJECT: Serv-Air Inc.
BN+15 T=II

Report Number: 6920
Date Received: Dec, 02, 1991
Date Released: Dec, 06, 1991
Data Released By:

Daniel K. Wright
Laboratory Director

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CLIENT: Serv-Air Inc.

SAMPLE LOCATION AND IDENTIFICATION

LAB ID NUMBER	SAMPLE IDENTIFICATION	MATRIX
6920.8	C91-632	Soil
6920.14	C91-638	Soil

Environmental Profile Laboratories

CUSTOMER PURCHASE ORDER NO:

CHAIN OF CUSTODY RECORD

PROJECT NO.:

SAMPLER (SIGNATURE):

DATE / TIME

ANALYSIS PARAMETERS

CUSTOMER (NAME/ADDRESS)
Serv Air INC.

SITE NAME:

PHONE NO: (908) 542-4359

FAX NO:

LAB SAMPLE ID NUMBER	DATE/TIME	SAMPLE MATRIX	CUSTOMER SAMPLE LOCATION/ID NUMBER	NUMBER OF CONTAINERS	PAH	PRESERVATION METHOD	REMARKS	
6920.1	11:26	soil	C91-625	1	X		Do BN	<4°C
.2			C91-626	1	X		on 4 highest	
.3			C91-627	1	X		PAC's over	
.4			C91-628	1	X		100 ppm.	
.5			C91-629	1	X			
.6			C91-630	1	X		Don't Do	
.7			C91-631	1	X		anymore then	
.8	11:27		C91-632	1	X		4 BN's.	
.9			C91-633	1	X		Tier II on BN's	
.10			C91-634	1	X			
.11			C91-635	1	X			

Relinquished By (Signature)	DATE / TIME	Received By (Signature)	METHOD OF SHIPPING: Courier
Relinquished By (Signature)	DATE / TIME	Received By (Signature)	SHIPPED BY (Signature): RB
Relinquished By (Signature)	DATE / TIME	Recieved for Lab by (Signature): Robert Brouillette	DATE / TIME 6-3-91 8:00

NOTE: A DRAWING DEPICTING SAMPLE LOCATION SHOULD BE ATTACHED OR DRAWN ON THE REVERSE SIDE OF THIS CHAIN OF CUSTODY.

Environmental Profile Laboratories

CUSTOMER PURCHASE ORDER NO:

CHAIN OF CUSTODY RECORD

PROJECT NO.:

SAMPLER (SIGNATURE):

DATE / TIME

ANALYSIS PARAMETERS

CUSTOMER (NAME/ADDRESS)
Serv-Air

SITE NAME:

PHONE NO:

FAX NO:

LAB SAMPLE ID NUMBER	DATE/TIME	SAMPLE MATRIX	CUSTOMER SAMPLE LOCATION/ID NUMBER	NUMBER OF CONTAINERS	PHC	PRESERVATION METHOD	REMARKS
6A20.12	1127	Soil	C91-636	1	X		
.13	↓	↓	C91-637	1	X		
.14	↓	↓	C91-638	1	X		

Relinquished By (Signature)	DATE / TIME	Received By (Signature)	METHOD OF SHIPPING:
Relinquished By (Signature)	DATE / TIME	Received By (Signature)	SHIPPED BY (Signature):
Relinquished By (Signature)	DATE / TIME	Recieved for Lab by (Signature):	DATE / TIME

NOTE: A DRAWING DEPICTING SAMPLE LOCATION SHOULD BE ATTACHED OR DRAWN ON THE REVERSE SIDE OF THIS CHAIN OF CUSTODY.

CHAIN OF CUSTODY RECORD

NAME: SERV-AIR INC.
LOCATION: PO BOX 369 BLDG 490
Ft. MONMOUTH NJ 07703 (908)542-4359

PLERS: Charles Appleby UST# - 192486
fing 3050, 7.5K #2 oil - TMS - C-91-2839

LE	DATE	TIME	MAT RIX	COMP	GRAB	SAMPLE LOCATION	NUMBER OF CONTAINERS	ANALYSES REQUESTED: TPHC	REMAPKS
2	11/26/91	1515	Soil		X	3050 - A	1	X	
24		1516				3050 - B	1	X	Analyze all
27		1517				3050 - C	1	X	Samples for
28		1518				3050 - D	1	X	tPHC. IF
29		1519				3050 - E	1	X	Any are greater
30		1520				3050 - F	1	X	than 100 ppm tPHC
31	V	1521				3050 - G	1	X	Analyze highest
32	11/26 91	1115				3050 - H	1	X	Concentrations for
33	27	1028				3050 - I	1	X	BNH15 (max 4
34		1023				3050 - J	1	X	BNH15 Analysis)
3		1018				3050 - K	1	X	
36		1013				3050 - L	1	X	All Samples Kept
37	V	1008				3050 - M	1	X	<4°C, glass w/
38		1003				3050 - N	1	X	teflon Lids
							14		Tier II on BNs

: CONTAINERS ED BY: C. Appleby	RELINQUISHED BY:	DATE TIME 12/2/91	RECEIVED BY: Robert Brouillette
UISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:
DATE TIME	RECEIVED BY:		
UISHED AT TORY BY:	DATE TIME 12-2-91	RECEIVED AT LABORATORY BY:	REMARKS

LABORATORY CHRONICLE

SAMPLE NUMBER	6920.8	6920.14					
Received & Refrigerated Date	12/03/91	12/03/91					
Organics Extraction Date							
BN/ABN	12/04/91	12/04/91					
PCB's	NA	NA					
Analysis Date							
BN/ABN	12/04/91	12/04/91					
PCB's	NA	NA					
Volatiles	NA	NA					
TPHC's	NA	NA					
Metals	NA	NA					
Total Solids	12/04/91	12/04/91					
Organic Supervisor Review & Approval	Brian K. McKee						12/13/91
Inorganic Supervisor Review & Approval							

METHOD SUMMARY

Base Neutrals / Acid Extractables

The semivolatile samples in this report have been analyzed using the method cited in the USEPA-CLP-IFB version 2/88. The CLP semivolatile method is based on USEPA Method 625 and SW-846 method 8270.

Three acid and/or three base/neutral surrogates are added to each sample. Aqueous samples are extracted with methylene chloride; soil samples are extracted with a 1 to 1 solution of methylene chloride and acetone. The extracts are then concentrated and the internal standards are added. An Hewlett Packard 5890 GC coupled to the HP 5970 MSD was used for the analysis and data collection.

GC/MS

ORGANIC NON-CONFORMANCE SUMMARY

GC/MS TUNE FREQUENCY:- All samples,blanks,standards and matrix spikes were analyzed within the respective 12 hour tune periods.

INITIAL CALIBRATION REQUIREMENTS:
No CCC or SPCC compound was outside of QC limits.

CONTINUING CALIBRATION REQUIREMENTS:
No CCC or SPCC compound was outside of QC limits

DETECTION LIMITS:- Detection limits and search results were modified by dilution or percent solid.*

* All values reported on a DRY WEIGHT basis where applicable

MATRIX SPIKE RECOVERY:- No matrix spike compound was outside QC limits

INTERNAL STANDARD AREA:-

CLIENT ID #	NUMBER OF INTERNAL STANDARD AREA(S) out of QC limits.
6920	1

SURROGATE RECOVERY:-

Client ID #	Surrogates outside QC limits
None	0

ANALYSIS TIME:- All samples were extracted and analyzed within the prescribed holding times.

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following "results qualifiers" are used:

VALUE - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, "10U". This is not necessarily the instrument detection limit. The figure represents the minimum detection limit attainable for this particular sample based on any concentration or dilution that may have been required.

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

1) When estimating a concentration for tentatively identifid compounds (library search hits) where a 1:1 response is assumed.
2) When the mass spectral data indicated the identification criteria, however, the result was less than the specified detection limit but greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated, report as "3J".

B - Indicates the analyte was found in the blank as well as the sample; report as "12B".

E - Indicates the analyte concentration exceeds the calibrated range of the GC/MS instrument for that specific analysis.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Environmental Profile Laboratories
BASE/NEUTRAL/ACID ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NAME	6920.8 30g	DILUTION FACTOR	1.00
CLIENT ID		QA BATCH	
DATA FILES	>A2260 and >A2266	DATES ANALYZED	12/04/91, 12/05/91

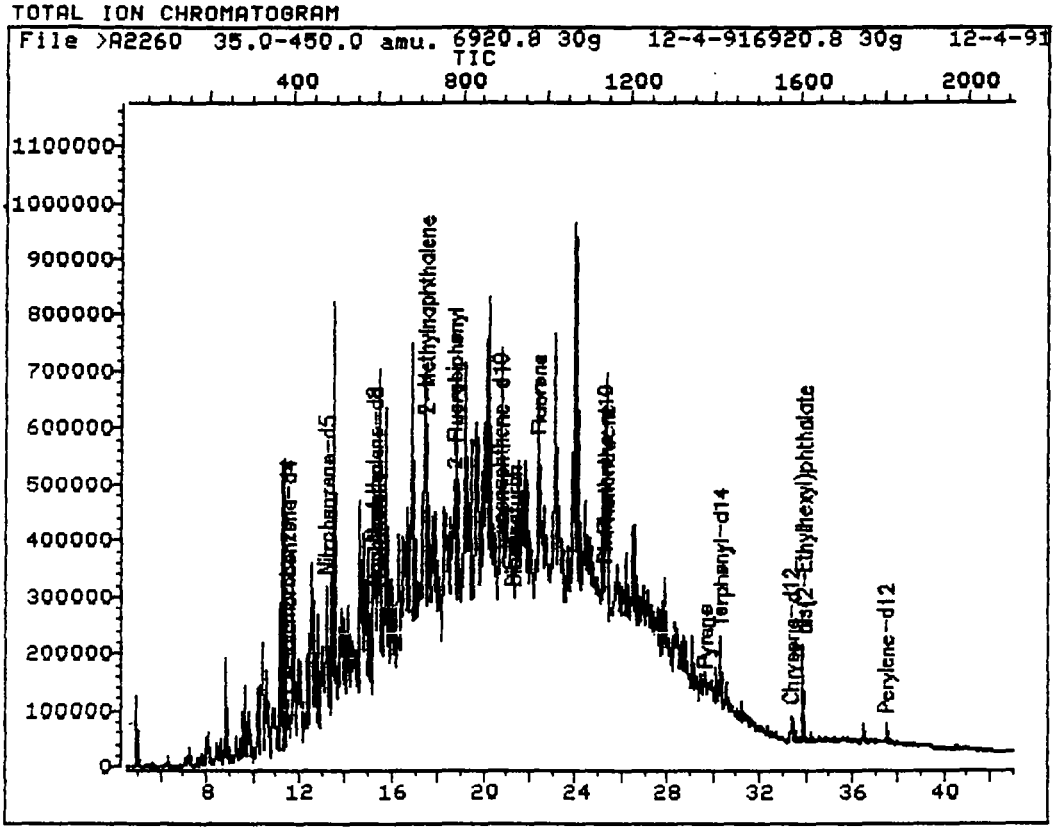
COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-nitroso-dimethylamine	ND	380	Diethylphthalate	ND	380
bis(2-Chloroethyl)Ether	ND	380	4-Chlorophenyl-phenylether	ND	380
1,3-Dichlorobenzene	ND	380	Fluorene	1500	380
1,4-Dichlorobenzene	ND	380	N-Nitrosodiphenylamine	ND	380
Benzyl alcohol	ND	380	4-Bromophenyl-phenylether	ND	380
1,2-Dichlorobenzene	ND	380	Hexachlorobenzene	ND	380
bis(2-chloroisopropyl)ether	ND	380	Phenanthrene	6000	380
N-Nitroso-Di-n-propylamine	ND	380	Anthracene	ND	380
Hexachloroethane	ND	380	Di-n-butylphthalate	ND	380
Nitrobenzene	ND	380	Fluoranthene	ND	380
Isophorone	ND	380	Benzidine	ND	380
Benzoic Acid	ND	380	Pyrene	370 J	380
bis(2-Chloroethoxy)methane	ND	380	Butylbenzylphthalate	ND	380
1,2,4-Trichlorobenzene	ND	380	3,3`-Dichlorobenzidine	ND	380
Naphthalene	3600	380	Benzo(a)anthracene	ND	380
Hexachlorobutadiene	ND	380	bis(2-Ethylhexyl)phthalate	2400	380
2-Methylnaphthalene	12000	380	Chrysene	ND	380
Hexachlorocyclopentadiene	ND	380	Di-n-octylphthalate	ND	380
2-Chloronaphthalene	ND	380	Benzo(b)fluoranthene	ND	380
Dimethylphthalate	ND	380	Benzo(k)fluoranthene	ND	380
Acenaphthylene	ND	380	Benzo(a)pyrene	ND	380
Acenaphthene	ND	380	Indeno(1,2,3-cd)pyrene	ND	380
Dibenzofuran	520	380	Dibenz(a,h)anthracene	ND	380
2,6-Dinitrotoluene	ND	380	Benzo(g,h,i)perylene	ND	380
2,4-Dinitrotoluene	ND	380	1,2-Diphenylhydrazine	ND	380

Percent Solid of 88.0 is used for all Target --

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detecte

~~total~~ PPB
BN +15 = 14700
TIC = 38790, PPB

TOTAL ION CHROMATOGRAM

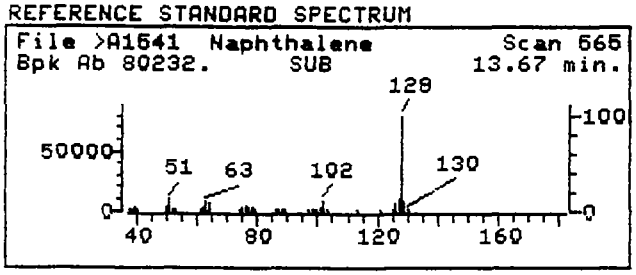


Data File: >A2260::D3 Quant Output File: ^A2260::DB
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91 BTL# 8

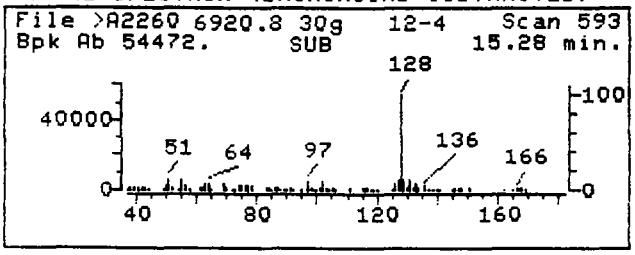
Id File: IDBNA::D4
Title: Semivolatile Organics (EPA Methods 625/8270) by GC/MS
Last Calibration: 911127 14:01

Operator ID: MARK
Quant Time: 911204 23:21
Injected at: 911204 22:37

REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



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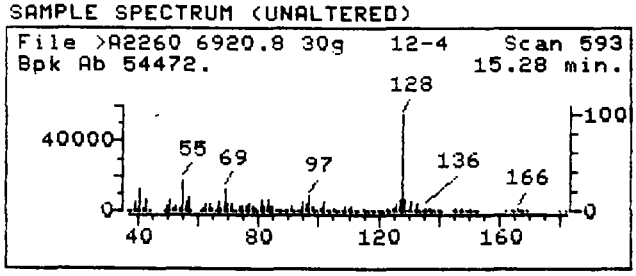
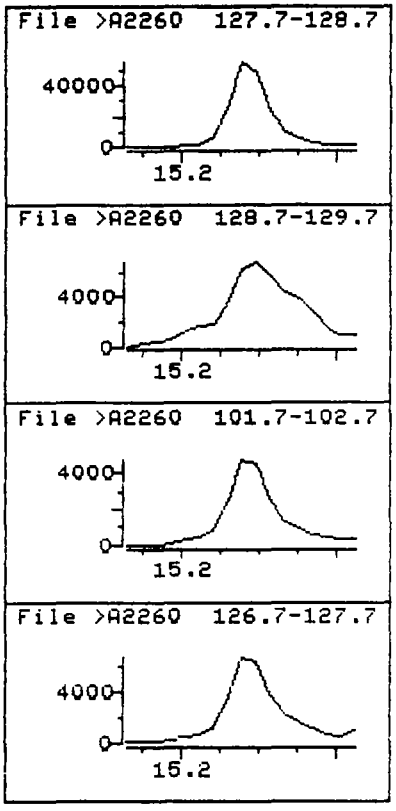




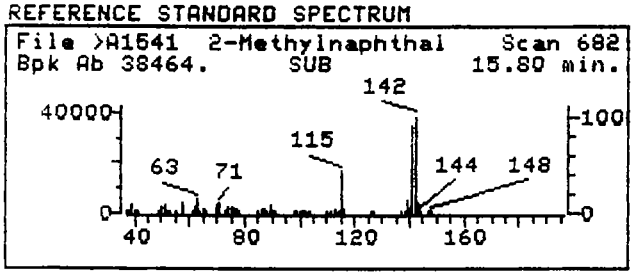
Data File: >A2260::D3
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91
Quant Time: 911204 23:21
Injected at: 911204 22:37

Quant Output File: ^A2260::DB

BTL# 8
Quant ID File: IDBNA::D4
Last Calibration: 911127 14:01

Compound No: 29
Compound Name: Naphthalene
Scan Number: 593
Retention Time: 15.28 min.
Quant Ion: 128.0
Area: 206354
Concentration: 93.79 ng/uL
q-value: 98

REFERENCE STANDARD SPECTRUM



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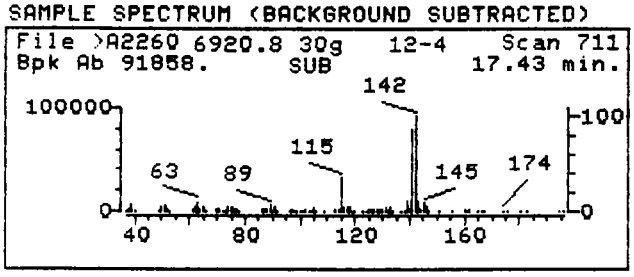

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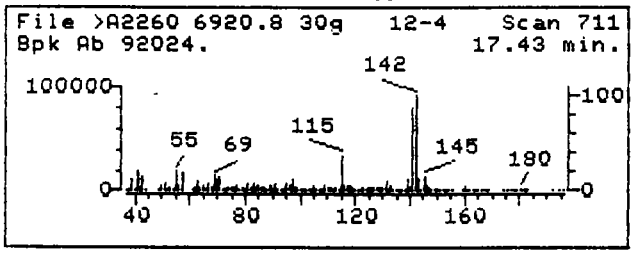
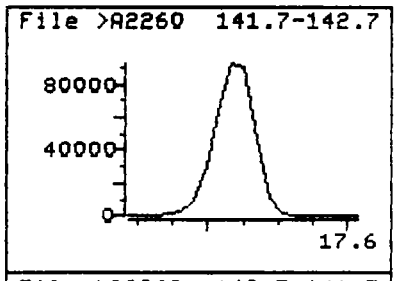
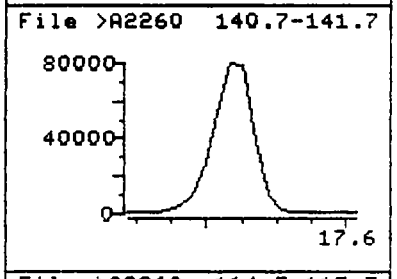
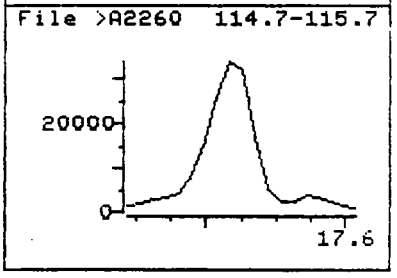






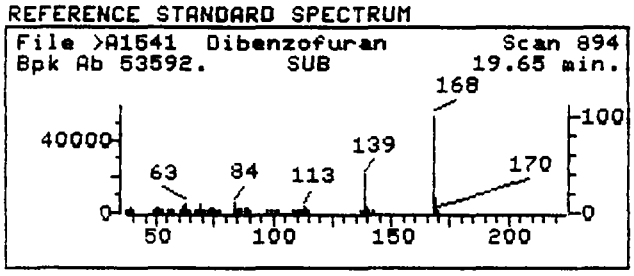


Data File: >A2260::D3 Quant Output File: ^A2260::DB
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91 BTL# 8
Quant Time: 911204 23:21 Quant ID File: IDBNA::D4
Injected at: 911204 22:37 Last Calibration: 911127 14:01

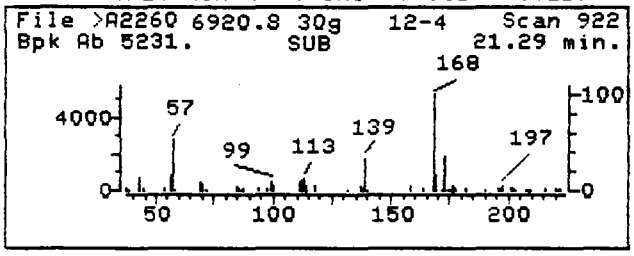
Compound No: 33
Compound Name: 2-Methylnaphthalene
Scan Number: 711
Retention Time: 17.43 min.
Quant Ion: 142.0
Area: 382484
Concentration: 310.27 ng/uL
q-value: 90

See >A2266

REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



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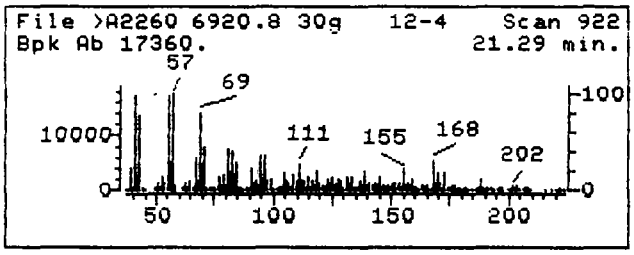
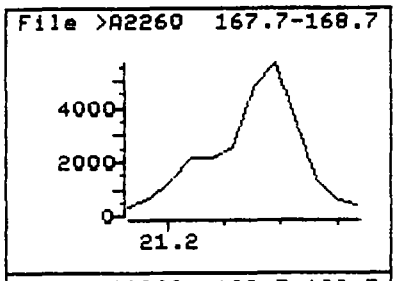
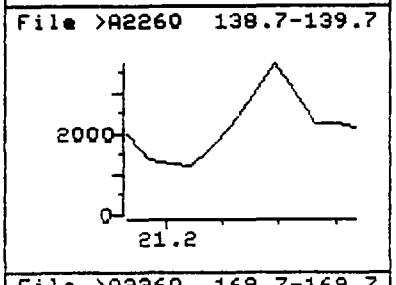
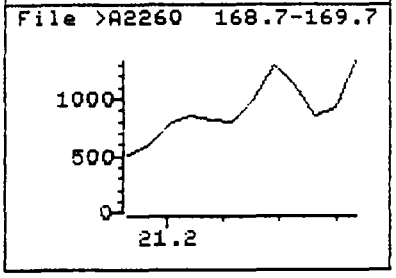








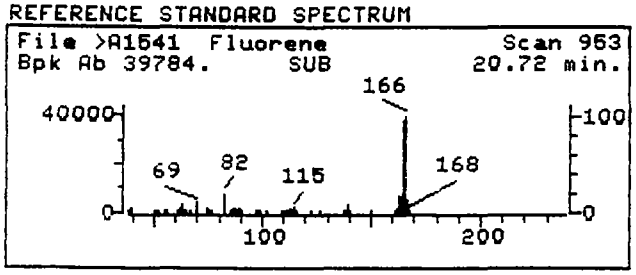
Data File: >A2260::D3
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91
Quant Time: 911204 23:21
Injected at: 911204 22:37

Quant Output File: ^A2260::DB

BTL# 8
Quant ID File: IDBNA::D4
Last Calibration: 911127 14:01

Compound No: 47
Compound Name: Dibenzofuran
Scan Number: 922
Retention Time: 21.29 min.
Quant Ion: 168.0
Area: 23182
Concentration: 13.80 ng/uL
q-value: 90

REFERENCE STANDARD SPECTRUM



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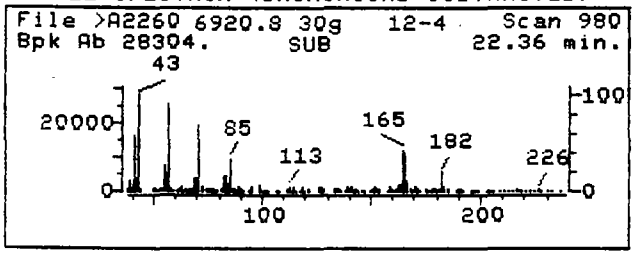
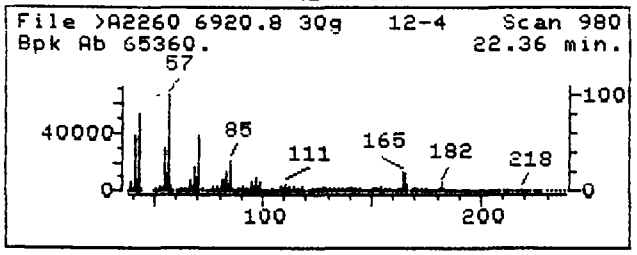
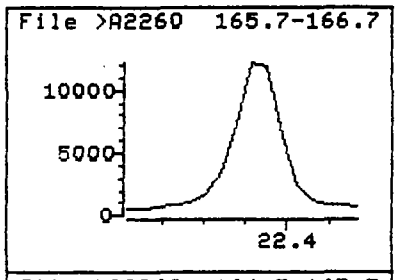
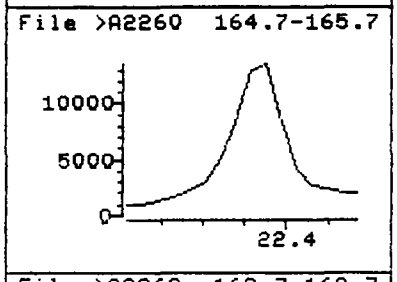
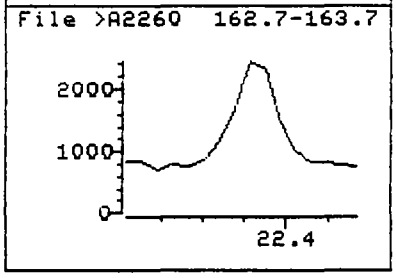


SAMPLE SPECTRUM (UNALTERED)









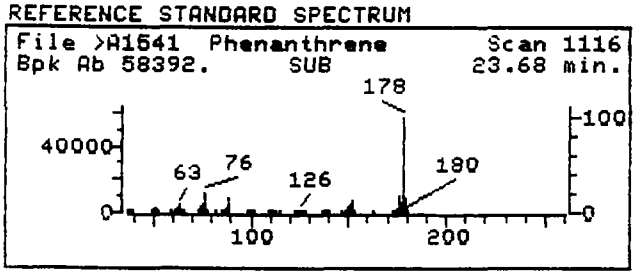
Data File: >A2260::D3
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91
Quant Time: 911204 23:21
Injected at: 911204 22:37

Quant Output File: ^A2260::DB

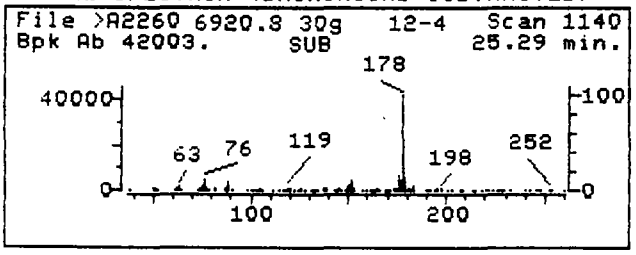
BTL# 8
Quant ID File: IDBNA::D4
Last Calibration: 911127 14:01

Compound No: 52
Compound Name: Fluorene
Scan Number: 980
Retention Time: 22.36 min.
Quant Ion: 166.0
Area: 48992
Concentration: 39.27 ng/uL
q-value: 91

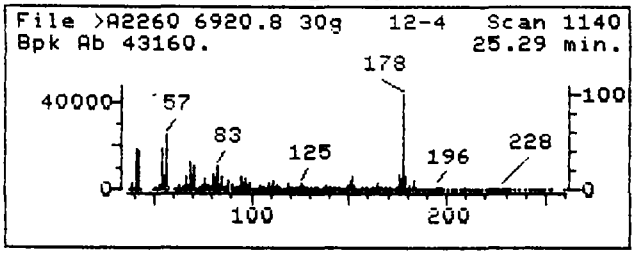
REFERENCE STANDARD SPECTRUM

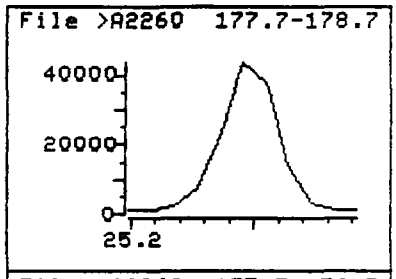


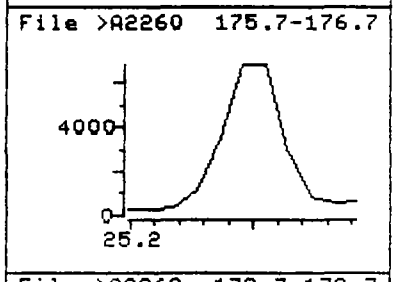
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

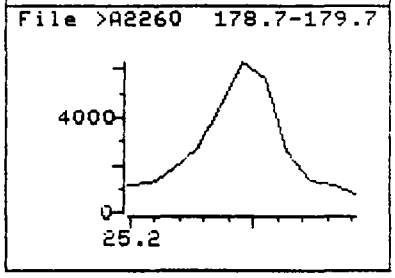


SAMPLE SPECTRUM (UNALTERED)









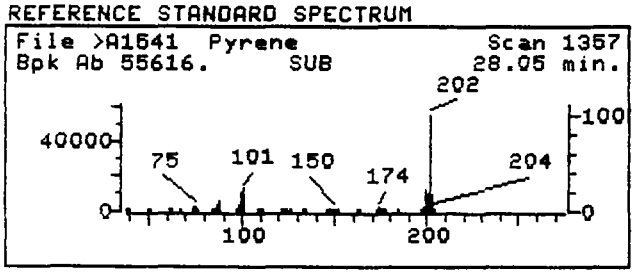
Data File: >A2260::D3
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91
Quant Time: 911204 23:21
Injected at: 911204 22:37

Quant Output File: ^A2260::DB

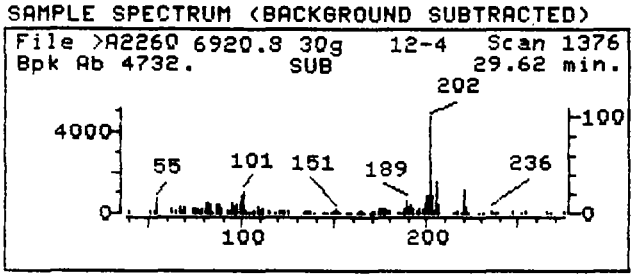
BTL# 8
Quant ID File: IDBNA::D4
Last Calibration: 911127 14:01

Compound No: 62
Compound Name: Phenanthrene
Scan Number: 1140
Retention Time: 25.29 min.
Quant Ion: 178.0
Area: 136847
Concentration: 158.26 ng/uL
q-value: 95

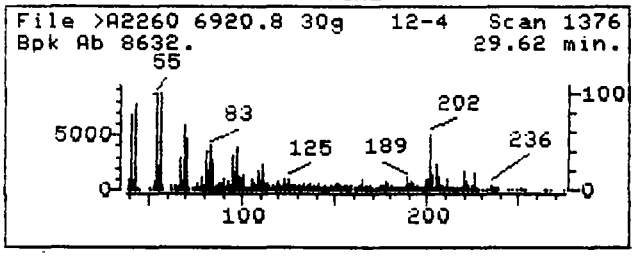
REFERENCE STANDARD SPECTRUM

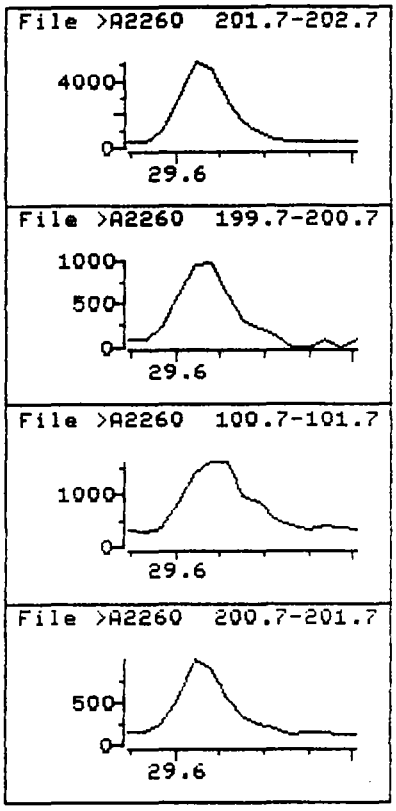


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





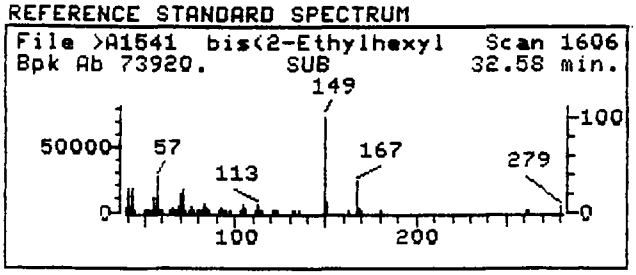
Data File: >A2260::D3
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91
Quant Time: 911204 23:21
Injected at: 911204 22:37

Quant Output File: ^A2260::DB

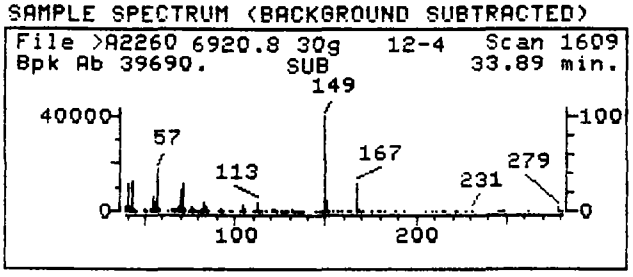
BTL# 8
Quant ID File: IDBNA::D4
Last Calibration: 911127 14:01

Compound No: 68
Compound Name: Pyrene
Scan Number: 1376
Retention Time: 29.62 min.
Quant Ion: 202.0
Area: 18699
Concentration: 9.79 ng/uL
q-value: 90

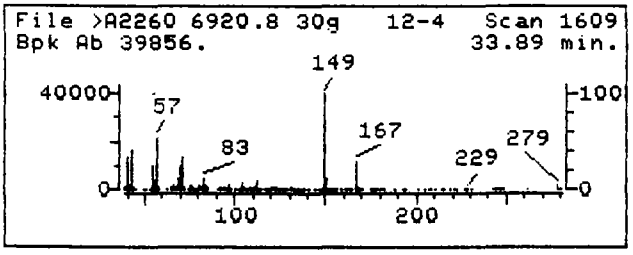
REFERENCE STANDARD SPECTRUM

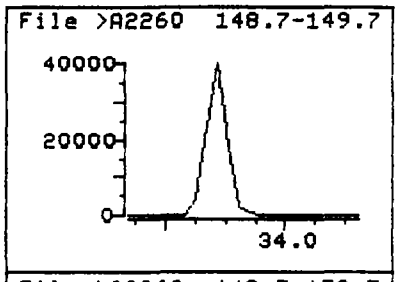


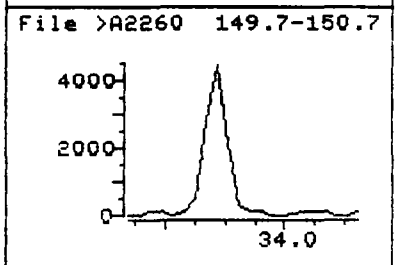
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

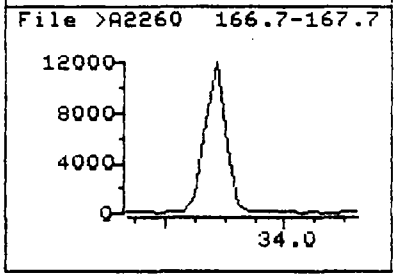


SAMPLE SPECTRUM (UNALTERED)





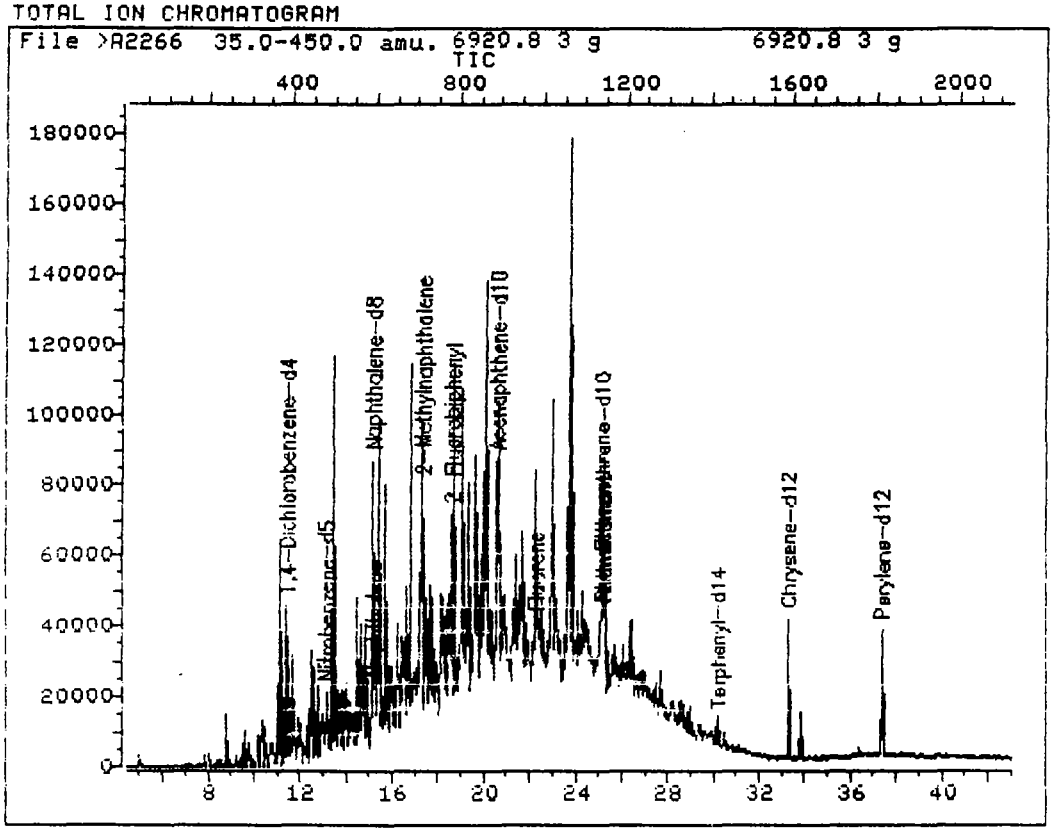




Data File: >A2260::D3 Quant Output File: ^A2260::DB
Name: 6920.8 30g 12-4-91
Misc: 6920.8 30g 12-4-91 BTL# 8
Quant Time: 911204 23:21 Quant ID File: IDBNA::D4
Injected at: 911204 22:37 Last Calibration: 911127 14:01

Compound No: 73
Compound Name: bis(2-Ethylhexyl)phthalate
Scan Number: 1609
Retention Time: 33.89 min.
Quant Ion: 149.0
Area: 97618
Concentration: 63.26 ng/uL
q-value: 95

TOTAL ION CHROMATOGRAM

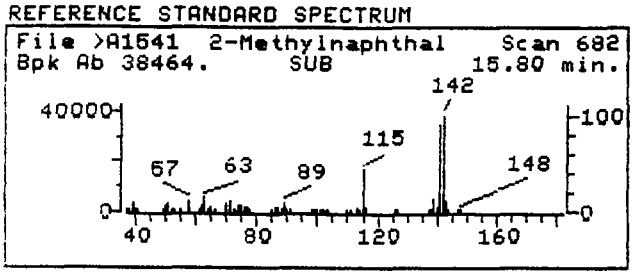


Data File: >A2266::D3 Quant Output File: ^A2266::DB
Name: 6920.8 3 g
Misc: 6920.8 3 g BTL# 3

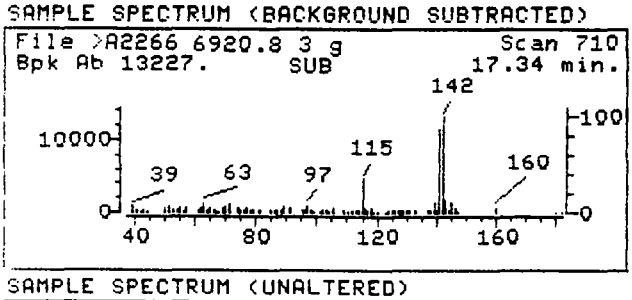
Id File: IDBNA::D4
Title: Semivolatile Organics (EPA Methods 625/8270) by GC/MS
Last Calibration: 911205 14:06

Operator ID: MARK
Quant Time: 911205 17:14
Injected at: 911205 16:30

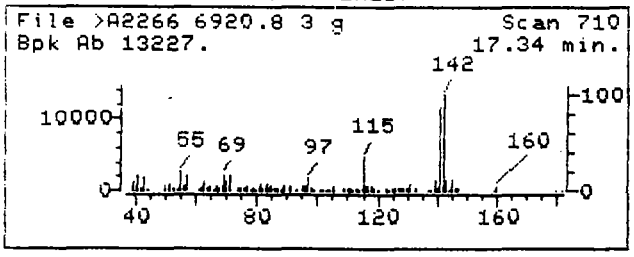
REFERENCE STANDARD SPECTRUM

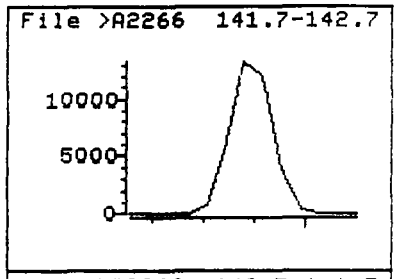


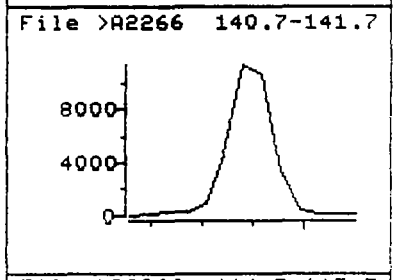
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

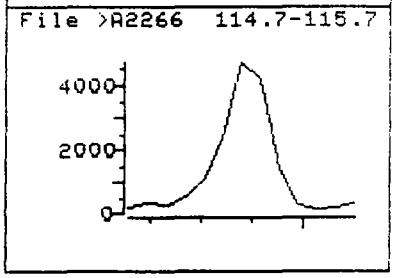


SAMPLE SPECTRUM (UNALTERED)









Data File: >A2266::D3
Name: 6920.8 3 g
Misc: 6920.8 3 g
Quant Time: 911205 17:14
Injected at: 911205 16:30

Quant Output File: ^A2266::DB

BTL# 3

Quant ID File: IDBNA::D4
Last Calibration: 911205 14:06

Compound No: 33
Compound Name: 2-Methylnaphthalene
Scan Number: 710
Retention Time: 17.34 min.
Quant Ion: 142.0
Area: 39275
Concentration: 31.90 ng/uL
q-value: 89

for re-Quant purposes

Environmental Profile Laboratories
BASE/NEUTRAL/ACID ANALYSIS DATA

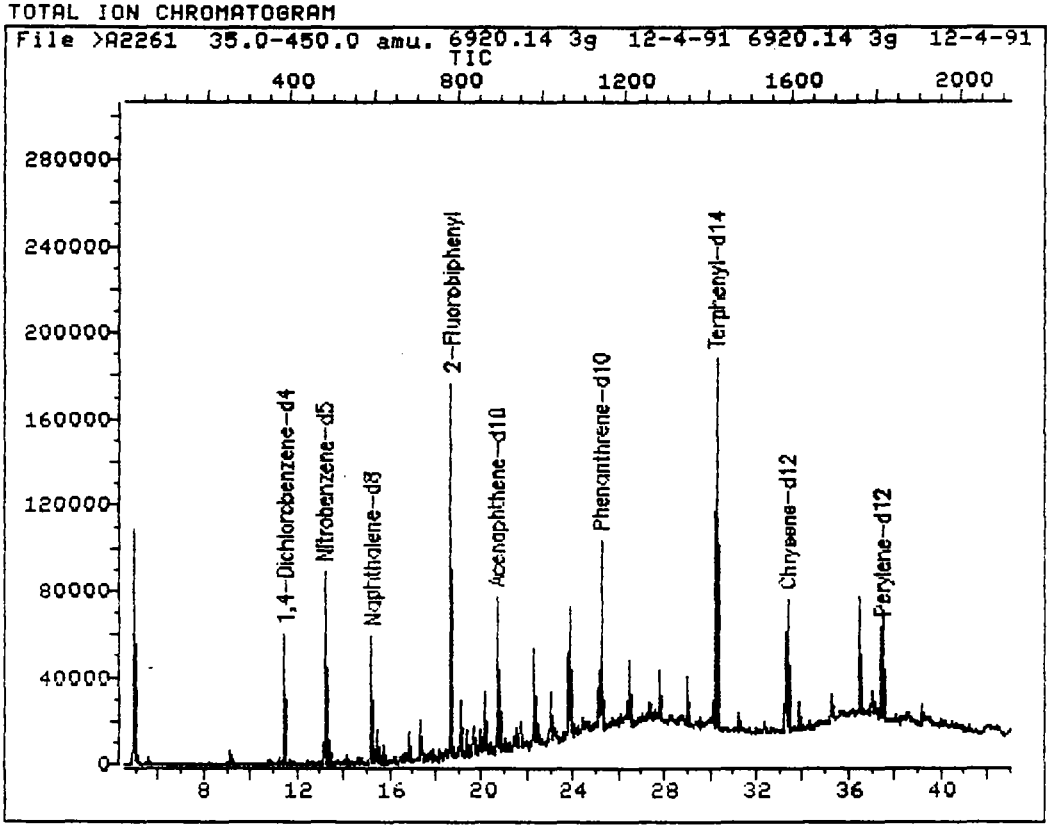
JOB NUMBER		MATRIX	Soil
SAMPLE NAME	6920.14 3g 12-4-91	DILUTION FACTOR	10.00
CLIENT ID		QA BATCH	
DATA FILE	>A2261	DATE ANALYZED	12/04/91

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-nitroso-dimethylamine	ND	3800	Diethylphthalate	ND	3800
bis(2-Chloroethyl)Ether	ND	3800	4-Chlorophenyl-phenylether	ND	3800
1,3-Dichlorobenzene	ND	3800	Fluorene	ND	3800
1,4-Dichlorobenzene	ND	3800	N-Nitrosodiphenylamine	ND	3800
Benzyl alcohol	ND	3800	4-Bromophenyl-phenylether	ND	3800
1,2-Dichlorobenzene	ND	3800	Hexachlorobenzene	ND	3800
bis(2-chloroisopropyl)ether	ND	3800	Phenanthrene	ND	3800
N-Nitroso-Di-n-propylamine	ND	3800	Anthracene	ND	3800
Hexachloroethane	ND	3800	Di-n-butylphthalate	ND	3800
Nitrobenzene	ND	3800	Fluoranthene	ND	3800
Isophorone	ND	3800	Benzidine	ND	3800
Benzoic Acid	ND	3800	Pyrene	ND	3800
bis(2-Chloroethoxy)methane	ND	3800	Butylbenzylphthalate	ND	3800
1,2,4-Trichlorobenzene	ND	3800	3,3`-Dichlorobenzidine	ND	3800
Naphthalene	ND	3800	Benzo(a)anthracene	ND	3800
Hexachlorobutadiene	ND	3800	bis(2-Ethylhexyl)phthalate	ND	3800
2-Methylnaphthalene	ND	3800	Chrysene	ND	3800
Hexachlorocyclopentadiene	ND	3800	Di-n-octylphthalate	ND	3800
2-Chloronaphthalene	ND	3800	Benzo(b)fluoranthene	ND	3800
Dimethylphthalate	ND	3800	Benzo(k)fluoranthene	ND	3800
Acenaphthylene	ND	3800	Benzo(a)pyrene	ND	3800
Acenaphthene	ND	3800	Indeno(1,2,3-cd)pyrene	ND	3800
Dibenzofuran	ND	3800	Dibenz(a,h)anthracene	ND	3800
2,6-Dinitrotoluene	ND	3800	Benzo(g,h,i)perylene	ND	3800
2,4-Dinitrotoluene	ND	3800	1,2-Diphenylhydrazine	ND	3800

Percent Solid of 88.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

TOTAL ION CHROMATOGRAM



Data File: >A2261::D3 Quant Output File: ^A2261::DB
Name: 6920.14 3g 12-4-91
Misc: 6920.14 3g 12-4-91 BTL# 9

Id File: IDBNA::D4
Title: Semivolatile Organics (EPA Methods 625/8270) by GC/MS
Last Calibration: 911127 14:01

Operator ID: MARK
Quant Time: 911205 00:14
Injected at: 911204 23:30

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO: 6920.8 30g

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Soil

Sample wt/vol: 30 (g/mL) g

Level: (Low/med) Low

Extraction: (Sepf/Cont/Sonc) Sonicator

GPC Cleanup: (Y/N) N

Lab Sample ID: 6920.8 30g

Lab File ID: >A2260

Date Received: 12-03-91

Date Extracted: 12-04-91

Date Analyzed: 12/04/91

Dilution Factor: 30

Number of TICs found: 15

CONCENTRATION UNITS: ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	124185	Decane	11.23	6600	94
2	17302282	Nonane, 2,6-dimethyl-	11.74	5400	60
3	1120214	Undecane	13.44	2340	94
4	767588	1H-Indene, 2,3-dihydro-1-met	14.57	1230	73
5	629505	Tridecane	15.46	2220	83
6	6044719	Dodecane, 6-methyl-	15.73	1500	74
7	17257806	Ethanone, 1-(3-butyloxiranyl	16.50	1410	40
8	1680519	Naphthalene, 1,2,3,4-tetrahy	16.87	2070	62
9	629594	Tetradecane	19.13	1080	70
10	575371	Naphthalene, 1,7-dimethyl-	19.41	1170	93
11	1127760	Naphthalene, 1-ethyl-	19.68	1080	70
12	77305	2,4,6(1H,3H,5H)-Pyrimidinetr	19.99	1410	47
13	55045108	Tridecane, 6-propyl-	20.18	1380	78
14	17312822	Undecane, 4,6-dimethyl-	23.07	4200	58
15	62016335	Octane, 2,3,6-trimethyl-	23.92	5700	36

MS data file header from : >A2260

Sample: 6920.8 30g 12-4-91 Operator: MARK SUPER GRP. 12/04/91 22:37
Misc : 6920.8 30g 12-4-91 BTL# 8
Sys. #: 2 MS model: 70 SW/HW rev.: IA ALS # : 0
Method file: BNARUN Tuning file: MTUNE2 No. of extra records: 2
Source temp.: 0 Analyzer temp.: 280 Transfer line temp. : 0

Chromatographic temperatures :	35.	300.	0.	0.	0.
Chromatographic times, min. :	3.0	6.9	0.0	0.0	0.0
Chromatographic rate, deg/min:	8.0	0.0	0.0	.2	0.0

>A2260 6920.8 30g 12-4-916920.8 30g 12-4-91
35.0 450.0 CLP TIC
Upslope: .20 Area Reject: 33251. Max Peaks: 15 Bunching: 1
Dnslope: 0.00 Results File IA2260 Sorted by Time/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	11.23	368	371	375	513135	1878686	1641131	61.16	6.30
2	11.74	396	399	404	319851	1854054	1330248	49.57	5.10
3	13.44	487	492	497	728492	3740817	2683387	100.00	10.30
4	14.57	551	554	557	337163	2306000	1433437	53.42	5.50
5	15.46	601	603	611	538438	4385676	2562612	95.50	9.83
6	15.73	614	618	624	453509	3781970	1744241	65.00	6.69
7	16.50	652	660	664	197321	4378729	1633483	60.87	6.27
8	16.87	674	680	684	501731	5162162	2404125	89.59	9.23
9	19.13	800	804	806	346484	3659146	1232262	45.92	4.73
10	19.41	816	819	825	282716	4256796	1323114	49.31	5.08
11	19.68	830	834	836	259834	3531998	1219806	45.46	4.68
12	19.99	845	851	854	282861	4820169	1585621	59.09	6.08
13	20.18	858	861	864	462971	4043288	1554545	57.93	5.96
14	23.07	1016	1019	1023	408138	4332030	1559952	58.13	5.98
15	23.92	1062	1065	1069	601273	5018027	2136848	79.63	8.20

Sum of corrected areas: 26044816.

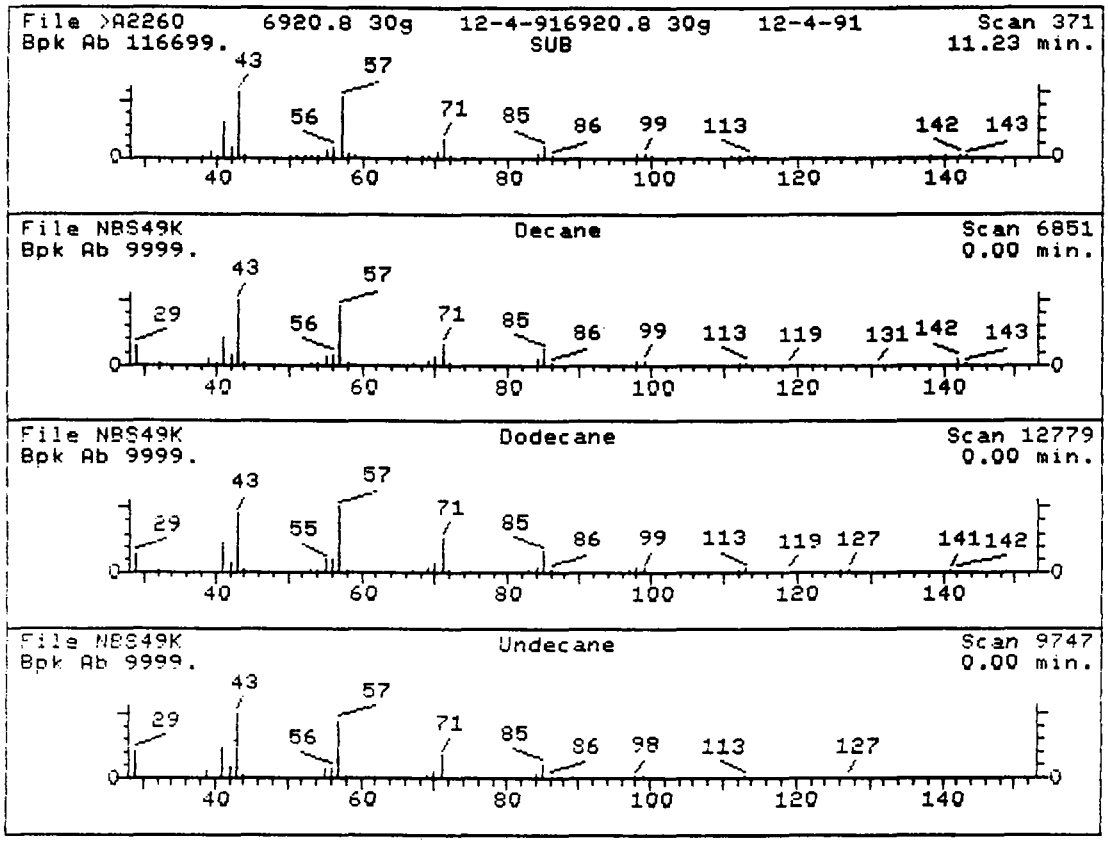
Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	40.0	293095.	11.49	4.51 - 13.35
2	40.0	1383829.	15.22	13.35 - 17.96
3	40.0	1353519.	20.69	17.96 - 22.96
4	40.0	452577.	25.24	22.96 - 29.30
5	40.0	166254.	33.36	29.30 - 35.40
6	40.0	420718.	37.44	35.40 - 43.02

'^' Dilution Factor = 1.00 U dilf = 1.00
Method called for 1000.000 g or mL This sample was 1000.000 g or mL

Correction Factor = 1.00

2

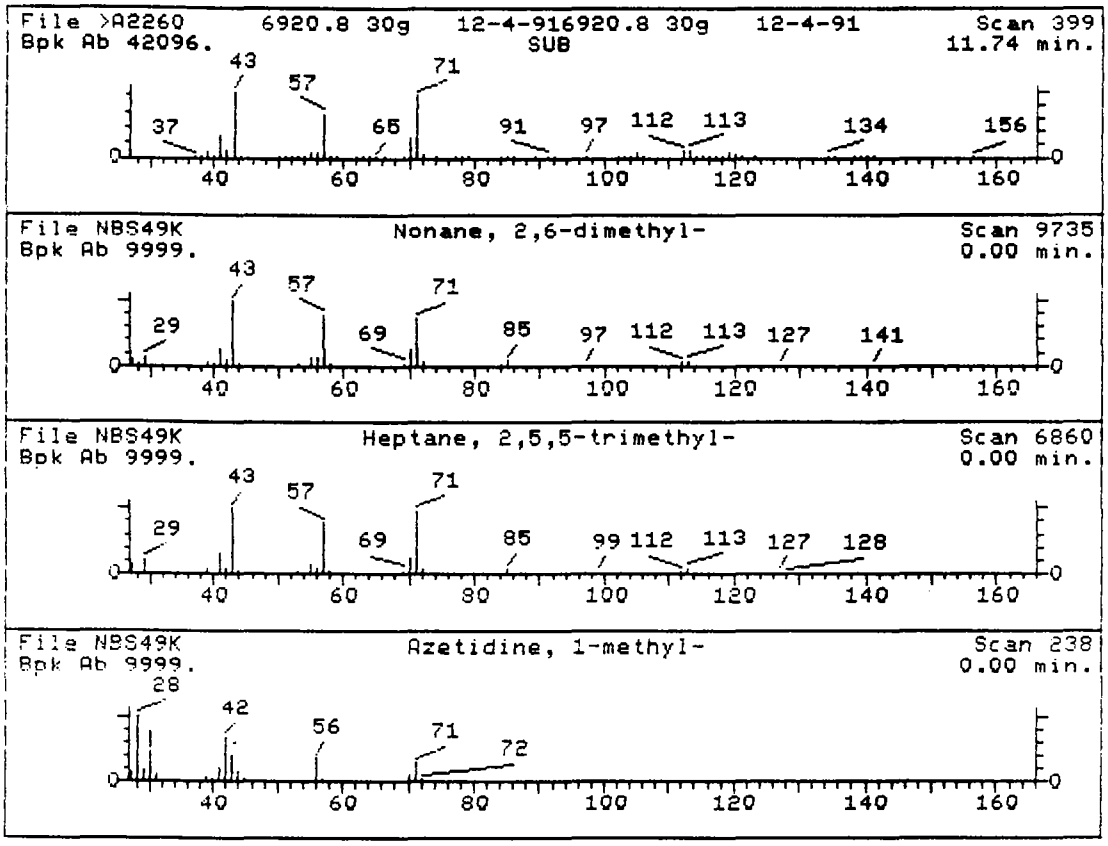


UNKNOWN #,1
AREA = 1641131. TENTATIVE CONCENTRATION IS 220.00

1.	Decane	142 C10H22
2.	Dodecane	170 C12H26
3.	Undecane	156 C11H24
4.	Octane, 2,4,6-trimethyl-	156 C11H24
5.	Decane, 6-ethyl-2-methyl-	184 C13H28
6.	Undecane, 5-ethyl-	184 C13H28

Sample file: >A2260 Spectrum #: 371
Search speed: 1 Tilting option: F No. of ion ranges searched: 51

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	94*	124185	18079	NBS49K	91	9	1	4	90	0	72	92
2.	83	112403	6732	NBS49K	75	24	2	4	71	3	57	21
3.	83	1120214	6682	NBS49K	71	26	2	0	79	3	57	26
4.	83	62016379	6679	NBS49K	63	22	2	0	75	3	57	22
5.	70	62108218	6767	NBS49K	56	43	2	0	65	7	42	15
6.	70	17453940	6776	NBS49K	49	49	2	0	75	7	42	12

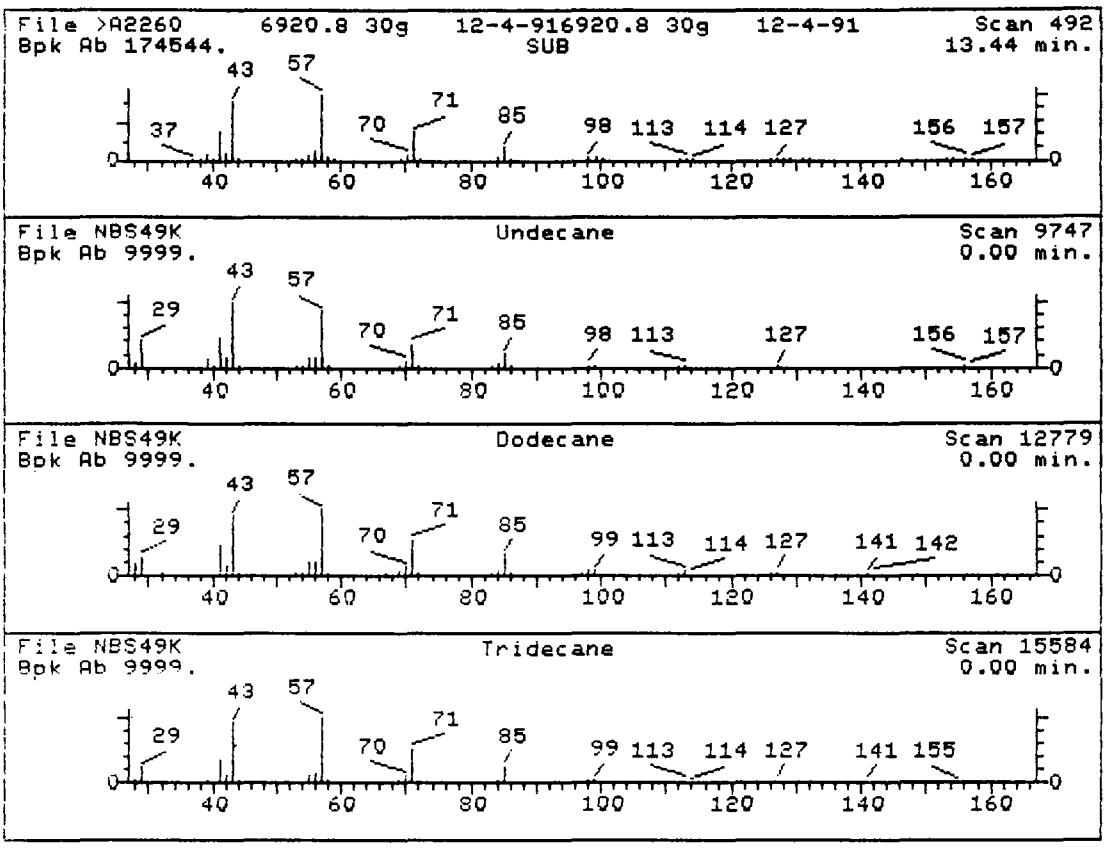


UNKNOWN #,2
AREA = 1330248. TENTATIVE CONCENTRATION IS 180.00

1.	Nonane, 2,6-dimethyl-	156 C11H24
2.	Heptane, 2,5,5-trimethyl-	142 C10H22
3.	Azetidine, 1-methyl-	71 C4H9N
4.	Octane, 3-ethyl-	142 C10H22
5.	Ethane, isocyanato-	71 C3H5NO
6.	2-Furanmethanol, tetrahydro-, acetate	144 C7H1203

Sample file: >A2260 Spectrum #: 399
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	60	17302282	4354	NBS49K	47	46	2	0	86	15	30	13
2.	52	1189997	4328	NBS49K	46	44	2	0	88	17	20	14
3.	35*	4923799	4254	NBS49K	23	78	3	0	187	27	14	12
4.	35	5881174	4326	NBS49K	52	41	0	0	68	50	11	31
5.	28*	109900	4251	NBS49K	24	49	2	0	122	37	10	14
6.	26	637649	4334	NBS49K	36	47	2	0	100	39	10	12



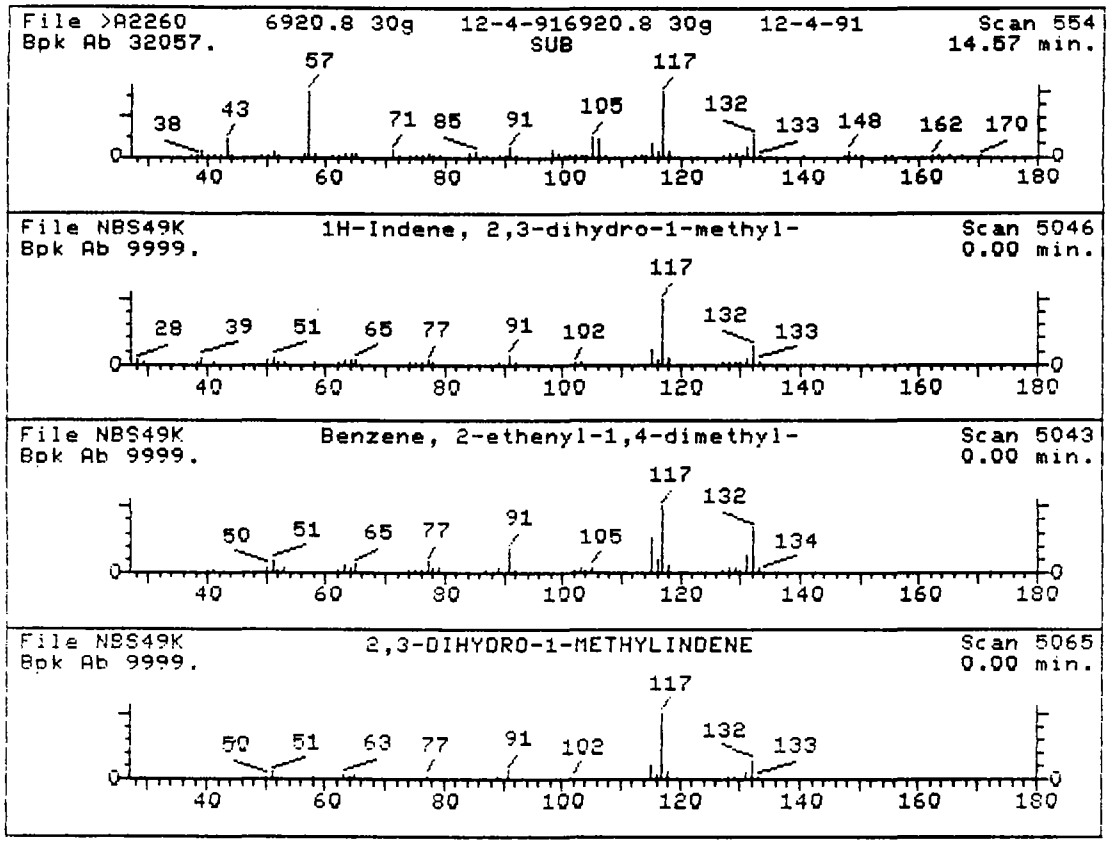
UNKNOWN #,3
AREA = 2683387. TENTATIVE CONCENTRATION IS 78.00

1.	Undecane	156 C11H24
2.	Dodecane	170 C12H26
3.	Tridecane	184 C13H28
4.	Tetradecane	198 C14H30
5.	Undecane, 4,6-dimethyl-	184 C13H28
6.	Heptadecane, 2,6,10,14-tetramethyl-	296 C21H44

Sample file: >A2260 Spectrum #: 492
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	94*	1120214	6682	NBS49K	80	17	0	0	78	13	64	94
2.	83	112403	6732	NBS49K	87	12	2	4	71	3	57	27
3.	83	629505	6761	NBS49K	76	30	2	0	81	3	57	27
4.	83	629594	6804	NBS49K	76	32	2	3	92	3	57	21
5.	78	17312822	4387	NBS49K	60	38	2	0	84	3	55	19
6.	78	18344371	6880	NBS49K	67	62	2	0	67	3	55	14

JC

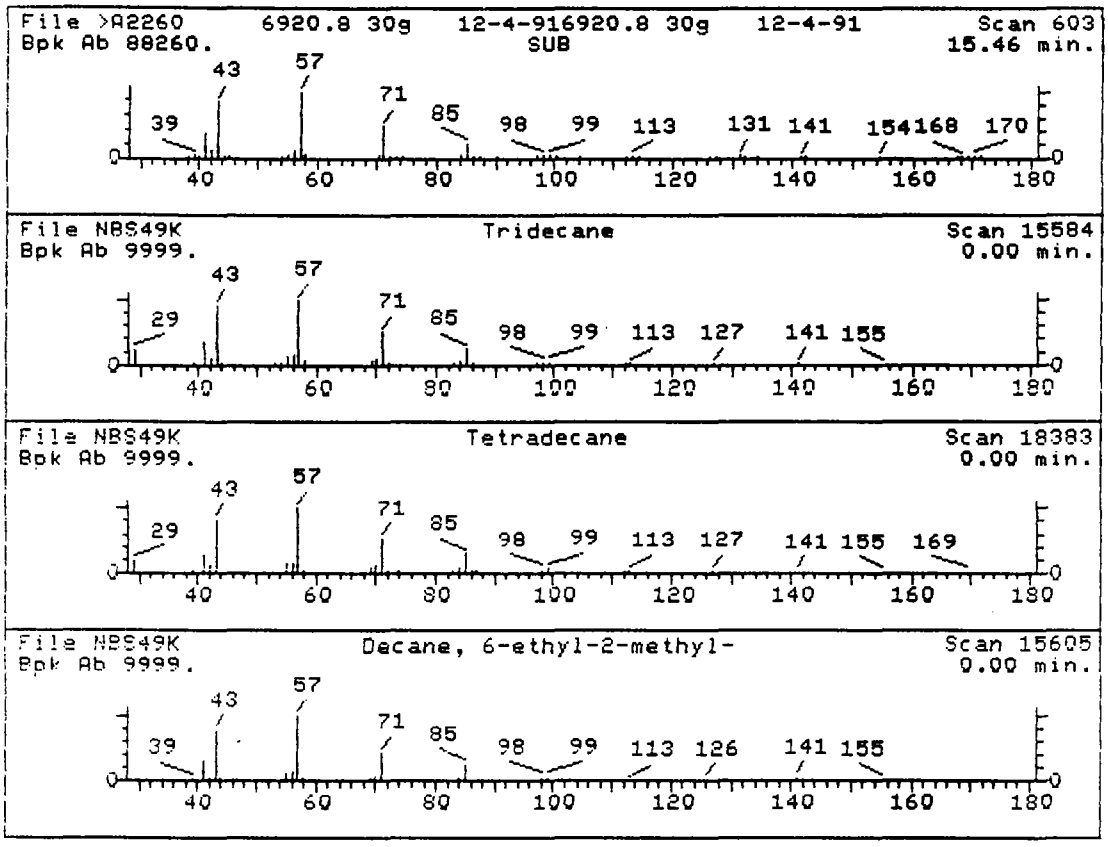


UNKNOWN #,4
AREA = 1433437. TENTATIVE CONCENTRATION IS 41.00

1.	1H-Indene, 2,3-dihydro-1-methyl-	132	C10H12
2.	Benzene, 2-ethenyl-1,4-dimethyl-	132	C10H12
3.	2,3-DIHYDRO-1-METHYLINDENE	132	C10H12
4.	Benzene, 1-ethenyl-4-ethyl-	132	C10H12
5.	1H-Indene, 2,3-dihydro-5-methyl-	132	C10H12
6.	1H-Indene, 2,3-dihydro-4-methyl-	132	C10H12

Sample file: >A2260 Spectrum #: 554
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	73*	767588	13205	NBS49K	63	34	1	0	72	22	32	60
2.	68*	2039896	15893	NBS49K	68	24	1	-2	27	21	30	55
3.	66*	27133933	13208	NBS49K	61	34	2	0	98	19	31	44
4.	62*	3454077	15900	NBS49K	57	36	1	0	73	29	25	46
5.	55*	874351	15898	NBS49K	65	41	1	0	57	47	14	65
6.	55*	824226	15903	NBS49K	65	42	1	0	58	49	14	65

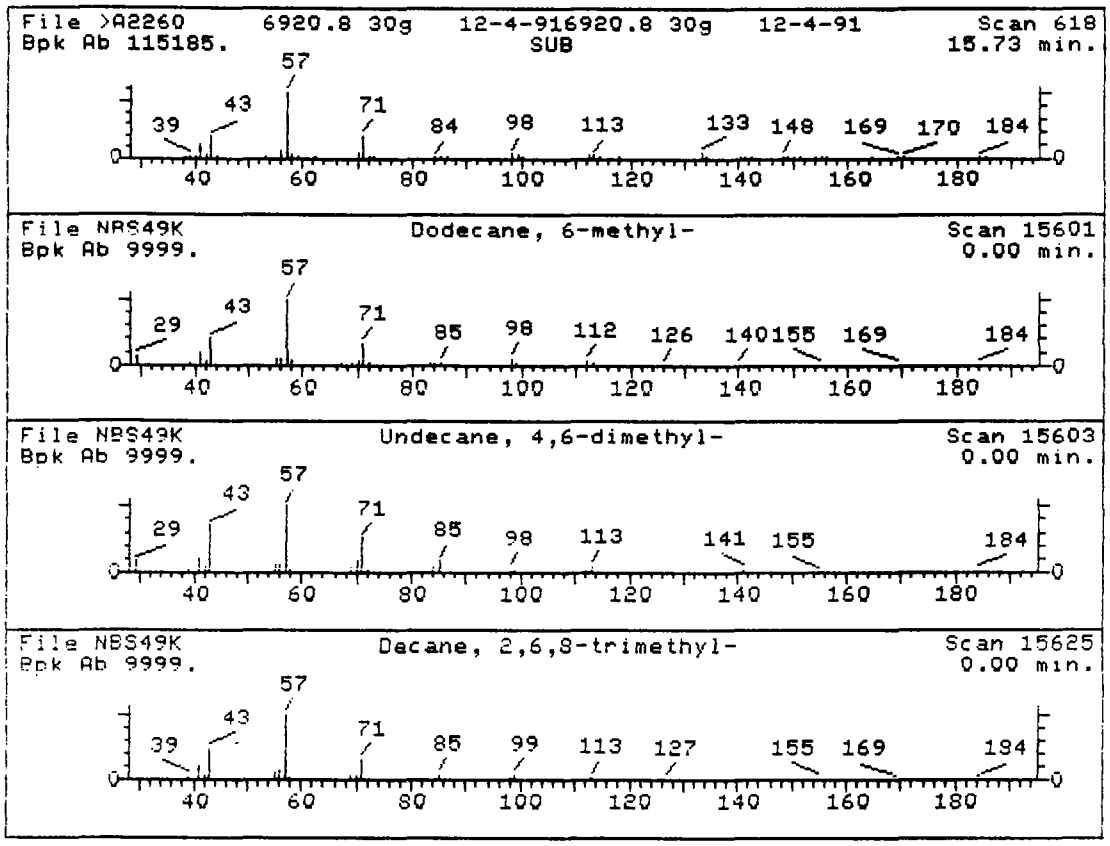


UNKNOWN #,5
AREA = 2562612. TENTATIVE CONCENTRATION IS 74.00

1.	Tridecane	184 C13H28
2.	Tetradecane	198 C14H30
3.	Decane, 6-ethyl-2-methyl-	184 C13H28
4.	Dodecane, 3-methyl-	184 C13H28
5.	Decane, 5-propyl-	184 C13H28
6.	Undecane, 4,6-dimethyl-	184 C13H28

Sample file: >A2260 Spectrum #: 603
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	83	629505	6761	NBS49K	75	31	2	2	83	4	57	21
2.	76	629594	6804	NBS49K	75	33	2	3	89	7	45	21
3.	70	62108218	6767	NBS49K	69	30	2	3	95	10	42	17
4.	70	17312571	6768	NBS49K	63	36	3	1	100	10	42	12
5.	70	17312628	4395	NBS49K	67	44	2	3	72	7	42	12
6.	70	17312822	4387	NBS49K	55	43	2	1	100	6	42	12

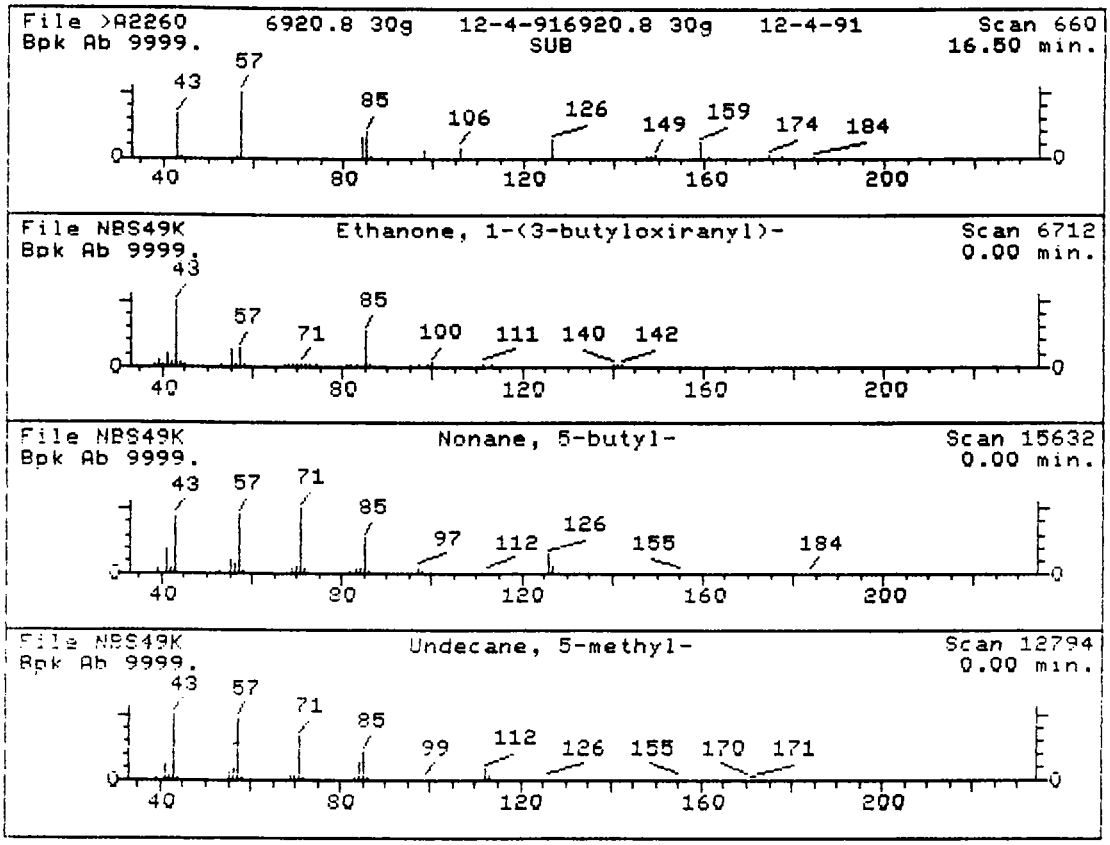


UNKNOWN #,6
AREA = 1744241. TENTATIVE CONCENTRATION IS 50.00

1.	Dodecane, 6-methyl-	184 C13H28
2.	Undecane, 4,6-dimethyl-	184 C13H28
3.	Decane, 2,6,8-trimethyl-	184 C13H28
4.	Undecane, 3,5-dimethyl-	184 C13H28
5.	Decane, 2,5,9-trimethyl-	184 C13H28
6.	Undecane, 2,5-dimethyl-	184 C13H28

Sample file: >A2260 Spectrum #: 618
Search speed: 1 Tilting option: F No. of ion ranges searched: 54

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	74*	6044719	9562	NBS49K	68	29	2	0	81	12	39	49
2.	60*	17312822	4387	NBS49K	45	53	2	1	72	12	30	17
3.	60*	62108263	4392	NBS49K	40	52	2	0	74	14	30	19
4.	60*	17312811	9853	NBS49K	26	72	3	0	100	14	30	13
5.	52	62108229	4388	NBS49K	44	47	2	0	73	16	20	13
6.	51*	17301223	12182	NBS49K	55	44	1	3	67	35	20	35



UNKNOWN #,7

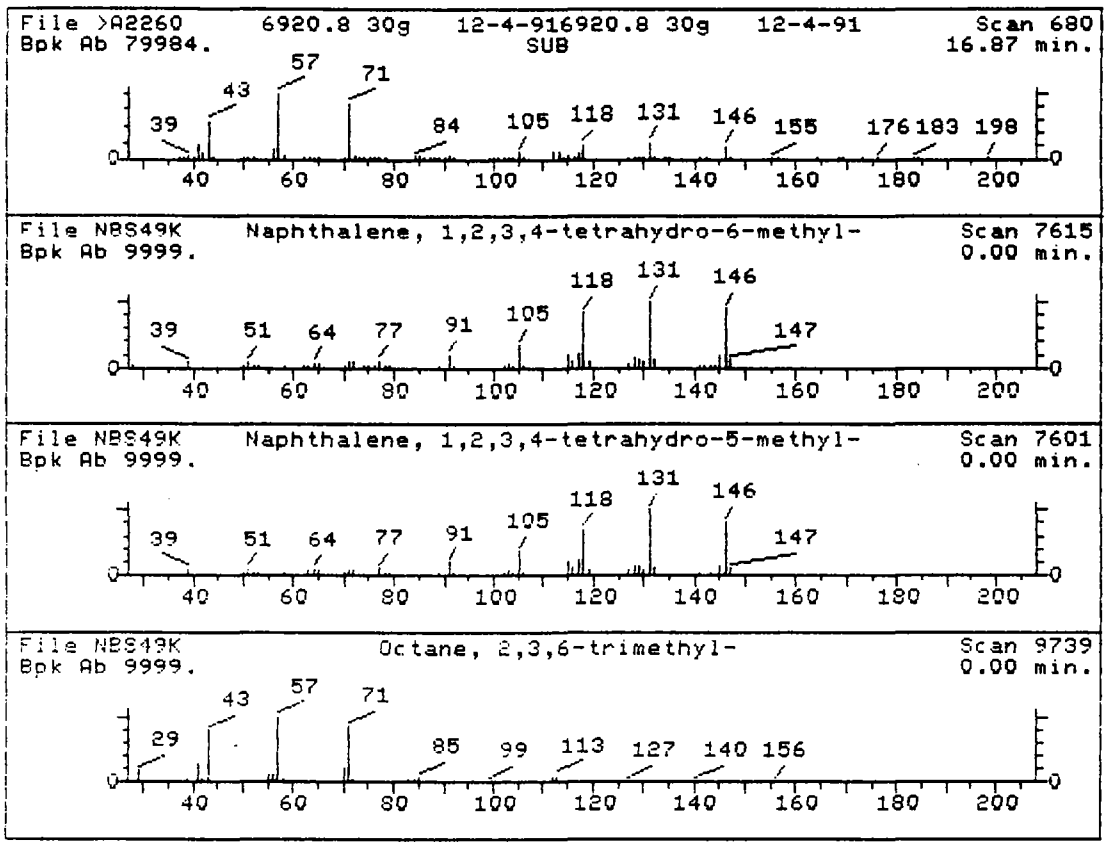
AREA = 1633483. TENTATIVE CONCENTRATION IS 47.00

1.	Ethanone, 1-(3-butyloxiranyl)-	142 C8H14O2
2.	Nonane, 5-butyl-	184 C13H28
3.	Undecane, 5-methyl-	170 C12H26
4.	Tridecane	184 C13H28
5.	Bicyclo[3.2.0]hepta-2,6-diene, 4,4-bis(trifluoromethyl)-	228 C9H6F6
6.	2,6,10-Dodecatrienal, 3,7,11-trimethyl-, (E,E)-	220 C15H24O

Sample file: >A2260 Spectrum #: 660

Search speed: 1 Tilting option: F No. of ion ranges searched: 47

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	40*	17257806	6626	NBS49K	54	26	1	1	62	50	12	42
2.	25*	17312639	14869	NBS49K	32	81	2	0	72	47	7	14
3.	20*	1632708	6740	NBS49K	35	63	2	0	65	55	5	14
4.	20*	629505	6761	NBS49K	22	84	2	0	72	52	5	13
5.	15*	714647	21034	NBS49K	38	57	1	1	35	59	3	14
6.	15*	502670	6463	NBS49K	38	74	2	1	67	58	3	12

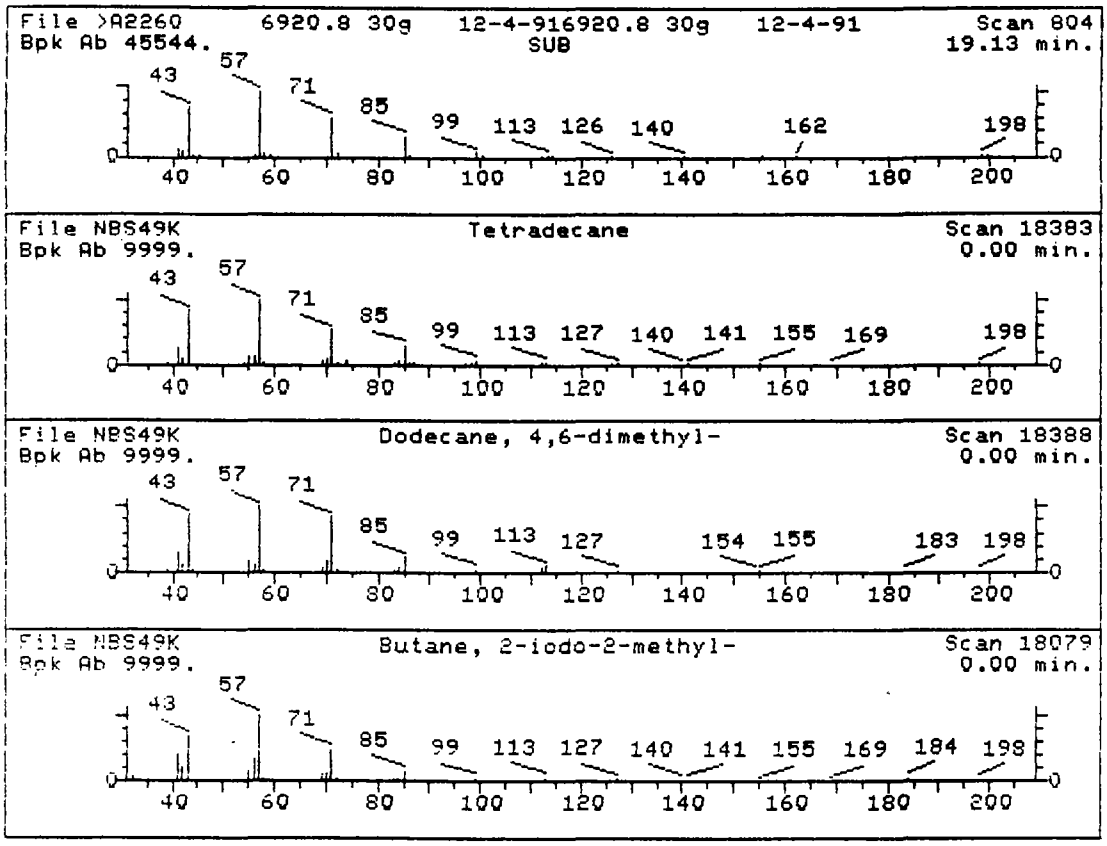


UNKNOWN #,8
AREA = 2404125. TENTATIVE CONCENTRATION IS 69.00

1.	Naphthalene, 1,2,3,4-tetrahydro-6-methyl-	146 C11H14
2.	Naphthalene, 1,2,3,4-tetrahydro-5-methyl-	146 C11H14
3.	Octane, 2,3,6-trimethyl-	156 C11H24
4.	Heptane, 2,5,5-trimethyl-	142 C10H22
5.	Octane, 2,3,7-trimethyl-	156 C11H24
6.	Dodecane, 4,6-dimethyl-	198 C14H30

Sample file: >A2260 Spectrum #: 680
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	62*	1680519	18711	NBS49K	68	51	2	4	53	26	25	41
2.	59*	2809645	18704	NBS49K	67	51	2	4	53	26	24	39
3.	50	62016335	4356	NBS49K	62	30	2	0	74	21	22	22
4.	47	1189997	4328	NBS49K	52	38	2	0	88	25	17	18
5.	28	62016346	4357	NBS49K	48	45	2	0	69	40	10	14
6.	25*	61141728	4410	NBS49K	41	69	3	0	66	41	8	13

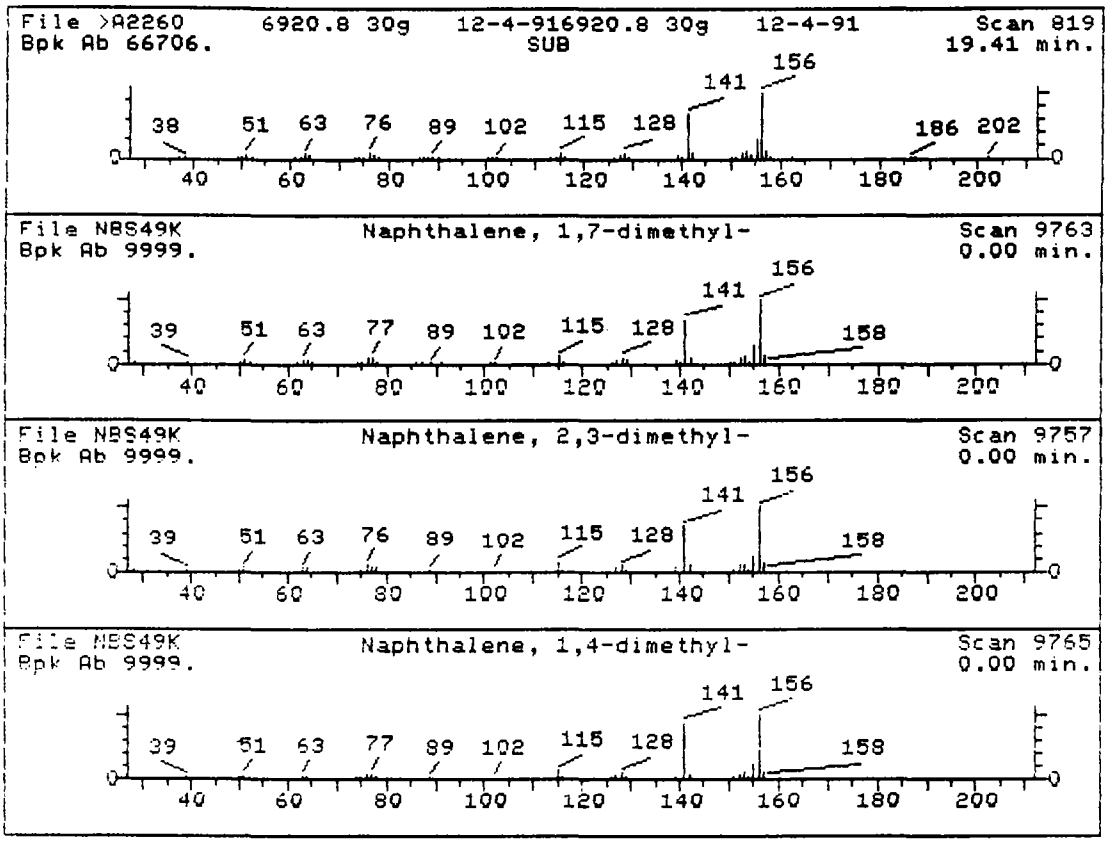


UNKNOWN #,9
AREA = 1232262. TENTATIVE CONCENTRATION IS 36.00

1.	Tetradecane	198	C14H30
2.	Dodecane, 4,6-dimethyl-	198	C14H30
3.	Butane, 2-iodo-2-methyl-	198	C5H11I
4.	Tridecane, 3-methyl-	198	C14H30
5.	Tridecane, 4-methyl-	198	C14H30

Sample file: >A2260 Spectrum #: 804
Search speed: 1 Tilting option: F No. of ion ranges searched: 46

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	70*	629594	6804	NBS49K	47	61	3	0	92	6	42	13
2.	70*	61141728	4410	NBS49K	33	77	3	0	72	10	42	13
3.	60*	594387	4407	NBS49K	26	89	3	0	100	13	30	13
4.	52*	6418413	9879	NBS49K	26	84	3	0	91	20	20	13
5.	36*	26730121	4409	NBS49K	29	85	3	0	76	29	14	13

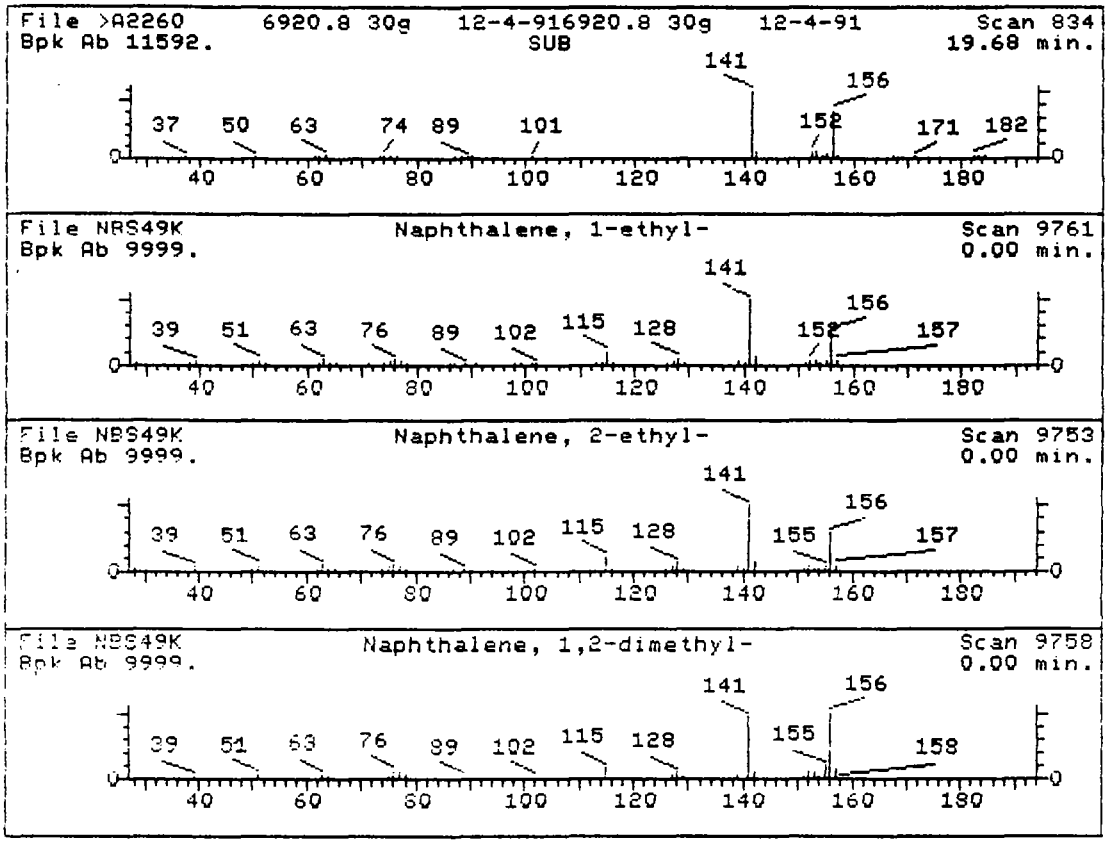


UNKNOWN #,10
AREA = 1323114. TENTATIVE CONCENTRATION IS 39.00

1.	Naphthalene, 1,7-dimethyl-	156 C12H12
2.	Naphthalene, 2,3-dimethyl-	156 C12H12
3.	Naphthalene, 1,4-dimethyl-	156 C12H12
4.	Naphthalene, 1,2-dimethyl-	156 C12H12
5.	Naphthalene, 2,6-dimethyl-	156 C12H12
6.	Naphthalene, 1,6-dimethyl-	156 C12H12

Sample file: >A2260 Spectrum #: 819
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	93*	575371	20518	NBS49K	101	7	1	-2	99	0	68	83
2.	93*	581408	20512	NBS49K	96	10	0	-2	76	5	68	83
3.	93*	571584	20520	NBS49K	90	18	1	0	74	5	68	89
4.	92*	573988	20513	NBS49K	80	33	0	0	58	28	57	94
5.	89*	581420	20514	NBS49K	87	18	1	0	73	10	62	86
6.	80*	575439	20522	NBS49K	95	13	0	-2	78	21	47	80

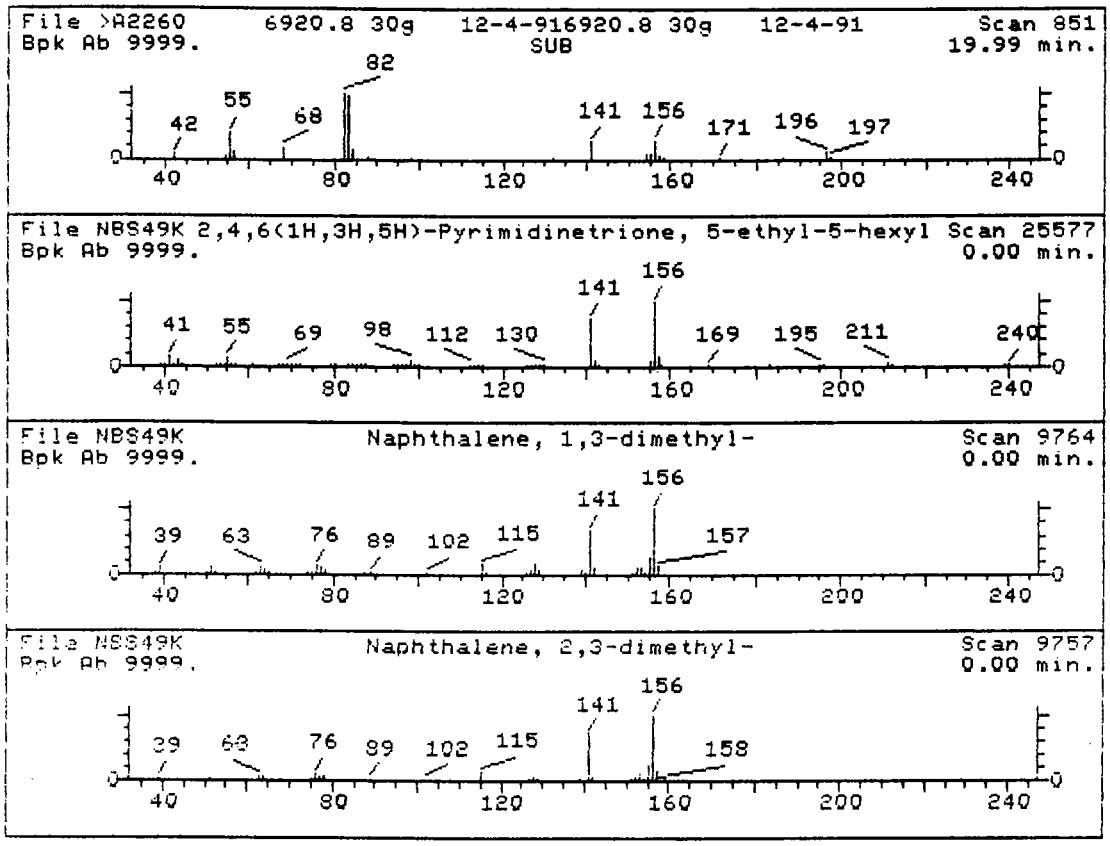


UNKNOWN #,11
AREA = 1219806. TENTATIVE CONCENTRATION IS 36.00

1.	Naphthalene, 1-ethyl-	156 C12H12
2.	Naphthalene, 2-ethyl-	156 C12H12
3.	Naphthalene, 1,2-dimethyl-	156 C12H12
4.	Ethanone, 1-(2,6-difluorophenyl)-	156 C8H6F2O
5.	Naphthalene, 2,3-dimethyl-	156 C12H12
6.	Naphthalene, 1,6-dimethyl-	156 C12H12

Sample file: >A2260 Spectrum #: 834
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	70*	1127760	20516	NBS49K	36	63	3	0	100	8	42	13
2.	70*	939275	20508	NBS49K	25	81	3	0	100	10	42	13
3.	70*	573988	20513	NBS49K	26	87	3	0	71	6	42	13
4.	35*	13670990	17868	NBS49K	22	65	3	0	100	30	14	12
5.	30*	581408	20512	NBS49K	28	78	3	0	71	33	12	13
6.	30*	575439	20522	NBS49K	28	80	3	0	71	33	12	13

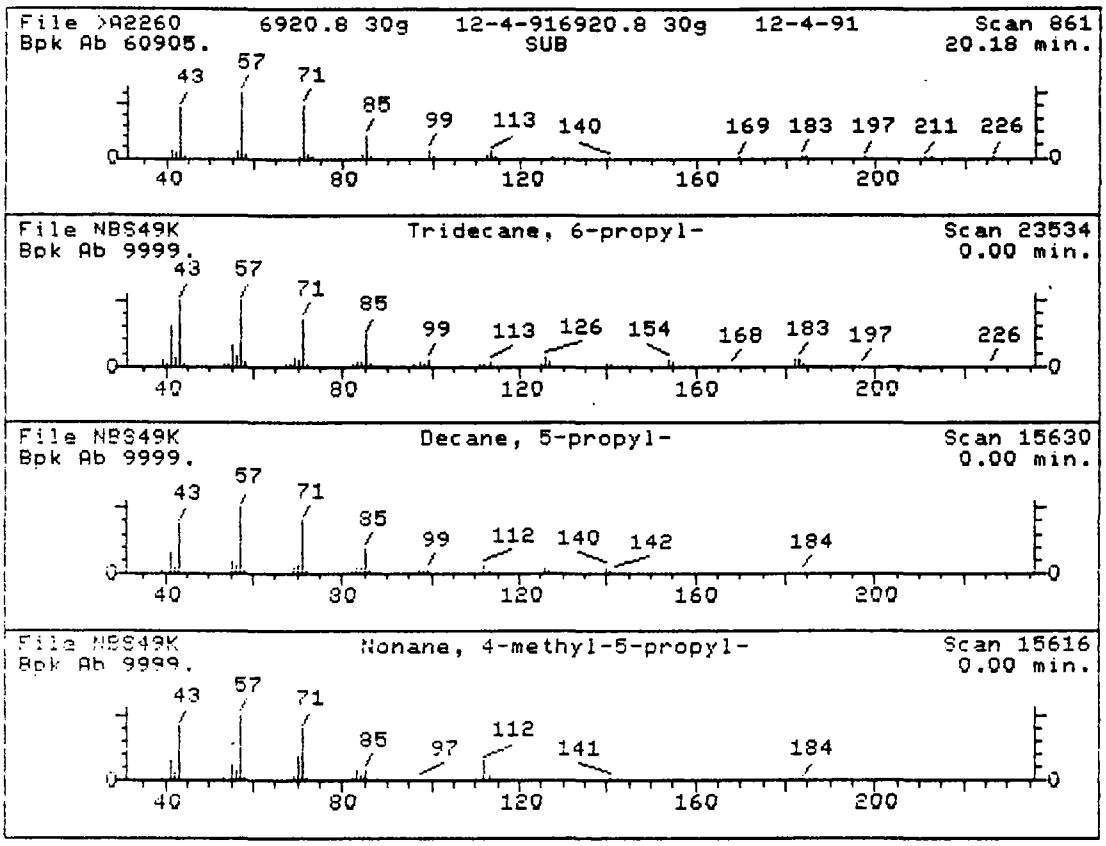


UNKNOWN #,12
AREA = 1585621. TENTATIVE CONCENTRATION IS 47.00

1.	2,4,6(1H,3H,5H)-Pyrimidinetrione, 5-ethyl-5-hexyl-	240	C12H20N2O3
2.	Naphthalene, 1,3-dimethyl-	156	C12H12
3.	Naphthalene, 2,3-dimethyl-	156	C12H12
4.	Naphthalene, 1,4-dimethyl-	156	C12H12
5.	Naphthalene, 1,7-dimethyl-	156	C12H12
6.	Benzeneacetic acid, 4-(acetyloxy)-3-methoxy-, methyl ester	238	C12H14O5

Sample file: >A2260 Spectrum #: 851
Search speed: 1 Tilting option: F No. of ion ranges searched: 46

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	47*	77305	20623	NBS49K	67	56	1	4	83	47	13	57
2.	41*	575417	20519	NBS49K	41	66	2	3	64	21	17	12
3.	41*	581408	20512	NBS49K	36	70	1	4	83	25	17	12
4.	41*	571584	20520	NBS49K	36	72	1	4	72	25	17	12
5.	41*	575371	20518	NBS49K	35	73	1	4	74	25	17	12
6.	25*	15964860	27138	NBS49K	48	70	1	4	103	47	7	19

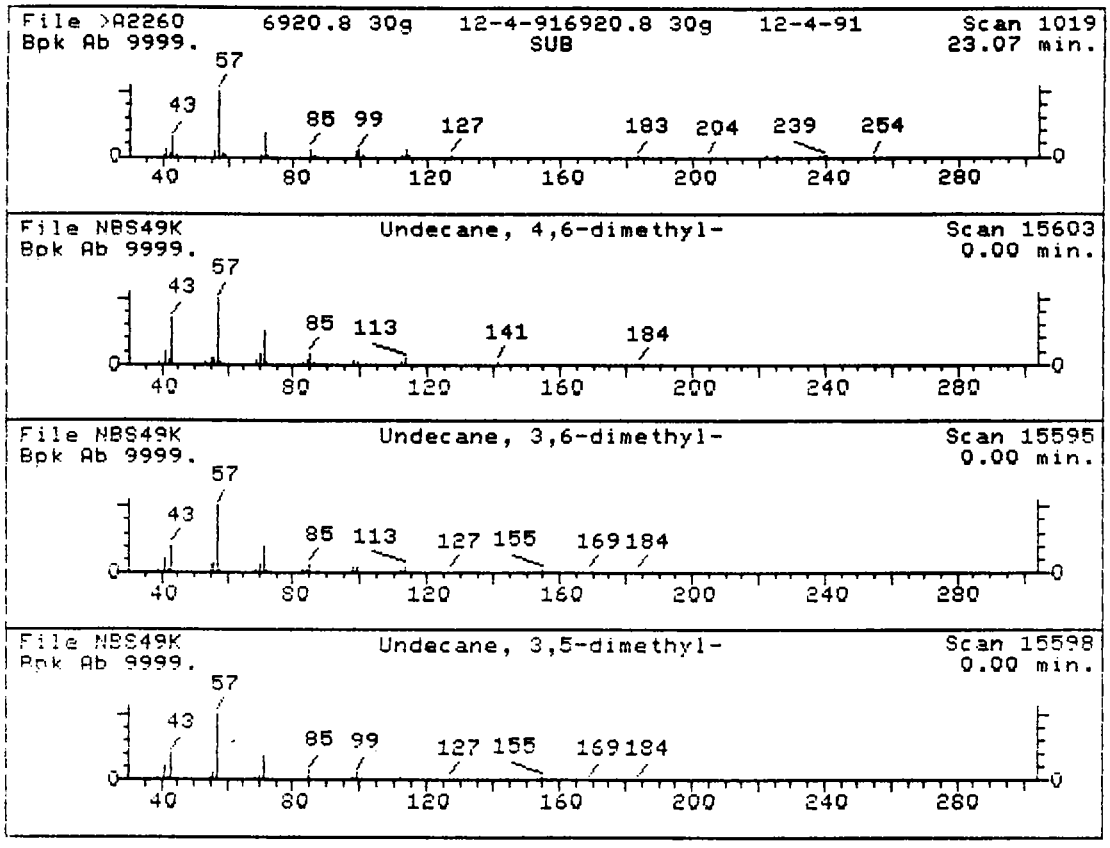


UNKNOWN #,13
AREA = 1554545. TENTATIVE CONCENTRATION IS 46.00

1.	Tridecane, 6-propyl-	226 C16H34
2.	Decane, 5-propyl-	184 C13H28
3.	Nonane, 4-methyl-5-propyl-	184 C13H28
4.	Octane, 2,3,6-trimethyl-	156 C11H24
5.	Octane, 3-ethyl-	142 C10H22
6.	Hexadecane	226 C16H34

Sample file: >A2260 Spectrum #: 861
Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	78*	55045108	6834	NBS49K	50	79	3	0	76	3	55	14
2.	76*	17312628	4395	NBS49K	55	56	2	2	92	10	45	26
3.	60*	62185551	12180	NBS49K	43	69	3	0	92	12	30	13
4.	60	62016335	4356	NBS49K	57	35	2	0	84	14	30	19
5.	52	5881174	4326	NBS49K	55	38	2	0	76	16	20	19
6.	43	544763	6835	NBS49K	65	55	2	0	77	21	17	14

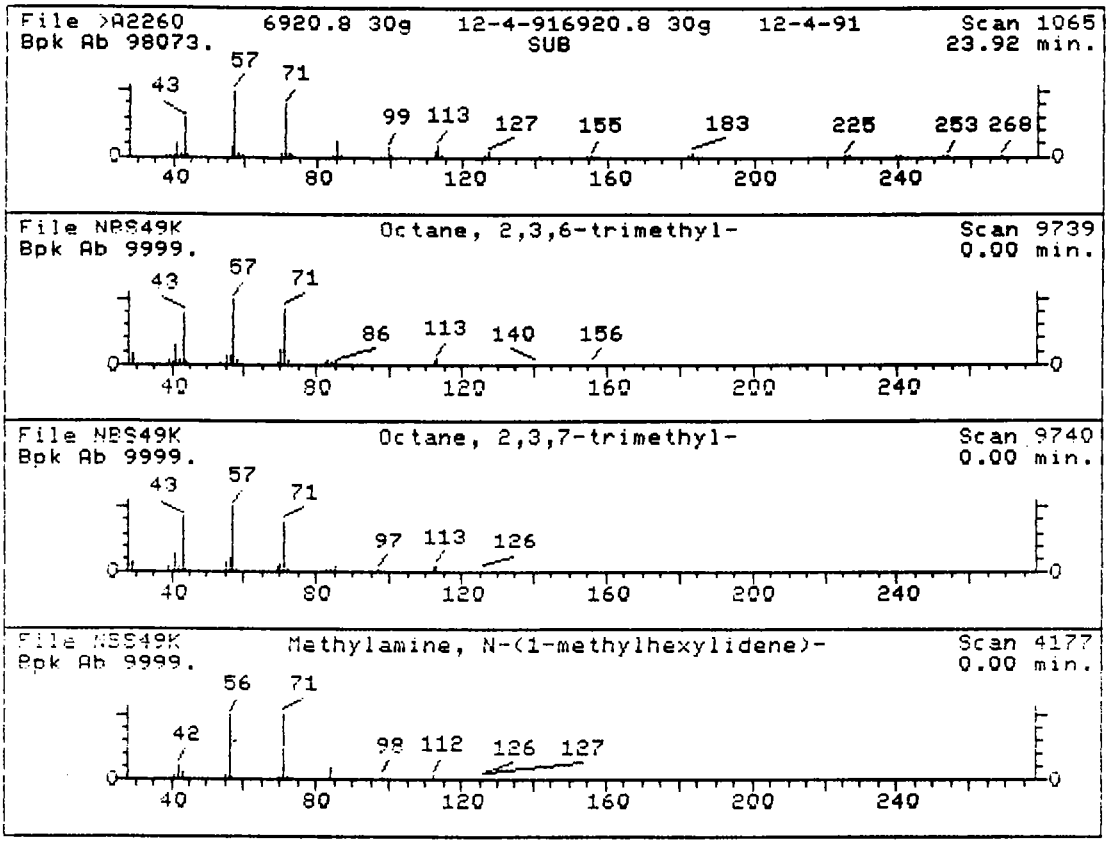


UNKNOWN #,14
AREA = 1559952. TENTATIVE CONCENTRATION IS 140.00

1.	Undecane, 4,6-dimethyl-	184 C13H28
2.	Undecane, 3,6-dimethyl-	184 C13H28
3.	Undecane, 3,5-dimethyl-	184 C13H28
4.	Heptadecane, 7-methyl-	254 C18H38
5.	Tetradecane, 2,6,10-trimethyl-	240 C17H36
6.	Octane, 3,6-dimethyl-	142 C10H22

Sample file: >A2260 Spectrum #: 1019
Search speed: 1 Tilting option: F No. of ion ranges searched: 102

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	58*	17312822	4387	NBS49K	65	33	1	-1	74	32	22	43
2.	57*	17301289	4386	NBS49K	55	42	1	0	68	35	22	42
3.	49*	17312811	9853	NBS49K	56	42	2	0	80	32	20	33
4.	47*	20959335	12222	NBS49K	51	84	2	0	56	29	19	25
5.	43*	14905567	6847	NBS49K	50	82	3	0	61	22	17	14
6.	43*	15869940	12333	NBS49K	46	43	2	0	61	35	16	26



UNKNOWN #,15
AREA = 2136848. TENTATIVE CONCENTRATION IS 190.00

1.	Octane, 2,3,6-trimethyl-	156 C11H24
2.	Octane, 2,3,7-trimethyl-	156 C11H24
3.	Methylamine, N-(1-methylhexylidene)-	127 C8H17N
4.	Undecane, 6,6-dimethyl-	184 C13H28
5.	3-Buten-2-ol, 2-methyl-	86 C5H10O
6.	Nonadecane	268 C19H40

Sample file: >A2260 Spectrum #: 1065
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	36	62016335	4356	NBS49K	57	35	2	0	76	31	12	19
2.	30	62016346	4357	NBS49K	46	47	2	0	70	31	12	13
3.	27*	22058715	4298	NBS49K	28	60	3	0	79	36	10	13
4.	27	17312764	12432	NBS49K	58	40	2	2	84	40	10	13
5.	25*	115184	4258	NBS49K	29	60	3	0	79	43	8	13
6.	25*	629925	6864	NBS49K	42	75	2	0	79	50	7	14

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
6920.14 3g

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Soil

Sample wt/vol: 3 (g/mL) g

Level: (Low/med) Low

Extraction: (Sepf/Cont/Sonc) Sonicator

GPC Cleanup: (Y/N) N

Lab Sample ID: 6920.14 3g

Lab File ID: >A2261

Date Received: 12-03-91

Date Extracted: 12-04-91

Date Analyzed: 12/04/91

Dilution Factor: 300

Number of TICs found: 15

CONCENTRATION UNITS:
ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	547648	Propanoic acid, 2-hydroxy-,	4.94	29400	60
2	15869940	Octane, 3,6-dimethyl-	16.81	3000	30
3	629505	Tridecane	17.32	3300	95
4	629594	Tetradecane	19.06	3600	78
5	581408	Naphthalene, 2,3-dimethyl-	19.63	2400	87
6	544763	Hexadecane	20.12	3000	83
7	2131422	Naphthalene, 1,4,6-trimethyl	21.72	2700	93
8	544763	Hexadecane	22.28	5700	83
9	17312822	Undecane, 4,6-dimethyl-	23.03	2400	74
10	17312559	Decane, 3,8-dimethyl-	23.76	4200	78
11	74645980	Dodecane, 2,7,10-trimethyl-	23.85	5700	83
12		Hydrocarbon	26.49	2700	
13		Hydrocarbon	27.76	2100	
14	544763	Hexadecane	28.97	2100	76
15	7705148	Cyclohexene, 1-methyl-4-(1-m	36.45	9600	62

MS data file header from : >A2261

Sample: 6920.14 3g 12-4-91 Operator: MARK SUPER GRP. 12/04/91 23:30
Misc : 6920.14 3g 12-4-91 BTL# 9
Sys. #: 2 MS model: 70 SW/HW rev.: IA ALS # : 0
Method file: BNARUN Tuning file: MTUNE2 No. of extra records: 2
Source temp.: 0 Analyzer temp.: 280 Transfer line temp. : 0

Chromatographic temperatures :	35.	300.	0.	0.	0.
Chromatographic times, min. :	3.0	6.9	0.0	0.0	0.0
Chromatographic rate, deg/min:	8.0	0.0	0.0	.2	0.0

>A2261 6920.14 3g 12-4-91 6920.14 3g 12-4-91
35.0 450.0 CLP TIC
Upslope: .20 Area Reject: 29394. Max Peaks: 15 Bunching: 1
Dnslope: 0.00 Results File IA2261 Sorted by Time/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	4.94	19	23	31	108980	360776	360776	100.00	25.28
2	16.81	673	677	682	14424	53623	46003	12.75	3.22
3	17.32	702	705	707	18535	61074	50172	13.91	3.51
4	19.06	799	801	804	25683	90330	69032	19.13	4.83
5	19.63	828	832	834	13476	76521	46810	12.97	3.28
6	20.12	856	859	862	27021	104376	58167	16.12	4.07
7	21.72	944	947	952	11414	124084	49932	13.84	3.50
8	22.28	975	978	980	44208	160698	109617	30.38	7.68
9	23.03	1016	1019	1023	21678	155554	62212	17.24	4.36
10	23.76	1056	1059	1062	37711	202777	110516	30.63	7.74
11	23.85	1062	1064	1068	58923	252240	154793	42.91	10.84
12	26.49	1207	1209	1213	30646	188558	70601	19.57	4.94
13	27.77	1276	1279	1281	21894	171316	52415	14.53	3.67
14	28.97	1342	1345	1348	22354	173298	52319	14.50	3.66
15	36.45	1753	1756	1761	53063	344661	133392	36.97	9.34

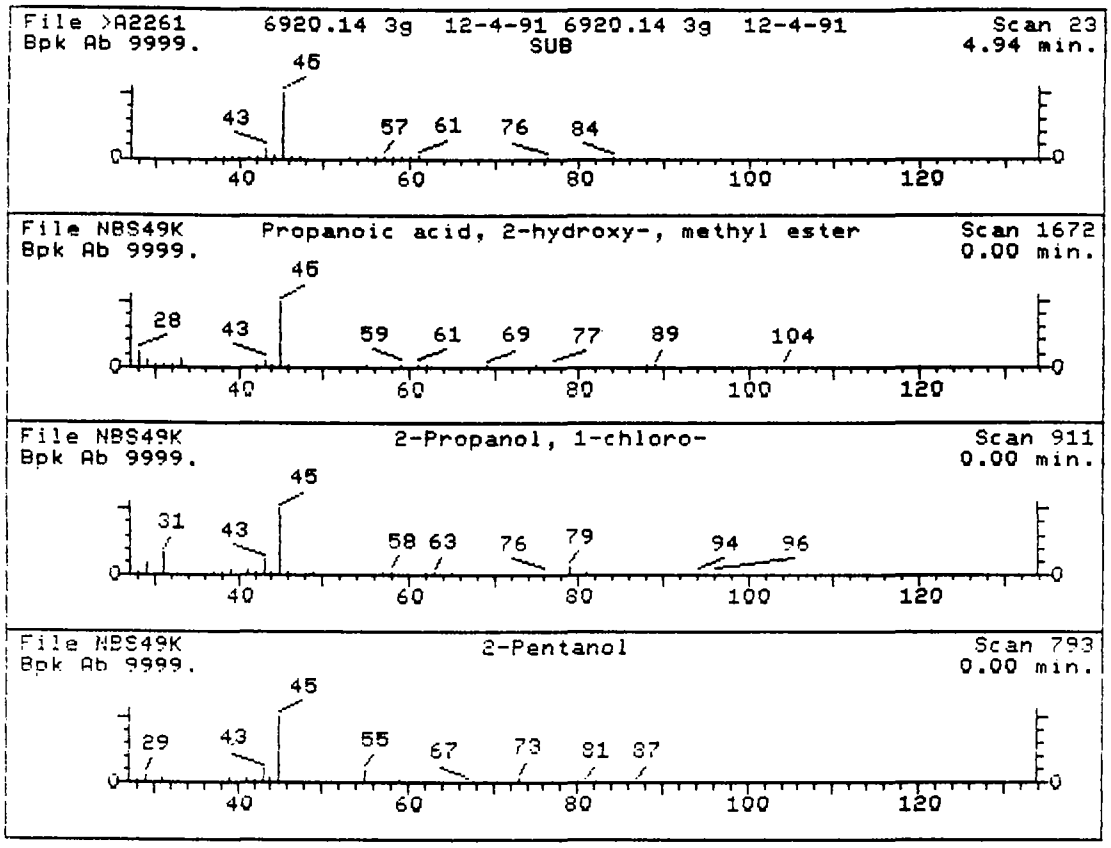
Sum of corrected areas: 1426757.

Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	40.0	146968.	11.48	4.54 - 13.34
2	40.0	180826.	15.20	13.34 - 17.92
3	40.0	230456.	20.65	17.92 - 22.91
4	40.0	321482.	25.18	22.91 - 29.27
5	40.0	200684.	33.36	29.27 - 35.40
6	40.0	167758.	37.43	35.40 - 43.02

'A' Dilution Factor = 1.00 U dilf = 1.00
Method called for 1000.000 g or mL This sample was 1000.000 g or mL

Correction Factor = 1.00

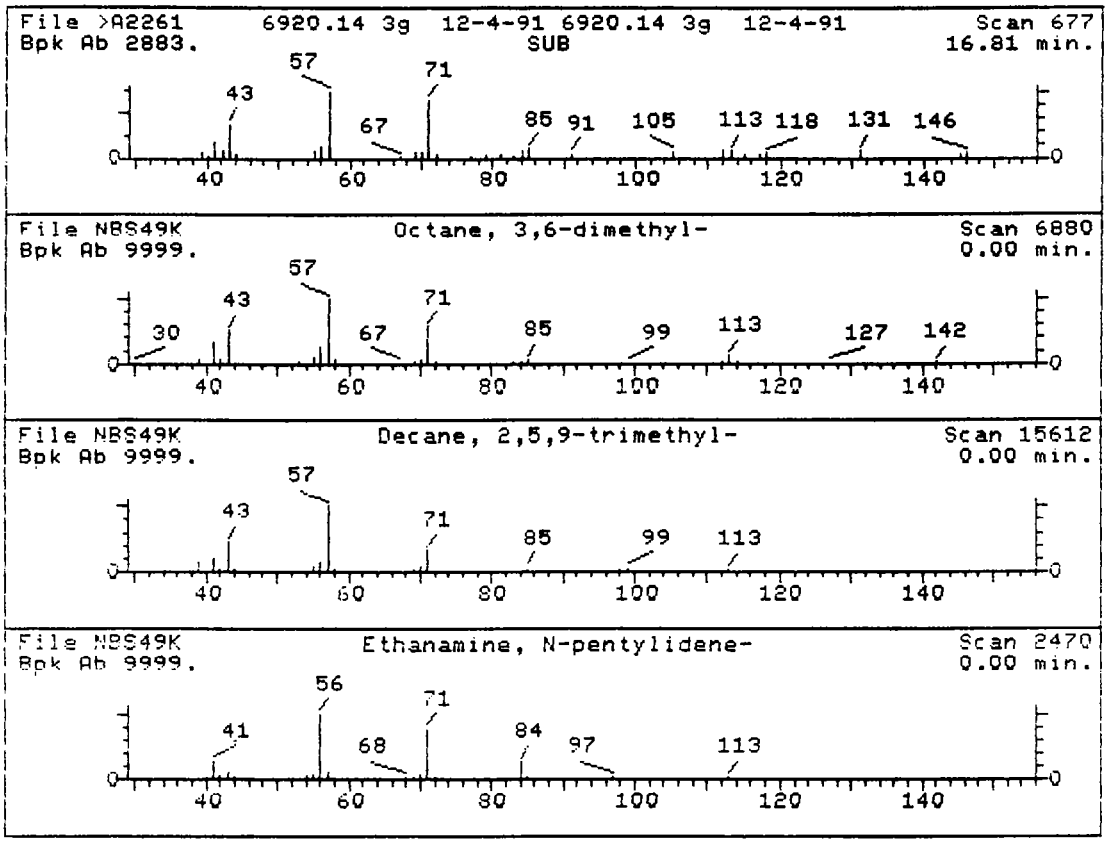


UNKNOWN #,1
AREA = 360776.0 TENTATIVE CONCENTRATION IS 98.00

1.	Propanoic acid, 2-hydroxy-, methyl ester	104 C4H8O3
2.	2-Propanol, 1-chloro-	94 C3H7ClO
3.	2-Pentanol	88 C5H12O
4.	1,2-Propanediol	76 C3H8O2
5.	Propanoic acid, 2-hydroxy-, methyl ester, (.+-.)-	104 C4H8O3
6.	Propanamide, 2-hydroxy-	89 C3H7NO2

Sample file: >A2261 Spectrum #: 23
Search speed: 1 Tilting option: F No. of ion ranges searched: 41

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	60*	547648	157	NBS49K	30	48	1	0	100	13	30	16
2.	60*	127004	347	NBS49K	23	66	2	0	100	13	30	13
3.	52	6032297	344	NBS49K	36	41	2	0	84	20	20	12
4.	52	57556	336	NBS49K	37	46	1	0	71	16	20	14
5.	52*	2155308	156	NBS49K	31	47	1	0	84	16	20	17
6.	52*	2043438	2198	NBS49K	21	42	2	0	76	20	20	13



UNKNOWN #,2

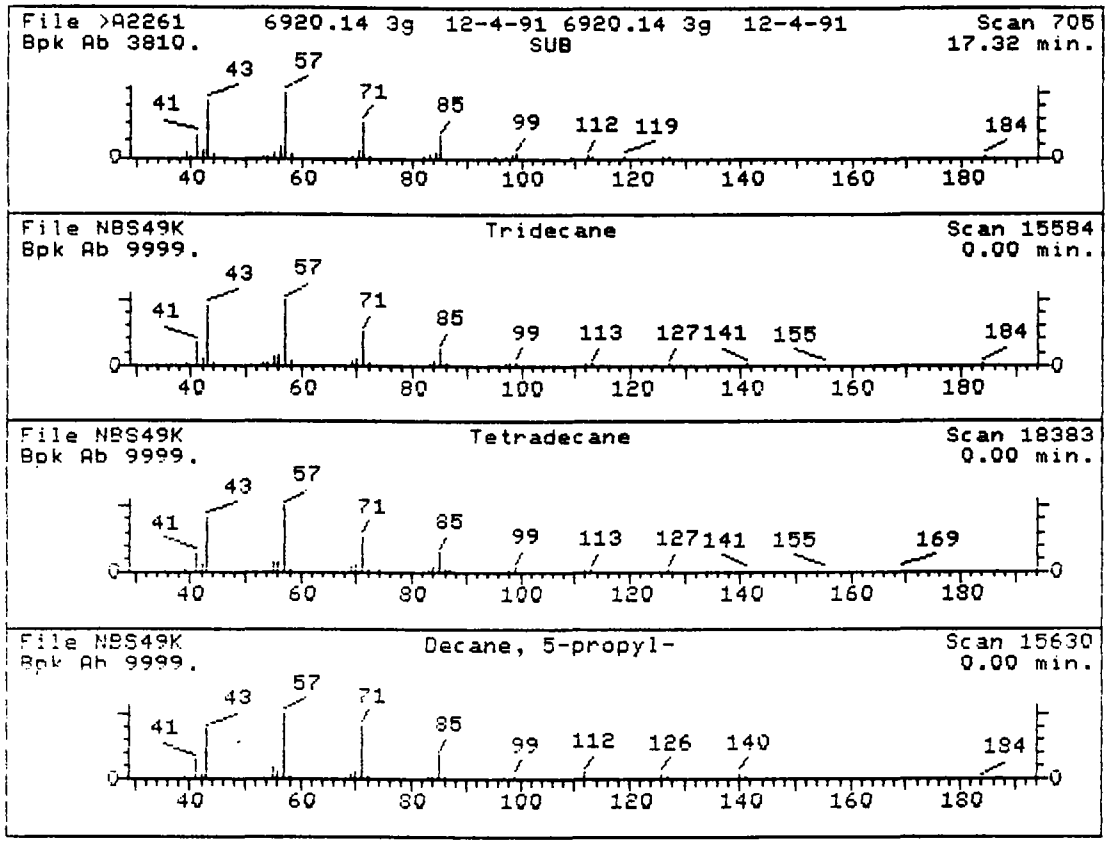
AREA = 46003.00 TENTATIVE CONCENTRATION IS 10.00

1.	Octane, 3,6-dimethyl-	142	C10H22
2.	Decane, 2,5,9-trimethyl-	184	C13H28
3.	Ethanamine, N-pentylidene-	113	C7H15N
4.	3-Hexanethiol, 3-ethyl-	146	C8H18S
5.	Ethane, isocyanato-	71	C3H5NO

Sample file: >A2261 Spectrum #: 677

Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	30	15869940	12333	NBS49K	42	47	2	0	78	35	12	13
2.	25	62108229	4388	NBS49K	42	49	2	0	100	50	7	12
3.	25*	10599765	4286	NBS49K	33	57	3	0	114	48	7	13
4.	20*	55956008	12096	NBS49K	37	53	3	0	100	53	5	14
5.	11*	109900	4251	NBS49K	29	44	2	0	106	61	2	14



UNKNOWN #,3

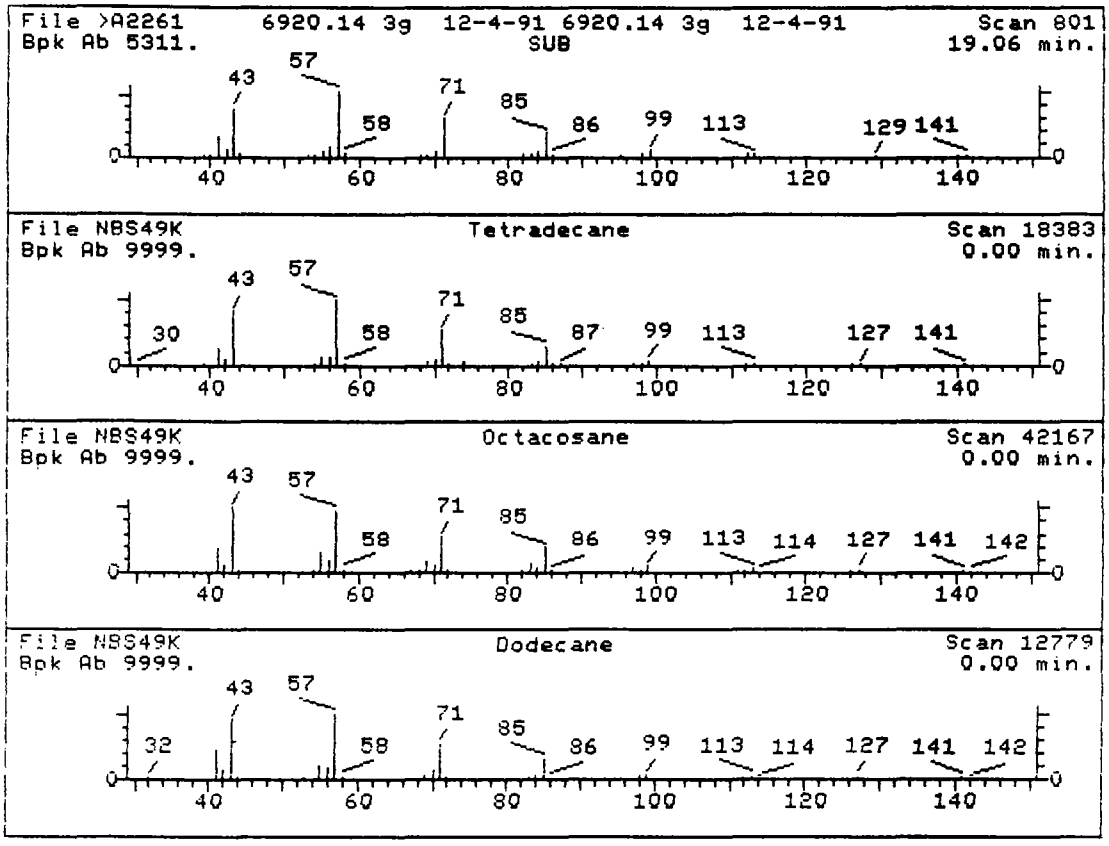
AREA = 50172.00 TENTATIVE CONCENTRATION IS 11.00

1.	Tridecane	184 C13H28
2.	Tetradecane	198 C14H30
3.	Decane, 5-propyl-	184 C13H28
4.	Dodecane	170 C12H26
5.	Undecane, 3,5-dimethyl-	184 C13H28
6.	Undecane, 4,6-dimethyl-	184 C13H28

Sample file: >A2261 Spectrum #: 705

Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	95*	629505	6761	NBS49K	93	13	1	0	96	1	72	93
2.	86	629594	6804	NBS49K	82	26	2	0	100	1	60	30
3.	83*	17312628	4395	NBS49K	53	58	2	0	68	1	57	28
4.	83	112403	6732	NBS49K	69	30	2	0	87	2	57	24
5.	83*	17312811	9853	NBS49K	50	48	2	0	100	5	57	25
6.	79*	17312822	4387	NBS49K	55	43	2	0	79	10	48	32

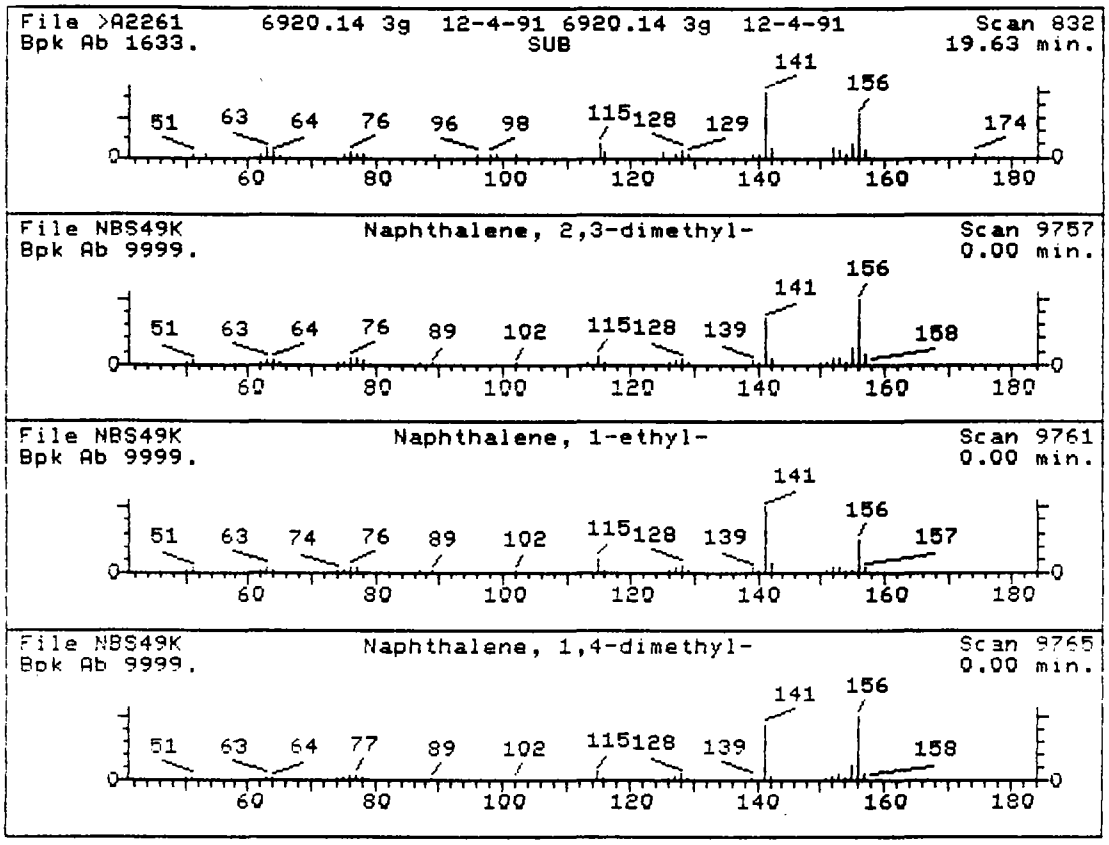


UNKNOWN #,4
AREA = 69032.00 TENTATIVE CONCENTRATION IS 12.00

1.	Tetradecane	198 C14H30
2.	Octacosane	394 C28H58
3.	Dodecane	170 C12H26
4.	Pentadecane	212 C15H32
5.	Hexadecane	226 C16H34
6.	Decane, 2,3,5-trimethyl-	184 C13H28

Sample file: >A2261 Spectrum #: 801
Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	78	629594	6804	NBS49K	70	38	2	0	89	4	55	19
2.	78	630024	6906	NBS49K	83	58	3	0	73	5	55	15
3.	78	112403	6732	NBS49K	60	39	3	0	81	4	55	12
4.	78	629629	6819	NBS49K	68	52	2	0	80	4	55	15
5.	70	544763	6835	NBS49K	81	39	2	2	87	8	42	16
6.	70	62238113	6779	NBS49K	63	40	2	3	100	7	42	14



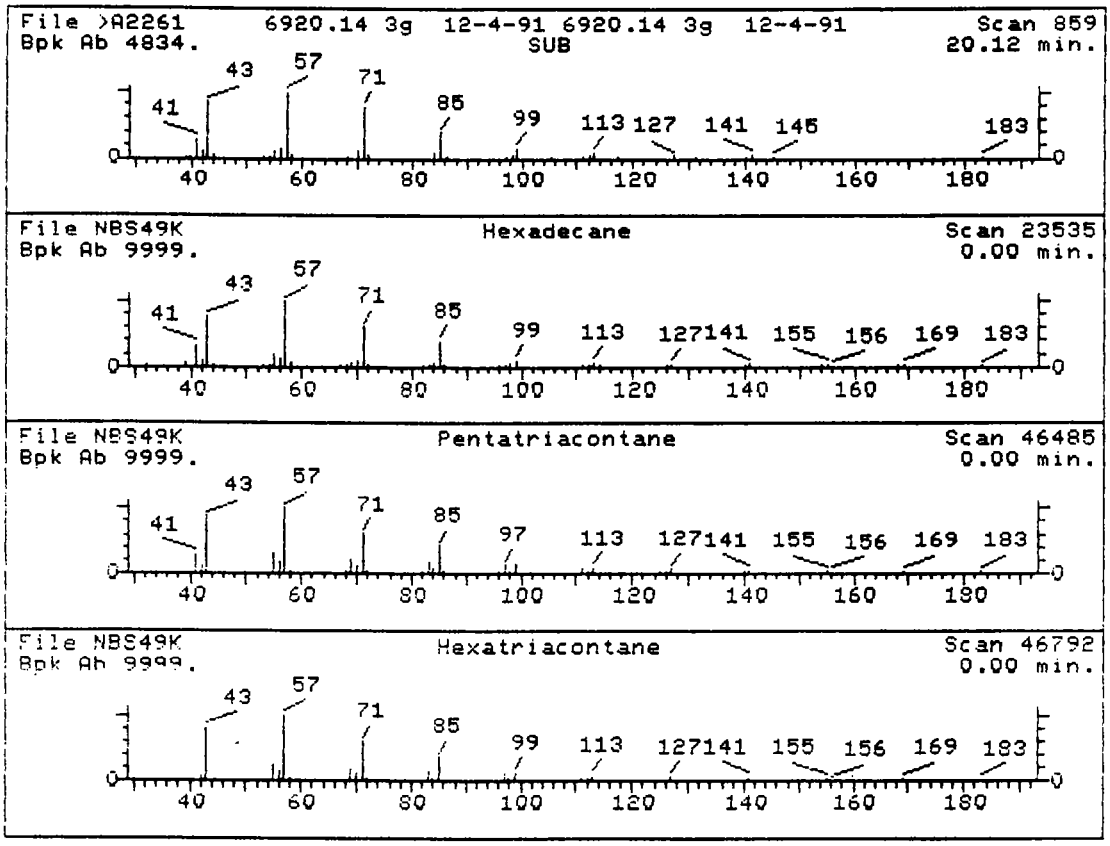
UNKNOWN #,5

AREA = 46810.00 TENTATIVE CONCENTRATION IS 8.00

1.	Naphthalene, 2,3-dimethyl-	156	C12H12
2.	Naphthalene, 1-ethyl-	156	C12H12
3.	Naphthalene, 1,4-dimethyl-	156	C12H12
4.	Naphthalene, 1,2-dimethyl-	156	C12H12
5.	Naphthalene, 1,8-dimethyl-	156	C12H12
6.	Naphthalene, 1,7-dimethyl-	156	C12H12

Sample file: >A2261 Spectrum #: 832
Search speed: 1 Tilting option: F No. of ion ranges searched: 55

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	87*	581408	20512	NBS49K	70	36	0	0	65	32	40	89
2.	76*	1127760	20516	NBS49K	72	27	2	0	100	12	40	54
3.	75*	571584	20520	NBS49K	63	45	0	0	66	32	32	76
4.	72*	573988	20513	NBS49K	61	52	0	0	59	34	32	73
5.	69*	569415	20515	NBS49K	64	46	1	0	60	32	26	63
6.	67*	575371	20518	NBS49K	62	46	0	0	53	44	24	74



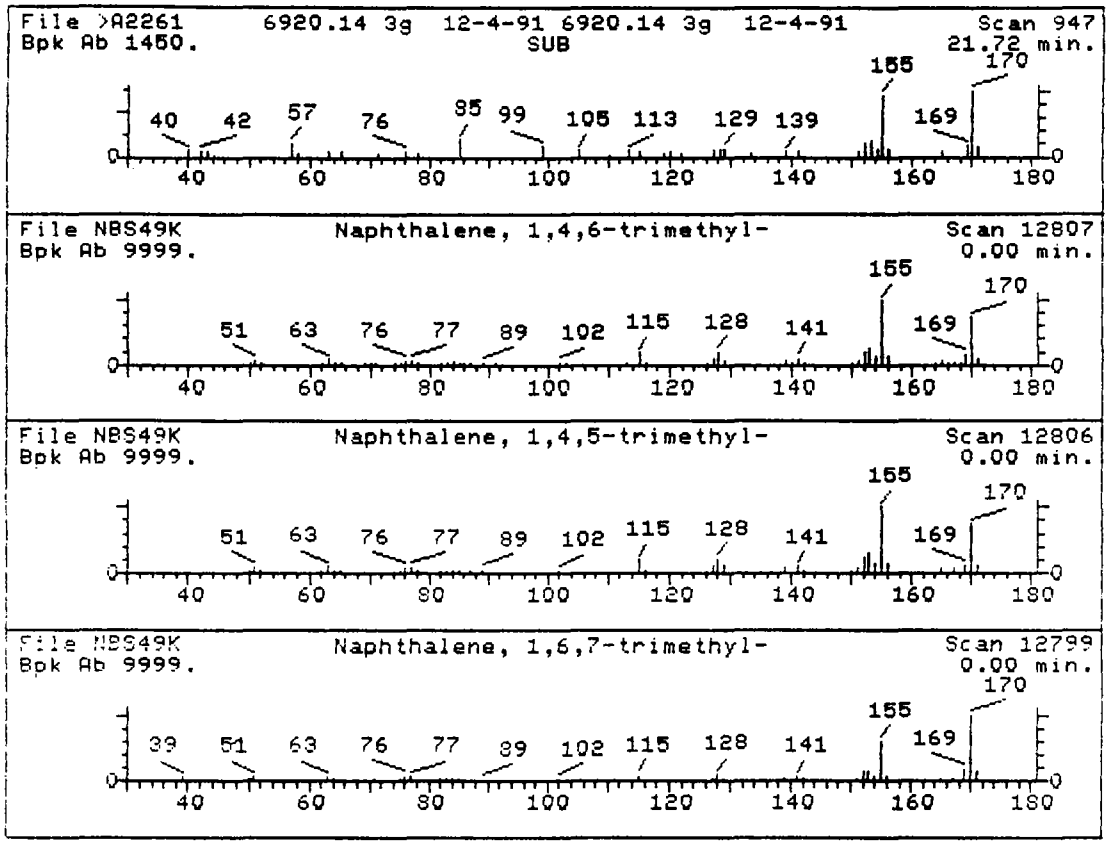
UNKNOWN #,6

AREA = 58167.00 TENTATIVE CONCENTRATION IS 10.00

1.	Hexadecane	226	C16H34
2.	Pentatriacontane	492	C35H72
3.	Hexatriacontane	506	C36H74
4.	Tetratetracontane	618	C44H90
5.	Heptacosane	380	C27H56
6.	Docosane, 11-decyl-	450	C32H66

Sample file: >A2261 Spectrum #: 859
Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	83	544763	6835	NBS49K	91	29	2	1	100	2	57	27
2.	78	630079	6915	NBS49K	71	80	3	0	95	4	55	12
3.	78	630068	9992	NBS49K	76	87	3	0	100	4	55	14
4.	78	7098228	9995	NBS49K	74	86	3	0	100	4	55	13
5.	78	593497	6904	NBS49K	71	84	3	0	94	2	55	12
6.	78	55401553	6909	NBS49K	71	88	3	0	93	2	55	12



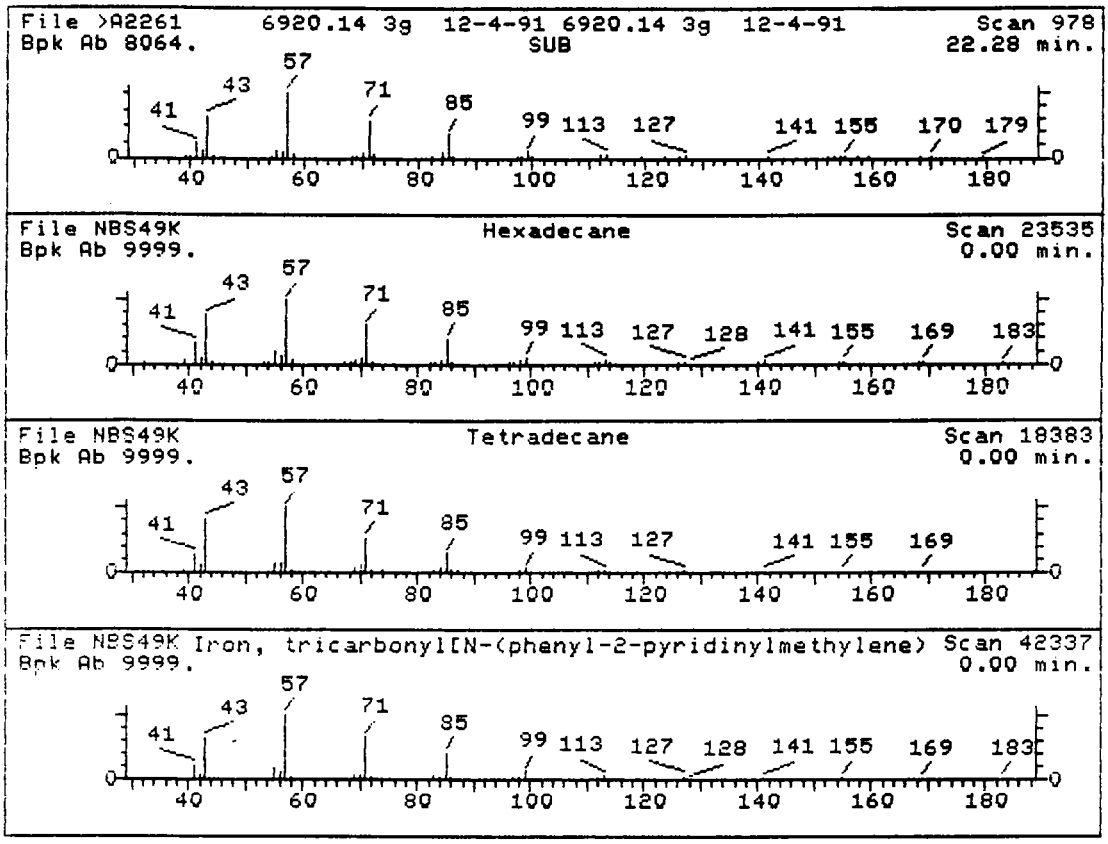
UNKNOWN #,7

AREA = 49932.00 TENTATIVE CONCENTRATION IS 9.00

1.	Naphthalene, 1,4,6-trimethyl-	170	C13H14
2.	Naphthalene, 1,4,5-trimethyl-	170	C13H14
3.	Naphthalene, 1,6,7-trimethyl-	170	C13H14
4.	Naphthalene, 2,3,6-trimethyl-	170	C13H14
5.	Naphthalene, 1,3,6-trimethyl-	170	C13H14
6.	Naphthalene, 2-(1-methylethyl)-	170	C13H14

Sample file: >A2261 Spectrum #: 947
Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	93*	2131422	22933	NBS49K	105	14	0	-4	86	1	68	80
2.	89*	2131411	22932	NBS49K	96	22	1	-4	82	1	66	73
3.	71*	2245387	22927	NBS49K	70	38	1	0	90	26	29	69
4.	59*	829265	22929	NBS49K	65	44	2	3	71	21	27	37
5.	35*	3031081	22928	NBS49K	42	26	0	-4	60	48	11	35
6.	32*	2027170	20305	NBS49K	43	57	1	0	69	42	12	23

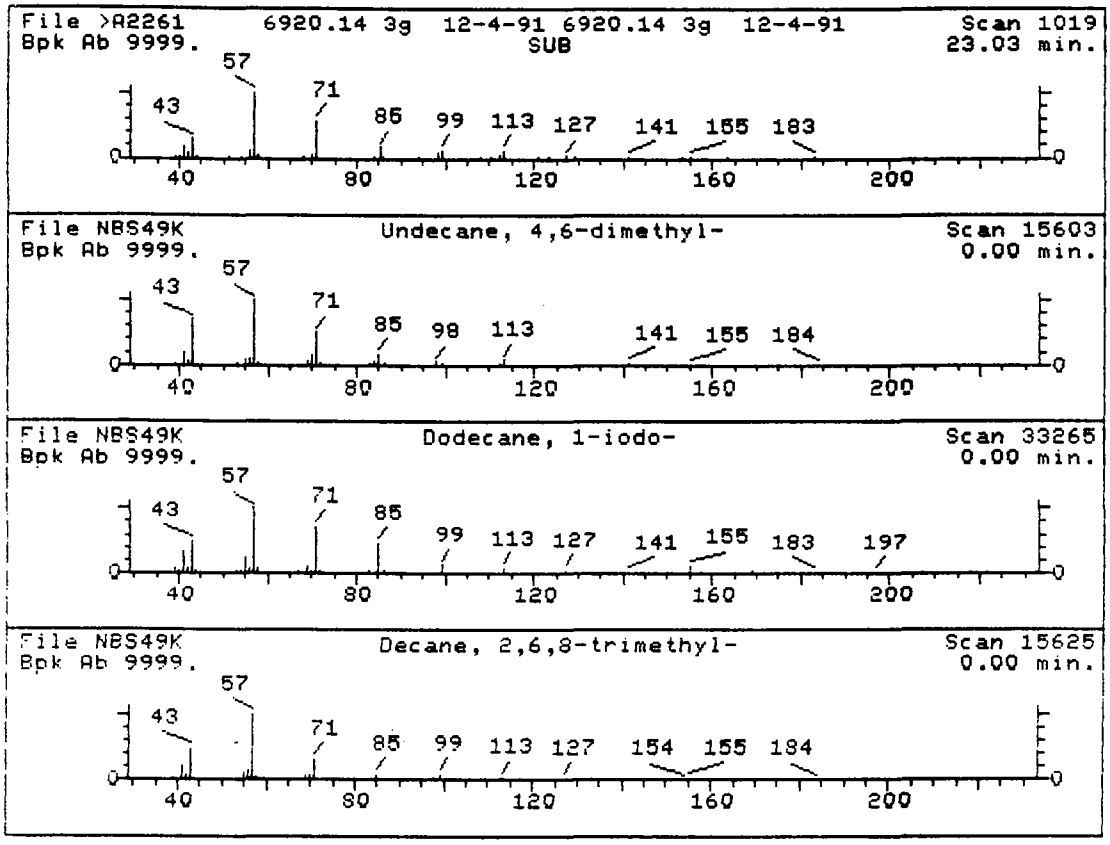


UNKNOWN #,8
AREA = 109617.0 TENTATIVE CONCENTRATION IS 19.00

1.	Hexadecane	226	C16H34
2.	Tetradecane	198	C14H30
3.	Iron, tricarbonyl[N-(phenyl-2-pyridinylmethylene)benzenamine-N,N']-	398	C21H14FeN2O3
4.	Decane, 5-propyl-	184	C13H28
5.	Decane, 2,3,5-trimethyl-	184	C13H28
6.	Heptadecane	240	C17H36

Sample file: >A2261 Spectrum #: 978
Search speed: 1 Tilting option: F No. of ion ranges searched: 47

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	83	544763	6835	NBS49K	87	33	2	1	71	4	57	23
2.	83	629594	6804	NBS49K	80	28	2	-2	72	4	57	21
3.	78	74764117	6907	NBS49K	80	57	2	2	82	5	55	14
4.	70	17312628	4395	NBS49K	61	50	2	0	71	8	42	12
5.	70	62238113	6779	NBS49K	56	47	2	0	92	10	42	13
6.	70	629787	6846	NBS49K	63	58	2	0	77	8	42	13

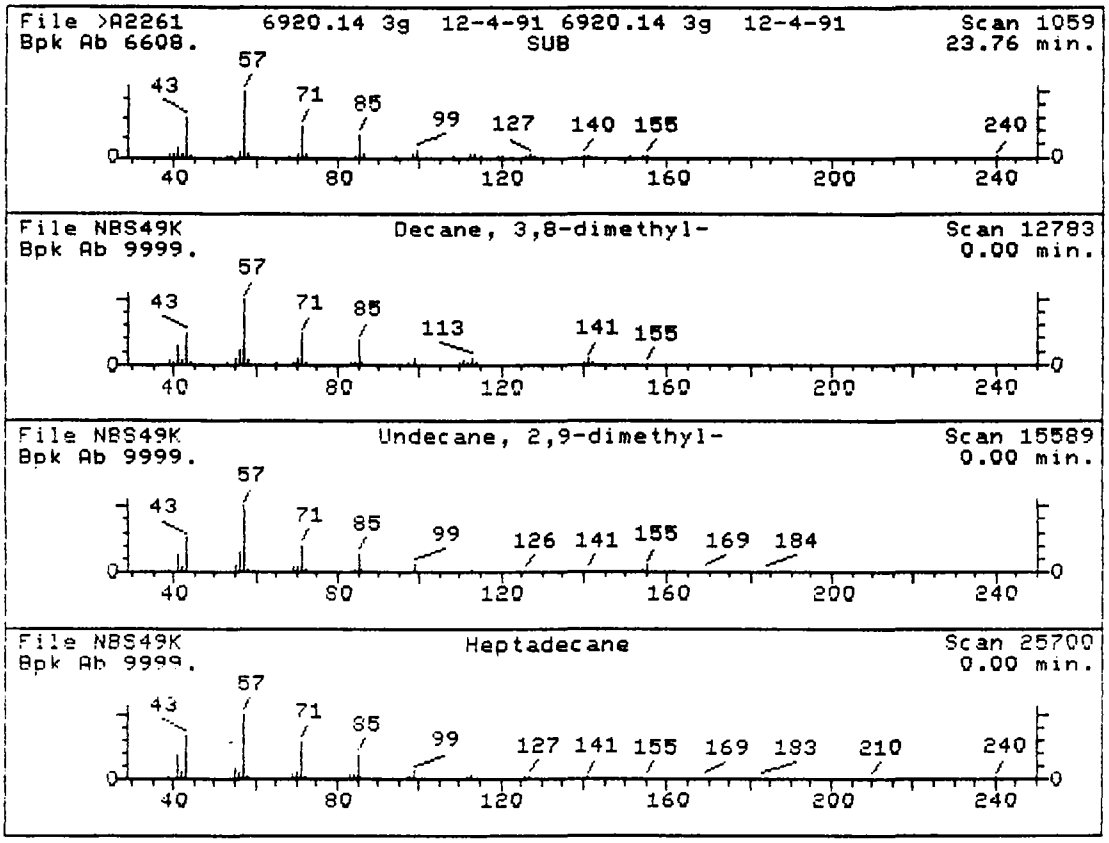


UNKNOWN #,9
AREA = 62212.00 TENTATIVE CONCENTRATION IS 8.00

1.	Undecane, 4,6-dimethyl-	184 C13H28
2.	Dodecane, 1-iodo-	296 C12H25I
3.	Decane, 2,6,8-trimethyl-	184 C13H28
4.	Dodecane, 4,6-dimethyl-	198 C14H30
5.	Octane, 5-ethyl-2-methyl-	156 C11H24
6.	Nonane, 4-methyl-5-propyl-	184 C13H28

Sample file: >A2261 Spectrum #: 1019
Search speed: 1 Tilting option: F No. of ion ranges searched: 50

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	74*	17312822	4387	NBS49K	62	36	2	0	100	11	39	41
2.	70	4292197	6876	NBS49K	75	54	3	0	80	10	42	13
3.	63*	62108263	4392	NBS49K	54	38	1	-2	79	17	30	31
4.	60*	61141728	4410	NBS49K	51	59	3	0	69	12	30	14
5.	60*	62016186	15041	NBS49K	30	68	3	0	92	14	30	13
6.	60*	62185551	12180	NBS49K	37	75	3	0	74	15	30	13

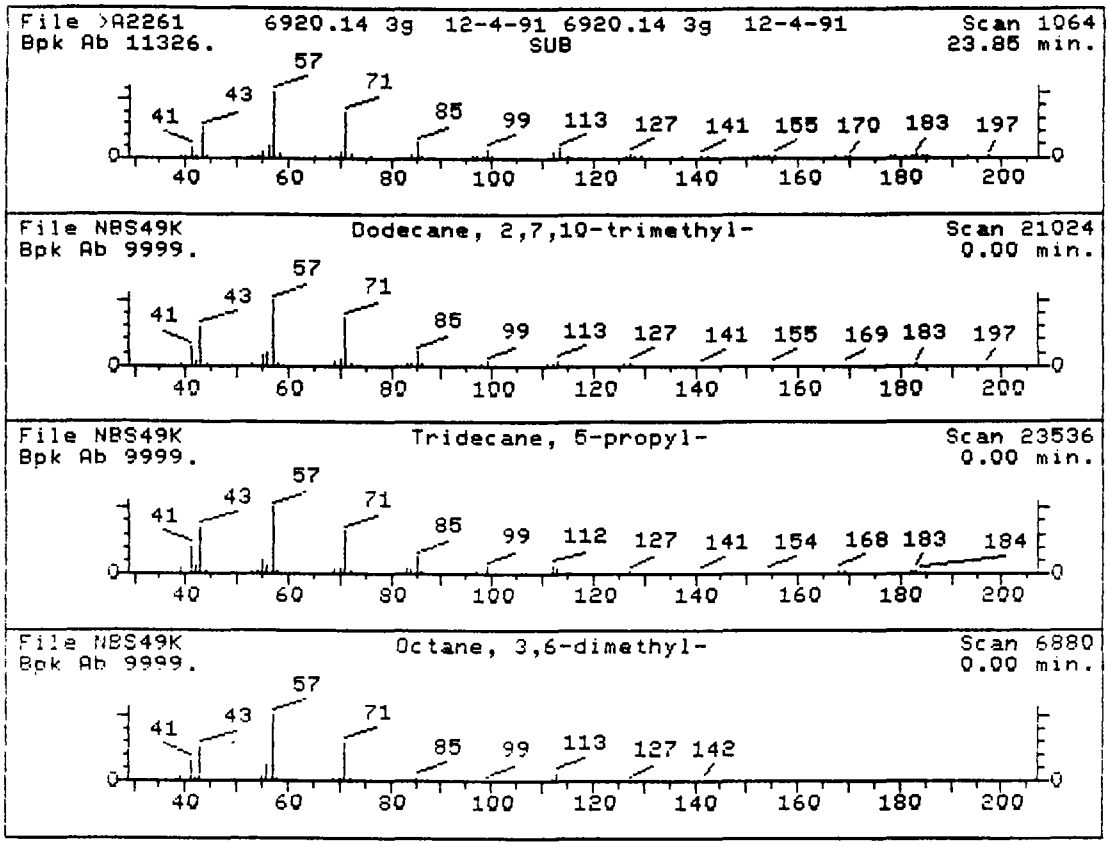


UNKNOWN #,10
AREA = 110516.0 TENTATIVE CONCENTRATION IS 14.00

1.	Decane, 3,8-dimethyl-	170	C12H26
2.	Undecane, 2,9-dimethyl-	184	C13H28
3.	Heptadecane	240	C17H36
4.	Iron, tricarbonyl[N-(phenyl-2-pyridinylmethylene)benzenamine-N,N']-	398	C21H14FeN2O3
5.	Hexadecane	226	C16H34
6.	Undecane, 3-methyl-	170	C12H26

Sample file: >A2261 Spectrum #: 1059
Search speed: 1 Tilting option: F No. of ion ranges searched: 48

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_I(
1.	78	17312559	12406	NBS49K	44	48	2	0	94	5	55	12
2.	78	17301267	9852	NBS49K	56	45	2	0	100	5	55	14
3.	76*	629787	6846	NBS49K	56	65	2	2	92	7	45	27
4.	70	74764117	6907	NBS49K	65	72	2	0	74	7	42	14
5.	70	544763	6835	NBS49K	62	58	2	0	78	7	42	13
6.	70	1002433	6739	NBS49K	44	44	2	0	100	8	42	14

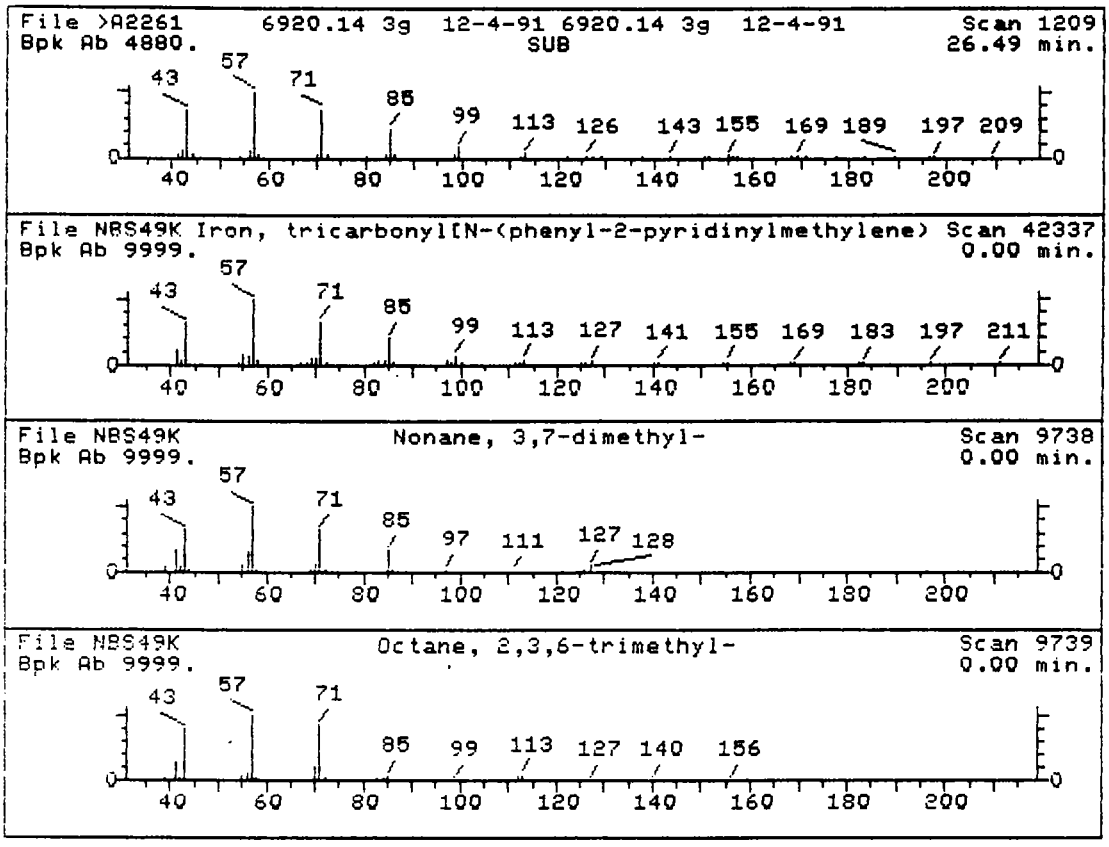


UNKNOWN #,11
AREA = 154793.0 TENTATIVE CONCENTRATION IS 19.00

1.	Dodecane, 2,7,10-trimethyl-	212 C15H32
2.	Tridecane, 5-propyl-	226 C16H34
3.	Octane, 3,6-dimethyl-	142 C10H22
4.	Dodecane, 2,6,11-trimethyl-	212 C15H32
5.	Undecane, 4,6-dimethyl-	184 C13H28
6.	Decane, 5-propyl-	184 C13H28

Sample file: >A2261 Spectrum #: 1064
Search speed: 1 Tilting option: F No. of ion ranges searched: 49

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_I
1.	83	74645980	4422	NBS49K	87	22	2	-2	84	4	57	25
2.	78	55045119	12214	NBS49K	62	53	2	0	94	2	55	13
3.	64*	15869940	12333	NBS49K	57	32	0	0	68	42	18	69
4.	52	31295564	4421	NBS49K	60	46	2	0	81	19	20	13
5.	52*	17312822	4387	NBS49K	52	46	2	-1	100	19	20	18
6.	50*	17312628	4395	NBS49K	53	58	2	0	61	26	19	28

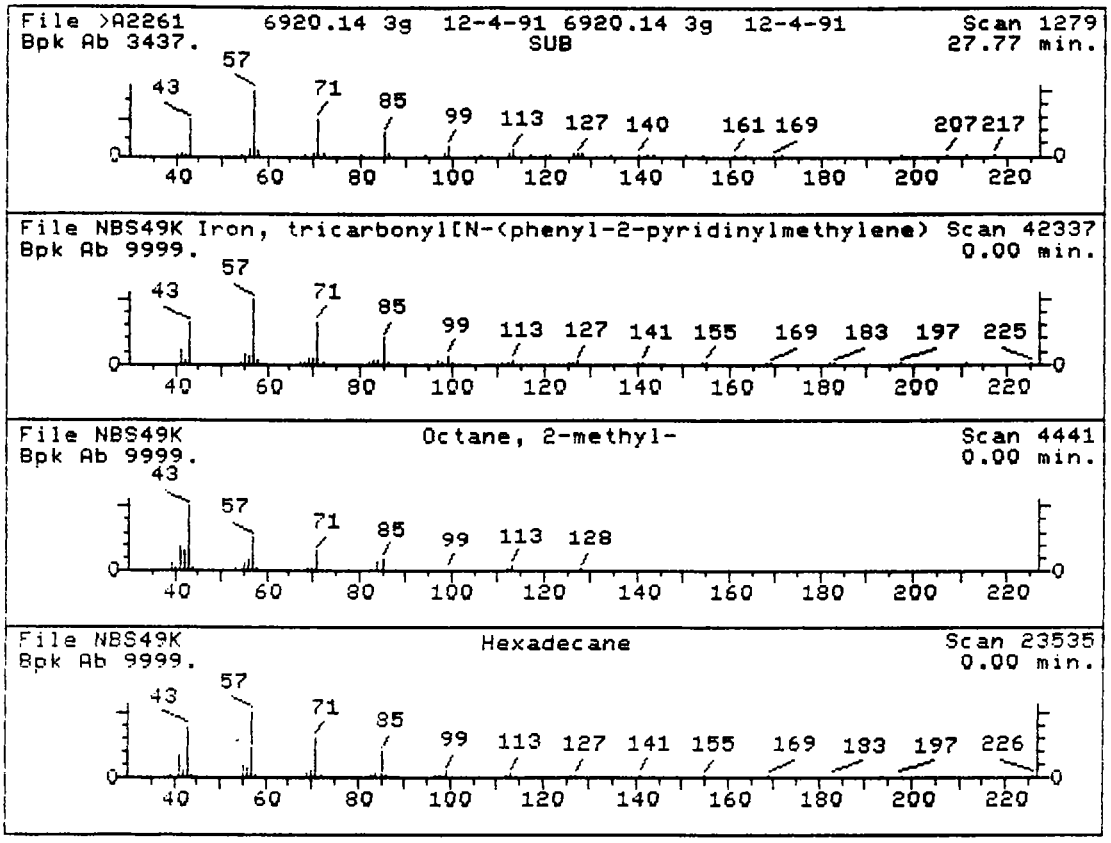


UNKNOWN #,12
AREA = 70601.00 TENTATIVE CONCENTRATION IS 9.00

1.	Iron, tricarbonyl[N-(phenyl-2-pyridinylmethylene)benzenamine-N,N']-	398	C21H14FeN2O3
2.	Nonane, 3,7-dimethyl-	156	C11H24
3.	Octane, 2,3,6-trimethyl-	156	C11H24
4.	Hexadecane	226	C16H34
5.	Heptane, 3-ethyl-5-methyl-	142	C10H22
6.	Octane, 3-ethyl-	142	C10H22

Sample file: >A2261 Spectrum #: 1209
Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_I
1.	78	74764117	6907	NBS49K	72	65	2	0	91	4	55	17
2.	70	17302328	6677	NBS49K	49	38	3	0	100	9	42	13
3.	48	62016335	4356	NBS49K	57	35	2	0	85	25	17	19
4.	43	544763	6835	NBS49K	65	55	2	0	78	23	17	14
5.	43	52896909	4332	NBS49K	49	45	2	0	81	25	17	14
6.	42	5881174	4326	NBS49K	55	38	2	0	72	26	14	19

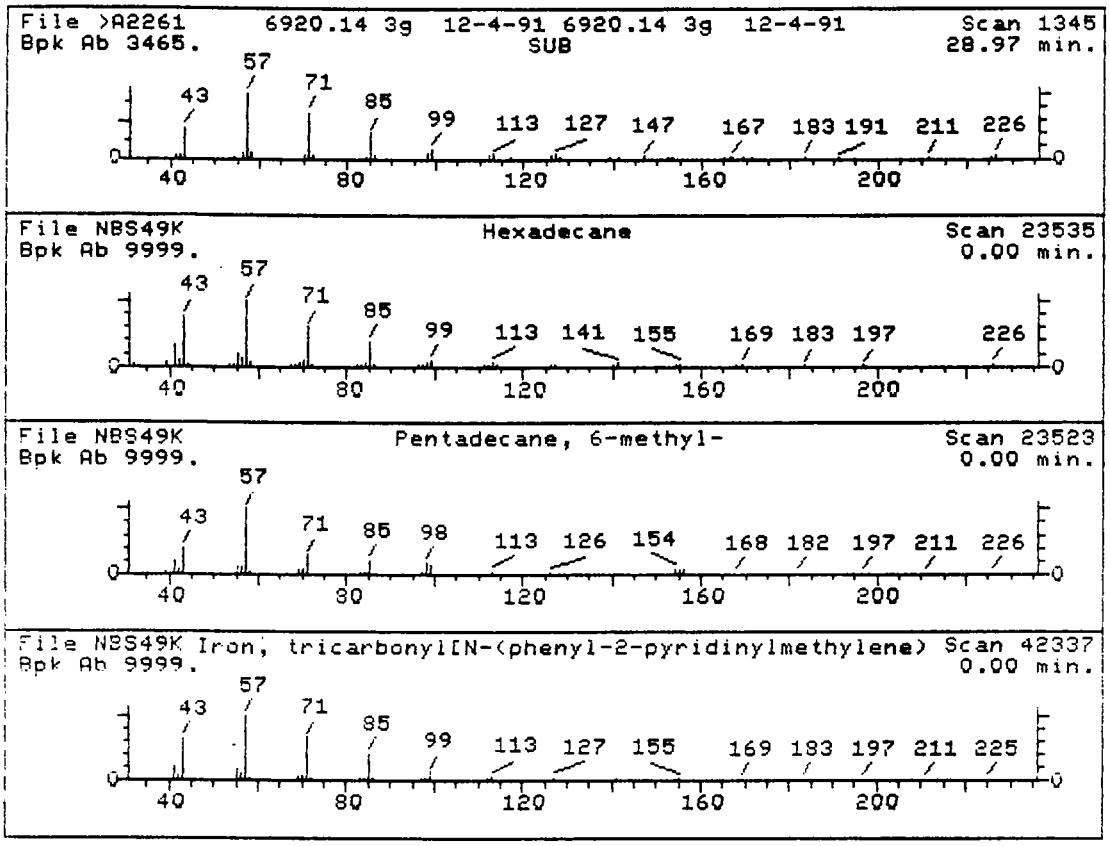


UNKNOWN #,13
AREA = 52415.00 TENTATIVE CONCENTRATION IS 7.00

1.	Iron, tricarbonyl[N-(phenyl-2-pyridinylmethylene)benzenamine-N,N']-	398	C21H14FeN2O3
2.	Octane, 2-methyl-	128	C9H20
3.	Hexadecane	226	C16H34
4.	Nonane, 3,7-dimethyl-	156	C11H24
5.	Heptane, 2,6-dimethyl-	128	C9H20
6.	3-Octen-2-ol, 2-methyl-, (Z)-	142	C9H18O

Sample file: >A2261 Spectrum #: 1279
Search speed: 1 Tilting option: F No. of ion ranges searched: 53

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	60	74764117	6907	NBS49K	72	65	2	0	88	14	30	17
2.	42*	3221612	6598	NBS49K	35	60	3	0	195	24	17	13
3.	42	544763	6835	NBS49K	63	57	2	0	73	21	17	13
4.	37	17302328	6677	NBS49K	44	43	2	0	88	26	14	14
5.	35*	1072055	6606	NBS49K	22	70	3	0	174	26	14	12
6.	30*	18521078	15024	NBS49K	41	65	3	0	57	34	12	13

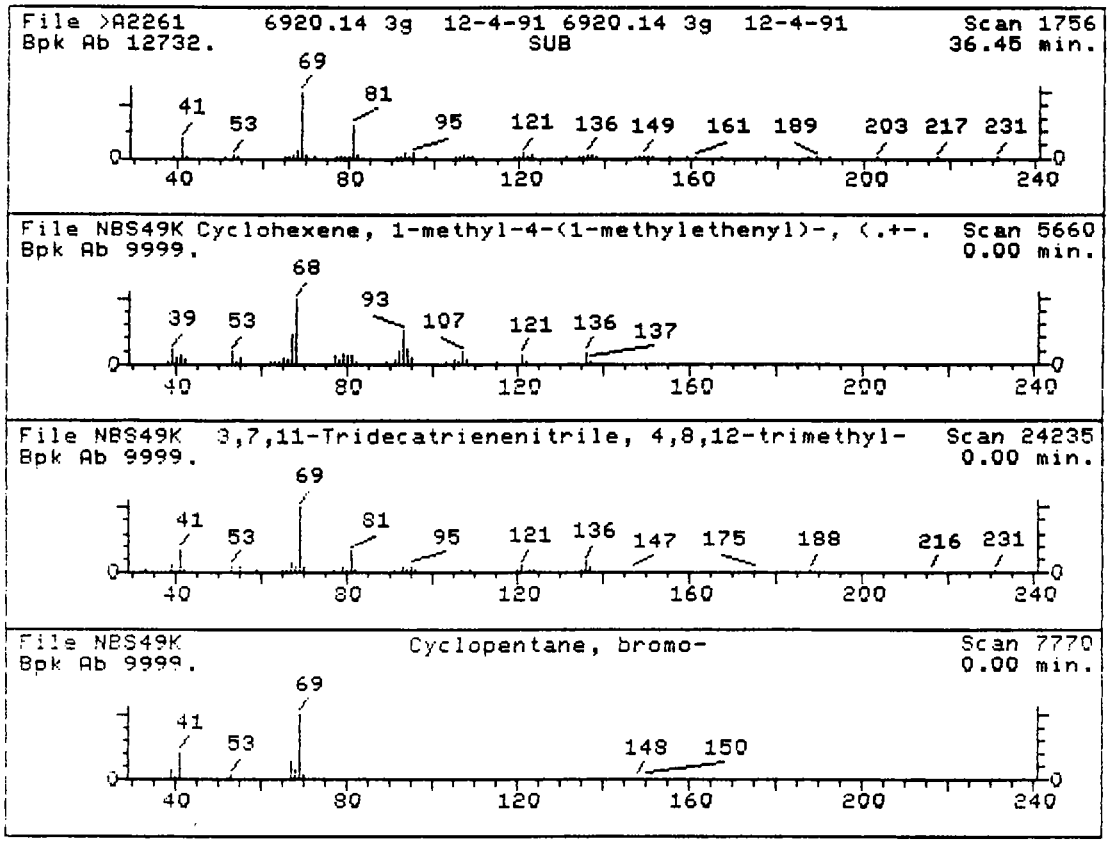


UNKNOWN #,14
AREA = 52319.00 TENTATIVE CONCENTRATION IS 7.00

1.	Hexadecane	226	C16H34
2.	Pentadecane, 6-methyl-	226	C16H34
3.	Iron, tricarbonyl[N-(phenyl-2-pyridinylmethylene)benzenamine-N,N']-	398	C21H14FeN2O3
4.	Dodecane, 1-iodo-	296	C12H25I
5.	Octane, 2,3,6-trimethyl-	156	C11H24
6.	2-Pentene, 1-ethoxy-4-methyl-, (Z)-	128	C8H16O

Sample file: >A2261 Spectrum #: 1345
Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	76*	544763	6835	NBS49K	63	57	2	-2	69	10	45	24
2.	70*	10105381	9905	NBS49K	25	89	3	0	204	8	42	13
3.	60	74764117	6907	NBS49K	71	66	2	0	99	12	30	17
4.	52	4292197	6876	NBS49K	77	52	3	0	86	16	20	14
5.	20	62016335	4356	NBS49K	43	49	2	0	62	54	5	12
6.	11*	51149758	6593	NBS49K	23	82	3	0	63	64	2	12



UNKNOWN #,15
AREA = 133392.0 TENTATIVE CONCENTRATION IS 32.00

1.	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (.+-.)-	136	C10H16
2.	3,7,11-Tridecatrienenitrile, 4,8,12-trimethyl-	231	C16H25N
3.	Cyclopentane, bromo-	148	C5H9Br
4.	1,5-Heptadiene, 2,3,6-trimethyl-	138	C10H18
5.	Cyclohexene, 4-ethenyl-1,4-dimethyl-	136	C10H16
6.	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (S)-	136	C10H16

Sample file: >A2261 Spectrum #: 1756
Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	62*	7705148	3637	NBS49K	39	29	0	3	10	30	25	40
2.	52*	6006015	16861	NBS49K	41	70	2	3	100	19	20	12
3.	46*	137439	3766	NBS49K	35	25	2	0	75	21	17	17
4.	42*	33501881	3758	NBS49K	27	61	3	0	100	21	17	13
5.	40*	1743619	3633	NBS49K	31	33	0	4	10	30	14	17
6.	36*	5989548	3642	NBS49K	37	35	1	4	10	30	14	13

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Environmental Profile Lab Contract: Serv-Air

Lab Code: 15526

Lab File ID: >A2250 DFTPP Injection Date: 12/04/91

Instrument ID: 5970 GC/MS #2 DFTPP Injection Time: 12:43

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	48.8
68	Less than 2.0% of mass 69	.7(1.3)1
69	Mass 69 relative abundance	53.
70	Less than 2.0% of mass 69	.5(.9)1
127	40.0 - 60.0% of mass 198	40.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5.0 - 9.0% of mass 198	5.8
275	10.0 - 30.0% of mass 198	18.3
365	Greater than 1.00% of mass 198	1.71
441	Present, but less than mass 443	10.6
442	Greater than 40.0% of mass 198	71.7
443	17.0 - 23.0% of mass 442	12.5(17.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCC/SPCC	CCC/SPCC	>A2251	12/04/91	13:21
02	BN S1 Blk	BN S1 Blk	>A2257	12/04/91	19:58
03	6920.8 30g	6920.8 30g	>A2260	12/04/91	22:37
04	6920.14 3g	6920.14 3g	>A2261	12/04/91	23:30
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 12/04/91

Contractor: E.P.L. Time: 13:21

Contract No: _____ Laboratory ID: >A2251

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Pyridine	3.24777	3.03081	6.68		
N-nitroso-dimethylamine	.85289	1.15357	35.26		
2-Fluorophenol	1.71828	1.60223	6.75		
Phenol-d5	2.09428	1.35480	35.31		
Phenol	3.75717	3.19729	14.90	*	
Aniline	3.16751	2.17134	31.45		
bis(2-Chloroethyl)Ether	2.53814	1.88662	25.67		
2-Chlorophenol	2.30723	2.04706	11.28		
1,3-Dichlorobenzene	2.04722	2.13014	4.05		
1,4-Dichlorobenzene	2.09749	2.14623	2.32	*	
Benzyl alcohol	1.14457	.71740	37.32		
1,2-Dichlorobenzene	2.11303	2.24582	6.28		
2-Methylphenol	1.83382	1.14912	37.34		
bis(2-chloroisopropyl)ether	3.84304	2.60664	32.17		
4-Methylphenol	1.63779	1.12722	31.17		
N-Nitroso-Di-n-propylamine	1.37127	1.07570	21.55		**
Hexachloroethane	.67995	.83670	23.05		
Nitrobenzene-d5	.45905	.45652	.55		
Nitrobenzene	.46649	.47134	1.04		
Isophorone	1.06350	.99310	6.62		
2-Nitrophenol	.31730	.30487	3.92	*	
2,4-Dimethylphenol	.43126	.44577	3.36		
Benzoic Acid	.26992	.26764	.84		
bis(2-Chloroethoxy)methane	.71761	.64186	10.56		
2,4-Dichlorophenol	.43487	.48142	10.70	*	
1,2,4-Trichlorobenzene	.34031	.41331	21.45		
Naphthalene	1.20948	1.25377	3.66		
4-Chloroaniline	.53863	.53513	.65		
Hexachlorobutadiene	.16261	.19373	19.14	*	
4-Chloro-3-methylphenol	.49897	.58063	16.37	*	
2-Methylnaphthalene	.67770	.71398	5.35		
Hexachlorocyclopentadiene	.26942	.29152	8.20		**

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/04/91

Contractor: E.P.L. Time: 13:21

Contract No: Laboratory ID: >A2251

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2,4,6-Trichlorophenol	.59219	.65243	10.17	*	
2,4,5-Trichlorophenol	.46639	.53738	15.22		
2-Chloronaphthalene	1.31543	1.31999	.35		
2-Fluorobiphenyl	1.44988	1.45742	.52		
2-Nitroaniline	.54228	.45767	15.60		
Dimethylphthalate	1.60671	1.64456	2.36		
Acenaphthylene	2.14842	2.21773	3.23		
3-Nitroaniline	.44307	.40537	8.51		
Acenaphthene	1.37822	1.43239	3.93	*	
2,4-Dinitrophenol	.18817	.13693	27.23		**
4-Nitrophenol	.45666	.36266	20.58		**
Dibenzofuran	1.95587	1.91806	1.93		
2,6-Dinitrotoluene	.35549	.34818	2.06		
2,4-Dinitrotoluene	.52450	.47748	8.97		
Diethylphthalate	1.72984	1.81367	4.85		
4-Chlorophenyl-phenylether	.64988	.71806	10.49		
Fluorene	1.45216	1.51817	4.55		
4-Nitroaniline	.47514	.40194	15.41		
4,6-Dinitro-2-methylphenol	.21447	.21651	.95		
N-Nitrosodiphenylamine	.61023	.60148	1.43	*	
1,2-Diphenylhydrazine	1.47629	1.24275	15.82		
2,4,6-Tribromophenol	.10443	.13271	27.08		
4-Bromophenyl-phenylether	.21707	.25170	15.95		
Hexachlorobenzene	.25718	.33042	28.48		
Pentachlorophenol	.22578	.26479	17.28	*	
Phenanthrene	1.34504	1.27408	5.28		
Anthracene	1.01154	1.19288	17.93		
Di-n-butylphthalate	1.56787	1.73650	10.76		
Fluoranthene	1.16707	1.32711	13.71	*	
Benzidine	.71221	.61608	13.50		
Pyrene	1.89229	1.67541	11.46		
Terphenyl-d14	1.13104	1.11412	1.50		

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

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Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/04/91

Contractor: E.P.L. Time: 13:21

Contract No: Laboratory ID: >A2251

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Butylbenzylphthalate	1.10347	.89784	18.63		
3,3`-Dichlorobenzidine	.70376	.48035	31.75		
Benzo(a)anthracene	1.52095	1.45107	4.59		
bis(2-Ethylhexyl)phthalate	1.52940	1.32043	13.66		
Chrysene	1.29131	1.32326	2.47		
Di-n-octylphthalate	3.68733	2.90185	21.30	*	
Benzo(b)fluoranthene	1.69126	2.00673	18.65		
Benzo(k)fluoranthene	1.57838	1.55376	1.56		
Benzo(a)pyrene	1.51877	1.63766	7.83	*	
Indeno(1,2,3-cd)pyrene	1.69679	1.86171	9.72		
Dibenz(a,h)anthracene	1.20062	1.39641	16.31		
Benzo(g,h,i)perylene	1.36332	1.52618	11.95		

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

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Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/05/91

Contractor: E.P.L. Time: 13:10

Contract No: Laboratory ID: >A2263

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Pyridine	3.24777	2.56127	21.14		
N-nitroso-dimethylamine	.85289	1.13045	32.54		
2-Fluorophenol	1.71828	1.52004	11.54		
Phenol-d5	2.09428	1.82828	12.70		
Phenol	3.75717	3.47354	7.55	*	
Aniline	3.16751	2.77874	12.27		
bis(2-Chloroethyl)Ether	2.53814	2.35120	7.37		
2-Chlorophenol	2.30723	2.23897	2.96		
1,3-Dichlorobenzene	2.04722	2.05429	.35		
1,4-Dichlorobenzene	2.09749	2.13294	1.69	*	
Benzyl alcohol	1.14457	1.15648	1.04		
1,2-Dichlorobenzene	2.11303	2.35024	11.23		
2-Methylphenol	1.83382	1.74259	4.97		
bis(2-chloroisopropyl)ether	3.84304	4.26468	10.97		
4-Methylphenol	1.63779	1.77272	8.24		
N-Nitroso-Di-n-propylamine	1.37127	1.81218	32.15		**
Hexachloroethane	.67995	.83008	22.08		
Nitrobenzene-d5	.45905	.45505	.87		
Nitrobenzene	.46649	.46093	1.19		
Isophorone	1.06350	1.04943	1.32		
2-Nitrophenol	.31730	.33467	5.47	*	
2,4-Dimethylphenol	.43126	.44214	2.52		
Benzoic Acid	.26992	.28436	5.35		
bis(2-Chloroethoxy)methane	.71761	.70016	2.43		
2,4-Dichlorophenol	.43487	.47133	8.38	*	
1,2,4-Trichlorobenzene	.34031	.38478	13.07		
Naphthalene	1.20948	1.23980	2.51		
4-Chloroaniline	.53863	.56317	4.56		
Hexachlorobutadiene	.16261	.19275	18.53	*	
4-Chloro-3-methylphenol	.49897	.54267	8.76	*	
2-Methylnaphthalene	.67770	.76819	13.35		
Hexachlorocyclopentadiene	.26942	.29910	11.01		**

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

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Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/05/91

Contractor: E.P.L. Time: 13:10

Contract No: Laboratory ID: >A2263

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2,4,6-Trichlorophenol	.59219	.59792	.97	*	
2,4,5-Trichlorophenol	.46639	.45748	1.91		
2-Chloronaphthalene	1.31543	1.31377	.13		
2-Fluorobiphenyl	1.44988	1.48017	2.09		
2-Nitroaniline	.54228	.50764	6.39		
Dimethylphthalate	1.60671	1.66977	3.92		
Acenaphthylene	2.14842	2.21826	3.25		
3-Nitroaniline	.44307	.42426	4.25		
Acenaphthene	1.37822	1.41258	2.49	*	
2,4-Dinitrophenol	.18817	.19091	1.46		**
4-Nitrophenol	.45666	.40603	11.09		**
Dibenzofuran	1.95587	1.91603	2.04		
2,6-Dinitrotoluene	.35549	.36108	1.57		
2,4-Dinitrotoluene	.52450	.52753	.58		
Diethylphthalate	1.72984	1.84951	6.92		
4-Chlorophenyl-phenylether	.64988	.70778	8.91		
Fluorene	1.45216	1.51766	4.51		
4-Nitroaniline	.47514	.44043	7.31		
4,6-Dinitro-2-methylphenol	.21447	.22203	3.53		
N-Nitrosodiphenylamine	.61023	.64064	4.98	*	
1,2-Diphenylhydrazine	1.47629	1.42823	3.26		
2,4,6-Tribromophenol	.10443	.10490	.45		
4-Bromophenyl-phenylether	.21707	.24555	13.12		
Hexachlorobenzene	.25718	.28139	9.42		
Pentachlorophenol	.22578	.22440	.61	*	
Phenanthrene	1.34504	1.48412	10.34		
Anthracene	1.01154	1.03699	2.52		
Di-n-butylphthalate	1.56787	1.46257	6.72		
Fluoranthene	1.16707	1.06099	9.09	*	
Benzidine	.71221	.79351	11.42		
Pyrene	1.89229	1.82874	3.36		
Terphenyl-d14	1.13104	1.11733	1.21		

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/05/91

Contractor: E.P.L. Time: 13:10

Contract No: Laboratory ID: >A2263

Instrument ID: No. 2: Semivolatiles Initial Calibration Date: 11/21/91

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25.0%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
Butylbenzylphthalate	1.10347	1.06833	3.18		
3,3`-Dichlorobenzidine	.70376	.72614	3.18		
Benzo(a)anthracene	1.52095	1.54267	1.43		
bis(2-Ethylhexyl)phthalate	1.52940	1.49521	2.24		
Chrysene	1.29131	1.38247	7.06		
Di-n-octylphthalate	3.68733	3.23230	12.34	*	
Benzo(b)fluoranthene	1.69126	1.68592	.32		
Benzo(k)fluoranthene	1.57838	1.27149	19.44		
Benzo(a)pyrene	1.51877	1.51568	.20	*	
Indeno(1,2,3-cd)pyrene	1.69679	1.72868	1.88		
Dibenz(a,h)anthracene	1.20062	1.25752	4.74		
Benzo(g,h,i)perylene	1.36332	1.39930	2.64		

RF - Response Factor from daily standard file at 50.00 ng/uL

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: No. 2: Semivolatiles

Contractor: E.P.L. Calibration Date: 11/21/91

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>A2197	>A2196	>A2198	>A2199	>A2200					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Pyridine	3.36682	3.33232	3.25539	3.23189	3.05244	.433	3.24777	3.764		
N-nitroso-dimethylamine	.76214	.78519	.87551	.88379	.95780	.435	.85289	9.323		
2-Fluorophenol	1.70137	1.70295	1.73414	1.76901	1.68394	.719	1.71828	1.958		
Phenol-d5	2.36631	2.19341	1.90582	1.93898	2.06686	.940	2.09428	9.066		
Phenol	4.41646	4.03223	3.38047	3.46384	3.49286	.942	3.75717	11.963	*	
Aniline	3.26980	3.24348	3.00511	3.08960	3.22955	.934	3.16751	3.618		
bis(2-Chloroethyl)Ether	2.71688	2.73469	2.31401	2.41767	2.50747	.954	2.53814	7.272		
2-Chlorophenol	2.46856	2.44770	2.15491	2.22111	2.24388	.958	2.30723	6.144		
1,3-Dichlorobenzene	2.10843	2.07754	2.00854	2.02785	2.01371	.990	2.04722	2.138		
1,4-Dichlorobenzene	2.19426	2.13023	2.03632	2.06055	2.06608	1.004	2.09749	3.065	*	
Benzyl alcohol	1.36100	1.32921	.97812	.99529	1.05922	1.048	1.14457	16.240		
1,2-Dichlorobenzene	2.40066	2.16894	2.02781	1.99675	1.97102	1.049	2.11303	8.426		
2-Methylphenol	2.09969	2.09026	1.60680	1.67835	1.69402	1.086	1.83382	13.124		
bis(2-chloroisopropyl)ether	4.10170	4.20127	3.39059	3.58356	3.93809	1.089	3.84304	8.979		
4-Methylphenol	2.09676	1.84402	1.34169	1.37364	1.53282	1.123	1.63779	19.824		
N-Nitroso-Di-n-propylamine	1.65645	1.55625	1.12258	1.16349	1.35759	1.125	1.37127	17.132		**
Hexachloroethane	.82857	.68186	.60592	.60386	.67956	1.124	.67995	13.431		
Nitrobenzene-d5	.46898	.46453	.44568	.44204	.47400	.867	.45905	3.119		
Nitrobenzene	.48940	.46413	.46485	.43386	.48023	.870	.46649	4.530		
Isophorone	1.11761	1.08689	1.02967	1.01806	1.06525	.918	1.06350	3.845		
2-Nitrophenol	.30898	.32041	.31895	.31795	.32021	.933	.31730	1.499	*	
2,4-Dimethylphenol	.44565	.43079	.42873	.41754	.43359	.949	.43126	2.339		
Benzoic Acid	.24637	.26647	.26931	.27380	.29364	.978	.26992	6.268		
bis(2-Chloroethoxy)methane	.72742	.73241	.71379	.68932	.72513	.968	.71761	2.400		
2,4-Dichlorophenol	.47295	.45476	.42121	.41020	.41526	.979	.43487	6.324	*	
1,2,4-Trichlorobenzene	.36056	.34986	.33690	.33293	.32131	.994	.34031	4.476		
Naphthalene	1.28203	1.24766	1.18713	1.15169	1.17890	1.004	1.20948	4.432		
4-Chloroaniline	.56689	.56699	.52492	.52504	.50932	1.025	.53863	4.942		
Hexachlorobutadiene	.16596	.16858	.16173	.16399	.15280	1.045	.16261	3.713	*	
4-Chloro-3-methylphenol	.58357	.50747	.45878	.45500	.49005	1.130	.49897	10.441	*	

RF - Response Factor (Subscript is amount in ng/uL)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

63

Initial Calibration Data
HSL Compounds

Case No: Instrument ID: No. 2: Semivolatiles

Contractor: E.P.L. Calibration Date: 11/21/91

Contract No:

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>A2197	>A2196	>A2198	>A2199	>A2200					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2-Methylnaphthalene	.70753	.72477	.64980	.64909	.65730	1.145	.67770	5.278		
Hexachlorocyclopentadiene	.12366	.26399	.31046	.32613	.32288	.877	.26942	31.621		**
2,4,6-Trichlorophenol	.62361	.56549	.59607	.60425	.57151	.891	.59219	4.039	*	
2,4,5-Trichlorophenol	.50480	.46197	.45786	.45817	.44912	.896	.46639	4.714		
2-Chloronaphthalene	1.36623	1.30084	1.31717	1.30866	1.28423	.914	1.31543	2.348		
2-Fluorobiphenyl	1.49133	1.45633	1.44968	1.43365	1.41843	.903	1.44988	1.893		
2-Nitroaniline	.54059	.55623	.55093	.54909	.51458	.938	.54228	3.039		
Dimethylphthalate	1.84237	1.63474	1.58178	1.49541	1.47927	.975	1.60671	9.103		
Acenaphthylene	2.36046	2.12978	2.12955	2.03446	2.08782	.976	2.14842	5.810		
3-Nitroaniline	.45899	.44190	.44624	.43590	.43232	1.002	.44307	2.346		
Acenaphthene	1.47803	1.38812	1.36859	1.31155	1.34482	1.005	1.37822	4.548	*	
2,4-Dinitrophenol	.16259	.19417	.18905	.19936	.19566	1.018	.18817	7.850		**
4-Nitrophenol	.50713	.39743	.45465	.44363	.48045	1.034	.45666	9.026		**
Dibenzofuran	2.06460	1.91764	1.98525	1.93493	1.87695	1.029	1.95587	3.688		
2,6-Dinitrotoluene	.36250	.37092	.35463	.34980	.33959	.983	.35549	3.368		
2,4-Dinitrotoluene	.56243	.53561	.52773	.51147	.48525	1.041	.52450	5.462		
Diethylphthalate	2.05118	1.80284	1.68039	1.57294	1.54183	1.083	1.72984	11.953		
4-Chlorophenyl-phenylether	.70103	.65601	.65991	.64135	.59110	1.085	.64988	6.098		
Fluorene	1.61334	1.49836	1.43588	1.37794	1.33527	1.081	1.45216	7.508		
4-Nitroaniline	.52725	.47882	.46933	.46183	.43850	1.095	.47514	6.886		
4,6-Dinitro-2-methylphenol	.18934	.22140	.21620	.22445	.22093	.902	.21447	6.692		
N-Nitrosodiphenylamine	.59201	.64696	.60287	.60921	.60011	.906	.61023	3.513	*	
1,2-Diphenylhydrazine	1.35205	1.61279	1.41191	1.39535	1.60934	.909	1.47629	8.465		
2,4,6-Tribromophenol	.09839	.10719	.10486	.10921	.10251	.918	.10443	4.028		
4-Bromophenyl-phenylether	.20479	.22746	.21351	.21965	.21993	.949	.21707	3.898		
Hexachlorobenzene	.24796	.26091	.25787	.26307	.25606	.964	.25718	2.261		
Pentachlorophenol	.20275	.22622	.22837	.23814	.23344	.987	.22578	6.058	*	
Phenanthrene	1.30606	1.43363	1.33760	1.33429	1.31363	1.003	1.34504	3.814		
Anthracene	1.10855	.92118	1.00634	1.01574	1.00590	1.008	1.01154	6.567		
Di-n-butylphthalate	1.61911	1.50015	1.56252	1.46961	1.68795	1.089	1.56787	5.643		

RF - Response Factor (Subscript is amount in ng/uL)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: No. 2: Semivolatiles

Contractor: E.P.L. Calibration Date: 11/21/91

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30.0%

Laboratory ID:	>A2197	>A2196	>A2198	>A2199	>A2200					
	RF	RF	RF	RF	RF					
Compound	20.00	50.00	80.00	120.00	160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Fluoranthene	1.27212	1.01558	1.18288	1.18535	1.17945	1.149	1.16707	7.983	*	
Benzidine	.27297	.49787	.86630	1.00070	.92320	.884	.71221	43.863		
Pyrene	1.91207	1.90348	1.83481	2.01210	1.79901	.887	1.89229	4.332		
Terphenyl-d14	1.06070	1.16339	1.09964	1.22496	1.10651	.907	1.13104	5.662		
Butylbenzylphthalate	.98791	1.22788	1.02194	1.14730	1.13231	.959	1.10347	8.860		
3,3`-Dichlorobenzidine	.65783	.71924	.69412	.73234	.71526	1.001	.70376	4.137		
Benzo(a)anthracene	1.45744	1.57881	1.53890	1.55349	1.47610	.998	1.52095	3.412		
bis(2-Ethylhexyl)phthalate	1.44506	1.61449	1.47389	1.62412	1.48945	1.016	1.52940	5.471		
Chrysene	1.24888	1.30254	1.29539	1.33801	1.27172	1.002	1.29131	2.600		
Di-n-octylphthalate	3.41504	4.14088	3.59900	3.71334	3.56837	.952	3.68733	7.458	*	
Benzo(b)fluoranthene	1.58501	1.21929	2.07772	1.84875	1.72554	.972	1.69126	18.916		
Benzo(k)fluoranthene	1.64274	2.00467	1.28824	1.49056	1.46571	.974	1.57838	17.072		
Benzo(a)pyrene	1.40794	1.57832	1.56555	1.55271	1.48931	.996	1.51877	4.660	*	
Indeno(1,2,3-cd)pyrene	1.59677	1.80791	1.69366	1.70902	1.67656	1.097	1.69679	4.461		
Dibenz(a,h)anthracene	1.17374	1.28753	1.20668	1.19271	1.14243	1.100	1.20062	4.516		
Benzo(g,h,i)perylene	1.28617	1.44883	1.38485	1.34465	1.35207	1.124	1.36332	4.371		

RF - Response Factor (Subscript is amount in ng/uL)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Profile Lab

Lab Code: 15526

Matrix Spike - EPL Sample No.: BN S1 Blk

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	#	QC LIMITS REC.
1,4-Dichlorobenzene	100.00	0.00	61.70	61		28-104
N-Nitroso-di-n-prop.(1)	100.00	0.00	44.00	43		41-126
1,2,4-Trichlorobenzene	100.00	0.00	89.30	89		38-107
Acenaphthene	100.00	0.00	75.50	75		31-137
2,4-Dinitrotoluene	100.00	0.00	55.40	55		28- 89
Pyrene	100.00	0.00	69.80	69		35-142

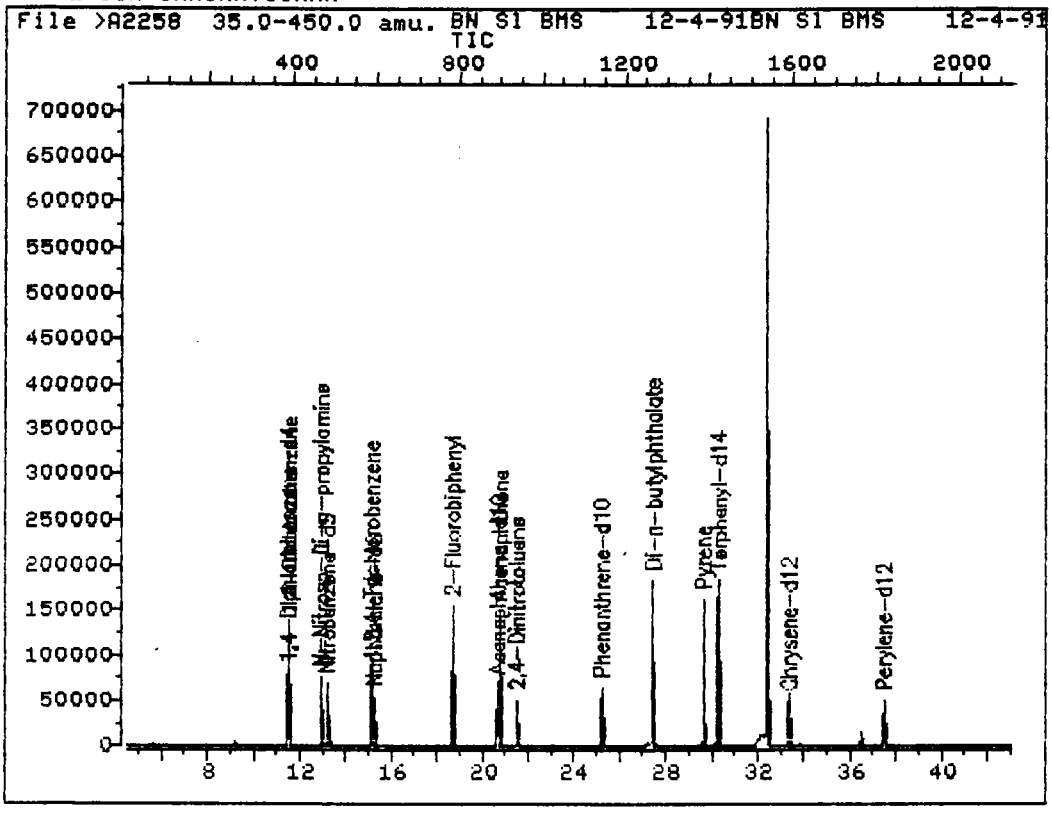
(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of qc limits

Spike Recovery: 0 out of 6 outside limits

COMMENTS: _____.

TOTAL ION CHROMATOGRAM



Data File: >A2258::D3 Quant Output File: ^A2258::DB
Name: BN S1 BMS 12-4-91
Misc: BN S1 BMS 12-4-91 BTL# 6

Id File: IDBNA::D4
Title: Semivolatile Organics (EPA Methods 625/8270) by GC/MS
Last Calibration: 911127 14:01

Operator ID: MARK
Quant Time: 911204 21:35
Injected at: 911204 20:51

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Environmental Profile Lab Contract: Serv-Air

Lab Code: 15526

Lab File ID: >A2257 Lab Sample ID: BN S1 Blk

Date Extracted: 12/04/91 Extraction: Sonc

Date Analyzed: 12/04/91 Time Analyzed: 19:58

Matrix: Soil

Instrument ID: GC/MSD 5970 #2

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

	EPL SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	CCC/SPCC	CCC/SPCC	>A2251	12/04/91
02	6920.8 30g	6920.8 30g	>A2260	12/04/91
03	6920.14 3g	6920.14 3g	>A2261	12/04/91
04				
05				
06				
07				
08				
09				
10				
11				
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30				

COMMENTS: _____

Environmental Profile Laboratories
BASE/NEUTRAL/ACID ANALYSIS DATA

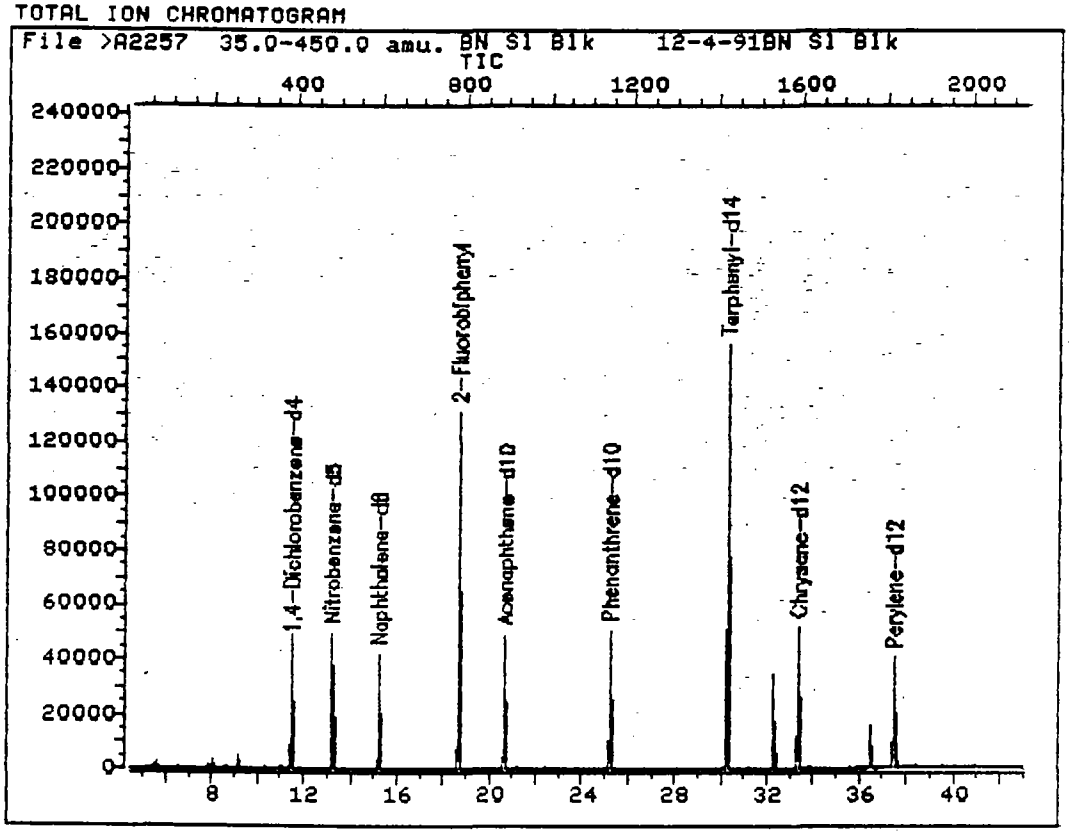
JOB NUMBER		MATRIX	Soil
SAMPLE NAME	BN S1 Blk 12-4-91	DILUTION FACTOR	1.00
CLIENT ID		QA BATCH	
DATA FILE	>A2257	DATE ANALYZED	12/04/91

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-nitroso-dimethylamine	ND	330	Diethylphthalate	ND	330
bis(2-Chloroethyl)Ether	ND	330	4-Chlorophenyl-phenylether	ND	330
1,3-Dichlorobenzene	ND	330	Fluorene	ND	330
1,4-Dichlorobenzene	ND	330	N-Nitrosodiphenylamine	ND	330
Benzyl alcohol	ND	330	4-Bromophenyl-phenylether	ND	330
1,2-Dichlorobenzene	ND	330	Hexachlorobenzene	ND	330
bis(2-chloroisopropyl)ether	ND	330	Phenanthrene	ND	330
N-Nitroso-Di-n-propylamine	ND	330	Anthracene	ND	330
Hexachloroethane	ND	330	Di-n-butylphthalate	ND	330
Nitrobenzene	ND	330	Fluoranthene	ND	330
Isophorone	ND	330	Benzidine	ND	330
Benzoic Acid	ND	330	Pyrene	ND	330
bis(2-Chloroethoxy)methane	ND	330	Butylbenzylphthalate	ND	330
1,2,4-Trichlorobenzene	ND	330	3,3`-Dichlorobenzidine	ND	330
Naphthalene	ND	330	Benzo(a)anthracene	ND	330
Hexachlorobutadiene	ND	330	bis(2-Ethylhexyl)phthalate	ND	330
2-Methylnaphthalene	ND	330	Chrysene	ND	330
Hexachlorocyclopentadiene	ND	330	Di-n-octylphthalate	ND	330
2-Chloronaphthalene	ND	330	Benzo(b)fluoranthene	ND	330
Dimethylphthalate	ND	330	Benzo(k)fluoranthene	ND	330
Acenaphthylene	ND	330	Benzo(a)pyrene	ND	330
Acenaphthene	ND	330	Indeno(1,2,3-cd)pyrene	ND	330
Dibenzofuran	ND	330	Dibenz(a,h)anthracene	ND	330
2,6-Dinitrotoluene	ND	330	Benzo(g,h,i)perylene	ND	330
2,4-Dinitrotoluene	ND	330	1,2-Diphenylhydrazine	ND	330

Percent Solid of 100. is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

TOTAL ION CHROMATOGRAM



Data File: >A2257::D3 Quant Output File: ^A2257::DB
Name: BN S1 Blk 12-4-91
Misc: BN S1 Blk BTL# 5

Id File: IDBNA::D4
Title: Semivolatile Organics (EPA Methods 625/8270) by GC/MS
Last Calibration: 911127 14:01

Operator ID: MARK
Quant Time: 911204 20:42
Injected at: 911204 19:58

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
BN S1 Blk

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Soil

Sample wt/vol: 30 (g/mL) g

Level: (Low/med) Low

Extraction: (Sepf/Cont/Sonc) Sonicator

GPC Cleanup: (Y/N) N

Lab Sample ID: BN S1 Blk

Lab File ID: >A2257

Date Received: NA

Date Extracted: 12-04-91

Date Analyzed: 12/04/91

Dilution Factor: 30

Number of TICs found: 2

CONCENTRATION UNITS:
ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	4337659	HEXANEDIOIC ACID, MONO(2-ETH	32.32	600	69
2	6051407	1,1':3',1''-Tercyclopentane	36.46	270	63

91

MS data file header from : >A2257

Sample: BN S1 Blk 12-4-91 Operator: MARK SUPER GRP. 12/04/91 19:58
Misc : BN S1 Blk BTL# 5
Sys. #: 2 MS model: 70 SW/HW rev.: IA ALS # : 0
Method file: BNARUN Tuning file: MTUNE2 No. of extra records: 2
Source temp.: 0 Analyzer temp.: 280 Transfer line temp. : 0

Chromatographic temperatures :	35.	300.	0.	0.	0.
Chromatographic times, min. :	3.0	6.9	0.0	0.0	0.0
Chromatographic rate, deg/min:	8.0	0.0	0.0	.2	0.0

>A2257 BN S1 Blk 12-4-91BN S1 Blk
35.0 450.0 CLP TIC
Upslope: .20 Area Reject: 21021. Max Peaks: 2 Bunching: 1
Dnslope: 0.00 Results File IA2257 Sorted by Time/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	32.32	1530	1535	1538	34107	82810	81886	100.00	69.02
2	36.46	1760	1763	1766	14731	41743	36753	44.88	30.97

Sum of corrected areas: 118639.

Summary of Unknowns PBM Library Search and Quantitation

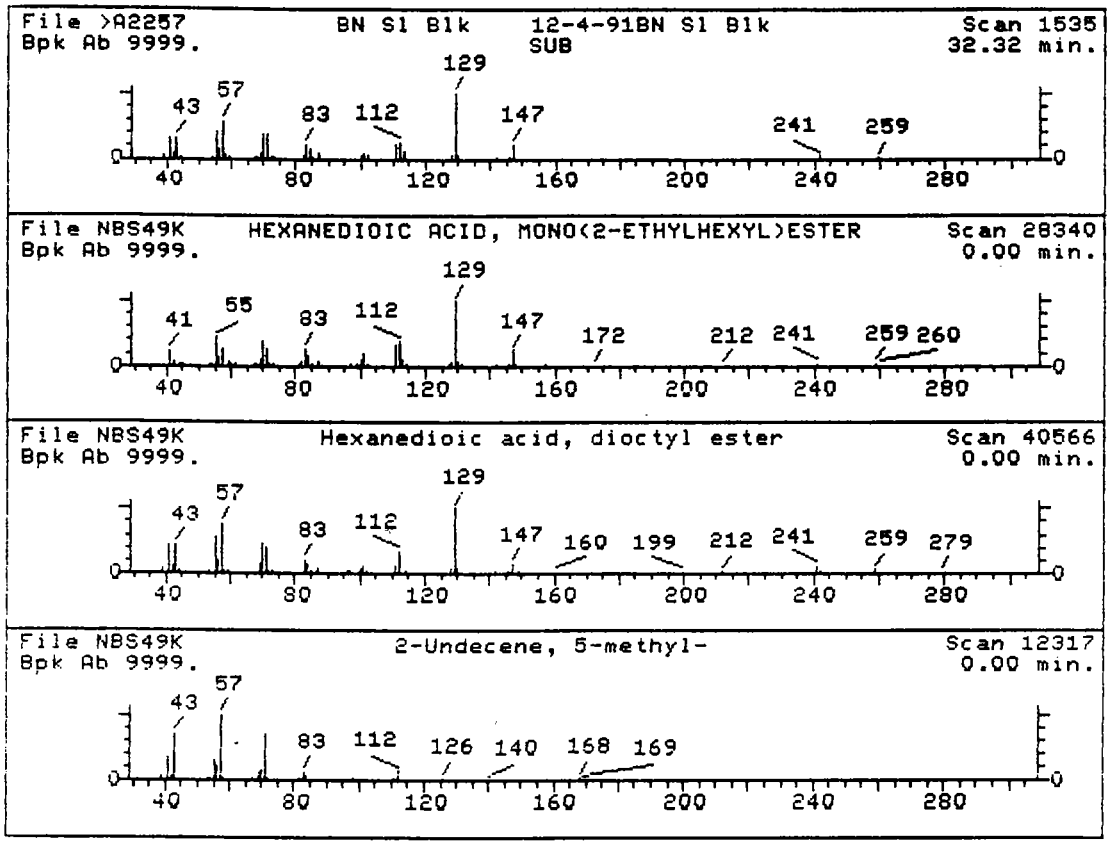
Standard	Concentration	Area	Retention Time	Unknown Window
1	40.0	135199.	11.47	4.48 - 13.34
2	40.0	105107.	15.21	13.34 - 17.93
3	40.0	148922.	20.65	17.93 - 22.92
4	40.0	154874.	25.19	22.92 - 29.27
5	40.0	160080.	33.36	29.27 - 35.40
6	40.0	165216.	37.44	35.40 - 43.05

'^' Dilution Factor = 1.00 U dilf = 1.00
Method called for 1000.000 g or mL This sample was 1000.000 g or mL

Correction Factor = 1.00

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std}}{\text{Area Int Std}} * \text{Area Unknown} * \text{Correction Factor}$$

11:05 AM FRI., 6 DEC., 1991

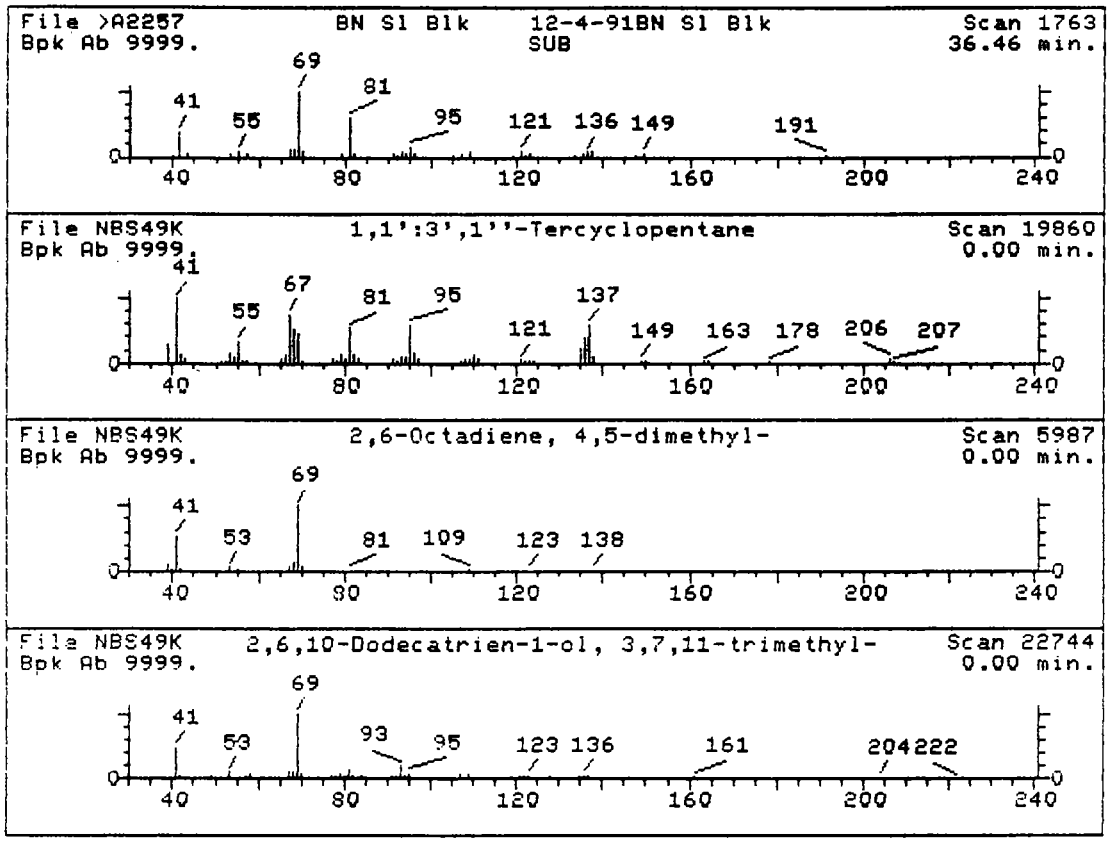


UNKNOWN #,1
AREA = 81886.00 TENTATIVE CONCENTRATION IS 20.00

1.	HEXANEDIOIC ACID, MONO(2-ETHYLHEXYL)ESTER	258 C14H2604
2.	Hexanedioic acid, dioctyl ester	370 C22H4204
3.	2-Undecene, 5-methyl-	168 C12H24
4.	3-Undecene, 9-methyl-, (Z)-	168 C12H24
5.	Undecane, 2,5-dimethyl-	184 C13H28
6.	N,N'-DIETHYLIDENE-1,1-DIAMINOETHANE	112 C6H12N2

Sample file: >A2257 Spectrum #: 1535
Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IC
1.	69	4337659	15463	NBS49K	104	41	1	0	66	32	26	63
2.	69	123795	15479	NBS49K	113	55	0	1	54	32	26	67
3.	29*	56851344	12147	NBS49K	36	46	1	3	28	33	12	12
4.	27*	74630505	4120	NBS49K	43	50	2	1	31	42	8	15
5.	26*	17301223	12182	NBS49K	38	61	2	2	74	39	10	12
6.	25*	623756	3880	NBS49K	33	37	0	-2	58	49	7	13



UNKNOWN #,2

AREA = 36753.00 TENTATIVE CONCENTRATION IS 9.00

1.	1,1':3',1''-Tercyclopentane	206	C15H26
2.	2,6-Octadiene, 4,5-dimethyl-	138	C10H18
3.	2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-	222	C15H26O
4.	Spiro[5.5]undeca-1,8-diene, 1,5,5,9-tetramethyl-, (R	204	C15H24
5.	3,7,11-Tridecatrienenitrile, 4,8,12-trimethyl-	231	C16H25N
6.	1-Hexanamine, 2-ethyl-	129	C8H19N

Sample file: >A2257 Spectrum #: 1763
Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	63*	6051407	17051	NBS49K	53	45	1	1	15	18	30	31
2.	62*	18476578	3754	NBS49K	38	35	0	0	71	26	25	44
3.	52*	4602840	3787	NBS49K	48	69	2	0	100	18	20	19
4.	50*	19912835	16842	NBS49K	67	53	2	3	29	38	17	39
5.	47*	6006015	16861	NBS49K	44	67	1	2	77	22	17	18
6.	47*	104756	102	NBS49K	63	16	2	3	89	44	16	43

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Environmental Profile Lab Contract: Serv-Air

Lab Code: 15526

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	CCC/SPCC	50	50	49					0
02	BN S1 Blk	74	97	109					0
03	6920.8 30g	119	107	105					0
04	6920.14 3g	79	90	112					0
05									
06									
07									
08									
09									
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11									
12									
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	QC LIMITS
S1 (NBZ) = Nitrobenzene-d5	(23-120)
S2 (FBP) = 2-Fluorobiphenyl	(30-115)
S3 (TPH) = Terphenyl-d14	(18-137)
S4 (PHL) = Phenol-d5	(24-113)
S5 (2FP) = 2-Fluorophenol	(25-121)
S6 (TBP) = 2,4,6-Tribromophenol	(19-122)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Environmental Profile Lab Contract: Serv-Air

Lab Code: 15526

Lab File ID (Standard): >A2251 Date Analyzed: 12/04/91

Instrument ID: GC/MSD 5970 #2 Time Analyzed: 13:21

	IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
12 HOUR STD	26597.	11.50	74585.	15.22	44432.	20.67
UPPER LIMIT	53194.		149170.		88864.	
LOWER LIMIT	13298.		37293.		22216.	
EPA SAMPLE NO.						
01 BN S1 Blk	24394.	11.47	53893.	15.21	35859.	20.65
02 6920.8 30g	22732.	11.49	72761.	15.22	34364.	20.69
03 6920.14 3g	26876.	11.48	82172.	15.20	49045.	20.65
04						
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22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d8

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Environmental Profile Lab Contract: Serv-Air

Lab Code: 15526

Lab File ID (Standard): >A2251 Date Analyzed:12/04/91

Instrument ID: GC/MSD 5970 #2 Time Analyzed: 13:21

		IS4(PHN)		IS5(CRY)		IS3(PRY)	
		AREA #	RT	AREA #	RT	AREA #	RT
	12 HOUR STD	77177.	25.19	65667.	33.38	52422.	37.46
	UPPER LIMIT	154354.		131334.		104844.	
	LOWER LIMIT	38589.		32834.		26211.	
	EPA SAMPLE NO.						
01	BN S1 Blk	66951.	25.19	61416.	33.36	60925.	37.44
02	6920.8 30g	25715.*	25.24	40356.	33.36	37891.	37.44
03	6920.14 3g	83310.	25.18	60425.	33.36	55785.	37.43
04							
05							
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag internal standard area values with an asterisk