EPA WORK ASSIGNMENT NO: 076-2JZZ
EPA CONTRACT NO: 68-W8-0110
FOSTER WHEELER ENVIRONMENTAL CORPORATION
ARCS II PROGRAM

FINAL
SITE INSPECTION PRIORITIZATION (SIP)
LAKEWOOD TOWNSHIP LANDFILL SITE
LAKEWOOD TOWNSHIP
OCEAN COUNTY, NEW JERSEY
CERCLIS NO. NJD980771711

JANUARY 1996

VOLUME III OF IV

235182

NOTICE

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REFERENCE NO. 33

Reference 33 1/105

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: Township of Lakewood
Municipal Bldg.
231 Third Street
Lakewood, N.J. 08701

SITE: Cross Street Landfill
Kennedy Avenue
Lakewood, N.J.

PROJECT: VOA+15
Tier II

REPORT NUMBER: 9441.1 - .9
DATE RECEIVED: December 18 1992
DATE RELEASED: December 30, 1992
DATA RELEASED BY:

DANIEL K. WRIGHT
LABORATORY DIRECTOR

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CLIENT: Township of Lakewood

PROJECT: Cross Street Landfill

SAMPLE LOCATION AND IDENTIFICATION

LAB ID NUMBER	SAMPLE IDENTIFICATION	MATRIX
9444.1	MW # 5	Aqueous
9444.2	MW # 6	Aqueous
9444.3	MW # 4	Aqueous
9444.4	MW # 3	Aqueous
9444.5	MW # 2	Aqueous
9444.6	MW # 1	Aqueous
9444.7	MW # 7	Aqueous
9444.8	Field Blank	Aqueous
9444.9	Trip Blank	Aqueous

[redacted]65 [redacted]-Un[redacted]
Toms River, NJ 08755
(908) 244-6278

[redacted]tom[redacted] Purchase Order no.: [redacted]

[redacted]CH[redacted] OF [redacted]ODY [redacted]ECORD[redacted]

Sampled by: (Signature) Robert Brouillette Date/Time 12-18-92

Customer Name and Address:
Twp of LAKEWOOD
Municipal BID, 231 Third Street
LAKEWOOD, NJ 08701

Site Name and Address:
Cross Street LANDFILL
Kennedy Ave
LAKEWOOD, OCEAN COUNTY

Telephone No: 908/840-1700 Fax: 908/840-0852

Analysis parameters (Be as specific as possible)

Lab Sample ID Number	Date/Time Sampled	Sample Matrix	Customer Sample Location/ID No.	Number of Containers	Chloride, Iron	Lead, Manganese	Ammonia, Nitrate	PH, Sodium, TDS	Volatile Organics + 15	Calcium, Total Coliform	Dissolved Oxygen	Magnesium, Conductivity			Remarks	Preservation Method
9444.1	12-18 10:00	H_2O	MW#5	5	X	X	X	X	X	X	X	X			VOA - None	<4°C
.2	10:36		MW#6	5	X	X	X	X	X	X	X	X			Coliform - Std. Thio	
.3	11:00		MW#4	5	X	X	X	X	X	X	X	X			NO_3 - None	
.4	11:26		MW#3	5	X	X	X	X	X	X	X	X			Chl - None	
.5	12:00		MW#2	5	X	X	X	X	X	X	X	X			Metals - HNO_3	
.6	12:50		MW#1	5	X	X	X	X	X	X	X	X				
.7	1:22		MW#7	5	X	X	X	X	X	X	X	X			Field Measurements	
.8	9:55	H_2O	Field BLANK	5	X	X	X	X	X	X	X	X			TAKEN	
.9	8:30	H_2O	Trip BLANK	2					X							

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Method of Shipping:
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipped By:
Relinquished By: (Signature)	Date/Time	Received For EPL By: (Signature) Robert Brouillette	Date/Time 12-18-92 3:00

QA/QC Required:
✓ NJ Tier II
___ Results Only
___ Other ___

Turnaround Time: Work Due 1-8-93

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Note: A drawing depicting sample location(s) should be attached or drawn on the reverse side of this Chain-of-Custody Record

LABORATORY CHRONICLE

SAMPLE NUMBER	9444.1	9444.2	9444.3	9444.4	9444.5	9444.6	9444.7
Received & Refrigerated Date	12-18-92	12-18-92	12-18-92	12-18-92	12-18-92	12-18-92	12-18-92
Organics Extraction Date							
BN/ABN							
PCB's							
Analysis Date							
BN/ABN							
PCB's							
Volatiles	12-21-92	12-21-92	12-21-92	12-21-92	12-21-92	12-21-92	12-22-92
TPHC's							
Metals							
Total Solids							
Organic Supervisor Review & Approval							
Inorganic Supervisor Review & Approval							

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2

LABORATORY CHRONICLE

SAMPLE NUMBER	9444.8	9448.9					
Received & Refrigerated Date	12-18-92	12-18-92					
Organics Extraction Date							
BN/ABN							
PCB's							
Analysis Date							
BN/ABN							
PCB's							
Volatiles	12-21-92	12-21-92					
TPHC's							
Metals							
Total Solids							
Organic Supervisor Review & Approval							
Inorganic Supervisor Review & Approval							

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METHOD SUMMARY

Volatiles

The volatile samples in this report have been analyzed using the method cited in the USEPA-CLP-IFB version 2/88. The CLP volatile method is based on USEPA Method 624 and SW-846.

The method is based on 5 milliliters of an aqueous, or 1 gram of a non-aqueous sample spiked with a known concentration of surrogate and internal standard. The samples and standards are then purged onto a trap using a Tekmar LSC 2 and desorbed onto a capillary column installed in a Hewlett Packard 5890 GC coupled via a jet separator to the HP 5970 MSD. The data was then collected and reduced via a HP 1000 RTE data system.

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GC/MS

ORGANIC NON-CONFORMANCE SUMMARY

ANALYSIS TIME:

All samples were extracted and analyzed within the prescribed holding times.

GC/MS TUNE FREQUENCY:

All samples, blanks, standards and matrix spikes were analyzed within the respective 12 hour tune periods.

INITIAL CALIBRATION REQUIREMENTS:

All CCC and SPCC values within QC limits.

CONTINUING CALIBRATION REQUIREMENTS:

All CCC and SPCC values within 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:

All recoveries and RPD were within QC limits.

INTERNAL STANDARD AREA:

All internal standard areas within QC limits.

SURROGATE RECOVERY:

All surrogates within QC limits.

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DATA REPORTING QUALIFIERS

For reporting results to the 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 identified compound (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 10 ug/L and a concentratin of 3 ug/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.

Reference 33 10/105

MW-3

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.1 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6125	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	3 JB	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	88	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

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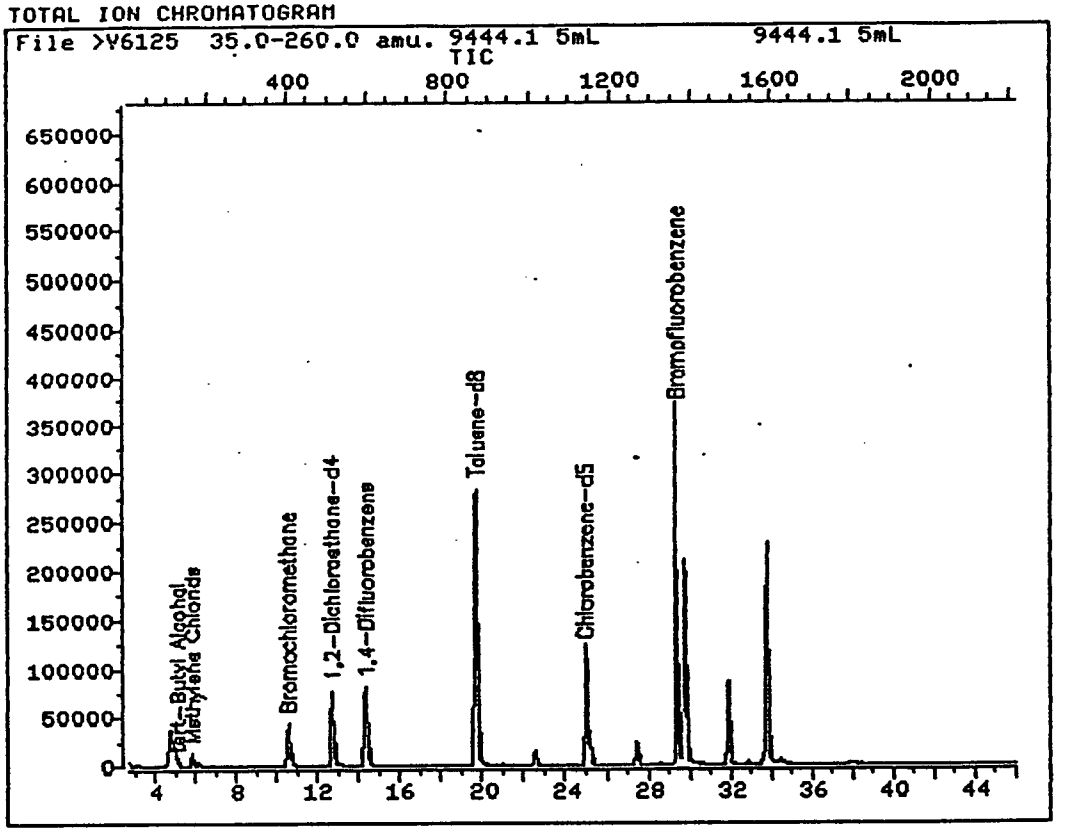
TOTAL ION CHROMATOGRAM



Data File: >V6125::D1
Name: 9444.1 5mL
Misc: 9444.1 5mL

Quant Output File: ^V6125::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 16:29
Injected at: 921221 15:42

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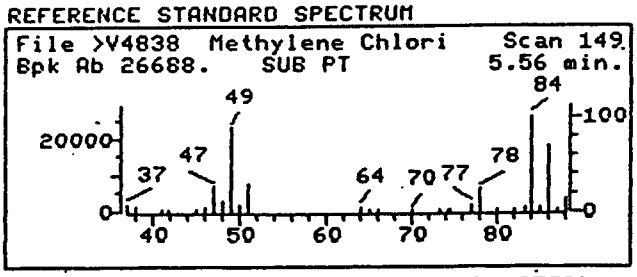
12/105

REFERENCE STANDARD SPECTRUM



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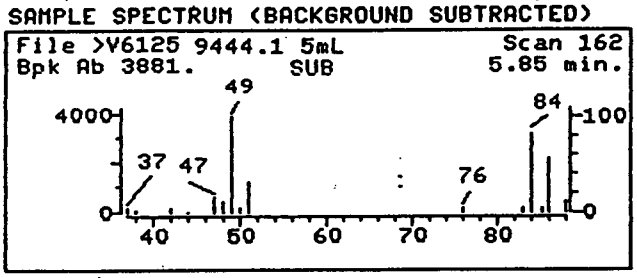

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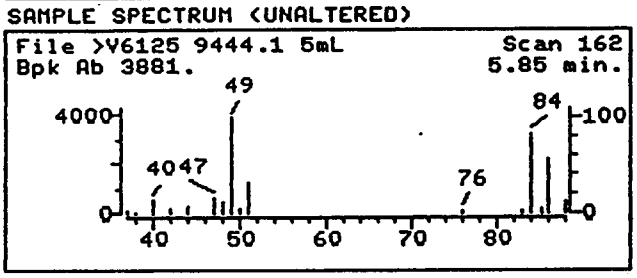
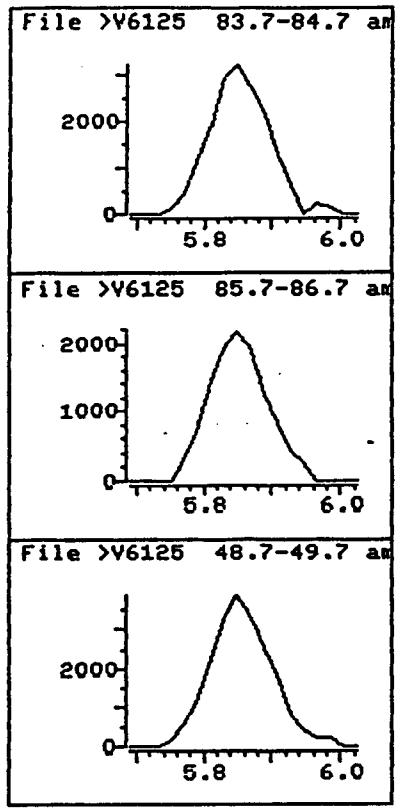




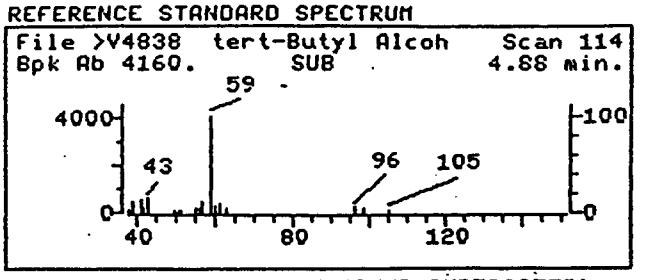
Data File: >V6125::D1
Name: 9444.1 5mL
Misc: 9444.1 5mL
Quant Time: 921221 16:29
Injected at: 921221 15:42

Quant Output File: ^V6125::DB
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 162
Retention Time: 5.85 min.
Quant Ion: 84.0
Area: 20167
Concentration: 2.94 ppb
q-value: 79

Reference 33 13/105

REFERENCE STANDARD SPECTRUM



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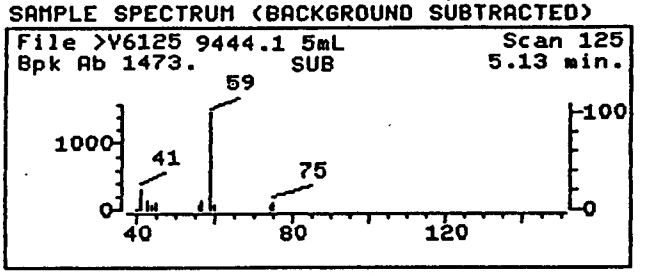

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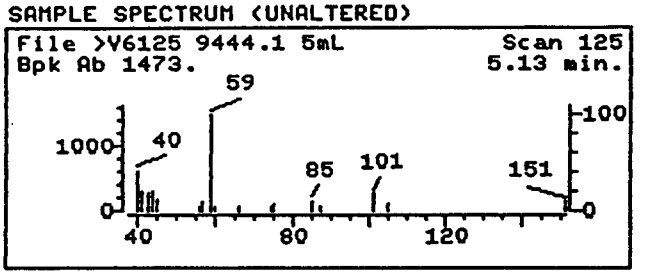
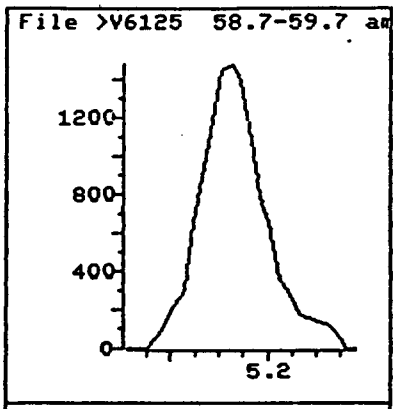
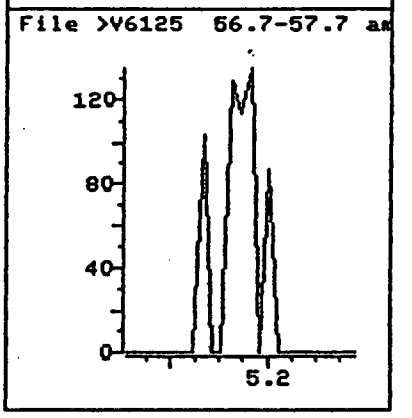






Data File: >V6125::D1
Name: 9444.1 5mL
Misc: 9444.1 5mL
Quant Time: 921221 16:29
Injected at: 921221 15:42

Quant Output File: ^V6125::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 15
Compound Name: tert-Butyl Alcohol
Scan Number: 125
Retention Time: 5.13 min.
Quant Ion: 59.0
Area: 13748
Concentration: 87.51 ppb
q-value: 97

Reference 33 14/405

MW-6

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

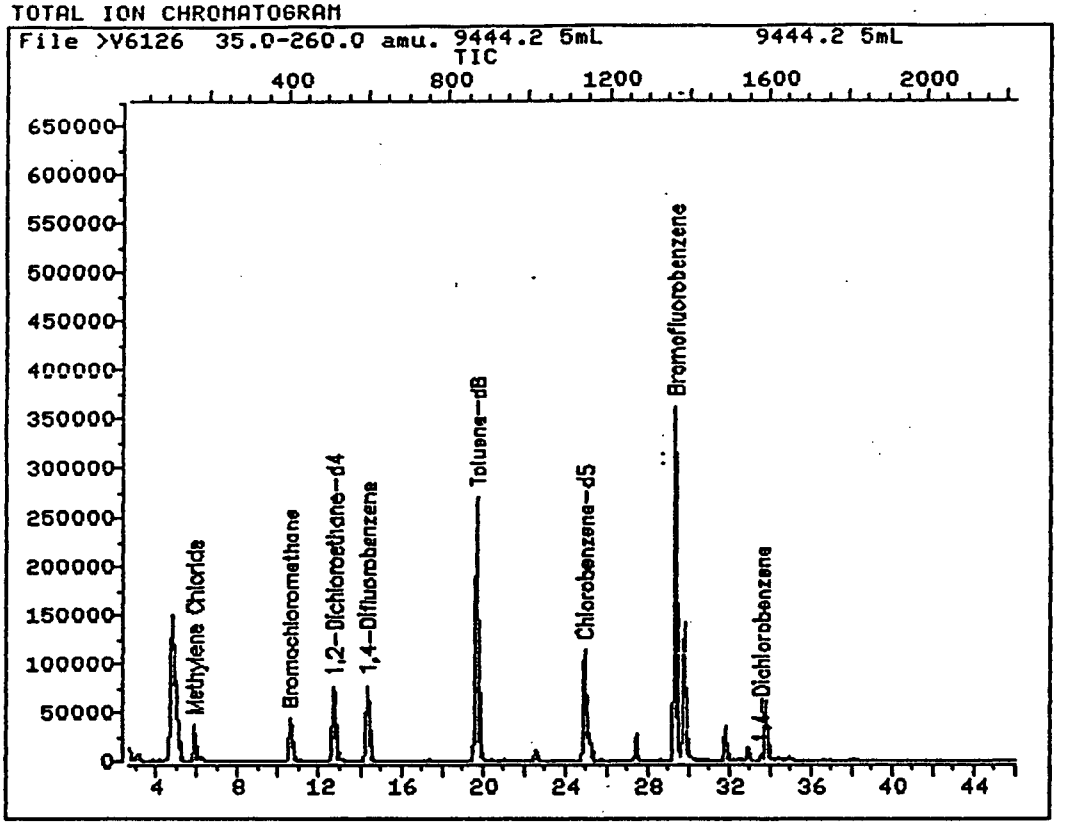
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.2 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6126	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	9 B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	1 J	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 33
15/105

TOTAL ION CHROMATOGRAM



Data File: >V6126::D1
Name: 9444.2 5mL
Misc: 9444.2 5mL

Quant Output File: ^V6126::DB

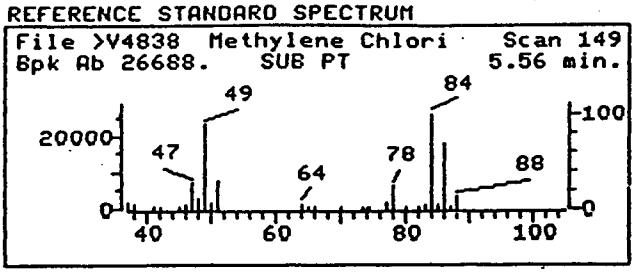
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

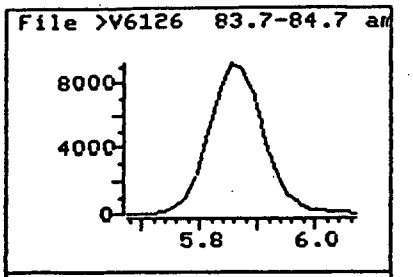
Operator ID: MARK
Quant Time: 921221 17:22
Injected at: 921221 16:35

Reference 33

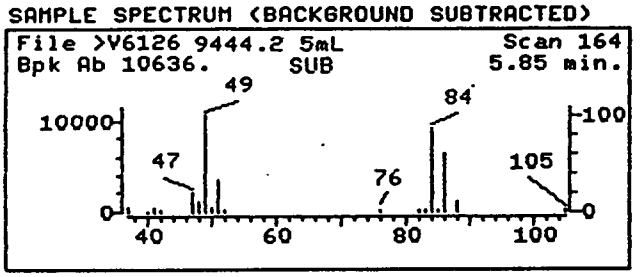
16/105

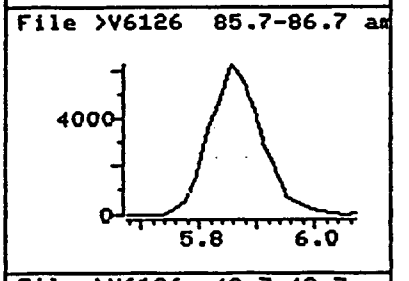
REFERENCE STANDARD SPECTRUM





SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





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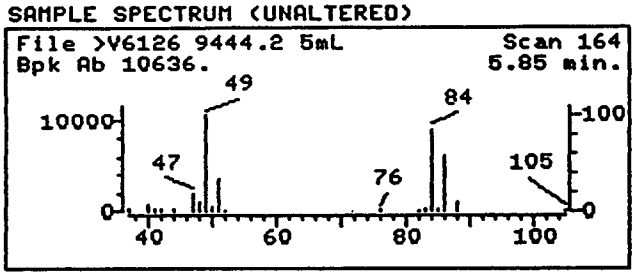
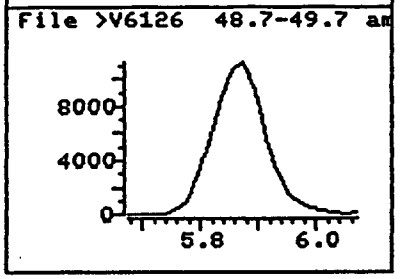




Data File: >V6126::D1
Name: 9444.2 5mL
Misc: 9444.2 5mL
Quant Time: 921221 17:22
Injected at: 921221 16:35

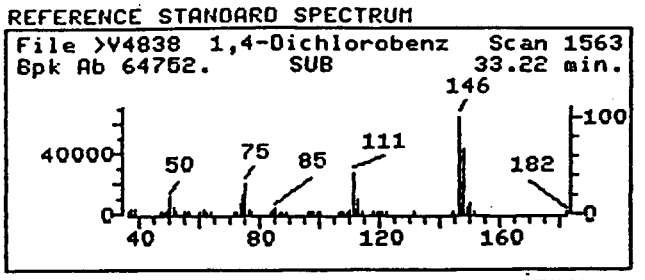
Quant Output File: ^V6126::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

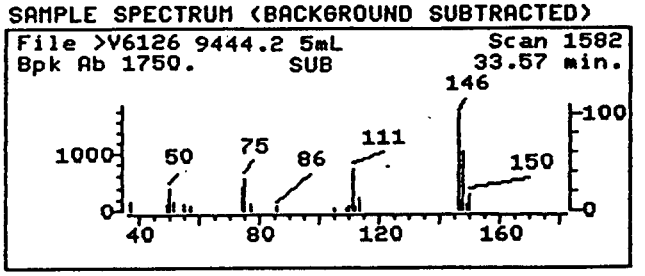
Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 164
Retention Time: 5.85 min.
Quant Ion: 84.0
Area: 60110
Concentration: 8.86 ppb
q-value: 81

Reference 33 17/105

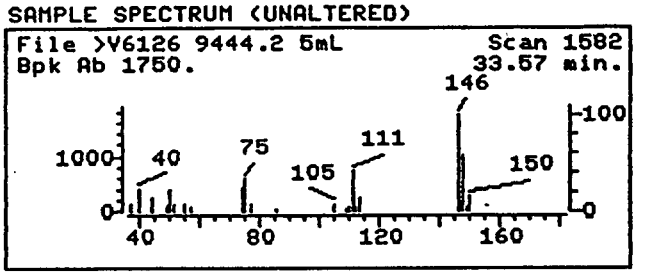
REFERENCE STANDARD SPECTRUM

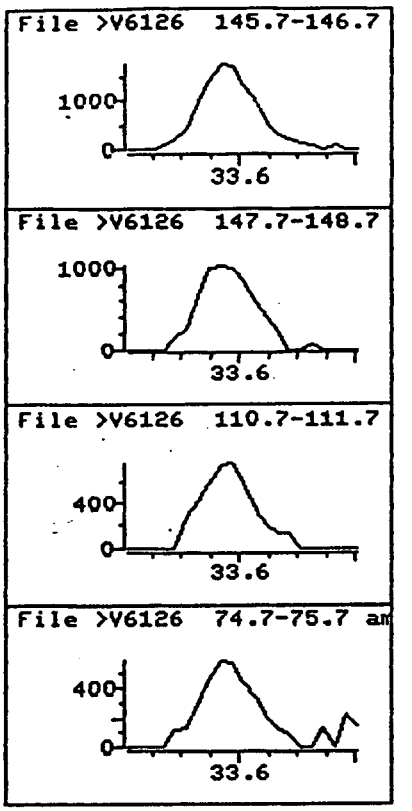


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6126::D1
Name: 9444.2 5mL
Misc: 9444.2 5mL
Quant Time: 921221 17:22
Injected at: 921221 16:35

Quant Output File: ^V6126::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1582
Retention Time: 33.57 min.
Quant Ion: 146.0
Area: 12146
Concentration: 1.14 ppb
q-value: 92

MW-4

Reference 35
18/105

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

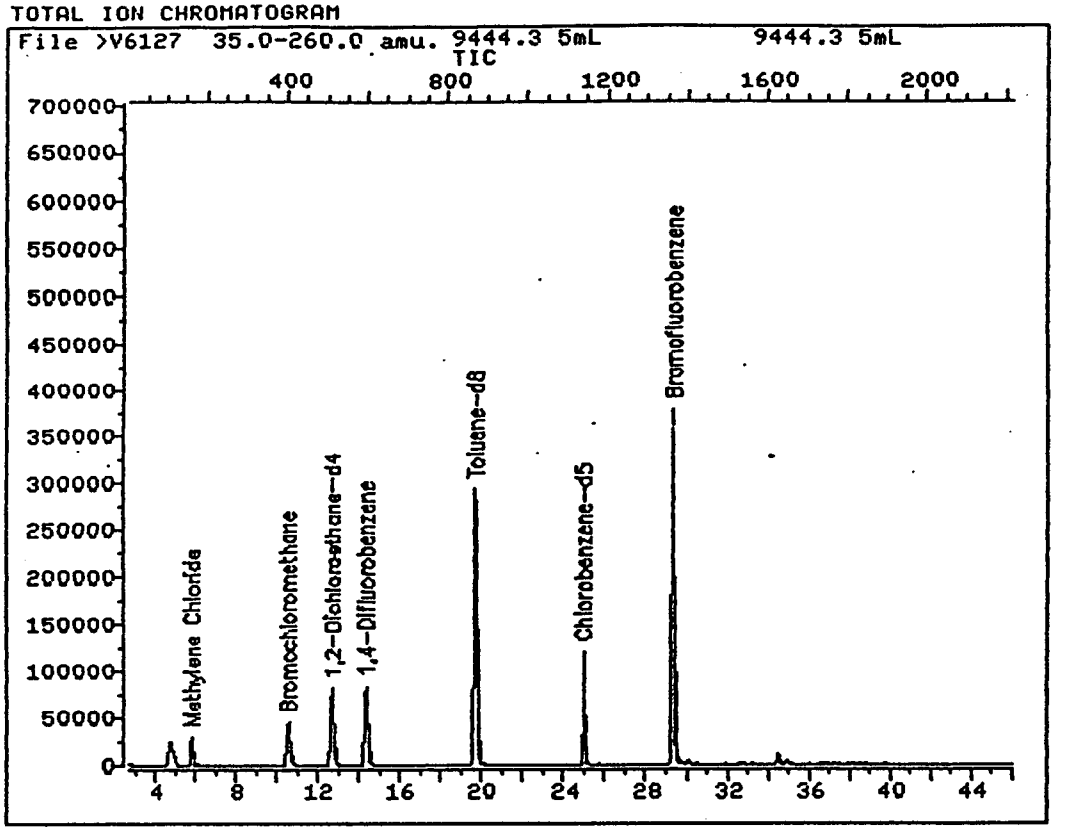
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.3 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6127	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	7 B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 33
19/105

TOTAL ION CHROMATOGRAM



Data File: >V6127::D1
Name: 9444.3 5mL
Misc: 9444.3 5mL

Quant Output File: ^V6127::DB

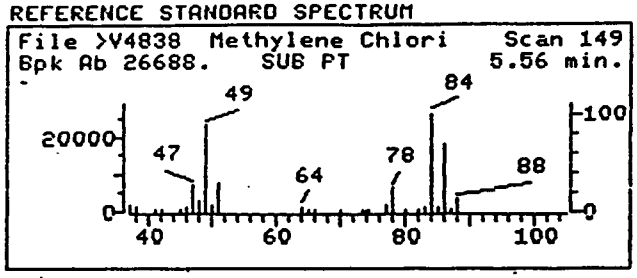
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 18:17
Injected at: 921221 17:30

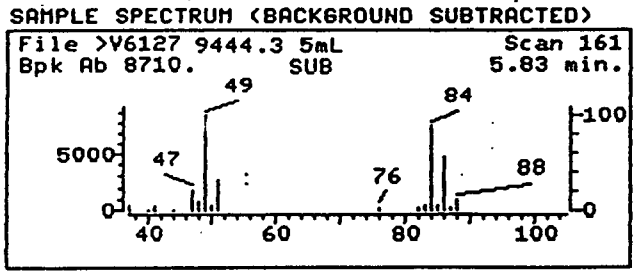
Reference 33

20/105

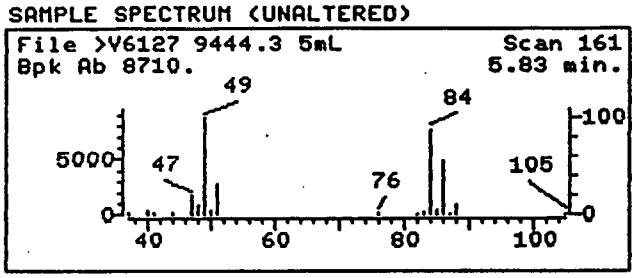
REFERENCE STANDARD SPECTRUM

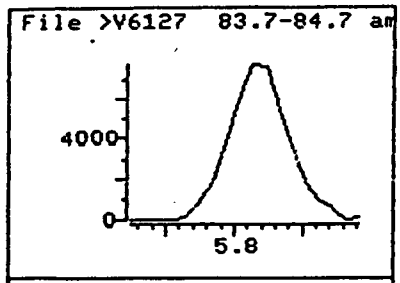


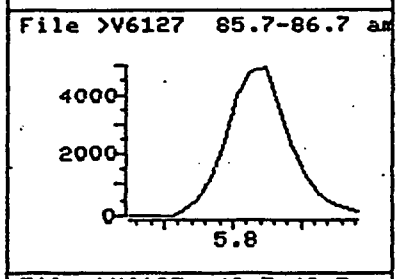
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

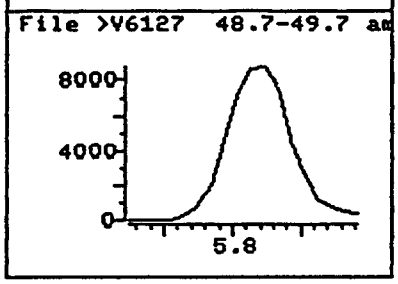


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6127::D1
Name: 9444.3 5mL
Misc: 9444.3 5mL
Quant Time: 921221 18:17
Injected at: 921221 17:30

Quant Output File: ^V6127::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 161
Retention Time: 5.83 min.
Quant Ion: 84.0
Area: 47827
Concentration: 6.62 ppb
q-value: 81

Reference 35 21/105

MW-3

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

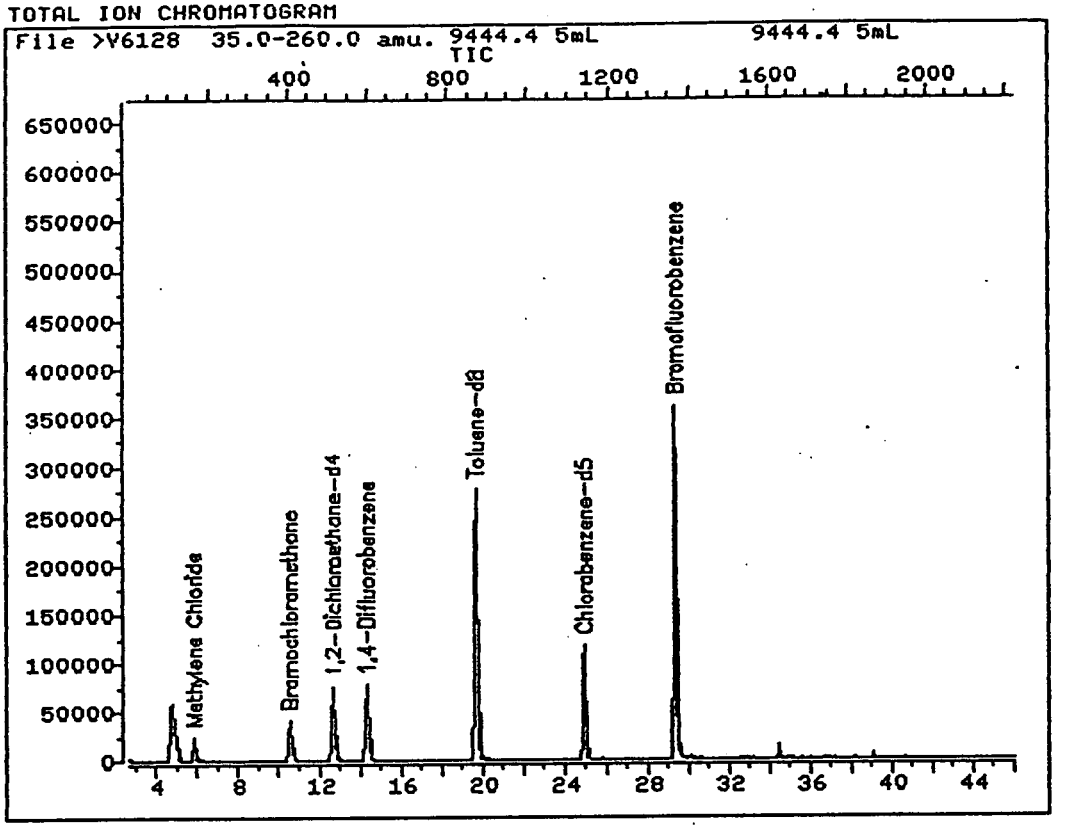
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.4 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6128	DATE ANALYZED	12/21/92

Compound	ug/L		MDL	Compound	ug/L	MDL
Chloromethane	ND		10	Dibromochloromethane	ND	5
Bromomethane	ND		10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND		10	Benzene	ND	5
Chloroethane	ND		10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	6	B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND		50	Bromoform	ND	5
Acrylonitrile	ND		50	2-Hexanone	ND	5
Acetone	ND		5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND		5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND		5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND		5	Toluene	ND	5
trans-1,2-Dichloroethene	ND		5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND		5	Ethylbenzene	ND	5
Chloroform	ND		5	Styrene	ND	5
1,2-Dichloroethane	ND		5	o-Xylene	ND	5
2-Butanone	ND		5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND		5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND		5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND		5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND		5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND		5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND		5	Diethyl ether	ND	50
Trichloroethene	ND		5			0

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

Reference 33
22/105

TOTAL ION CHROMATOGRAM



Data File: >V6128::D1
Name: 9444.4 5mL
Misc: 9444.4 5mL

Quant Output File: ^V6128::DB

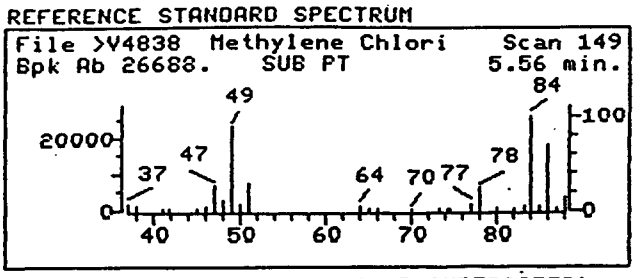
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

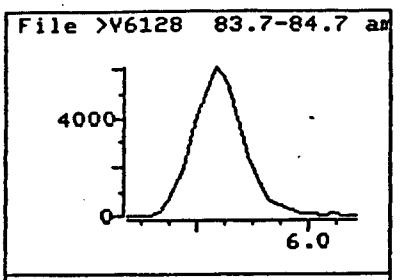
Operator ID: MARK
Quant Time: 921221 19:12
Injected at: 921221 18:25

Reference 33

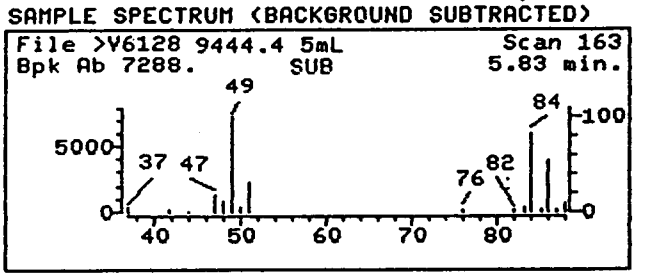
23/105

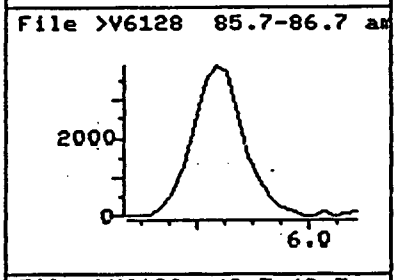
REFERENCE STANDARD SPECTRUM



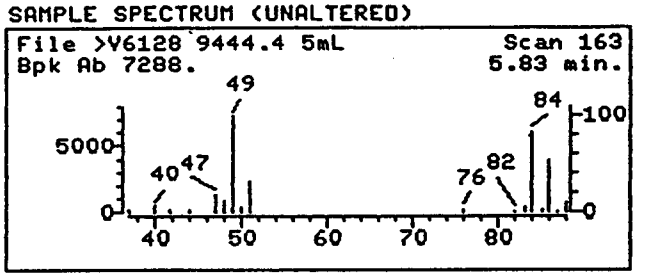


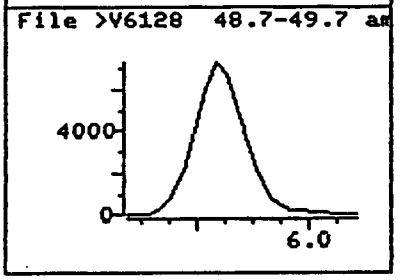
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNALTERED)





Data File: >V6128::D1
Name: 9444.4 5mL
Misc: 9444.4 5mL
Quant Time: 921221 19:12
Injected at: 921221 18:25

Quant Output File: ^V6128::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 163
Retention Time: 5.83 min.
Quant Ion: 84.0
Area: 38502
Concentration: 5.72 ppb
q-value: 78

Reference 35
24/105

MW-2

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

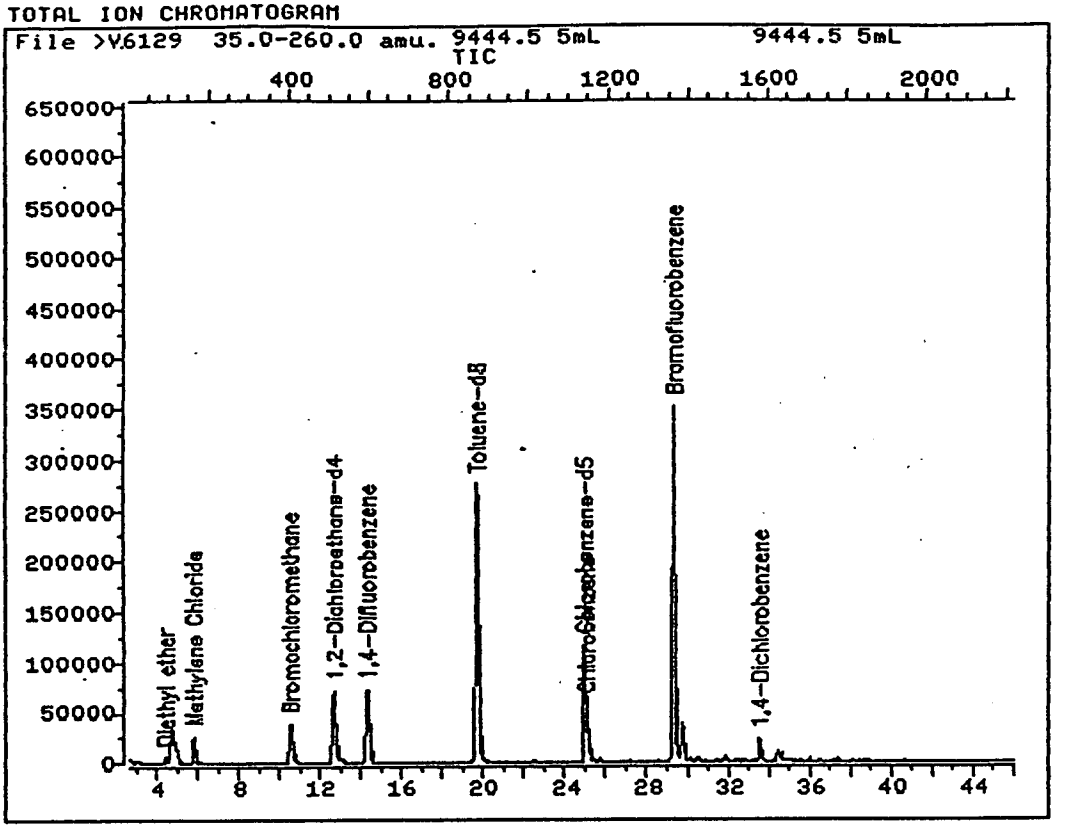
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.5 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6129	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	6 B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	9	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	3 J	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	7 J	50
Trichloroethene	ND	5			0

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

Reference 35
25/105

TOTAL ION CHROMATOGRAM



Data File: >V6129::D1
Name: 9444.5 5mL
Misc: 9444.5 5mL

Quant Output File: ^V6129::DB

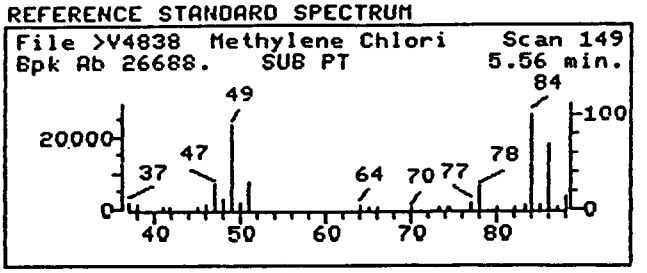
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 20:07
Injected at: 921221 19:20

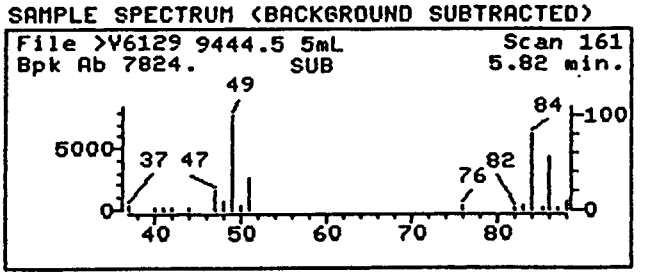
Reference 33

26/105

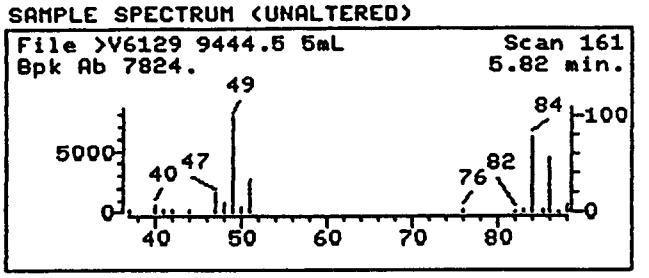
REFERENCE STANDARD SPECTRUM

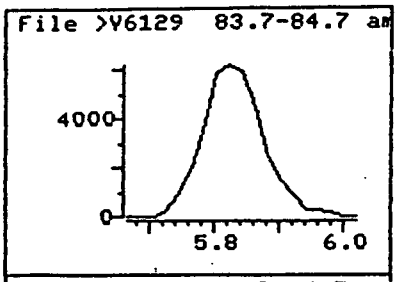


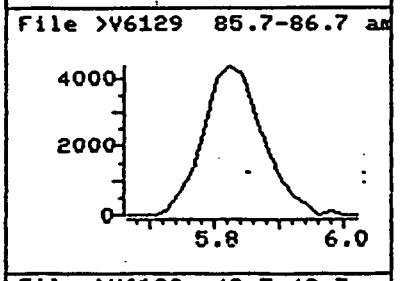
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

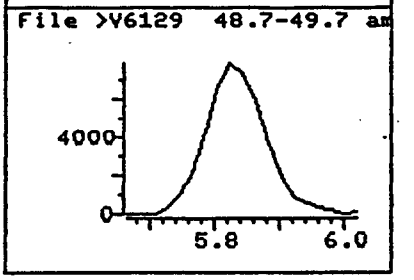


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6129::D1
Name: 9444.5 5mL
Misc: 9444.5 5mL
Quant Time: 921221 20:07
Injected at: 921221 19:20

Quant Output File: ^V6129::DB

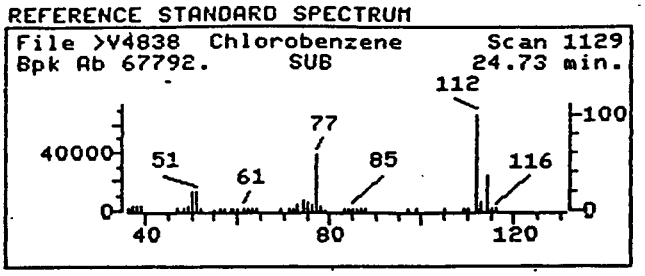
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 161
Retention Time: 5.82 min.
Quant Ion: 84.0
Area: 41166
Concentration: 6.30 ppb
q-value: 73

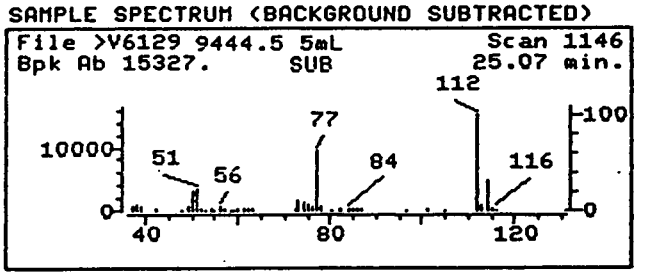
Reference 35

27/105

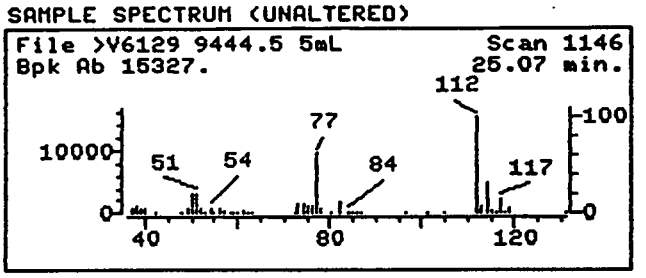
REFERENCE STANDARD SPECTRUM

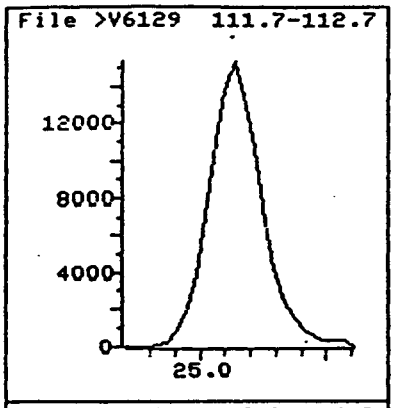


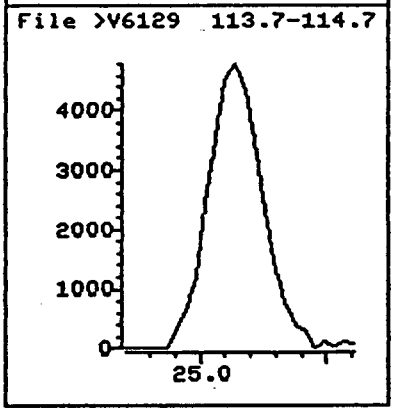
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >V6129::D1
Name: 9444.5 5mL
Misc: 9444.5 5mL
Quant Time: 921221 20:07
Injected at: 921221 19:20

Quant Output File: ^V6129::DB

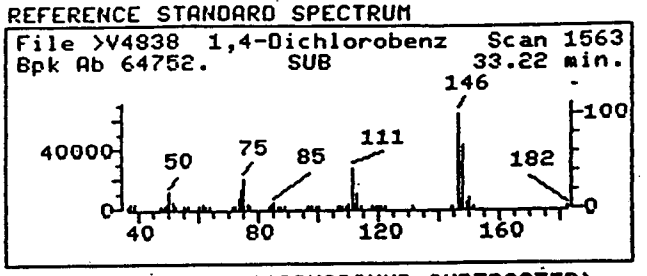
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 1146
Retention Time: 25.07 min.
Quant Ion: 112.0
Area: 110612
Concentration: 8.73 ppb
q-value: 98

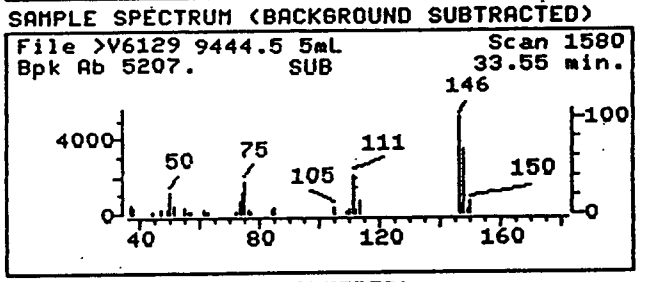
Reference 33

28/105

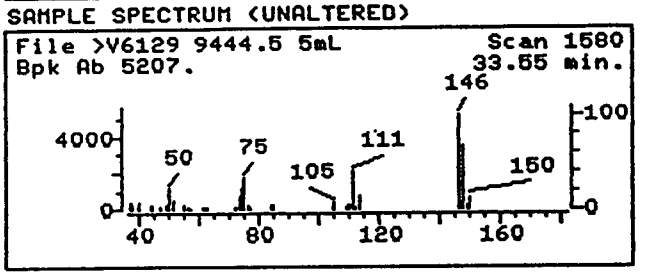
REFERENCE STANDARD SPECTRUM

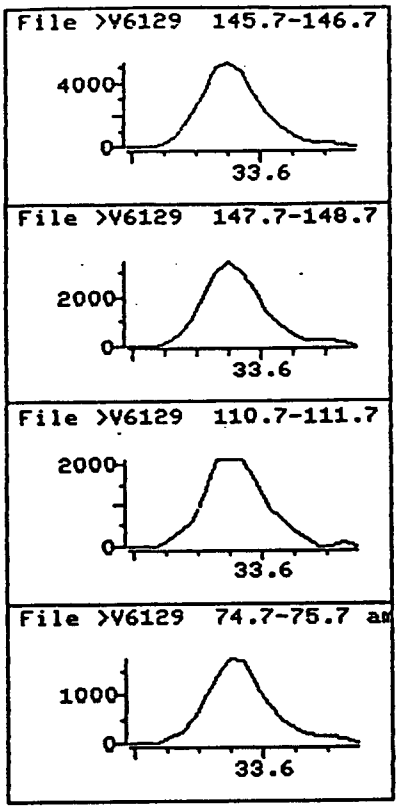


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6129::D1
Name: 9444.5 5mL
Misc: 9444.5 5mL
Quant Time: 921221 20:07
Injected at: 921221 19:20

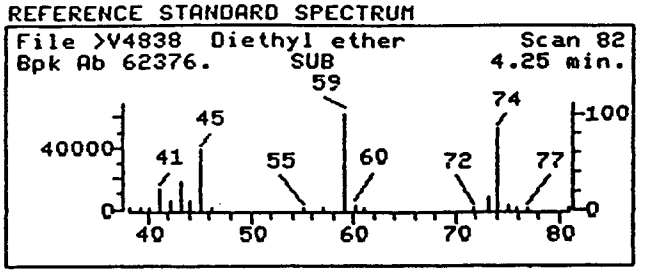
Quant Output File: ^V6129::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

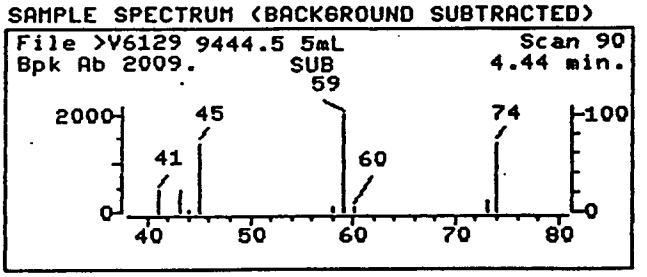
Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1580
Retention Time: 33.55 min.
Quant Ion: 146.0
Area: 35819
Concentration: 3.29 ppb
q-value: 96

Reference 33
29/105

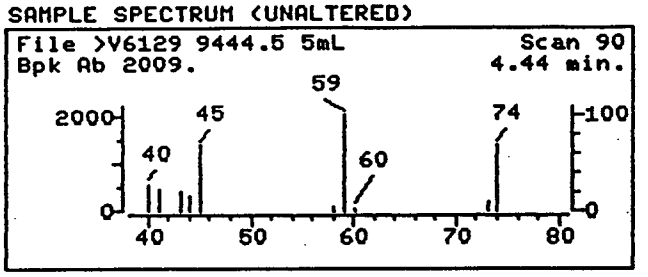
REFERENCE STANDARD SPECTRUM

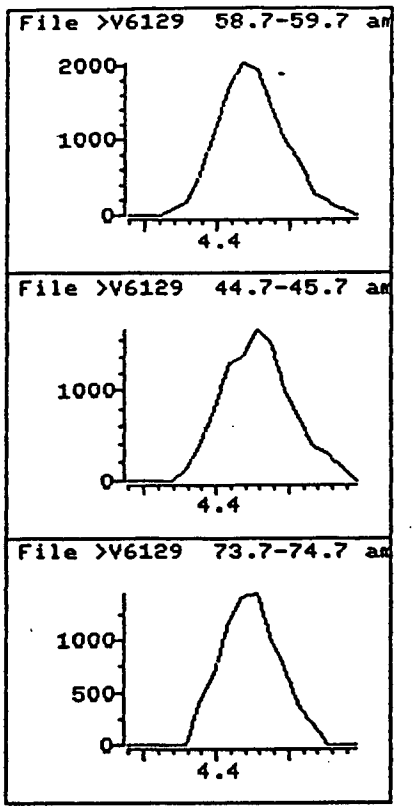


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6129::D1
Name: 9444.5 5mL
Misc: 9444.5 5mL
Quant Time: 921221 20:07
Injected at: 921221 19:20

Quant Output File: ^V6129::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 52
Compound Name: Diethyl ether
Scan Number: 90
Retention Time: 4.44 min.
Quant Ion: 59.0
Area: 13250
Concentration: 7.10 ppb
q-value: 86

Reference 33
30/105

MW-1

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

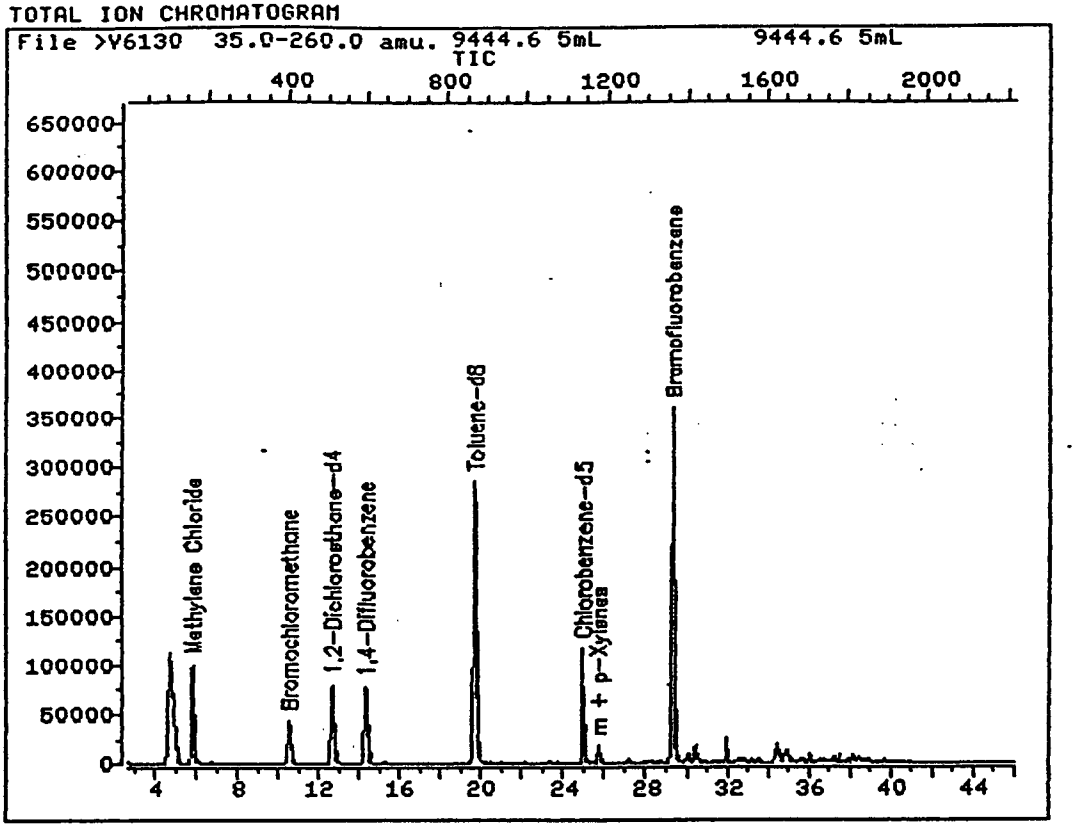
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.6 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6130	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	24 B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	3 J	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 33
31/105

TOTAL ION CHROMATOGRAM



Data File: >V6130::D1
Name: 9444.6 5mL
Misc: 9444.6 5mL

Quant Output File: ^V6130::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 21:08
Injected at: 921221 20:21

Reference 33

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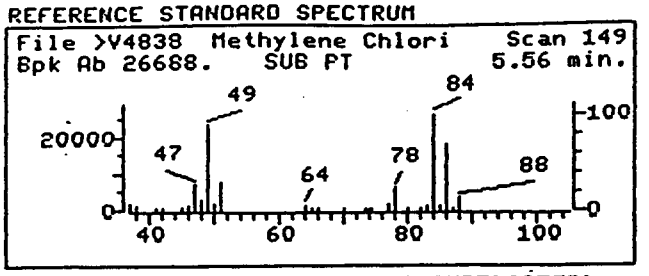
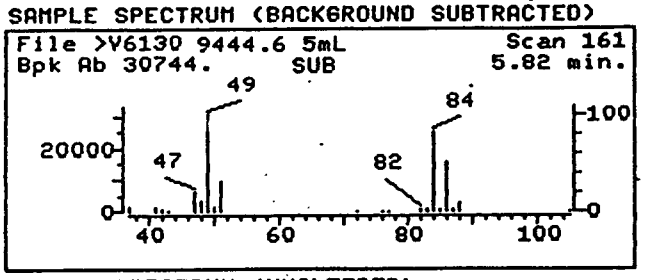
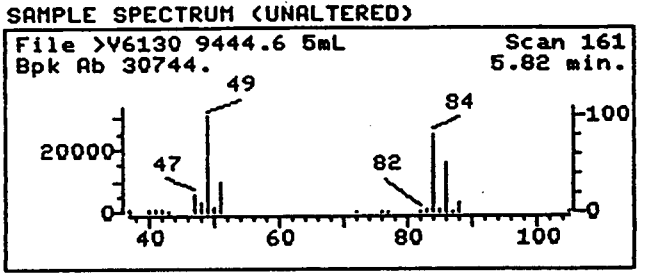
REFERENCE STANDARD SPECTRUM

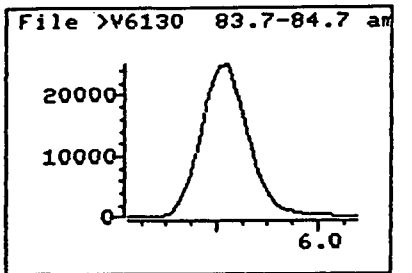


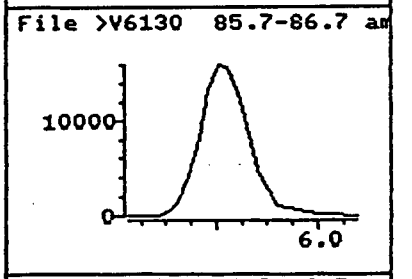
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

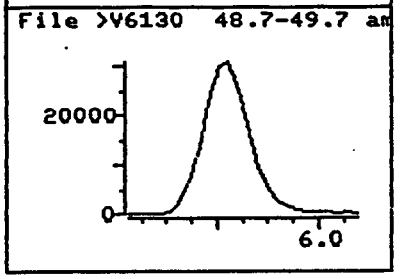


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6130::D1
Name: 9444.6 5mL
Misc: 9444.6 5mL
Quant Time: 921221 21:08
Injected at: 921221 20:21

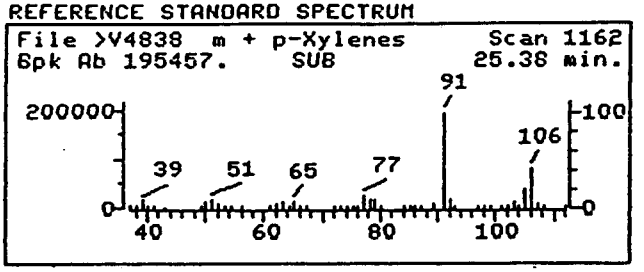
Quant Output File: ^V6130::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

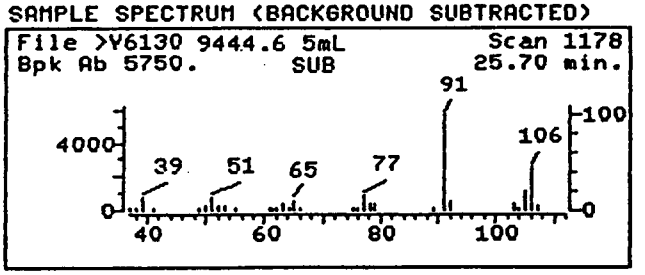
Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 161
Retention Time: 5.82 min.
Quant Ion: 84.0
Area: 164491
Concentration: 23.56 ppb
q-value: 76

Reference 35
33/105

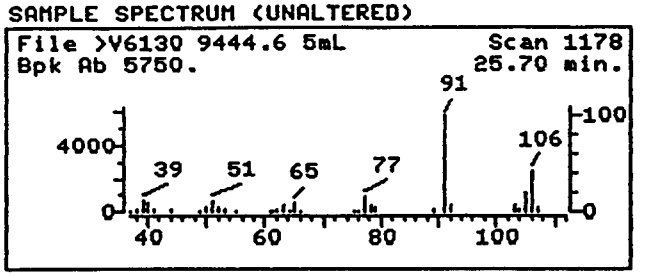
REFERENCE STANDARD SPECTRUM

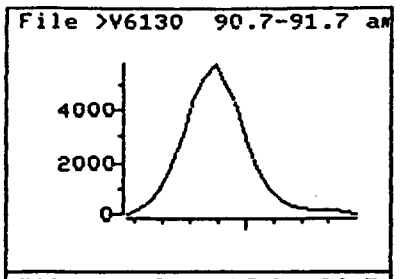


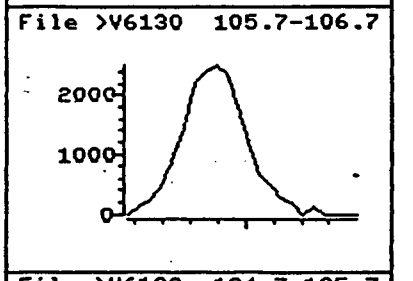
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

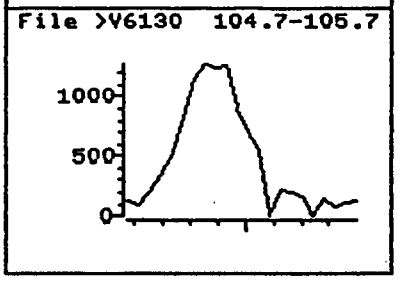


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6130::D1
Name: 9444.6 5mL
Misc: 9444.6 5mL
Quant Time: 921221 21:08
Injected at: 921221 20:21

Quant Output File: ^V6130::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 45
Compound Name: m + p-Xylenes
Scan Number: 1178
Retention Time: 25.70 min.
Quant Ion: 91.0
Area: 44966
Concentration: 2.91 ppb
q-value: 98

Reference 35

34/105

MW-7

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.7 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6134	DATE ANALYZED	12/22/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	4 J	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	2 J	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	43 J	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	4 J	50
Trichloroethene	ND	5			0

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

Reference 35

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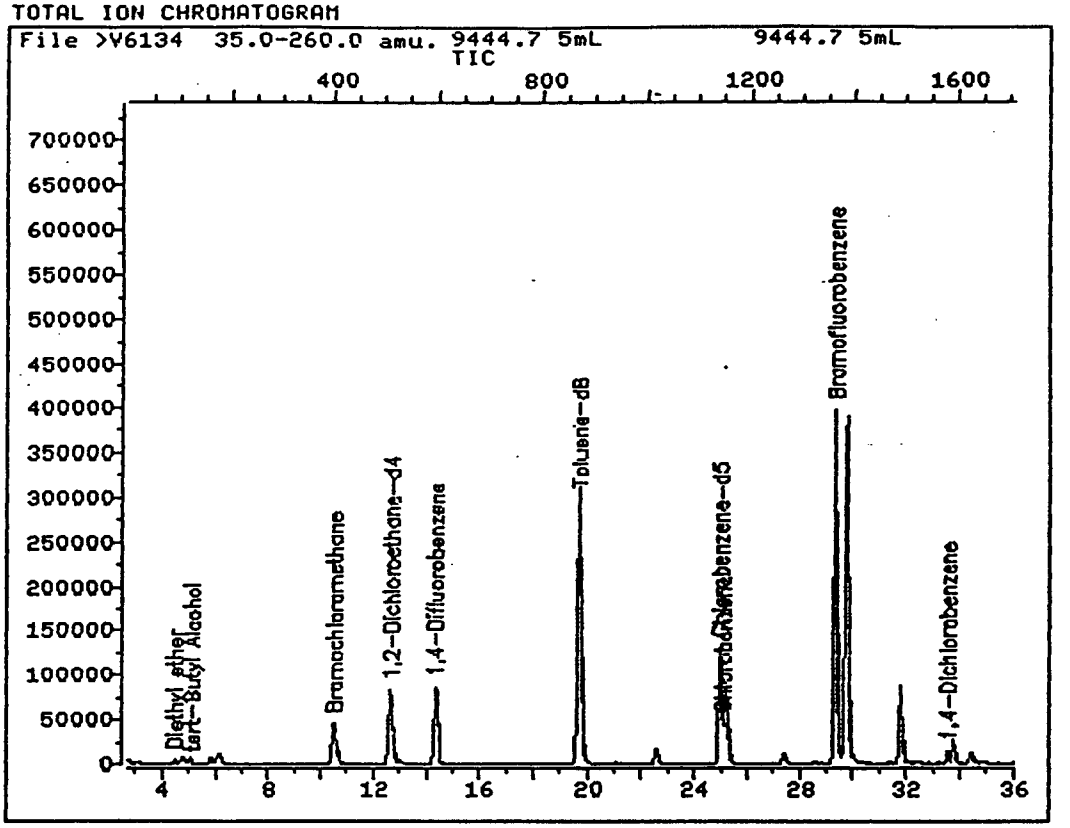
TOTAL ION CHROMATOGRAM



Data File: >V6134::D1
Name: 9444.7 5mL
Misc: 9444.7 5mL

Quant Output File: ^V6134::DB

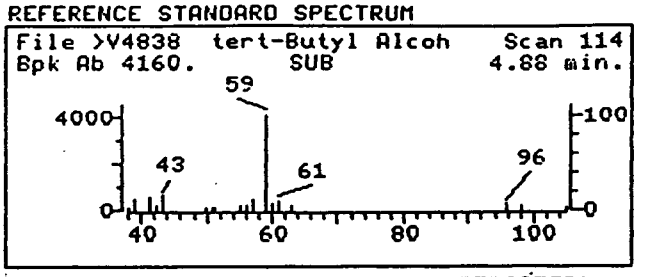
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921222 12:23
Injected at: 921222 11:46

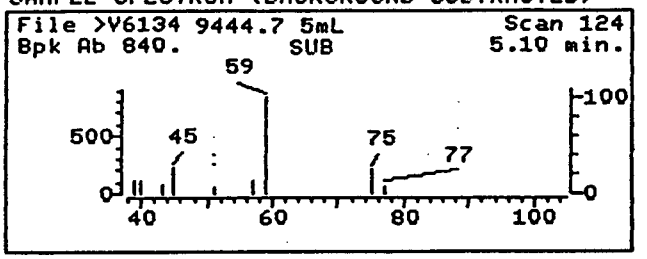
Reference 33

36/105

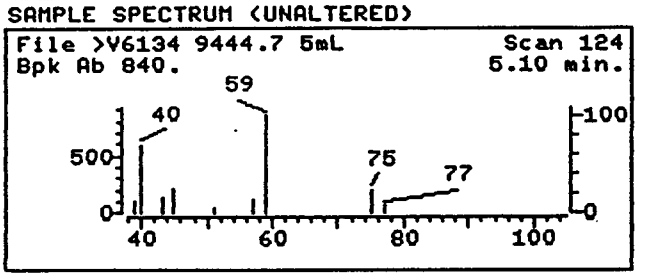
REFERENCE STANDARD SPECTRUM

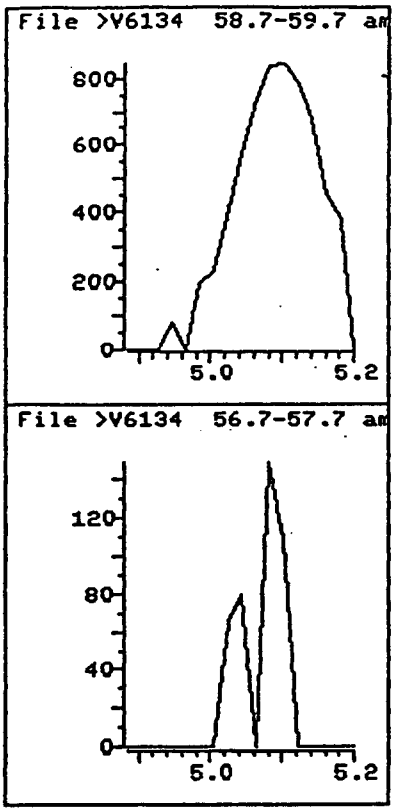


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6134::D1
Name: 9444.7 5mL
Misc: 9444.7 5mL
Quant Time: 921222 12:23
Injected at: 921222 11:46

Quant Output File: ^V6134::DB

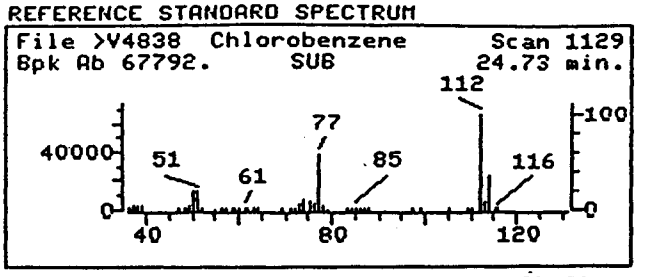
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 15
Compound Name: tert-Butyl Alcohol
Scan Number: 124
Retention Time: 5.10 min.
Quant Ion: 59.0
Area: 7273
Concentration: 42.79 ppb
q-value: 90

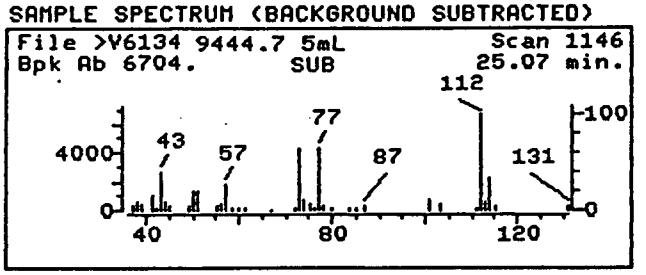
Reference 35

37/105

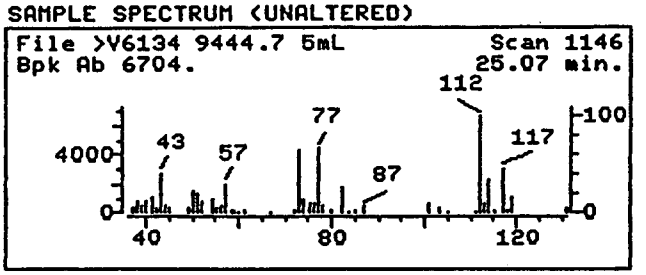
REFERENCE STANDARD SPECTRUM

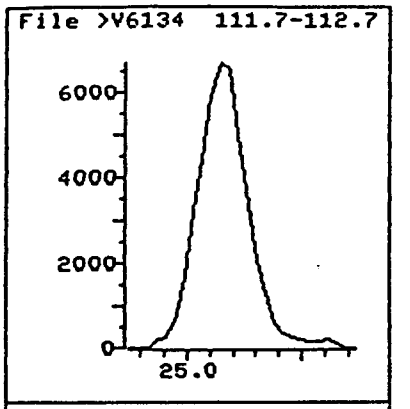


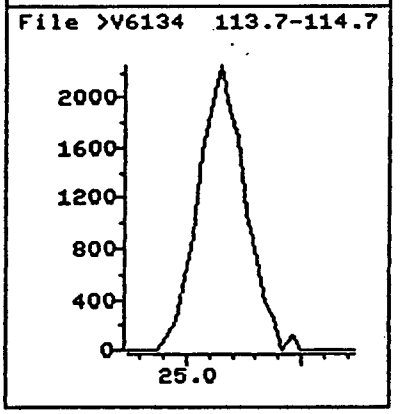
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >V6134::D1
Name: 9444.7 5mL
Misc: 9444.7 5mL
Quant Time: 921222 12:23
Injected at: 921222 11:46

Quant Output File: ^V6134::DB

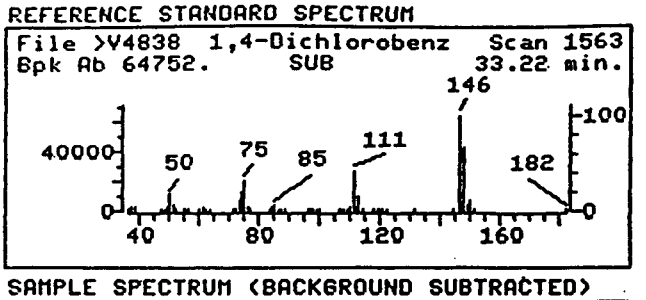
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 1146
Retention Time: 25.07 min.
Quant Ion: 112.0
Area: 51095
Concentration: 3.70 ppb
q-value: 96

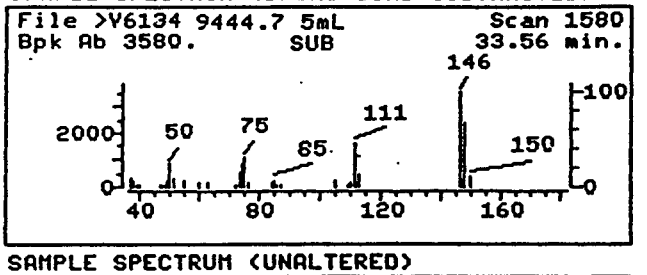
Reference 35

38/105

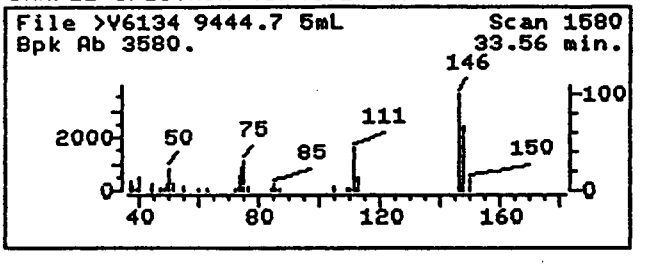
REFERENCE STANDARD SPECTRUM

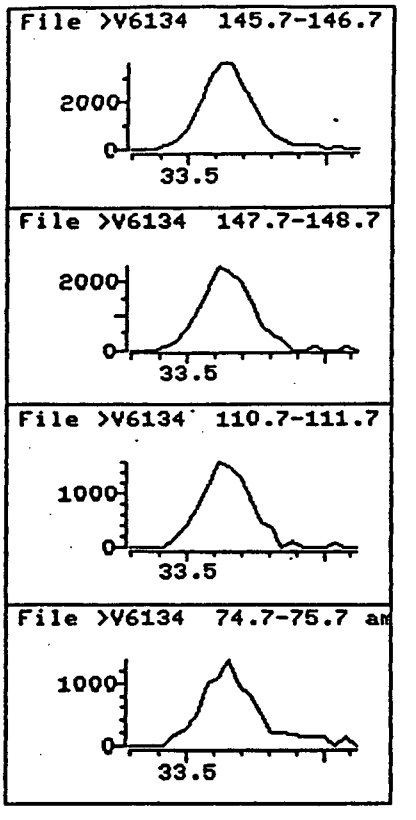


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6134::D1 Quant Output File: ^V6134::DB
Name: 9444.7 5mL
Misc: 9444.7 5mL
Quant Time: 921222 12:23 Quant ID File: IDVOA::D2
Injected at: 921222 11:46 Last Calibration: 921218 11:18

Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1580
Retention Time: 33.56 min.
Quant Ion: 146.0
Area: 24508
Concentration: 2.07 ppb
q-value: 95

Reference 35.

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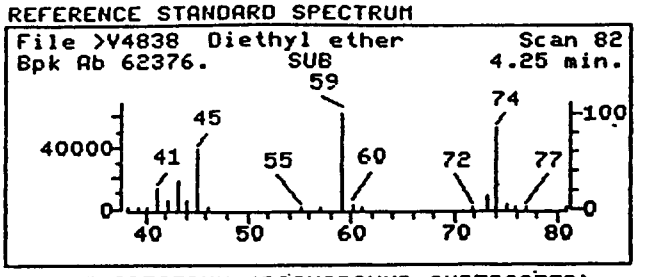
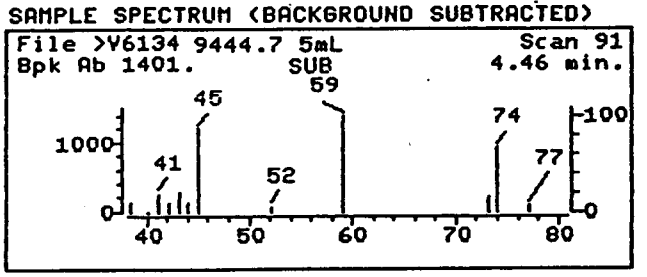
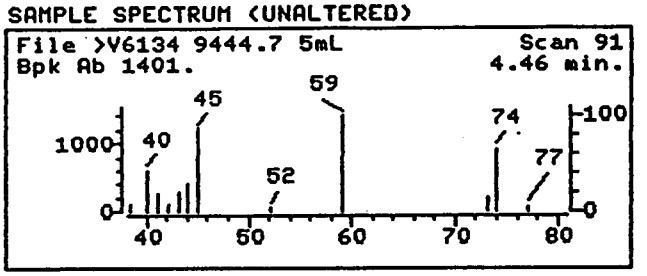
REFERENCE STANDARD SPECTRUM

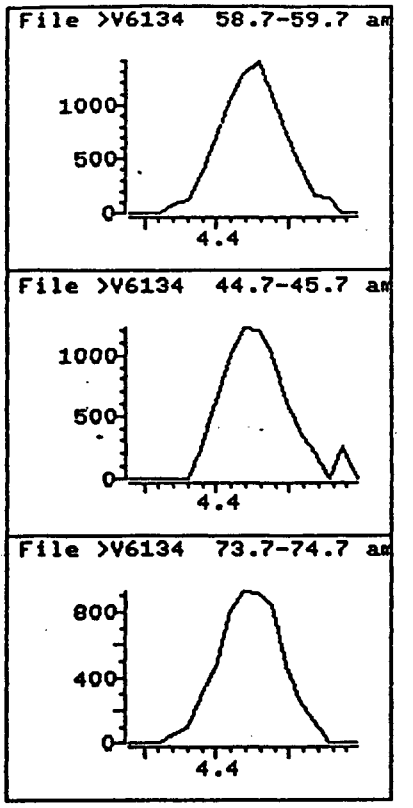


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6134::D1
Name: 9444.7 5mL
Misc: 9444.7 5mL
Quant Time: 921222 12:23
Injected at: 921222 11:46

Quant Output File: ^V6134::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 52
Compound Name: Diethyl ether
Scan Number: 91
Retention Time: 4.46 min.
Quant Ion: 59.0
Area: 8835
Concentration: 4.34 ppb
q-value: 74

Reference 33
40/105

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

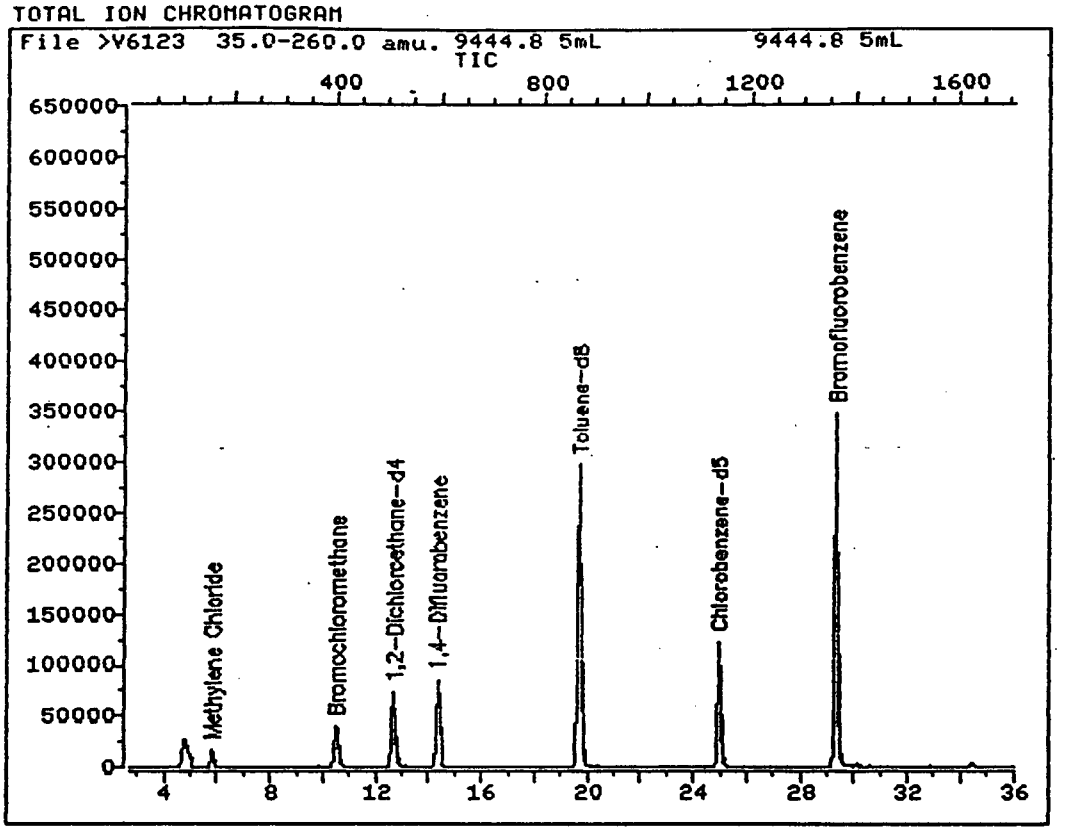
PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.8 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>V6123	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	4 JB	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 33
4/1/05

TOTAL ION CHROMATOGRAM



Data File: >V6123::D1
Name: 9444.8 5mL
Misc: 9444.8 5mL

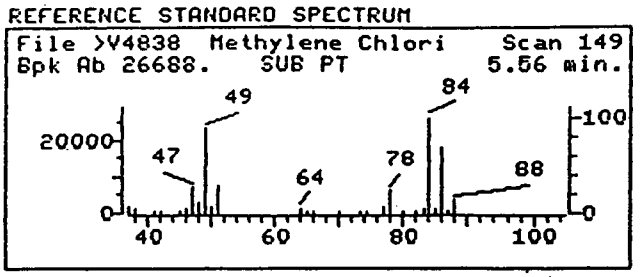
Quant Output File: ^V6123::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

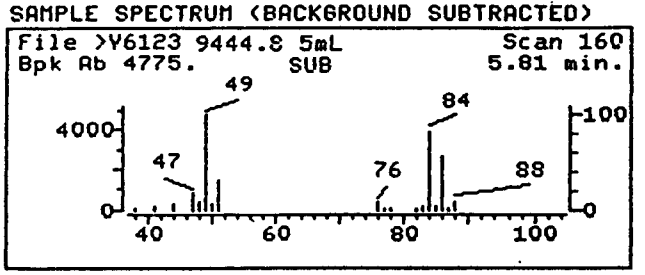
Operator ID: MARK
Quant Time: 921221 14:54
Injected at: 921221 14:17

Reference 33
42/105

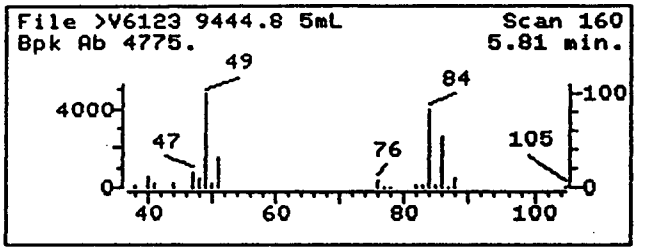
REFERENCE STANDARD SPECTRUM

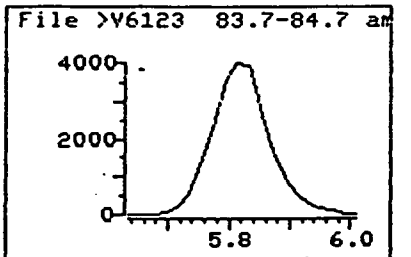


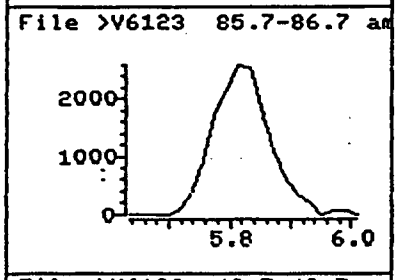
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

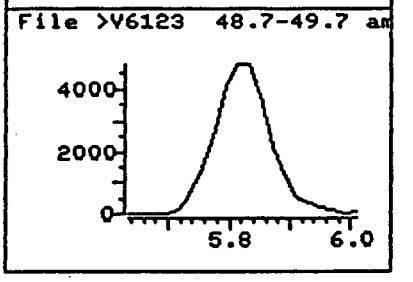


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6123::D1
Name: 9444.8 5mL
Misc: 9444.8 5mL
Quant Time: 921221 14:54
Injected at: 921221 14:17

Quant Output File: ^V6123::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 160
Retention Time: 5.81 min.
Quant Ion: 84.0
Area: 26364
Concentration: 3.99 ppb
q-value: 78

Reference 33
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Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

PROJECT	9444	MATRIX	Water
SAMPLE ID	9444.9 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Lakewood	DATE RECEIVED	12-18-92
DATA FILE	>U6124	DATE ANALYZED	12/21/92

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	3 JB	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 33

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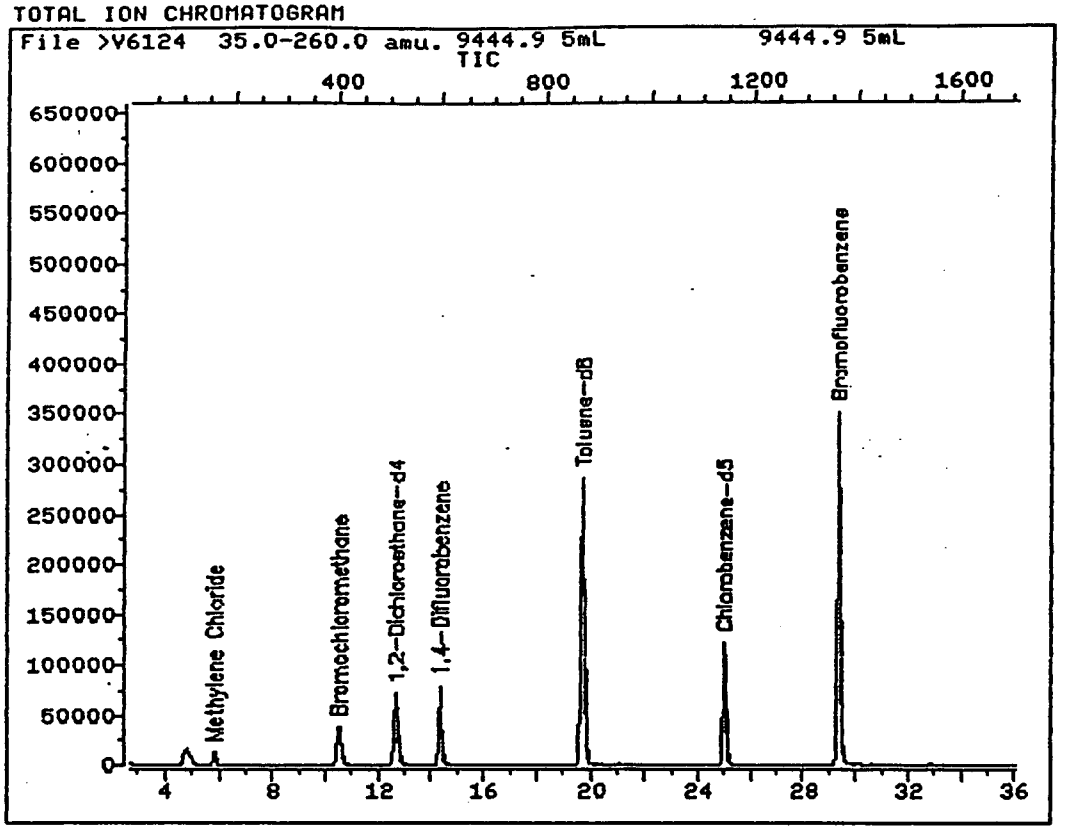
TOTAL ION CHROMATOGRAM



Data File: >V6124::D1
Name: 9444.9 5mL
Misc: 9444.9 5mL

Quant Output File: ^V6124::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 15:36
Injected at: 921221 14:59

Reference 33

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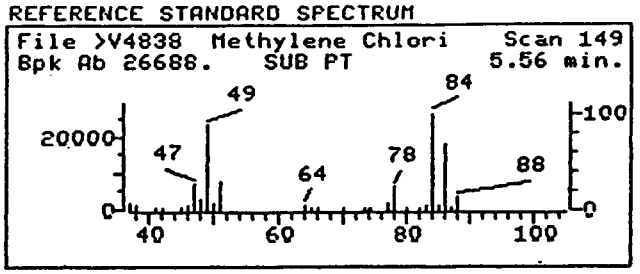
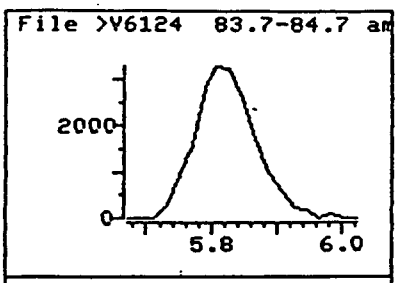
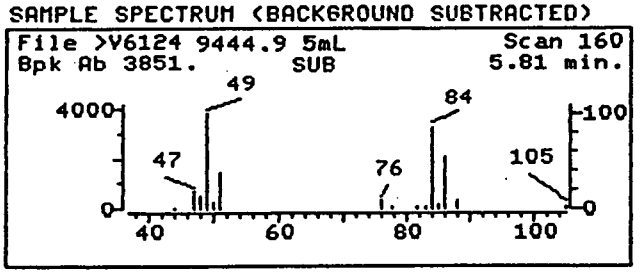
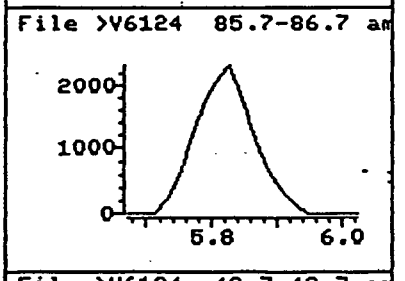
REFERENCE STANDARD SPECTRUM



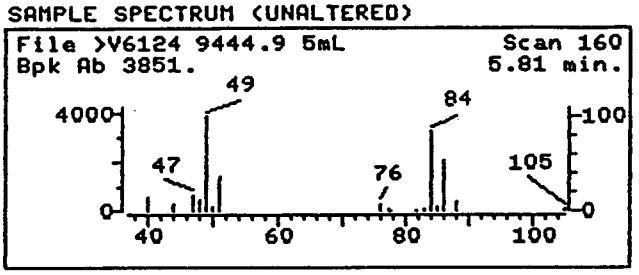


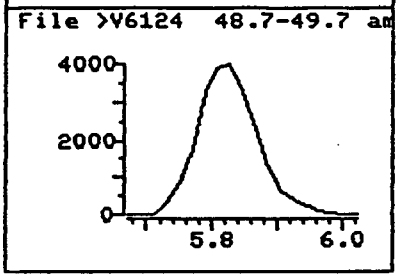
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNALTERED)





Data File: >V6124::D1
Name: 9444.9 5mL
Misc: 9444.9 5mL
Quant Time: 921221 15:36
Injected at: 921221 14:59

Quant Output File: ^V6124::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 160
Retention Time: 5.81 min.
Quant Ion: 84.0
Area: 21855
Concentration: 3.42 ppb
q-value: 79

Reference 33
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.1 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.1 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6125

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 5

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	76131	Freon	4.73	48	88
2	2517433	1-Butanol, 3-methoxy-	22.56	7	52
3		Hydrocarbon	27.40	10	
4	2568903	Butane, 1,1'-[methylenebis(o	31.82	35	70
5	41902425	3-Pentanol, 3-(1,1-dimethyle	33.79	62	60

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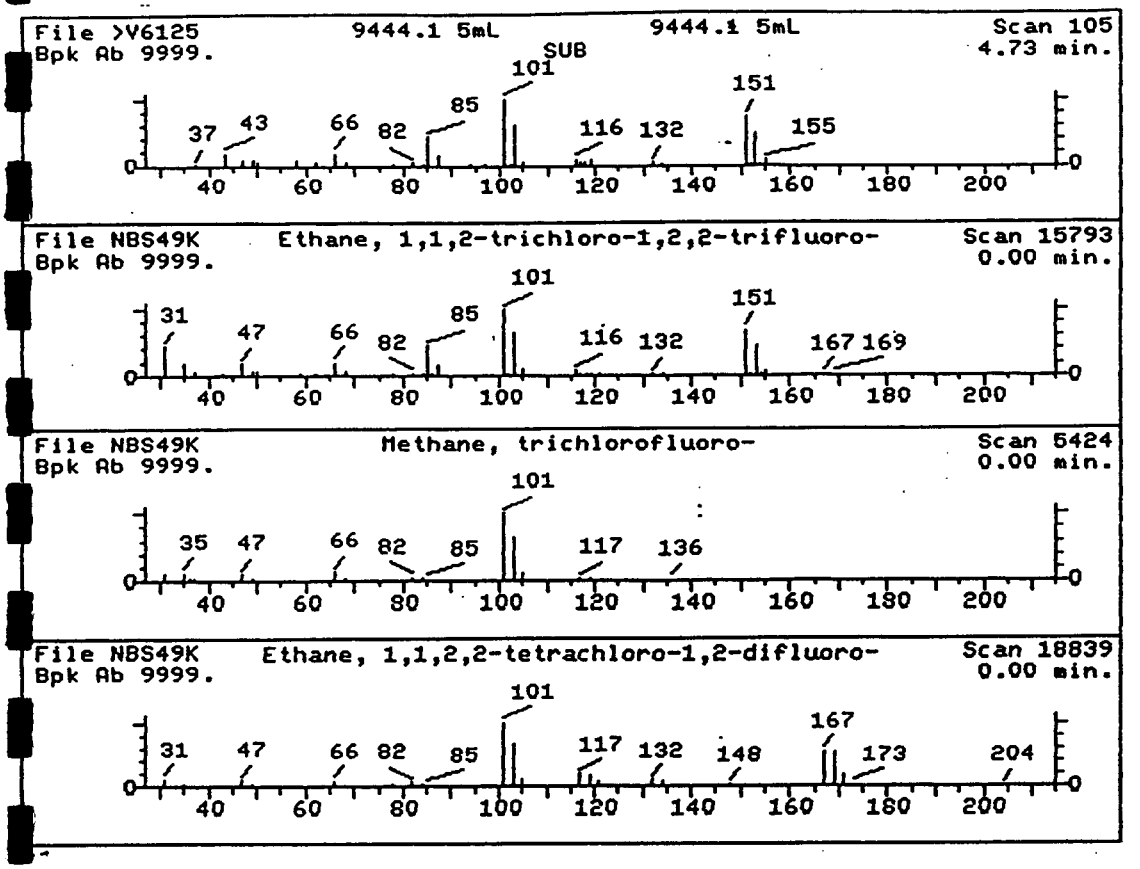

UNKNOWN #,1

AREA = 432989.0 TENTATIVE CONCENTRATION IS 48.00

1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F
3. Ethane, 1,1,2,2-tetrachloro-1,2-difluoro- 202 C2Cl4F2

Sample file: >V6125 Spectrum #: 105
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.	88	76131	10367	NBS49K	97	41	1	0	92	1	65	57
2.	15	75694	10283	NBS49K	49	47	2	0	90	59	3	13
3.	11*	76120	10400	NBS49K	22	109	3	0	92	61	2	12

Reference 33

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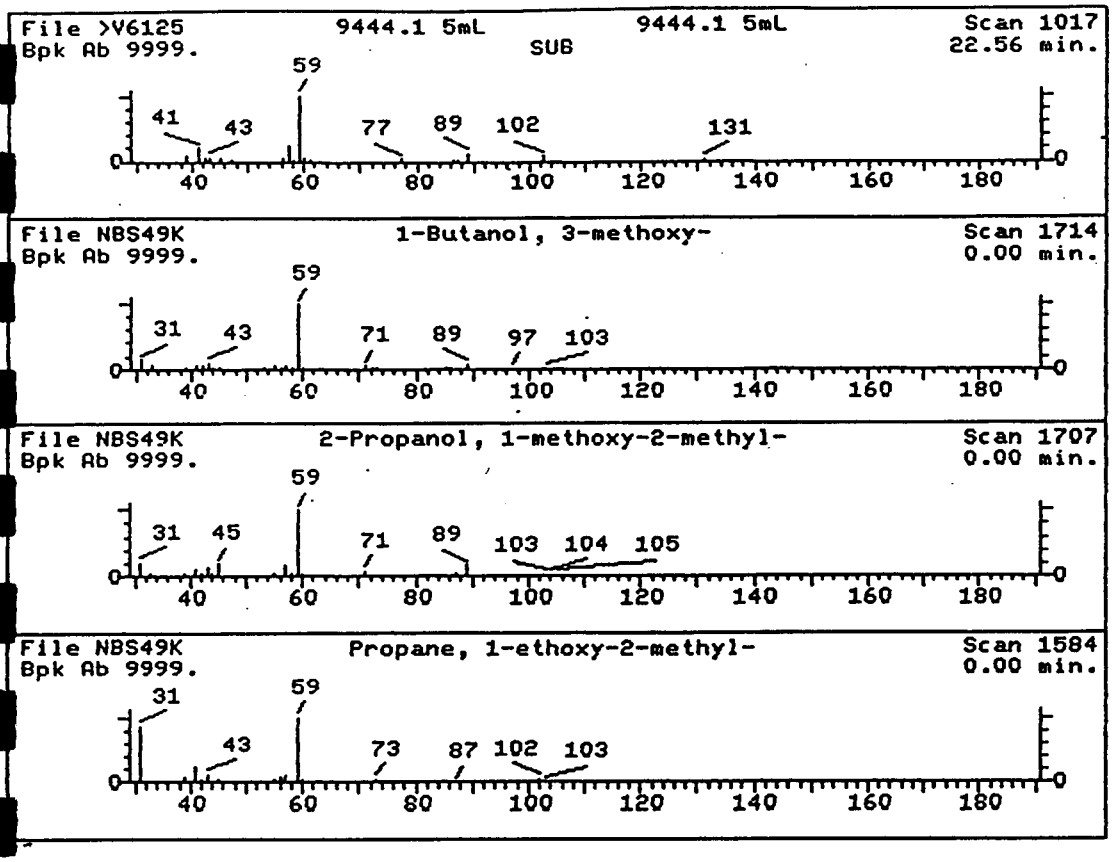

UNKNOWN #,2

AREA = 139029.0 TENTATIVE CONCENTRATION IS 7.00

1.	1-Butanol, 3-methoxy-	104 C5H12O2
2.	2-Propanol, 1-methoxy-2-methyl-	104 C5H12O2
3.	Propane, 1-ethoxy-2-methyl-	102 C6H14O
4.	Butanoic acid, 2-hydroxy-, ethyl ester	132 C6H12O3
5.	Butane, 1-ethoxy-	102 C6H14O
6.	Propane, 2-methyl-2-(1-methylethoxy)-	116 C7H16O

Sample file: >V6125 Spectrum #: 1017

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.	52	2517433	1778	NBS49K	34	50	1	0	87	17	20	12
2.	52*	3587642	1774	NBS49K	36	55	2	0	85	17	20	18
3.	51*	627021	1763	NBS49K	40	51	1	0	83	21	22	23
4.	45*	52089540	1849	NBS49K	30	52	1	0	72	23	17	16
5.	43*	628819	1764	NBS49K	25	67	2	0	100	23	17	14
6.	42	17348593	1806	NBS49K	39	42	2	0	76	23	17	13

Reference 35
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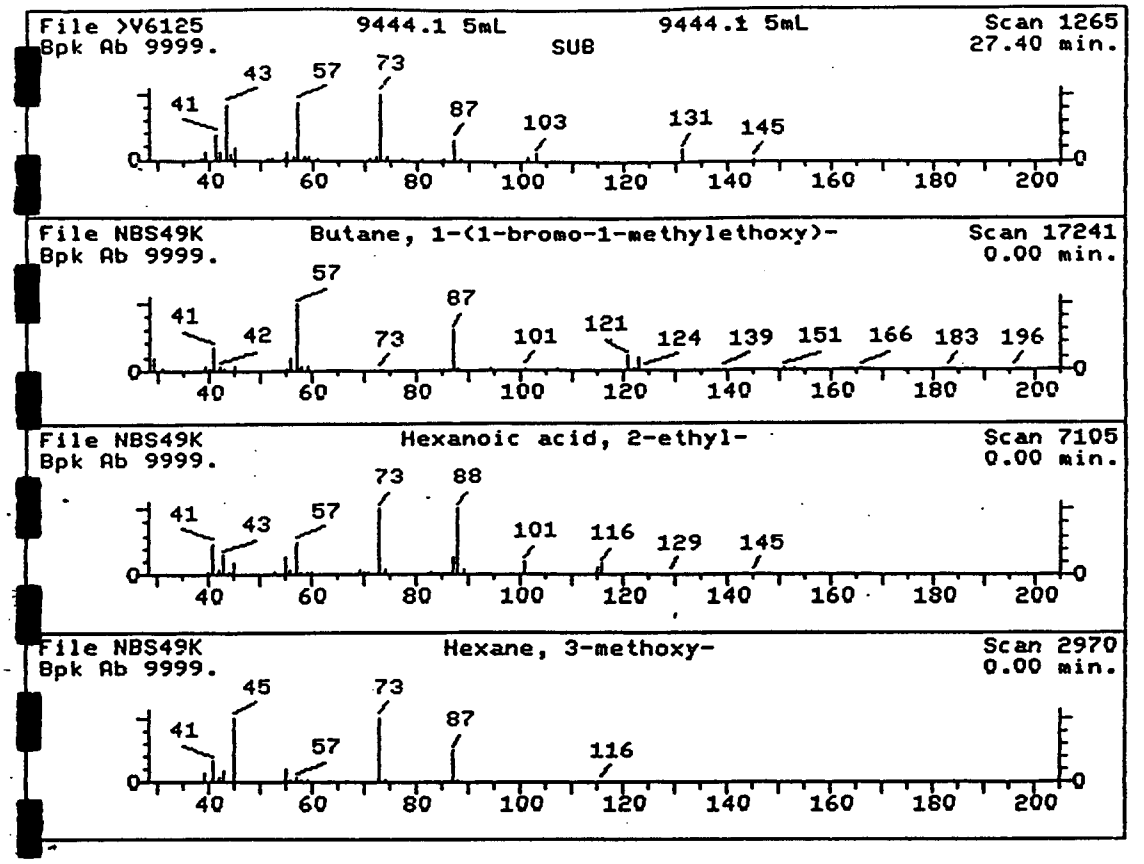

UNKNOWN #,3
AREA = 192523.0 TENTATIVE CONCENTRATION IS 10.00

1.	Butane, 1-(1-bromo-1-methylethoxy)-	194	C7H15BrO
2.	Hexanoic acid, 2-ethyl-	144	C8H16O2
3.	Hexane, 3-methoxy-	116	C7H16O
4.	Silane, ethyltrimethyl-	102	C5H14Si
5.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2
6.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2

Sample file: >V6125 Spectrum #: 1265
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.	55*	54833044	7495	NBS49K	57	44	2	2	61	21	22	27
2.	30*	149575	7737	NBS49K	28	71	3	0	100	34	12	13
3.	30*	54658014	7264	NBS49K	46	39	1	0	67	49	10	29
4.	25	3439381	7232	NBS49K	39	44	2	0	100	48	7	13
5.	25	2568914	7404	NBS49K	35	46	1	0	86	50	7	13
6.	25	2568903	7403	NBS49K	45	37	1	0	71	49	7	16

Reference 33
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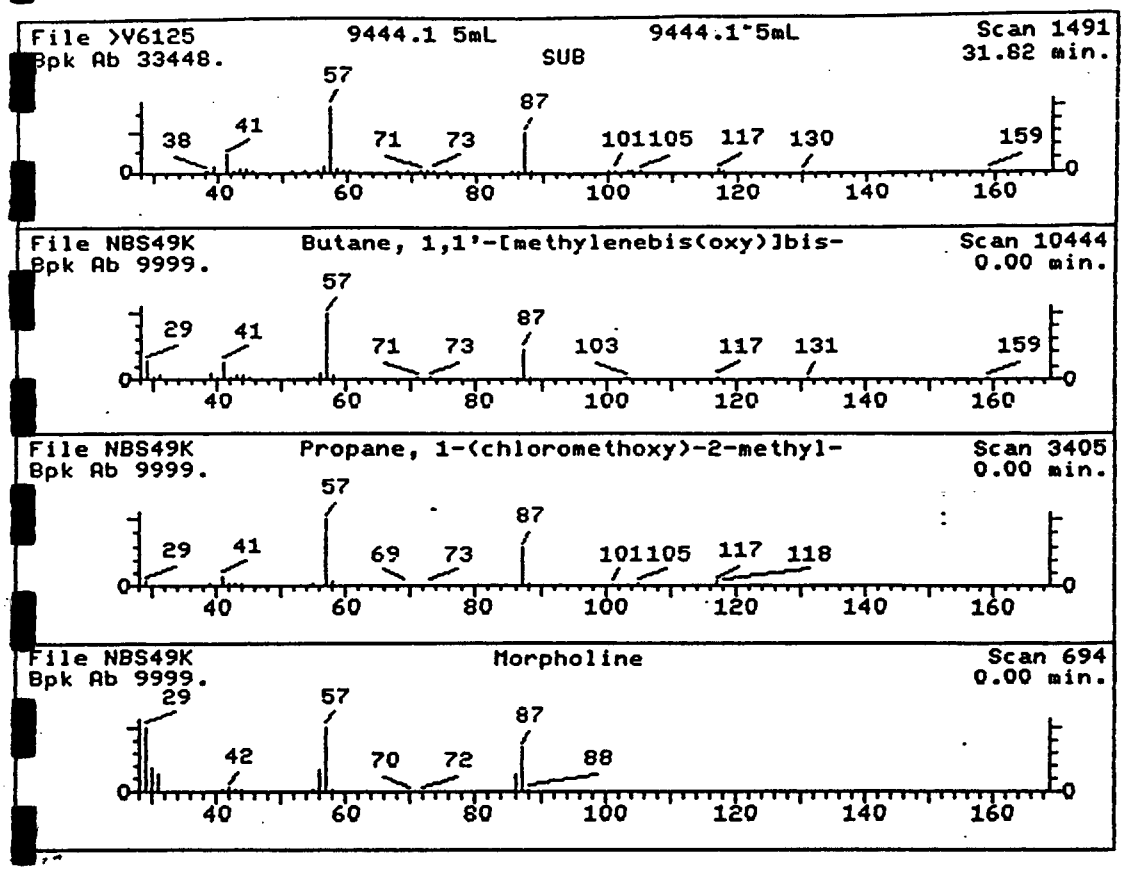

UNKNOWN #,4
AREA = 676373.0 TENTATIVE CONCENTRATION IS 35.00

1.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
2.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
3.	Morpholine	87	C4H9NO
4.	Isobutyl ether (8CI)	130	C8H18O
5.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >V6125 Spectrum #: 1491
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.	70	2568903	7403	NBS49K	40	42	2	0	100	6	42	14
2.	70	34180115	7279	NBS49K	45	30	1	0	80	8	42	16
3.	60*	110918	7215	NBS49K	35	65	2	0	86	12	30	14
4.	29	628557	7313	NBS49K	36	36	2	0	100	32	12	12
5.	11*	3376350	7220	NBS49K	28	62	2	0	59	65	2	14

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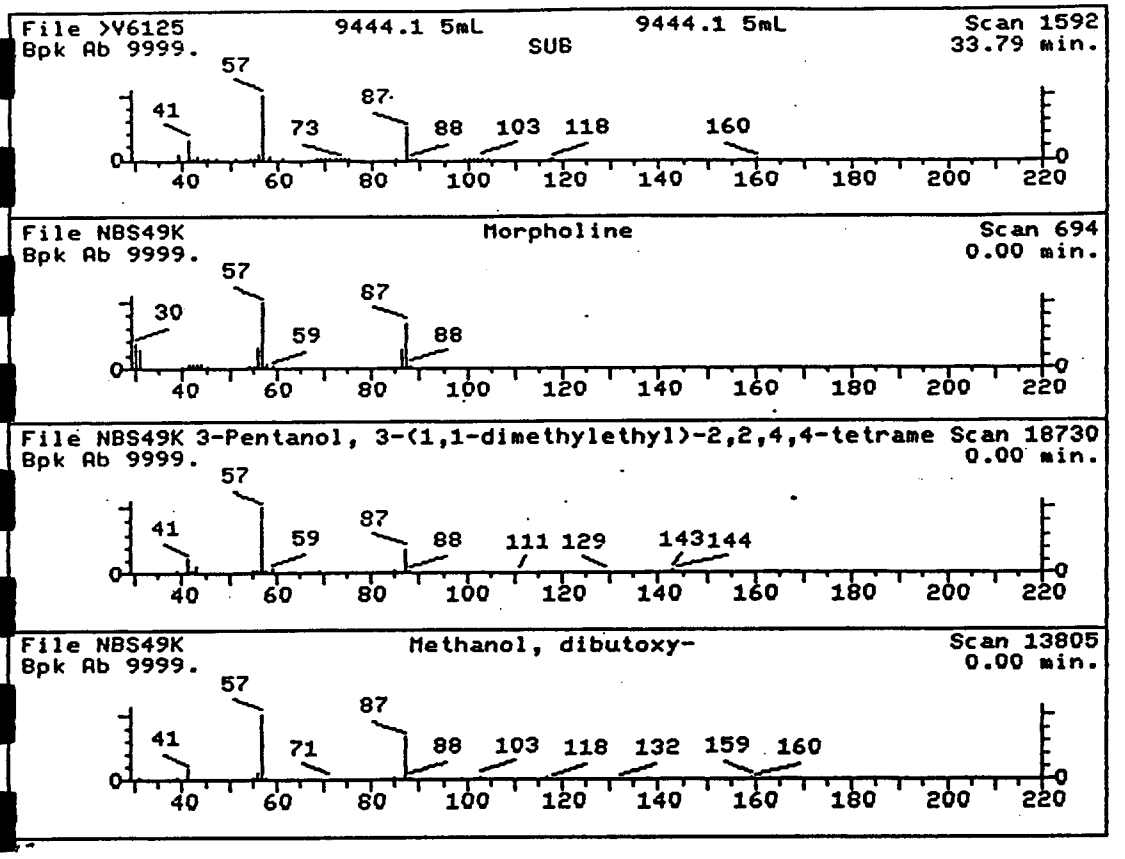

UNKNOWN #,5
AREA = 1196634. TENTATIVE CONCENTRATION IS 62.00

1.	Morpholine	87	C4H9NO
2.	3-Pentanol, 3-(1,1-dimethylethyl)-2,2,4,4-tetramethy	200	C13H28O
3.	Methanol, dibutoxy-	176	C9H20O3
4.	1,3-Dioxolane-2-hexanoic acid, 2-methyl-, ethyl este	230	C12H22O4
5.	1,3-Dioxolane-2-pentanol, 2-methyl-	174	C9H18O3
6.	Propionic acid, thio-, S-heptyl ester	188	C10H20OS

Sample file: >V6125 Spectrum #: 1592
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.	60*	110918	7215	NBS49K	40	60	2	0	72	12	30	15
2.	60	41902425	7500	NBS49K	45	44	2	0	100	12	30	14
3.	56	54518046	7443	NBS49K	70	18	1	4	96	21	22	28
4.	52	36651180	7530	NBS49K	68	34	1	4	68	21	22	24
5.	48	36651237	7440	NBS49K	60	28	1	4	51	23	17	19
6.	41*	2432453	1291	NBS49K	52	37	1	2	68	41	14	37

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.2 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.2 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6126

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 7

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	76131	Freon	4.76	270	88
2	3587642	2-Propanol, 1-methoxy-2-meth	22.54	5	52
3		Hydrocarbon	27.39	12	
4		Unknown	29.80	16	
5	2568903	Butane, 1,1'-[methylenebis(o	31.81	14	78
6	7705148	Cyclohexene, 1-methyl-4-(1-m	32.86	5	63
7		Unknown	33.82	7	

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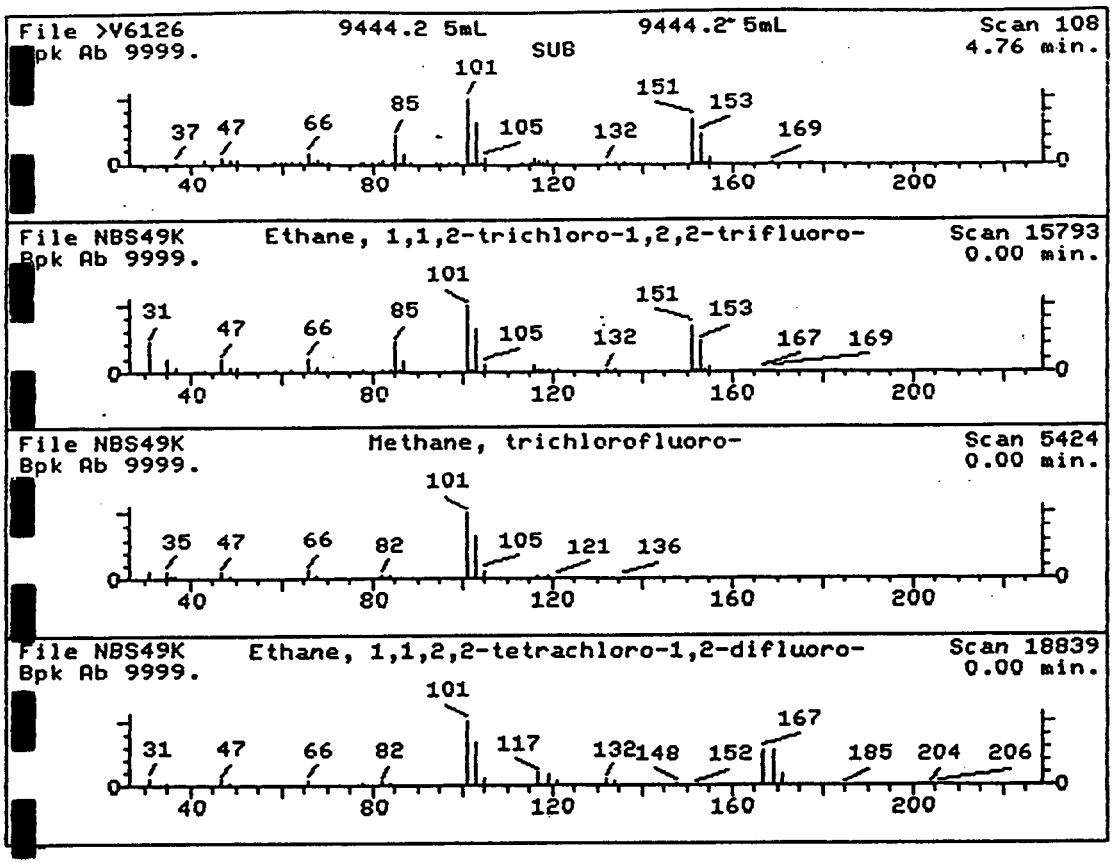

UNKNOWN #,1

AREA = 2376249. TENTATIVE CONCENTRATION IS 270.00

1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F
3. Ethane, 1,1,2,2-tetrachloro-1,2-difluoro- 202 C2Cl4F2

Sample file: >V6126 Spectrum #: 108

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.	88	76131	10367	NBS49K	98	40	1	0	76	3	65	59
2.	55	75694	10283	NBS49K	77	19	0	0	95	49	14	65
3.	25*	76120	10400	NBS49K	50	81	3	0	97	49	7	14

Reference 33
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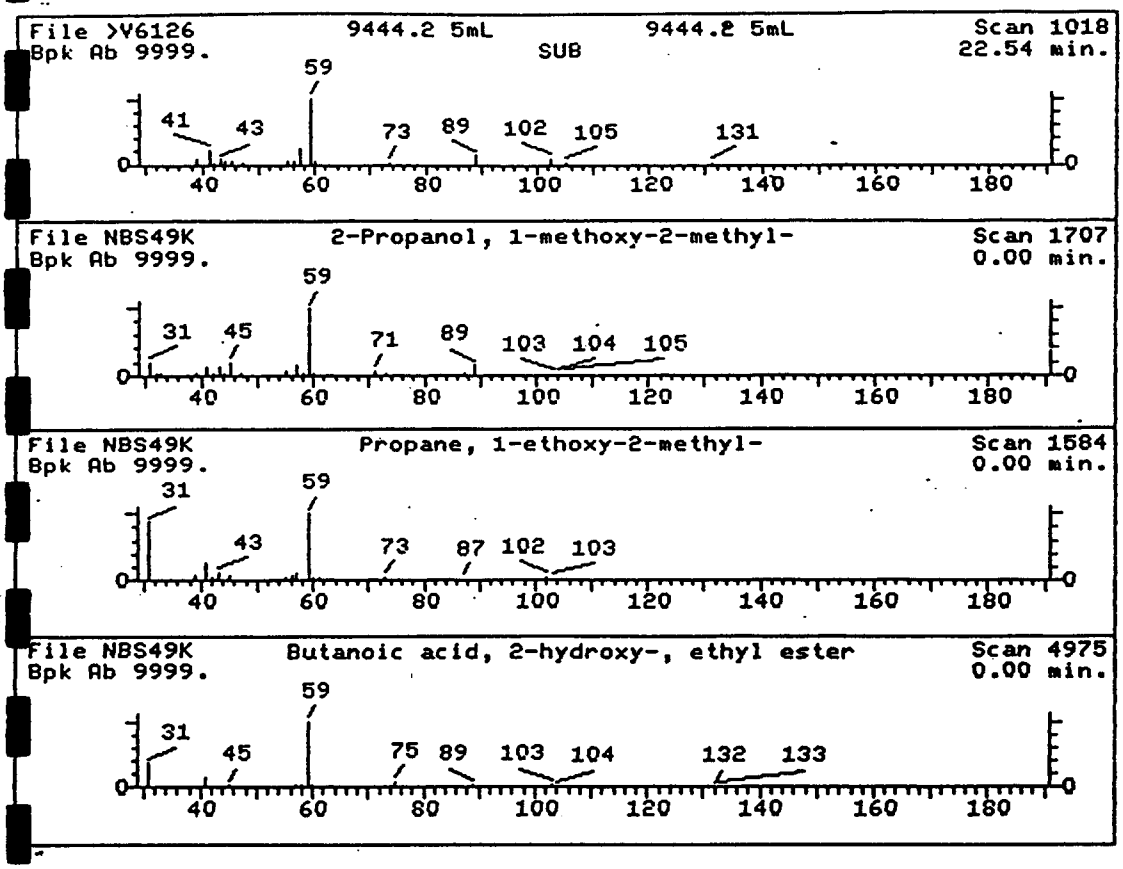

UNKNOWN #,2
AREA = 92470.00 TENTATIVE CONCENTRATION IS 5.00

1.	2-Propanol, 1-methoxy-2-methyl-	104	C5H12O2
2.	Propane, 1-ethoxy-2-methyl-	102	C6H14O
3.	Butanoic acid, 2-hydroxy-, ethyl ester	132	C6H12O3
4.	Hydrazine, 1-methyl-1-(2-methylpropyl)-	102	C5H14N2
5.	Butane, 2-methoxy-3-methyl-	102	C6H14O
6.	1-Propanol, 2-methoxy-	90	C4H10O2

Sample file: >V6126 Spectrum #: 1018
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.	52*	3587642	1774	NBS49K	31	60	2	0	92	20	20	15
2.	45*	627021	1763	NBS49K	40	51	1	0	85	26	19	23
3.	45*	52089540	1849	NBS49K	29	53	1	0	100	24	17	16
4.	43*	20240635	1759	NBS49K	29	54	2	0	85	24	17	14
5.	37*	62016493	1769	NBS49K	27	47	2	0	100	28	14	14
6.	37*	1589475	1736	NBS49K	23	55	1	0	81	30	14	14

Reference 33
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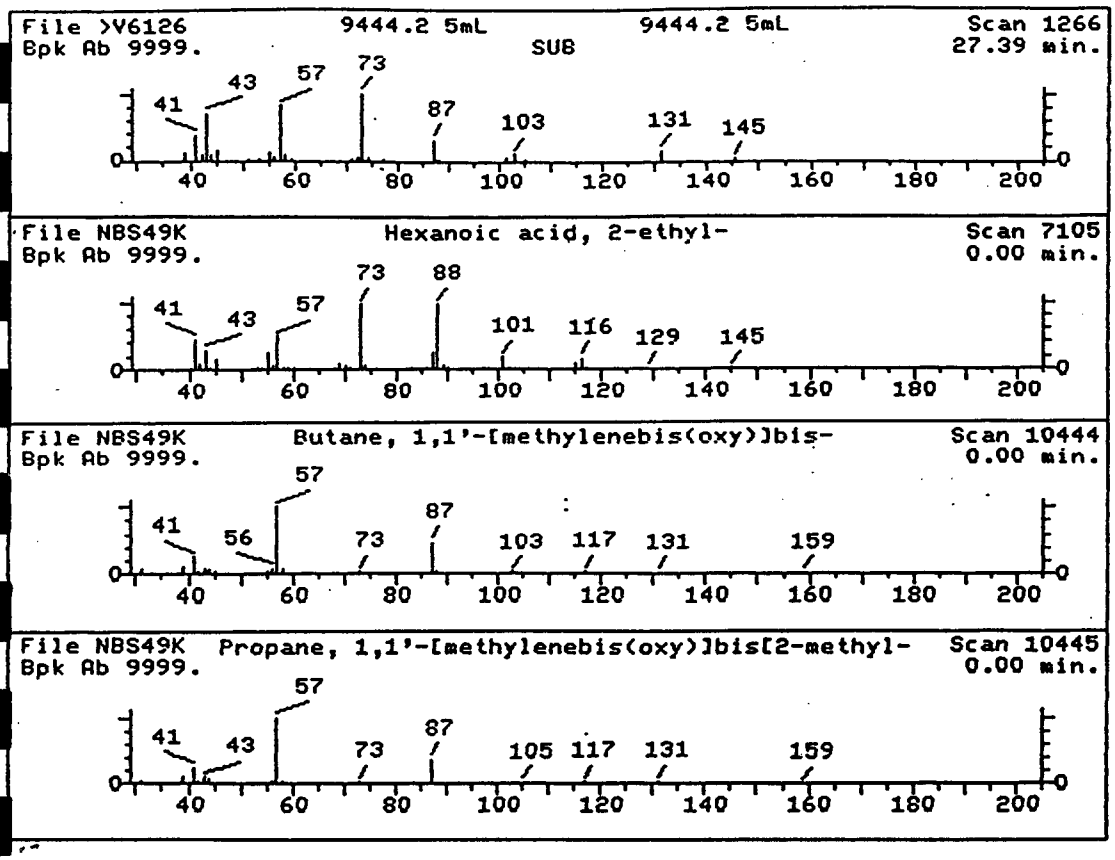

UNKNOWN #,3
AREA = 227245.0 TENTATIVE CONCENTRATION IS 12.00

1.	Hexanoic acid, 2-ethyl-	144	C8H16O2
2.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
3.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2
4.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
5.	Boric acid (H3BO3), tris(2-methylpropyl) ester	230	C12H27BO3
6.	1,3-Dioxolane, 2-methyl-2-(3-methylbutyl)-	158	C9H18O2

Sample file: >V6126 Spectrum #: 1266
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.	52*	149575	7737	NBS49K	39	60	2	3	77	19	20	12
2.	25	2568903	7403	NBS49K	40	42	1	0	69	49	7	14
3.	25	2568914	7404	NBS49K	39	42	1	0	82	50	7	14
4.	25	34180115	7279	NBS49K	30	45	0	0	55	50	7	17
5.	18	13195761	15797	NBS49K	68	40	1	0	57	56	4	25
6.	15	14447304	7383	NBS49K	53	17	1	2	35	57	3	14

Reference 33.
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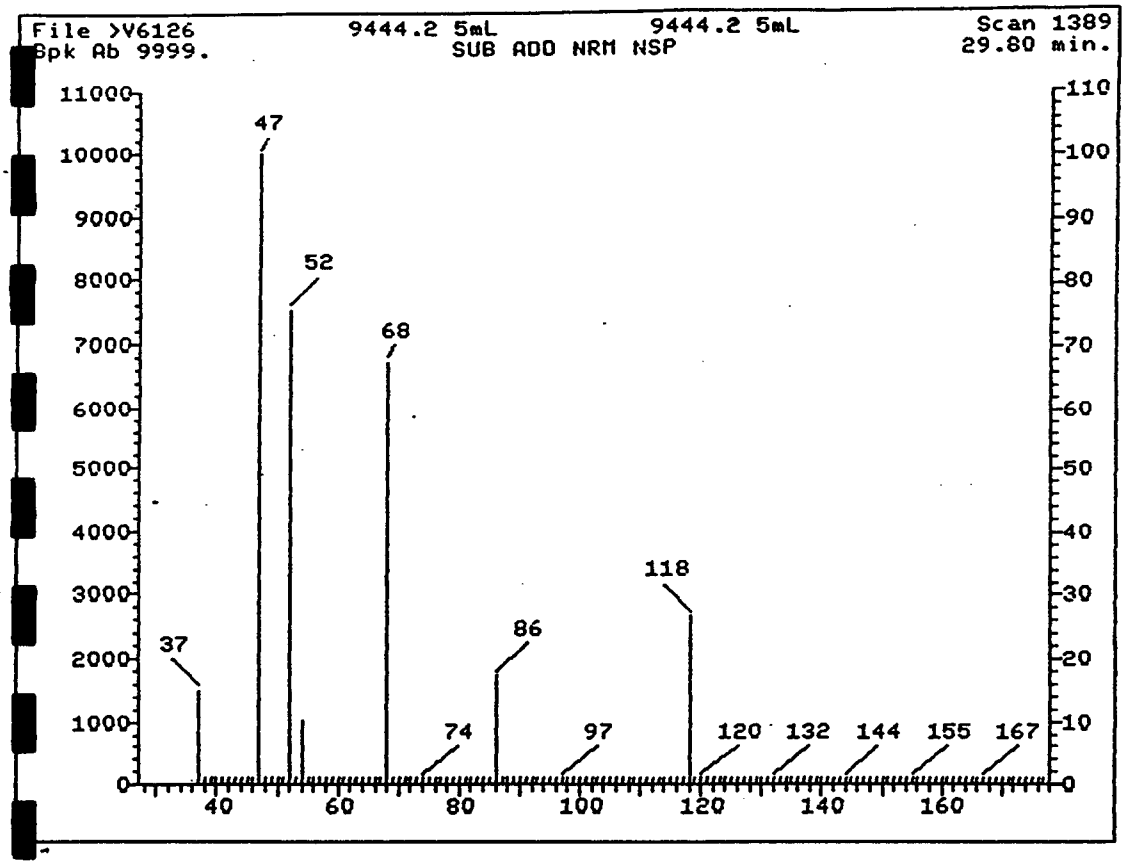

UNKNOWN #,4
AREA = 305108.0 TENTATIVE CONCENTRATION IS 16.00

Sample file: >V6126 Spectrum #: 1389

No data base entries were retrieved.

Reference 33

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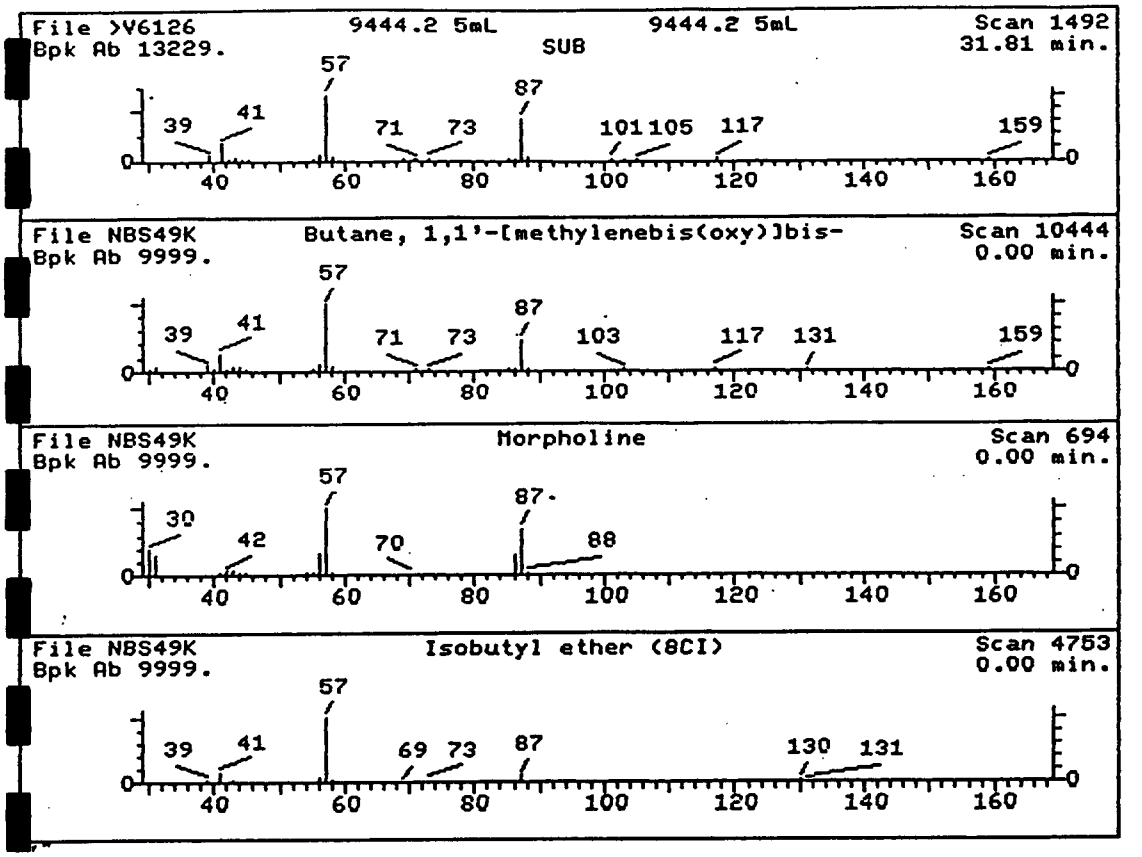


UNKNOWN #,5

AREA = 274113.0 TENTATIVE CONCENTRATION IS 14.00

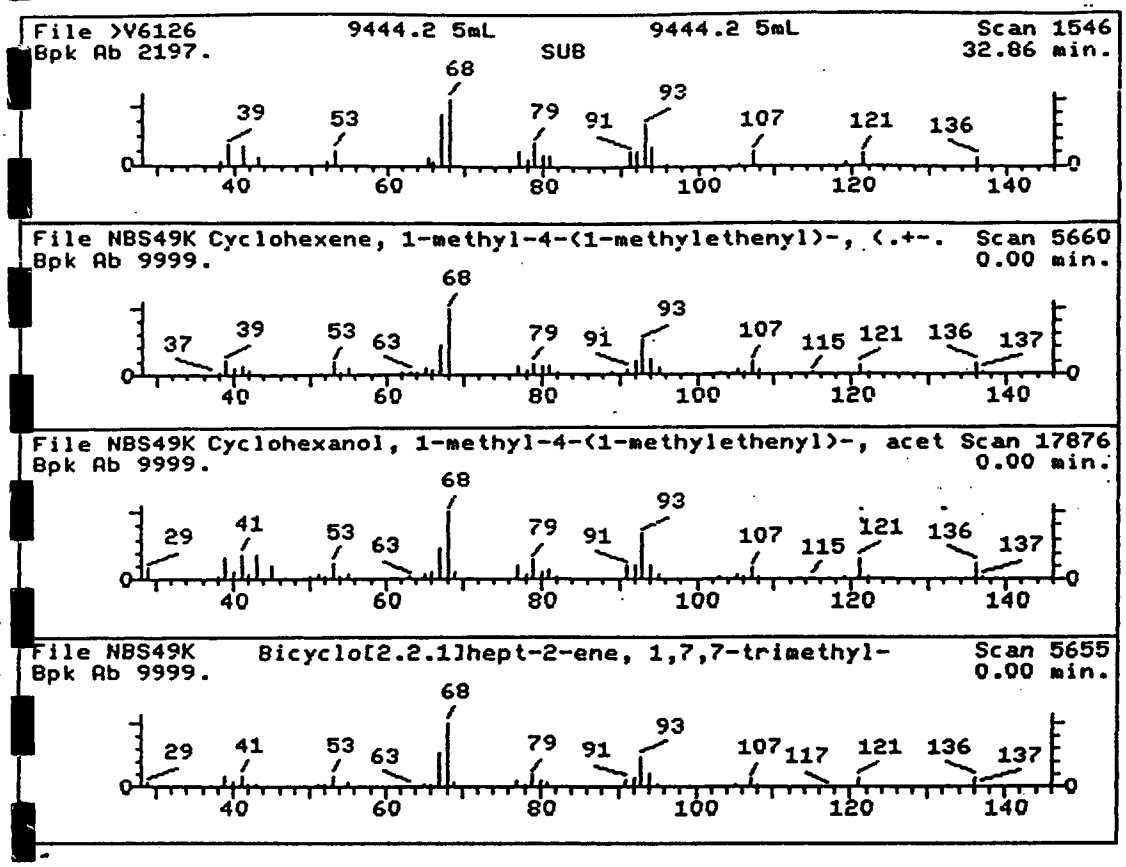
1.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
2.	Morpholine	87	C4H9NO
3.	Isobutyl ether (8CI)	130	C8H18O
4.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
5.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >V6126 Spectrum #: 1492

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.	78	2568903	7403	NBS49K	45	37	2	0	100	1	55	15
2.	70*	110918	7215	NBS49K	25	75	2	0	92	10	42	14
3.	29	628557	7313	NBS49K	36	36	2	0	100	31	12	12
4.	25	34180115	7279	NBS49K	26	49	0	0	65	48	7	13
5.	11*	3376350	7220	NBS49K	28	62	2	0	63	61	2	14

Reference 33
58/105



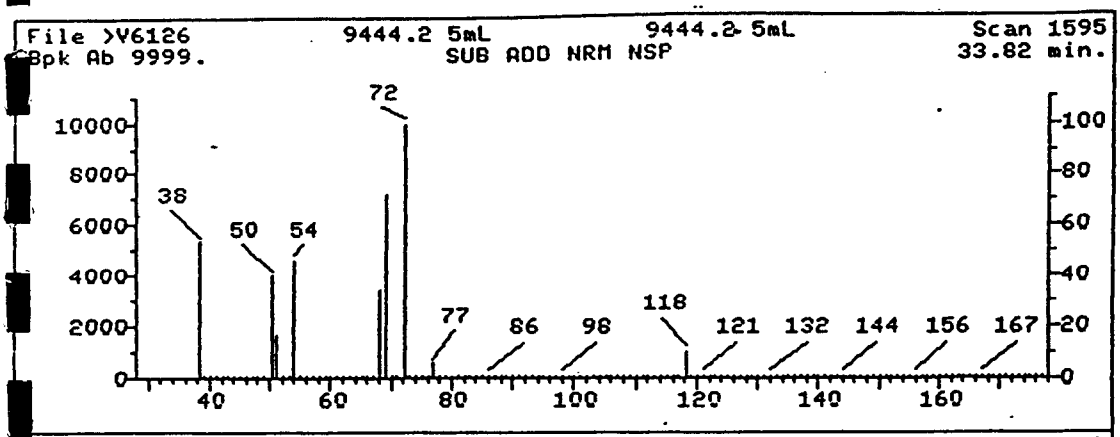
UNKNOWN #,6
AREA = 103235.0 TENTATIVE CONCENTRATION IS 5.00

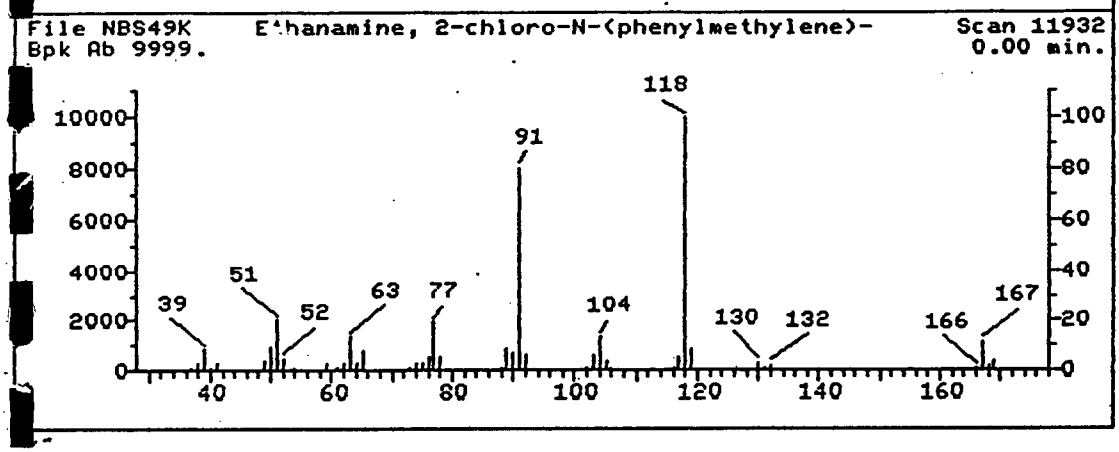
1.	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (.+-.)-	136	C10H16
2.	Cyclohexanol, 1-methyl-4-(1-methylethenyl)-, acetate	196	C12H2002
3.	Bicyclo[2.2.1]hept-2-ene, 1,7,7-trimethyl-	136	C10H16
4.	Cyclohexene, 4-ethenyl-1,4-dimethyl-	136	C10H16
5.	Cyclohexene, 1-methyl-5-(1-methylethenyl)-	136	C10H16
6.	D-Limonene	136	C10H16

Sample file: >V6126 Spectrum #: 1546
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.	63*	7705148	3637	NBS49K	64	49	2	2	100	19	30	35
2.	60	10198239	3702	NBS49K	80	61	3	0	92	12	30	14
3.	59*	464175	3636	NBS49K	52	63	1	0	87	25	27	35
4.	59*	1743619	3633	NBS49K	75	34	3	4	180	25	27	33
5.	58*	13898732	3643	NBS49K	61	53	3	0	130	19	25	28
6.	52*	5989275	3641	NBS49K	48	69	2	2	100	19	20	13

Reference 33
59/105





UNKNOWN #,7
AREA = 129065.0 TENTATIVE CONCENTRATION IS 7.00

1. Ethanamine, 2-chloro-N-(phenylmethylene)- 167 C9H10ClN

Sample file: >V6126 Spectrum #: 1595
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	20*	70509192	13408	NBS49K	41	34	2	3	16	54	5	14

Reference 35
60/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.3 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.3 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6127

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 1

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
11 76131	Freon	4.73	41	83

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Reference 33

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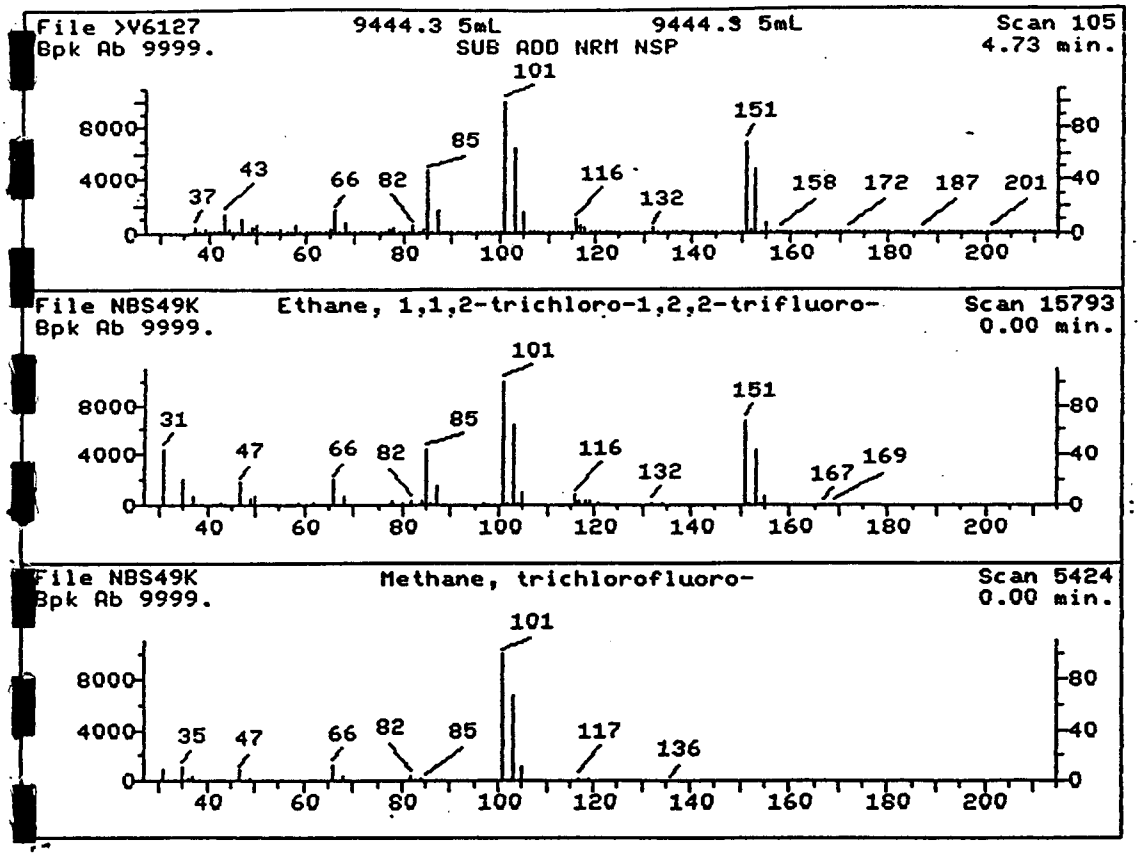

UNKNOWN #,1

AREA = 378391.0 TENTATIVE CONCENTRATION IS 41.00

1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F

Sample file: >V6127 Spectrum #: 105
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.	83	76131	10367	NBS49K	89	49	2	0	83	3	57	26
2.	35	75694	10283	NBS49K	71	25	1	0	98	49	11	35

Reference 35
62/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.4 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.4 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6128

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 2

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	76131	Freon	4.74	100	88
2	1120214	Undecane	34.42	6	83

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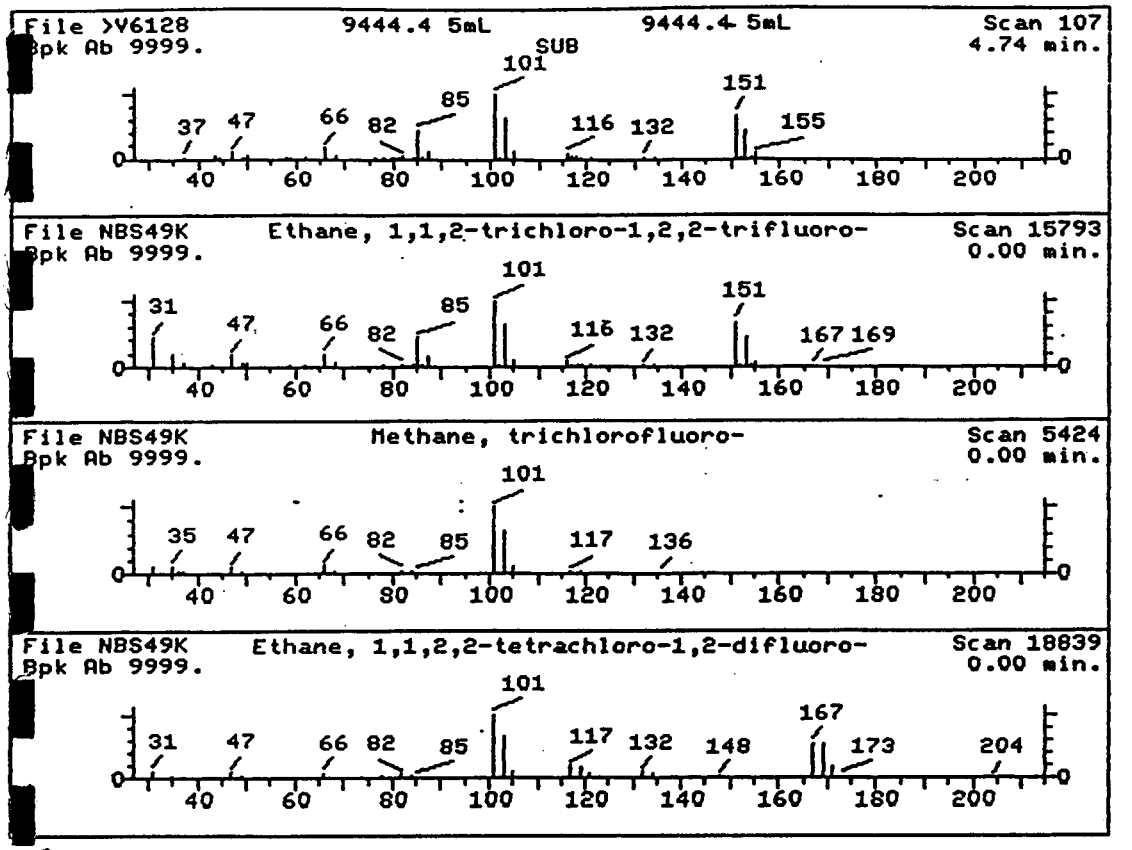
Reference 33
63/105



UNKNOWN #,1
AREA = 912735.0 TENTATIVE CONCENTRATION IS 100.00

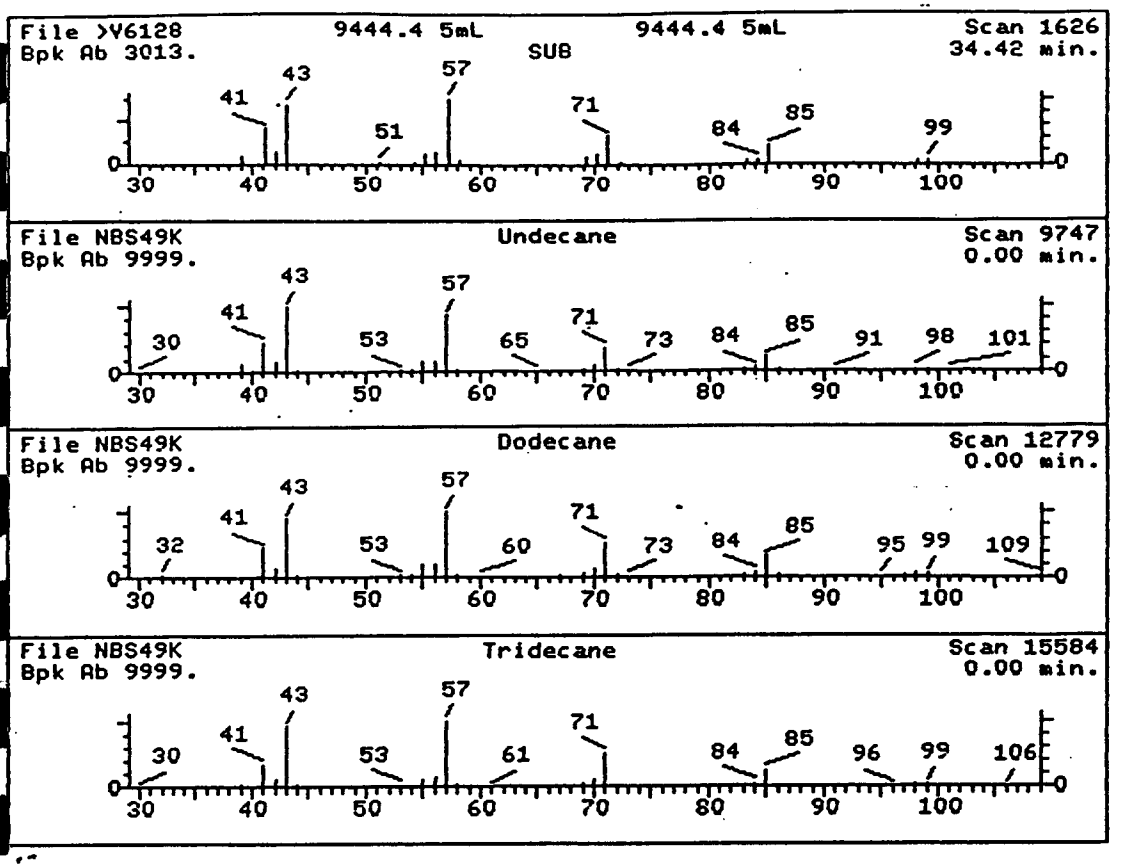
1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F
3. Ethane, 1,1,2,2-tetrachloro-1,2-difluoro- 202 C2Cl4F2
4. 2,4-Dioxabicyclo[3.2.0]hept-6-en-3-one, 1,5-dichloro -6,7-dimethyl- 208 C7H6Cl2O3

Sample file: >V6128 Spectrum #: 107
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.	88	76131	10367	NBS49K	98	40	1	0	73	3	65	59
2.	53	75694	10283	NBS49K	76	20	0	0	95	49	14	63
3.	25*	76120	10400	NBS49K	43	88	3	0	97	50	7	13
4.	11*	35436205	10418	NBS49K	24	76	1	0	91	61	2	14

Reference 33

64/105



UNKNOWN #,2

AREA = 103275.0 TENTATIVE CONCENTRATION IS 6.00

1.	Undecane	156	C11H24
2.	Dodecane	170	C12H26
3.	Tridecane	184	C13H28
4.	Undecane, 4,6-dimethyl-	184	C13H28
5.	Octane, 2,4,6-trimethyl-	156	C11H24
6.	Decane, 2,9-dimethyl-	170	C12H26

Sample file: >V6128 Spectrum #: 1626

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	1120214	6682	NBS49K	66	31	2	0	89	4	57	23
2.	78	112403	6732	NBS49K	69	30	2	2	89	5	55	17
3.	78	629505	6761	NBS49K	66	40	2	0	86	4	55	17
4.	78	17312822	4387	NBS49K	54	44	2	0	86	5	55	14
5.	60	62016379	6679	NBS49K	47	38	2	0	100	13	30	16
6.	60	1002171	6738	NBS49K	50	42	2	0	89	15	30	16

Reference 35
65/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.5 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.5 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6129

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 1

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
11 76131	Freon	4.73	61	89

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Reference 33

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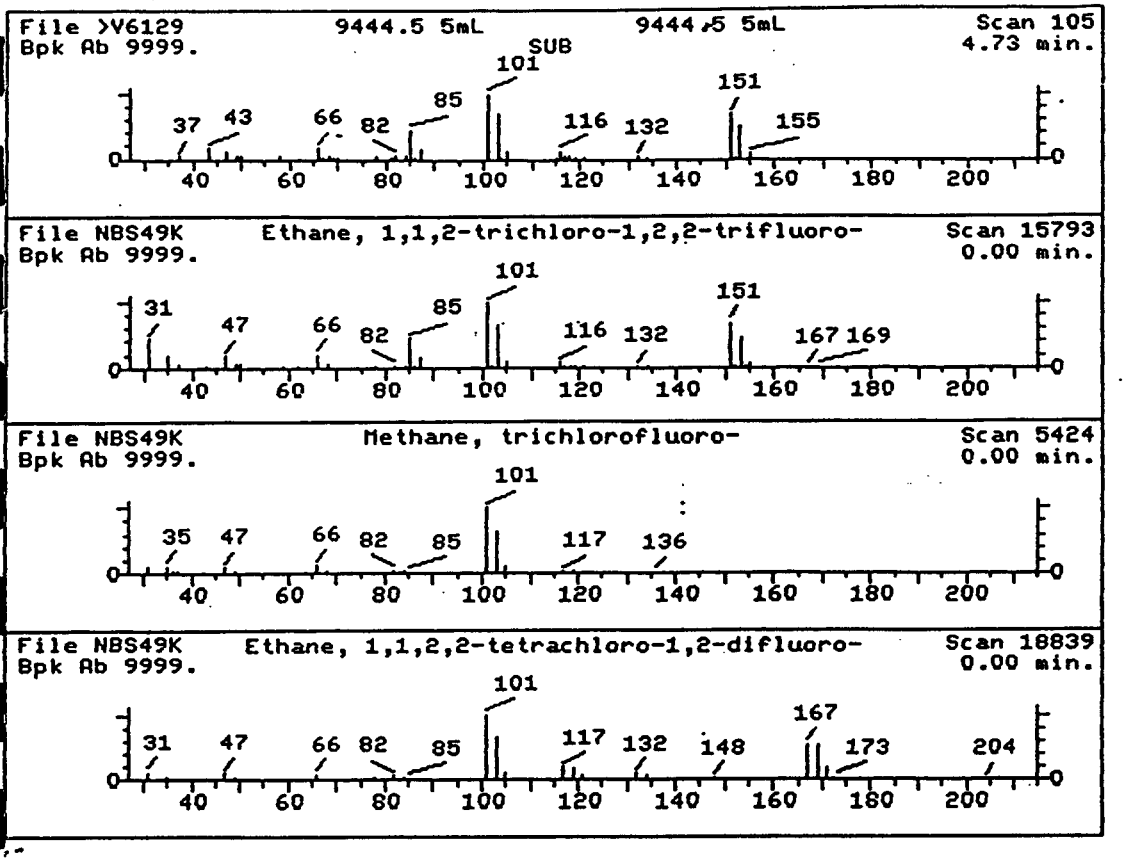

UNKNOWN #,1

AREA = 513115.0 TENTATIVE CONCENTRATION IS 61.00

1.	Ethane, 1,1,2-trichloro-1,2,2-trifluoro-	186	C2Cl3F3
2.	Methane, trichlorofluoro-	136	CCl3F
3.	Ethane, 1,1,2,2-tetrachloro-1,2-difluoro-	202	C2Cl4F2
4.	2-Norpinanol, 3,6,6-trimethyl-	154	C10H18O
5.	Benzene, 1-(1-chloroethyl)-4-(chloromethyl)-	188	C9H10Cl2

Sample file: >V6129 Spectrum #: 105

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.	89	76131	10367	NBS49K	102	36	1	0	93	3	66	61
2.	35	75694	10283	NBS49K	72	24	1	0	100	49	11	35
3.	25*	76120	10400	NBS49K	50	81	3	0	100	50	7	14
4.	24*	29548092	6668	NBS49K	36	30	1	2	33	45	8	12
5.	15*	54789309	20034	NBS49K	28	57	0	4	12	59	3	13

Reference 35
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.6 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.6 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6130

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 5

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	76131	Freon	4.71	190	88
2	611143	Benzene, 1-ethyl-2-methyl-	30.37	7	86
3	526738	Benzene, 1,2,3-trimethyl-	31.91	11	89
4	112403	Dodecane	34.39	11	78
5		Unknown	34.92	7	

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Reference 33

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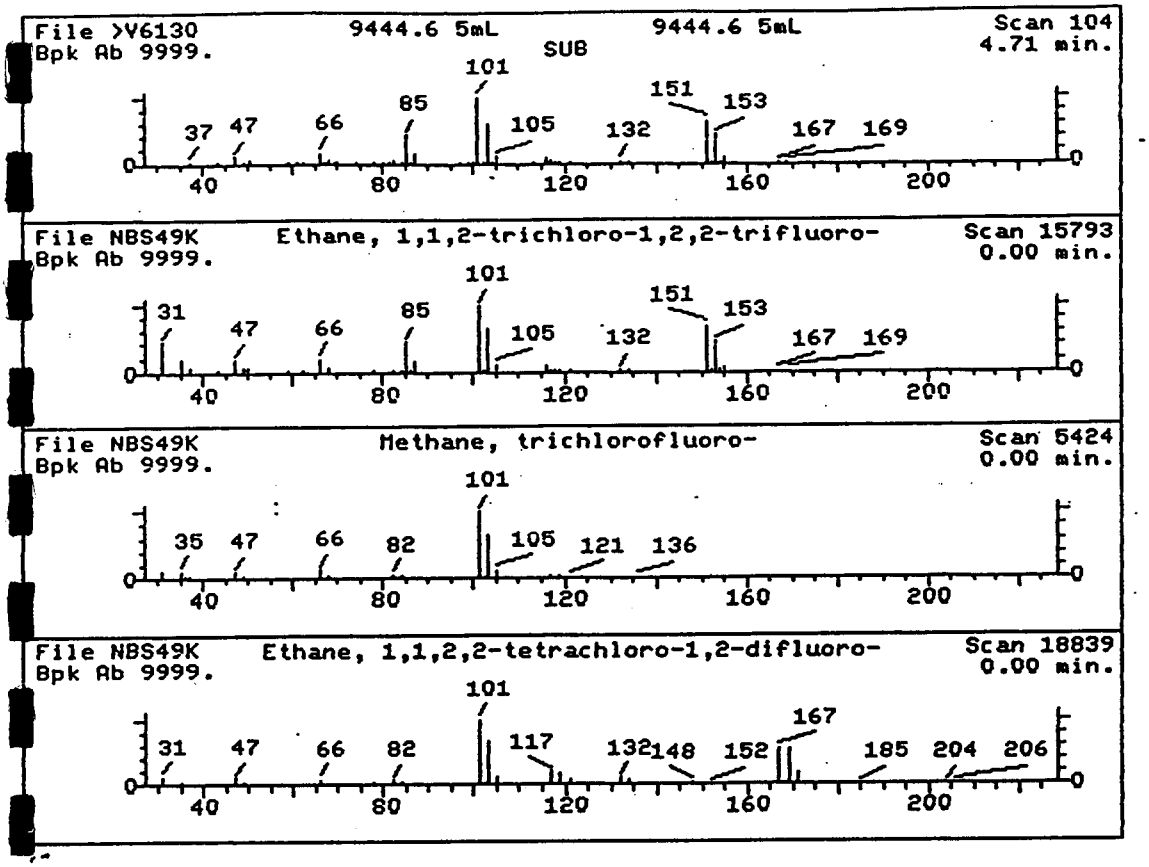


UNKNOWN #,1

AREA = 1773380. TENTATIVE CONCENTRATION IS 190.00

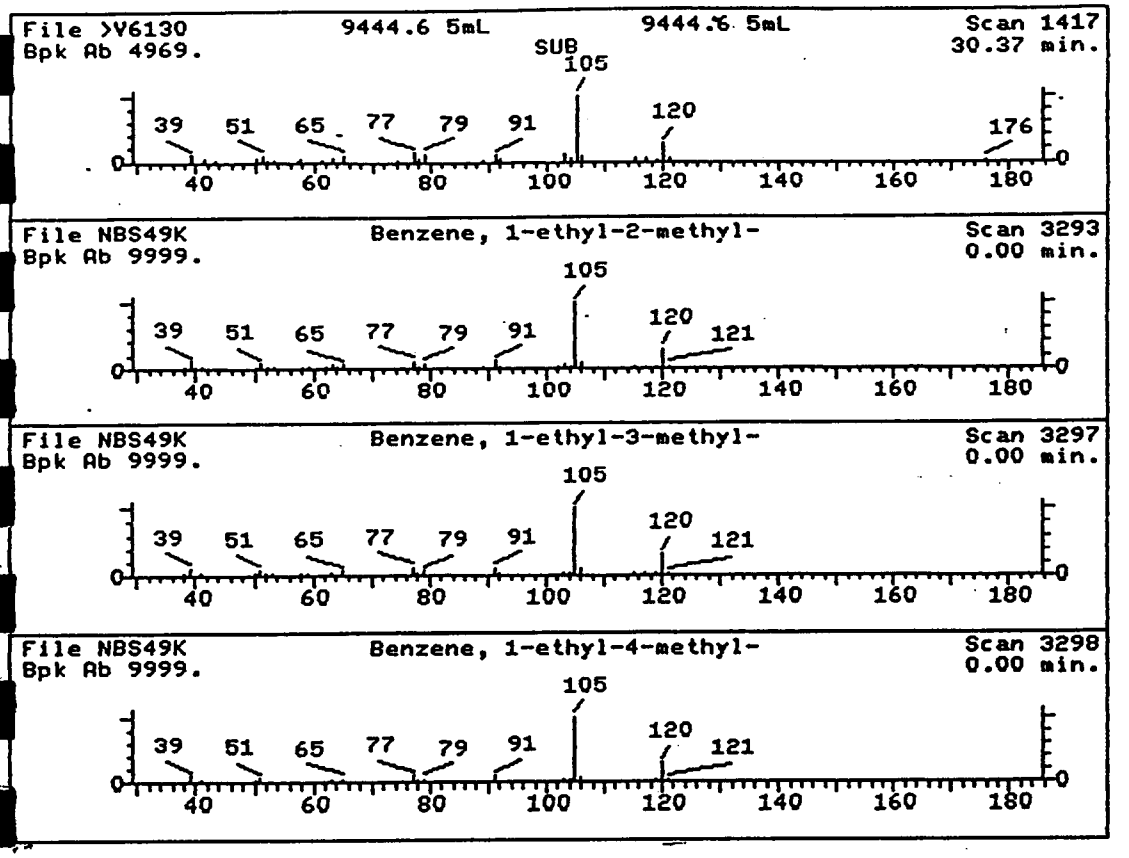
1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F
3. Ethane, 1,1,2,2-tetrachloro-1,2-difluoro- 202 C2Cl4F2

Sample file: >V6130 Spectrum #: 104

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.	88	76131	10367	NBS49K	98	40	1	0	71	3	65	59
2.	40	75694	10283	NBS49K	67	29	0	0	88	48	12	46
3.	25*	76120	10400	NBS49K	43	88	3	0	93	50	7	13

Reference 35
69/105



UNKNOWN #,2
AREA = 125596.0 TENTATIVE CONCENTRATION IS 7.00

1.	Benzene, 1-ethyl-2-methyl-	120	C9H12
2.	Benzene, 1-ethyl-3-methyl-	120	C9H12
3.	Benzene, 1-ethyl-4-methyl-	120	C9H12
4.	Benzene, (1-methylethyl)-	120	C9H12
5.	Benzene, 1,2,3-trimethyl-	120	C9H12
6.	Benzene, 1,1'-(1-methyl-1,2-ethanediyl)bis-	196	C15H16

Sample file: >V6130 Spectrum #: 1417
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.	86*	611143	13669	NBS49K	69	16	1	3	86	10	59	71
2.	83*	620144	13671	NBS49K	65	22	2	0	86	8	54	55
3.	83*	622968	13672	NBS49K	63	22	2	0	95	8	54	50
4.	79*	98828	13667	NBS49K	61	26	2	-3	93	10	48	30
5.	44*	526738	13674	NBS49K	56	44	2	0	58	40	17	33
6.	39	5814857	10954	NBS49K	57	42	2	0	91	26	14	16

Reference 35

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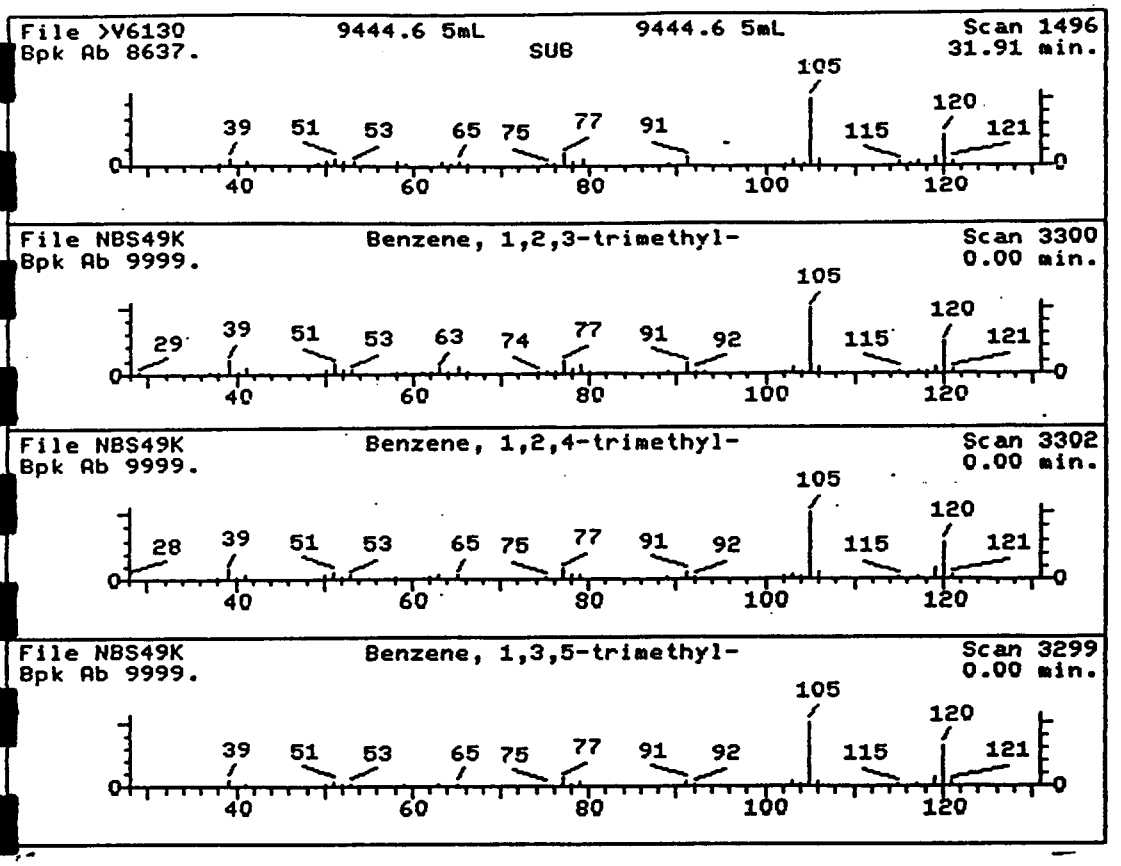


UNKNOWN #,3

AREA = 187767.0 TENTATIVE CONCENTRATION IS 11.00

1.	Benzene, 1,2,3-trimethyl-	120	C9H12
2.	Benzene, 1,2,4-trimethyl-	120	C9H12
3.	Benzene, 1,3,5-trimethyl-	120	C9H12
4.	Benzene, 1-ethyl-3-methyl-	120	C9H12
5.	Benzene, (1-methylethyl)-	120	C9H12
6.	1,3-Cyclopentadiene, 5-(1-methylpropylidene)-	120	C9H12

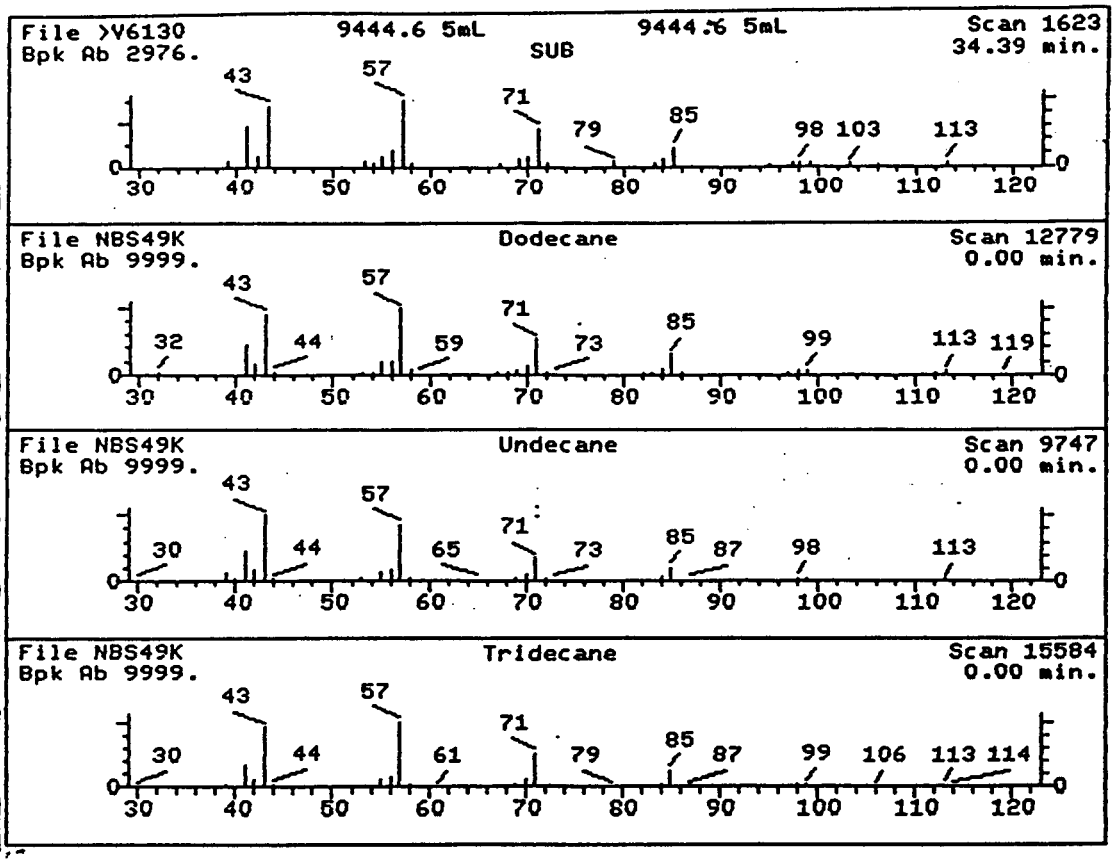
Sample file: >V6130 Spectrum #: 1496

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.	89*	526738	13674	NBS49K	86	14	2	-2	86	3	66	66
2.	89*	95636	13676	NBS49K	74	21	1	0	68	1	66	72
3.	88*	108678	13673	NBS49K	73	15	2	4	86	3	65	57
4.	86*	620144	13671	NBS49K	68	19	1	0	100	6	59	76
5.	83*	98828	13667	NBS49K	65	22	1	-4	100	10	54	53
6.	78*	3141024	13677	NBS49K	48	56	3	0	74	3	55	13

Reference 33

7/1/05



UNKNOWN #,4

AREA = 200358.0 TENTATIVE CONCENTRATION IS 11.00

1.	Dodecane	170	C12H26
2.	Undecane	156	C11H24
3.	Tridecane	184	C13H28
4.	Eicosane	282	C20H42
5.	Heptadecane, 2,6,10,14-tetramethyl-	296	C21H44
6.	Hexacosane	366	C26H54

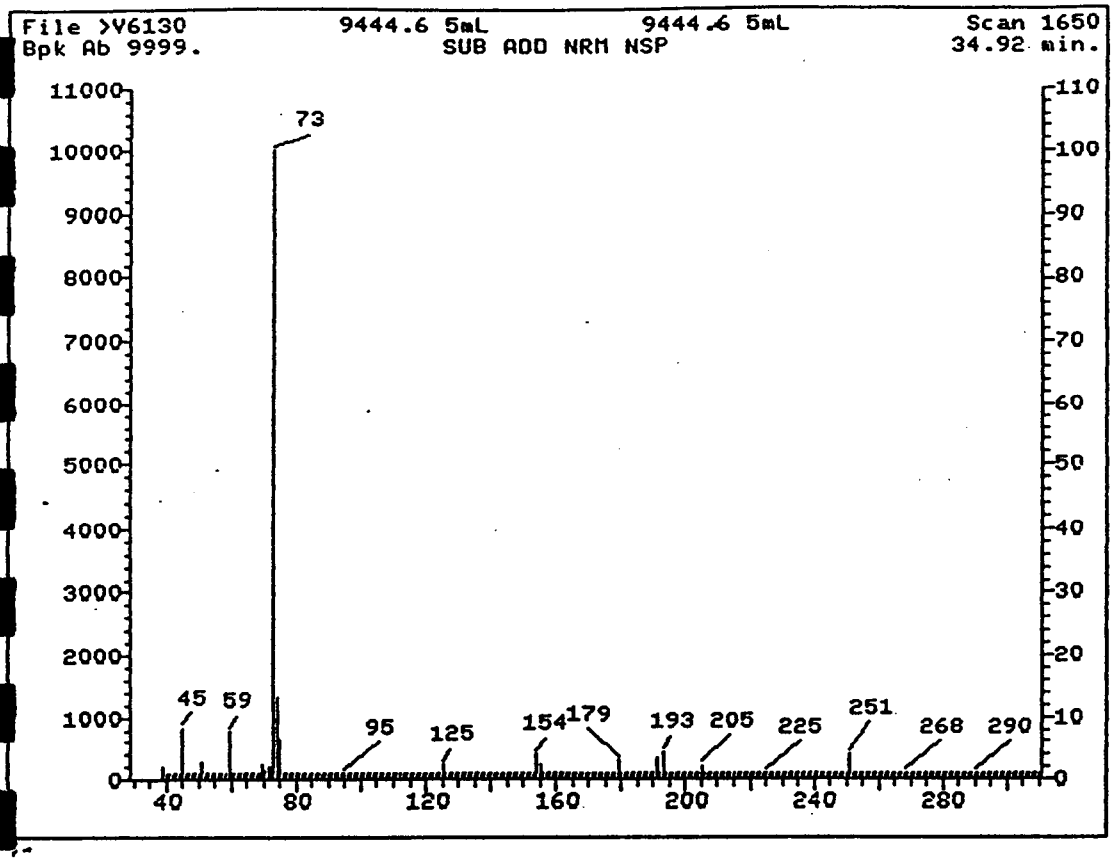
Sample file: >V6130 Spectrum #: 1623

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.	78	112403	6732	NBS49K	69	30	2	1	94	5	55	17
2.	78	1120214	6682	NBS49K	58	39	3	0	116	5	55	12
3.	70	629505	6761	NBS49K	65	41	2	0	98	10	42	17
4.	70	112958	6871	NBS49K	75	64	2	4	80	7	42	12
5.	70	18344371	6880	NBS49K	69	60	2	0	92	7	42	15
6.	60	630013	6903	NBS49K	67	75	2	0	72	12	30	14

Reference 35

72|105



UNKNOWN #,5
AREA = 116157.0 TENTATIVE CONCENTRATION IS 7.00

Sample file: >V6130 Spectrum #: 1650

No data base entries were retrieved.

Reference 35
73/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.7 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.7 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6134

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/22/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 4

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	1066406	Silanol, trimethyl-	6.14	13	88
2	3587642	2-Propanol, 1-methoxy-2-meth	22.55	7	58
3	2568298	Coelution of hit #1 & hydro-	27.40	5	23
3		carbon	27.40		
4	34180115	Propane, 1-(chloromethoxy)-2	31.80	35	70

Reference 35

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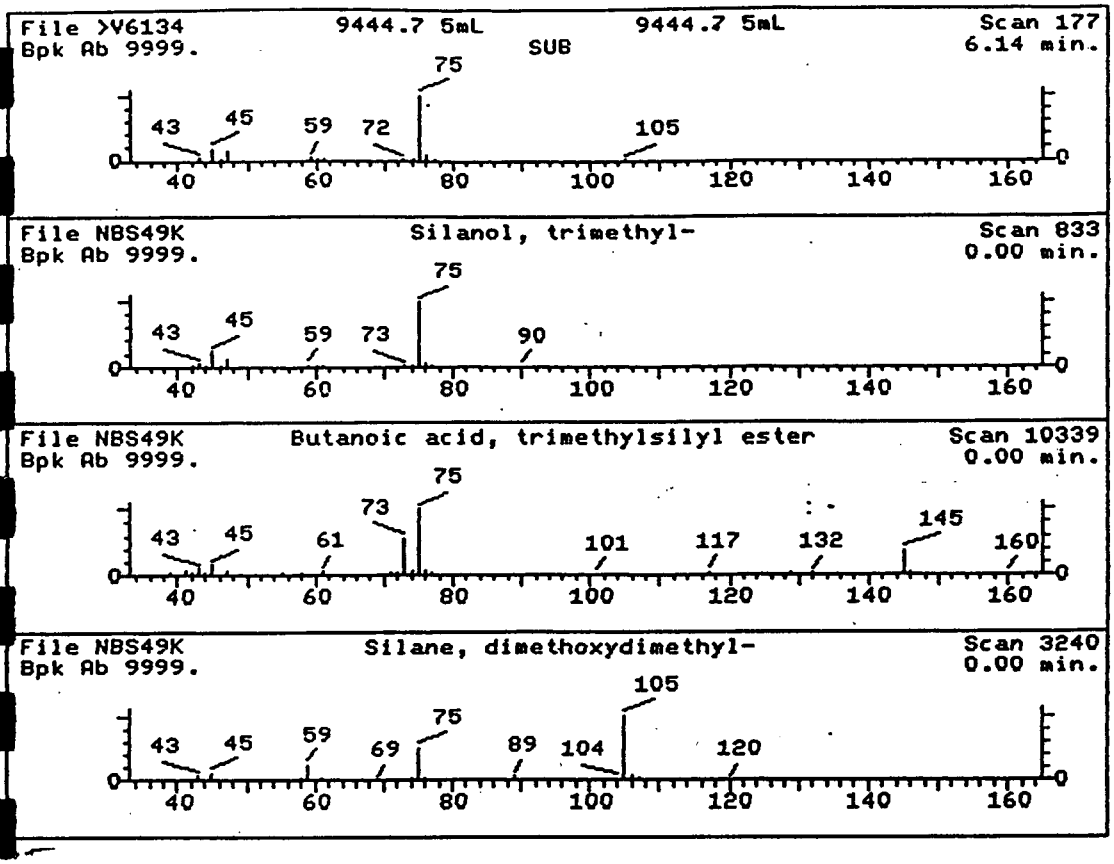


UNKNOWN #,1

AREA = 127980.0 TENTATIVE CONCENTRATION IS 13.00

1.	Silanol, trimethyl-	90	C3H10OSi
2.	Butanoic acid, trimethylsilyl ester	160	C7H16O2Si
3.	Silane, dimethoxydimethyl-	120	C4H12O2Si
4.	Ethanol, 2-(trimethylsilyl)-	118	C5H14OSi
5.	Acetonitrile, chloro-	75	C2H2ClN

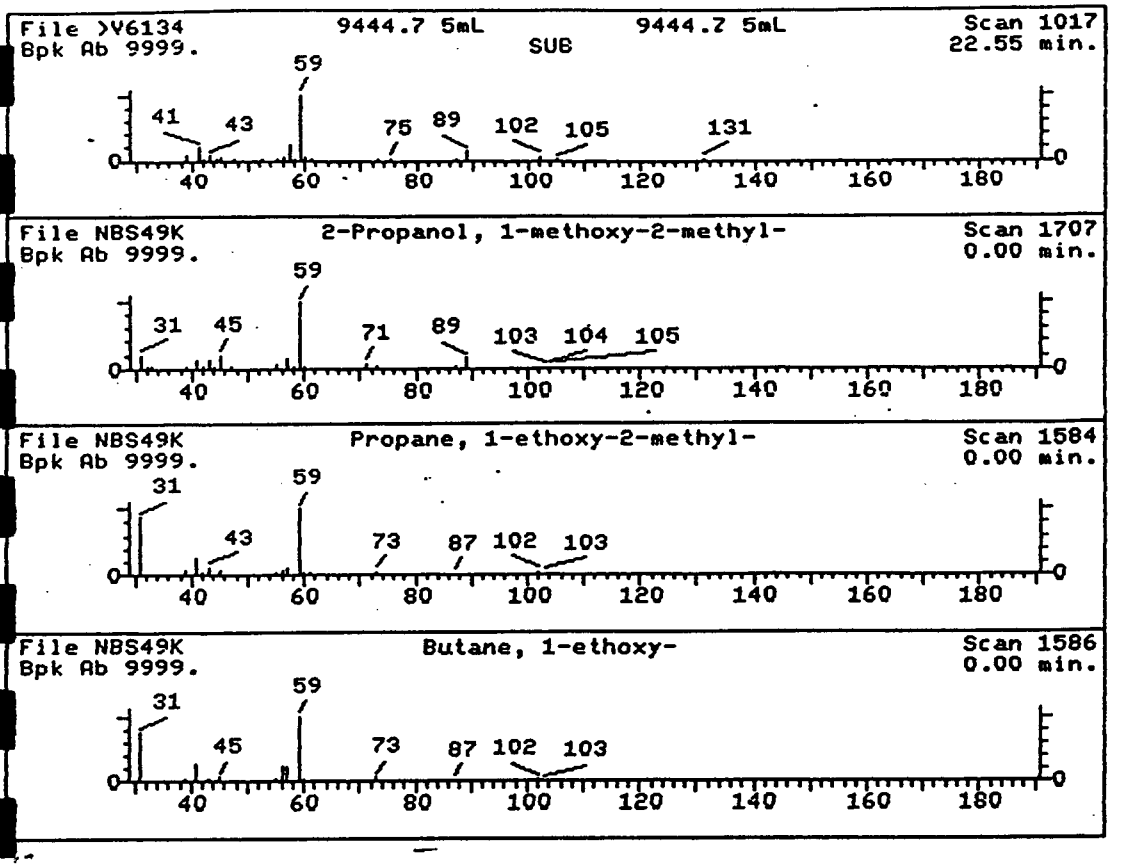
Sample file: >V6134 Spectrum #: 177

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

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	88*	1066406	4954	NBS49K	44	40	0	0	70	3	65	55
2.	79*	16844998	5011	NBS49K	53	39	2	4	87	7	48	30
3.	60*	1112396	4982	NBS49K	27	63	2	0	172	13	30	14
4.	38	2916689	4975	NBS49K	42	43	1	0	72	26	14	15
5.	36*	107142	4949	NBS49K	22	96	2	0	100	26	14	13

Reference 33

75/105



UNKNOWN #,2

AREA = 150298.0 TENTATIVE CONCENTRATION IS 7.00

1.	2-Propanol, 1-methoxy-2-methyl-	104	C5H12O2
2.	Propane, 1-ethoxy-2-methyl-	102	C6H14O
3.	Butane, 1-ethoxy-	102	C6H14O
4.	Propane, 2-methyl-2-(1-methylethoxy)-	116	C7H16O
5.	1-Propanol, 2-methoxy-	90	C4H10O2
6.	Butane, 2-methoxy-3-methyl-	102	C6H14O

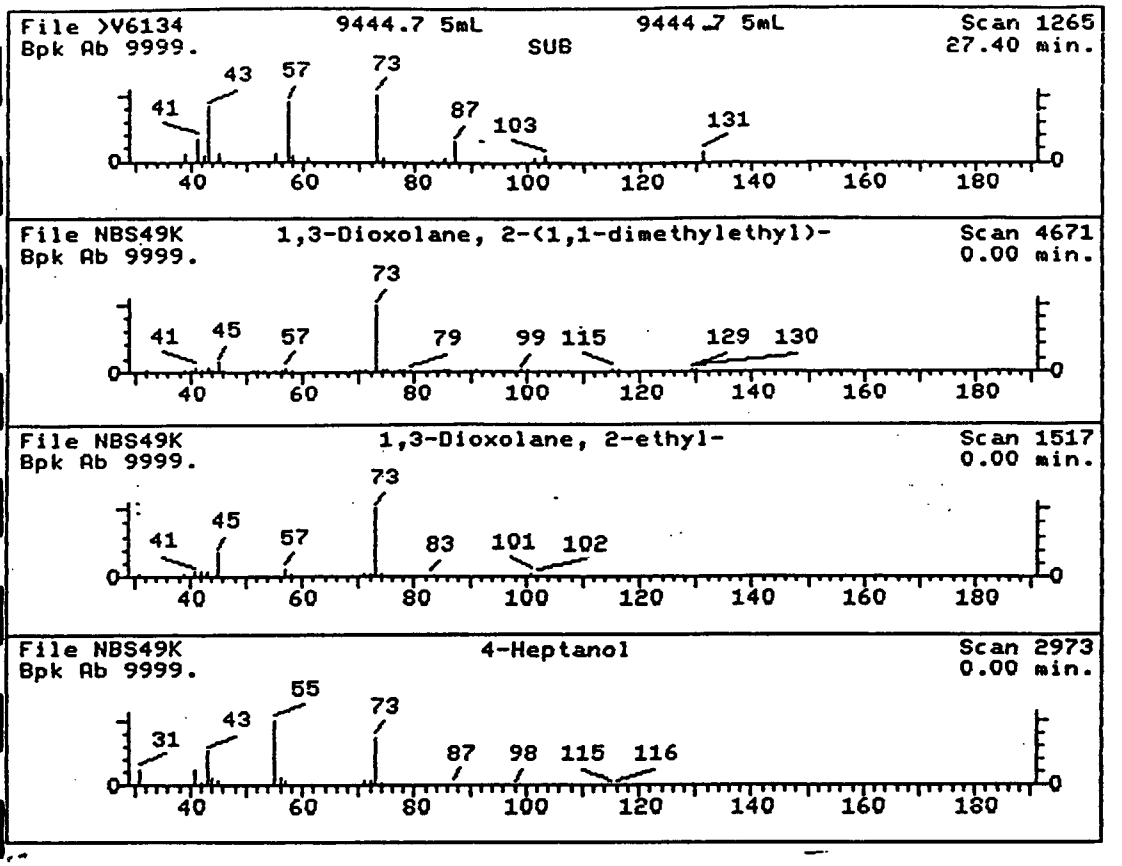
Sample file: >V6134 Spectrum #: 1017

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.	58*	3587642	1774	NBS49K	41	50	2	0	92	17	25	21
2.	53*	627021	1763	NBS49K	43	48	1	0	66	23	22	25
3.	43*	628819	1764	NBS49K	25	67	2	0	100	23	17	14
4.	43	17348593	1806	NBS49K	43	38	2	0	77	23	17	14
5.	42*	1589475	1736	NBS49K	27	51	0	0	82	26	14	19
6.	42*	62016493	1769	NBS49K	23	51	2	0	100	23	17	13

Reference 33

76|105



UNKNOWN #,3

AREA = 106838.0 TENTATIVE CONCENTRATION IS 5.00

1.	1,3-Dioxolane, 2-(1,1-dimethylethyl)-	130	C7H14O2
2.	1,3-Dioxolane, 2-ethyl-	102	C5H10O2
3.	4-Heptanol	116	C7H16O
4.	1,3-Dioxolane, 2-propyl-	116	C6H12O2
5.	1,3-Dioxolane, 2-butyl-	130	C7H14O2
6.	Silane, trimethyl(1-methyl-1-propenyl)-, (E)-	128	C7H16Si

Sample file: >V6134 Spectrum #: 1265

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

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	23*	2568298	4820	NBS49K	53	24	1	0	96	60	6	46
2.	15*	2568969	4802	NBS49K	27	54	2	0	100	56	3	14
3.	15*	.589559	4816	NBS49K	27	63	2	0	136	57	3	14
4.	13*	3390134	4814	NBS49K	55	28	1	-1	70	63	3	33
5.	13*	4360763	4819	NBS49K	49	31	1	0	90	62	3	37
6.	11	10111134	4818	NBS49K	37	44	1	0	75	63	2	14

Reference 33

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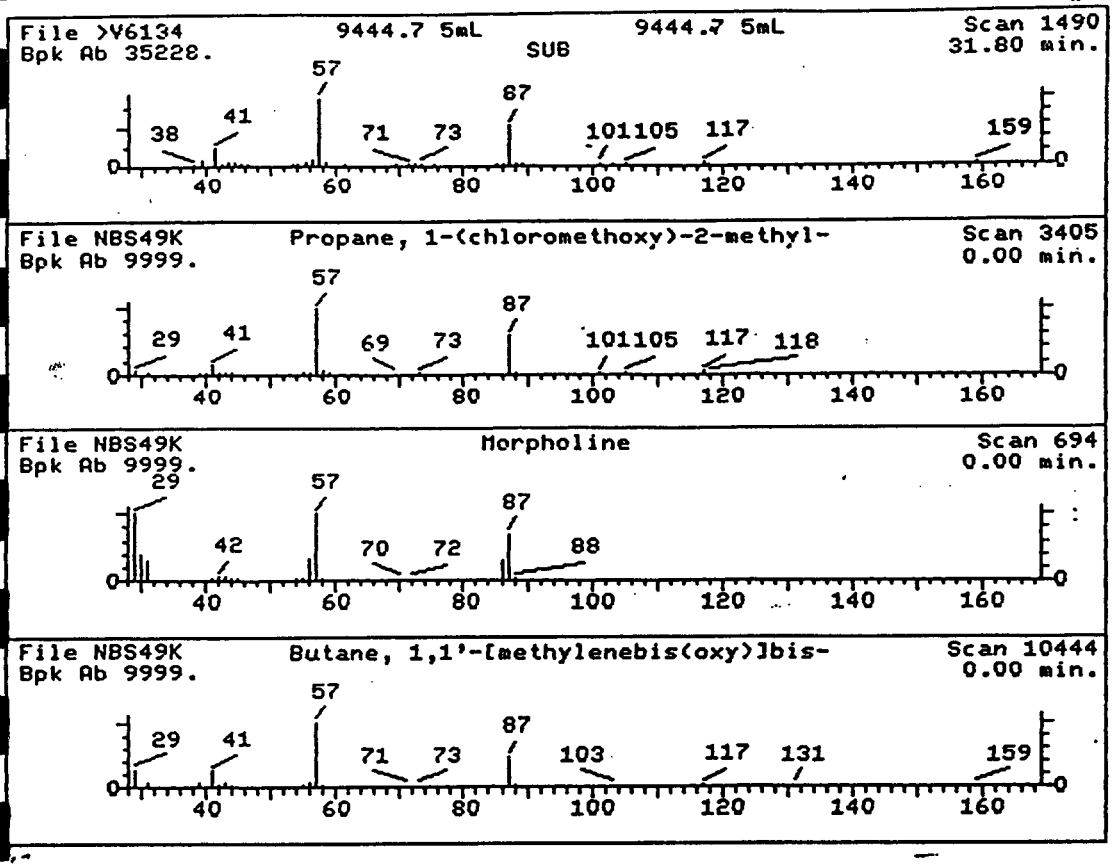

UNKNOWN #,4

AREA = 709993.0 TENTATIVE CONCENTRATION IS 35.00

1.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
2.	Morpholine	87	C4H9NO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >V6134 Spectrum #: 1490

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.	70	34180115	7279	NBS49K	45	30	1	0	79	8	42	16
2.	60*	110918	7215	NBS49K	35	65	2	0	86	12	30	14
3.	52	2568903	7403	NBS49K	45	37	1	0	77	18	20	16
4.	11*	3376350	7220	NBS49K	23	67	2	0	59	65	2	13

Reference 33
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.8 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.8 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6123

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 1

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1 76131	Freon	4.74	52	89

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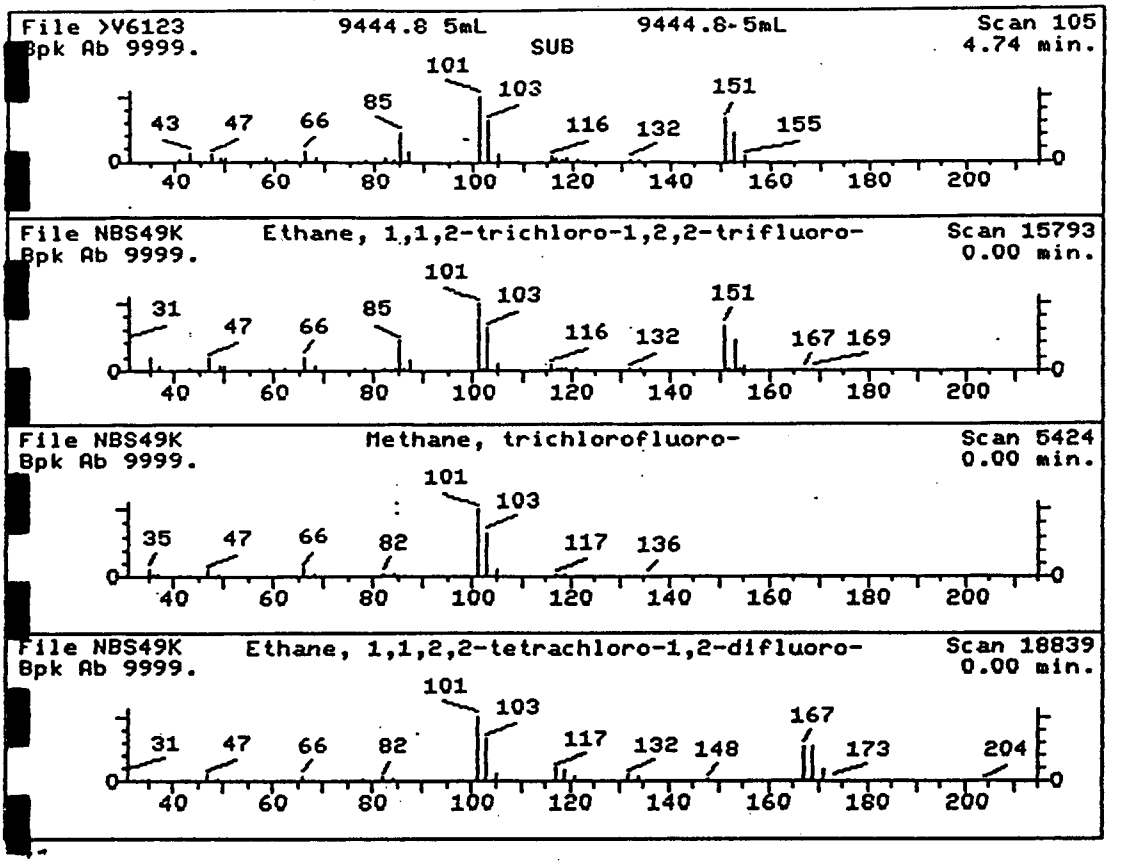

UNKNOWN #,1

AREA = 444024.0 TENTATIVE CONCENTRATION IS 52.00

1.	Ethane, 1,1,2-trichloro-1,2,2-trifluoro-	186	C2Cl3F3
2.	Methane, trichlorofluoro-	136	CCl3F
3.	Ethane, 1,1,2,2-tetrachloro-1,2-difluoro-	202	C2Cl4F2
4.	2,4-Dioxabicyclo[3.2.0]hept-6-en-3-one, 1,5-dichloro -6,7-dimethyl-	208	C7H6Cl2O3

Sample file: >V6123 Spectrum #: 105

Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	89	76131	10367	NBS49K	102	36	1	0	75	3	66	61
2.	40	75694	10283	NBS49K	70	26	0	0	90	48	12	49
3.	25*	76120	10400	NBS49K	50	81	3	0	97	48	7	14
4.	15*	35436205	10418	NBS49K	24	76	1	0	100	60	3	14

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Reference 35
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
9444.9 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: WATER

Lab Sample ID: 9444.9 5mL

Sample wt/vol: 5.0 (g/mL) g

Lab File ID: >V6124

Level: (Low/med) Low

Date Received: 12-18-92

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 1

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
11 76131	Freon	4.73	31	89

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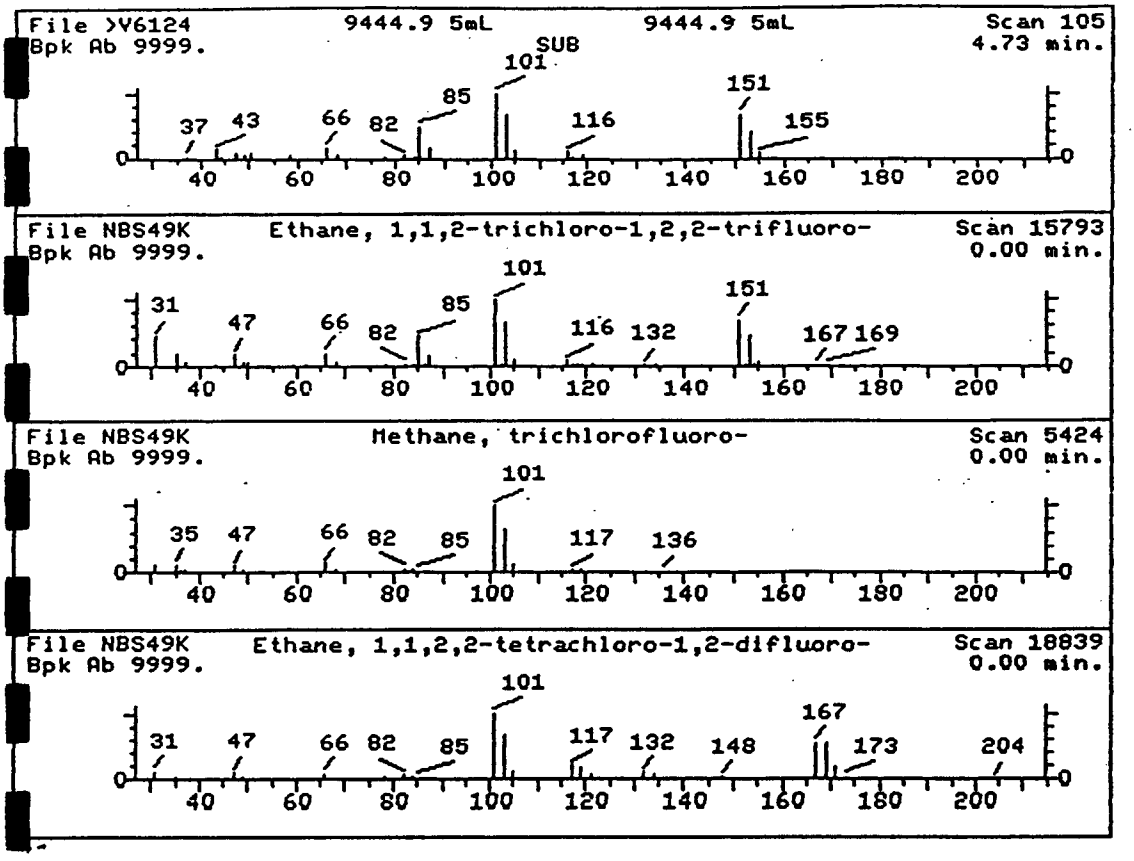

UNKNOWN #,1

AREA = 251569.0 TENTATIVE CONCENTRATION IS 31.00

1. Ethane, 1,1,2-trichloro-1,2,2-trifluoro- 186 C2Cl3F3
2. Methane, trichlorofluoro- 136 CCl3F
3. Ethane, 1,1,2,2-tetrachloro-1,2-difluoro- 202 C2Cl4F2

Sample file: >V6124 Spectrum #: 105

Search speed: 1 Tilting option: F No. of ion ranges searched: 40

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	89	76131	10367	NBS49K	102	36	1	0	86	3	66	61
2.	62	75694	10283	NBS49K	81	15	0	0	90	49	20	72
3.	25*	76120	10400	NBS49K	50	81	3	0	100	49	7	14

Reference 33
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5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

Lab File ID: >V6117 BFB Injection Date: 12/21/92

Instrument ID: GC/MSD 5970 #1 BFB Injection Time: 8:59

Matrix: Water Column: Capillary

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.5
75	30.0 - 60.0% of mass 95	46.4
95	Base peak, 100% relative abundance	100.
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	80.9
175	5.0 - 9.0% of mass 174	5.7(7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.5(99.5)1
177	5.0 - 9.0% of mass 176	5.2(6.5)2

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

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	>V6118	12/21/92	9:42
02	VOA BLANK	VOA BLANK	>V6119	12/21/92	10:42
03	9444.8 5mL	9444.8 5mL	>V6123	12/21/92	14:17
04	9444.9 5mL	9444.9 5mL	>V6124	12/21/92	14:59
05	9444.1 5mL	9444.1 5mL	>V6125	12/21/92	15:42
06	9444.2 5mL	9444.2 5mL	>V6126	12/21/92	16:35
07	9444.3 5mL	9444.3 5mL	>V6127	12/21/92	17:30
08	9444.4 5mL	9444.4 5mL	>V6128	12/21/92	18:25
09	9444.5 5mL	9444.5 5mL	>V6129	12/21/92	19:20
10	9444.6 5mL	9444.6 5mL	>V6130	12/21/92	20:21
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

Lab File ID: >V6131 BFB Injection Date: 12/22/92

Instrument ID: GC/MSD 5970 #1 BFB Injection Time: 9:14

Matrix: Water Column: Capillary

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.4
75	30.0 - 60.0% of mass 95	47.2
95	Base peak, 100% relative abundance	100.
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	73.7
175	5.0 - 9.0% of mass 174	5.3(7.2)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.6(97.2)1
177	5.0 - 9.0% of mass 176	4.6(6.5)2

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

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	>V6132	12/22/92	10:08
02	VOA BLANK	VOA BLANK	>V6133	12/22/92	11:02
03	9444.7 5mL	9444.7 5mL	>V6134	12/22/92	11:46
04	9444.7 MS	9444.7 MS	>V6135	12/22/92	14:10
05	9444.7 MSD	9444.7 MSD	>V6136	12/22/92	14:52
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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Reference 35
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Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/21/92

Contractor: E.P.L. Time: 09:42

Contract No: NJDEPE ID# 15526 Laboratory ID: >V6118

Instrument ID: GC/MSD #1 Initial Calibration Date: 12/16/92

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	1.83818	.97764	46.81		**	
Bromomethane	4.30613	3.77079	12.43			
Vinyl Chloride	2.44862	1.95172	20.29	*		
Chloroethane	2.31921	1.80498	22.17			
Methyl tert-Butyl Ether	5.93765	5.40751	8.93			
Methylene Chloride	5.33529	5.20844	2.38			
Acrolein	.21695	.20090	7.40			(Conc=500.00)
Acrylonitrile	.36261	.34784	4.07			(Conc=500.00)
Acetone	1.07214	.93014	13.24			
Carbon Disulfide	11.9183	9.79757	17.79			
1,1-Dichloroethene	3.32210	2.98440	10.17	*		
1,1-Dichloroethane	7.52126	6.85137	8.91		**	
tert-Butyl Alcohol	.12215	.10651	12.81			(Conc=500.00)
trans-1,2-Dichloroethene	5.35395	4.37988	18.19			
Trichlorofluoromethane	6.16065	4.99988	18.84			
Chloroform	9.02962	8.82295	2.29	*		
1,2-Dichloroethane-d4	2.12380	1.90213	10.44			(Conc=100.00)
1,2-Dichloroethane	3.90978	3.45293	11.68			
2-Butanone	.14199	.12848	9.51			
1,1,1-Trichloroethane	1.14794	1.08775	5.24			
Carbon Tetrachloride	1.15859	1.18438	2.23			
Bromodichloromethane	1.25737	1.24995	.59			
Vinyl Acetate	.81887	.79379	3.06			
1,2-Dichloropropane	.87157	.89355	2.52	*		
cis-1,3-Dichloropropene	1.66163	1.64296	1.12			
Trichloroethene	.96479	1.03789	7.58			
Dibromochloromethane	1.14045	1.30728	14.63			
1,1,2-Trichloroethane	.59538	.67808	13.89			
Benzene	1.82517	1.74627	4.32			
trans-1,3-Dichloropropene	.28801	.29053	.88			
2-Chloroethylvinyl ether	.30336	.34385	13.35			
Bromoform	.62005	.69830	12.62		**	

RF - Response Factor from daily standard file at 50.00 ppb

$\overline{RF}$ - 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: 12/21/92

Contractor: E.P.L. | Time: 09:42

Contract No: NJDEPE ID# 15526 | Laboratory ID: >V6118

Instrument ID: GC/MSD #1 | Initial Calibration Date: 12/16/92

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
4-Methyl-2-Pentanone	.69673	.69363	.44			
2-Hexanone	.26255	.23921	8.89			
Tetrachloroethene	1.27408	1.34193	5.33			
1,1,2,2-Tetrachloroethane	.88458	.93927	6.18		**	
Toluene	2.76929	2.63914	4.70	*		
Chlorobenzene	2.17809	2.34256	7.55		**	
Ethylbenzene	3.30474	3.19165	3.42	*		
Styrene	2.23232	2.23783	.25			
m + p-Xylenes	2.67545	2.74504	2.60			(Conc=100.00)
o-Xylene	2.99288	2.88840	3.49			
1,3-Dichlorobenzene	2.10821	2.18525	3.65			
1,4-Dichlorobenzene	1.86855	1.96263	5.04			
1,2-Dichlorobenzene	1.73517	1.77545	2.32			
Toluene-d8	1.69570	1.61229	4.92			(Conc=100.00)
Bromofluorobenzene	1.02710	1.02112	.58			(Conc=100.00)
Diethyl ether	.32091	.31409	2.13			(Conc=500.00)

RF - Response Factor from daily standard file at 50.00 ppb

$\overline{RF}$ - 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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Reference 35
86/105

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/22/92

Contractor: E.P.L. Time: 10:08

Contract No: NJDEPE ID# 15526 Laboratory ID: >V6132

Instrument ID: GC/MSD #1 Initial Calibration Date: 12/16/92

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	1.83818	1.29783	29.40		**	
Bromomethane	4.30613	3.85191	10.55			
Vinyl Chloride	2.44862	2.19529	10.35	*		
Chloroethane	2.31921	2.16345	6.72			
Methyl tert-Butyl Ether	5.93765	5.37666	9.45			
Methylene Chloride	5.33529	4.56154	14.50			
Acrolein	.21695	.19013	12.36			(Conc=500.00)
Acrylonitrile	.36261	.32296	10.94			(Conc=500.00)
Acetone	1.07214	1.03477	3.49			
Carbon Disulfide	11.9183	10.0741	15.47			
1,1-Dichloroethene	3.32210	3.25113	2.14	*		
1,1-Dichloroethane	7.52126	7.70271	2.41		**	
tert-Butyl Alcohol	.12215	.11608	4.97			(Conc=500.00)
trans-1,2-Dichloroethene	5.35395	4.91831	8.14			
Trichlorofluoromethane	6.16065	5.44124	11.68			
Chloroform	9.02962	9.60482	6.37	*		
1,2-Dichloroethane-d4	2.12380	2.00939	5.39			(Conc=100.00)
1,2-Dichloroethane	3.90978	3.56258	8.88			
2-Butanone	.14199	.13029	8.24			
1,1,1-Trichloroethane	1.14794	1.07741	6.14			
Carbon Tetrachloride	1.15859	1.18819	2.55			
Bromodichloromethane	1.25737	1.20186	4.41			
Vinyl Acetate	.81887	.68479	16.37			
1,2-Dichloropropane	.87157	.91044	4.46	*		
cis-1,3-Dichloropropene	1.66163	1.55547	6.39			
Trichloroethene	.96479	1.02375	6.11			
Dibromochloromethane	1.14045	1.19459	4.75			
1,1,2-Trichloroethane	.59538	.62302	4.64			
Benzene	1.82517	1.74890	4.18			
trans-1,3-Dichloropropene	.28801	.26456	8.14			
2-Chloroethylvinyl ether	.30336	.30887	1.81			
Bromoform	.62005	.58210	6.12		**	

RF - Response Factor from daily standard file at 50.00 ppb

$\overline{RF}$ - 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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Reference 33
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Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 12/22/92

Contractor: E.P.L.

Time: 10:08

Contract No: NJDEPE ID# 15526

Laboratory ID: >V6132

Instrument ID: GC/MSD #1

Initial Calibration Date: 12/16/92

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
4-Methyl-2-Pentanone	.69673	.64382	7.59			
2-Hexanone	.26255	.21993	16.23			
Tetrachloroethene	1.27408	1.38338	8.58			
1,1,2,2-Tetrachloroethane	.88458	.82136	7.15		**	
Toluene	2.76929	2.66706	3.69	*		
Chlorobenzene	2.17809	2.35302	8.03		**	
Ethylbenzene	3.30474	3.24032	1.95	*		
Styrene	2.23232	2.14871	3.75			
m + p-Xylenes	2.67545	2.81842	5.34			(Conc=100.00)
o-Xylene	2.99288	2.84937	4.80			
1,3-Dichlorobenzene	2.10821	2.04185	3.15			
1,4-Dichlorobenzene	1.86855	1.82062	2.56			
1,2-Dichlorobenzene	1.73517	1.63754	5.63			
Toluene-d8	1.69570	1.68550	.60			(Conc=100.00)
Bromofluorobenzene	1.02710	1.00901	1.76			(Conc=100.00)
Diethyl ether	.32091	.29608	7.74			(Conc=500.00)

RF - Response Factor from daily standard file at 50.00 ppb

$\overline{RF}$ - 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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Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: GC/MSD #1

Contractor: E.P.L. Calibration Date: 12/16/92

Contract No: NJDEPE ID# 15526

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>V6069	>V6068	>V6070	>V6071	>V6072						
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC	
Chloromethane	2.24143	2.01524	1.63897	1.69821	1.59705	.287	1.83818	15.179		**	
Bromomethane	4.93886	4.73050	4.08431	3.89104	3.88595	.347	4.30613	11.486			
Vinyl Chloride	3.20017	2.76089	2.04704	2.19668	2.03831	.297	2.44862	20.978	*		
Chloroethane	2.67942	2.56472	2.30208	2.03747	2.01236	.350	2.31921	13.804			
Methyl tert-Butyl Ether	6.39085	6.03831	5.88937	5.60592	5.76380	.590	5.93765	5.039			
Methylene Chloride	7.61656	5.18144	4.61061	4.67921	4.58864	.553	5.33529	24.332			
Acrolein	.22343	.21732	.21867	.21471	.21063	.441	.21695	2.188			(Conc=200.0,500.0,1000.
Acrylonitrile	.37129	.34943	.37584	.35181	.36548	.579	.36261	3.282			(Conc=200.0,500.0,1000.
Acetone	1.17943	1.07576	1.01048	1.01941	1.07563	.450	1.07214	6.277			
Carbon Disulfide	12.7016	12.4651	11.6145	11.4842	11.3260	.550	11.9183	5.213			
1,1-Dichloroethene	3.51433	3.39804	3.23523	3.20250	3.26042	.470	3.32210	3.935	*		
1,1-Dichloroethane	7.95671	7.48861	7.38563	7.41223	7.36314	.715	7.52126	3.297		**	
tert-Butyl Alcohol	.15028	.14017	.10613	.10337	.11080	.487	.12215	17.628			(Conc=200.0,500.0,1000.
trans-1,2-Dichloroethene	5.69676	5.30818	5.18307	5.30730	5.27445	.615	5.35395	3.704			
Trichlorofluoromethane	6.75756	6.51787	5.98835	5.75385	5.78563	.382	6.16065	7.348			
Chloroform	9.38647	9.10670	8.94749	8.76355	8.94390	.948	9.02962	2.586	*		
1,2-Dichloroethane-d4	2.16347	2.16428	2.06813	2.13923	2.08386	1.207	2.12380	2.125			(Conc=100.0,100.0,100.(
1,2-Dichloroethane	4.10391	4.00796	3.85357	3.76000	3.82343	1.241	3.90978	3.626			
2-Butanone	.16833	.15759	.13107	.10880	.14415	.618	.14199	16.376			
1,1,1-Trichloroethane	1.18657	1.16637	1.14957	1.08979	1.14738	.800	1.14794	3.146			
Carbon Tetrachloride	1.18727	1.18122	1.16777	1.10256	1.15414	.863	1.15859	2.920			
Bromodichloromethane	1.26177	1.30545	1.25873	1.19370	1.26720	1.173	1.25737	3.202			
Vinyl Acetate	.82574	.81451	.85122	.77193	.83092	.532	.81887	3.592			
1,2-Dichloropropane	.90225	.87920	.85933	.83829	.87875	1.118	.87157	2.756	*		
cis-1,3-Dichloropropene	1.68817	1.68673	1.65236	1.58195	1.69894	1.323	1.66163	2.880			
Trichloroethene	.98858	.98580	.96535	.91934	.96485	1.071	.96479	2.873			
Dibromochloromethane	1.14724	1.17872	1.13204	1.05624	1.18800	1.597	1.14045	4.584			
1,1,2-Trichloroethane	.61186	.61028	.59203	.55049	.61222	1.485	.59538	4.447			
Benzene	1.90624	1.85577	1.81848	1.73825	1.80713	.907	1.82517	3.403			
trans-1,3-Dichloropropene	.28469	.29388	.28822	.27319	.30006	1.453	.28801	3.517			

RF - Response Factor (Subscript is amount in ppb)

$\overline{RRT}$ - 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 (**)

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Reference 35
89/105

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: GC/MSD #1

Contractor: E.P.L. Calibration Date: 12/16/92

Contract No: NJDEPE ID# 15526

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>V6069	>V6068	>V6070	>V6071	>V6072						
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC	
2-Chloroethylvinyl ether	.31818	.31182	.29669	.28220	.30793	1.279	.30336	4.675			
Bromoform	.61873	.64869	.62979	.56063	.64243	1.975	.62005	5.673		**	
4-Methyl-2-Pentanone	.73083	.71657	.71219	.64565	.67840	.736	.69673	4.941			
2-Hexanone	.26578	.27721	.27476	.23528	.25970	.864	.26255	6.391			
Tetrachloroethene	1.29916	1.28299	1.30055	1.22837	1.25933	.890	1.27408	2.392			
1,1,2,2-Tetrachloroethane	.92919	.90812	.91009	.80351	.87199	1.169	.88458	5.631		**	
Toluene	2.86616	2.76725	2.80266	2.69407	2.71629	.800	2.76929	2.487	*		
Chlorobenzene	2.23090	2.16004	2.22396	2.09311	2.18245	1.005	2.17809	2.562		**	
Ethylbenzene	3.41921	3.30613	3.32308	3.19946	3.27582	1.019	3.30474	2.410	*		
Styrene	2.26451	2.23998	2.28675	2.14553	2.22482	1.096	2.23232	2.417			
m + p-Xylenes	3.00160	2.92211	2.44014	2.61998	2.39342	1.031	2.67545	10.324			(Conc=40.0,100.0,200.0,3(
o-Xylene	3.10005	2.99886	3.01875	2.87630	2.97042	1.090	2.99288	2.709			
1,3-Dichlorobenzene	2.15141	2.12639	2.16692	2.03556	2.06077	1.329	2.10821	2.722			
1,4-Dichlorobenzene	1.88252	1.90197	1.91601	1.79174	1.85048	1.345	1.86855	2.648			
1,2-Dichlorobenzene	1.79966	1.78635	1.75297	1.68456	1.65229	1.394	1.73517	3.704			
Toluene-d8	1.68916	1.66724	1.71114	1.73165	1.67929	.789	1.69570	1.519			(Conc=100.0,100.0,100.0,1
Bromofluorobenzene	.97251	1.00296	1.08774	1.10584	.96648	1.175	1.02710	6.368			(Conc=100.0,100.0,100.0,1
Diethyl ether	.35293	.33708	.31950	.29869	.29639	.178	.32091	7.607			(Conc=200.0,500.0,1000.0,

RF - Response Factor (Subscript is amount in ppb)

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 (**)

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Reference 35
90/105

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Environmental Profile Labs

Lab Code: 15526

Matrix Spike - EPL Sample No.: 9444.7 5mL

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	100.00	0.00	94.30	94	61-145
Trichloroethene	100.00	0.00	114.00	114	71-120
Benzene	100.00	0.00	124.00	123	76-127
Toluene	100.00	0.00	114.00	114	76-125
Chlorobenzene	100.00	3.70	115.00	111	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	100.00	94.30	94	0	14	61-145
Trichloroethene	100.00	112.00	112	1	14	71-120
Benzene	100.00	123.00	123	0	11	76-127
Toluene	100.00	115.00	115	0	13	76-125
Chlorobenzene	100.00	115.00	111	0	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

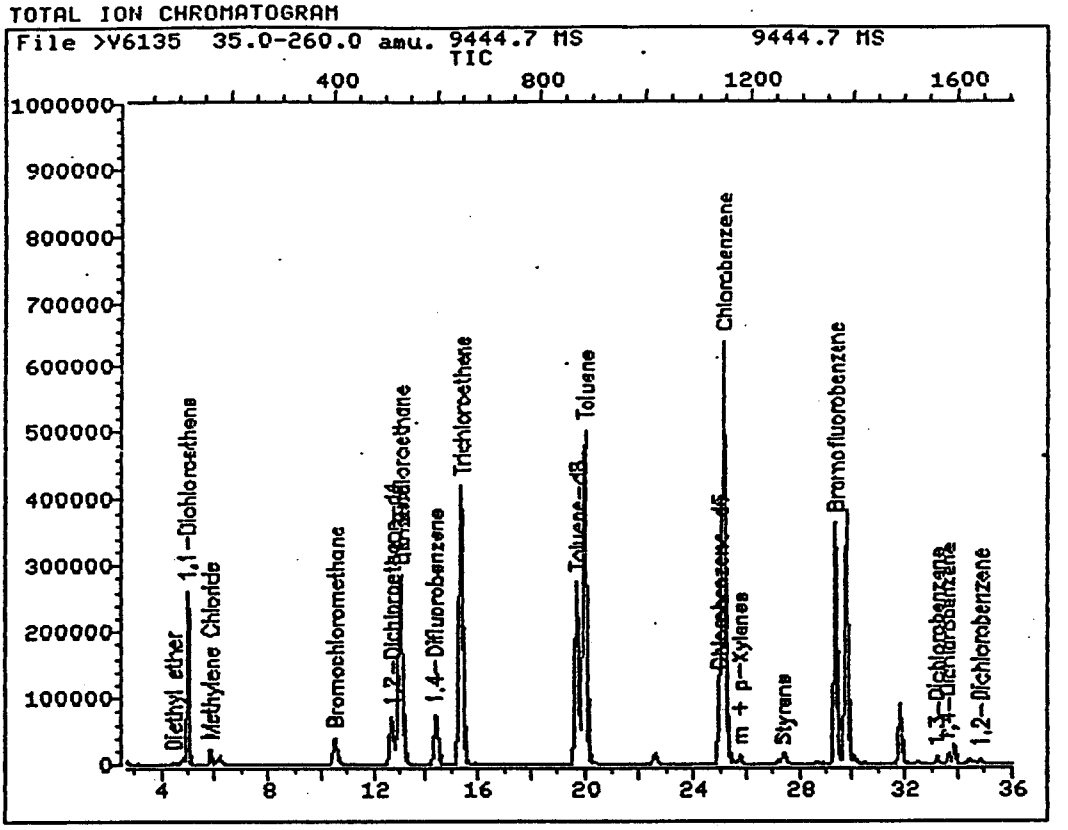
* Values outside of qc limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

Reference 35
91105

TOTAL ION CHROMATOGRAM



Data File: >V6135::D1
Name: 9444.7 MS
Misc: 9444.7 MS

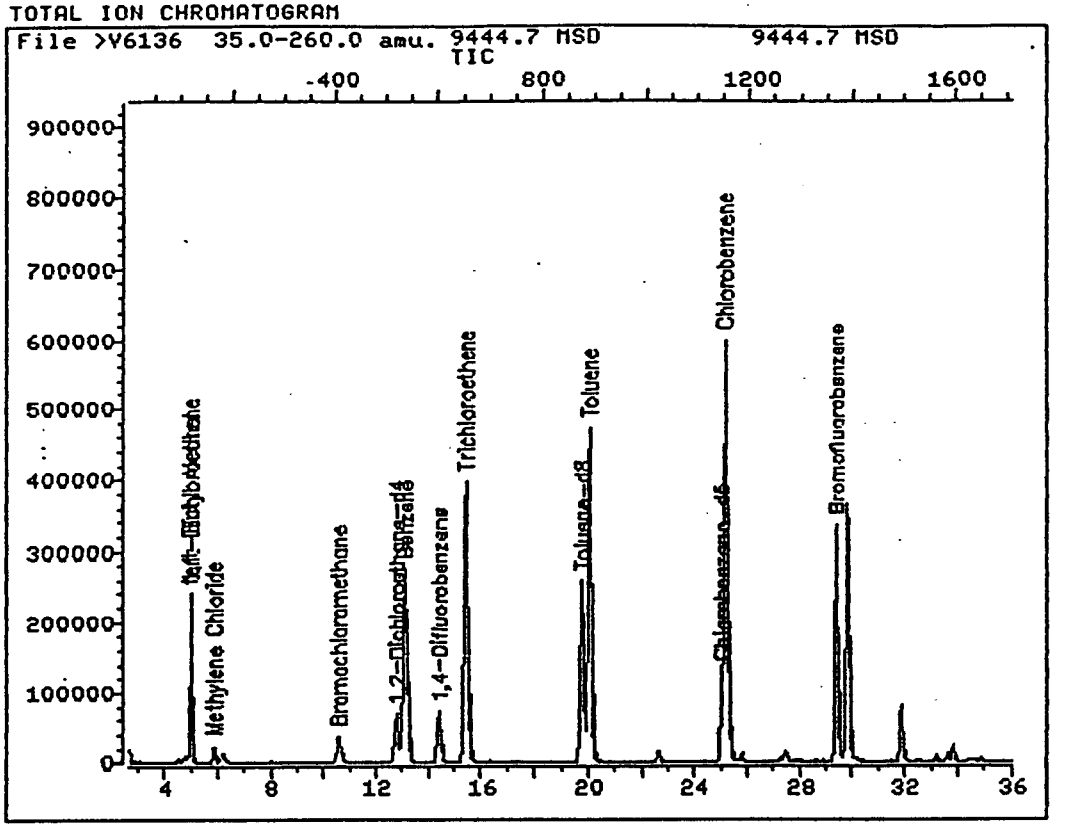
Quant Output File: ^V6135::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: USER1
Quant Time: 921222 14:46
Injected at: 921222 14:10

Reference 35
92/105

TOTAL ION CHROMATOGRAM



Data File: >V6136::D1
Name: 9444.7 MSD
Misc: 9444.7 MSD

Quant Output File: ^V6136::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: USER1
Quant Time: 921222 15:29
Injected at: 921222 14:52

Reference 35
93/105

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

Lab File ID: >V6119 Lab Sample ID: VOA BLANK

Date Analyzed: 12/21/92 Time Analyzed: 10:42

Matrix: Water

Instrument ID: GC/MSD 5970 #1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	CCC/SPCC	CCC/SPCC	>V6118	9:42
02	9444.8 5mL	9444.8 5mL	>V6123	14:17
03	9444.9 5mL	9444.9 5mL	>V6124	14:59
04	9444.1 5mL	9444.1 5mL	>V6125	15:42
05	9444.2 5mL	9444.2 5mL	>V6126	16:35
06	9444.3 5mL	9444.3 5mL	>V6127	17:30
07	9444.4 5mL	9444.4 5mL	>V6128	18:25
08	9444.5 5mL	9444.5 5mL	>V6129	19:20
09	9444.6 5mL	9444.6 5mL	>V6130	20:21
10				
11				
12				
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COMMENTS:

FORM IV VOA 1/87 Rev.
01

Reference 33
94/105

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

Lab File ID: >V6133 Lab Sample ID: VOA BLANK

Date Analyzed: 12/22/92 Time Analyzed: 11:02

Matrix: Water

Instrument ID: GC/MSD 5970 #1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	CCC/SPCC	CCC/SPCC	>V6132	10:08
02	9444.7 5mL	9444.7 5mL	>V6134	11:46
03	9444.7 MS	9444.7 MS	>V6135	14:10
04	9444.7 MSD	9444.7 MSD	>V6136	14:52
05				
06				
07				
08				
09				
10				
11				
12				
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27				
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29				
30				

COMMENTS: _____

FORM IV VOA 1/87 Rev.

Reference 33

95/105

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

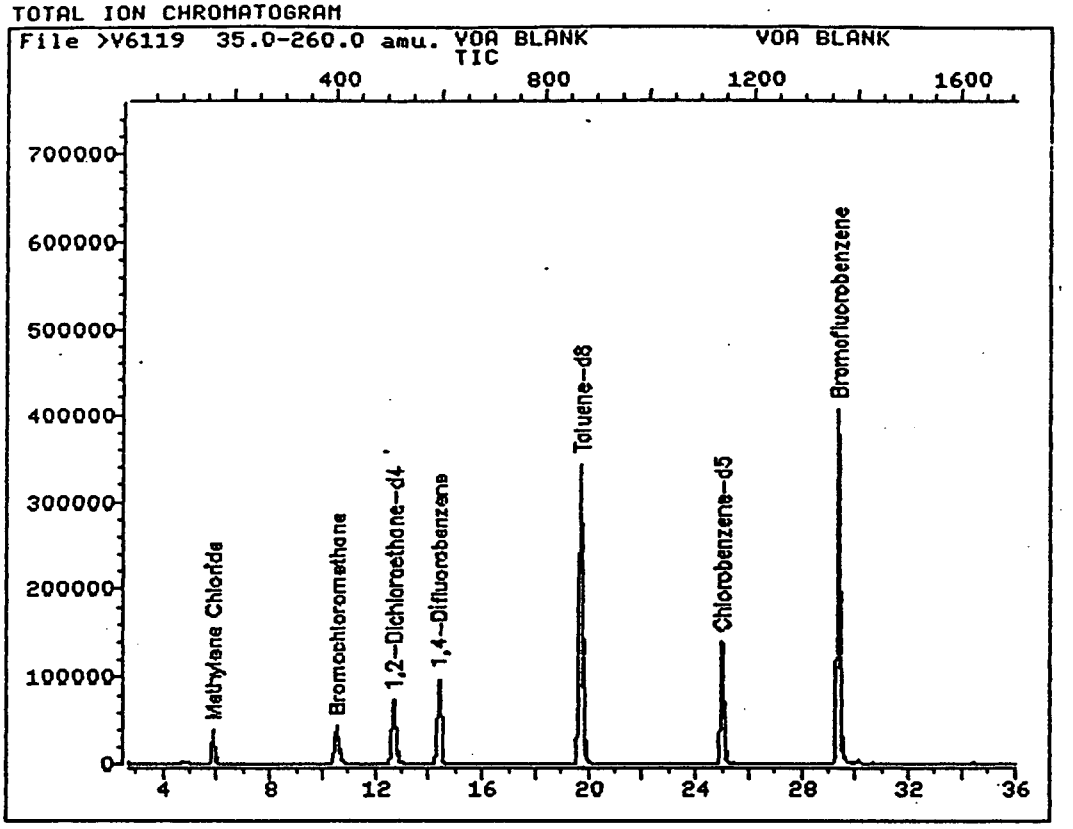
JOB NUMBER		MATRIX	Water
SAMPLE NAME	VOA BLANK	DILUTION FACTOR	1.00
CLIENT ID		QA BATCH	
DATA FILE	>V6119	DATE ANALYZED	12/21/92

COMPOUND	UG/L		MDL	COMPOUND	UG/L	MDL
Chloromethane	ND		10	Dibromochloromethane	ND	5
Bromomethane	ND		10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND		10	Benzene	ND	5
Chloroethane	ND		10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	9	B	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND		50	Bromoform	ND	5
Acrylonitrile	ND		50	2-Hexanone	ND	5
Acetone	ND		5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND		5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND		5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND		5	Toluene	ND	5
trans-1,2-Dichloroethene	ND		5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND		5	Ethylbenzene	ND	5
Chloroform	ND		5	Styrene	ND	5
1,2-Dichloroethane	ND		5	o-Xylene	ND	5
2-Butanone	ND		5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND		5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND		5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND		5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND		5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND		5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND		5	Diethyl ether	ND	50
Trichloroethene	ND		5			0

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

Reference 33
96/105

TOTAL ION CHROMATOGRAM



Data File: >V6119::D1
Name: VOA BLANK
Misc: VOA BLANK

Quant Output File: ^V6119::DB

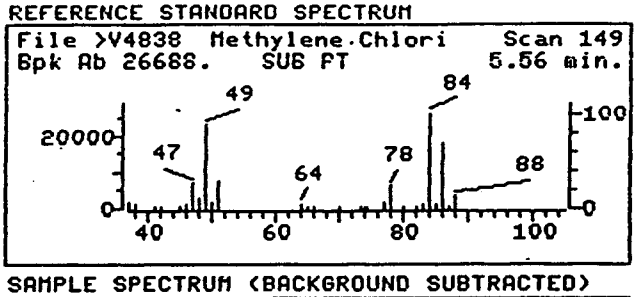
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921221 11:19
Injected at: 921221 10:42

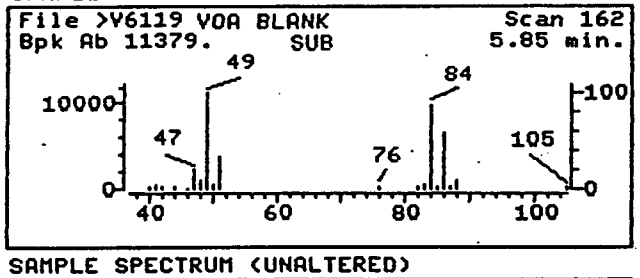
Reference 35

97/105

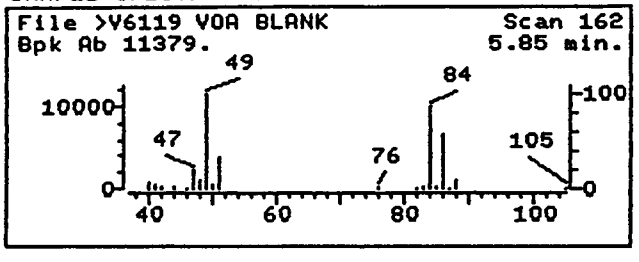
REFERENCE STANDARD SPECTRUM

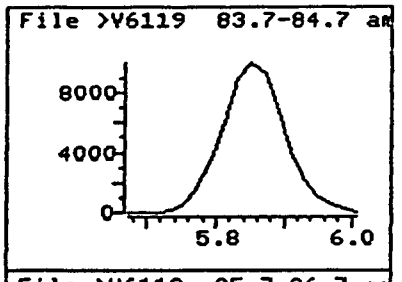


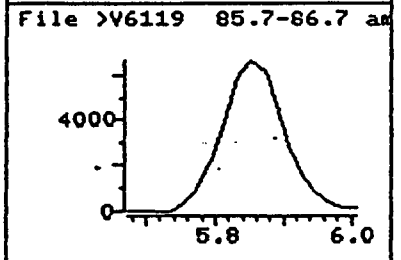
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

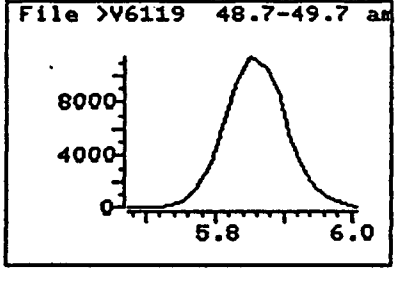


SAMPLE SPECTRUM (UNALTERED)









Data File: >V6119::D1
Name: VOA BLANK
Misc: VOA BLANK
Quant Time: 921221 11:19
Injected at: 921221 10:42

Quant Output File: ^V6119::DB

Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 162
Retention Time: 5.85 min.
Quant Ion: 84.0
Area: 64539
Concentration: 8.58 ppb
q-value: 82

Reference 35
98/105

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

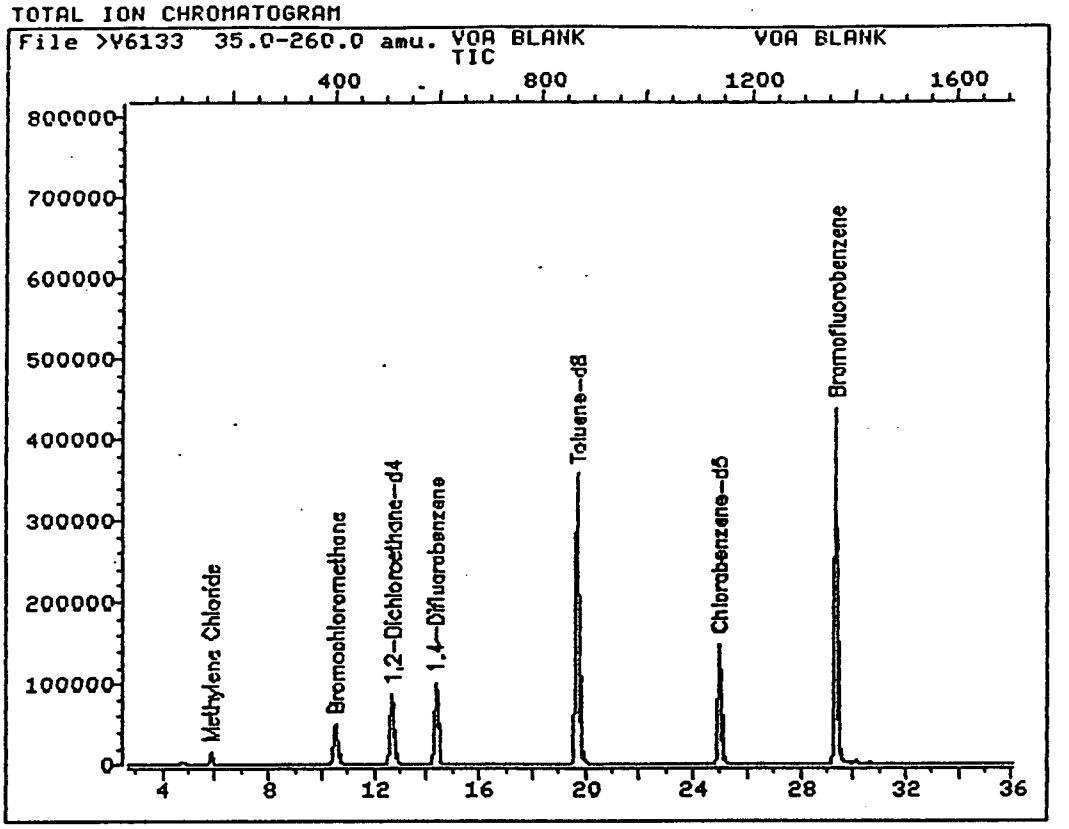
JOB NUMBER		MATRIX	Water
SAMPLE NAME	VOA BLANK	DILUTION FACTOR	1.00
CLIENT ID		QA BATCH	
DATA FILE	>V6133	DATE ANALYZED	12/22/92

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	3 JB	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	5	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 35
99/105

TOTAL ION CHROMATOGRAM



Data File: >V6133::D1
Name: VOA BLANK
Misc: VOA BLANK

Quant Output File: ^V6133::DB

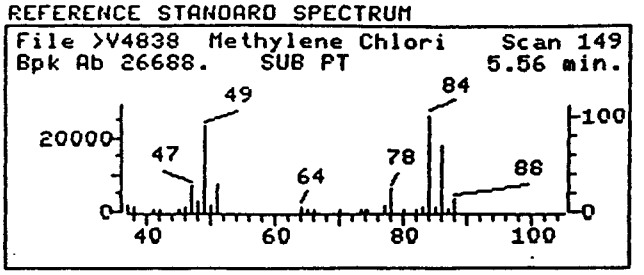
Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 921218 11:18

Operator ID: MARK
Quant Time: 921222 11:38
Injected at: 921222 11:02

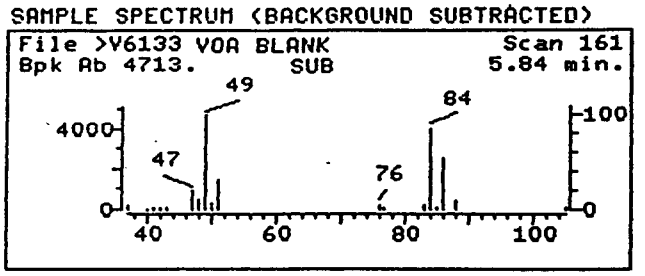
Reference 35

100/105

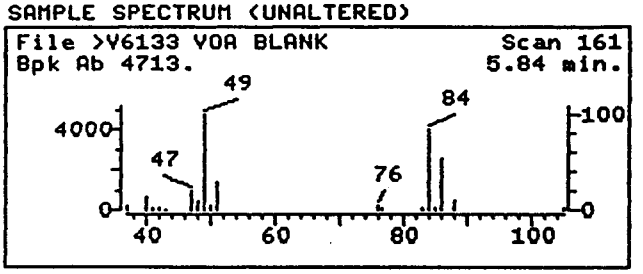
REFERENCE STANDARD SPECTRUM

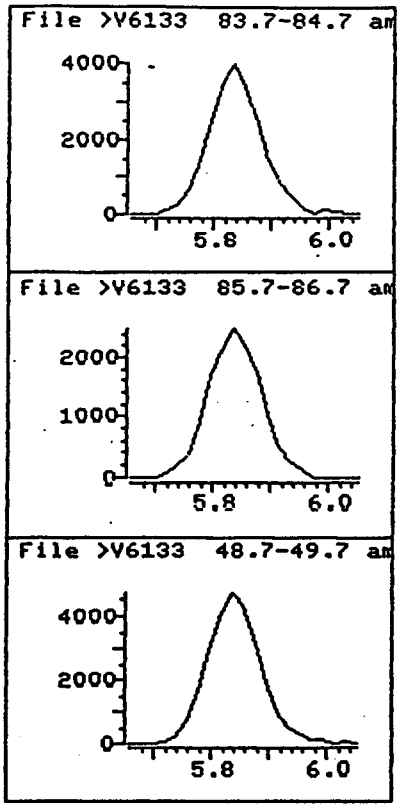


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >V6133::D1
Name: VOA BLANK
Misc: VOA BLANK
Quant Time: 921222 11:38
Injected at: 921222 11:02

Quant Output File: ^V6133::DB
Quant ID File: IDVOA::D2
Last Calibration: 921218 11:18

Compound No: 7
Compound Name: Methylene Chloride
Scan Number: 161
Retention Time: 5.84 min.
Quant Ion: 84.0
Area: 25161
Concentration: 3.15 ppb
q-value: 78

Reference 35
101/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
VOA BLANK

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: VOA BLANK

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >V6119

Date Analyzed: 12/21/92

Column: Capillary

Dilution Factor: 1

CONCENTRATION UNITS:
ug/L

Number of TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

Reference 35
102/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
VOA BLANK

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: VOA BLANK

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >V6133

Date Analyzed: 12/22/92

Column: Capillary

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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Reference 35
103/105

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	CCC/SPCC	95	99	93		0
02	VOA BLANK	100	87	90		0
03	9444.8 5mL	102	90	99		0
04	9444.9 5mL	98	90	102		0
05	9444.1 5mL	96	94	103		0
06	9444.2 5mL	97	96	102		0
07	9444.3 5mL	98	93	102		0
08	9444.4 5mL	98	94	103		0
09	9444.5 5mL	96	89	104		0
10	9444.6 5mL	100	93	104		0
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
S1 (TOL) = Toluene-d8	(76-125)
S2 (BFB) = Bromofluorobenzene	(76-125)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1

1/87 Rev.

Reference 33
104/105

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	CCC/SPCC	99	98	99		0
02	VOA BLANK	99	91	99		0
03	9444.7 5mL	100	94	103		0
04	9444.7 MS	97	93	109		0
05	9444.7 MSD	96	94	108		0
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
S1 (TOL) = Toluene-d8	(76-125)
S2 (BFB) = Bromofluorobenzene	(76-125)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1

1/87 Rev.

Reference 33

105/105

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Environmental Profile Lab Contract: Lakewood

Lab Code: 15526

Lab File ID (Standard): >V6118 Date Analyzed: 12/21/92

Instrument ID: GC/MSD 5970 #1 Time Analyzed: 9:42

Matrix: Water Column: Capillary

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	77714.	10.52	422115.	14.33	352635.	24.99
	UPPER LIMIT	155428.		844230.		705270.	
	LOWER LIMIT	38857.		211057.		176318.	
	EPA SAMPLE NO.						
01	VOA BLANK	70528.	10.54	439713.	14.35	355789.	24.96
02	9444.8 5mL	61890.	10.48	374458.	14.31	299375.	24.94
03	9444.9 5mL	59948.	10.50	343469.	14.31	298530.	24.96
04	9444.1 5mL	64309.	10.54	354845.	14.35	302802.	24.94
05	9444.2 5mL	63554.	10.54	335896.	14.36	284702.	24.95
06	9444.3 5mL	67724.	10.51	358498.	14.33	304667.	24.94
07	9444.4 5mL	63123.	10.52	340107.	14.31	291234.	24.94
08	9444.5 5mL	61262.	10.51	323305.	14.30	290960.	24.95
09	9444.6 5mL	65431.	10.49	350064.	14.30	288818.	24.93
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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

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

FORM VIII VOA 1/87 Rev.

REFERENCE NO. 34

Reference 34 1/20

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: TOWNSHIP OF LAKEWOOD

SITE: LAKEWOOD LANDFILL

PROJECT: VOA+15
TIER II

3-11-94

VOA

REPORT NUMBER: 12150.1-9

DATE RECEIVED: MARCH 11,1994
DATE RELEASED: MARCH 24,1994
DATA RELEASED BY:

DANIEL K. WRIGHT
LABORATORY DIRECTOR

Environmental Profile Laboratories
1565 Rt. 37-Unit 13
Toms River, NJ 08755
(908) 244-6278

Customer Purchase Order No.:

CHAIN OF CUSTODY RECORD

Sampled by: (Signature) [signature] Date/Time 3-11-94

Customer Name and Address: Twp. of Lakewood

Site Name and Address: Lakewood Landfill

Analysis parameters (Be as specific as possible)

Telephone No: _____ Fax: _____

Lab Sample ID Number	Date/Time Sampled	Sample Matrix	Customer Sample Location/ID No.	Number of Containers	Total Coliform	NH3 NO3	TDS Chl	Pb Fe Mn	Na Mg Ca	Field (pH, Cond)	624+15(TT)	Elevation			Remarks	Preservation Method
12150.1	3-11-94	AQ	MW #1	6	X	X	X	X	X	X	X	X			*See	<40C
.2			MW #2	6	X	X	X	X	X	X	X	X			Attached	
.3			MW #3	6	X	X	X	X	X	X	X	X			Sheet for	
.4			MW #4	6	X	X	X	X	X	X	X	X			Field Results	
.5			MW #5	6	X	X	X	X	X	X	X	X				
.6			MW #6	6	X	X	X	X	X	X	X	X				
.7			MW #7	6	X	X	X	X	X	X	X	X				
.8			Field	6	X	X	X	X	X		X					
.9			Trip Blank	2							X					

Relinquished By: (Signature) Date/Time	Received By: (Signature)	Cooler (Ice Pack) Method of Shipping:
Relinquished By: (Signature) Date/Time	Received By: (Signature)	JH Shipped By:
Relinquished By: (Signature) Date/Time	Received For EPL By: (Signature) [signature]	3-11-94 Date/Time 1520

QA/QC Required: B

X NJ Tier II Results Only

___ Other _____

Due: 3-28-94

Turnaround Time:

Ref. 34 2/20

Reference 34 2/20

Reference 34 3/20

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Reference-34 7/20

CLIENT: TOWNSHIP OF LAKEWOOD

PROJECT: LAKEWOOD LANDFILL

SAMPLE LOCATION AND IDENTIFICATION

LAB ID NUMBER	SAMPLE IDENTIFICATION	MATRIX
12150.1	MW #1	AQUEOUS
12150.2	MW #2	AQUEOUS
12150.3	MW #3	AQUEOUS
12150.4	MW #4	AQUEOUS
12150.5	MW #5	AQUEOUS
12150.6	MW #6	AQUEOUS
12150.7	MW #7	AQUEOUS
12150.8	FIELD BLANK	AQUEOUS
12150.9	TRIP BLANK	AQUEOUS

Environmental Profile Laboratories
1565 Rt. 37-Unit 13
Toms River, NJ 08755
(908) 244-6278

Customer Purchase Order No.:

CHAIN OF CUSTODY RECORD

Sampled by: (Signature) Joan Hoy Date/Time 3-11-94

Customer Name and Address: Twp. of Lakewood

Site Name and Address: Lakewood Landfill

Telephone No: Fax:

Analysis parameters (Be as specific as possible)

Lab Sample ID Number	Date/Time Sampled	Sample Matrix	Customer Sample Location/ID No.	Number of Containers	Total Coliform	NH3 NO3	TDS Chl	Pb Fe Mn	Na Mg Ca *	Field (pH, Sp)	624+15(TT)	Elevation			Remarks	Preservation Method
12150.1	3-11-94	AQ	MW #1	6	X	X	X	X	X	X	X	X			*See	4°C
.2			MW #2	6	X	X	X	X	X	X	X	X			Attached	
.3			MW #3	6	X	X	X	X	X	X	X	X			Sheet for	
.4			MW #4	6	X	X	X	X	X	X	X	X			Field Results	
.5			MW #5	6	X	X	X	X	X	X	X	X				
.6			MW #6	6	X	X	X	X	X	X	X	X				
.7			MW #7	6	X	X	X	X	X	X	X	X				
.8			Field	6	X	X	X	X	X		X					
.9			Trip Blank	2							X					

Relinquished By: (Signature) Date/Time	Received By: (Signature)	Cooler (Ice Pack) Method of Shipping:
Relinquished By: (Signature) Date/Time	Received By: (Signature)	JH Shipped By:
Relinquished By: (Signature) Date/Time	Joan Hoy Received For EPL By: (Signature)	3-11-94 1520 Date/Time

QA/QC Required: B

X NJ Tier II Results Only

___ Other ___

Due: 3-28-94
Turnaround Time:

Reference 34 5/20

Reference 34 6/20

LABORATORY CHRONICLE

VOLATILES

SAMPLE NUMBER	12150.1	12150.2	12150.3	12150.4	12150.5	12150.6
RECEIVED & REFRIGERATED DATE	MAR.11 1994	MAR.11 1994	MAR.11 1994	MAR.11 1994	MAR.11 1994	MAR.11 1994
ORGANICS EXTRACTION DATE						
BN/ABN						
PCB's						
ANALYSIS DATE						
BN/ABN						
PCB's						
VOLATILE	MAR.18 1994	MAR.18 1994	MAR.18 1994	MAR.19 1994	MAR.19 1994	MAR.19 1994
TPHC's						
METALS						
TOTAL SOLIDS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
ORGANIC SUPERVISOR REVIEW & APPROVAL						
INORGANIC SUPERVISOR REVIEW & APPROVAL						

Reference 34 7/20

LABORATORY CHRONICLE

VOLATILES

SAMPLE NUMBER	12150.7	12150.8	12150.9			
RECEIVED & REFRIGERATED DATE	MAR.11 1994	MAR.11 1994	MAR.11 1994			
ORGANICS EXTRACTION DATE						
BN/ABN						
PCB's						
ANALYSIS DATE						
BN/ABN						
PCB's						
VOLATILE	MAR.19 1994	MAR.18 1994	MAR.18 1994			
TPHC's						
METALS						
TOTAL SOLIDS	AQUEOUS	AQUEOUS	AQUEOUS			
ORGANIC SUPERVISOR REVIEW & APPROVAL						
INORGANIC SUPERVISOR REVIEW & APPROVAL						

Reference 34 8/20

METHOD SUMMARY

VOLATILES

THE VOLATILE SAMPLES IN THIS REPORT HAVE BEEN ANALYZED USING THE METHOD CITED IN THE USEPA-CLP-IFB VERSION 2/88. THE CLP VOLATILE METHOD IS BASED ON USEPA Method 624 AND SW-846.

THE METHOD IS BASED ON 5 MILLILITERS OF AN AQUEOUS. OR 1 GRAM OF A NON-AQUEOUS, SAMPLE SPIKED WITH A KNOWN CONCENTRATION OF SURROGATE AND INTERNAL STANDARD. THE SAMPLES AND STANDARDS ARE THEN PURGED ONTO A COLUMN INSTALLED IN A HEWLETT PACKARD 5890 GC COUPLED VIA A JET SEPARATOR TO THE HP 5970 MSD. THE DATA WAS THEN COLLECTED AND REDUCED VIA A HP 1000 RTE DATA SYSTEM.

Reference 34 9/20

GC/MS ANALYSIS CONFORMANCE / NON - CONFORMANCE SUMMARY FORMAT

	No	Yes
1.) CHROMATOGRAMS LABELED / COMPOUNDS IDENTIFIED (FIELD SAMPLES AND METHOD BLANKS)		X
2.) GC/MS TUNE SPECIFICATIONS		
A.) BFB MEET CRITERIA		X
B.) DFTPP MEET CRITERIA		X
3.) GC/MS TUNING FREQUENCY - PERFORMED EVERY 24 HOURS FOR 600 SERIES AND 12 HOURS FOR 8000 SERIES.		X
4.) GC/MS CALIBRATION - INITIAL CALIBRATION PERFORMED WITHIN 30 DAYS BEFORE SAMPLE ANALYSIS AND CONTINUING CALIBRATION PERFORMED WITHIN 24 HOURS OF SAMPLE ANALYSIS FOR 600 SERIES AND 12 HOURS FOR 8000 SERIES		X
5.) GC/MS CALIBRATION REQUIREMENTS		
A.) CALIBRATION CHECK COMPOUNDS		X
B.) SYSTEM PERFORMANCE CHECK COMPOUNDS		X

6.) BLANK CONTAMINATION - IF YES, LIST COMPOUNDS AND CONCENTRATIONS IN EACH BLANK:

A.) VOA FRACTION: _____

B.) B/N FRACTION: _____

C.) ACID FRACTION: _____

	No	Yes
7.) SURROGATE RECOVERIES MEET CRITERIA		X

IF NOT MET, LIST THOSE COMPOUNDS AND THEIR RECOVERIES WHICH FALL OUTSIDE THE ACCEPTABLE RANGE:

A.) VOA FRACTION: _____

B.) B/N FRACTION: _____

C.) ACID FRACTION: _____

IF NOT MET, WERE THE CALCULATIONS CHECKED AND THE RESULTS QUALIFIED AS "ESTIMATED"

Reference 34 10/20

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
8.) MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERIES MEET CRITERIA. (IF NOT MET, LIST THOSE COMPOUNDS AND THEIR RECOVERIES WHICH FALL OUTSIDE THE ACCEPTABLE RANGE.)	____	X
A.) VOA FRACTION: _____		
B.) B/N FRACTION: _____		
C.) ACID FRACTION: _____		
9.) INTERNAL STANDARD AREA / RETENTION TIME SHIFT MEET CRITERIA.	____	X
10.) EXTRACTION HOLDING TIME MET	____	X
IF NOT MET, LIST NUMBER OF DAYS EXCEEDED FOR EACH SAMPLE: _____		
11.) ANALYSIS HOLDING TIME MET	____	X
IF NOT MET, LIST NUMBER OF DAYS EXCEEDED FOR EACH SAMPLE: _____		

ADDITIONAL COMMENTS: _____

DANIEL K. WRIGHT
LABORATORY DIRECTOR

4-4-94
DATE

Reference 34 11/20

DATA REPORTING QUALIFIERS

FOR REPORTING RESULTS TO THE 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, "10 U". THIS IS NOT NECESSARILY THE INSTRUMENT DETECTION LIMIT. THE FIGURE REPESENTS 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 IDENTIFED COMPOUND (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 3 UG/L WAS CALCULATED, REPORT AS "3 J".

B - INDICATES THE ANAYLZE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE; REPORT AS "12 B".

E - INDICATES THE ANALYZE 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.

Reference 34 12/20

MW-1

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.1 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0941	DATE ANALYZED	03/18/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	31	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	230	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	36	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	60	5
2-Butanone	ND	5	m + p-Xylenes	170	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 13/20

MW-2

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.2 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0942	DATE ANALYZED	03/18/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	2 J	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 14/20

MW-3

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.3 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0943	DATE ANALYZED	03/18/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	2 J	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	1 J	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 15/20

MW-4

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.4. 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0944	DATE ANALYZED	03/19/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	16	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	2 J	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	37	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	3 J	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	7	5
2-Butanone	ND	5	m + p-Xylenes	19	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 16/20

MW-5

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.5 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0945	DATE ANALYZED	03/19/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	1 J	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 17/20

MW-6

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.6 . 5mL	DILUTION.FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0947	DATE ANALYZED	03/19/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	2 J	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 18/20

MW-7

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.7. 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0948	DATE ANALYZED	03/19/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 19/20

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.8 - 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0938	DATE ANALYZED	03/18/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

Reference 34 20/20

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	12150	MATRIX	Water
SAMPLE ID	12150.9 5mL	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	3-11-94
DATA FILE	>X0937	DATE ANALYZED	03/18/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	10	Dibromochloromethane	ND	5
Bromomethane	ND	10	1,1,2-Trichloroethane	ND	5
Vinyl Chloride	ND	10	Benzene	ND	5
Chloroethane	ND	10	trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	5	2-Chloroethylvinyl ether	ND	5
Acrolein	ND	50	Bromoform	ND	5
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	5
1,1-Dichloroethene	ND	5	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethane	ND	5	Toluene	ND	5
trans-1,2-Dichloroethene	ND	5	Chlorobenzene	ND	5
Trichlorofluoromethane	ND	5	Ethylbenzene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,2-Dichloroethane	ND	5	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	5	1,3-Dichlorobenzene	ND	5
Carbon Tetrachloride	ND	5	1,2-Dichlorobenzene	ND	5
Bromodichloromethane	ND	5	1,4-Dichlorobenzene	ND	5
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	5	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	5	Diethyl ether	ND	50
Trichloroethene	ND	5			0

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

REFERENCE NO. 35

Reference 35 1/105

LABORATORY ANALYSIS REPORT

Dec 19, 1994

VOA

CLIENT: TOWNSHIP OF LAKEWOOD
MUNICIPAL BUILDING
231 THIRD STREET
LAKEWOOD, NEW JERSEY 08701

SITE: LAKEWOOD LANDFILL

PROJECT: VOA+15
REDUCED DELIVERABLES

REPORT NUMBER: 15359.1.9

DATE RECEIVED: DECEMBER 19,1994
DATE RELEASED: DECEMBER 30,1994
DATA RELEASED BY:

DANIEL K. WRIGHT, LABORATORY DIRECTOR

ENVIRONMENTAL PROFILE LABORATORIES
1565 RT.37 W. SUITE 13, TOMS RIVER, N.J. 08755
PHONE:(908)244-6278 FAX:(908)244-6372
NEW YORK DOH CERT# 11269 PENNSYLVANIA DER CERT# 68-395
NEW JERSEY DEP CERT# 15526

Reference 3B 2/105

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Reference 35 3/165

SITE AND LOCATION

CLIENT: TOWNSHIP OF LAKEWOOD
MUNICIPAL BUILDING
231 THIRD STREET
LAKEWOOD, NEW JERSEY 08701

SITE: LAKEWOOD LANDFILL

LAB ID NUMBER	SAMPLE IDENTIFICATION	MATRIX
14359.1	MW #1	AQUEOUS
14359.2	MW #2	AQUEOUS
14359.3	MW #3	AQUEOUS
14359.4	MW #4	AQUEOUS
14359.5	MW #5	AQUEOUS
14359.6	MW #6	AQUEOUS
14359.7	MW #7	AQUEOUS
14359.8	FIELD BLANK	AQUEOUS
14359.9	TRIP BLANK	AQUEOUS

1565 Rt. 37-Unit 13
Toms River, NJ 08755
(908) 244-6278

Customer Purchase Order No.:

Sampled by: (Signature) Rob Bonilla Date/Time 12.19.94

Customer Name and Address: Twp. of Lakewood

Site Name and Address: Lakewood Landfill

Telephone No: NA Fax: NA

Analysis parameters (Be as specific as possible)

Lab Sample ID Number	Date/Time Sampled	Sample Matrix	Customer Sample Location/ID No.	Number of Containers	Chloride, NO3	TDS, FE, Pb	Mn, Na, Ca, Mg	NH3-N	TC	624+15 TPH	PH, DO, SC (field)				Remarks	Preservi Method
14359.1	12.19.94	H2O	MW#1	7	X	X	X	X	X	X	X					
.2			2	7	X	X	X	X	X	X	X					
.3			3	7	X	X	X	X	X	X	X					
.4			4	7	X	X	X	X	X	X	X					
.5			5	7	X	X	X	X	X	X	X					
.6			6	7	X	X	X	X	X	X	X					
.7			7	7	X	X	X	X	X	X	X					
.8			Field Blank	7	X	X	X	X	X	X						
.9			Trip Blank	2						X						

Relinquished By: (Signature) Date/Time	Received By: (Signature)	Method of Shipping: Cooler
Relinquished By: (Signature) Date/Time	Received By: (Signature)	X Shipped By:
Relinquished By: (Signature) Date/Time	Received For BPL By: (Signature)	Date/Time 12.19.94

QA/QC Required:

✓ NJ Tier II
___ Results Only
___ Other ___

Turnaround Time: Due: 12.30.94

Ref Folder 3 of 3 4/1/95

Reference 38 5/105

LABORATORY CHRONICLE
METHOD VOA

EPL #	RECEIVED & REFRIGERATED DATE	VOA ORGANICS EXTRACTION DATE	VOA ANALYSIS DATE	TOTAL SOLIDS
14359.1	12-19-94	N/A	12-20-94	AQUEOUS
14359.2	12-19-94	N/A	12-20-94	AQUEOUS
14359.3	12-19-94	N/A	12-20-94	AQUEOUS
14359.4	12-19-94	N/A	12-20-94	AQUEOUS
14359.5	12-19-94	N/A	12-20-94	AQUEOUS
14359.6	12-19-94	N/A	12-20-94	AQUEOUS
14359.7	12-19-94	N/A	12-20-94	AQUEOUS
14359.8	12-19-94	N/A	12-20-94	AQUEOUS
14359.9	12-19-94	N/A	12-20-94	AQUEOUS

N/A = NOT APPLICABLE

Reference 38 6/105

METHOD SUMMARY

VOLATILES

THE VOLATILE SAMPLES IN THIS REPORT HAVE BEEN ANALYZED USING THE METHOD CITED IN THE USEPA-CLP-IFB VERSION 2/88. THE CLP VOLATILE METHOD IS BASED ON USEPA METHOD 624 AND SW-846.

THE METHOD IS BASED ON 5 MILLILITERS OF AN AQUEOUS. OR 1 GRAM OF A NON-AQUEOUS, SAMPLE SPIKED WITH A KNOWN CONCENTRATION OF SURROGATE AND INTERNAL STANDARD. THE SAMPLES AND STANDARDS ARE THEN PURGED ONTO A COLUMN INSTALLED IN A HEWLETT PACKARD 5890 GC COUPLED VIA A JET SEPARATOR TO THE HP 5970 MSD. THE DATA WAS THEN COLLECTED AND REDUCED VIA A HP 1000 RTE DATA SYSTEM.

Reference 35 7/105

GC/MS ANALYSIS CONFORMANCE/ NON-CONFORMANCE SUMMARY REPORT

	NO	YES
1.) CHROMATOGRAMS LABELED/COMPOUNDS IDENTIFIED (FIELD SAMPLES AND METHOD BLANKS)	____	X
2.) GC/MS TUNE SPECIFICATIONS		
A.) BFB MEET CRITERIA	____	X
B.) DFTPP MEET CRITERIA	____	X
3.) GC/MS TUNING FREQUENCY - PERFORMED EVERY 24 HOURS FOR 600 SERIES AND 12 HOURS FOR 8000 SERIES.	____	X
4.) GC/MS CALIBRATION - INITIAL CALIBRATION PERFORMED WITHIN 30 DAYS BEFORE SAMPLE ANALYSIS AND CONTINUING CALIBRATION PERFORMED WITHIN 24 HOURS OF SAMPLE ANALYSIS FOR 600 SERIES AND 12 HOURS FOR 8000 SERIES.	____	X
5.) GC/MS CALIBRATION REQUIREMENTS		
A.) CALIBRATION CHECK COMPOUNDS	____	X
B.) SYSTEM PERFORMANCE CHECK COMPOUNDS	____	X

6.) BLANK CONTAMINATION - IF YES, LIST COMPOUNDS AND CONCENTRATIONS IN EACH BLANK:

A.) VOA FRACTION: _____

B.) B/N FRACTION: _____

C.) ACID FRACTION: _____

7.) SURROGATE RECOVERIES MEET CRITERIA	____	X

IF NOT MET, LIST THOSE COMPOUNDS AN THEIR RECOVERIES WHICH FALL OUTSIDE THE ACCEPTABLE RANGE:

A.) VOA FRACTION: _____

B.) B/N FRACTION: _____

C.) ACID FRACTION: _____

IF NOT MET, WERE THE CALCULATIONS CHECKED AN THE RESULTS QUALIFIED AS "ESTIMATED"	____	X

Reference 3 8/105

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
8.) MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERIES MEET CRITERIA. (IF NOT MET, LIST THOSE COMPOUNDS AND THEIR RECOVERIES WHICH FALL OUTSIDE THE ACCEPTABLE RANGE.)	____	X
9.) INTERNAL STANDARD AREA / RETENTION TIME SHIFT MEET CRITERIA.	____	X
10.) EXTRACTION HOLDING TIME MET	____	X
11.) ANALYSIS HOLDING TIME MET	____	X

A.) VOA FRACTION: _____

B.) B/N FRACTION: _____

C.) ACID FRACTION: _____

IF NOT MET, LIST NUMBER OF DAYS EXCEEDED FOR EACH SAMPLE: _____

IF NOT MET, LIST NUMBER OF DAYS EXCEEDED FOR EACH SAMPLE _____

ADDITIONAL COMMENTS: _____

DANIEL K. WRIGHT
LABORATORY DIRECTOR

1-3-95
DATE

- Reference 35 9/105

DATA REPORTING QUALIFIERS

FOR REPORTING RESULTS TO THE 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, "10 U". THIS IS NOT NECESSARILY THE INSTRUMENT DETECTION LIMIT. THE FIGURE REPESENTS 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 IDENTIFED COMPOUND (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 3 UG/L WAS CALCULATED, REPORT AS "3 J".

B - INDICATES THE ANAYLZE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE; REPORT AS "12 B".

E - INDICATES THE ANALYZE 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.

Reference 35 10/105

MW-1

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.1 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4111	DATE ANALYZED	12/20/94

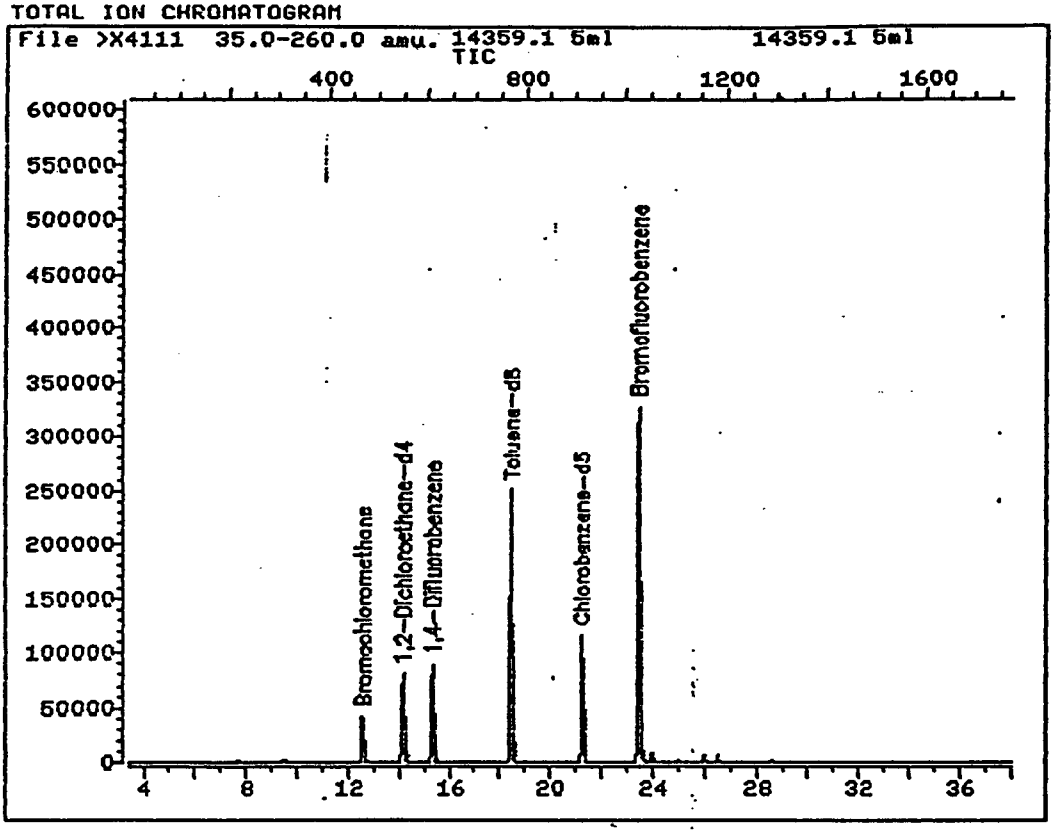
Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

2

Reference 38 11/105

TOTAL ION CHROMATOGRAM



Data File: >X4111::D1
Name: 14359.1 5ml
Misc: 14359.1 5ml

Quant Output File: ^X4111::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941220 17:58
Injected at: 941220 17:19

Reference 38 12/105

MW-2

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

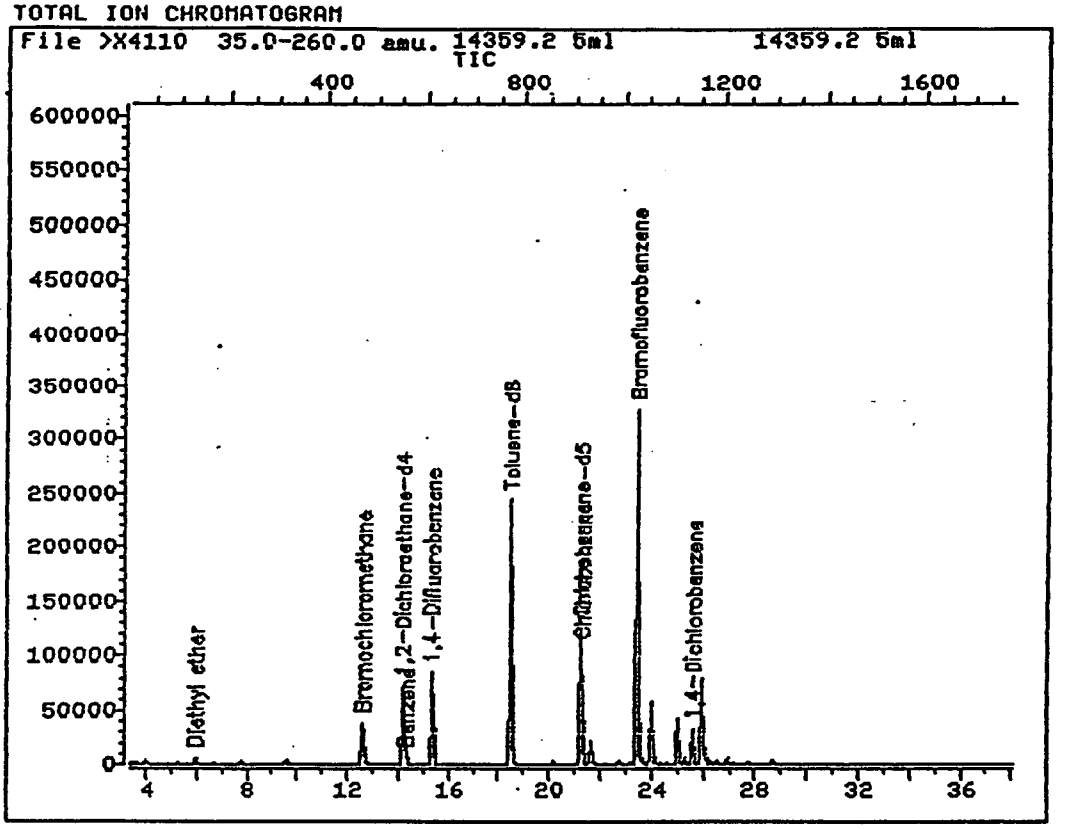
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359,2 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4110	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	2	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	13	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	6	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	11	5
Trichloroethene	ND	1			0

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

Reference 35 13/105

TOTAL ION CHROMATOGRAM



Data File: >X4110::D1
Name: 14359.2 5ml
Misc: 14359.2 5ml

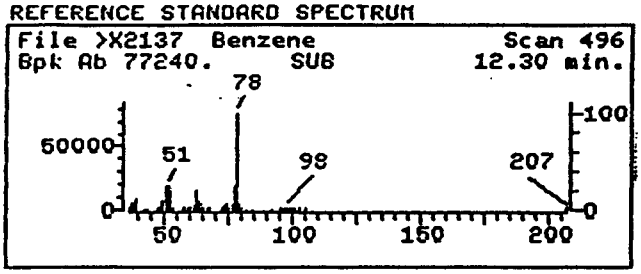
Quant Output File: ^X4110::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

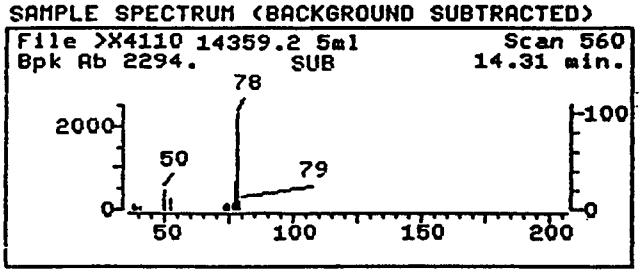
Operator ID: BOB
Quant Time: 941220 17:10
Injected at: 941220 16:31

Reference 38 14/105

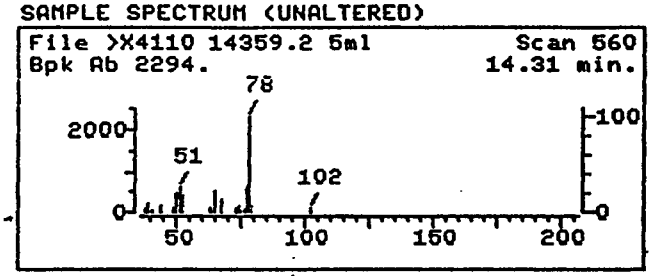
REFERENCE STANDARD SPECTRUM

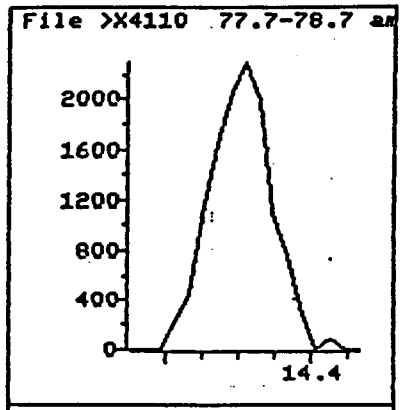


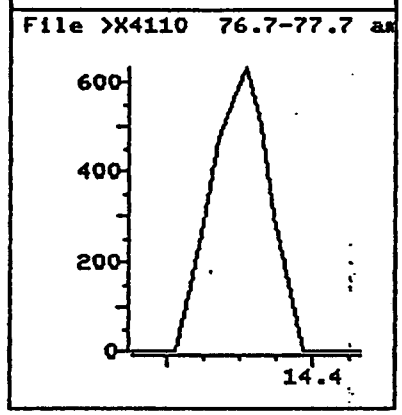
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4110::D1
Name: 14359.2 5ml
Misc: 14359.2 5ml
Quant Time: 941220 17:10
Injected at: 941220 16:31

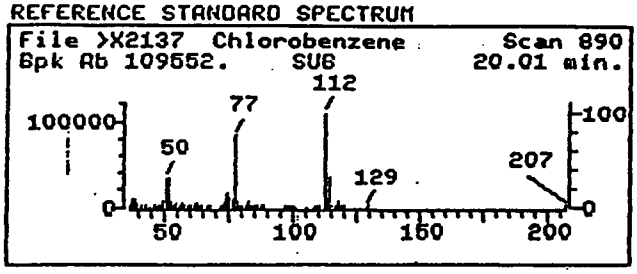
Quant Output File: ^X4110::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

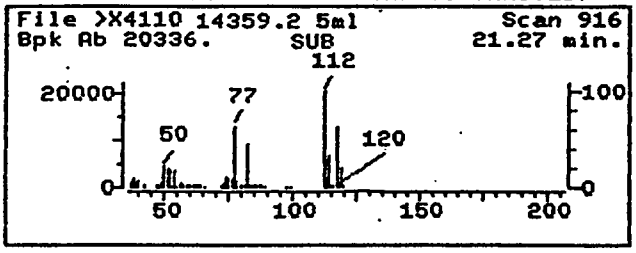
Compound No: 31
Compound Name: Benzene
Scan Number: 560
Retention Time: 14.31 min.
Quant Ion: 78.0
Area: 13947
Concentration: 1.85 ppb
q-value: 92

Reference 35 15/105

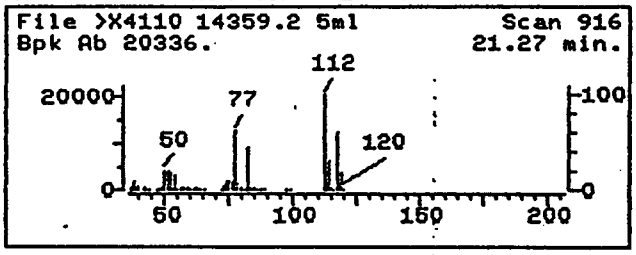
REFERENCE STANDARD SPECTRUM

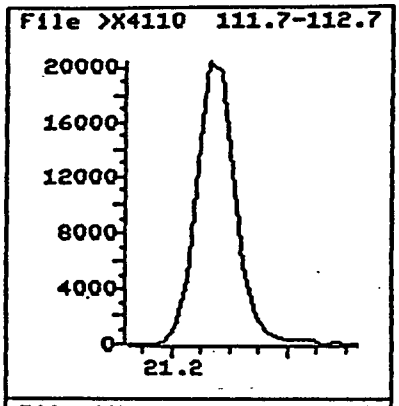


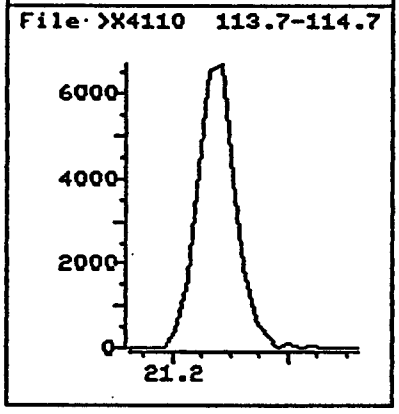
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4110::D1
Name: 14359.2 5ml
Misc: 14359.2 5ml
Quant Time: 941220 17:10
Injected at: 941220 16:31

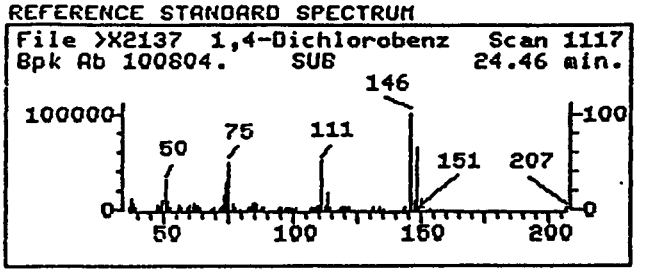
Quant Output File: ^X4110::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

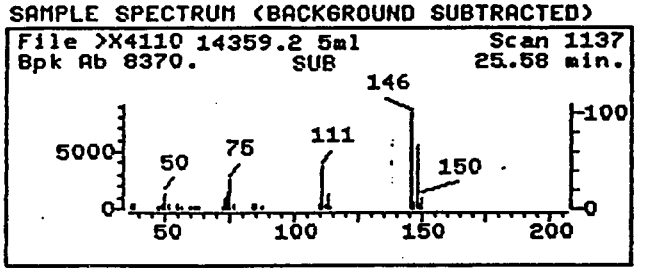
Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 916
Retention Time: 21.27 min.
Quant Ion: 112.0
Area: 94906
Concentration: 13.19 ppb
q-value: 99

Reference 38 16/105

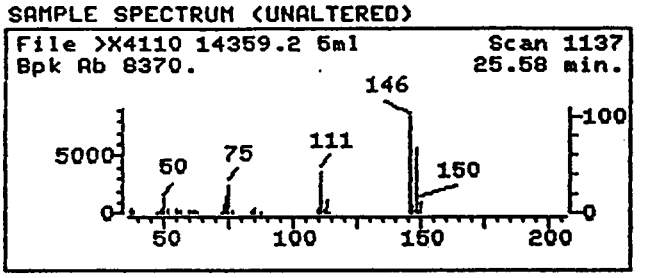
REFERENCE STANDARD SPECTRUM

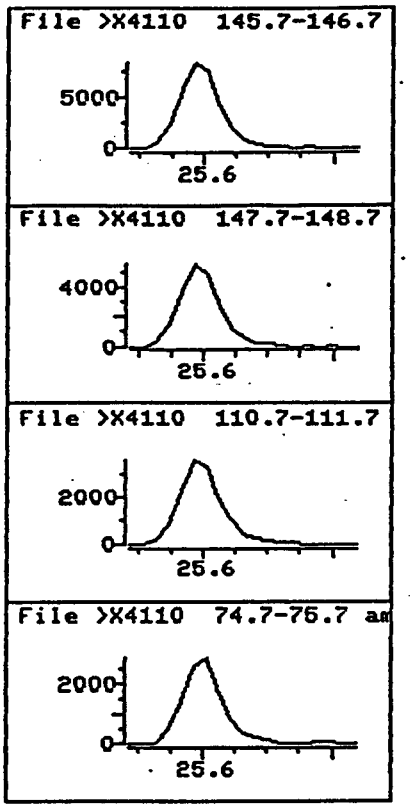


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4110::D1
Name: 14359.2 5ml
Misc: 14359.2 5ml
Quant Time: 941220 17:10
Injected at: 941220 16:31

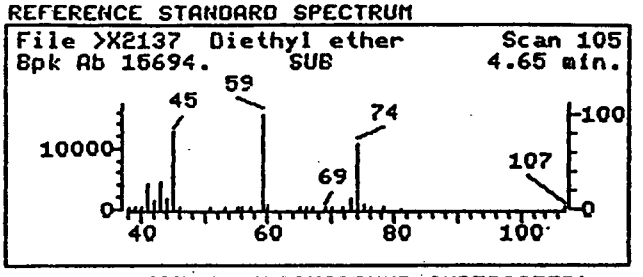
Quant Output File: ^X4110::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

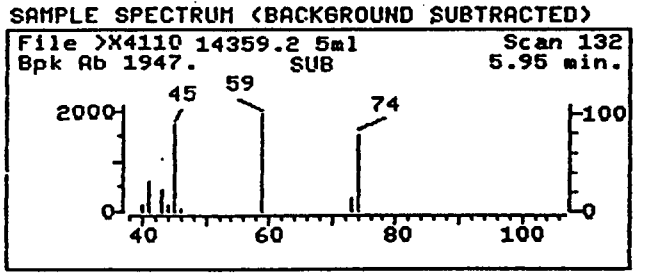
Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1137
Retention Time: 25.58 min.
Quant Ion: 146.0
Area: 39174
Concentration: 5.51 ppb
q-value: 96

Reference 35 17/105

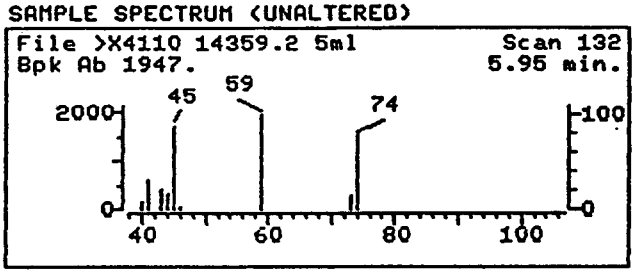
REFERENCE STANDARD SPECTRUM

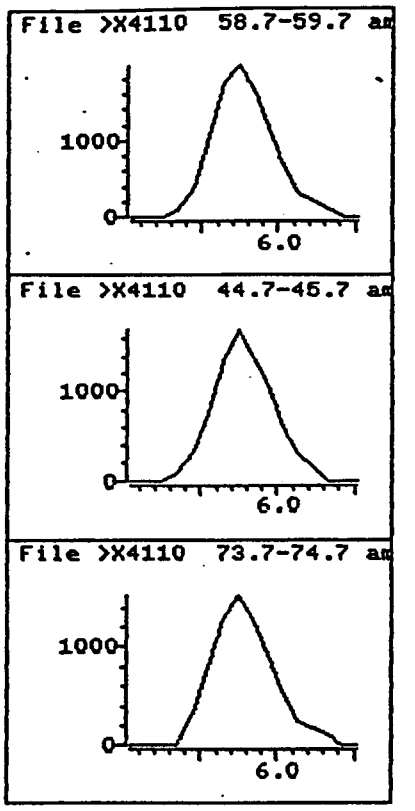


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4110::D1
Name: 14359.2 5ml
Misc: 14359.2 5ml
Quant Time: 941220 17:10
Injected at: 941220 16:31

Quant Output File: ^X4110::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

Compound No: 51
Compound Name: Diethyl ether
Scan Number: 132
Retention Time: 5.95 min.
Quant Ion: 59.0
Area: 10927
Concentration: 10.51 ppb
q-value: 92

Reference 3 18/105

MW-3

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

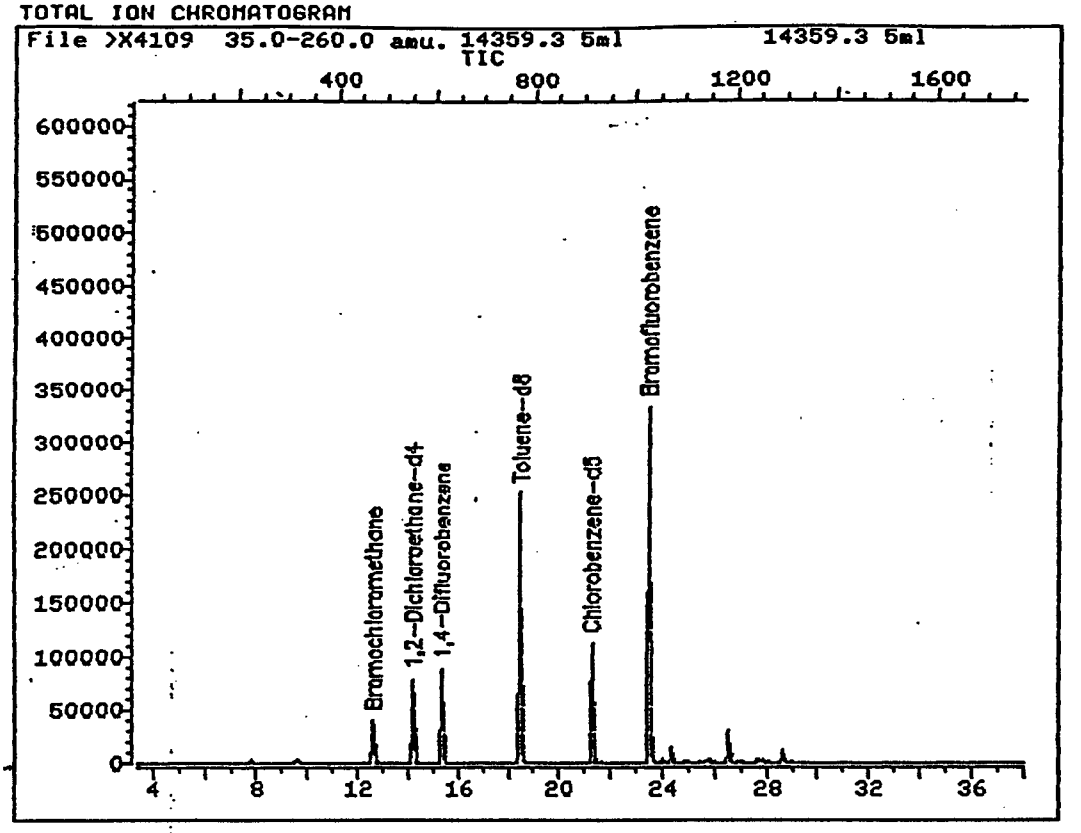
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.3 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4109	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 38 19/105

TOTAL ION CHROMATOGRAM



Data File: >X4109::D1
Name: 14359.3 5ml
Misc: 14359.3 5ml

Quant Output File: ^X4109::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941220 16:23
Injected at: 941220 15:44

Reference 38 20/105

MW-4

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

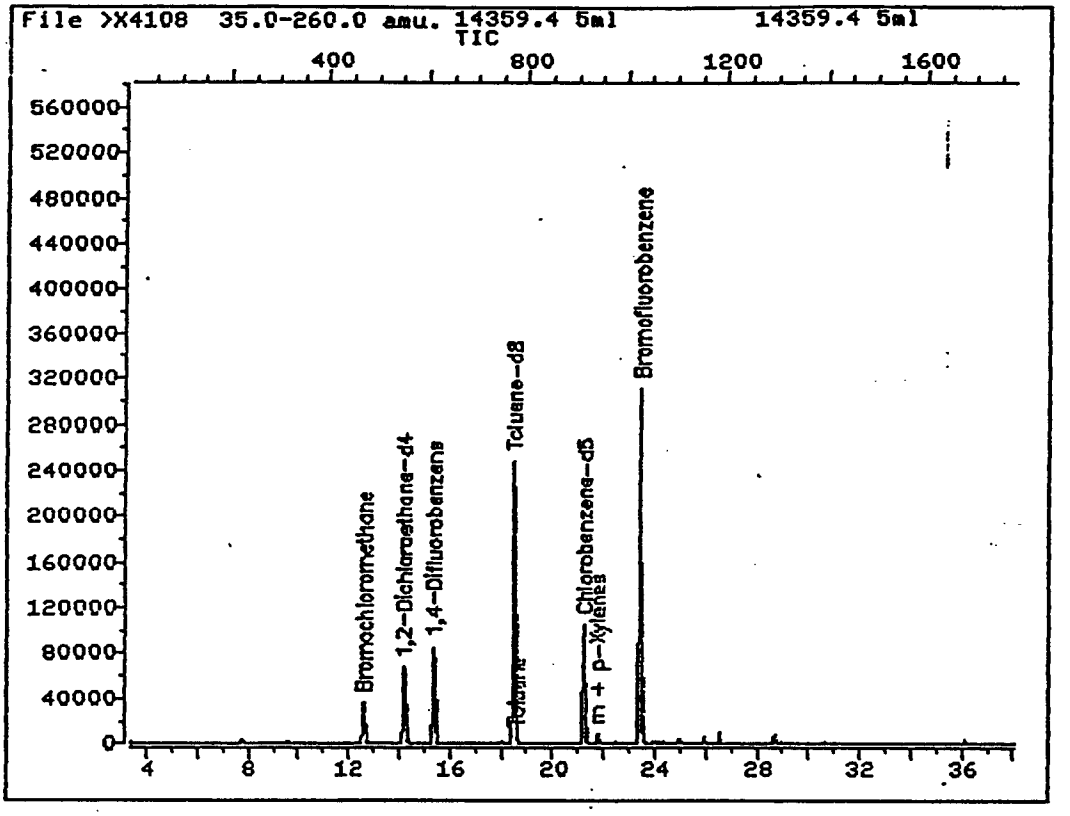
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.4 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4108	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	1 J	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	1 J	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 35 21/105

TOTAL ION CHROMATOGRAM



Data File: >X4108::D1
Name: 14359.4 5ml
Misc: 14359.4 5ml

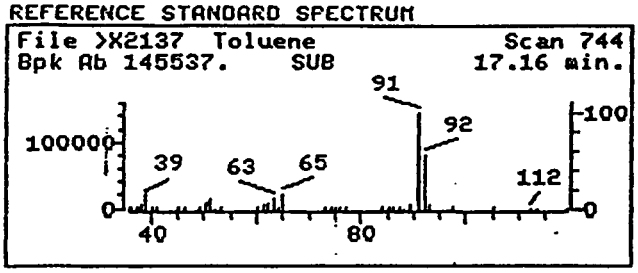
Quant Output File: ^X4108::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

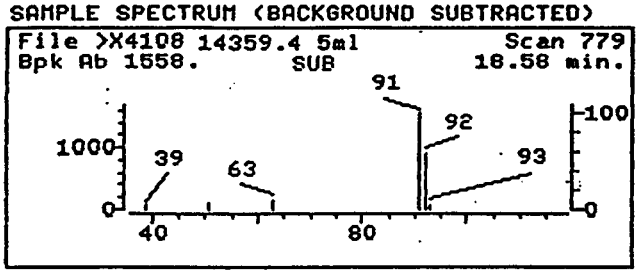
Operator ID: BOB
Quant Time: 941220 15:14
Injected at: 941220 14:35

Reference 38 22/105

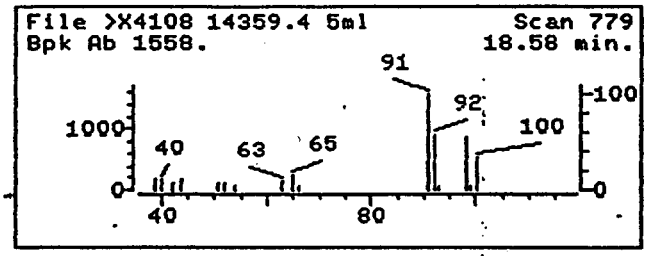
REFERENCE STANDARD SPECTRUM

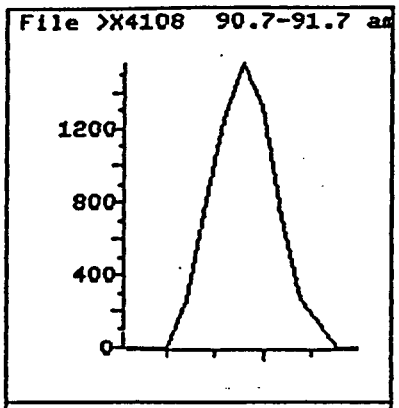


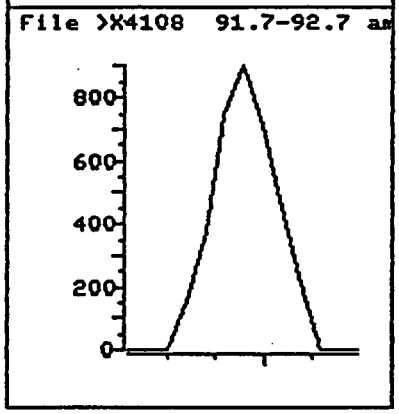
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4108::D1
Name: 14359.4 5ml
Misc: 14359.4 5ml
Quant Time: 941220 15:14
Injected at: 941220 14:35

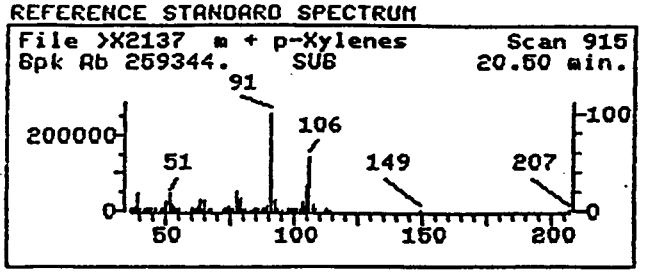
Quant Output File: ^X4108::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

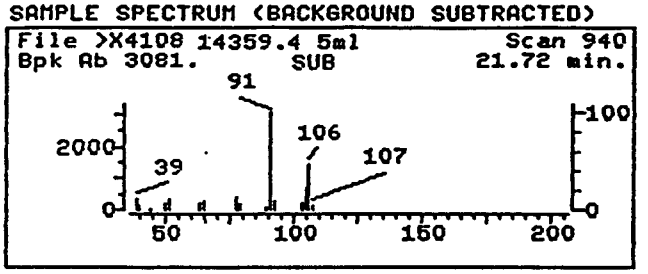
Compound No: 41
Compound Name: Toluene
Scan Number: 779
Retention Time: 18.58 min.
Quant Ion: 91.0
Area: 7381
Concentration: .76 ppb
q-value: 89

Reference 35 23/105

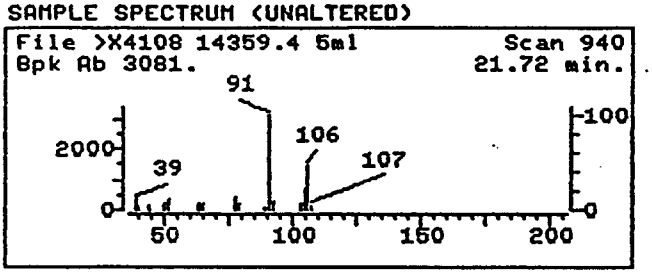
REFERENCE STANDARD SPECTRUM

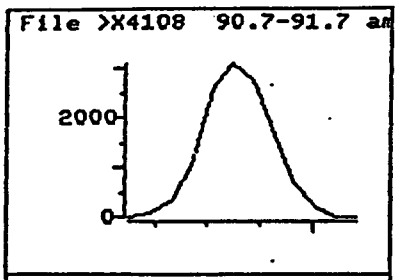


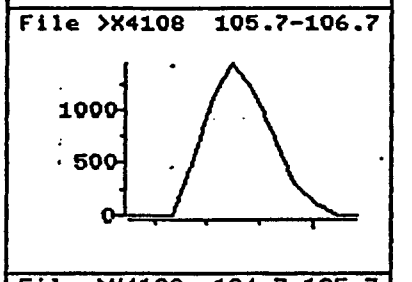
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

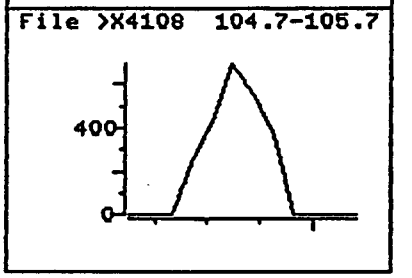


SAMPLE SPECTRUM (UNALTERED)









Data File: >X4108::D1
Name: 14359.4 5ml
Misc: 14359.4 5ml
Quant Time: 941220 15:14
Injected at: 941220 14:35

Quant Output File: ^X4108::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

Compound No: 45
Compound Name: m + p-Xylenes
Scan Number: 940
Retention Time: 21.72 min.
Quant Ion: 106.0
Area: 6355
Concentration: 1.43 ppb
q-value: 96

Reference 35 24/105

MW-5

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

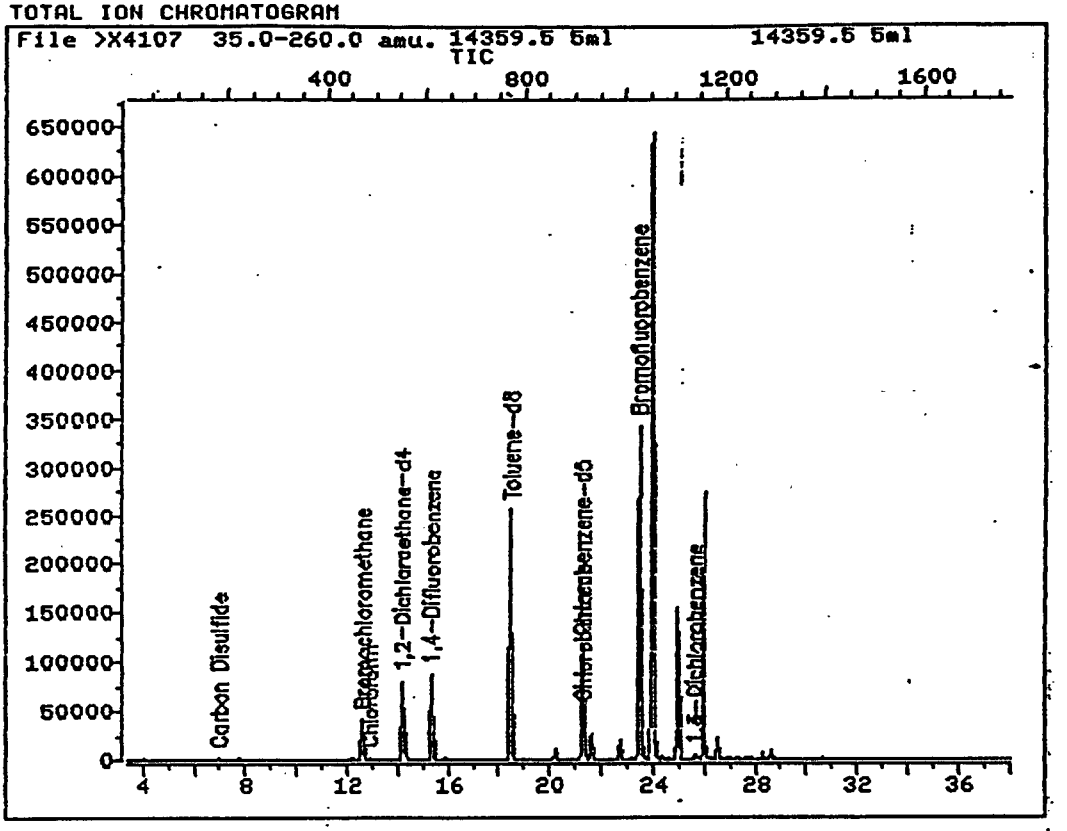
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.5 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4107	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	2 J	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	2	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	1 J	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	1 J	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 3 25/105

TOTAL ION CHROMATOGRAM



Data File: >X4107::D1
Name: 14359.5 5ml
Misc: 14359.5 5ml

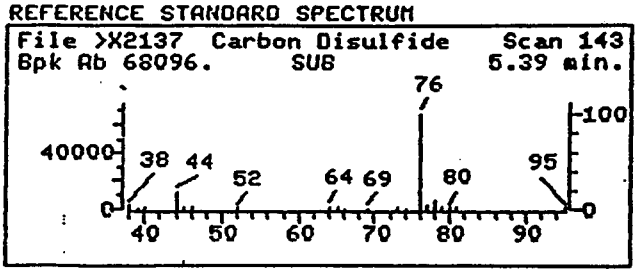
Quant Output File: ^X4107::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

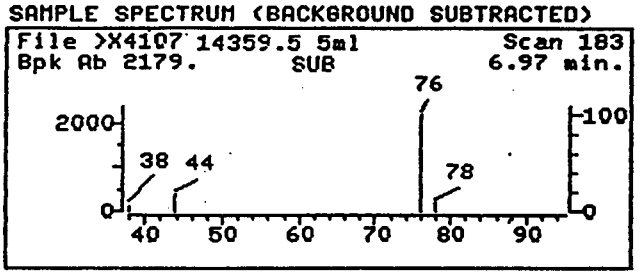
Operator ID: BOB
Quant Time: 941220 14:26
Injected at: 941220 13:47

Reference 38 26/105

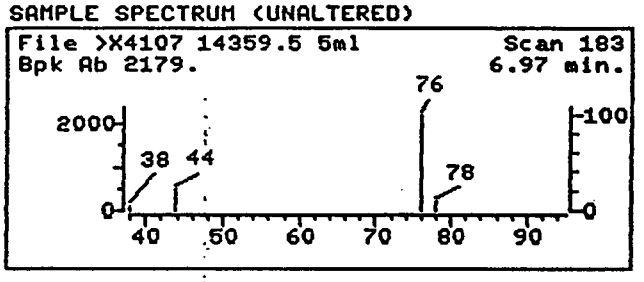
REFERENCE STANDARD SPECTRUM

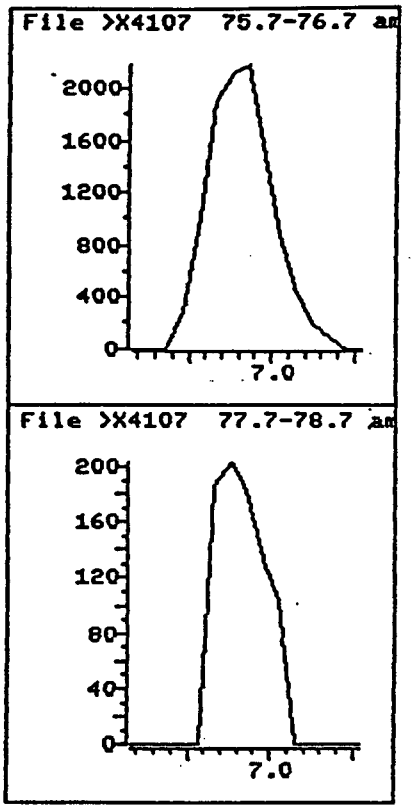


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4107::D1
Name: 14359.5 5ml
Misc: 14359.5 5ml
Quant Time: 941220 14:26
Injected at: 941220 13:47

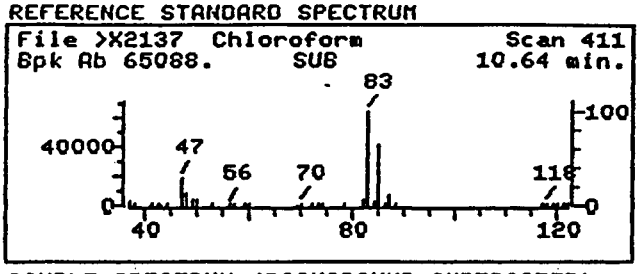
Quant Output File: ^X4107::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

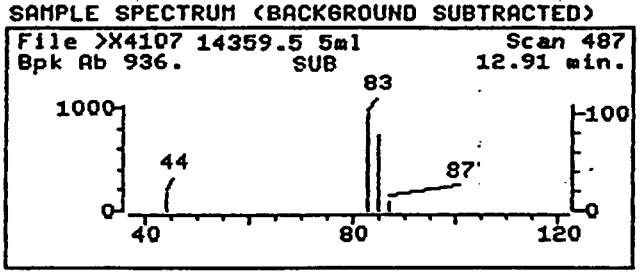
Compound No: 11
Compound Name: Carbon Disulfide
Scan Number: 183
Retention Time: 6.97 min.
Quant Ion: 76.0
Area: 12387
Concentration: 2.09 ppb
q-value: 90

Reference 38 27/105

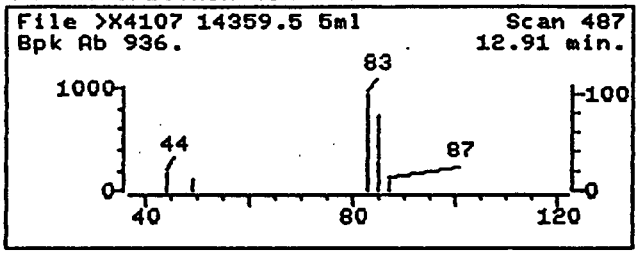
REFERENCE STANDARD SPECTRUM

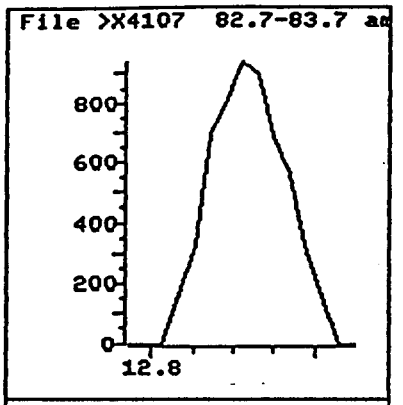


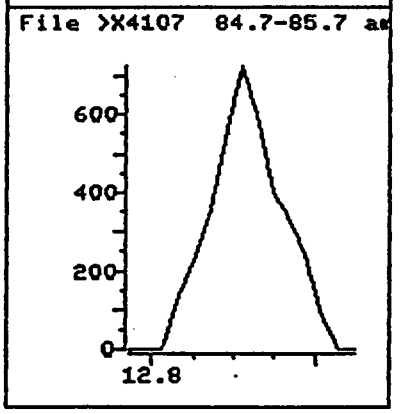
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4107::D1
Name: 14359.5 5ml
Misc: 14359.5 5ml
Quant Time: 941220 14:26
Injected at: 941220 13:47

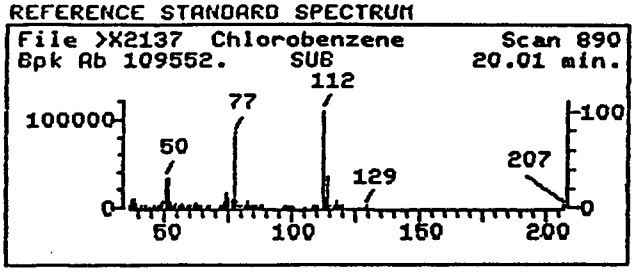
Quant Output File: ^X4107::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

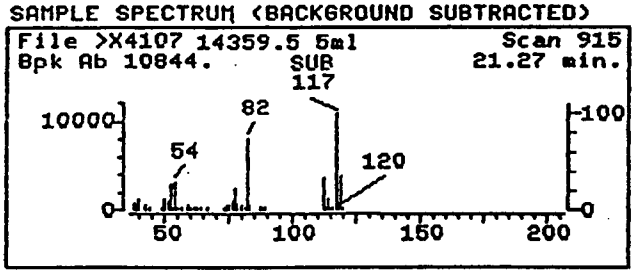
Compound No: 17
Compound Name: Chloroform
Scan Number: 487
Retention Time: 12.91 min.
Quant Ion: 83.0
Area: 6509
Concentration: .95 ppb
q-value: 78

Reference 38 28/105

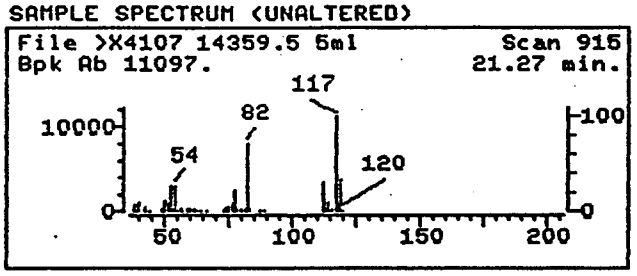
REFERENCE STANDARD SPECTRUM

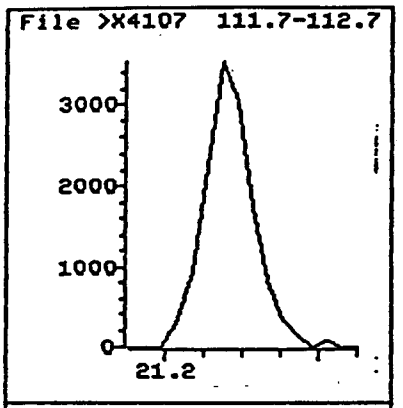


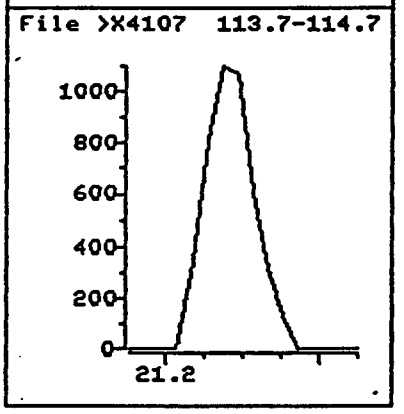
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4107::D1
Name: 14359.5 5ml
Misc: 14359.5 5ml
Quant Time: 941220 14:26
Injected at: 941220 13:47

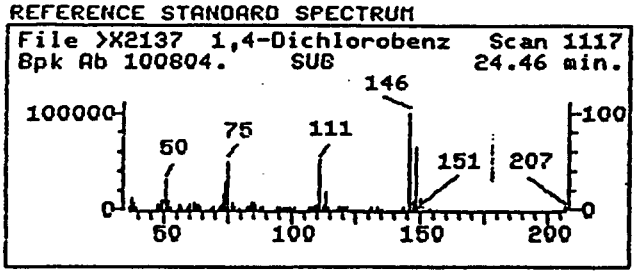
Quant Output File: ^X4107::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

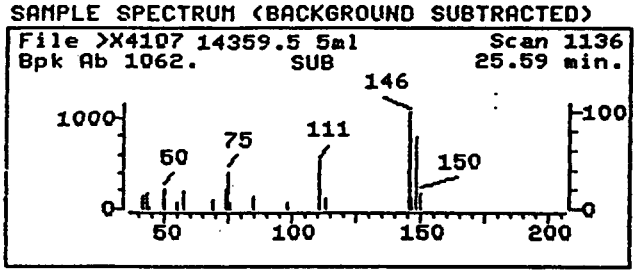
Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 915
Retention Time: 21.27 min.
Quant Ion: 112.0
Area: 15441
Concentration: 2.08 ppb
q-value: 98

Reference 35 29/105

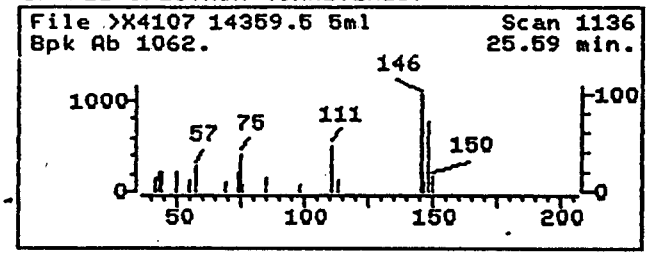
REFERENCE STANDARD SPECTRUM

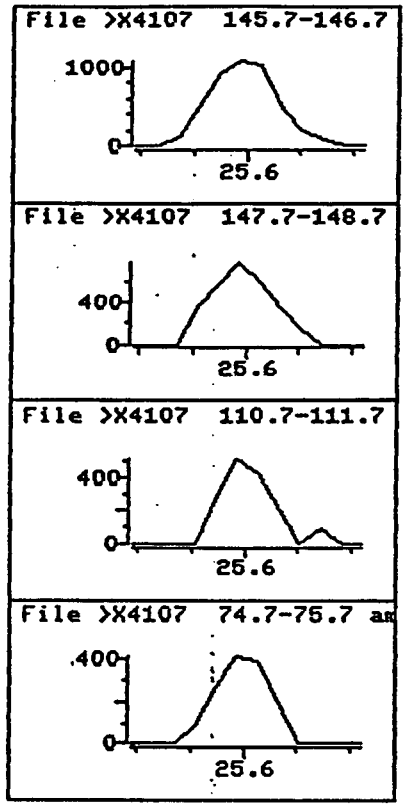


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4107::D1
Name: 14359.5 5ml
Misc: 14359.5 5ml
Quant Time: 941220 14:26
Injected at: 941220 13:47

Quant Output File: ^X4107::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1136
Retention Time: 25.59 min.
Quant Ion: 146.0
Area: 5055
Concentration: .69 ppb
q-value: 87

Reference 35 30/105

MW-6

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.6 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4106	DATE ANALYZED	12/20/94

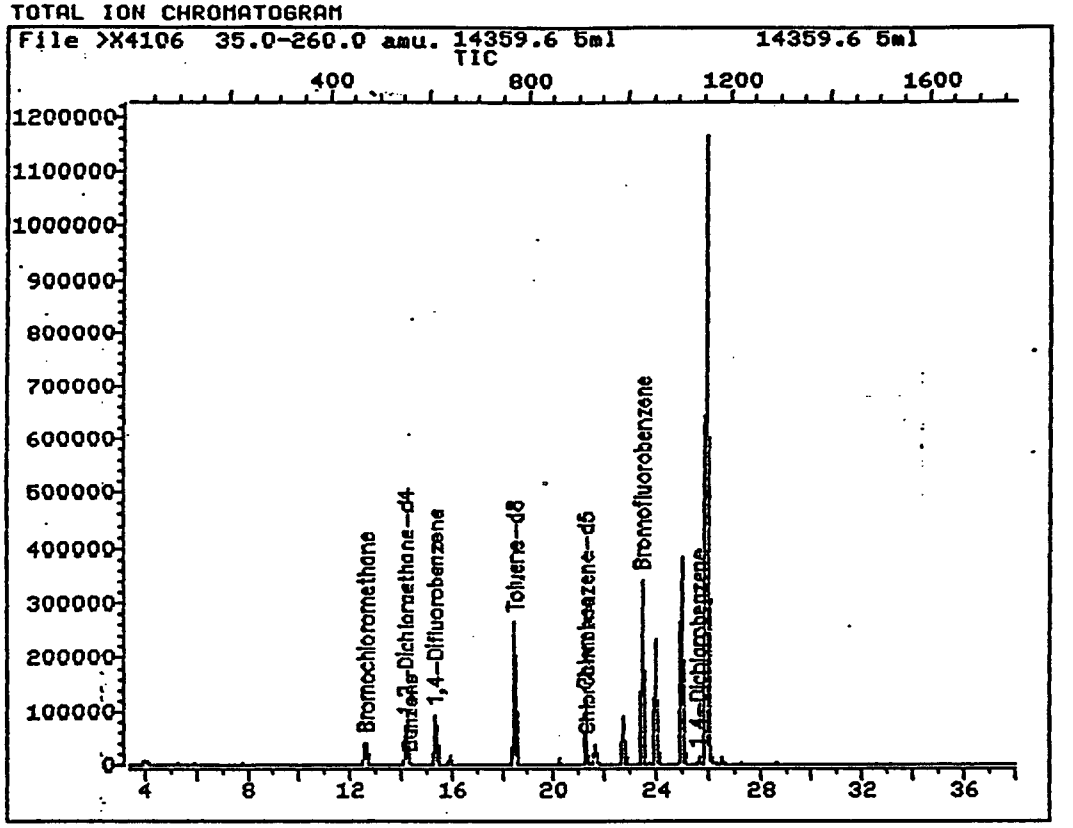
Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	1	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	4	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	2 J	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

28

Reference 38 31/105

TOTAL ION CHROMATOGRAM



Data File: >X4106::D1
Name: 14359.6 5ml
Misc: 14359.6 5ml

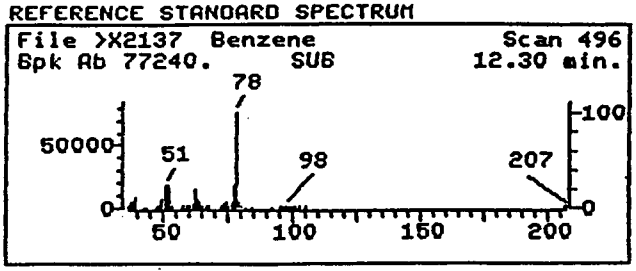
Quant Output File: ^X4106::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

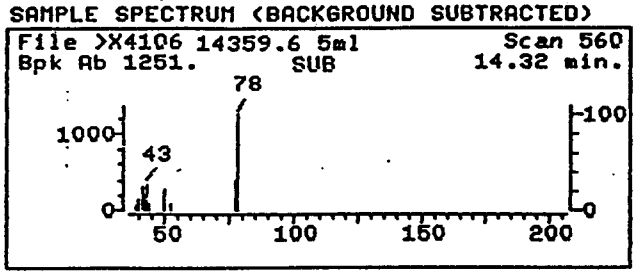
Operator ID: BOB
Quant Time: 941220 13:39
Injected at: 941220 13:00

Reference 38 32/105

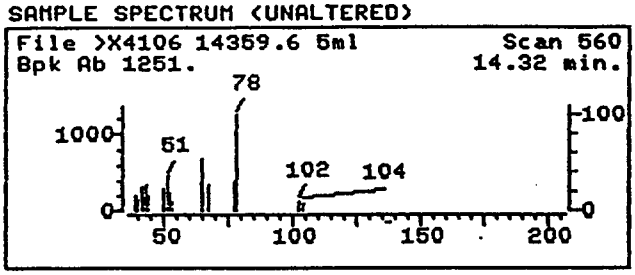
REFERENCE STANDARD SPECTRUM

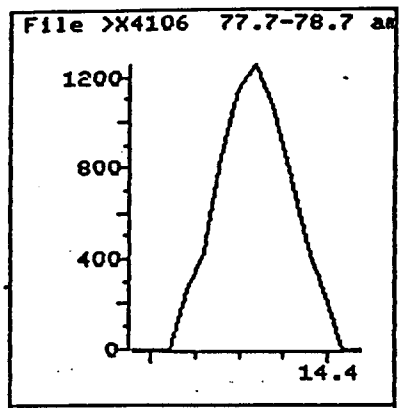


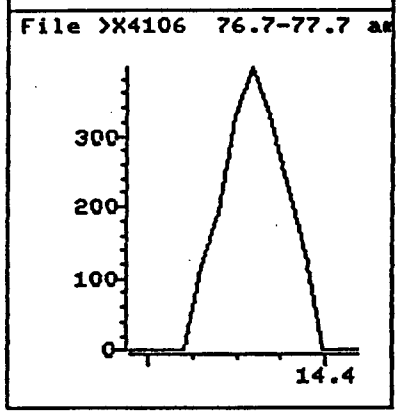
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4106::D1
Name: 14359.6 5ml
Misc: 14359.6 5ml
Quant Time: 941220 13:39
Injected at: 941220 13:00

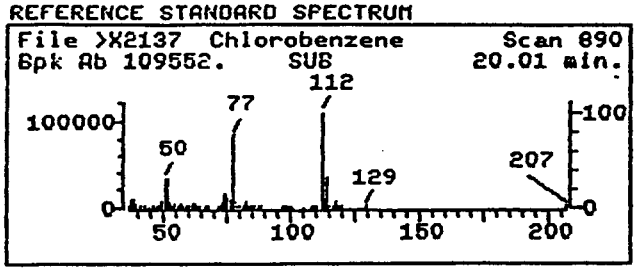
Quant Output File: ^X4106::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

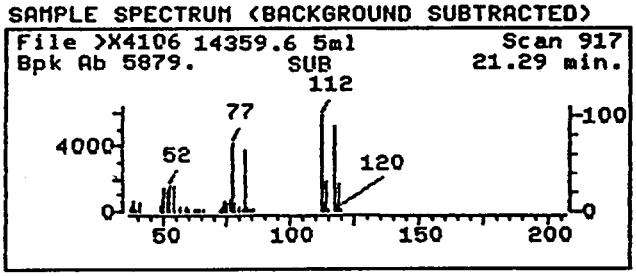
Compound No: 31
Compound Name: Benzene
Scan Number: 560
Retention Time: 14.32 min.
Quant Ion: 78.0
Area: 7523
Concentration: .96 ppb
q-value: 84

Reference 38 33/105

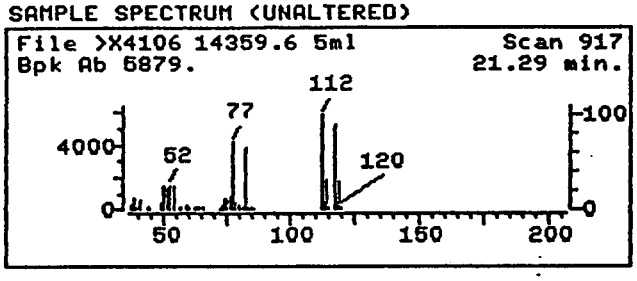
REFERENCE STANDARD SPECTRUM

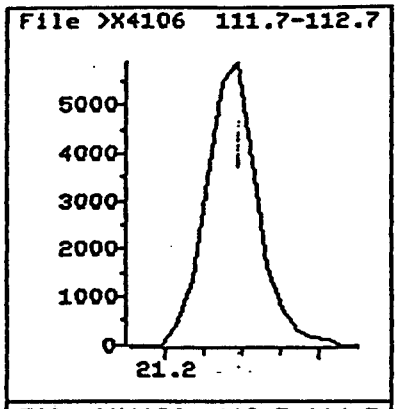


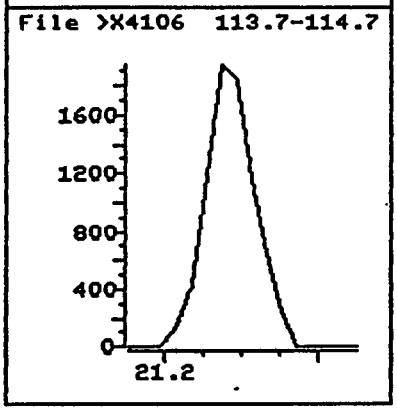
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >X4106::D1
Name: 14359.6 5ml
Misc: 14359.6 5ml
Quant Time: 941220 13:39
Injected at: 941220 13:00

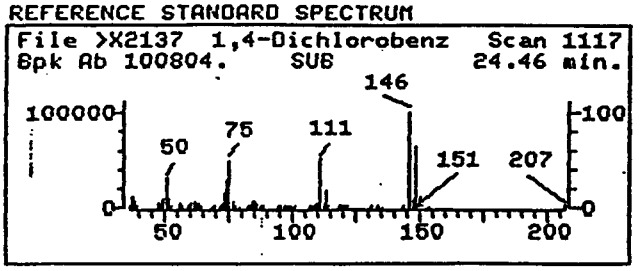
Quant Output File: ^X4106::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

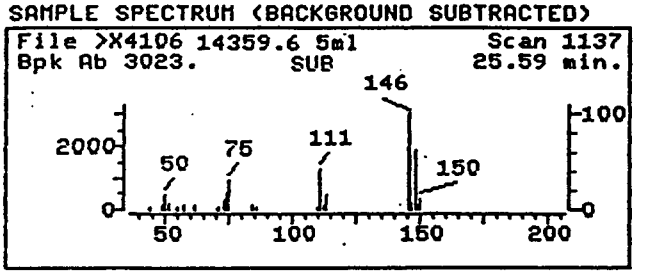
Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 917
Retention Time: 21.29 min.
Quant Ion: 112.0
Area: 27273
Concentration: 3.69 ppb
q-value: 98

Reference 35 34/105

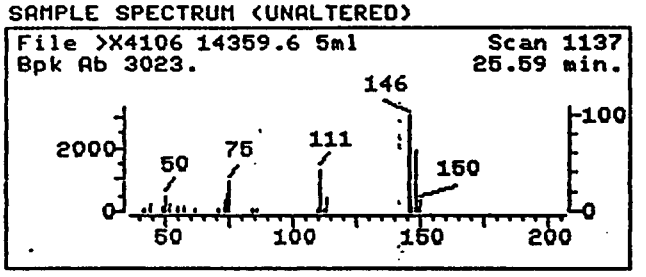
REFERENCE STANDARD SPECTRUM

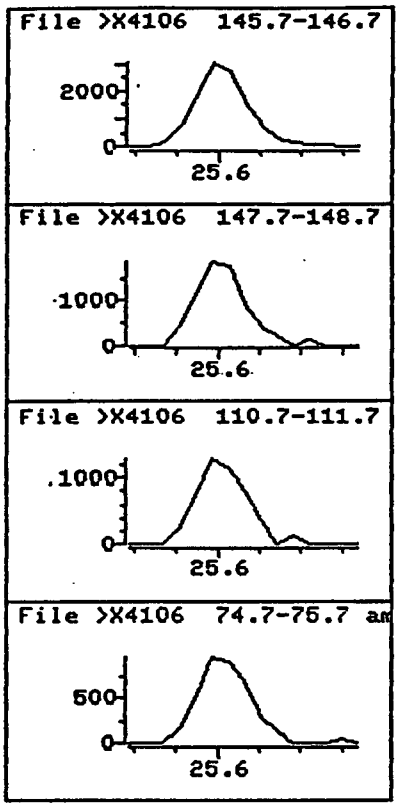


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4106::D1
Name: 14359.6 5ml
Misc: 14359.6 5ml
Quant Time: 941220 13:39
Injected at: 941220 13:00

Quant Output File: ^X4106::DB
Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1137
Retention Time: 25.59 min.
Quant Ion: 146.0
Area: 13662
Concentration: 1.87 ppb
q-value: 94

Reference 35/105

MW-7

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

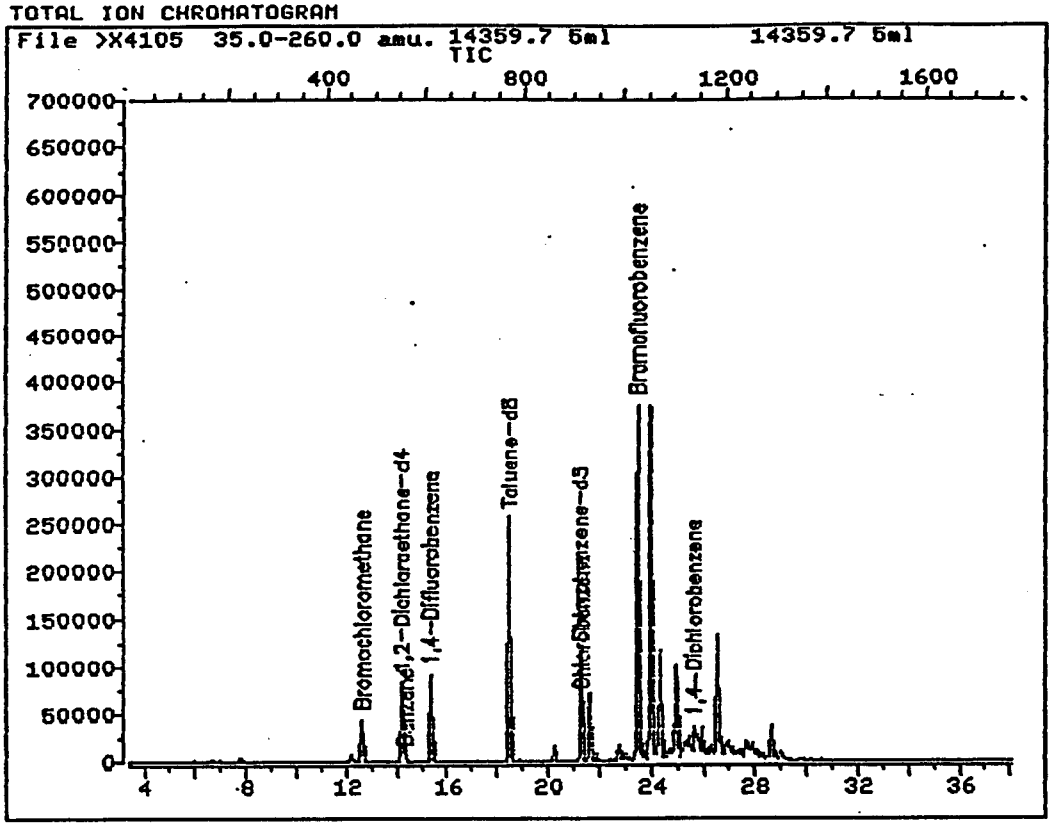
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.7 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4105	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	1 J	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	5	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	2 J	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 38 36/105

TOTAL ION CHROMATOGRAM



Data File: >X4105::D1
Name: 14359.7 5ml
Misc: 14359.7 5ml

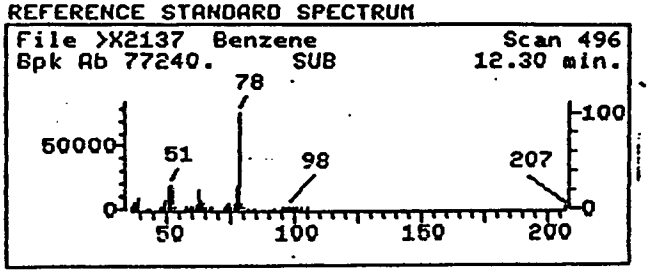
Quant Output File: ^X4105::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

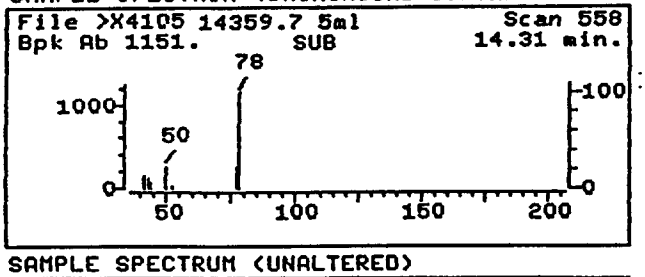
Operator ID: BOB
Quant Time: 941220 12:52
Injected at: 941220 12:13

Reference 38 37/105

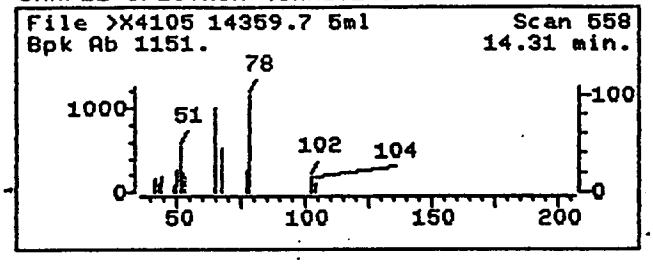
REFERENCE STANDARD SPECTRUM

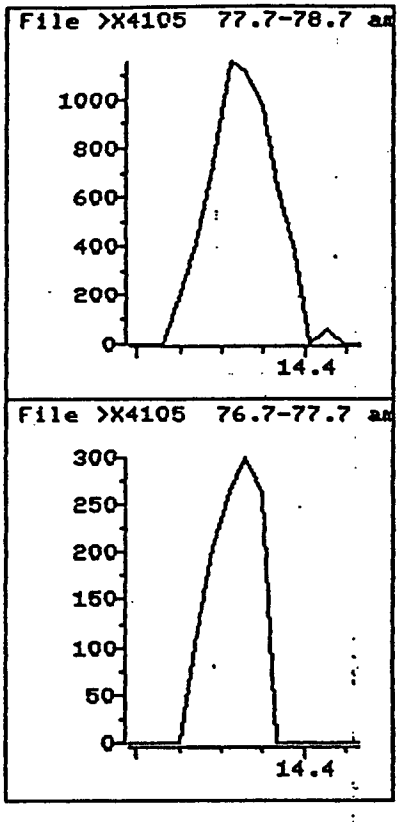


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4105::D1
Name: 14359.7 5ml
Misc: 14359.7 5ml
Quant Time: 941220 12:52
Injected at: 941220 12:13

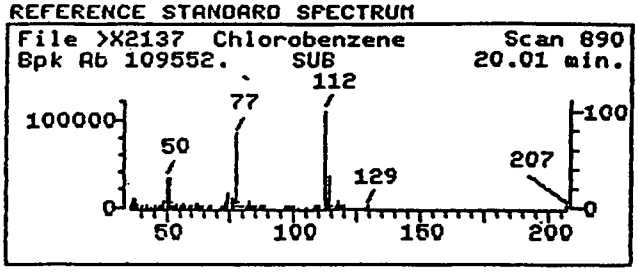
Quant Output File: ^X4105::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

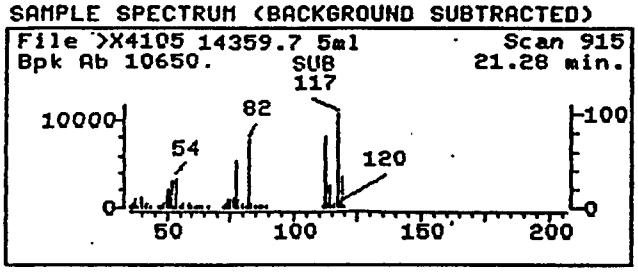
Compound No: 31
Compound Name: Benzene
Scan Number: 558
Retention Time: 14.31 min.
Quant Ion: 78.0
Area: 6660
Concentration: .82 ppb
q-value: 97

Reference 38 38/105

REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



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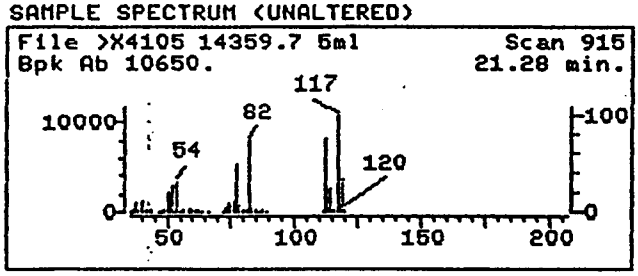
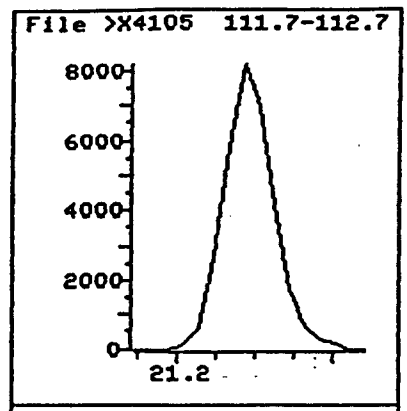
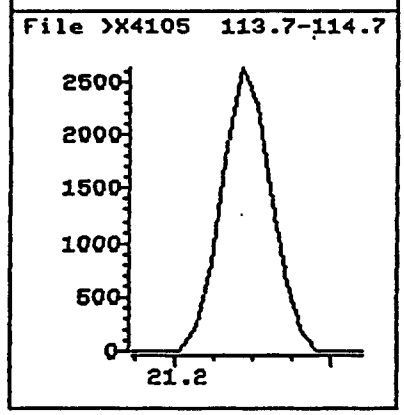






Data File: >X4105::D1
Name: 14359.7 5ml
Misc: 14359.7 5ml
Quant Time: 941220 12:52
Injected at: 941220 12:13

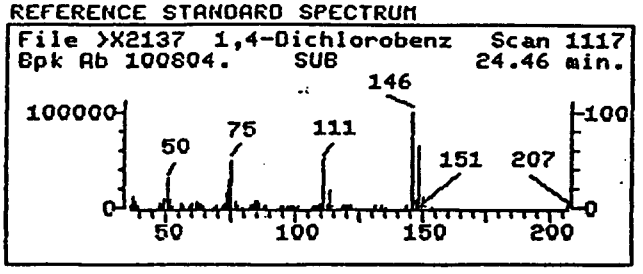
Quant Output File: ^X4105::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

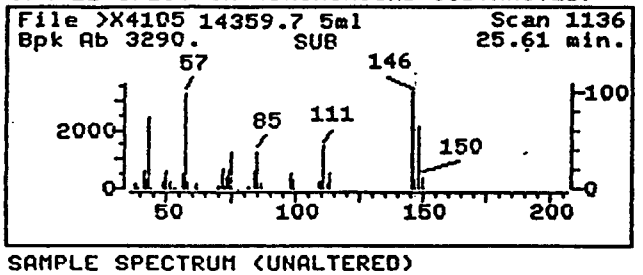
Compound No: 42
Compound Name: Chlorobenzene
Scan Number: 915
Retention Time: 21.28 min.
Quant Ion: 112.0
Area: 36714
Concentration: 4.73 ppb
q-value: 99

Reference 38 39/105

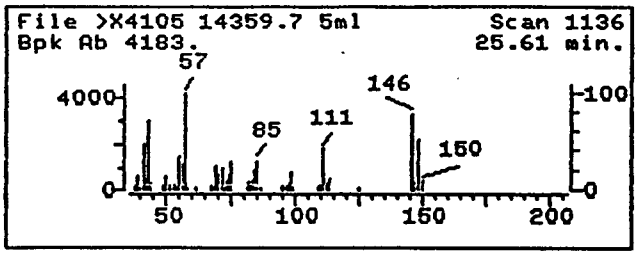
REFERENCE STANDARD SPECTRUM

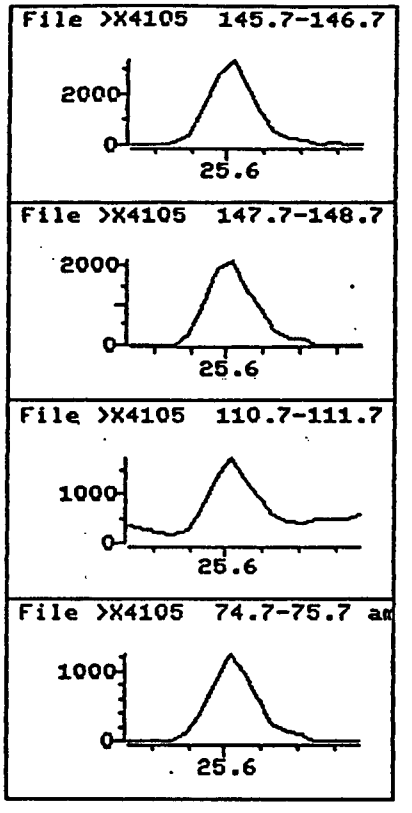


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >X4105::D1
Name: 14359.7 5ml
Misc: 14359.7 5ml
Quant Time: 941220 12:52
Injected at: 941220 12:13

Quant Output File: ^X4105::DB

Quant ID File: IDVOA::D2
Last Calibration: 941216 11:46

Compound No: 48
Compound Name: 1,4-Dichlorobenzene
Scan Number: 1136
Retention Time: 25.61 min.
Quant Ion: 146.0
Area: 14716
Concentration: 1.92 ppb
q-value: 89

Reference 35 40/105

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

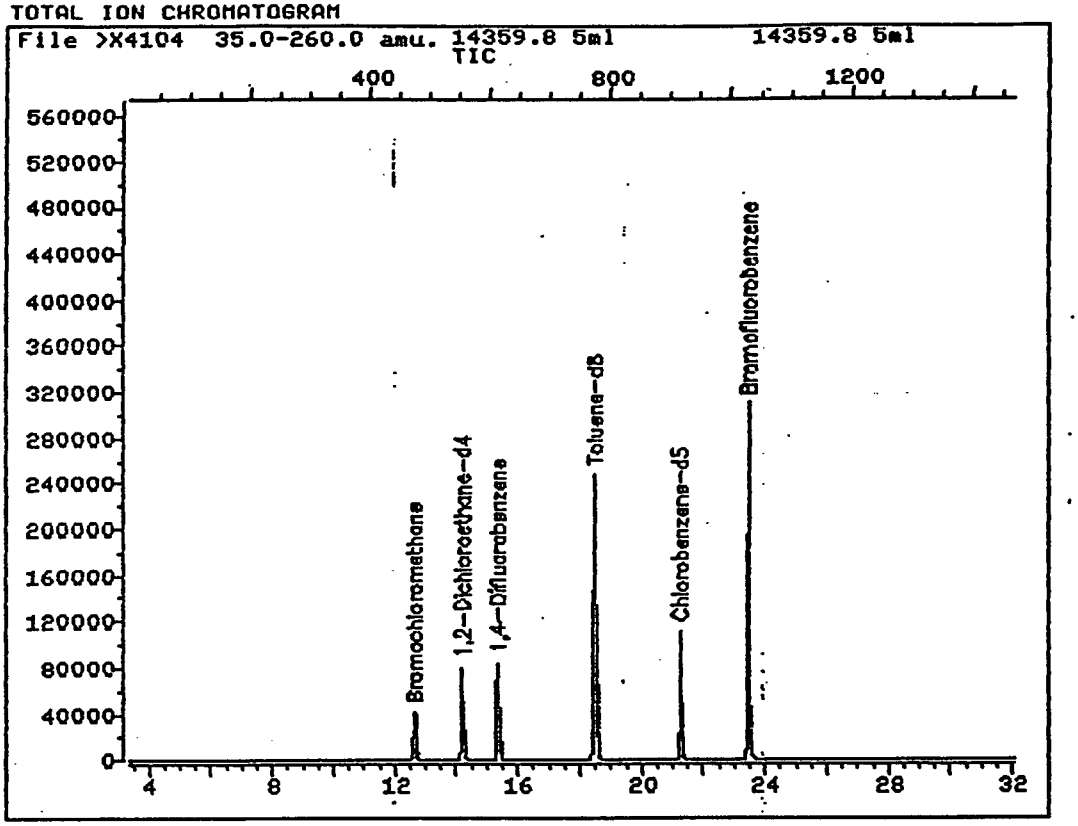
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.8 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4104	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 38 941105

TOTAL ION CHROMATOGRAM



Data File: >X4104::D1
Name: 14359.8 5ml
Misc: 14359.8 5ml

Quant Output File: ^X4104::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941220 12:07
Injected at: 941220 11:34

Reference 35 42/105

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

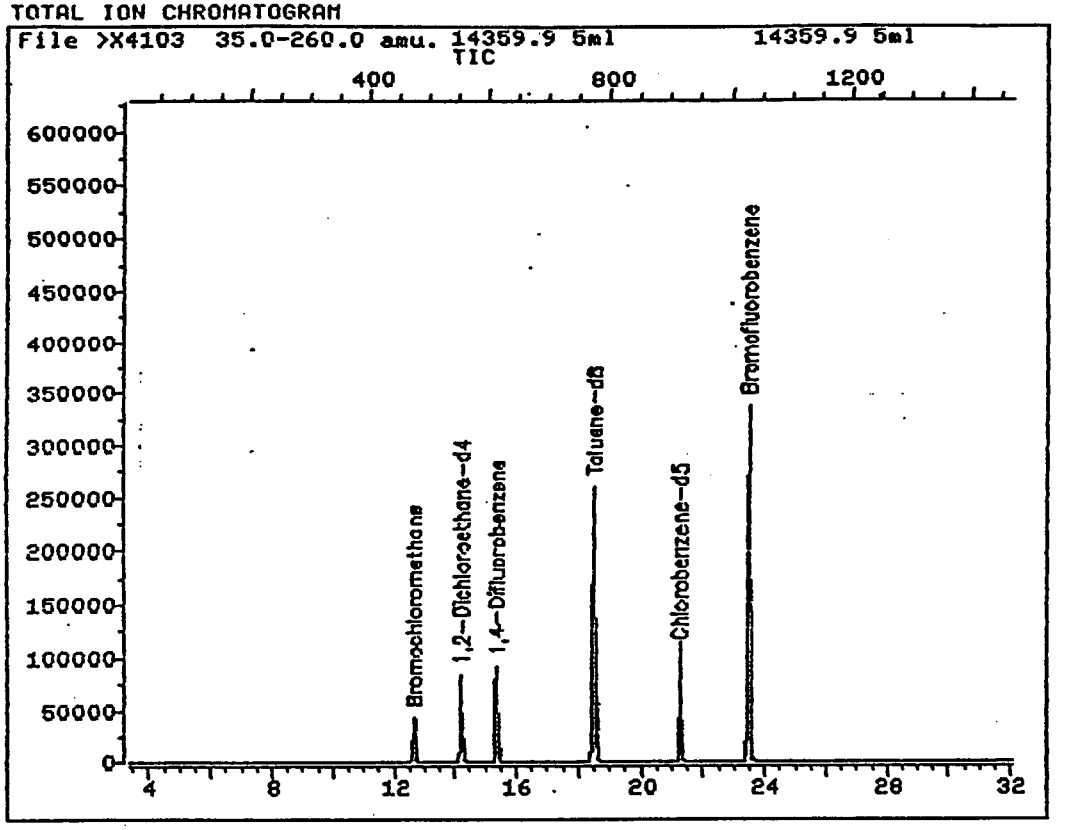
PROJECT	14359	MATRIX	Water
SAMPLE ID	14359.9 5ml	DILUTION FACTOR	1.00
CLIENT NAME	Twp of Lakewood	DATE RECEIVED	12-19-94
DATA FILE	>X4103	DATE ANALYZED	12/20/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 35 43/105

TOTAL ION CHROMATOGRAM



Data File: >X4103::D1
Name: 14359.9 5ml
Misc: 14359.9 5ml

Quant Output File: ^X4103::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941220 11:28
Injected at: 941220 10:55

Reference 38 44/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.1 5mL

Lab Name: Environmental Profile Lab | NJDEP Cert.# 15526

Matrix: Water

Sample wt/vol: 5.0 (g/mL) mL

Level: (low/med) LOW

Column: Capillary

Lab Sample ID: 14359.1 5mL

Lab File ID: >X4111

Date Received: 12-19-94

Date Analyzed: 12/20/94

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.2 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.2 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4110

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

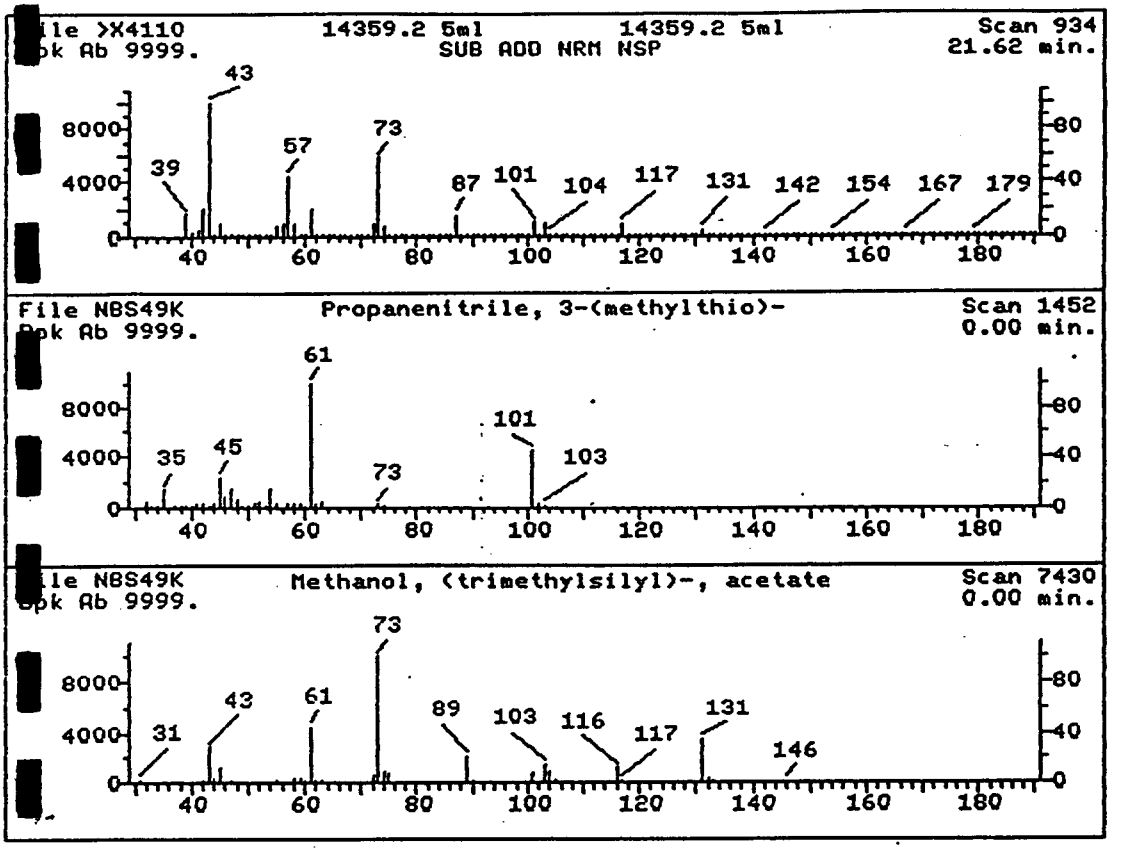
Number of TICs found: 5

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1		Unknown	21.62	2	
2	2568903	Butane, 1,1'-[methylenebis(o	23.96	11	78
3	34180115	Propane, 1-(chloromethoxy)-2	24.96	8	76
4	54518046	Methanol, dibutoxy-	25.92	14	78
5	300572	Benzene, 2-propenyl-	26.05	2	39

FORM I VOA-TIC 1/87 Rev

Reference 35 46/105



UNKNOWN #,1
REA = 65486.00 TENTATIVE CONCENTRATION IS 2.00

1. Propanenitrile, 3-(methylthio)- 101 C4H7NS
2. Methanol, (trimethylsilyl)-, acetate 146 C6H14O2Si

Sample file: >X4110 Spectrum #: 934
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.	25*	54974639	2207	NBS49K	30	51	3	0	20	48	7	14
2.	15*	2917659	2253	NBS49K	34	58	2	0	44	59	3	16

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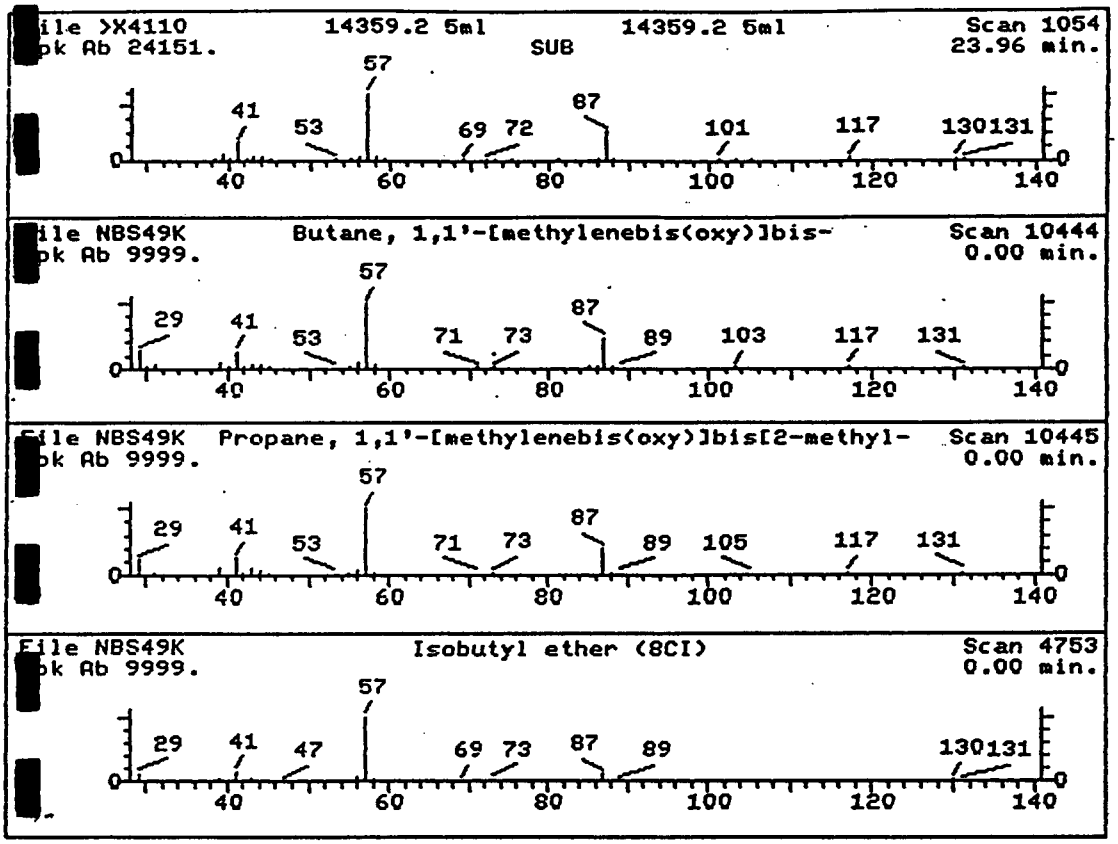

UNKNOWN #,2
REA = 291364.0 TENTATIVE CONCENTRATION IS 11.00

1.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
2.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2
3.	Isobutyl ether (8CI)	130	C8H18O
4.	Morpholine	87	C4H9NO
5.	Propanamide, N-methyl-	87	C4H9NO

Sample file: >X4110 Spectrum #: 1054
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IO
1.	78	2568903	7403	NBS49K	45	37	1	0	69	5	55	16
2.	70	2568914	7404	NBS49K	35	46	2	0	100	6	42	12
3.	40*	628557	7313	NBS49K	41	31	1	0	88	32	16	23
4.	28*	110918	7215	NBS49K	32	68	2	0	61	40	10	14
5.	20*	1187582	7221	NBS49K	22	63	2	0	62	52	5	13

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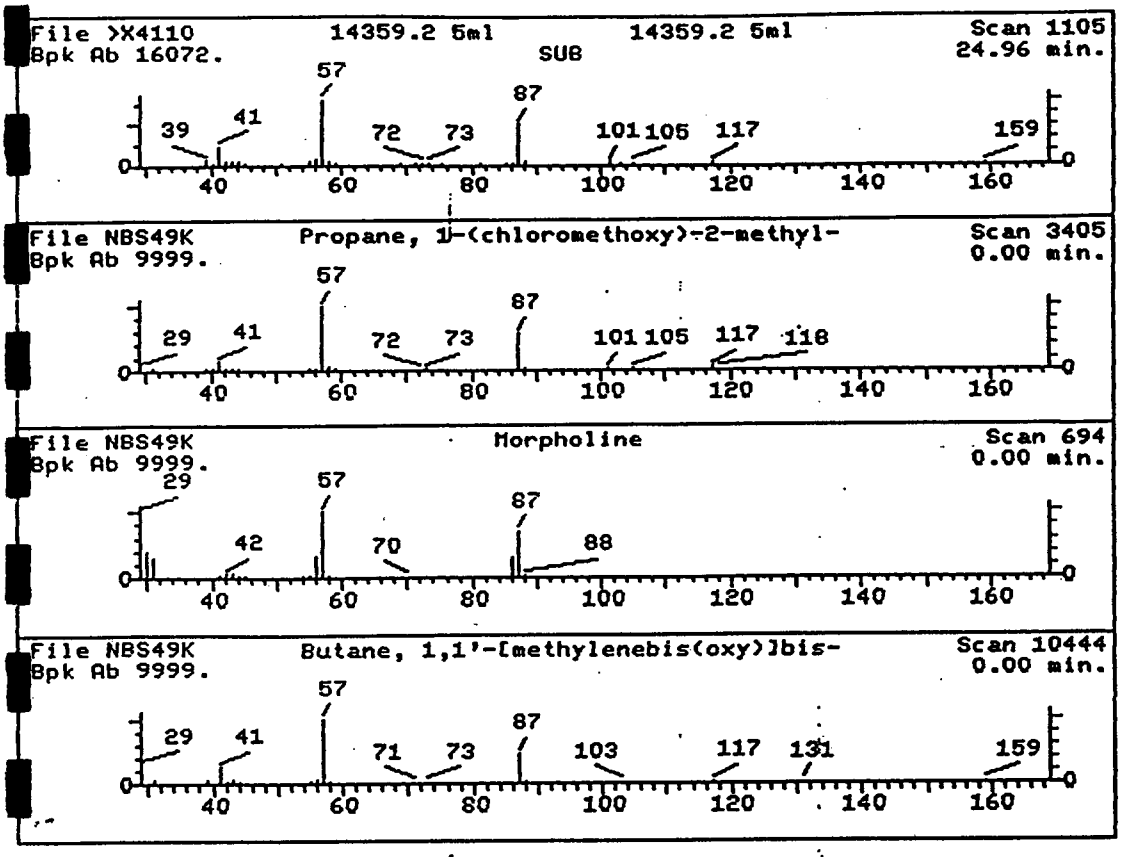

UNKNOWN #,3
AREA = 211743.0 TENTATIVE CONCENTRATION IS 8.00

1.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
2.	Morpholine	87	C4H9NO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	Propanamide, N-methyl-	87	C4H9NO
5.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >X4110 Spectrum #: 1105
Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	76	34180115	7279	NBS49K	45	30	0	0	83	10	45	26
2.	60*	110918	7215	NBS49K	35	65	2	0	89	13	30	14
3.	52	2568903	7403	NBS49K	50	32	1	0	82	18	20	19
4.	20*	1187582	7221	NBS49K	33	52	1	0	73	55	5	18
5.	11*	3376350	7220	NBS49K	28	62	2	0	62	65	2	14

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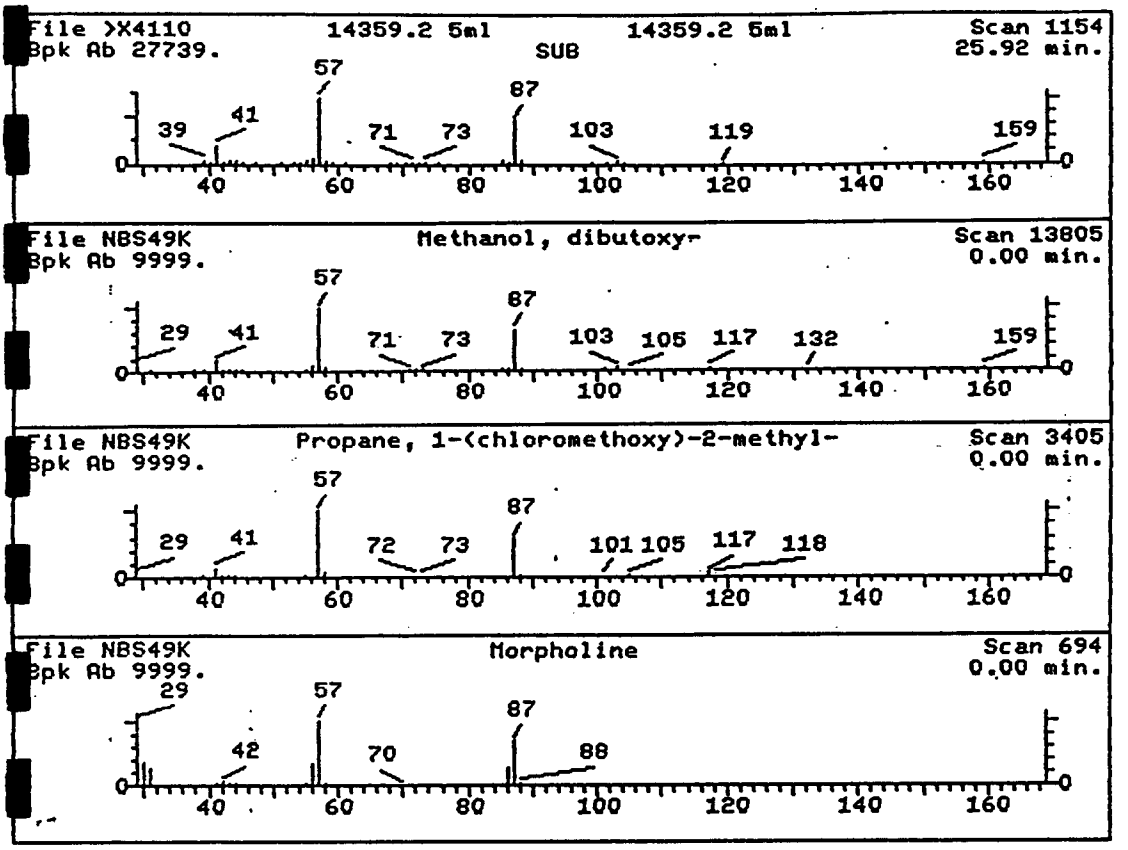

UNKNOWN #,4
AREA = 381369.0 TENTATIVE CONCENTRATION IS 14.00

1.	Methanol, dibutoxy-	176	C9H2003
2.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11C10
3.	Morpholine	87	C4H9NO
4.	Propanamide, N-methyl-	87	C4H9NO

Sample file: >X4110 Spectrum #: 1154
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.	78	54518046	7443	NBS49K	57	31	2	0	100	1	55	19
2.	60	34180115	7279	NBS49K	39	36	2	0	100	12	30	13
3.	52*	110918	7215	NBS49K	30	70	2	0	95	16	20	14
4.	25*	1187582	7221	NBS49K	20	65	2	0	97	50	7	13

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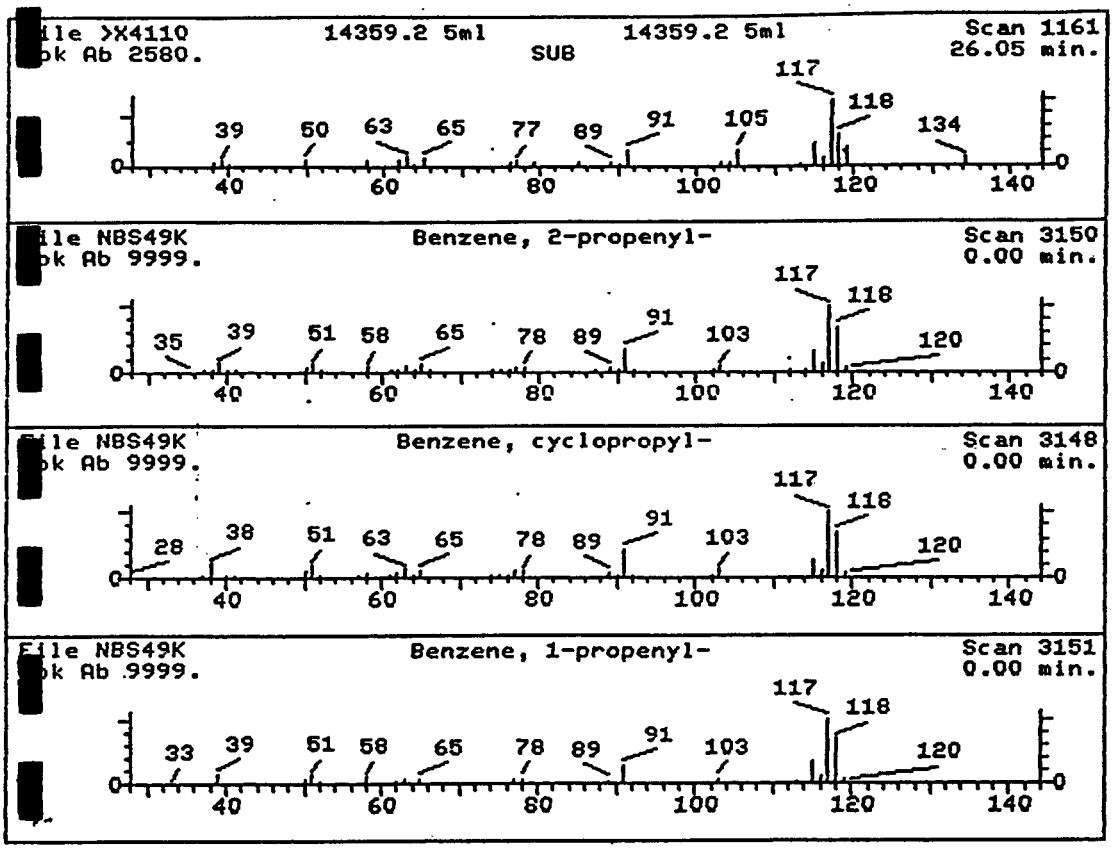

UNKNOWN #,5
REA = 61507.00 TENTATIVE CONCENTRATION IS 2.00

1.	Benzene, 2-propenyl-	118	C9H10
2.	Benzene, cyclopropyl-	118	C9H10
3.	Benzene, 1-propenyl-	118	C9H10
4.	1H-Indene, 2,3-dihydro-	118	C9H10
5.	1H-Indole	117	C8H7N
6.	Tricyclo[3.2.1.02,4]oct-6-ene, 8-methylene-, (1.alpha.,2.alpha.,4.alpha.,5.alpha.)-	118	C9H10

Sample file: >X4110 Spectrum #: 1161
earch 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.	39*	300572	13344	NBS49K	49	48	3	0	69	30	14	16
2.	36*	873494	13342	NBS49K	49	61	3	0	68	30	14	13
3.	36*	637503	13345	NBS49K	37	61	3	0	69	30	14	13
4.	25*	496117	13350	NBS49K	40	60	3	0	60	46	7	13
5.	25*	120729	13196	NBS49K	24	65	3	0	100	48	7	12
6.	20*	66929906	13199	NBS49K	20	34	2	0	85	53	5	13

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.3 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.3 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4109

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 3

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	1002433	Undecane, 3-methyl-	24.31	4	78
2	1120214	Undecane	26.50	9	88
3	629505	Tridecane	28.63	4	83

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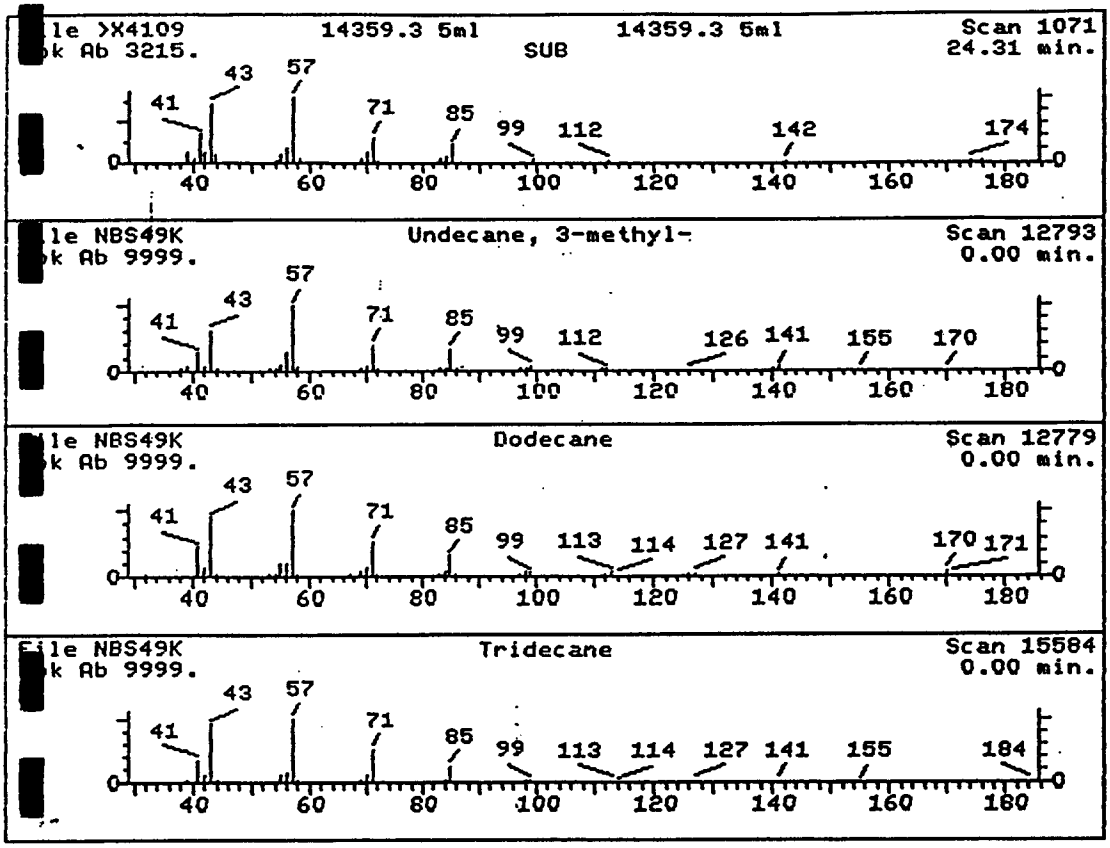

UNKNOWN #,1
REA = 68442.00 TENTATIVE CONCENTRATION IS 4.00

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

Sample file: >X4109 Spectrum #: 1071
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.	78	1002433	6739	NBS49K	42	46	2	0	75	5	55	13
2.	78	112403	6732	NBS49K	69	30	2	3	83	4	55	17
3.	70	629505	6761	NBS49K	59	47	2	0	75	9	42	13
4.	70	1120214	6682	NBS49K	52	45	2	0	91	9	42	14
5.	70	62016379	6679	NBS49K	43	42	2	0	100	10	42	14
6.	43*	15869893	9754	NBS49K	40	52	3	0	100	22	17	14

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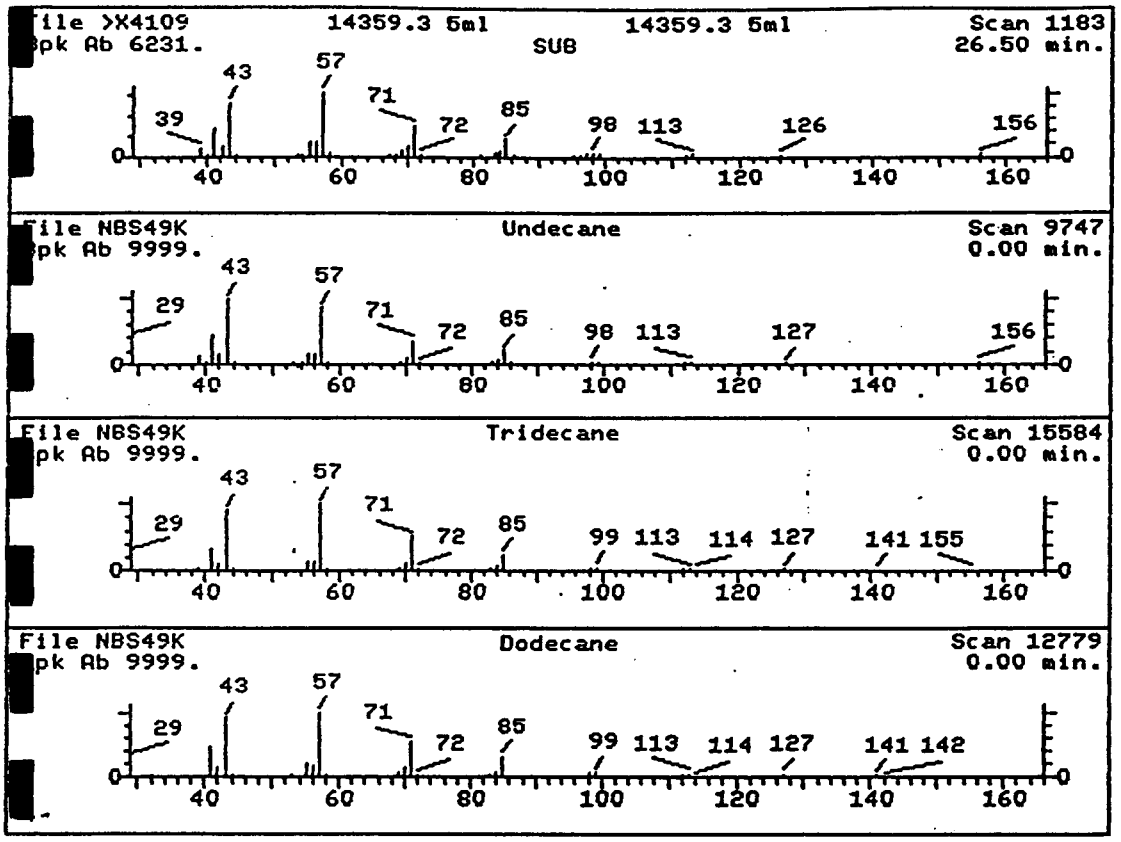

UNKNOWN #,2
AREA = 147580.0 TENTATIVE CONCENTRATION IS 9.00

1.	Undecane	156	C11H24
2.	Tridecane	184	C13H28
3.	Dodecane	170	C12H26
4.	Nonane, 4,5-dimethyl-	156	C11H24
5.	Decane, 2,9-dimethyl-	170	C12H26
6.	Tetradecane	198	C14H30

Sample file: >X4109 Spectrum #: 1183
Search speed: 1 Tilting option: F No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	88*	1120214	6682	NBS49K	70	27	2	0	96	1	65	53
2.	83	629505	6761	NBS49K	70	36	2	0	92	4	57	23
3.	83	112403	6732	NBS49K	63	36	2	0	87	4	57	22
4.	70*	17302237	6683	NBS49K	35	70	3	0	80	6	42	13
5.	70	1002171	6738	NBS49K	58	34	3	0	84	9	42	17
6.	70	629594	6804	NBS49K	63	45	2	0	91	8	42	14

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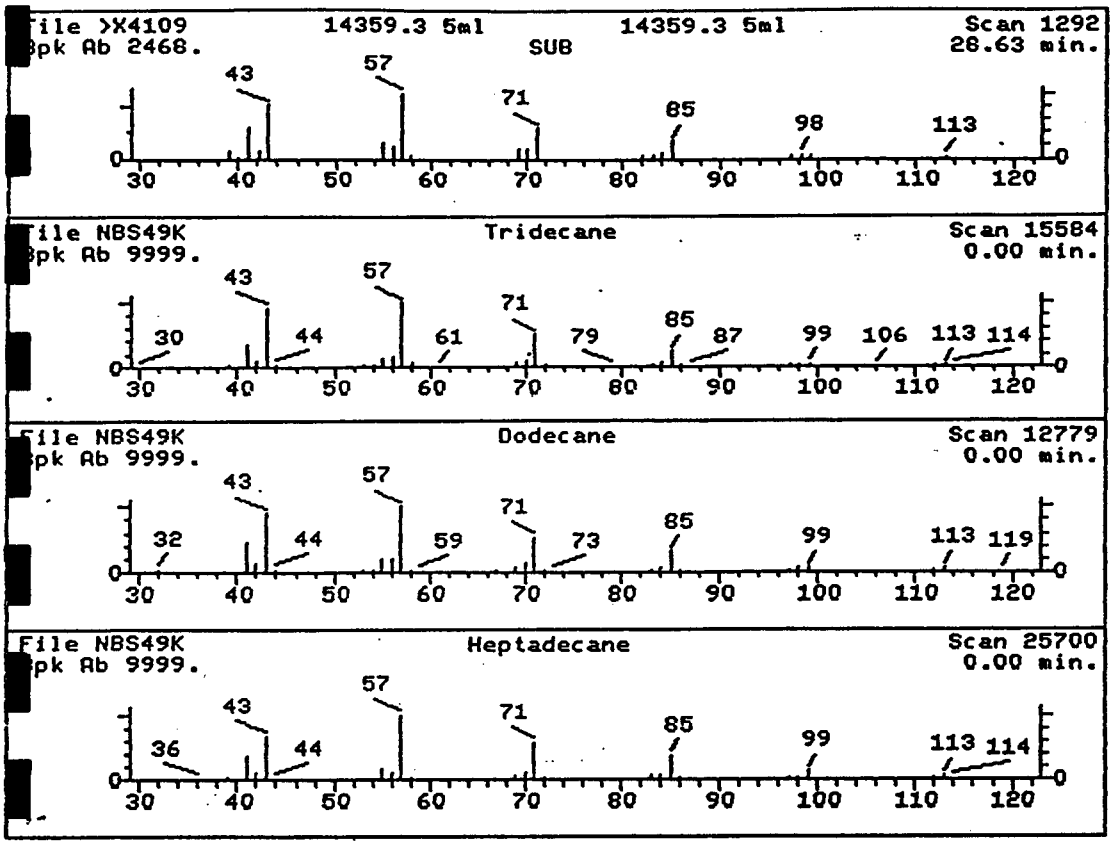

UNKNOWN #,3
AREA = 63509.00 TENTATIVE CONCENTRATION IS 4.00

1.	Tridecane	184	C13H28
2.	Dodecane	170	C12H26
3.	Heptadecane	240	C17H36
4.	Hexacosane	366	C26H54
5.	Tetradecane	198	C14H30
6.	Heptadecane, 2,6-dimethyl-	268	C19H40

Sample file: >X4109 Spectrum #: 1292
Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	83	629505	6761	NBS49K	72	34	2	0	90	4	57	24
2.	83	112403	6732	NBS49K	63	36	2	0	84	5	57	22
3.	78	629787	6846	NBS49K	60	61	2	0	69	2	55	12
4.	78	630013	6903	NBS49K	68	74	2	0	79	5	55	15
5.	78	629594	6804	NBS49K	66	42	2	1	92	4	55	14
6.	60	54105678	4437	NBS49K	63	55	2	0	75	15	30	13

Reference 38 55/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.4 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.4 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4108

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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Reference 35 56/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.5 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.5 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4107

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

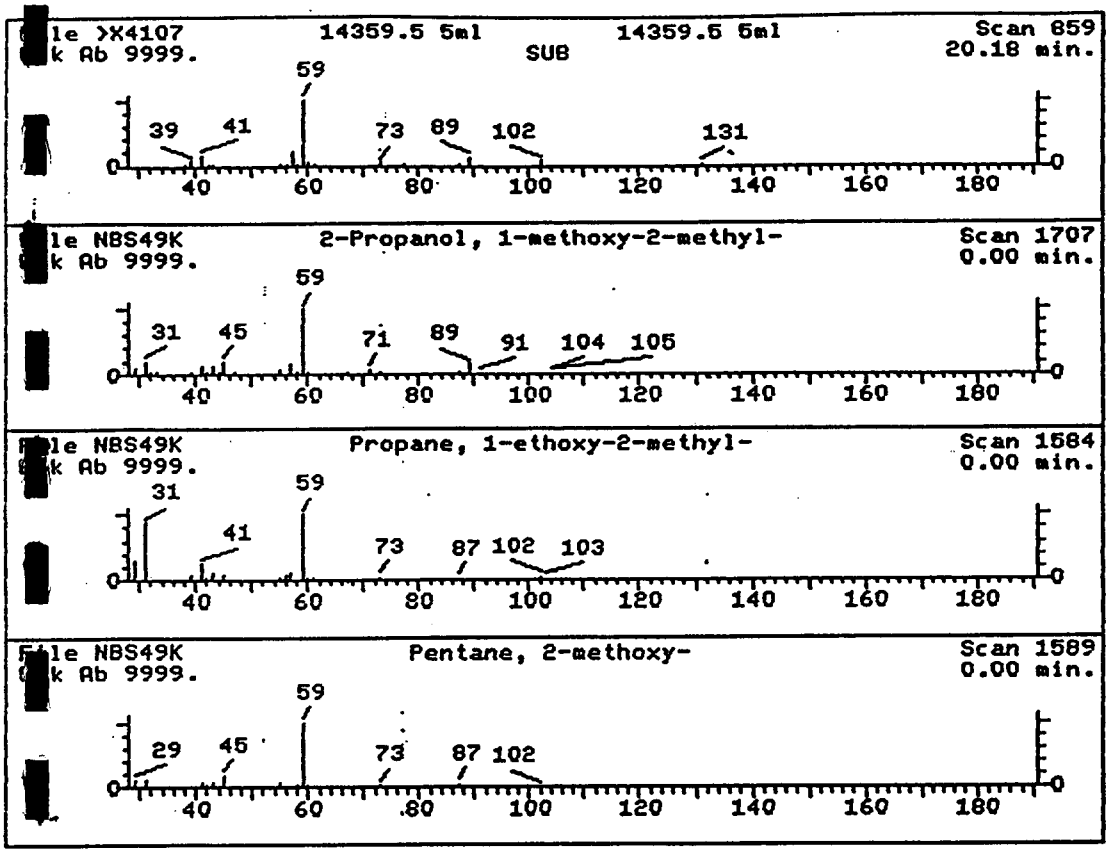
Number of TICs found: 7

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	3587642	2-Propanol, 1-methoxy-2-meth	20.18	3	52
2	822833	1,3-Dioxolane, 2-(1-methylet	21.63	8	31
3	2568903	Butane, 1,1'-[methylenebis(o	22.72	5	25
4	54518046	Methanol, dibutoxy-	23.97	180	78
5	34180115	Propane, 1-(chloromethoxy)-2	24.97	38	79
6	54518046	Methanol, dibutoxy-	25.93	67	86
7	112403	Dodecane	26.51	6	76

FORM I VOA-TIC 1/87 Rev

Reference 38 57/105



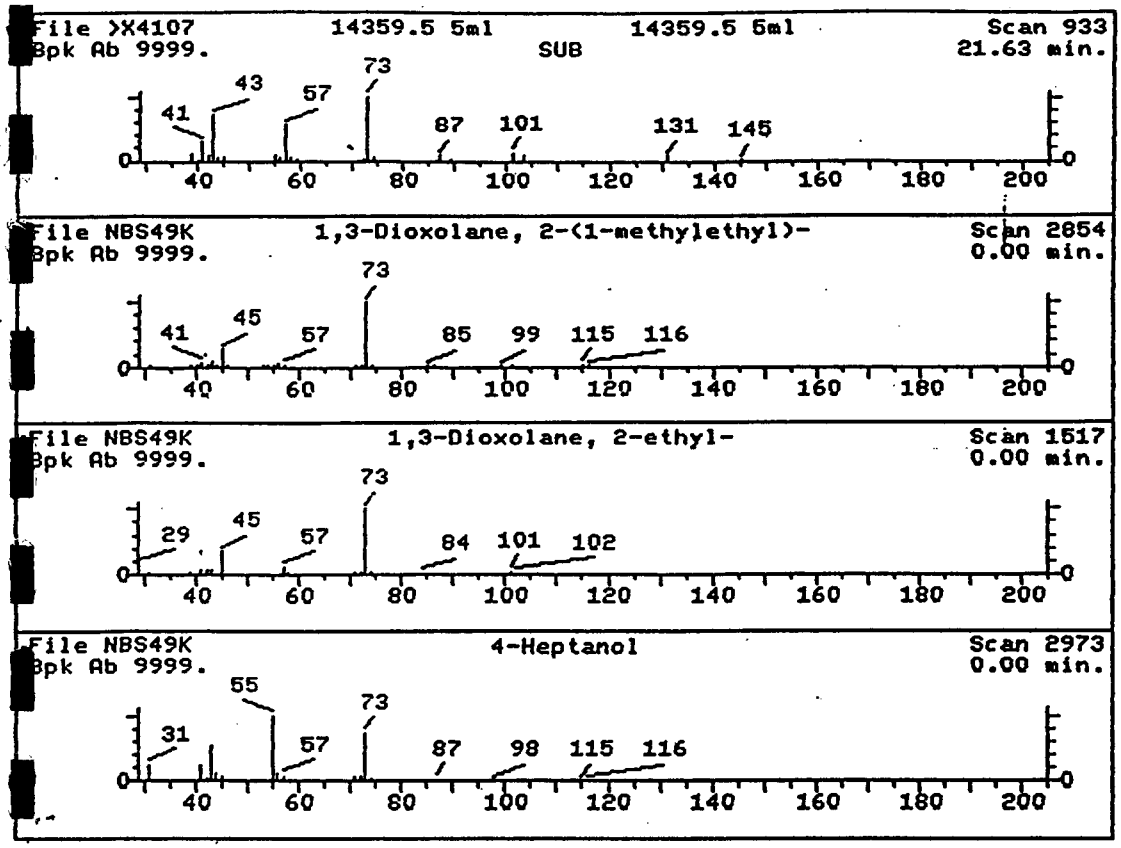
UNKNOWN #,1
REA = 59580.00 TENTATIVE CONCENTRATION IS 3.00

1.	2-Propanol, 1-methoxy-2-methyl-	104 C5H12O2
2.	Propane, 1-ethoxy-2-methyl-	102 C6H14O
3.	Pentane, 2-methoxy-	102 C6H14O
4.	Butane, 1-ethoxy-	102 C6H14O
5.	3-Hydroxy-2-pentanone	102 C5H10O2
6.	Propanoic acid, 2-hydroxy-2-methyl-, methyl ester	118 C5H10O3

Sample file: >X4107 Spectrum #: 859
Search speed: 1 Tilting option: F No. of ion ranges searched: 42

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	52*	3587642	1774	NBS49K	36	55	2	0	85	17	20	18
2.	44*	627021	1763	NBS49K	31	60	2	0	100	21	17	15
3.	43*	6795886	1765	NBS49K	28	53	2	0	100	23	17	14
4.	43*	628819	1764	NBS49K	25	67	2	0	96	23	17	14
5.	42*	3142663	1751	NBS49K	20	80	2	0	108	23	17	13
6.	41*	2110783	1812	NBS49K	34	56	1	0	72	26	14	18

Reference 35 58/105



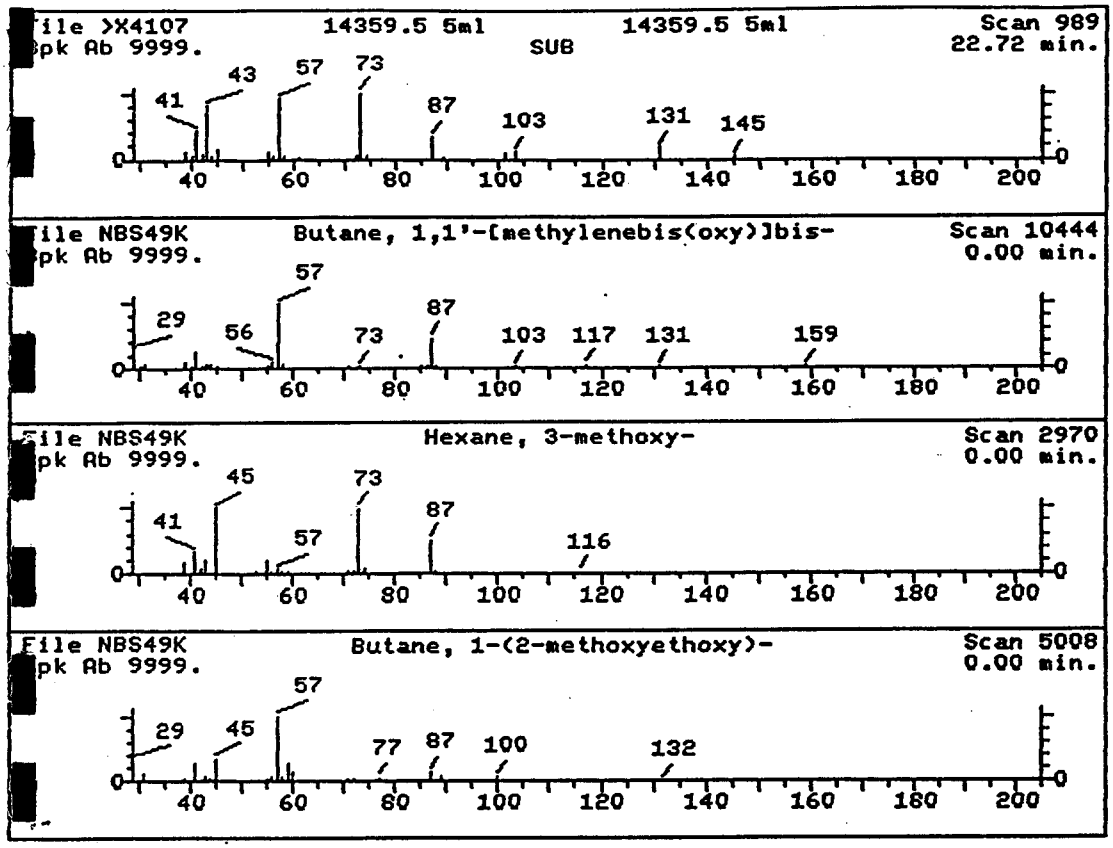
UNKNOWN #,2
AREA = 144917.0 TENTATIVE CONCENTRATION IS 8.00

1.	1,3-Dioxolane, 2-(1-methylethyl)-	116	C6H12O2
2.	1,3-Dioxolane, 2-ethyl-	102	C5H10O2
3.	4-Heptanol	116	C7H16O
4.	1,3-Dioxolane, 2-propyl-	116	C6H12O2
5.	2-Butanone, 3-methoxy-3-methyl-	116	C6H12O2
6.	Silane, 9H-fluoren-9-yltrimethyl-	238	C16H18Si

Sample file: >X4107 Spectrum #: 933
Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IO
1.	31	822833	4811	NBS49K	37	45	1	0	95	34	12	14
2.	31*	2568969	4802	NBS49K	26	55	2	0	100	32	12	14
3.	31*	589559	4816	NBS49K	26	64	2	0	136	34	12	14
4.	31*	3390134	4814	NBS49K	46	37	2	4	100	44	8	19
5.	29	36687986	4812	NBS49K	25	29	0	0	79	34	12	12
6.	28	7385106	4839	NBS49K	45	51	1	0	71	36	10	14

Reference 35 59/105



UNKNOWN #,3

AREA = 94455.00 TENTATIVE CONCENTRATION IS 5.00

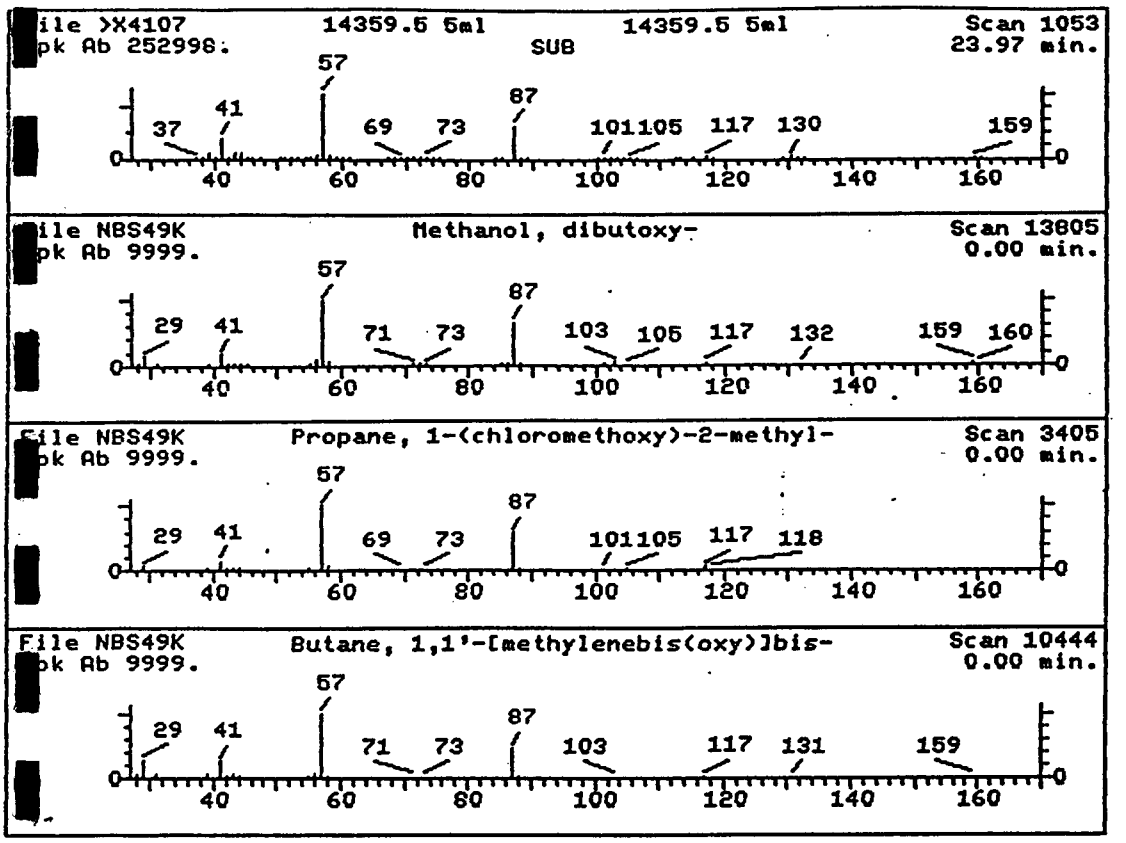
1.	Butane, 1,1'-[methylenebis(oxy)]bis-	160 C9H20O2
2.	Hexane, 3-methoxy-	116 C7H16O
3.	Butane, 1-(2-methoxyethoxy)-	132 C7H16O2
4.	1-Butene, 4-butoxy-	128 C8H16O
5.	1-Hexen-3-ol	100 C6H12O

Sample file: >X4107 Spectrum #: 989

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.	25	2568903	7403	NBS49K	40	42	1	0	74	50	7	14
2.	25*	54658014	7264	NBS49K	40	45	2	0	70	50	7	19
3.	20*	13343981	7325	NBS49K	26	69	3	0	91	55	5	13
4.	15	34061762	7289	NBS49K	34	41	1	0	65	58	3	12
5.	11*	4798441	4499	NBS49K	29	51	2	0	91	62	2	14

Reference 35 60/105



UNKNOWN #,4

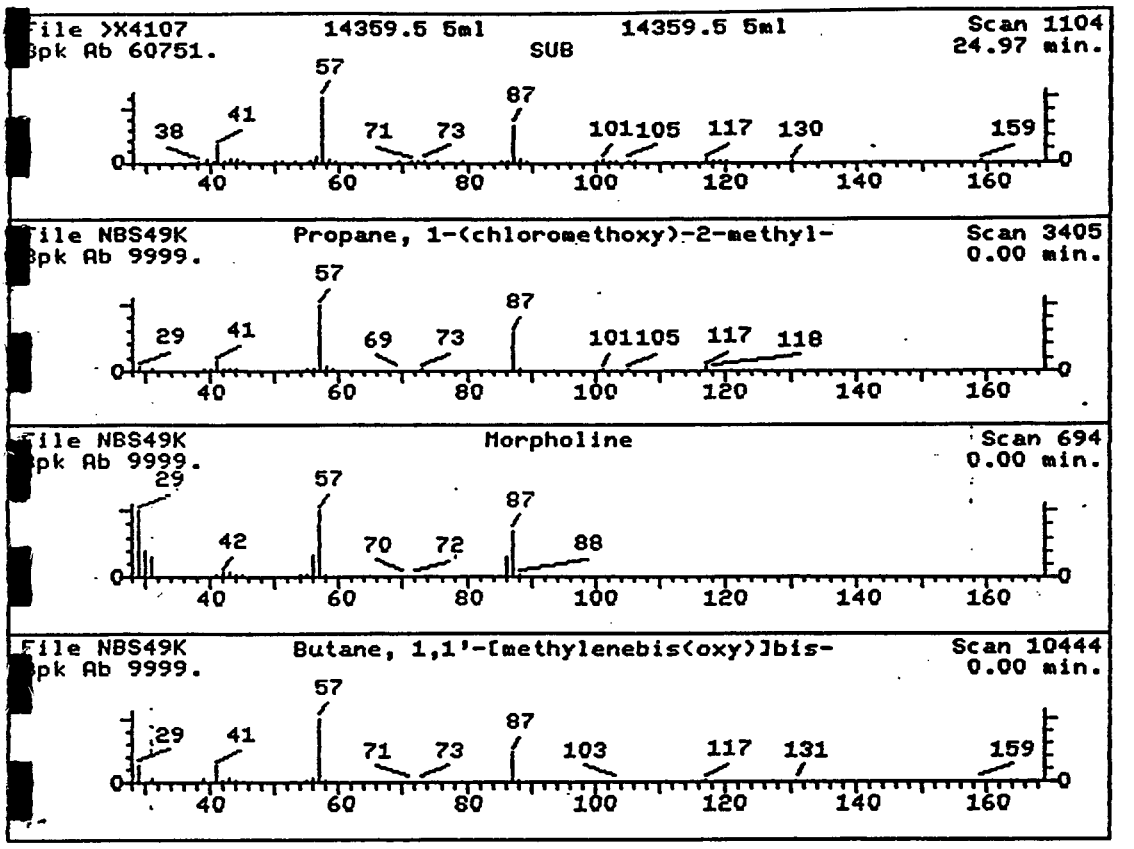
REA = 3423565. TENTATIVE CONCENTRATION IS 180.00

1.	Methanol, dibutoxy-	176	C9H20O3
2.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	3-Pentanol, 3-(1,1-dimethylethyl)-2,2,4,4-tetramethy	200	C13H28O
5.	Morpholine	87	C4H9NO
6.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2

Sample file: >X4107 Spectrum #: 1053
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.	78	54518046	7443	NBS49K	42	46	2	0	79	5	55	13
2.	76	34180115	7279	NBS49K	44	31	0	0	79	10	45	25
3.	70	2568903	7403	NBS49K	45	37	1	0	84	8	42	16
4.	60	41902425	7500	NBS49K	41	48	2	0	100	13	30	12
5.	60*	110918	7215	NBS49K	35	65	2	0	74	13	30	14
6.	47	2568914	7404	NBS49K	48	33	1	0	71	23	17	18

Reference 38 61/105



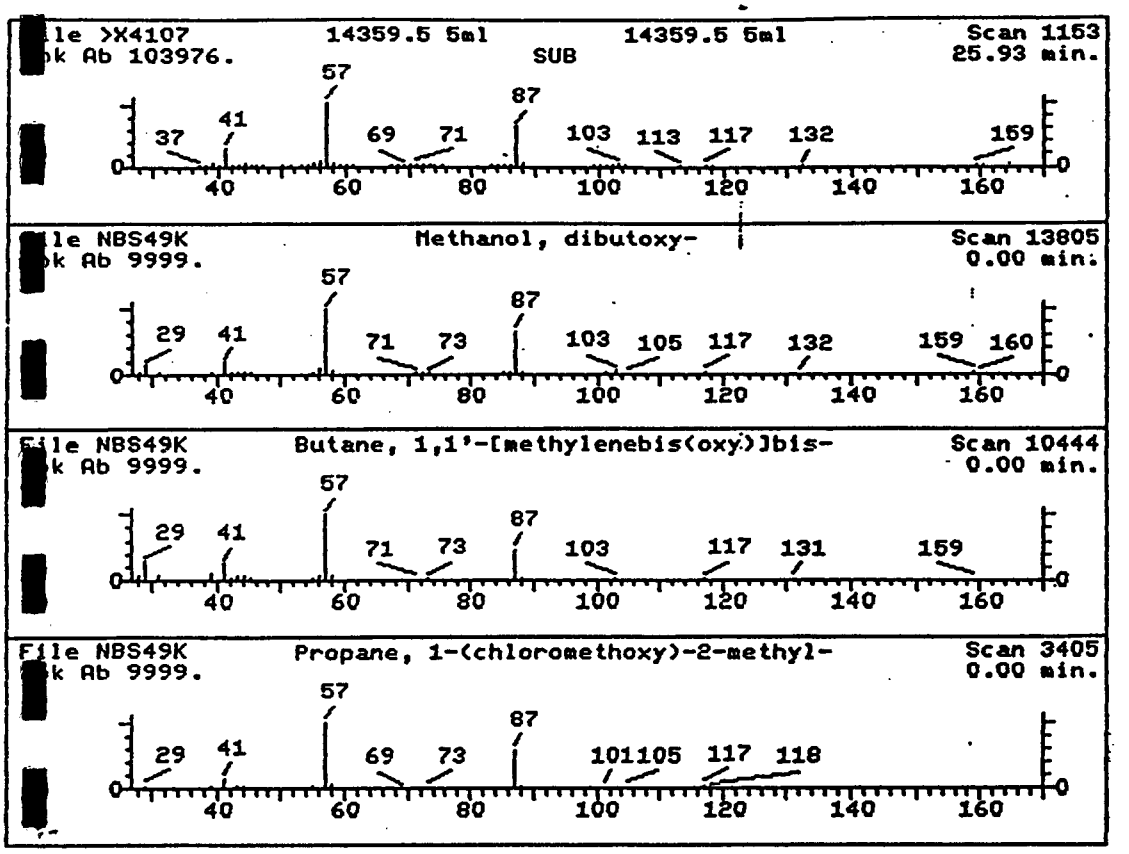
UNKNOWN #,5
AREA = 720911.0 TENTATIVE CONCENTRATION IS 38.00

1.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
2.	Morpholine	87	C4H9NO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	Isobutyl ether (8CI)	130	C8H18O

Sample file: >X4107 Spectrum #: 1104
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.	79	34180115	7279	NBS49K	53	22	0	0	77	10	48	31
2.	60*	110918	7215	NBS49K	35	65	2	0	83	13	30	14
3.	52	2568903	7403	NBS49K	45	37	1	0	72	20	20	16
4.	29	628557	7313	NBS49K	36	36	2	0	100	33	12	12

Reference 38 62/105



UNKNOWN #,6

AREA = 1278199. TENTATIVE CONCENTRATION IS 67.00

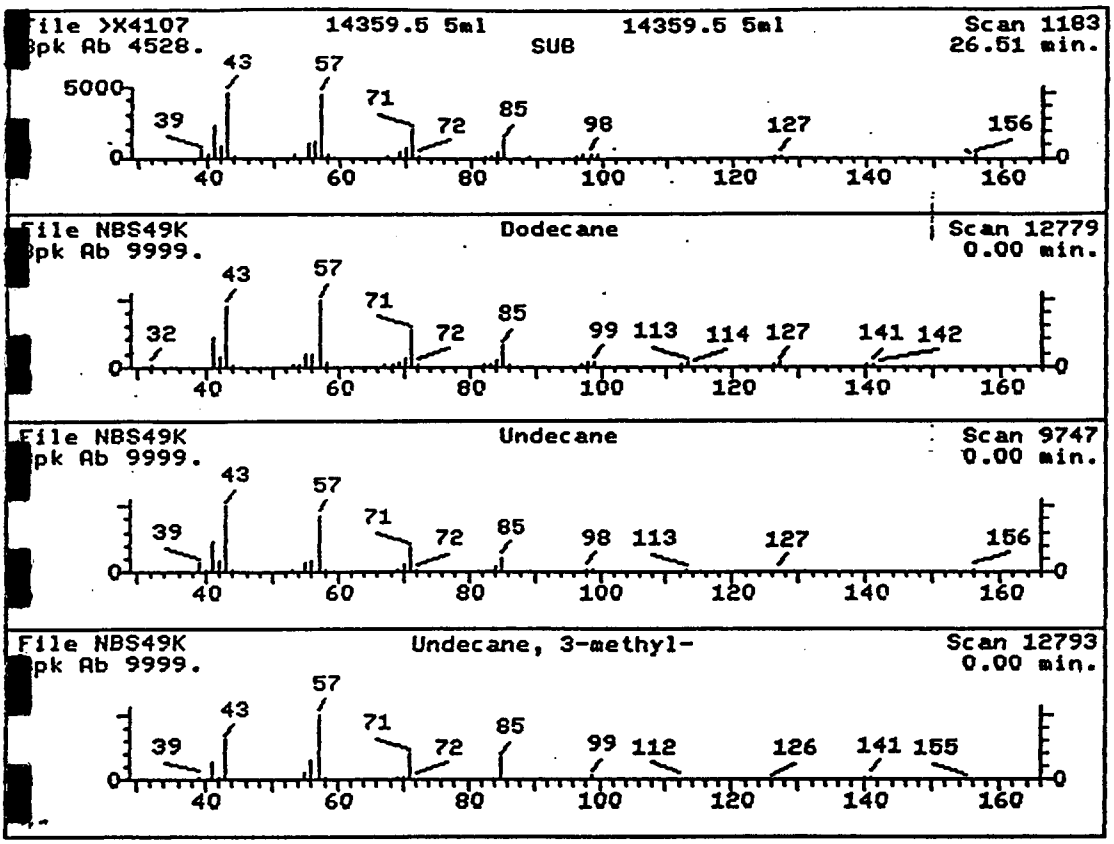
1.	Methanol, dibutoxy-	176	C9H20O3
2.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
3.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
4.	Morpholine	87	C4H9NO

Sample file: >X4107 Spectrum #: 1153

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.	86	54518046	7443	NBS49K	74	14	1	0	76	1	60	36
2.	78	2568903	7403	NBS49K	45	37	2	0	100	4	55	15
3.	67	34180115	7279	NBS49K	54	21	1	0	91	12	34	22
4.	52*	110918	7215	NBS49K	35	65	2	0	89	16	20	14

Reference 35 63/105



UNKNOWN #,7
AREA = 105160.0 TENTATIVE CONCENTRATION IS 6.00

1.	Dodecane	170	C12H26
2.	Undecane	156	C11H24
3.	Undecane, 3-methyl-	170	C12H26
4.	Nonane, 4,5-dimethyl-	156	C11H24
5.	Tetradecane	198	C14H30
6.	Decane, 2,9-dimethyl-	170	C12H26

Sample file: >X4107 Spectrum #: 1183
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.	76	112403	6732	NBS49K	75	24	2	4	93	6	45	21
2.	76*	1120214	6682	NBS49K	61	36	3	1	98	9	45	27
3.	70	1002433	6739	NBS49K	42	46	2	0	79	9	42	13
4.	70*	17302237	6683	NBS49K	41	64	3	0	72	9	42	13
5.	70	629594	6804	NBS49K	64	44	2	0	82	9	42	14
6.	70	1002171	6738	NBS49K	55	37	2	0	92	10	42	19

Reference 35
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.6 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.6 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4106

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 7

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1		Unknown	3.98	7	
2	71363	1-Butanol	15.92	6	58
3	2568298	1,3-Dioxolane, 2-(1,1-dimeth	21.63	9	69
4		Hydrocarbon	22.72	21	
5	142961	n-Butyl ether	23.97	53	70
6	34180115	Propane, 1-(chloromethoxy)-2	24.97	93	76
7	54518046	Methanol, dibutoxy-	25.95	330	34

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1n7

Reference 35

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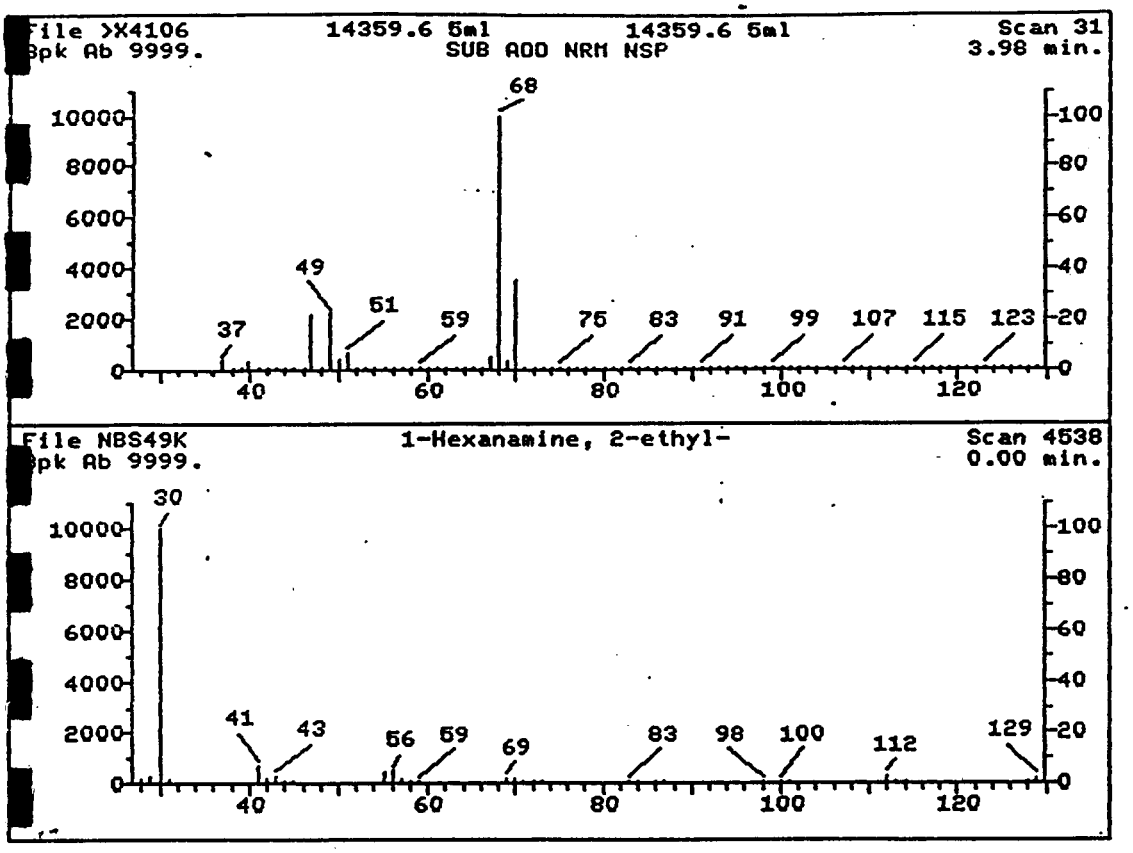


UNKNOWN #,1

AREA = 100032.0 TENTATIVE CONCENTRATION IS 7.00

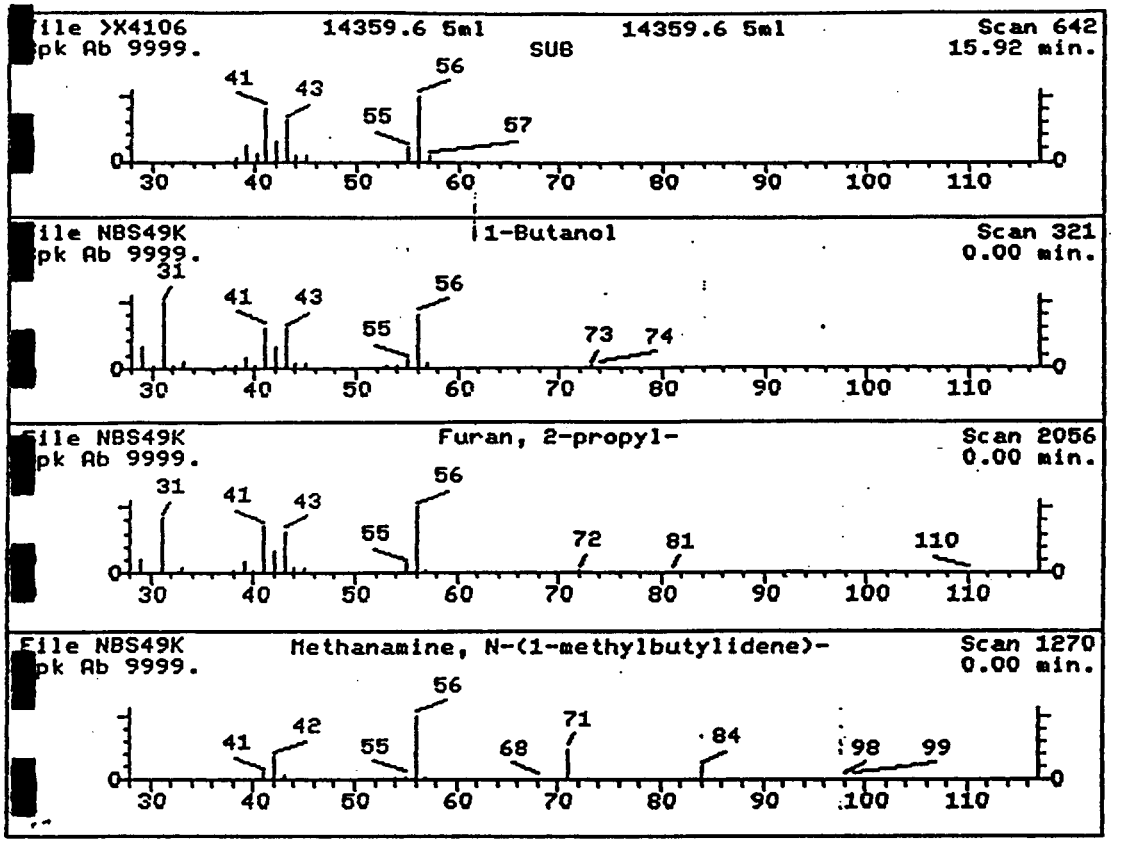
1. 1-Hexanamine, 2-ethyl- 129 C8H19N

Sample file: >X4106 Spectrum #: 31

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.	40*	104756	102	NBS49K	63	16	2	3	90	46	12	43

Reference 35 66/105



UNKNOWN #,2
AREA = 93760.00 TENTATIVE CONCENTRATION IS 6.00

1.	1-Butanol	74	C4H10O
2.	Furan, 2-propyl-	110	C7H10O
3.	Methanamine, N-(1-methylbutylidene)-	99	C6H13N
4.	Oxetane, 2,3,4-trimethyl-, (2.alpha.,3.alpha.,4.beta.)-	100	C6H12O
5.	Cyclobutane, 1,2-diethyl-, cis-	112	C8H16
6.	Butane, 1-chloro-	92	C4H9Cl

Sample file: >X4106 Spectrum #: 642
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.	58*	71363	1005	NBS49K	45	47	1	0	103	18	25	27
2.	52	4229918	1077	NBS49K	45	45	1	0	100	18	20	16
3.	46*	22431090	1050	NBS49K	34	45	2	0	91	25	17	17
4.	46*	32347129	1062	NBS49K	32	45	1	0	100	22	17	17
5.	41*	61141502	1088	NBS49K	22	74	3	0	83	25	17	12
6.	33*	109693	1030	NBS49K	29	58	1	0	100	33	12	16

Reference 35

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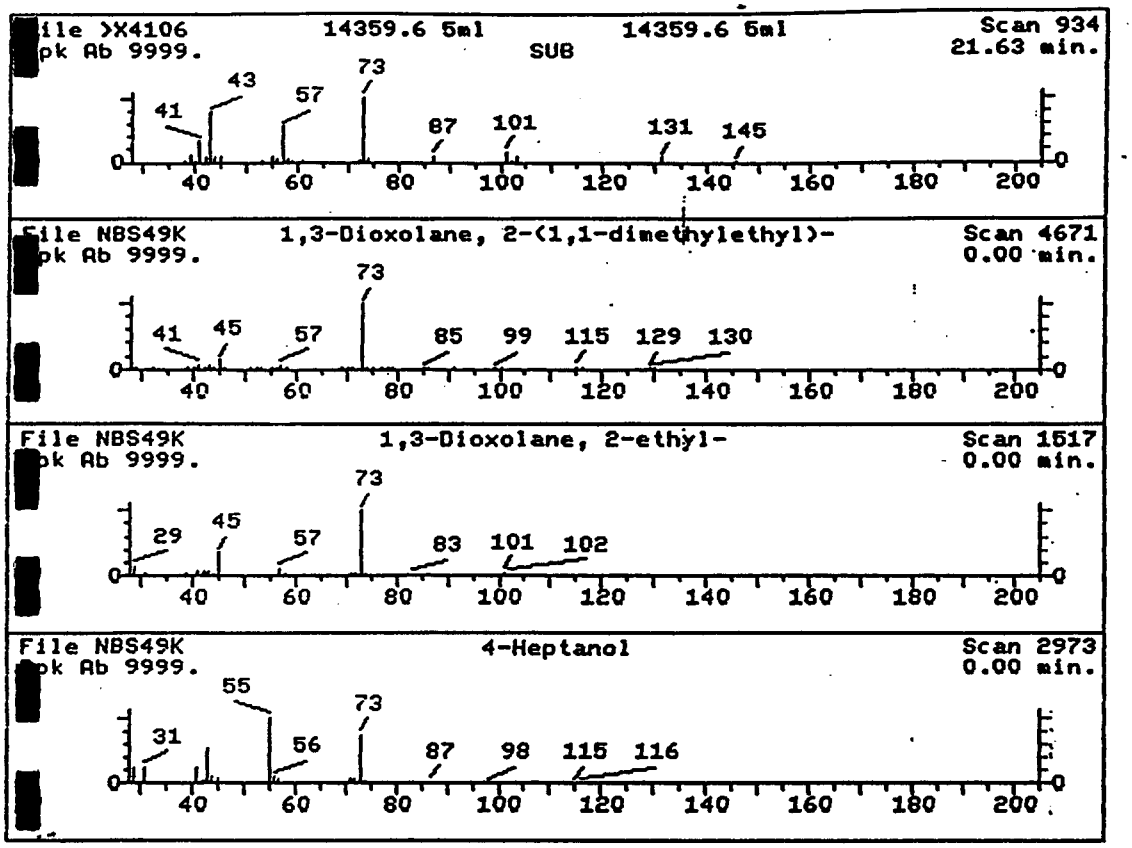

UNKNOWN #,3

REA = 187767.0 TENTATIVE CONCENTRATION IS 9.00

1.	1,3-Dioxolane, 2-(1,1-dimethylethyl)-	130	C7H14O2
2.	1,3-Dioxolane, 2-ethyl-	102	C5H10O2
3.	4-Heptanol	116	C7H16O
4.	Propanamide	73	C3H7NO
5.	2-Butanone, 3-methoxy-3-methyl-	116	C6H12O2
6.	Silane, 9H-fluoren-9-yltrimethyl-	238	C16H18Si

Sample file: >X4106 Spectrum #: 934

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

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	69*	2568298	4820	NBS49K	58	19	1	0	69	33	26	60
2.	40*	2568969	4802	NBS49K	32	49	1	0	80	27	14	17
3.	33*	589559	4816	NBS49K	32	58	2	0	120	31	12	16
4.	30*	79050	4473	NBS49K	20	62	2	0	183	33	12	13
5.	29	36687986	4812	NBS49K	25	29	0	0	79	31	12	12
6.	29	7385106	4839	NBS49K	41	55	1	0	74	33	12	12

1n5

Reference 35

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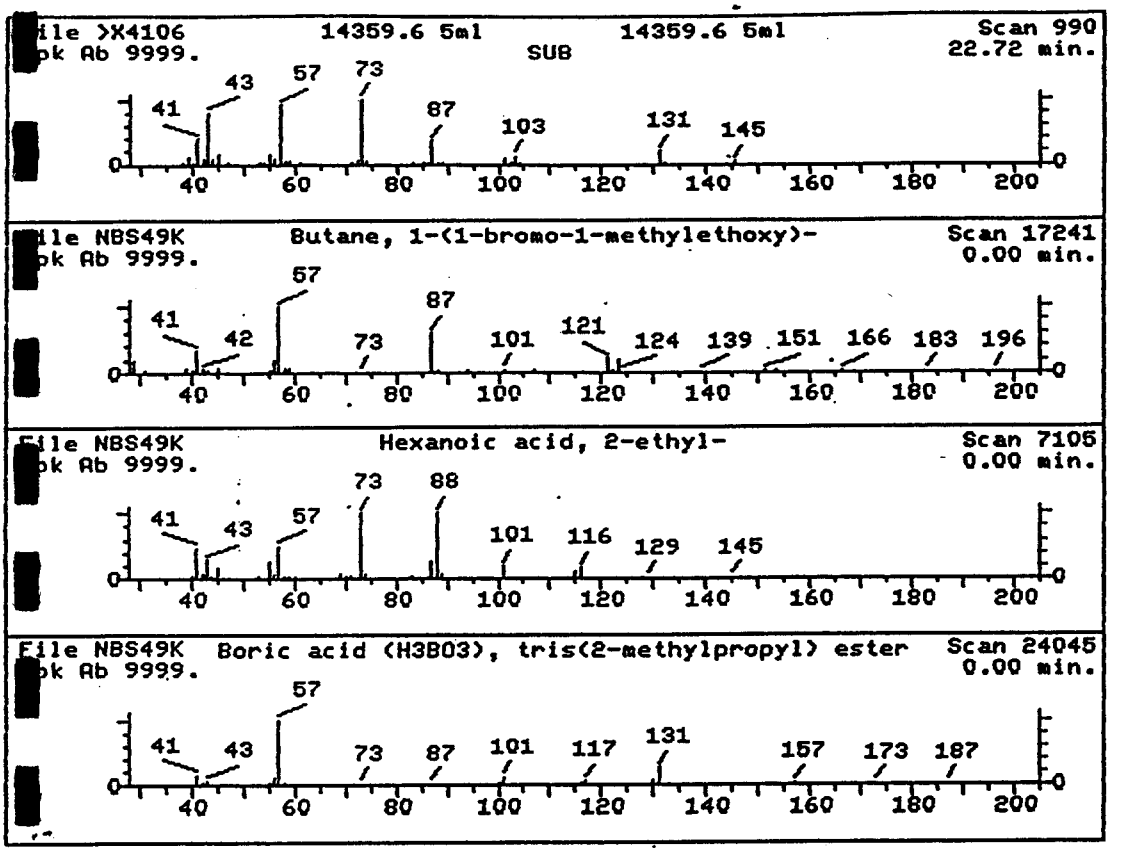

UNKNOWN #,4

AREA = 427338.0 TENTATIVE CONCENTRATION IS 21.00

1.	Butane, 1-(1-bromo-1-methylethoxy)-	194	C7H15BrO
2.	Hexanoic acid, 2-ethyl-	144	C8H16O2
3.	Boric acid (H3BO3), tris(2-methylpropyl) ester	230	C12H27BO3
4.	Hexane, 3-methoxy-	116	C7H16O
5.	3-Pentanol, 3-(1,1-dimethylethyl)-2,2,4,4-tetramethy	200	C13H28O
6.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2

Sample file: >X4106 Spectrum #: 990

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.	32*	54833044	7495	NBS49K	62	39	2	0	62	54	9	40
2.	27*	149575	7737	NBS49K	33	66	3	0	100	36	10	13
3.	24	13195761	15797	NBS49K	63	45	1	0	62	54	7	21
4.	24*	54658014	7264	NBS49K	45	40	1	0	74	52	7	27
5.	20	41902425	7500	NBS49K	40	49	1	0	86	55	5	14
6.	20	2568914	7404	NBS49K	35	46	1	0	92	53	5	13

1 of 1

Reference 35

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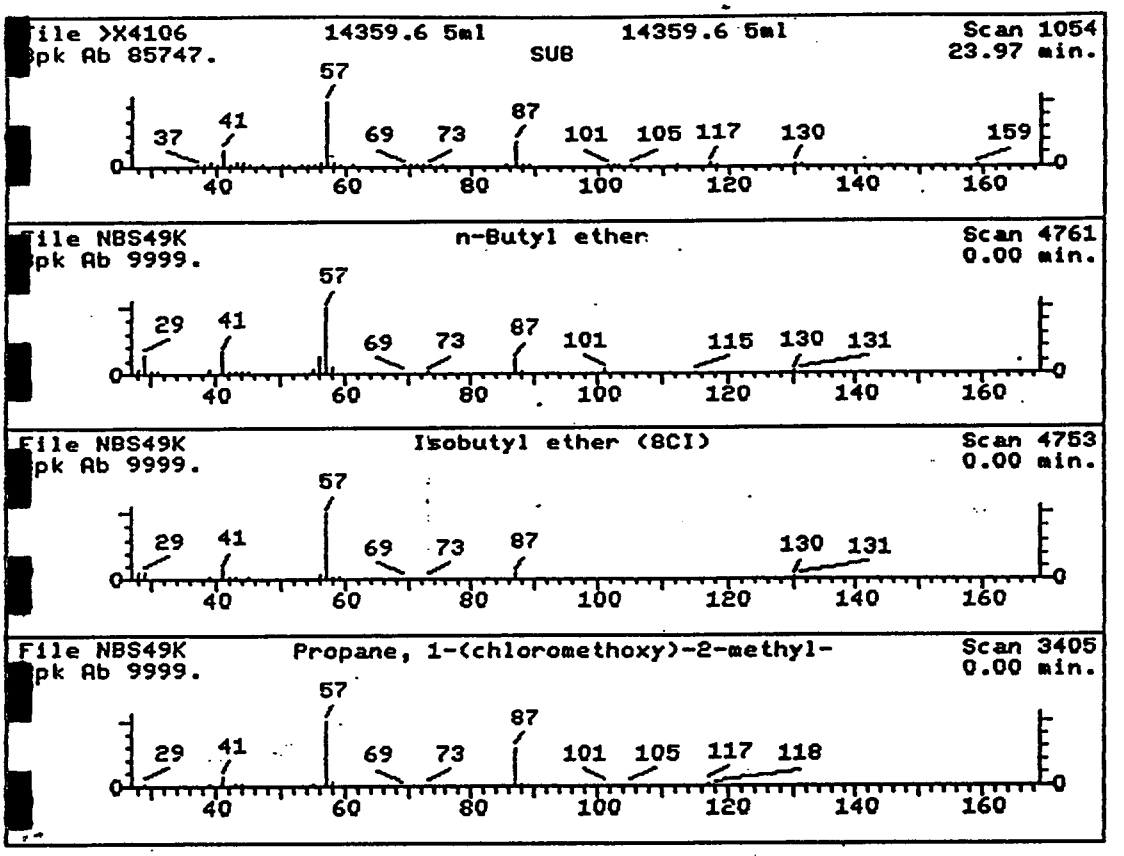

UNKNOWN #,5

AREA = 1069427. TENTATIVE CONCENTRATION IS 53.00

1.	n-Butyl ether	130	C8H18O
2.	Isobutyl ether (8CI)	130	C8H18O
3.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
4.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
5.	Morpholine	87	C4H9NO

Sample file: >X4106 Spectrum #: 1054

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*	142961	7315	NBS49K	23	57	2	0	100	10	42	13
2.	55*	628557	7313	NBS49K	45	27	1	0	71	24	22	27
3.	29	34180115	7279	NBS49K	32	43	0	0	55	42	8	17
4.	28	2568903	7403	NBS49K	37	45	1	0	62	40	10	14
5.	25*	110918	7215	NBS49K	27	73	2	0	54	46	7	14

1 of 7

Reference 35

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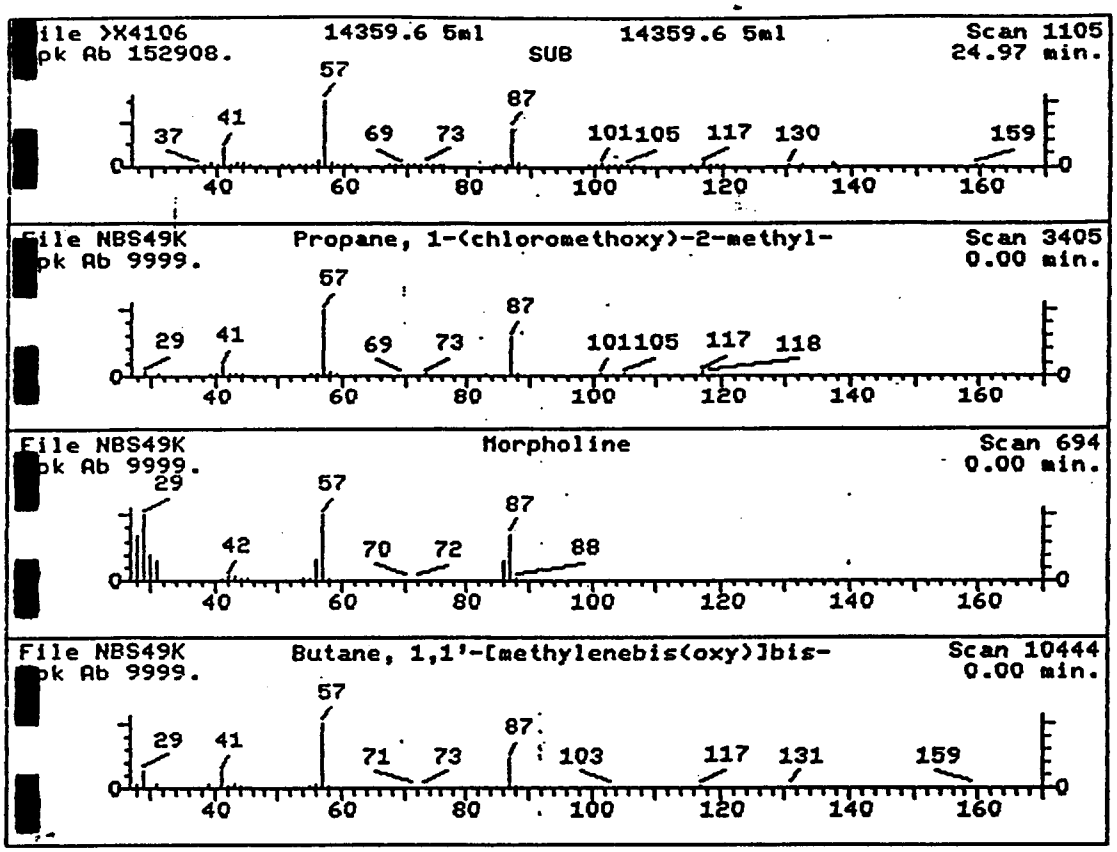


UNKNOWN #,6

AREA = 1882297. TENTATIVE CONCENTRATION IS 93.00

1.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
2.	Morpholine	87	C4H9NO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2
5.	Isobutyl ether (8CI)	130	C8H18O

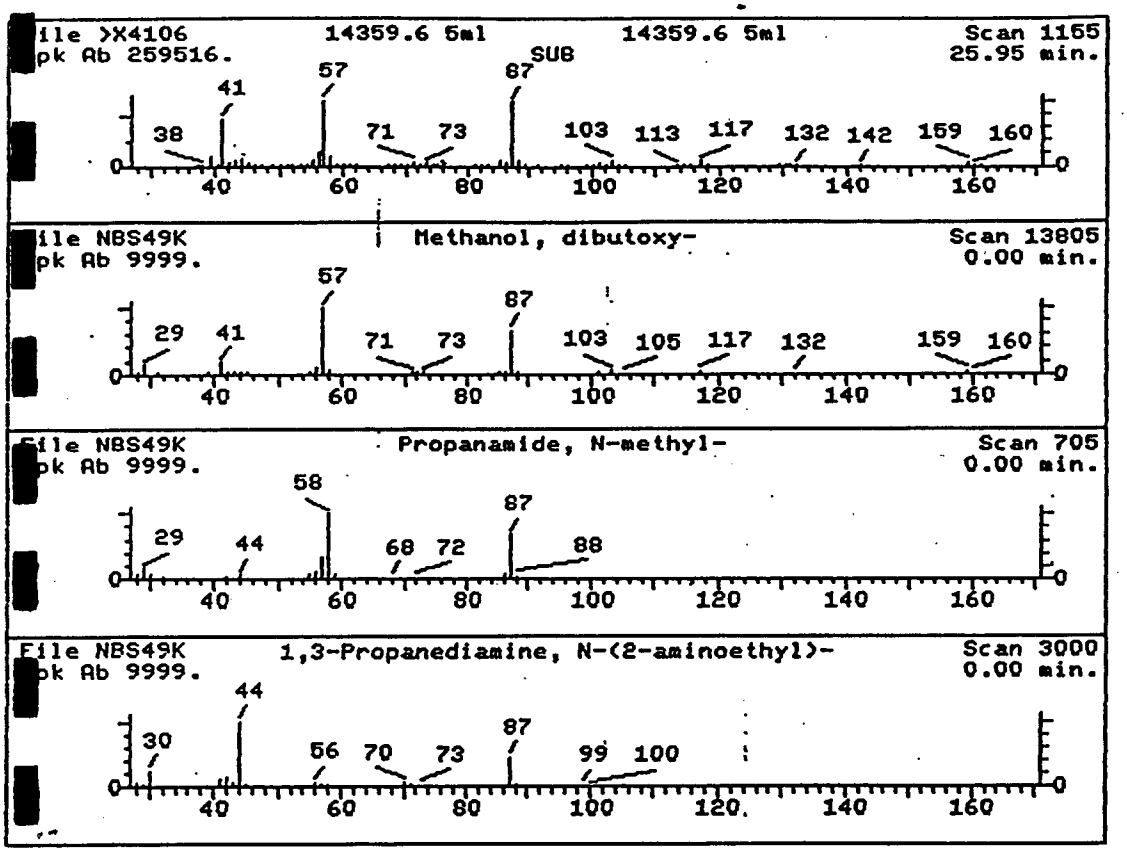
Sample file: >X4106 Spectrum #: 1105

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.	76	34180115	7279	NBS49K	44	31	0	0	68	10	45	25
2.	60*	110918	7215	NBS49K	35	65	2	0	84	13	30	14
3.	52	2568903	7403	NBS49K	45	37	1	0	75	20	20	16
4.	43	2568914	7404	NBS49K	38	43	1	0	67	23	17	14
5.	30	628557	7313	NBS49K	36	36	1	0	100	33	12	13

1 of

Reference 35
71/105



UNKNOWN #,7
AREA = 6654143. TENTATIVE CONCENTRATION IS 330.00

1.	Methanol, dibutoxy-	176	C9H20O3
2.	Propanamide, N-methyl-	87	C4H9NO
3.	1,3-Propanediamine, N-(2-aminoethyl)-	117	C5H15N3
4.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
5.	1,3-Dioxane	88	C4H8O2
6.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >X4106 Spectrum #: 1155
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.	34	54518046	7443	NBS49K	60	28	2	0	152	40	14	21
2.	28*	1187582	7221	NBS49K	27	58	2	0	146	37	10	14
3.	25	13531527	7266	NBS49K	38	47	2	0	223	46	7	13
4.	20	34180115	7279	NBS49K	36	39	2	0	173	54	5	12
5.	20*	505226	7225	NBS49K	21	61	1	0	99	52	5	14
6.	15*	3376350	7220	NBS49K	23	67	3	0	99	58	3	12

Reference 35
72/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.7 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.7 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4105

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

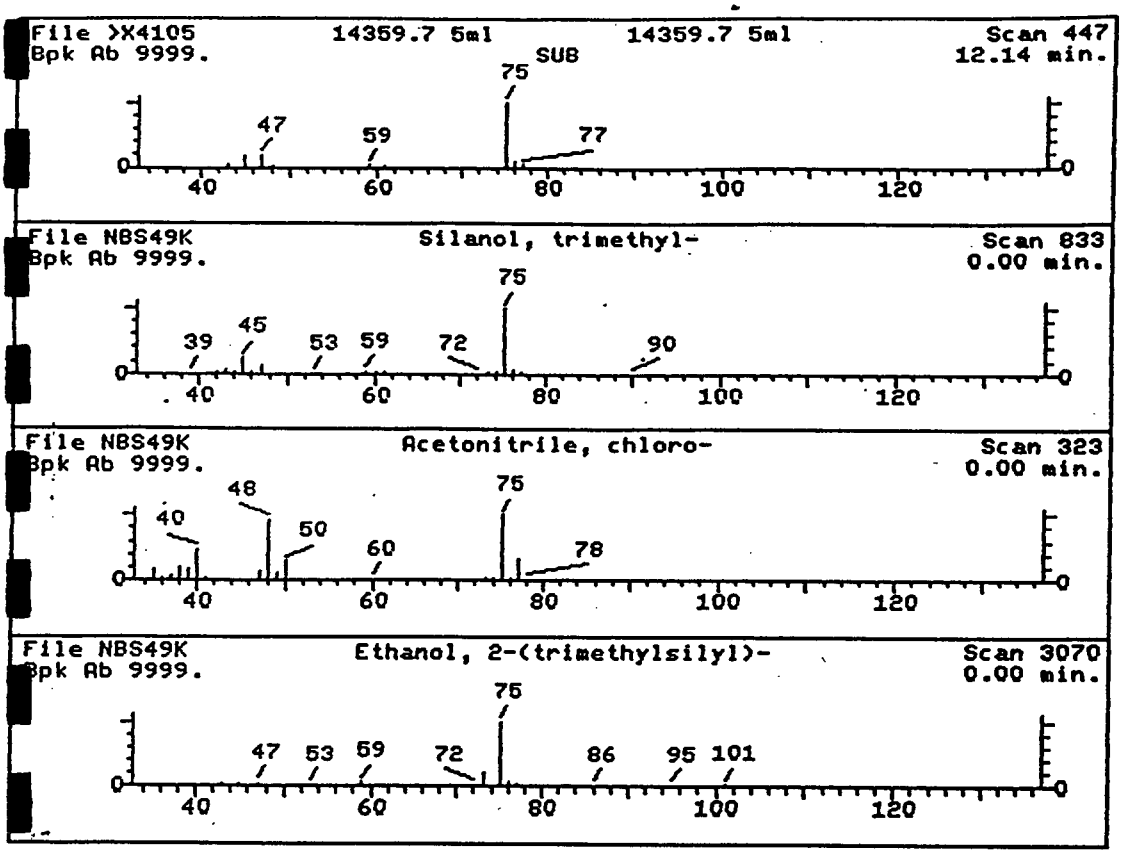
Dilution Factor: 1

Number of TICs found: 15

CONCENTRATION UNITS: ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	1066406	Silanol, trimethyl-	12.14	7	60
2	627021	Propane, 1-ethoxy-2-methyl-	20.19	4	73
3	2568298	1,3-Dioxolane, 2-(1,1-dimeth	21.64	16	46
4	50837779	Azetidine, 1-acetyl-2-methyl	22.75	4	59
5	2568903	Butane, 1,1'-[methylenebis(o	23.96	83	70
6	124185	Decane	24.33	28	89
7	22381868	2-Undecen-4-ol	24.86	6	50
8	34180115	Propane, 1-(chloromethoxy)-2	24.98	20	70
9	17312731	Undecane, 5,5-dimethyl-	25.27	4	26
10	54833044	Butane, 1-(1-bromo-1-methyle	25.94	6	55
11	1120214	Undecane	26.51	31	93
12	74764560	5-Hepten-3-one, 5-ethyl-4-me	26.88	5	25
13	4292926	Cyclohexane, pentyl-	27.64	6	42
14	20379991	2H-Inden-2-one, octahydro-3a	27.84	4	31
15	112403	Dodecane	28.62	8	95

Reference 35
73/105



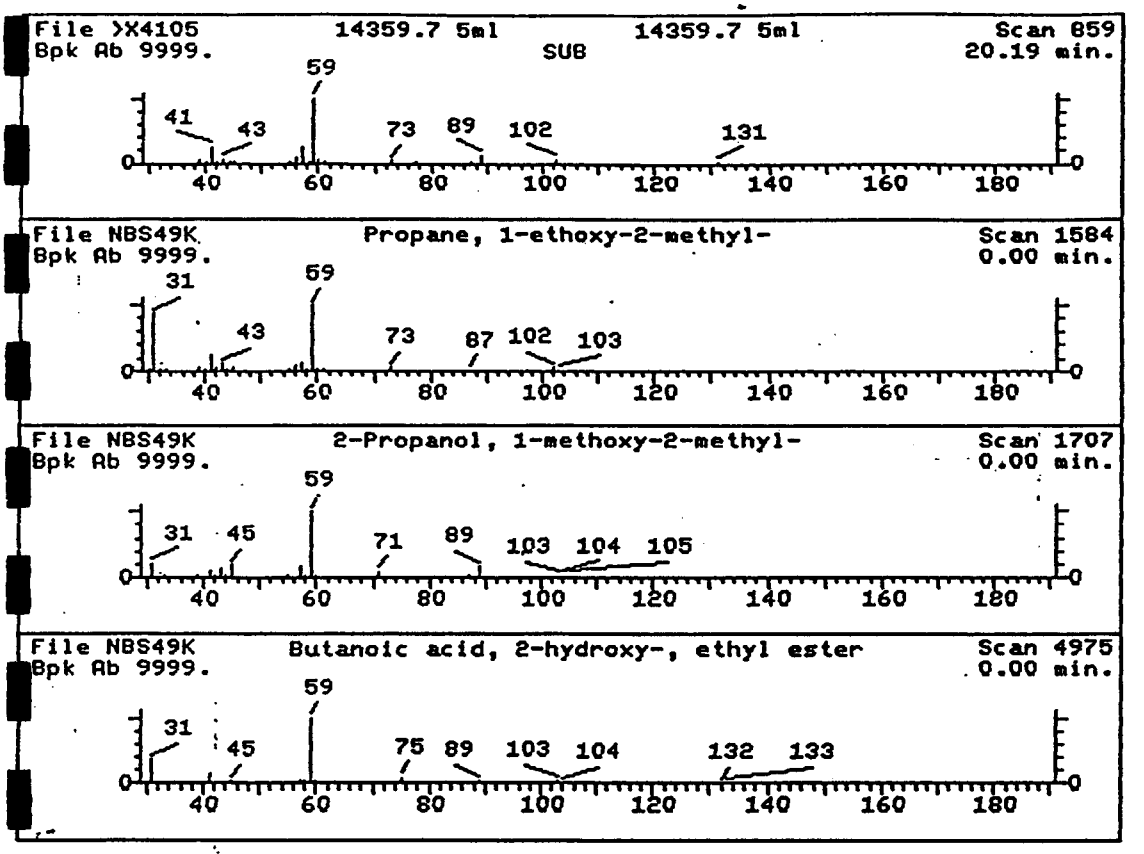
UNKNOWN #,1
AREA = 63282.00 TENTATIVE CONCENTRATION IS 7.00

1.	Silanol, trimethyl-	90	C3H10OSi
2.	Acetonitrile, chloro-	75	C2H2ClN
3.	Ethanol, 2-(trimethylsilyl)-	118	C5H14OSi
4.	Silane, dimethoxydimethyl-	120	C4H12O2Si

Sample file: >X4105 Spectrum #: 447
Search speed: 1 Tilting option: F No. of ion ranges searched: 46

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	60*	1066406	4954	NBS49K	35	49	1	0	74	13	30	19
2.	60*	107142	4949	NBS49K	22	96	2	0	100	15	30	13
3.	45	2916689	4975	NBS49K	45	40	1	0	71	22	17	16
4.	37*	1112396	4982	NBS49K	27	63	2	0	159	26	14	14

Reference 35
74/105



UNKNOWN #,2
AREA = 83139.00 TENTATIVE CONCENTRATION IS 4.00

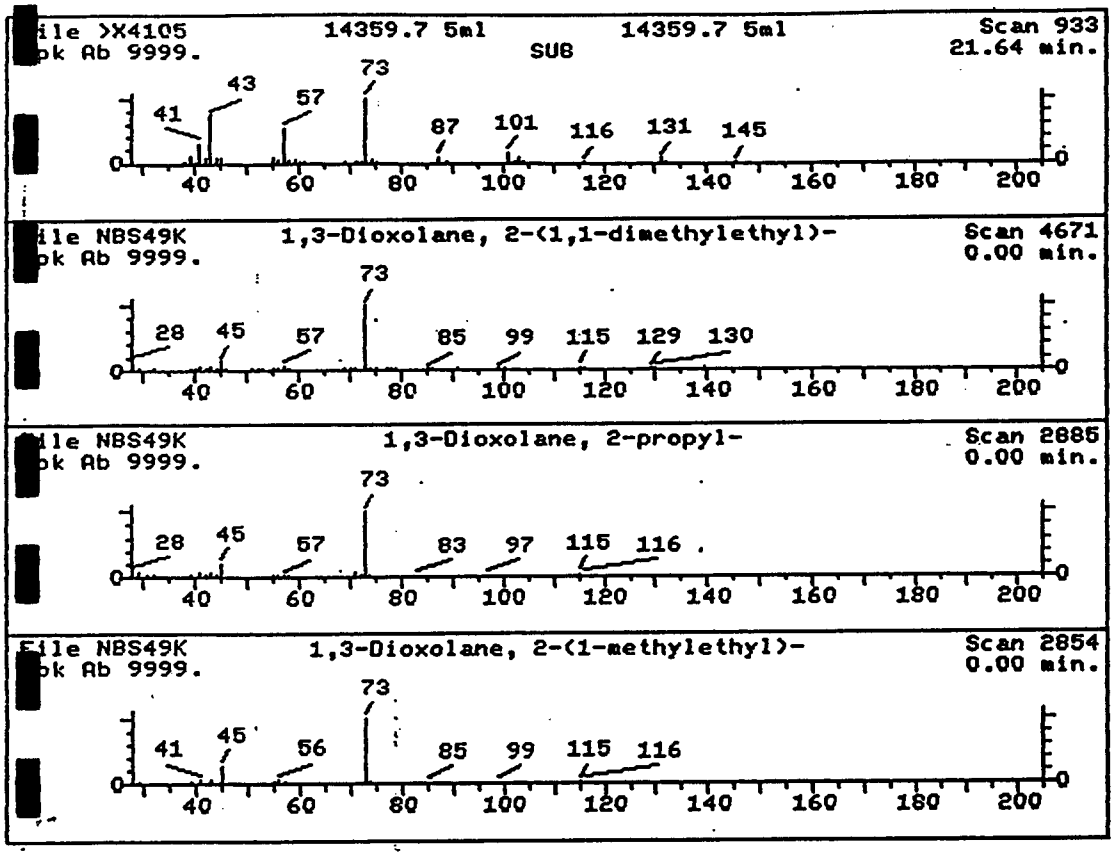
1.	Propane, 1-ethoxy-2-methyl-	102	C6H14O
2.	2-Propanol, 1-methoxy-2-methyl-	104	C5H12O2
3.	Butanoic acid, 2-hydroxy-, ethyl ester	132	C6H12O3
4.	Pentane, 2-methoxy-	102	C6H14O
5.	Butane, 1-ethoxy-	102	C6H14O
6.	Propane, 2-methyl-2-(1-methylethoxy)-	116	C7H16O

Sample file: >X4105 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.	73*	627021	1763	NBS49K	55	36	0	0	82	21	32	66
2.	52*	3587642	1774	NBS49K	36	55	2	0	88	17	20	18
3.	44*	52089540	1849	NBS49K	28	54	1	0	81	23	17	15
4.	43*	6795886	1765	NBS49K	28	53	2	0	100	23	17	14
5.	43*	628819	1764	NBS49K	25	67	2	0	100	23	17	14
6.	43	17348593	1806	NBS49K	43	38	2	0	92	23	17	14

Reference 35

75/105



UNKNOWN #,3

AREA = 361785.0 TENTATIVE CONCENTRATION IS 16.00

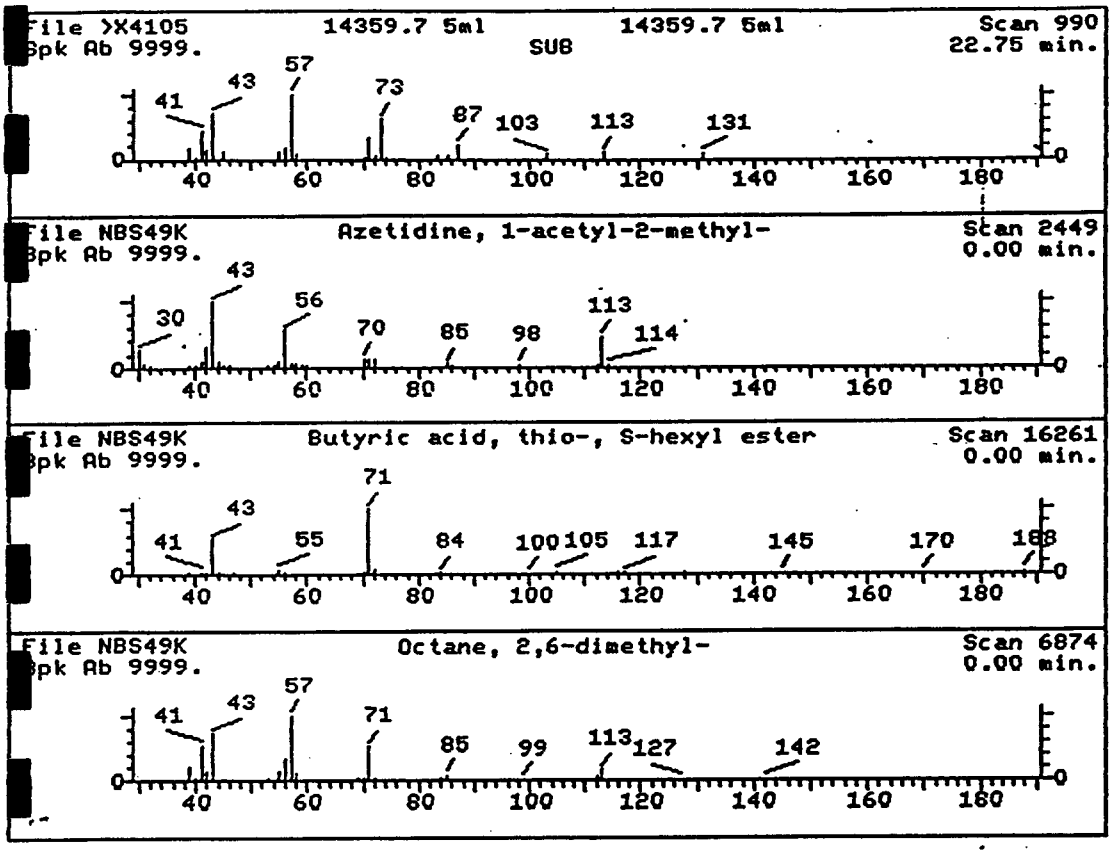
1.	1,3-Dioxolane, 2-(1,1-dimethylethyl)-	130	C7H14O2
2.	1,3-Dioxolane, 2-propyl-	116	C6H12O2
3.	1,3-Dioxolane, 2-(1-methylethyl)-	116	C6H12O2
4.	3,4-Hexanediol, 2,5-dimethyl-	146	C8H18O2
5.	1,3-Dioxolane, 2-pentadecyl-	284	C18H36O2
6.	1,3-Dioxolane, 2-ethyl-	102	C5H10O2

Sample file: >X4105 Spectrum #: 933

Search speed: 1 Tilting option: F No. of ion ranges searched: 44

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	46*	2568298	4820	NBS49K	53	24	1	-1	69	33	16	29
2.	44*	3390134	4814	NBS49K	51	32	2	1	100	33	16	27
3.	41*	822833	4811	NBS49K	42	40	1	0	72	33	16	24
4.	40*	22607110	4622	NBS49K	34	51	2	0	97	29	14	17
5.	39	4360570	4840	NBS49K	40	50	0	0	90	35	16	22
6.	34*	2568969	4802	NBS49K	31	50	1	0	70	31	12	17

Reference 35 76/105



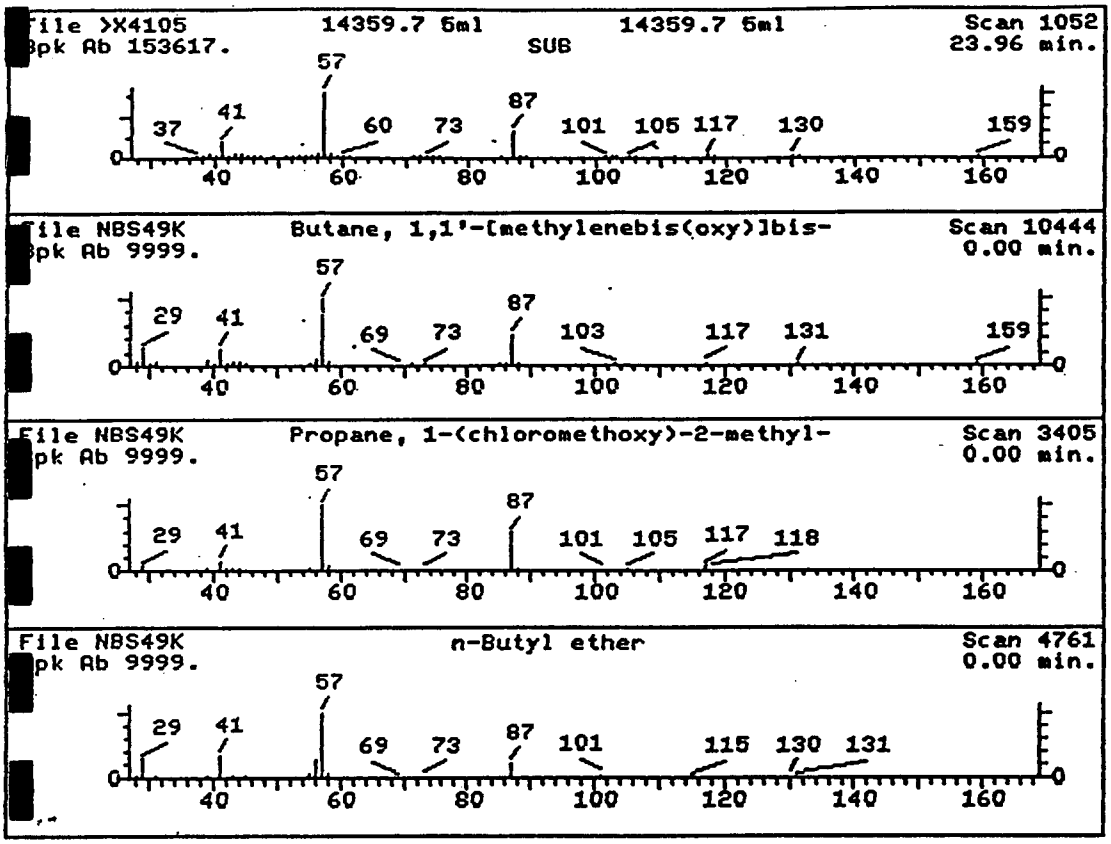
UNKNOWN #,4
AREA = 79165.00 TENTATIVE CONCENTRATION IS 4.00

1. Azetidine, 1-acetyl-2-methyl-	113	C6H11NO
2. Butyric acid, thio-, S-hexyl ester	188	C10H20OS
3. Octane, 2,6-dimethyl-	142	C10H22
4. Undecane, 3,6-dimethyl-	184	C13H28
5. Decane, 3,8-dimethyl-	170	C12H26
6. Octane, 3,6-dimethyl-	142	C10H22

Sample file: >X4105 Spectrum #: 990
Search speed: 1 Tilting option: F No. of ion ranges searched: 43

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IU
1.	59*	50837779	12275	NBS49K	59	28	1	1	26	38	21	55
2.	40*	2432544	4401	NBS49K	41	35	0	3	39	48	12	44
3.	38*	2051301	12332	NBS49K	61	34	1	0	56	53	10	57
4.	37*	17301289	4386	NBS49K	32	65	2	0	89	27	14	14
5.	35	17312559	12406	NBS49K	44	48	2	0	73	27	14	12
6.	32*	15869940	12333	NBS49K	36	53	2	0	78	40	10	18

Reference 38 77/105



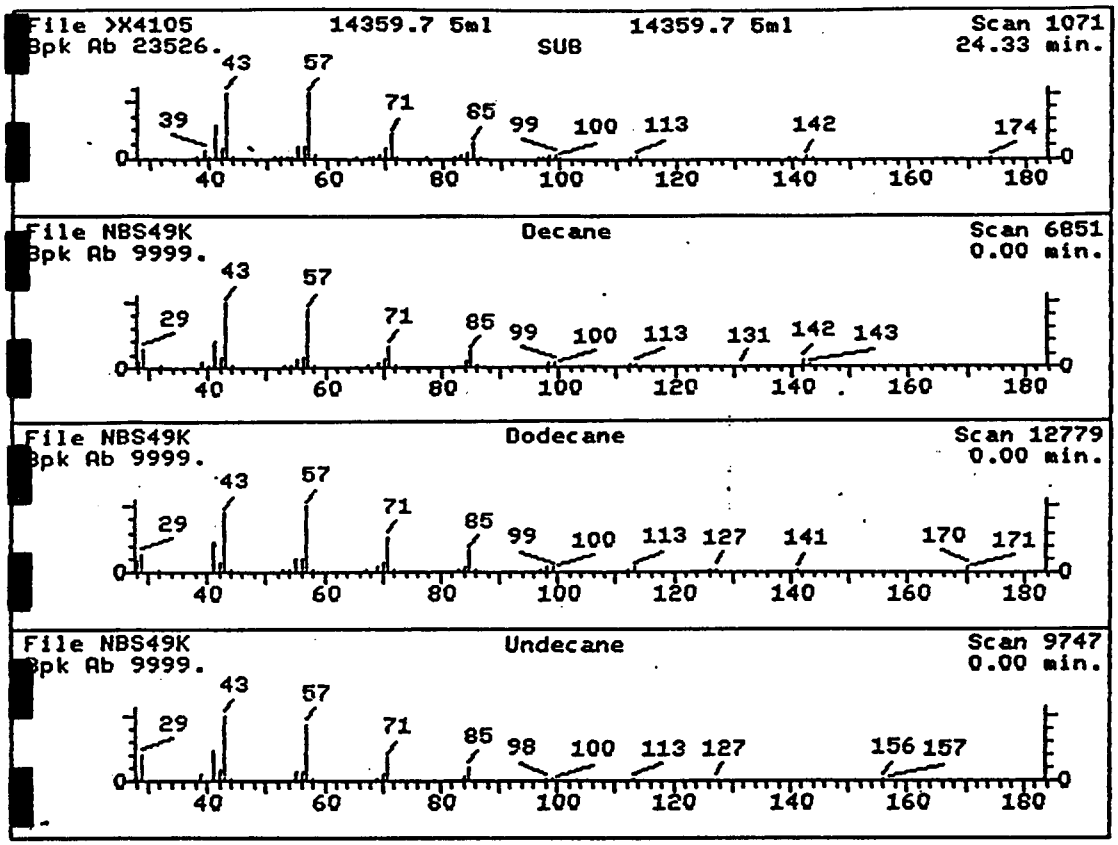
UNKNOWN #,5
AREA = 1852547. TENTATIVE CONCENTRATION IS 83.00

1.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
2.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
3.	n-Butyl ether	130	C8H18O
4.	Isobutyl ether (8CI)	130	C8H18O
5.	Morpholine	87	C4H9NO
6.	Propane, 1,1'-[methylenebis(oxy)]bis[2-methyl-	160	C9H20O2

Sample file: >X4105 Spectrum #: 1052
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	2568903	7403	NBS49K	45	37	1	0	66	6	42	16
2.	70	34180115	7279	NBS49K	38	37	2	0	72	10	42	13
3.	42*	142961	7315	NBS49K	23	57	2	0	100	22	17	13
4.	40*	628557	7313	NBS49K	41	31	1	0	67	34	16	23
5.	28*	110918	7215	NBS49K	27	73	2	0	60	39	10	14
6.	25	2568914	7404	NBS49K	40	41	1	0	56	50	7	14

Reference 3B 78/105



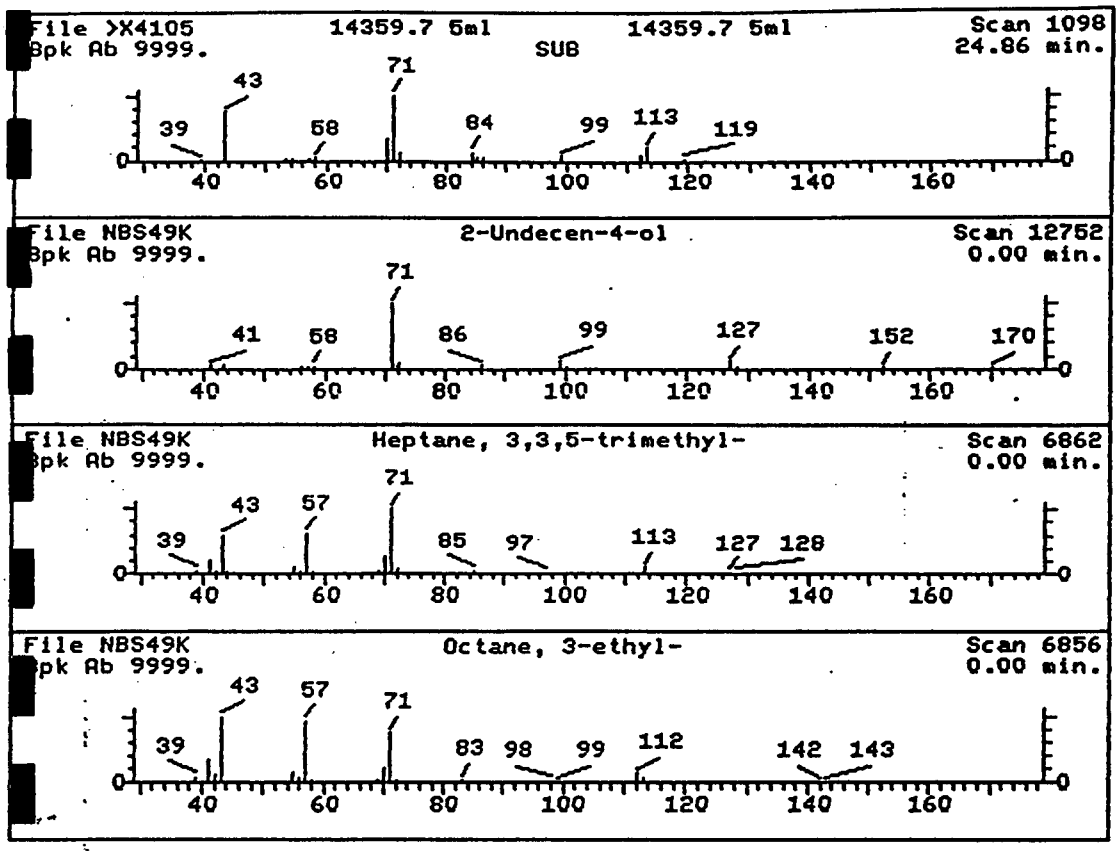
UNKNOWN #,6
AREA = 616302.0 TENTATIVE CONCENTRATION IS 28.00

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

Sample file: >X4105 Spectrum #: 1071
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.	89*	124185	18079	NBS49K	79	21	1	3	87	1	66	67
2.	83	112403	6732	NBS49K	79	20	2	4	84	1	57	23
3.	83	1120214	6682	NBS49K	70	27	2	0	97	2	57	25
4.	70	17301289	4386	NBS49K	70	27	2	4	100	7	42	18
5.	70	62016379	6679	NBS49K	54	31	2	0	98	10	42	19
6.	70	1002433	6739	NBS49K	47	41	2	0	66	10	42	16

Reference 35 79/105



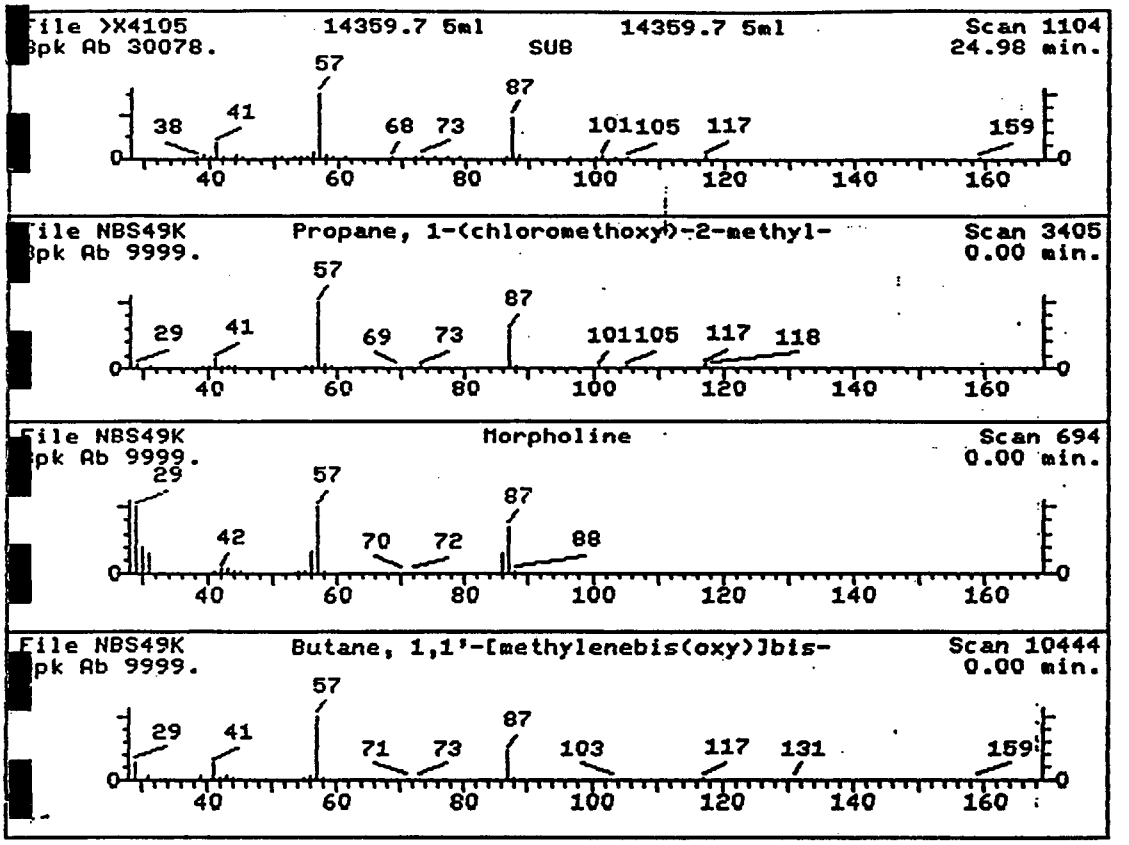
UNKNOWN #,7
AREA = 142143.0 TENTATIVE CONCENTRATION IS 6.00

1.	2-Undecen-4-ol	170	C11H22O
2.	Heptane, 3,3,5-trimethyl-	142	C10H22
3.	Octane, 3-ethyl-	142	C10H22
4.	Heptane, 3-ethyl-5-methyl-	142	C10H22
5.	Ethanamine, N-butylidene-	99	C6H13N
6.	Methylamine, N-(1-methylhexylidene)-	127	C8H17N

Sample file: >X4105 Spectrum #: 1098
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.	50*	22381868	4378	NBS49K	53	26	1	2	78	39	17	39
2.	44	7154805	4330	NBS49K	42	42	1	0	100	25	17	15
3.	42*	5881174	4326	NBS49K	30	63	3	0	134	25	17	13
4.	36*	52896909	4332	NBS49K	31	63	3	0	85	28	14	13
5.	35*	1611127	4266	NBS49K	24	71	3	0	131	30	14	12
6.	33*	22058715	4298	NBS49K	40	48	2	0	78	36	10	19

Reference 35 80/105



UNKNOWN #,8

AREA = 455834.0 TENTATIVE CONCENTRATION IS 20.00

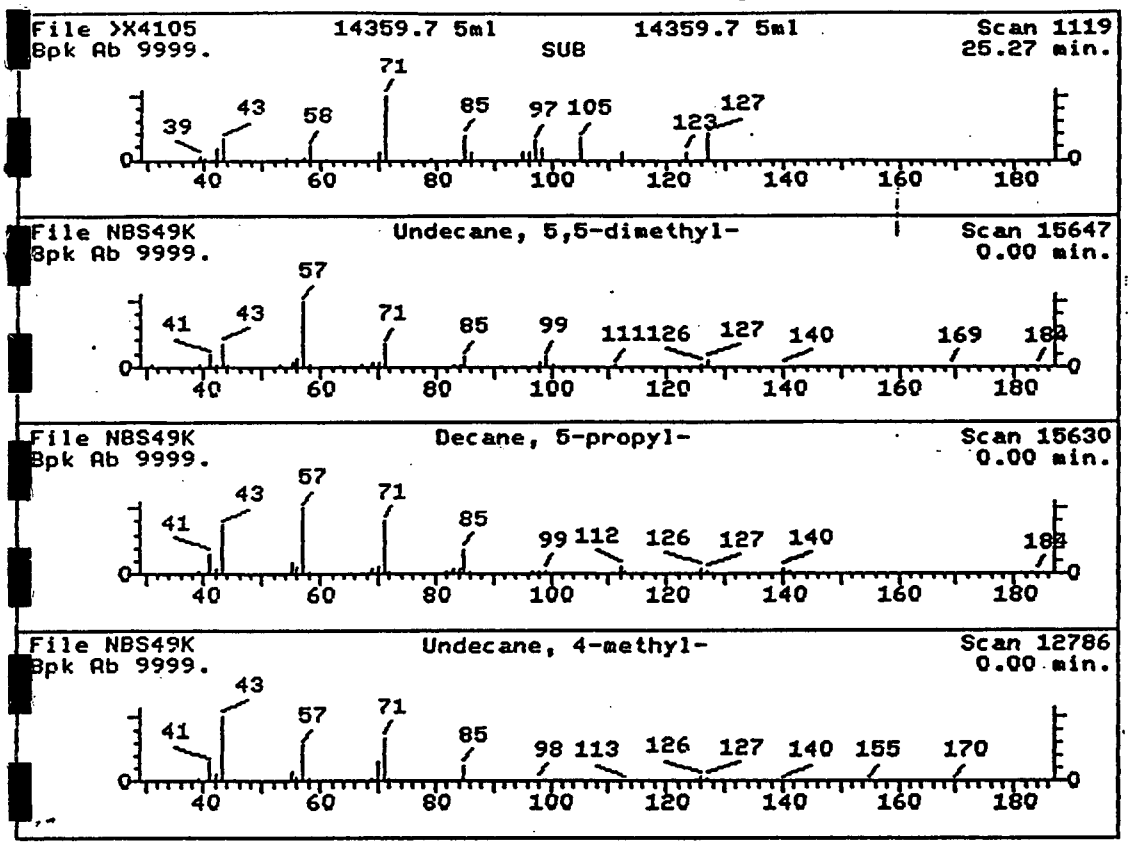
1.	Propane, 1-(chloromethoxy)-2-methyl-	122	C5H11ClO
2.	Morpholine	87	C4H9NO
3.	Butane, 1,1'-[methylenebis(oxy)]bis-	160	C9H20O2
4.	2-Propanone, O-methyloxime	87	C4H9NO

Sample file: >X4105 Spectrum #: 1104

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.	70	34180115	7279	NBS49K	44	31	1	0	88	10	42	15
2.	60*	110918	7215	NBS49K	30	70	2	0	91	13	30	14
3.	52	2568903	7403	NBS49K	45	37	1	0	80	18	20	16
4.	11*	3376350	7220	NBS49K	28	62	3	0	63	65	2	13

Reference 35 81/105



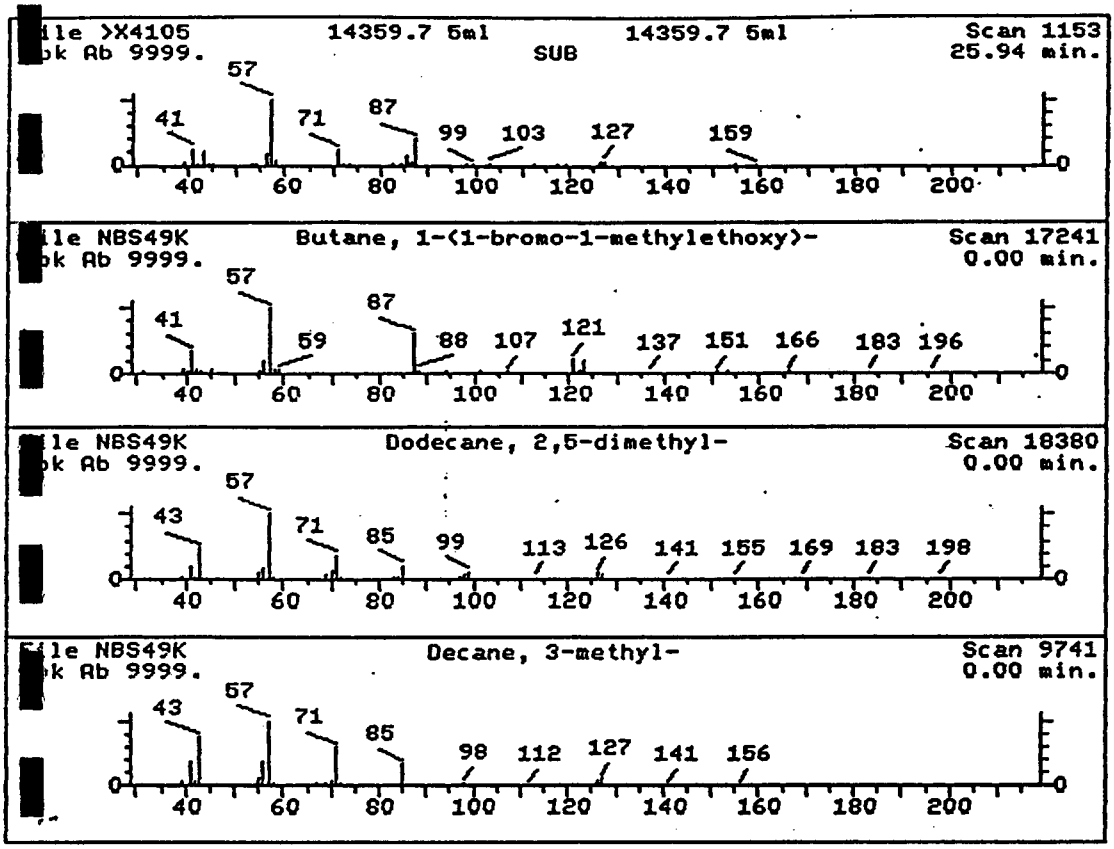
UNKNOWN #,9
AREA = 99517.00 TENTATIVE CONCENTRATION IS 4.00

1.	Undecane, 5,5-dimethyl-	184	C13H28
2.	Decane, 5-propyl-	184	C13H28
3.	Undecane, 4-methyl-	170	C12H26
4.	Decane, 3-methyl-	156	C11H24
5.	Undecane, 4,6-dimethyl-	184	C13H28
6.	3-Butene-1,2-diol, 1-(2-furyl)-2,3-dimethyl-	182	C10H14O3

Sample file: >X4105 Spectrum #: 1119
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.	26*	17312731	15087	NBS49K	23	76	3	0	267	40	10	12
2.	25*	17312628	4395	NBS49K	36	75	3	0	107	48	7	13
3.	25*	2980690	6734	NBS49K	27	67	3	0	148	50	7	13
4.	25*	13151343	15040	NBS49K	25	69	3	0	121	49	7	13
5.	24*	17312822	4387	NBS49K	23	75	3	0	198	45	8	12
6.	15*	19757518	9256	NBS49K	33	97	3	0	70	59	3	13

Reference 35 82/105



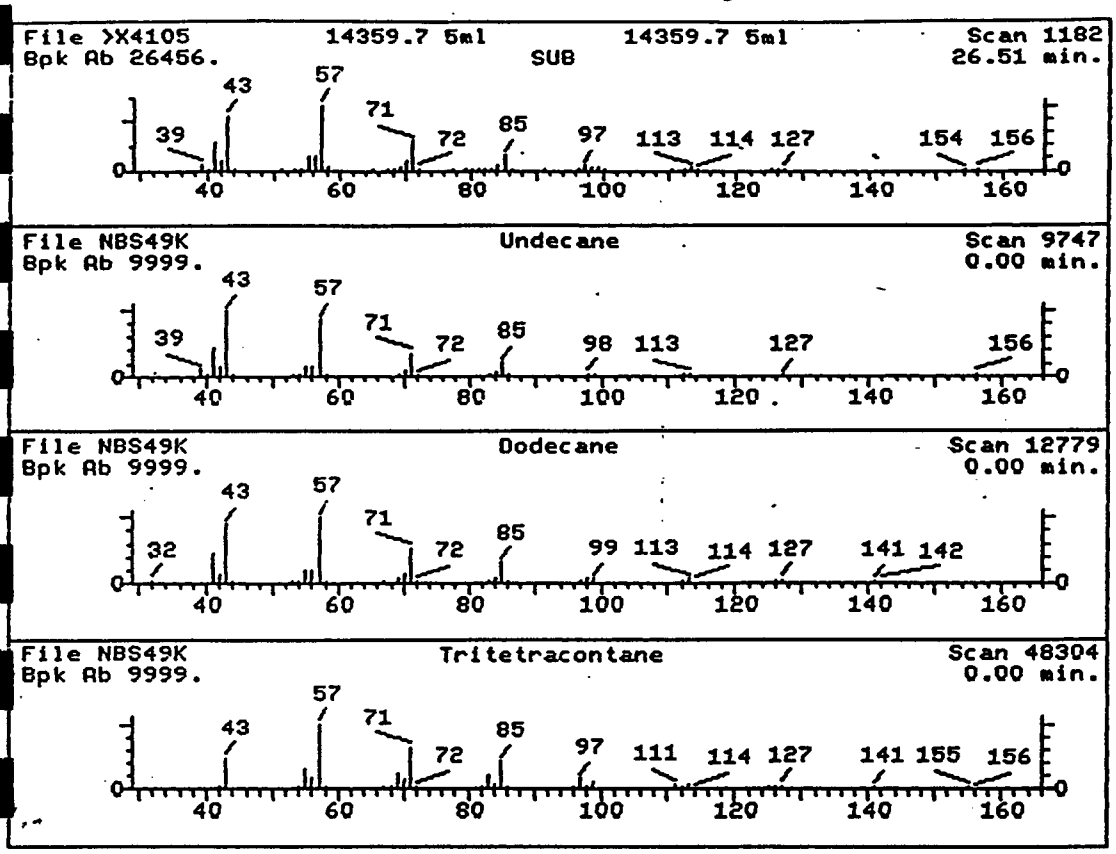
UNKNOWN #,10
REA = 132624.0 TENTATIVE CONCENTRATION IS 6.00

1. Butane, 1-(1-bromo-1-methylethoxy)-	194	C7H15BrO
2. Dodecane, 2,5-dimethyl-	198	C14H30
3. Decane, 3-methyl-	156	C11H24
4. Undecane, 5,5-dimethyl-	184	C13H28
5. 1-Butene, 4-butoxy-	128	C8H16O
6. Undecane	156	C11H24

Sample file: >X4105 Spectrum #: 1153
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.	55*	54833044	7495	NBS49K	58	43	2	0	67	27	24	35
2.	51*	56292650	14883	NBS49K	61	48	2	1	68	29	24	31
3.	31*	13151343	15040	NBS49K	39	40	2	0	41	45	8	19
4.	31*	17312731	15087	NBS49K	32	67	2	0	68	35	12	14
5.	30	34061762	7289	NBS49K	48	27	1	0	84	44	8	18
6.	29*	1120214	6682	NBS49K	45	52	2	4	80	41	8	17

Reference 35 83/105



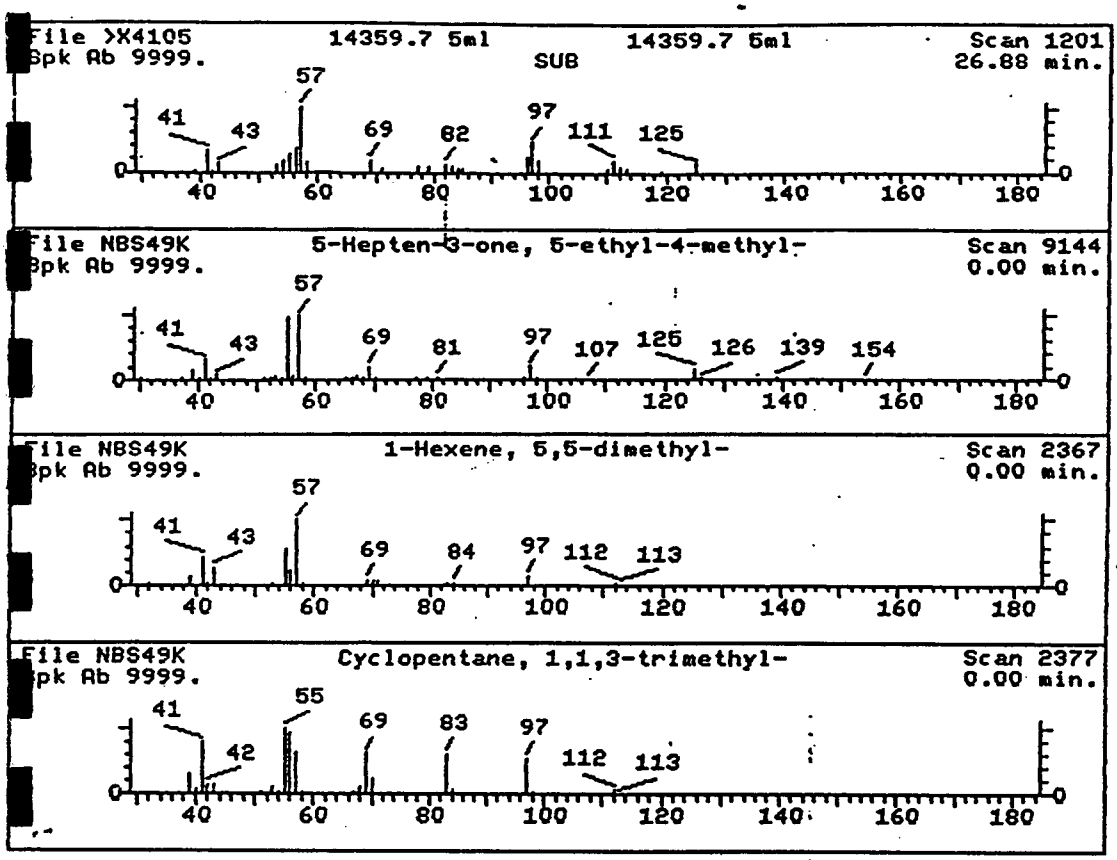
UNKNOWN #,11
AREA = 691640.0 TENTATIVE CONCENTRATION IS 31.00

1.	Undecane	156	C11H24
2.	Dodecane	170	C12H26
3.	Tritetracontane	604	C43H88
4.	Undecane, 3,9-dimethyl-	184	C13H28
5.	Heptadecane, 2,6,10,14-tetramethyl-	296	C21H44
6.	Nonane, 3,7-dimethyl-	156	C11H24

Sample file: >X4105 Spectrum #: 1182
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.	93*	1120214	6682	NBS49K	81	16	1	0	87	2	68	83
2.	83	112403	6732	NBS49K	87	12	2	3	79	4	57	27
3.	78	7098217	6916	NBS49K	75	99	2	4	85	4	55	12
4.	78	17301314	9854	NBS49K	63	42	2	2	83	2	55	14
5.	78	18344371	6880	NBS49K	73	56	2	0	73	4	55	18
6.	78	17302328	6677	NBS49K	51	36	2	0	71	5	55	17

Reference 35 84/105



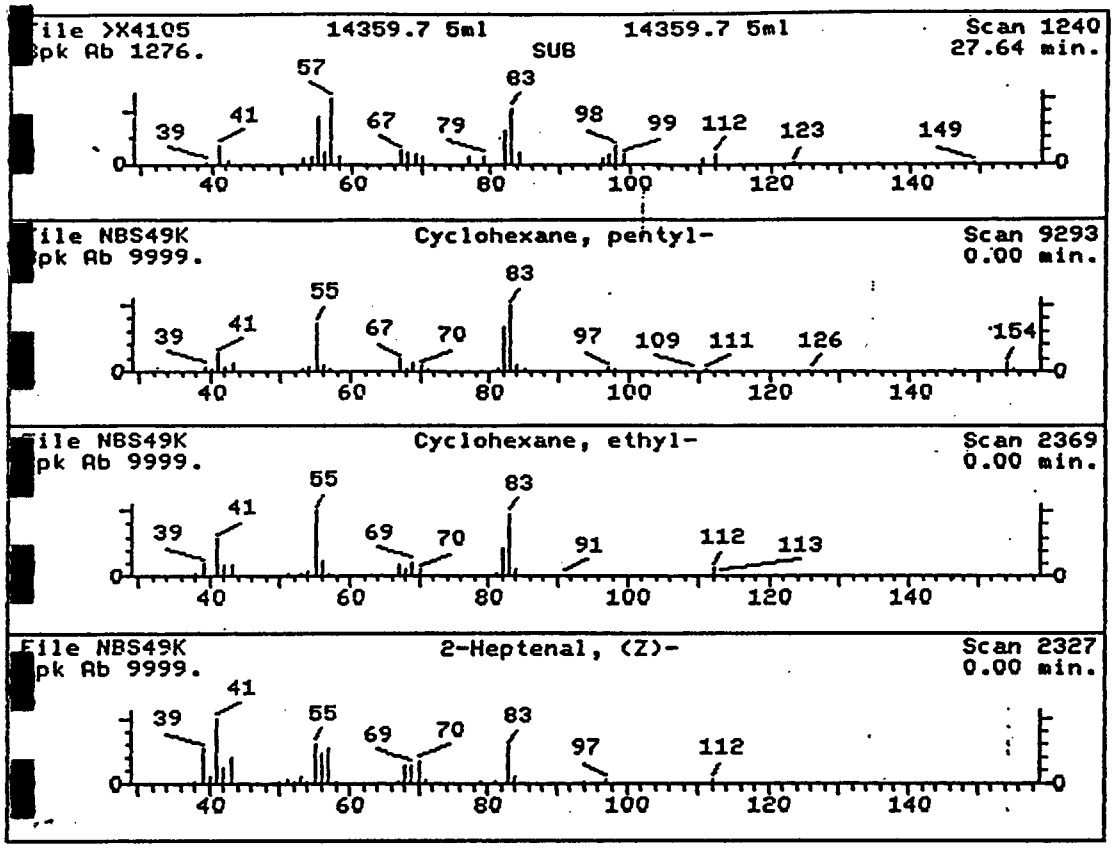
UNKNOWN #,12
AREA = 120018.0 TENTATIVE CONCENTRATION IS 5.00

1.	5-Hepten-3-one, 5-ethyl-4-methyl-	154	C10H18O
2.	1-Hexene, 5,5-dimethyl-	112	C8H16
3.	Cyclopentane, 1,1,3-trimethyl-	112	C8H16
4.	1-Cyclohepten-1-amine, 5-methyl-	125	C8H15N
5.	Cyclohexanone, hydrazone	112	C6H12N2
6.	Cyclopentanemethanamine, 2-amino-	114	C6H14N2

Sample file: >X4105 Spectrum #: 1201
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.	25*	74764560	14497	NBS49K	33	56	2	0	94	46	7	16
2.	25*	7116861	9104	NBS49K	22	61	2	0	81	47	7	13
3.	25*	4516692	9109	NBS49K	25	85	3	0	87	48	7	13
4.	20*	53907565	8969	NBS49K	24	62	2	0	100	54	5	14
5.	20*	6156087	8948	NBS49K	24	83	3	0	390	51	5	12
6.	20*	21544025	9115	NBS49K	22	92	3	0	81	55	5	12

Reference 35 85/105



UNKNOWN #,13
AREA = 125413.0 TENTATIVE CONCENTRATION IS 6.00

1.	Cyclohexane, pentyl-	154	C11H22
2.	Cyclohexane, ethyl-	112	C8H16
3.	2-Heptenal, (Z)-	112	C7H12O
4.	Cyclopentane, 1-ethyl-2-methyl-, cis-	112	C8H16
5.	Cyclopentane, 1-ethyl-3-methyl-	112	C8H16
6.	Cyclopentane, 1-ethyl-3-methyl-, cis-	112	C8H16

Sample file: >X4105 Spectrum #: 1240
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.	42	4292926	6202	NBS49K	48	47	2	0	75	25	17	13
2.	28*	1678917	6160	NBS49K	42	63	2	0	67	36	10	14
3.	27*	57266861	6156	NBS49K	33	77	3	0	120	40	10	13
4.	27*	930892	6161	NBS49K	29	86	3	0	72	40	10	13
5.	26*	3726474	6162	NBS49K	22	85	3	0	72	37	10	12
6.	26*	2613663	6164	NBS49K	22	86	3	0	72	36	10	12

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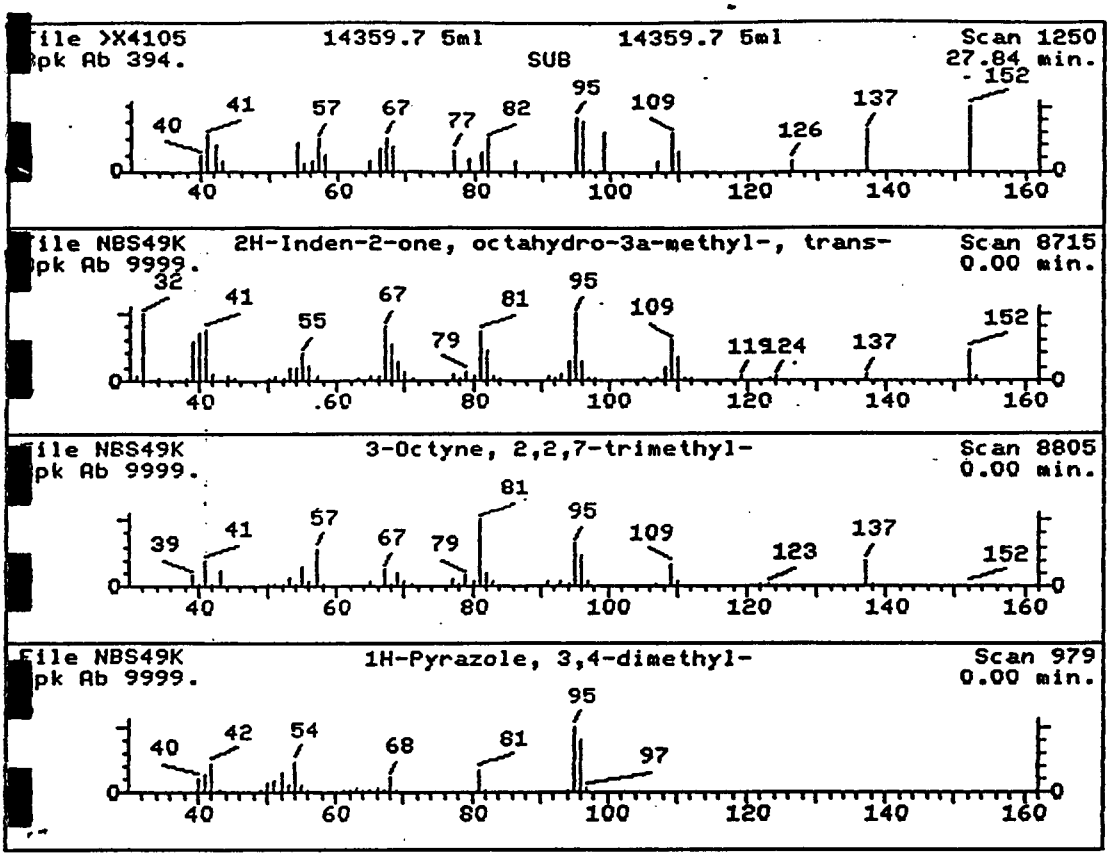
86/105



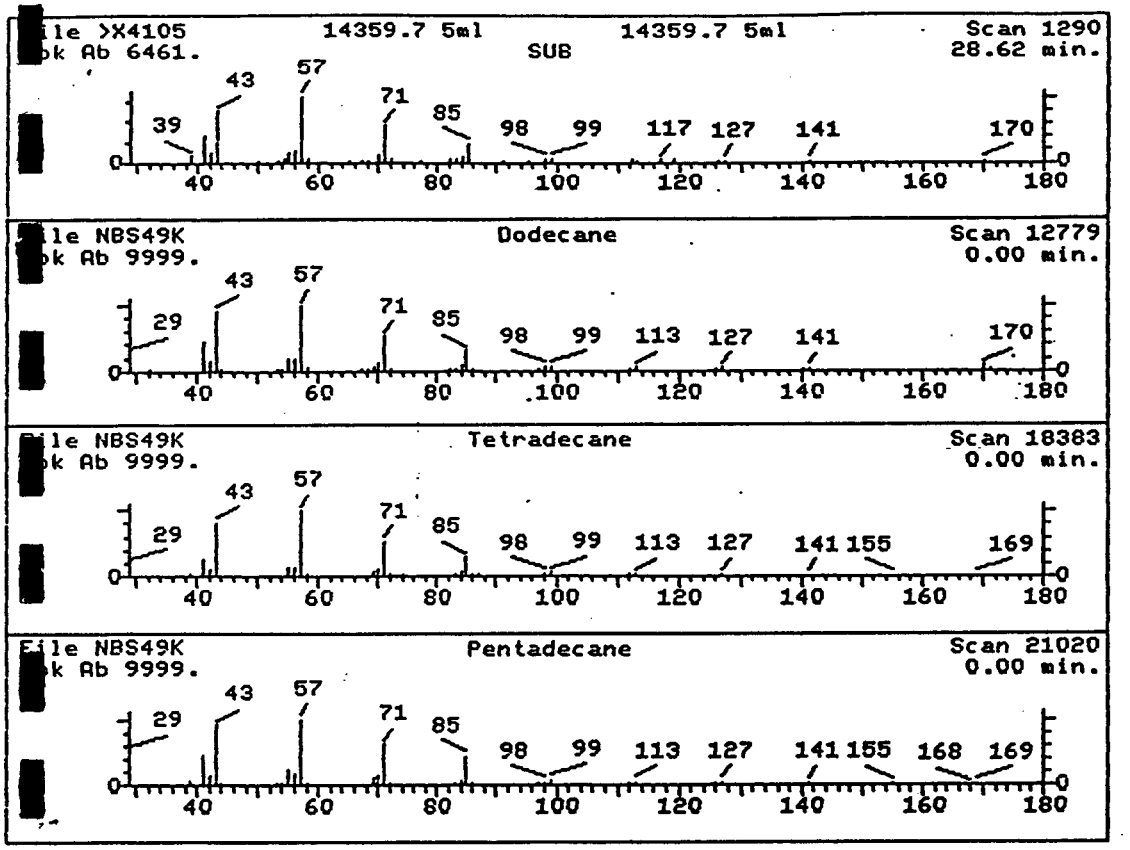
UNKNOWN #,14
AREA = 84116.00 TENTATIVE CONCENTRATION IS 4.00

1.	2H-Inden-2-one, octahydro-3a-methyl-, trans-	152	C10H16O
2.	3-Octyne, 2,2,7-trimethyl-	152	C11H20
3.	1H-Pyrazole, 3,4-dimethyl-	96	C5H8N2
4.	1H-Imidazole, 2-ethyl-	96	C5H8N2
5.	2-Cyclohexen-1-one, 5-methyl-2-(1-methylethyl)-	152	C10H16O
6.	2H-Inden-2-one, octahydro-3a-methyl-, cis-	152	C10H16O

Sample file: >X4105 Spectrum #: 1250
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.	31*	20379991	19802	NBS49K	64	71	3	-3	84	31	12	14
2.	25*	55402136	16972	NBS49K	36	75	3	0	129	45	8	13
3.	20*	2820373	8912	NBS49K	45	69	3	0	84	53	5	13
4.	20*	1072624	8920	NBS49K	36	77	3	0	84	51	5	13
5.	20*	5113666	19799	NBS49K	35	77	3	0	135	53	5	13
6.	20*	13351296	19810	NBS49K	36	94	3	0	84	52	5	13

Reference 35
87/105



UNKNOWN #,15
AREA = 181549.0 TENTATIVE CONCENTRATION IS 8.00

1.	Dodecane	170	C12H26
2.	Tetradecane	198	C14H30
3.	Pentadecane	212	C15H32
4.	Tridecane	184	C13H28
5.	Nonane, 3-methyl-5-propyl-	184	C13H28
6.	Hexadecane	226	C16H34

Sample file: >X4105 Spectrum #: 1290
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.	95*	112403	6732	NBS49K	94	5	1	2	77	2	72	93
2.	86	629594	6804	NBS49K	81	27	2	0	96	1	60	30
3.	83	629629	6819	NBS49K	93	27	3	2	78	1	57	22
4.	83	629505	6761	NBS49K	76	30	2	0	87	2	57	27
5.	78	31081182	6784	NBS49K	74	31	2	3	79	5	55	19
6.	78	544763	6835	NBS49K	67	53	2	0	74	2	55	14

Reference 35 88/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.8 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.8 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4104

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

Q/n

Reference 38 89/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
14359.9 5mL

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: 14359.9 5mL

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4103

Level: (low/med) LOW

Date Received: 12-19-94

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

80

Reference 35 90/105

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Environmental Profile Lab Contract: Twp of Lakewood

Lab Code: 15526

Lab File ID: >X4100 BFB Injection Date: 12/20/94

Instrument ID: GC/MSD 5970 #1 BFB Injection Time: 8:57

Matrix: Water Column: Capillary

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.1
75	30.0 - 60.0% of mass 95	45.2
95	Base peak, 100% relative abundance	100.
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	.6(.7)1
174	Greater than 50.0% of mass 95	90.7
175	5.0 - 9.0% of mass 174	6.0(6.6)1
176	Greater than 95.0%, but less than 101.0% of mass 174	89.1(98.3)1
177	5.0 - 9.0% of mass 176	5.9(6.6)2

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

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	>X4101	12/20/94	9:24
02	VOA BLANK	VOA BLANK	>X4102	12/20/94	10:16
03	14359.9 5m	14359.9 5m	>X4103	12/20/94	10:55
04	14359.8 5m	14359.8 5m	>X4104	12/20/94	11:34
05	14359.7 5m	14359.7 5m	>X4105	12/20/94	12:13
06	14359.6 5m	14359.6 5m	>X4106	12/20/94	13:00
07	14359.5 5m	14359.5 5m	>X4107	12/20/94	13:47
08	14359.4 5m	14359.4 5m	>X4108	12/20/94	14:35
09	14359.3 5m	14359.3 5m	>X4109	12/20/94	15:44
10	14359.2 5m	14359.2 5m	>X4110	12/20/94	16:31
11	14359.1 5m	14359.1 5m	>X4111	12/20/94	17:19
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Reference 35 9/1/05

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 12/20/94

Contractor: E.P.L. Time: 09:24

Contract No: NJDEPE ID# 15526 Laboratory ID: >X4101

Instrument ID: GC/MSD #1 Initial Calibration Date: 12/08/94

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
Chloromethane	1.36599	1.91596	40.26		**	
Bromomethane	3.78725	4.47685	18.21			
Vinyl Chloride	2.23640	2.77029	23.87	*		
Chloroethane	1.68497	2.08093	23.50			
Methyl tert-Butyl Ether	2.95305	2.98914	1.22			
Methylene Chloride	3.96214	3.02119	23.75			
Acrolein	.08298	.08147	1.82			(Conc=200.00)
Acrylonitrile	.17604	.18377	4.39			(Conc=200.00)
Acetone	.55740	.29890	46.38			
Carbon Disulfide	4.16721	4.81910	15.64			
1,1-Dichloroethene	1.96227	2.32449	18.46	*		
1,1-Dichloroethane	3.99648	4.67369	16.95		**	
tert-Butyl Alcohol	.06197	.05908	4.66			(Conc=200.00)
trans-1,2-Dichloroethene	3.54115	4.13657	16.81			
Trichlorofluoromethane	4.38943	5.20707	18.63			
Chloroform	4.82061	5.62232	16.63	*		
1,2-Dichloroethane-d4	3.74329	3.99919	6.84			(Conc=30.00)
1,2-Dichloroethane	2.39188	2.69383	12.62			
2-Butanone	.04868	.05238	7.61			
1,1,1-Trichloroethane	.84552	.95186	12.58			
Carbon Tetrachloride	.80477	.89942	11.76			
Bromodichloromethane	.79992	.84670	5.85			
Vinyl Acetate	.19526	.19827	1.54			
1,2-Dichloropropane	.41447	.43840	5.77	*		
cis-1,3-Dichloropropene	.43435	.41958	3.40			
Trichloroethene	.62031	.68207	9.96			
Dibromochloromethane	.63653	.61765	2.97			
1,1,2-Trichloroethane	.26561	.27897	5.03			
Benzene	1.07462	1.17349	9.20			
trans-1,3-Dichloropropene	.43435	.41958	3.40			
2-Chloroethylvinyl ether	.12818	.12126	5.40			
Bromoform	.43625	.41737	4.33		**	

RF - Response Factor from daily standard file at 20.00 ppb

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

%Diff - % Difference from original average or curve

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

Reference 35 92/105

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 12/20/94

Contractor: E.P.L.

Time: 09:24

Contract No: NJDEPE ID# 15526

Laboratory ID: >X4101

Instrument ID: GC/MSD #1

Initial Calibration Date: 12/08/94

Minimum $\overline{RF}$ for SPCC is .30

Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
4-Methyl-2-Pentanone	.20301	.19873	2.11			
2-Hexanone	.14131	.13601	3.75			
Tetrachloroethene	1.04579	1.14264	9.26			
1,1,2,2-Tetrachloroethane	.40840	.39840	2.45		**	
Toluene	1.77762	1.95135	9.77	*		
Chlorobenzene	1.29195	1.35762	5.08		**	
Ethylbenzene	2.03561	2.40234	18.02	*		
Styrene	1.35180	1.41427	4.62			
m + p-Xylenes	.81493	.91688	12.51			(Conc=40.00)
o-Xylene	1.86682	2.11351	13.21			
1,3-Dichlorobenzene	1.21368	1.25970	3.79			
1,4-Dichlorobenzene	1.27706	1.30102	1.88			
1,2-Dichlorobenzene	.91725	.91782	.06			
Toluene-d8	3.00080	2.92846	2.41			(Conc=30.00)
Bromofluorobenzene	1.86056	1.82455	1.94			(Conc=30.00)
Diethyl ether	.18677	.17530	6.14			

RF - Response Factor from daily standard file at 20.00 ppb

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

%Diff - % Difference from original average or curve

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

Reference 35 93/105

Initial Calibration Data
HSL Compounds

Case No: Instrument ID: GC/MSD #1

Contractor: E.P.L. Calibration Date: 12/08/94

Contract No: NJDEPE ID# 15526

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>X4017	>X4013	>X4016	>X4018	>X4014						
	RF	RF	RF	RF	RF						
Compound	10.00	20.00	50.00	100.00	200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC	
Chloromethane	1.55543	1.38320	1.45571	1.34511	1.09050	.306	1.36599	12.710		**	
Bromomethane	4.14464	3.80427	3.90879	3.78318	3.29538	.364	3.78725	8.189			
Vinyl Chloride	2.44309	2.23918	2.38046	2.23448	1.88481	.321	2.23640	9.671	*		
Chloroethane	1.84379	1.68607	1.73525	1.66625	1.49351	.381	1.68497	7.552			
Methyl tert-Butyl Ether	3.51643	2.81476	2.87147	2.76881	2.79376	.683	2.95305	10.742			
Methylene Chloride	5.16760	6.19999	3.49277	2.67640	2.27396	.613	3.96214	42.204			
Acrolein	.09909	.06725	.08204	.08142	.08507	.492	.08298	13.672			(Conc=100.0,200.0,500.0,1
Acrylonitrile	.19586	.16305	.17139	.16841	.18150	.666	.17604	7.360			(Conc=100.0,200.0,500.0,1
Acetone	.52750	.54175	.55350	.62050	.54377	.521	.55740	6.543			
Carbon Disulfide	4.32465	4.16466	4.25737	4.23329	3.85607	.553	4.16721	4.394			
1,1-Dichloroethene	2.05806	1.99788	1.97903	1.94963	1.82674	.514	1.96227	4.358	*		
1,1-Dichloroethane	4.16114	3.96581	4.02415	3.97453	3.85678	.788	3.99648	2.764		**	
tert-Butyl Alcohol	.07395	.06253	.06163	.05605	.05570	.647	.06197	11.919			(Conc=100.0,200.0,500.0,1
trans-1,2-Dichloroethene	3.67823	3.45778	3.59980	3.57700	3.39296	.679	3.54115	3.233			
Trichlorofluoromethane	4.71226	4.49197	4.44228	4.36096	3.93969	.423	4.38943	6.450			
Chloroform	5.03817	4.91701	4.72122	4.71139	4.71528	1.025	4.82061	3.103	*		
1,2-Dichloroethane-d4	3.84246	3.70447	3.72892	3.73951	3.70107	1.124	3.74329	1.543			(Conc=30.0,30.0,30.0,30.0
1,2-Dichloroethane	2.85346	2.28699	2.30149	2.24839	2.26907	1.140	2.39188	10.820			
2-Butanone	.04580	.04407	.05243	.05401	.04707	.782	.04868	8.873			
1,1,1-Trichloroethane	.89565	.84201	.82655	.83451	.82886	.872	.84552	3.389			
Carbon Tetrachloride	.84375	.80447	.78851	.79449	.79260	.901	.80477	2.805			
Bromodichloromethane	.89851	.76039	.76991	.77139	.79940	1.108	.79992	7.126			
Vinyl Acetate	.21453	.17507	.19320	.19179	.20173	.669	.19526	7.408			
1,2-Dichloropropane	.47392	.39512	.40407	.39815	.40108	1.067	.41447	8.058	*		
cis-1,3-Dichloropropene	.54532	.39568	.40598	.40025	.42451	1.242	.43435	14.504			
Trichloroethene	.69540	.64693	.59419	.58368	.58133	1.037	.62031	8.016			
Dibromochloromethane	.80993	.58257	.58328	.58742	.61946	1.313	.63653	15.416	-		
1,1,2-Trichloroethane	.29571	.25431	.25790	.25451	.26560	1.264	.26561	6.566			
Benzene	1.17100	1.06915	1.05585	1.04178	1.03533	.934	1.07462	5.159			
trans-1,3-Dichloropropene	.54532	.39568	.40598	.40025	.42451	1.242	.43435	14.504			

RF - Response Factor (Subscript is amount in ppb)

$\overline{RRT}$ - 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 (**)

01

Reference 35 94/105

Initial Calibration Data
HSL Compounds

Case No:

Instrument ID: GC/MSD #1

Contractor: E.P.L.

Calibration Date: 12/08/94

Contract No: NJDEPE ID# 15526

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>X4017	>X4013	>X4016	>X4018	>X4014					
Compound	RF 10.00	RF 20.00	RF 50.00	RF 100.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2-Chloroethylvinyl ether	.15586	.12042	.12003	.11359	.13099	1.152	.12818	13.018		
Bromoform	.45110	.42625	.42788	.41969	.45634	1.487	.43625	3.747		**
4-Methyl-2-Pentanone	.24267	.17947	.19823	.19474	.19994	.860	.20301	11.624		
2-Hexanone	.18267	.11170	.13904	.14101	.13216	.937	.14131	18.303		
Tetrachloroethene	1.10020	1.08345	1.03296	1.01898	.99334	.926	1.04579	4.280		
1,1,2,2-Tetrachloroethane	.42609	.38627	.41867	.39928	.41168	1.116	.40840	3.876		**
Toluene	2.00175	1.85189	1.80239	1.62585	1.60624	.875	1.77762	9.277	*	
Chlorobenzene	1.43949	1.30280	1.25001	1.24683	1.22063	1.002	1.29195	6.788		**
Ethylbenzene	2.32141	2.21700	2.17863	1.74705	1.71396	1.013	2.03561	13.933	*	
Styrene	1.53234	1.33872	1.33529	1.29843	1.25424	1.059	1.35180	7.881		
m + p-Xylenes	.90044	.86016	.83241	.75618	.72544	1.024	.81493	8.917		(Conc=20.0,40.0,100.0,200
o-Xylene	2.15861	1.99137	1.94539	1.63383	1.60489	1.058	1.86682	12.837		
1,3-Dichlorobenzene	1.44444	1.20629	1.17514	1.14282	1.09971	1.198	1.21368	11.116		
1,4-Dichlorobenzene	1.57410	1.29709	1.21905	1.17734	1.11770	1.206	1.27706	13.971		
1,2-Dichlorobenzene	1.17343	.92947	.87755	.83642	.76941	1.237	.91725	16.867		
Toluene-d8	2.92792	2.95262	3.04446	3.07275	3.00627	.869	3.00080	2.023		(Conc=30.0,30.0,30.0,30.0
Bromofluorobenzene	1.87052	1.80971	1.86692	1.86287	1.89278	1.103	1.86056	1.650		(Conc=30.0,30.0,30.0,30.0
Diethyl ether	.21916	.16183	.18855	.18558	.17874	.281	.18677	11.167		

RF - Response Factor (Subscript is amount in ppb)

$\overline{RRT}$ - 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 (**)

97

Reference 3595/105

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

PROJECT	14306	MATRIX	Water
SAMPLE ID	14306.6 MS	DILUTION FACTOR	5.00
CLIENT NAME	SPIKES AQ	ANALYSIS DATE	12-16-94
DATA FILE	>X4095	DATE ANALYZED	12/16/94

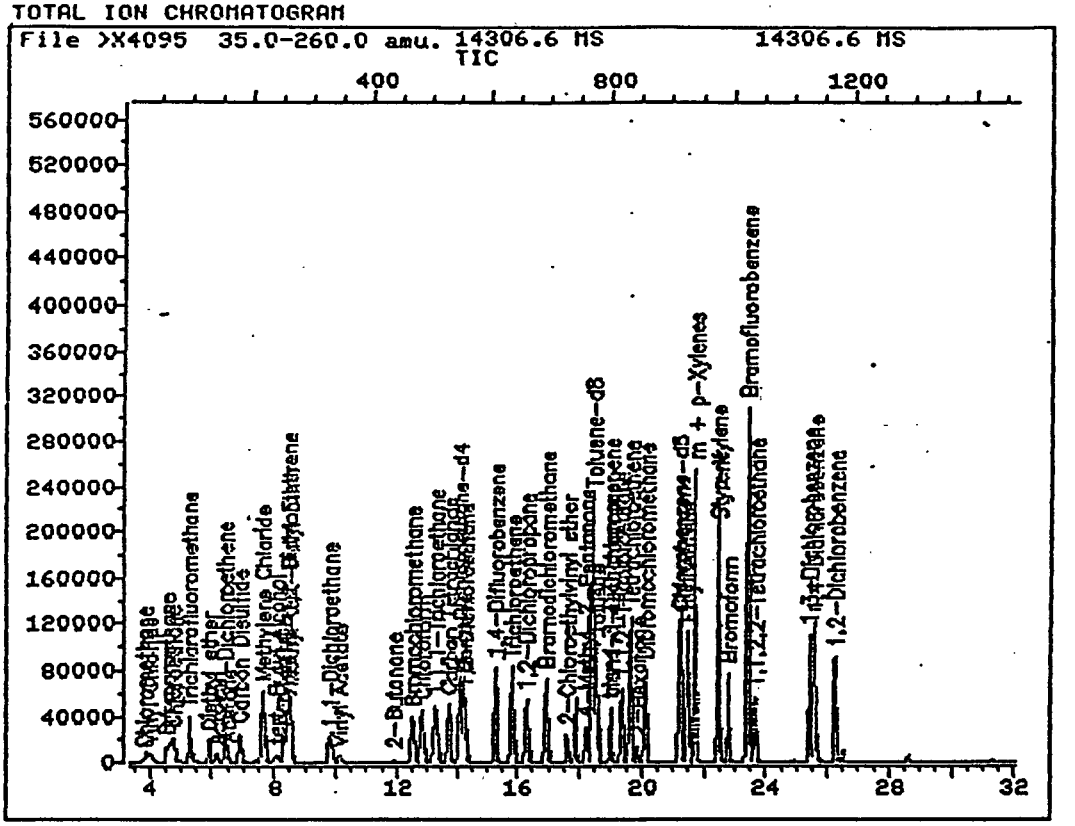
Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	79	10	Trichloroethene	100	5
Bromomethane	82	5	Dibromochloromethane	130	5
Vinyl Chloride	86	8	1,1,2-Trichloroethane	150	9
Chloroethane	86	8	Benzene	110	4
Methylene Chloride	89	17	trans-1,3-Dichloropropene	120	8
1,1-Dichloroethene	91	9	2-Chloroethylvinyl ether	170	6
1,1-Dichloroethane	96	5	Bromoform	160	5
trans-1,2-Dichloroethene	95	15	Tetrachloroethene	97	6
Trichlorofluoromethane	96	6	1,1,2,2-Tetrachloroethane	190	12
Chloroform	99	5	Toluene	100	6
1,2-Dichloroethane	120	7	Chlorobenzene	100	4
1,1,1-Trichloroethane	110	4	Ethylbenzene	110	7
Carbon Tetrachloride	110	3	1,3-Dichlorobenzene	100	6
Bromodichloromethane	120	5	1,2-Dichlorobenzene	120	7
1,2-Dichloropropane	120	4	1,4-Dichlorobenzene	100	13
cis-1,3-Dichloropropene	120	3			0

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

02

Reference 35
96/105

TOTAL ION CHROMATOGRAM



Data File: >X4095::D1
Name: 14306.6 MS
Misc: 14306.6 MS

Quant Output File: ^X4095::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941216 15:31
Injected at: 941216 14:59

OU

Reference 35 97/105

Environmental Profile Laboratories
VOLATILE ORGANICS FORM 1A

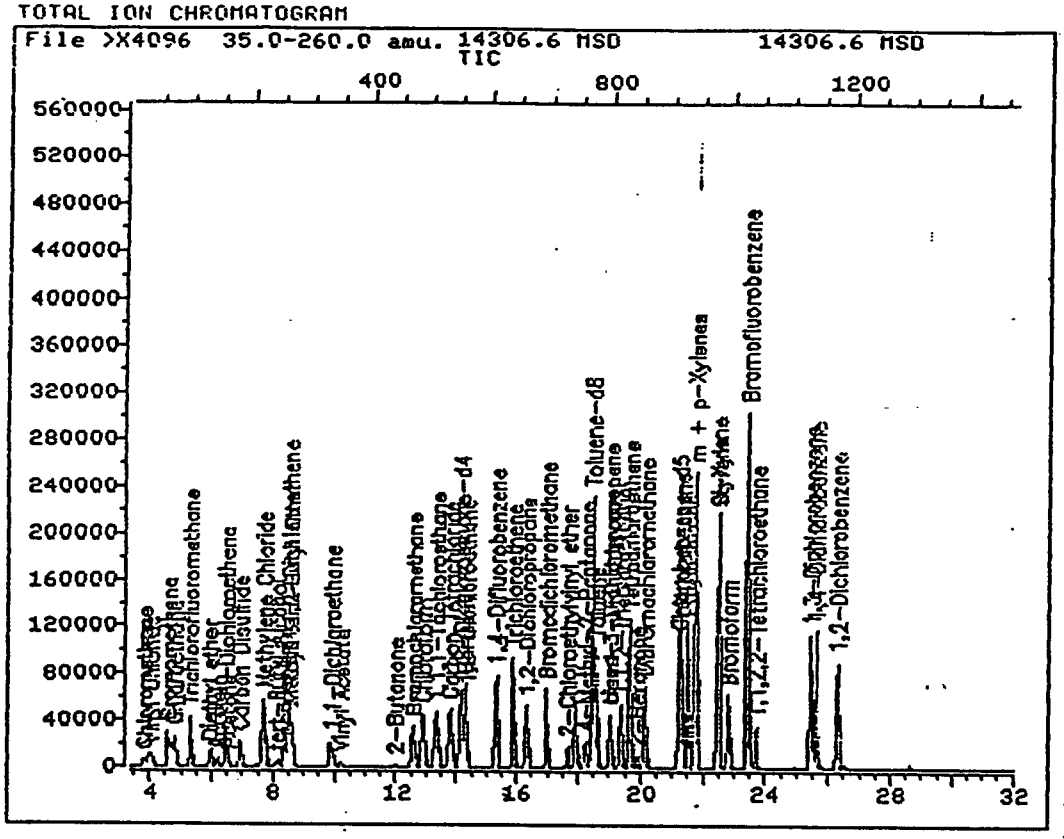
PROJECT	14306	MATRIX	Water
SAMPLE ID	14306.6 MSD	DILUTION FACTOR	5.00
CLIENT NAME	SPIKES AQ	ANALYSIS DATE	12-16-94
DATA FILE	>X4096	DATE ANALYZED	12/16/94

Compound	ug/L	MDL	Compound	ug/L	MDL
Chloromethane	130	10	Trichloroethene	120	5
Bromomethane	100	5	Dibromochloromethane	120	5
Vinyl Chloride	110	8	1,1,2-Trichloroethane	140	9
Chloroethane	110	8	Benzene	110	4
Methylene Chloride	93	17	trans-1,3-Dichloropropene	110	8
1,1-Dichloroethene	100	9	2-Chloroethylvinyl ether	140	6
1,1-Dichloroethane	110	5	Bromoform	130	5
trans-1,2-Dichloroethene	100	15	Tetrachloroethene	100	6
Trichlorofluoromethane	110	6	1,1,2,2-Tetrachloroethane	120	12
Chloroform	110	5	Toluene	110	6
1,2-Dichloroethane	120	7	Chlorobenzene	100	4
1,1,1-Trichloroethane	110	4	Ethylbenzene	110	7
Carbon Tetrachloride	110	3	1,3-Dichlorobenzene	110	6
Bromodichloromethane	110	5	1,2-Dichlorobenzene	110	7
1,2-Dichloropropane	120	4	1,4-Dichlorobenzene	110	13
cis-1,3-Dichloropropene	110	3			0

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

Reference 35 98/105

TOTAL ION CHROMATOGRAM



Data File: >X4096::D1
Name: 14306.6 MSD
Misc: 14306.6 MSD

Quant Output File: ^X4096::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941216 16:14
Injected at: 941216 15:41

Reference 35 99/105

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: Environmental Profile Lab Contract: Twp of Lakewood

Lab Code: 15526

Lab File ID: >X4102 Lab Sample ID: VOA BLANK

Date Analyzed: 12/20/94 Time Analyzed: 10:16

Matrix: Water

Instrument ID: GC/MSD 5970 #1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	CCC/SPCC	CCC/SPCC	>X4101	9:24
02	14359.9 5m	14359.9 5m	>X4103	10:55
03	14359.8 5m	14359.8 5m	>X4104	11:34
04	14359.7 5m	14359.7 5m	>X4105	12:13
05	14359.6 5m	14359.6 5m	>X4106	13:00
06	14359.5 5m	14359.5 5m	>X4107	13:47
07	14359.4 5m	14359.4 5m	>X4108	14:35
08	14359.3 5m	14359.3 5m	>X4109	15:44
09	14359.2 5m	14359.2 5m	>X4110	16:31
10	14359.1 5m	14359.1 5m	>X4111	17:19
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
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22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

Reference 35 100/105

Environmental Profile Laboratories
VOLATILE ORGANIC ANALYSIS DATA

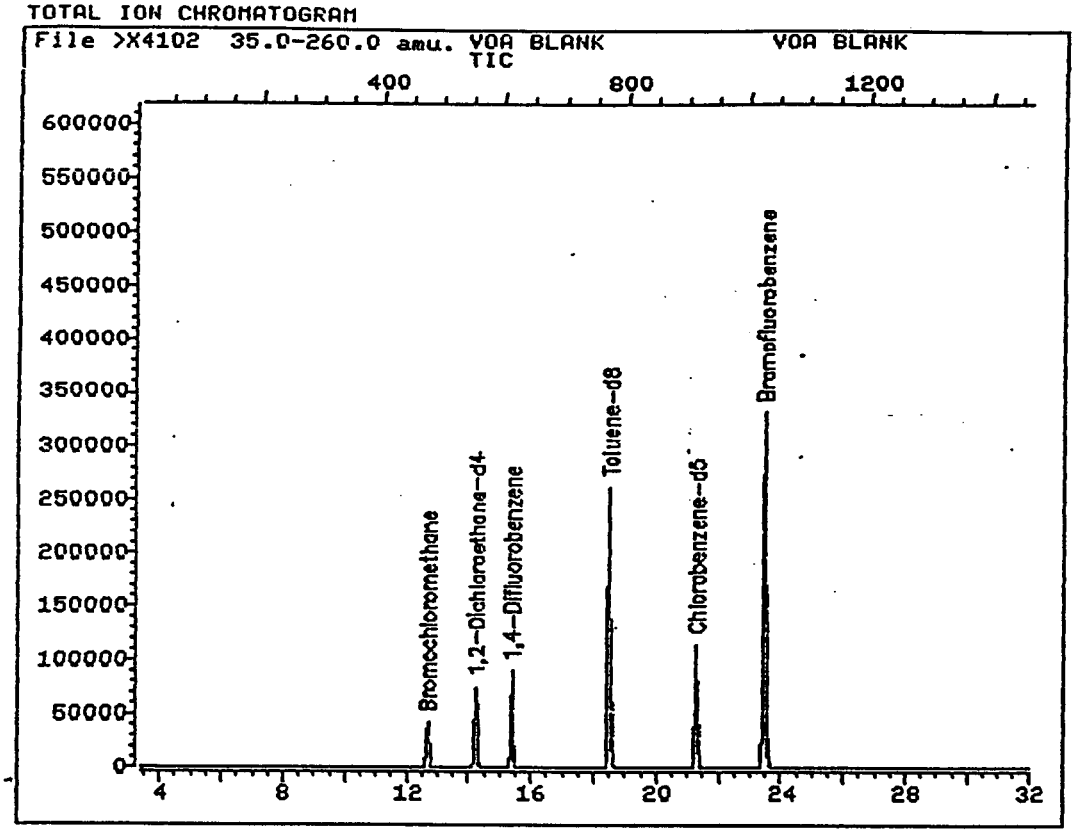
JOB NUMBER		MATRIX	Water
SAMPLE NAME	VOA BLANK	DILUTION FACTOR	1.00
CLIENT ID		QA BATCH	
DATA FILE	>X4102	DATE ANALYZED	12/20/94

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Chloromethane	ND	2	Dibromochloromethane	ND	1
Bromomethane	ND	1	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Benzene	ND	1
Chloroethane	ND	2	trans-1,3-Dichloropropene	ND	2
Methylene Chloride	ND	4	2-Chloroethylvinyl ether	ND	1
Acrolein	ND	50	Bromoform	ND	1
Acrylonitrile	ND	50	2-Hexanone	ND	5
Acetone	ND	10	4-Methyl-2-Pentanone	ND	5
Carbon Disulfide	ND	5	Tetrachloroethene	ND	1
1,1-Dichloroethene	ND	2	1,1,2,2-Tetrachloroethane	ND	2
1,1-Dichloroethane	ND	1	Toluene	ND	1
trans-1,2-Dichloroethene	ND	3	Chlorobenzene	ND	1
Trichlorofluoromethane	ND	1	Ethylbenzene	ND	1
Chloroform	ND	1	Styrene	ND	5
1,2-Dichloroethane	ND	1	o-Xylene	ND	5
2-Butanone	ND	5	m + p-Xylenes	ND	5
1,1,1-Trichloroethane	ND	1	1,3-Dichlorobenzene	ND	1
Carbon Tetrachloride	ND	1	1,2-Dichlorobenzene	ND	1
Bromodichloromethane	ND	1	1,4-Dichlorobenzene	ND	3
Vinyl Acetate	ND	5	tert-Butyl Alcohol	ND	50
1,2-Dichloropropane	ND	1	Methyl tert-Butyl Ether	ND	5
cis-1,3-Dichloropropene	ND	1	Diethyl ether	ND	5
Trichloroethene	ND	1			0

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

Reference 35 101/105

TOTAL ION CHROMATOGRAM



Data File: >X4102::D1
Name: VOA BLANK
Misc: VOA BLANK

Quant Output File: ^X4101::DB

Id File: IDVOA::D2
Title: HSL VOLATILE ORGANICS
Last Calibration: 941216 11:46

Operator ID: BOB
Quant Time: 941220 10:49
Injected at: 941220 10:16

Reference 35 102/105

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

VOA BLANK

Lab Name: Environmental Profile Lab NJDEP Cert.# 15526

Matrix: Water

Lab Sample ID: VOA BLANK

Sample wt/vol: 5.0 (g/mL) mL

Lab File ID: >X4102

Date Analyzed: 12/20/94

Column: Capillary

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

Reference 35
103/105

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: Environmental Profile Lab Contract: Twp of Lakewood

Lab Code: 15526

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	CCC/SPCC	95	102	113		0
02	VOA BLANK	95	102	113		0
03	14359.9 5m	95	103	116		0
04	14359.8 5m	94	106	118		0
05	14359.7 5m	94	105	118		0
06	14359.6 5m	96	105	112		0
07	14359.5 5m	95	104	116		0
08	14359.4 5m	96	102	113		0
09	14359.3 5m	94	104	115		0
10	14359.2 5m	94	104	114		0
11	14359.1 5m	94	105	118		0
12						
13						
14						
15						
16						
17						
18						
19						
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21						
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24						
25						
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27						
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29						
30						

		QC LIMITS
S1 (TOL)	= Toluene-d8	(76-125)
S2 (BFB)	= Bromofluorobenzene	(76-125)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1

1/87 Rev.

Reference 38
104/105

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Environmental Profile Lab Contract: Twp of Lakewood

Lab Code: 15526

Lab File ID (Standard): >X4101 Date Analyzed: 12/20/94

Instrument ID: GC/MSD 5970 #1 Time Analyzed: 9:24

Matrix: Water Column: Capillary

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	41121.	12.67	224411.	15.36	172676.	21.26
	UPPER LIMIT	82242.		448822.		345352.	
	LOWER LIMIT	20561.		112205.		86338.	
	EPA SAMPLE NO.						
01	VOA BLANK	41121.	12.67	224411.	15.36	172676.	21.26
02	14359.9 5m	43702.	12.64	219464.	15.35	173094.	21.23
03	14359.8 5m	40959.	12.63	207037.	15.34	164667.	21.24
04	14359.7 5m	42885.	12.61	226490.	15.33	180265.	21.23
05	14359.6 5m	40681.	12.60	219901.	15.33	171683.	21.23
06	14359.5 5m	42604.	12.60	219261.	15.32	172663.	21.24
07	14359.4 5m	37217.	12.58	209080.	15.32	163387.	21.22
08	14359.3 5m	42029.	12.61	215036.	15.33	169453.	21.23
09	14359.2 5m	39288.	12.59	210996.	15.31	167066.	21.23
10	14359.1 5m	42056.	12.55	214867.	15.30	170962.	21.22
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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

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

Reference 35

105/105

LABORATORY DELIVERABLES

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

THE FOLLOWING LABORATORY DELIVERABLES SHALL BE INCLUDED IN THE DATA SUBMISSION. ALL DEVIATIONS FOR THE ACCEPTED METHODOLOGY AND PROCEDURES, OR PERFORMANCE VALUES OUTSIDE ACCEPTABLE RANGES SHALL BE SUMMARIZED IN THE NON-CONFORMANCE SUMMARY. THE PROPOSED "TECHNICAL REQUIREMENTS FOR SITE REMEDIATION" RULES, WHICH APPEARED IN THE MAY 4,1992 NEW JERSEY REGISTER, PROVIDES FURTHER DETAILS. THE DOCUMENT SHALL BE BOUND AND PAGINATED, CONTAIN A TABLE OF CONTENTS, AND ALL PAGES SHALL BE LEGIBLE. INCOMPLETE PACKAGES WILL BE RETURNED OR HELD WITHOUT REVIEW UNTIL THE DATA PACKAGE IS COMPLETED.

IT IS RECOMMENDED THAT THE ANALYTICAL RESULTS SUMMARY SHEETS LISTING ALL TARGETED AND NON-TARGETED COMPOUNDS WITH THE METHOD DETECTION LIMITS BE INCLUDED IN ONE SECTION OF THE DATA PACKAGE AND IN THE MAIN BODY OF THE REPORT.

		CHECK IF COMPLETE
1.	COVER PAGE, TITLE PAGE LISTING LAB CERTIFICATION #, FACILITY NAME & ADDRESS, & DATE OF REPORT	X
2.	TABLE ON CONTENTS	X
3.	SUMMARY SHEETS LISTING ANALYTICAL RESULTS FOR ALL TARGETED AND NON-TARGETED COMPOUNDS	X
4.	SUMMARY TABLE CROSS-REFERENCING FIELD ID #'S VS. LAB ID #'S	X
5.	DOCUMENT BOUND, PAGINATED AND LEGIBLE	X
6.	CHAIN OF CUSTODY	X
7.	METHODOLOGY SUMMARY	X
8.	LABORATORY CHRONICLE AND HOLDING TIME CHECK	X
9.	RESULTS SUBMITTED ON A DRY WEIGHT BASIS (IF APPLICABLE)	X
10.	METHOD DETECTION LIMITS	X
11.	LAB CERTIFIED BY NJDEPE FOR PARAMETERS OR APPROPRIATE CATEGORY OF PARAMETERS OF A MEMBER OF THE USEPA CLP	X
12.	NON-CONFORMANCE SUMMARY	X

LABORATORY MANAGER OF ENVIRONMENTAL CONSULTANT'S SIGNATURE

1-3-95
DATE

REFERENCE NO. 36

Reference 36 1/20

State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
CN 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

Robert C. Shinn, Jr.
Commissioner

April 6, 1995

Anne Roche
Ebasco Services Inc.
One Oxford Valley, Suite 200
2300 Lincoln Highway East
Langhorne, PA 19047-1829

Re: Lakewood Twp. Landfill and Associated Waterways

Dear Ms. Roche:

Thank you for your data request regarding rare species information for the above referenced project site in Ocean County.

The Natural Heritage Data Base does not have any records for rare plants, animals, or natural communities on the Lakewood Twp. Landfill site. However, there are records for a number of occurrences for rare species which may be on, or in the immediate vicinity of the waterways that you have associated with this site. The attached list provides additional information about these occurrences. Also attached is a list of rare species from records in the general vicinity of the project site (within approximately 4 miles).

Also attached is a list of rare species and natural communities which have been documented from Ocean County. If suitable habitat is present at the project site, these species have potential to be present. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend you contact the Division of Fish, Game and Wildlife, Endangered and Nongame Species Program.

In order to red flag the general locations of documented occurrences of rare and endangered species and natural communities, we have prepared computer generated Natural Heritage Index Maps. Enclosed please find these maps for the Lakehurst, Lakewood, and Toms River USGS quadrangles.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Reference 36 2/20

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Elena A. Williams

Elena A. Williams
Senior Planner

cc: Lawrence Niles
Thomas Hampton
NHP File No. 95-4007412

Reference 363/20

NATURAL LANDS MANAGEMENT

CAUTIONS AND RESTRICTIONS ON NATURAL HERITAGE DATA

The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in New Jersey have never been thoroughly surveyed. As a result, new locations for plant and animal species are continuously added to the data base. Since data acquisition is a dynamic, ongoing process, the Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The attached data is provided as one source of information to assist others in the preservation of natural diversity.

This office cannot provide a letter of interpretation or a statement addressing the classification of wetlands as defined by the Freshwater Wetlands Act. Requests for such determination should be sent to the DEP Land Use Regulation Program, CN 401, Trenton, NJ 08625-0401.

This cautions and restrictions notice must be included whenever information provided by the Natural Heritage Database is published.

6 APR 1995

ON OR IN THE IMMEDIATE VICINITY OF ASSOCIATED WATERWAYS
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

AME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
** Vertebrates								
IYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1988-05-??	
IYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1989-06-??	Y
'ITUOPHIS MELANOLEUCUS IELANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1988-07-??	
** Vascular plants								
OLYGONUM GLAUCUM	SEA-BEACH KNOTWEED		E		G3	S1	1892-08-21	Y
IGADENUS LEIMANTHOIDES	OCEANORUS		E		G4Q	S1	1993-06-25	Y

Records Processed

Reference 36 4/20

I MAR 1995

GENERAL VICINITY OF PROJECT SITE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

ME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
* Vertebrates								
DEA HERODIAS	GREAT BLUE HERON		T/S		G5	S2	1984-??-??	Y
EMMYS INSCULPTA	WOOD TURTLE		T		G4	S3	193?-??-??	Y
OTALUS HORRIDUS	TIMBER RATTLESNAKE		E		G5	S2	19??-??-??	?
OTALUS HORRIDUS	TIMBER RATTLESNAKE		E		G5	S2	1931-07-18	
OTALUS HORRIDUS	TIMBER RATTLESNAKE		E		G5	S2	1985-08-??	
LA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1932-05-27	Y
LA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1975-06-19	Y
LA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	????-??-??	Y
LA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1975-07-23	Y
LA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1988-05-??	
LANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		T/T		G5	S3	????-??-??	
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1982-06-30	Y
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1932-??-??	
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	????-??-??	
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1979-06-18	
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1934-05-17	
TUOPHIS MELANOLEUCUS LANOLEUCUS	NORTHERN PINE SNAKE	C2	T		G5T4	S3	1988-07-??	
RIX VARIA	BARRED OWL		T/T		G5	S3	1990-05-18	Y
* Invertebrates								
CISALIA IRUS	FROSTED ELFIN				G4	SU	1908-05-15	Y
* Vascular plants								

Reference 36 5/20

1 MAR 1995

GENERAL VICINITY OF PROJECT SITE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

ME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
STER RADULA	LOW ROUGH ASTER		E		G5	S1	1891-09-19	Y
ALAMOVILFA BREVIPILIS	PINE BARREN REEDGRASS	3C		LP	G4	S3	1942-12-02	Y
AREX BARRATTII	BARRATT'S SEDGE	3C		LP	G4	S4	1910-05-15	Y
RIOCAULON PARKERI	PARKER'S PIPEWORT	3C			G3	S2	1942-09-06	Y
APHALIUM HELLERI	HELLER'S EVERLASTING		E		G4G5	S1	1912-08-25	Y
ELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G3	S3	1992-09-02	Y
RUNUS ANGUSTIFOLIA	CHICKASAW PLUM		E		G5	S1	1919-07-12	Y
YNCHOSPORA PALLIDA	PALE BEAK RUSH				G3	S3	????-09-18	Y
HIZAEA PUSILLA	CURLY GRASS FERN	3C		LP	G3	S3	1933-07-01	Y
ULARIA PUBERULA VAR NITIDA	PINE BARREN BELLWORT		E		G5T2?	S2	1910-05-15	Y
ULARIA PUBERULA VAR NITIDA	PINE BARREN BELLWORT		E		G5T2?	S2	1910-05-15	Y

) Records Processed

Reference 36 6/20

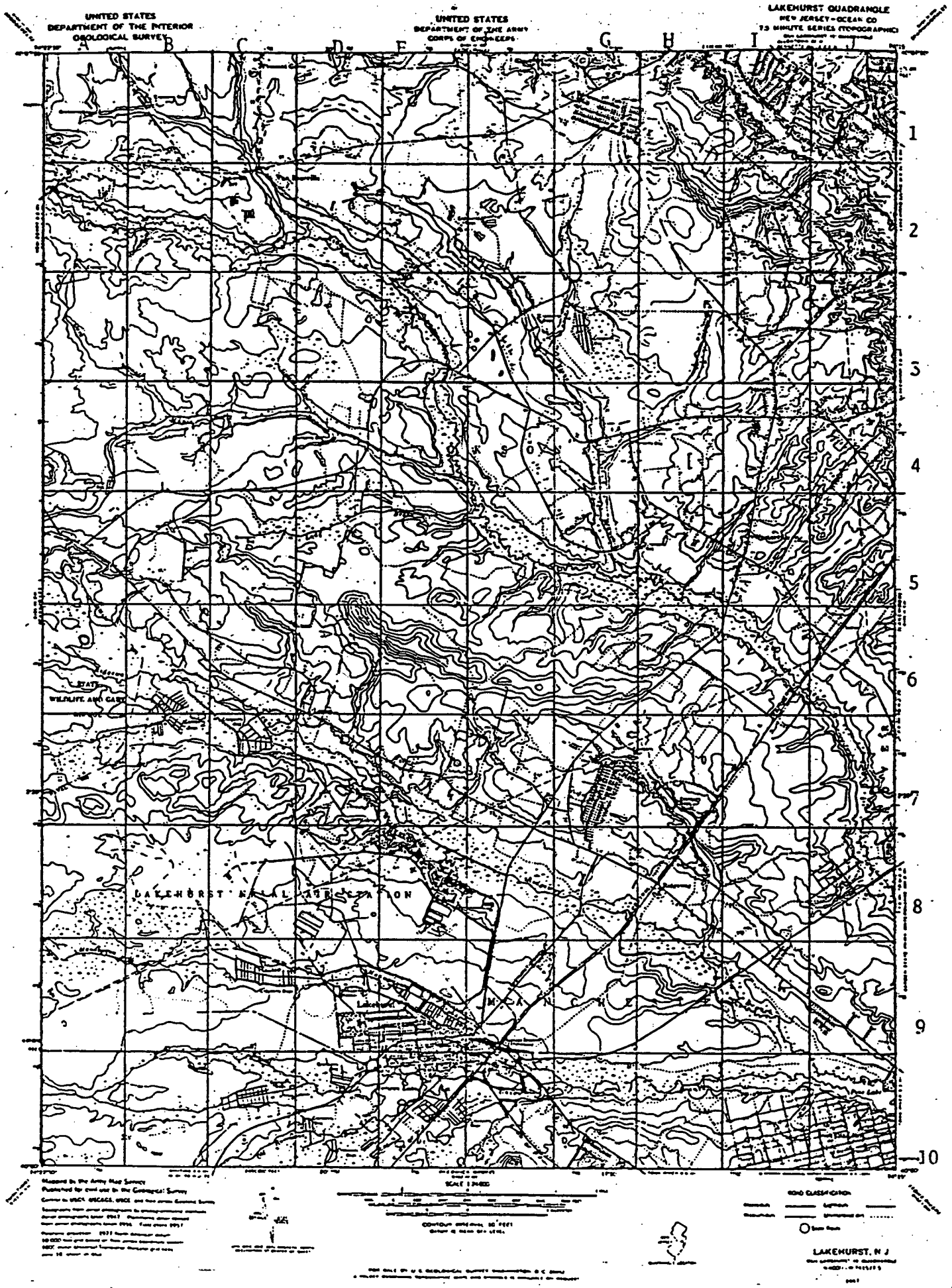
Reference 36 7/20

NATURAL HERITAGE INDEX MAPS

The Natural Heritage Database contains several thousand records of individual occurrences of endangered and threatened species and ecosystems. Many of these occurrences either have not been documented in recent years or have not had habitat boundaries delineated. Because much work remains to be done to delineate habitat boundaries and determine current status for these occurrences, Natural Heritage Index Maps were devised to red flag general areas in which the occurrences are located. The index maps are meant to be used as a tool to point to areas which may be of significance for endangered biological diversity. These maps do not depict all endangered species habitat in the state, but merely general areas which contain documented occurrences. Many additional areas may contain unidentified or poorly documented occurrences.

The maps have been produced using a computer generated grid which shades a grid cell approximately 330 acres in size if an endangered or threatened species or ecosystem has been documented anywhere within the cell. To use these maps, we suggest that you first find the location to be checked on the quad maps and then refer to the same grid location of the Natural Heritage Index Maps. The Natural Heritage Program can be contacted for additional information as specific projects are planned.

Reference 36. 8/20



Reference 36. 9/20

Generalized Natural Heritage Index Map

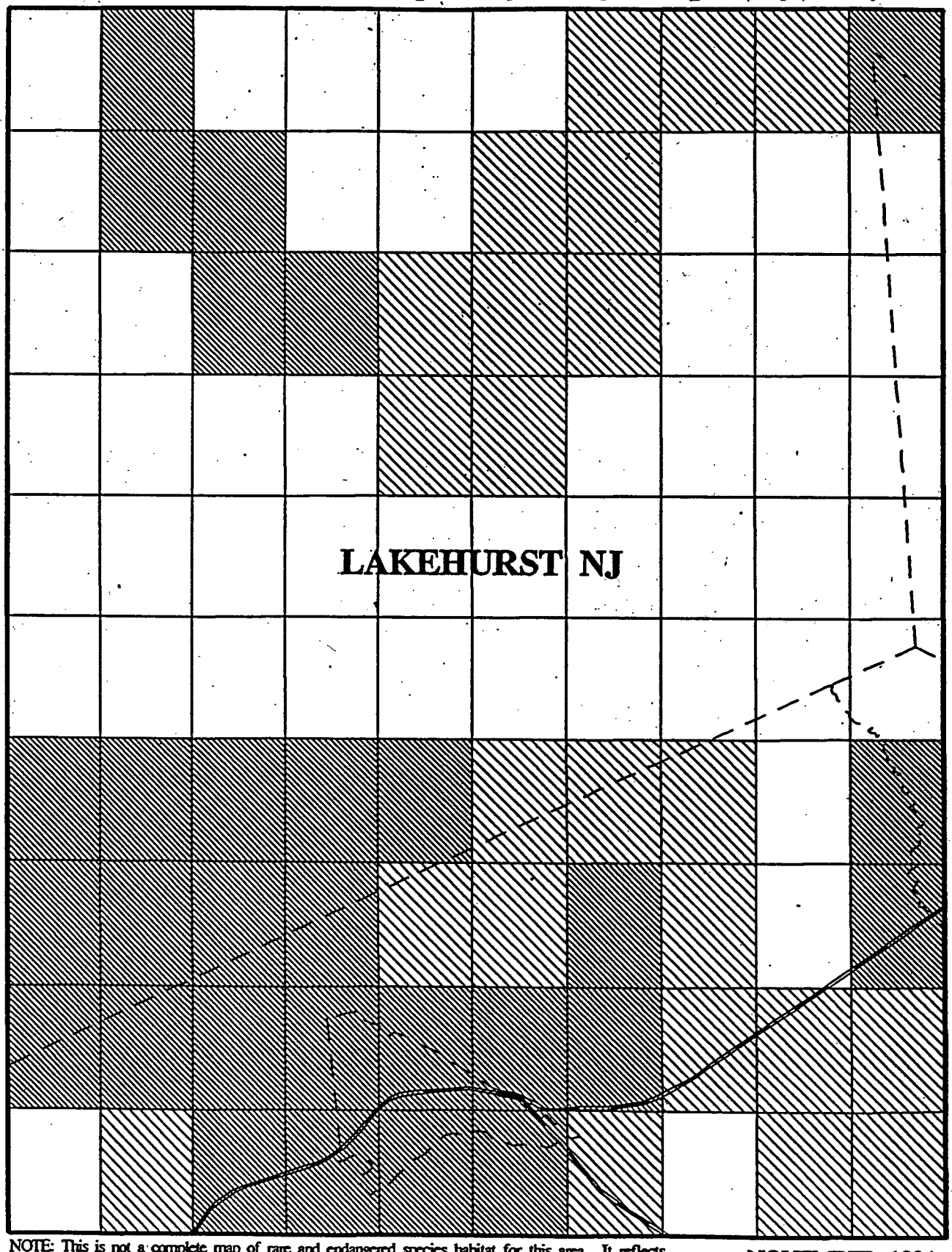
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

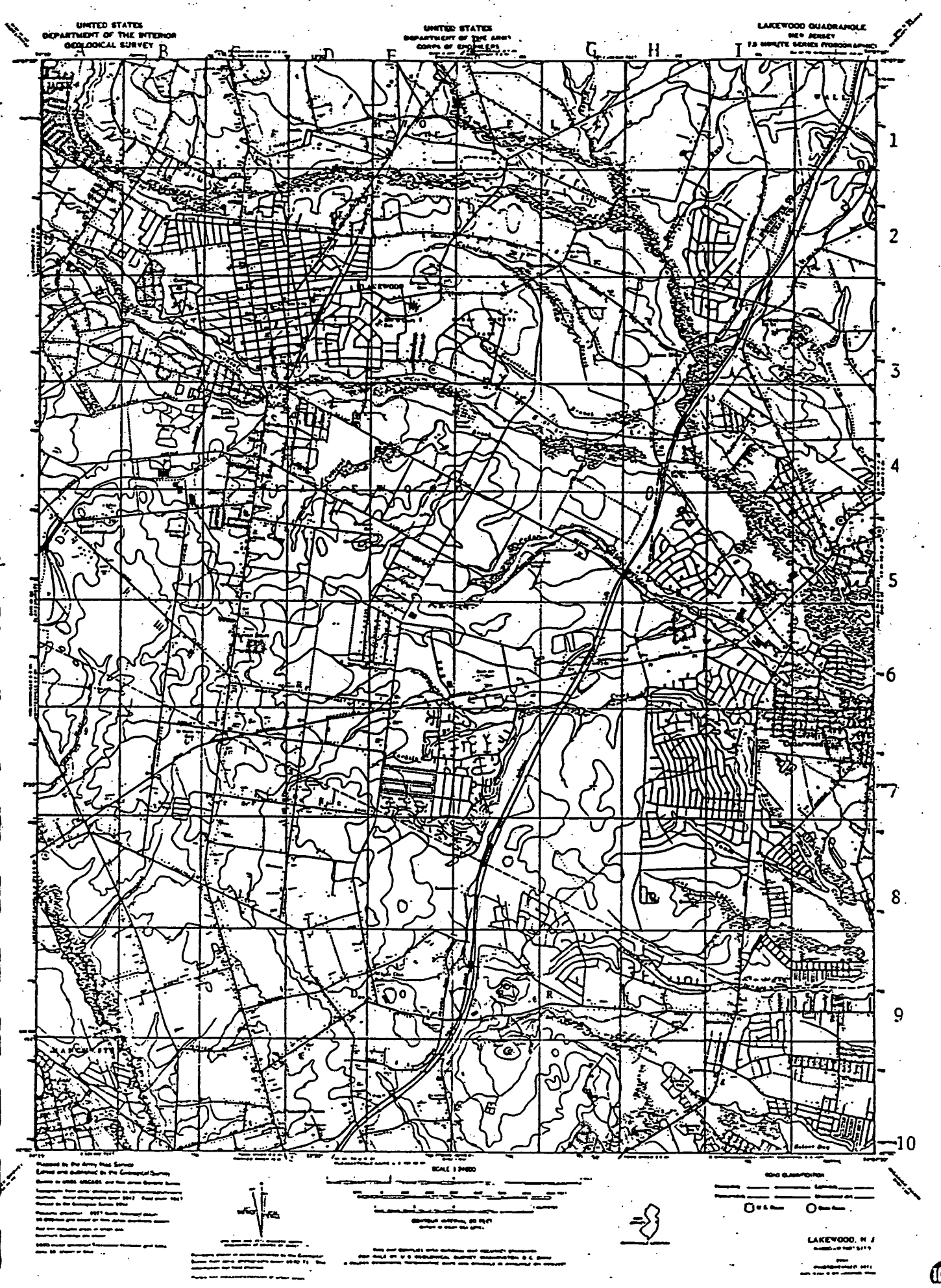
Municipalities



NOTE: This is not a complete map of rare and endangered species habitat for this area. It reflects data on known occurrences compiled as of the above date. It includes both historically and recently documented habitat. Additional occurrences may be found on unsurveyed habitat. For more information, contact the Office of Natural Lands Management, CN404, Trenton, NJ 08625.

NOVEMBER 1994
Updated semiannually

Reference 36 10/20



Reference 36 11/20

Generalized Natural Heritage Index Map

Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

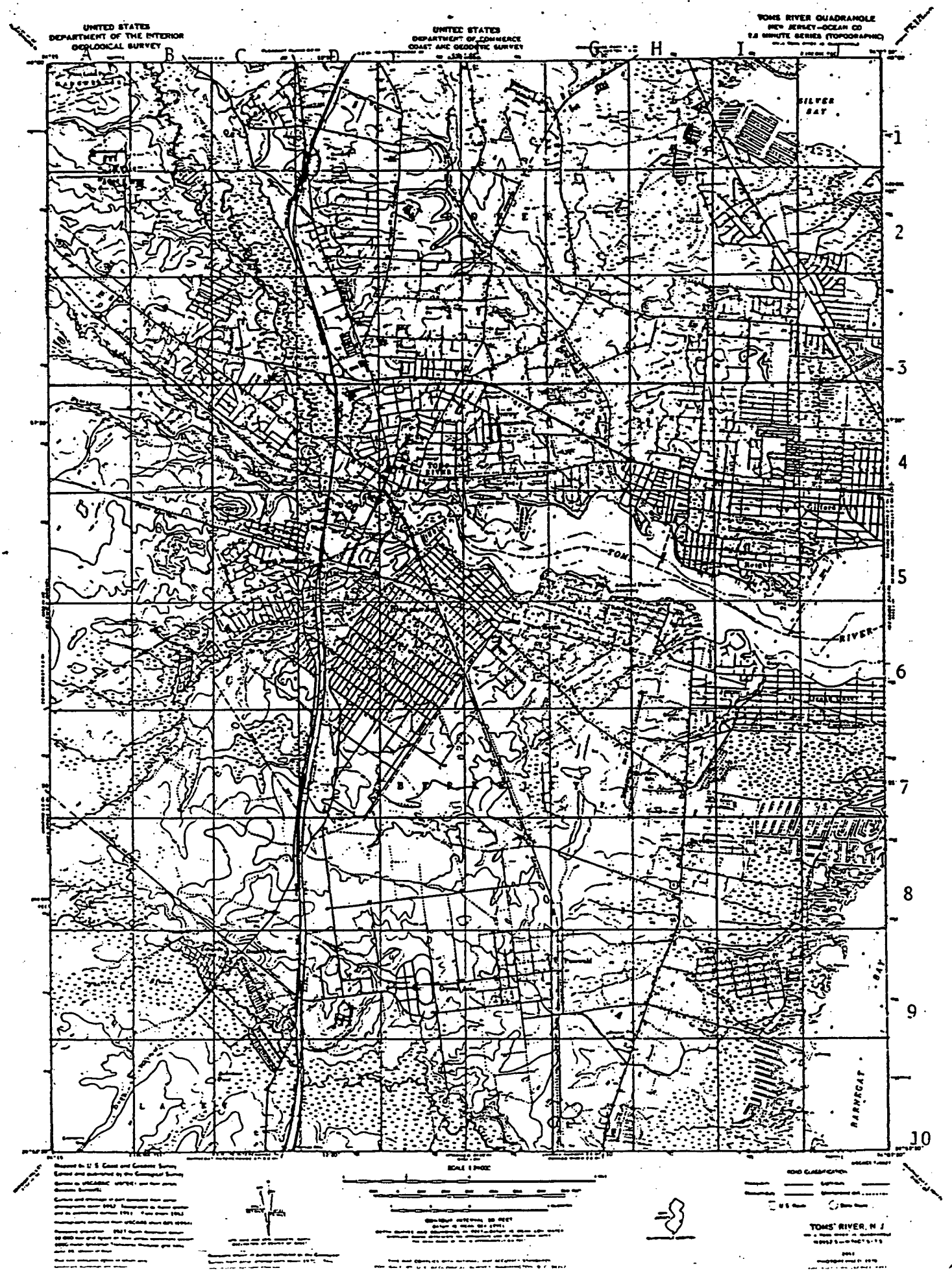
Major Roads

Municipalities

NOTE: This is not a complete map of rare and endangered species habitat for this area. It reflects data on known occurrences compiled as of the above date. It includes both historically and recently documented habitat. Additional occurrences may be found on unsurveyed habitat. For more information, contact the Office of Natural Lands Management, CN404, Trenton, NJ 08625.

NOVEMBER 1994
Updated semiannually

Reference 36 12/80



Reference 3b 13/20

Generalized Natural Heritage Index Map

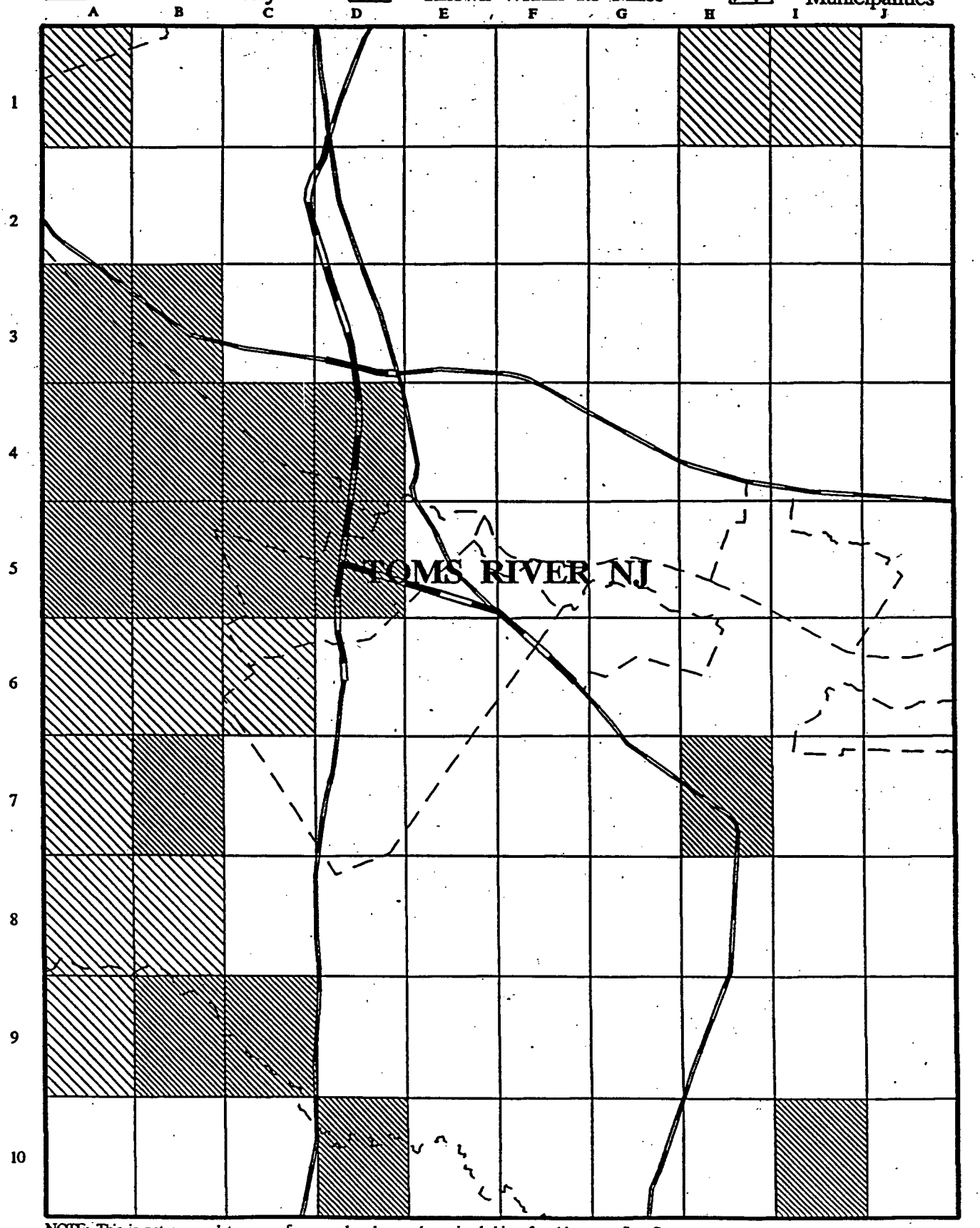
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



NOTE: This is not a complete map of rare and endangered species habitat for this area. It reflects data on known occurrences compiled as of the above date. It includes both historically and recently documented habitat. Additional occurrences may be found on unsurveyed habitat. For more information, contact the Office of Natural Lands Management, CN404, Trenton, NJ 08625.

NOVEMBER 1994
Updated semiannually

JAN 1995

OCEAN COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
SCHWALBEA AMERICANA	CHAFFSEED	LE	E	LP	G2	S1
SCIRPUS LONGII	LONG'S BULRUSH	C2	E	LP	G2	S2
SCIRPUS MARITIMUS	SALT MARSH BULRUSH		E		G5	SH
SCLERIA MINOR	SLENDER NUT RUSH			LP	G4	S4
SOLIDAGO TARDA	LATE GOLDENROD				G?	S3
SPIRANTHES LACINIATA	LACE-LIP LADIES'-TRESSES		E		G4G5	S1
SPIRANTHES ODORATA	FRAGRANT LADIES'-TRESSES				G5	S2
STYLISMA PICKERINGII VAR PICKERINGII	PICKERING'S MORNING-GLORY	C2	E	LP	G4?T2	S1
TRIDENS FLAVUS VAR CHAPMANII	CHAPMAN'S REDTOP		E		G5T?	SH
TRIGLOCHIN MARITIMUM	SEA-SIDE ARROW-GRASS		E		G5	S1
UTRICULARIA BIFLORA	TWO-FLOWERED BLADDERWORT		E		G5	S1
UTRICULARIA MINOR	LESSER BLADDERWORT		E		G5	S1
UVULARIA PUBERULA VAR NITIDA	PINE BARREN BELLWORT		E		G5T2?	S2
VERBENA SIMPLEX	NARROW-LEAVED VERVAIN		E		G5	SH
XYRIS FIMBRIATA	FRINGED YELLOW-EYED GRASS		E		G5	S1
ZIGADENUS LEIMANTHOIDES	OCEANORUS		E		G4Q	S1

) Records Processed

Reference 36 14/20

JAN 1995

OCEAN COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
ASTER RADULA	LOW ROUGH ASTER		E		G5	S1
BUCHNERA AMERICANA	BLUE-HEARTS				G3G4	SX
CACALIA ATRIPLICIFOLIA	PALE INDIAN PLANTAIN		E		G4G5	S1
CALAMOVILFA BREVIPILIS	PINE BARREN REEDGRASS	3C		LP	G3	S3
CARDAMINE LONGII	LONG'S BITTER CRESS	3C	E		G3G4Q	SH
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G4	S4
CAREX MITCHELLIANA	MITCHELL'S SEDGE				G3G4	S2
CAREX PALLESCENS	PALE SEDGE				G5	S2
CAREX WILLDENOWII	WILLDENOW'S SEDGE				G5	S2
CHRYSOPSIS FALCATA	SICKLE-LEAVED GOLDEN ASTER			LP	G3G4	S2
CIRSIUM VIRGINIANUM	VIRGINIA THISTLE		E		G3G4	S1
CLITORIA MARIANA	BUTTERFLY PEA		E		G5	S1
COREMA CONRADII	BROOM CROWBERRY		E	LP	G4	S1
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2
DESMODIUM PAUCIFLORUM	FEW-FLOWERED TICK-TREFOIL		E		G5	SH
ELEOCHARIS HALOPHILA	SALT-MARSH SPIKERUSH				G4	S2
ELEOCHARIS TORTILIS	TWISTED SPIKERUSH		E		G5	S1
ERIOCAULON PARKERI	PARKER'S PIPEWORT	3C			G3	S2
ERIOPHORUM TENELLUM	ROUGH COTTONGRASS		E		G5	S1
ERYNGIUM AQUATICUM	MARSH RATTLESNAKE MASTER				G4	S3
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2
FRAXINUS PROFUNDA	PUMPKIN ASH		E		G4G5	S1
FUIRENA SQUARROSA	HAIRY UMBRELLA-SEDGE				G4G5	S3
GALACTIA VOLUBILIS	DOWNY MILK-PEA		E		G5	SH
GENTIANA AUTUMNALIS	PINE BARREN GENTIAN	3C		LP	G3	S3
GLAUX MARITIMA	SEA-BEACH MILKWORT		E		G5	SH
GNAPHALIUM HELLERI	HELLER'S EVERLASTING				G4G5	S1
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G3	S3
HONCKENYA PEPLOIDES	SEA-BEACH SANDWORT				G5	S2
HOTTONIA INFLATA	FEATHERFOIL		E		G3G4	S1

Reference 36 15/20

9 JAN 1995

OCEAN COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
STERNA HIRUNDO	COMMON TERN	C2NL	D/S		G5	S3
STERNA NILOTICA	GULL-BILLED TERN		S		G5	S3
STRIX VARIA	BARRED OWL		T/T		G5	S3
SYNAPTOMYS COOPERI	SOUTHERN BOG LEMMING		U		G5	S2
* Ecosystems						
COASTAL DUNE SHRUBLAND	COASTAL DUNE SHRUBLAND				G4	S2?
COASTAL DUNE WOODLAND	COASTAL DUNE WOODLAND				G2G3	S1
MARINE INTERTIDAL GRAVEL/SAND BEACH COMMUNITY	MARINE INTERTIDAL GRAVEL/SAND BEACH COMMUNITY				GU	SU
PINE PLAINS	DWARF PITCH PINE-BLACKJACK OAK PINE PLAINS				G1	S1
* Invertebrates						
AESHNA CLEPSYDRA	MOTTLED DARNER				G3G4	S?
AGROTIS BUCHHOLZI	BUCHHOLZ'S DART	C2			G2G3	S2
APHARETRA PURPUREA	NJ PINELANDS RACE OF A. PURPUREA				G4	S2S3
ATRYTONE AROGOS AROGOS	AROGOS SKIPPER	C2			G4T1T3	SH
BOLORIA SELENE MYRINA	A SILVER-BORDERED FRITILLARY				G5T5	S2S4
CATOCALA HERODIAS GERHARDI	PINE BARRENS UNDERWING				G3T3	S3
CELITHEMIS MARTHA	MARTHA'S PENNANT				G4	S3S4
CICINDELA DORSALIS DORSALIS	NORTHEASTERN BEACH TIGER BEETLE	LT	E		G4T1T2	SH
CICINDELA PATRUELA CONSENTANEA	A TIGER BEETLE				G3T3	S2S4
CRAMBUS DAECKELLUS	DAECKE'S PYRALID MOTH	C2			G1G3	S1S3
ENALLAGMA PICTUM	SCARLET BLUET				G4	S3?
ENALLAGMA RECURVATUM	PINE BARRENS BLUET	3C			G3	S3
FARONTA RUBRIPENNIS	PINK STREAK				G3G4	SU
HESPERIA ATTALUS SLOSSONAE	A DOTTED SKIPPER				G4T3	S1S2

Reference 36 16/26

Reference 36 17/20

EXPLANATIONS OF CODES USED IN NATURAL HERITAGE REPORTS

FEDERAL STATUS CODES

The following U.S. Fish and Wildlife Service categories and their definitions of endangered and threatened plants and animals have been modified from the U.S. Fish and Wildlife Service (F.R. Vol. 50 No. 188; Vol. 55, No. 35; F.R. 50 CFR 17.11 and 17.12). Federal Status codes reported for species follow the most recent listing.

LE Taxa formally listed as endangered.

LT Taxa formally listed as threatened.

PE Taxa already proposed to be formally listed as endangered.

PT Taxa already proposed to be formally listed as threatened.

C1 Taxa for which the Service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species.

C1* Taxa which may be possibly extinct (although persuasive documentation of extinction has not been made--compare to 3A status).

C2 Taxa for which information now in possession of the Service indicates that proposing to list them as endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

C3 Taxa that are no longer being considered for listing as threatened or endangered species. Such taxa are further coded to indicate three subcategories, depending on the reason(s) for removal from consideration.

3A Taxa for which the Service has persuasive evidence of extinction.

3B Names that, on the basis of current taxonomic understanding, do not represent taxa meeting the Act's definition of "species".

3C Taxa that have proven to be more abundant or widespread than was previously believed

Reference 36 18/26

S Stable species-a species whose population is not undergoing any long-term increase/decrease within its natural cycle.

U Undetermined species-a species about which there is not enough information available to determine the status.

Status for animals separated by a slash(/) indicate a duel status. First status refers to the state breeding population, and the second status refers to the migratory or winter population.

Plant taxa listed as endangered are from New Jersey's official Endangered Plant Species List N.J.S.A. 131B-15.151 et seq.

E Native New Jersey plant species whose survival in the State or nation is in jeopardy.

REGIONAL STATUS CODES FOR PLANTS

LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction. Not all species currently tracked by the Pinelands Commission are tracked by the Natural Heritage Program. A complete list of endangered and threatened Pineland species is included in the New Jersey Pinelands Comprehensive Management Plan.

EXPLANATION OF GLOBAL AND STATE ELEMENT RANKS

The Nature Conservancy has developed a ranking system for use in identifying elements (rare species and natural communities) of natural diversity most endangered with extinction. Each element is ranked according to its global, national, and state (or subnational in other countries) rarity. These ranks are used to prioritize conservation work so that the most endangered elements receive attention first. Definitions for element ranks are after The Nature Conservancy (1982: Chapter 4, 4.1-1 through 4.4.1.3-3).

Reference 36 19/20

area of the state. Also included are elements which were formerly more abundant, but because of habitat destruction or some other critical factor of its biology, they have been demonstrably reduced in abundance. In essence, these are elements for which, even with intensive searching, sizable additional occurrences are unlikely to be discovered.

S2 Imperiled in New Jersey because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences, primarily because of habitat destruction. Diligent searching may yield additional occurrences.

S3 Rare in state with 21 to 100 occurrences (plant species in this category have only 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreage or elements with restricted distribution, but locally abundant. Not yet imperiled in state but may soon be if current trends continue. Searching often yields additional occurrences.

S4 Apparently secure in state, with many occurrences.

S5 Demonstrably secure in state and essentially ineradicable under present conditions.

SA Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include european strays or western birds on the East Coast and visa-versa.

SE Elements that are clearly exotic in New Jersey including those taxa not native to North America (introduced taxa) or taxa deliberately or accidentally introduced into the State from other parts of North America (adventive taxa). Taxa ranked SE are not a conservation priority (viable introduced occurrences of G1 or G2 elements may be exceptions).

SH Elements of historical occurrence in New Jersey. Despite some searching of historical occurrences and/or potential habitat, no extant occurrences are known. Since not all of the historical occurrences have been field surveyed, and unsearched potential habitat remains, historically ranked taxa are considered possibly extant, and remain a conservation priority for continued field work.

Reference 36 20/20

.1 Elements documented from a single location.

Note: To express uncertainty, the most likely rank is assigned and a question mark added (e.g., G2?). A range is indicated by combining two ranks (e.g., G1G2, S1S3).

IDENTIFICATION CODES

These codes refer to whether the identification of the species or community has been checked by a reliable individual and is indicative of significant habitat.

Y	Identification has been verified and is indicative of significant habitat.
BLANK	Identification has not been verified but there is no reason to believe it is not indicative of significant habitat.
?	Either it has not been determined if the record is indicative of significant habitat or the identification of the species or community may be confusing or disputed.

REFERENCE NO. 37

Members
Gary Casperson, Chairman
Walter F. Rehak, Vice Chairman
Robert Singer, Secretary-Treasurer
Leon Dwulet, M.D.
Barbara Hiering
Robert S. Laureigh
John J. Mallon
Patricia Seeber
Warren Wolf
James F. Lacey, Freeholder Liaison
Seymour J. Kagan, Counsel

Reference 37 1/1

OCEAN COUNTY HEALTH DEPARTMENT
P.O. Box 2191
Toms River, N.J. 08754-2191
908-341-9700

Herbert W. Roeschke
Public Health Coordinator

April 18, 1995

Joseph Gray
Ebasco Services Incorporated
One Oxford Valley, Suite 200
2300 Lincoln Highway East
Langhorne, PA 19047-1829

RE: Block 524 Lots 101-105
Cross St. & Farraday Avenue
Lakewood, NJ

Dear Mr. Gray:

Pursuant to your request for a site history on the above noted parcel this department reports no major contamination data in our files. We do note however, that there have been several solid waste complaints, see list below:

SWC92-2670-Closed Complaint, Rte 528 east of Cross Street.
SWC94-0855-Closed Complaint, DEP #94-05-02-05, 600 Cross Street, referred to local code official.
SWC95-0066-Closed Complaint, 805 Cross Street, referred to local code official.

You can contact Pat Ferraro at the NJ Dept. of Environmental Protection, (609) 584-4180 in regards to the solid waste complaints. We also have an inspection file for the Lakewood Landfill. If you wish to review this file, please call (908) 341-9700 ext. 7416 for an appointment.

Sincerely,

Claudia Danyo

Claudia A. Danyo
Office Supervisor

REFERENCE NO. 38

Reference 38 1/21

TARGET POPULATION CALCULATION SHEET

0 TO 1/4 MILE DISTANCE CATEGORY

According to the 1990 Census Bureau there fifteen people from 0 to 1/4 mile of the site utilizing private wells within this distance category. There are no known municipal wells within this distance category.

1/4 TO 1/2 MILE DISTANCE CATEGORY

According to the 1990 Census Bureau there are forty five people from 1/4 to 1/2 mile of the site utilizing private wells for their potable water supply. There are no known municipal wells within this distance category.

1/2 TO 1 MILE DISTANCE CATEGORY

According to the 1990 Census Bureau there are 405 people from 1/2 to 1 miles of the site utilizing private wells for their potable water supply. There are no known municipal wells within this distance category.

1 TO 2 MILES DISTANCE CATEGORY

According to the 1990 Census Bureau there are 2,541 people from 1 to 2 miles of the site utilizing private wells for their potable water supply. There are no known municipal wells within this distance category.

United Water Toms River utilizes one municipal well (well # 31) within the 1 to 2 miles radius of the site to supply drinking water to area residents.

The water company uses 20 wells to serve 84,786 residents. Well # 31 is screened in the Kirkwood-Cohansey aquifer. To determine the population served by well # 31 the total population served was divided by the total number of wells.

84,786 residents/20 wells = 4,239 residents/well

WELL	LOCATION FROM SITE	POPULATION SERVED
31	1.2 MILES SOUTHEAST OF THE SITE	4,239

Total Population Served by Municipal Wells	4,239
+ Population Served by Private Wells	2,541
Total Population for the 1 to 2 Mile Radius	6,780

Note: No one municipal well supplied over 40% of the water to the system, therefore the

population served by the municipal wells was evenly proportioned between the wells.

2 TO 3 MILES DISTANCE CATEGORY

According to the 1990 Census Bureau there are 3,554 people from 1 to 2 miles of the site utilizing private wells for their potable water supply.

The Manchester Township Municipal Utilities Authority (MUA) utilizes two wells (wells # 7 and # 8) screened in the Kirkwood-Cohansey formation within the 2 to 3 mile radius of the site to supply drinking water to area residents.

Manchester Township MUA serves 20,000 residents utilizing a total of 9 wells. The population served by wells # 7 and # 8 was determined by dividing the total residents served by the total wells then multiplying by the number of wells located within the 2 to 3 mile radius.

20,000 residents/9 wells = 2,222 residents/well x 2 wells = 4,444 residents

The New Jersey-American Water Company utilizes 4 wells (wells 11, 12, 13 and 14) within the 2 to 3 mile radius of the site to supply drinking water to area residents.

New Jersey-American Water Company serves 32,600 residents utilizing a total of 10 wells. The population served by the four wells was determined by dividing the total residents served by the total wells then multiplying by the number of wells located within the 2 to 3 mile radius.

32,600 residents/10 wells = 3,260 residents/well x 4 wells = 13,040 residents

WELL	LOCATION FROM SITE	POPULATION SERVED
7 MTMUA	2.1 MILES SOUTHWEST OF THE SITE	2,222
8 MTMUA	2.1 MILES SOUTHWEST OF THE SITE	2,222
11 NJAWC	2.1 MILES EAST OF THE SITE	3,260
12 NJAWC	2.1 MILES EAST OF THE SITE	3,260
13 NJAWC	2.1 MILES EAST OF THE SITE	3,260
14 NJAWC	2.1 MILES EAST OF THE SITE	3,260
Total Population Served by Municipal Wells		17,484
+ Population Served by Private Wells		3,554
Total Population for the 2 to 3 mile radius		21,038

Note: No one municipal well supplied over 40% of the water to the system, therefore the population served by the municipal wells was evenly proportioned between the wells.

3 TO 4 MILES DISTANCE CATEGORY

Reference 38 3/21

According to the 1990 Census Bureau there are 4,102 people from 3 to 4 miles of the site utilizing private wells for their potable water supply.

The Manchester Township MUA utilizes 3 wells (wells 1, 2 and 4) within the 3 to 4 mile radius of the site, screened in the Kirkwood-Cohansey formation to supply drinking water to area residents. The Lakewood Township MUA utilizes 5 wells (4, 5, 11, 13 and 14) within the 3 to 4 mile radius of the site, screened in the Kirkwood-Cohansey formation to supply drinking water to area residents.

Manchester Township MUA serves 20,000 residents utilizing a total of 9 wells. The population served by wells 1, 2 and 4 was determined by dividing the total residents served by the total wells then multiplying by the number of wells located within the 3 to 4 mile radius.

20,000 residents/9 wells = 2,222 residents/well x 3 wells = 6,666 residents

Lakewood Township MUA serves 12,000 residents utilizing a total of 13 wells. The population served by wells 4, 5, 11 and 14 was determined by dividing the total residents served by the total wells then multiplying the wells within the 3 to 4 mile radius.

12,000 residents/13 wells = 923 residents/well x 5 wells = 4,615 residents

WELL	LOCATION FROM SITE	POPULATION SERVED
1 MTMUA	3.6 MILES SOUTHWEST OF THE SITE	2,222
2 MTMUA	3.6 MILES SOUTHWEST OF THE SITE	2,222
4 MTMUA	3.6 MILES SOUTHWEST OF THE SITE	2,222
4 LTMUA	3.9 MILES EAST OF THE SITE	923
5 LTMUA	3.5 MILES NORTHEAST OF THE SITE	923
11 LTMUA	3.9 MILES EAST OF THE SITE	923
13 LTMUA	3.7 MILES EAST OF THE SITE	923
14 LTMUA	3.8 MILES SOUTHEAST OF THE SITE	923

Total Population Served by Municipal Wells	11,281
+ Population Served by Private	4,102
Total Population for the 3 to 4 Mile Radius	15,383

Note: No one municipal well supplied over 40% of the water to the system, therefore the population served by the municipal wells was evenly proportioned between the wells.

The information in these first two pages is a summary of the rest of the pages in this reference.

Reference 38 4/21

New Jersey-American Water Company

100 James Street • P.O. Box B • Lakewood, NJ 08701

(908) 363-1291

Robert H. Bardenhagen
Distribution Superintendent
Distribution Department
(908) 363-3142

May 12, 1995

Ebasco Services, Inc.
One Oxford Valley
Suite 200
2300 Lincoln Highway East
Langhorne, PA 19047-1829

Attn: Janis Hottinger

Dear Ms. Hottinger:

Enclosed please find the information you requested per your correspondence of April 6, 1995, for the US EPA study of the water supplies of Lakewood and Manchester Townships in Ocean County, New Jersey.

If you have any further questions, please contact me at the above number.

Sincerely,

RH Bardenhagen

R. H. Bardenhagen

RHB:ck
Enclosure

Reference 38 5/21

February 1995

NEW JERSEY-AMERICAN WATER COMPANY

LAKEWOOD SYSTEM

WATER OPERATIONS
Brief Description of Physical Property

The Lakewood System of the New Jersey-American Water Company provides both water and sewer service for public and private use in the western portion of the Township of Lakewood. Lakewood Township is located approximately 7 miles west of the Atlantic Ocean and 57 miles from New York City. The total area of the Township is 25.8 square miles. It is bordered on the north by Howell Township, on the east by Brick Township, on the south by Dover Township, and on the west by Jackson Township.

Transportation facilities in the Lakewood area consist of passenger service by one bus line, New Jersey Transit, and freight service by Conrail. The people of Lakewood also have easy access to the Garden State Parkway and U.S. Route 9, both of which run through the Township.

The estimated population serviced directly is 32,600. The number of customers at year end 1994 was 7,242.

The Company's property includes ten wells, two standpipes, one 0.46 MG clearwell, and a distribution system consisting of approximately 93 miles of water mains, 331 hydrants, services and meters.

The 1994 average daily system delivery was 3.237 MGD with a maximum system delivery of 5.403 MGD on June 15, 1994.

NEW JERSEY-AMERICAN WATER COMPANY

LAKEWOOD SYSTEM

Source of Supply Data

Well Supplies

Location and No.	Year Inst.	Formation	Size	Depth	Pump Capacity	Diversion Rights	Permit No. Renewal Date
Clifton Avenue #5	1957	Englishtown	12"-8"	604'	.860 MGD	{ 135.0 MGM (8/31/98) 1,193 MGY	5078 (for the entire system)
Northwest #6	1961	Englishtown	12"-8"	580'	.288 MGD		
River Avenue #7	1964	Englishtown	12"	757'	.580 MGD		
Hatfield Avenue #8	1966	Englishtown	16"-8"	657'	.288 MGD		
East End Avenue #9	1968	Englishtown	16"-8"	703'	.720 MGD		
Sunset Road #10	1973	Raritan	18"-12"	1,697'	2.600 MGD		
Oak Street #11	1991	Cohansey	12"	106'	0.500 MGD		
Vermont Avenue #12	1991	Cohansey	12"	93'	0.500 MGD		
Vermont Avenue #13	1992	Cohansey	20"-12"	90'	0.425 MGD		
Vermont Avenue #14	1992	Cohansey	20"-12"	90'	0.405 MGD		
Lake Shenandoah Observation Well	1966	Englishtown	6"-4"	736'	0	0	

Reference 38 6/21

Reference 38 7/21

February 1995

NEW JERSEY-AMERICAN WATER COMPANY

LAKEWOOD SYSTEM

Pumping

Clifton Avenue

Pump No.	Year	HP	TDH	MGD
Clifton Ave. Well #5	1980	100	340	0.58
Northwest Well #6	1988	50	565	0.288
River Ave. Well #7	1988	100	672	0.580
Hatfield Ave. Well #8	1991	50	445	0.288
East End Well #9	1968	75	570	0.50
Sunset Road Well # 10	1981	100	150	2.60
H.S. #1	1980	75	230	1.0
H.S. #2	1980	75	230	1.0
H.S. #3	1980	75	230	1.0
L.S. (to clearwell #1)	1976	30	46	2.60
6th St. Booster #1	1966 (Diesel)	55	85	2.0
#2	1979	20	100	0.720
#3	1979	50	100	2.016
Oak Street Well #11	1991	40	230	0.50
Vermont Ave. Well #12	1991	40	230	0.50
Vermont Ave. Well #13	1992	30	208	0.425
Vermont Ave. Well #14	1992	30	208	0.405

Reference 38 8/21

EBASCO

April 4, 1995

APR 7 1995

LTMUA

Mr. Hy Shaiman
Lakewood Township MUA
P.O. Box 141
Lakewood, NJ 08701

908-367-4428
367-7996 fax

Dear Mr. Shaiman:

Ebasco Services, Inc., contracted by the U.S. Environmental Protection Agency (EPA) under EPA Contract # 68-W8-0110, was tasked to conduct an investigation in Manchester and Lakewood Townships. As part of the investigations, the water supplies of the surrounding areas are to be evaluated.

In order to expedite the study, we formally request the following information:

- Location of all supply wells, and surface water intakes in the area of the enclosed map;
- The depths and screened intervals of the wells;
- The volume or pumping rate obtained from each well or intake. The total volume, or pumping rates for the entire system (We need to determine the percent individual wells or intakes contribute to the overall system).
  VARIES FROM 250 GPM TO 1560 GPM
- The number of residents, or residential homes, served by the water supply system; 12,000 ESTIMATED people
- Any treatment of the water supply; CHLORINATION, IRON REMOVAL pH ADJUSTMENT.
- The quantities of water sold to other water companies, and their name (if applicable). NONE
- The quantities of water purchased from other water companies, and their name (if applicable). NONE
- And the distribution area within the enclosed maps.
  EASTERN PORTION OF LAKEWOOD TOWNSHIP.

Enclosed are two topographic maps that can be used to mark the location of the water supply wells and the distribution area. Your cooperation in this matter is most appreciated. If you have any questions, please contact me at (215) 752-0212.

HOPE THIS IS OF SOME ASSISTANCE
ENCLOSED COPIES OF DRP FORMS

Yours Truly
G. Shaiman

Sincerely,

Janis Hottinger
Associate Environmental Scientist

EBASCO SERVICES INCORPORATED
ONE OXFORD VALLEY • SUITE 200 • 2300 LINCOLN HIGHWAY EAST • LANGHORNE, PA 19047-1829
(215) 752-0212

Reference 38 9/21

1514002 LAKEWOOD TWP MUA

- BRICK TOWNSHIP MUA
  AVAILABILITY : EMERGENCY SOURCE
  CAPACITY : 0.00 MGD
  SELLER : 1506001 BRICK TOWNSHIP MUA

RECORD # 22

STORAGE FACILITIES

FACILITY ID : 06
NAME/LOCATION : STANDPIPE WELL 7
CAPACITY : 2.00 MG

RECORD # 16

FACILITY ID : 07
NAME/LOCATION : STANDPIPE NEW HAMPSHIRE AVE
CAPACITY : 1.20 MG

RECORD # 19

FACILITY ID : 08
NAME/LOCATION : ELEVATED TANK AIRPORT RD
CAPACITY : 0.40 MG

RECORD # 20

AUXILIARY POWER FACILITIES

FACILITY ID : 02
NAME/LOCATION : GASOLINE D.D./WELL 2 BUCKINGHAM DRIVE
CAPACITY : 0.00 MGD

RECORD # 3

FACILITY ID : 06
NAME/LOCATION : DIESEL GENERATOR WELL 7
CAPACITY : 0.00 MGD

RECORD # 15

Pg 38 9/21

Reference 38 10/21

1514002 LAKEWOOD TWP MUA

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST

  - WELL 2/BUCKINGHAM DRIVE
    AVAILABILITY : PERMANENT SOURCE
    CAPACITY : 0.36 MGD

RECORD # 4

RECORD # 5

FACILITY ID : 03
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 0.48 MGD

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST

  - WELL 3/TOBIN AVE
    AVAILABILITY : PERMANENT SOURCE
    CAPACITY : 0.40 MGD

RECORD # 6

RECORD # 7

FACILITY ID : 04
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 0.43 MGD

Ref 38 10/21

Reference 38 11/21

1514002 LAKEWOOD TWP MUA

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST
- CORROSION CONTROL - PH ADJUSTMENT, POST

- WELL 5/NEW HAMPSHIRE AVE
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.40 MGD

RECORD # 8

RECORD # 9

FACILITY ID : 05
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 1764000.4 MGD

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST
- CORROSION CONTROL - PH ADJUSTMENT, POST

- WELL 8 SHORROCK ST. BLOCK 1248.23 LOT 85
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.43 MGD

RECORD # 13

- WELL 9 SHORROCK ST. BLOCK 1248.23 LOT 93
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.58 MGD

RECORD # 10

RECORD # 11

Ref 38 11/21

Reference 38 12/21

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION & ENERGY
WATER SUPPLY ELEMENT
BUREAU OF SAFE DRINKING WATER
PUBLIC COMMUNITY WATER SUPPLIES - FACILITIES AND SOURCES

1514002 LAKEWOOD TWP MUA

POPULATION : 12,030 SERVICE CONNECTIONS : 5,771

TREATMENT FACILITIES AND SOURCES (POINT OF ENTRY TO DISTRIBUTION)

FACILITY ID : 01
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 0.43 MGD

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST

SOURCES

- WELL 1/NEW HAMPSHIRE AVE
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.40 MGD

RECORD # 1

FACILITY ID : 02
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 0.42 MGD

RECORD # 2

Pg 38 12/21

Reference 38 13/2

1514002 LAKEWOOD TWP MUA

- WELL 10 SHORROCK ST. BLOCK 1248.23 LOT 94
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.58 MGD

RECORD # 12

- WELL 6/SHORROCK STREET
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 0.43 MGD

RECORD # 14

FACILITY ID : 06
FACILITY TYPE : TREATMENT PLANT FACILITY
NAME/LOCATION : PLANT
CAPACITY : 2.10 MGD

TREATMENTS

- DISINFECTION - GASEOUS CHLORINATION, POST
- CORROSION CONTROL - PH ADJUSTMENT
- IRON REMOVAL - FILTRATION, PRESSURE SAND

RECORD # 17

- WELL 7 NEW HAMPSHIRE AVE
  AVAILABILITY : PERMANENT SOURCE
  CAPACITY : 2.10 MGD

RECORD # 18

INTERCONNECTIONS

FACILITY ID : 09
FACILITY TYPE : INTERCONNECTION - 8 INCHES
NAME/LOCATION : BEAVERSON BOULEVARD

RECORD # 21

Pg 38 13/21

11046/2-91

RECORD OF TELEPHONE CONVERSATION

Reference 38 14/21

DATE 5-14-95

TO Hy Shaiman (Lakewood Township MUA)
NAME/FILE NO.

FROM Joseph Gray

CLIENT/PROJECT EPA/ Lakewood Township Landfill

SUBJECT Follow up conversation to water distribution information

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Hy Shaiman 908-363-4422

Hy stated that there is no # 12 well, This explains why it is not shown on the map. When questioned about the distribution area of the system, Hy stated that the Northern boundary of the distribution area is Howell Township, southern boundary is Dover Township, Eastern boundary is Brick Township and the western boundary falls 1/2 way between Rt 9 and New Hampshire Road.

BY Joseph Gray (NAME) Asst. Engineer (TITLE) _____ (DEPT. NO.)

CC:

11046/2-91

RECORD OF TELEPHONE CONVERSATION

Reference 38 15/21

DATE 5-17-95

TO Lakewood Township MUA
NAME/FILE NO.

FROM Joseph Gray (FWENC)

CLIENT/PROJECT EPA / Lakewood Township Land Fill

SUBJECT Well information

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Hy Shaiman

Hy stated that there are 12,000 resident served by the Lakewood Township MUA water system.

He also stated that wells 1, 2 and 3 are screened in the Englishtown Formation, 4, 5, 6, 8, 9, 10, 11 and 13 are screened in the Connsey Formation and well 7 is screened in the Raritan Formation.

BY Joseph Gray
NAME

Asst. Engineer
TITLE

DEPT. NO.

CC:

Reference 38 16/21
5-9 Left message

EBASCO

April 4, 1995

Mr. Rick Pfleiderer
Project Manager
Manchester Township Utilities
1732 Theresa Way
Lakehurst, NJ 08733

908-914-1200

Dear Mr. Pfleiderer:

Ebasco Services, Inc., contracted by the U.S. Environmental Protection Agency (EPA) under EPA Contract # 68-W8-0110, was tasked to conduct an investigation in Manchester Township, New Jersey. As part of the investigations, the water supplies of the surrounding areas are to be evaluated.

In order to expedite the study, we formally request the following information:

- Location of all supply wells, and surface water intakes in the area of the enclosed map;
- The depths and screened intervals of the wells;
- The volume or pumping rate obtained from each well or intake. The total volume, or pumping rates for the entire system (We need to determine the percent individual wells or intakes contribute to the overall system).
- The number of residents, or residential homes, served by the water supply system;
- Any treatment of the water supply;
- The quantities of water sold to other water companies, and their name (if applicable).
- The quantities of water purchased from other water companies, and their name (if applicable).
- And the distribution area within the enclosed map.

Enclosed is a topographic map that can be used to mark the location of the water supply wells and the distribution area. Your cooperation in this matter is most appreciated. If you have any questions, please contact me at (215) 752-0212.

Sincerely,

Janis Hottinger
Associate Environmental Scientist

EBASCO SERVICES INCORPORATED
ONE OXFORD VALLEY • SUITE 200 • 2300 LINCOLN HIGHWAY EAST • LANGHORNE, PA 19047-1829
(215) 752-0212

Reference 38 17/21

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN 402
Trenton, N.J. 08625

PERMIT

ew Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments
panying same application, and applicable laws and regulations. This permit is also subject to the further conditions
stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the perm

m No.	Issuance Date	Effective Date	Expiration Date
5043	APR 10 1991	APR 10 1991	5043

ne and Address of Applicant	Location of Activity/Facility	Name and Address of Owner
nchester Township MUA Colonial Drive akehurst, NJ 08733	Manchester Township Ocean County	Manchester Township MUA 1 Colonial Drive Lakehurst, NJ 08733

in Division	Type of Permit	Statute(s)	Application No.
ater Resources	Water Allocation Diversion	N.J.S.A. 58:1A-1	5043

s ermit grants permission to:

lvert water from eight existing wells, one new well and one proposed new well in the
owship of Manchester, Ocean County.

his permit is subject to the following Specific and General Conditions:

. Water may be diverted under this modified permit from the following sources at the maximum rates specified below:

Well Permit No.	Well Name or Designation	Pump Capacity (gpm)		Aquifer
2906442	1	400	300	Cohansey
2907062	2	450	270	Cohansey
2909898	3	602	240	Cohansey
2912698	4	524	400	Cohansey
2909280	7	400	~~200~~ 360	Cohansey
2909281	8	437	~~200~~ 360	Cohansey
2906137	9	~~300~~		Cohansey
2923401	10	1800	400	Upper Raritan
Proposed	11	1800		Upper Raritan
2923400	12	1800	1700	Upper Raritan

. The total allocation from the above sources shall not exceed 109 million gallons per month at a maximum rate of 5300 gpm.

. The allocation from the Cohansey wells shall not exceed 61 million gallons per month.

. The total annual diversion limit from the above sources shall not exceed 796 million gallons.

proved by the Department of Environmental Protection

By uthority of Leroy T. Cattaneo, P.E., P.P.
Deputy Director
Division of Water Resources

Diane E. Zalewski 1/8/91
Richard Kropp, P.E. Chief, Water Allocation
Water Supply Element
DATE

he ord permit means "approval, certification, registration, etc."

(GENERAL CONDITIONS ARE ON THE REVERSE SIDE.)

11046/2-91

Reference 38 18/21

RECORD OF TELEPHONE CONVERSATION

DATE 5-16-95

TO File 50122
NAME/FILE NO.

FROM J. Holtmyer

CLIENT/PROJECT Ocean County Landfill

SUBJECT H2O supply info.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH JH → Rick Pfleiderer, Manchester Twp. Util.

- They don't have a pop. served distribution map.
- wells 10, 11, + 12 are at plant.
- wells:

1, 2, 3, 4, 7, 8, (9), 10, 11, 12

1, 2, 3, 4, 7, 8 — including 1-9 are screened in the Cohansey

(9) — abandoned since 1991

10, 11, 12 — screened in the Raritan

- Well 9 is contaminated possibly from the asphalt or Tar pit located ~~adjacent~~ in proximity to well 9.
- Well 11 is shut down temporarily due to a mechanical problem.
- Use lime + chlorine for all wells. wells 11 + 12 also get ~~treated~~ JH treated w/ permaganate + chlorine for iron reduction
- Manchester Twp. MUA serves 20,000 people

BY Jan Holtmyer (NAME) 5-16-95 (TITLE) _____ (DEPT. NO.)

CC:

11046/2-91

Reference 38 19/21

RECORD OF TELEPHONE CONVERSATION

DATE 5-16-95

TO File 50122
NAME/FILE NO.

FROM J. Hottinger

CLIENT/PROJECT Ocean Co. Landfill

SUBJECT H_2O supply info.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH JH → Richard Ottons, United Water Toms River. 15 Adams Ave. Toms River, NJ 08753 1-908-349-0287 or 0386

- 24 wells are in use - not all are in 4 mi. radius.
- Parkway Station location - 7 wells are in use. are blended.

#22, 23*, 24, 26, 28, 29, 42, 41, 39* = 9 wells total

* = wells are off line & not being used now.

- Treatment? in 4 mi. radius, use pH + chlorine. wells 26 & 28 are stripped for TCE. Possible TCE source is Rich Farms - a former Union Carbide Site. TCE levels before stripping are ≈ 12 ppb.

Richard stated that there are no water companies utilizing surface water on the Toms River from Whitesville to the bay.

Richard also stated that all their wells are screened in the Kirkwood-Cohansey aquifer except for wells #42 and well 30.

BY [signature] 5-16-95
NAME TITLE DEPT. NO.

CC:

Reference 38 20/21

SOURCE OF SUPPLY

SURFACE WATERS

No.	NAME OR LOCATION OF SOURCE OR RESERVOIR (a)	DAM KIND OR TYPE (b)	DAM LENGTH (FT.) (c)	DAM CENTER HT. (FT.) (d)	INTAKES NO. (e)	INTAKES KIND (f)	INTAKES SIZE (g)	INTAKES LENGTH OF INTAKE (h)	FLOW LINE ELEVATION (i)	WITHDRAWAL IN MILLION GALLONS PER DAY MAXIMUM MONTH (j)	MAXIMUM QUAN. (k)	MINIMUM MONTH (l)	MINIMUM QUAN. (m)	WATER SURFACE AREA (Acres) (n)	RESERVOIR CAPACITY MILLION GALLONS (o)	YEAR IN SERVICE (p)
1	NONE															
2																
3																
4																
5																
6																
7																
8																
9																
10																

Aggregate Total Average Daily Withdrawal _____ Million Gals.

GROUND WATERS

No.	LOCATION OF SOURCE OF SUPPLY (A)	TYPE OF SOURCE (b)	EACH GROUP (c)	DIMENSIONS OF COLLECTORS, WELLS OR GALLERIES DIAM. OR SIZE (d)	DIMENSIONS LENGTH OR DEPTH (e)	DEPTH FROM GROUND SURFACE TO WATER LEVEL STATIC LEVEL (f)	DEPTH PUMPING LEVEL (g)	WITHDRAWAL IN THOUSAND GALLONS PER DAY MAXIMUM MONTH (h)	MAXIMUM QUANT (i)	MINIMUM MONTH (j)	MINIMUM QUAN. (k)	YEAR IN SERVICE (l)
11	#15 Brookside	Closed	1	10	230	18	49	May	954	1–3, 11–12	0	1956
12	#20 Indian Head	Closed	1	12	87	25	70	Feb	546	Dec	0	1967
13	#21 Holly Plant	Closed	1	12	52	8	35	June	64	1–5, 7–12	0	1968
14	#22 Parkway	Closed	1	12	105	62	91	June	927	Aug	684	1971
15	#24 Parkway	Closed	1	12	97	56	91	June	567	Aug	376	1971
16	#26 Parkway	Closed	1	12	105	74	112	Jan	522	Aug	260	1971
17	#28 Parkway	Closed	1	12	127	62	95	Jan	752	Nov	107	1975
18	#29 Parkway	Closed	1	12	137	70	104	Sep	621	Dec	249	1975
19	#30 Holly St. Plant	Closed	1	18	1875	34	158	July	2740	1–3, 9–12	0	1981
20	#31 Rt. 70 & Rt. 527	Closed	1	10	142	33	62	Feb	1032	Dec	897	1979
21	#32 Jakes Branch	Closed	1	12	54	Flows	19	Feb	778	July	440	1979
22	#33 Berkeley	Closed	1	8	102	15	57	Feb	1384	July	1067	1986
23	#34 Berkeley	Closed	1	8	105	19	62	Sept	1445	Feb	0	1986
24	#35 Berkeley	Closed	1	16	105	10	60	Jan	924	Aug	688	1988
25	#37 Holly St. Plant	Closed	1	16	238	Flows	130	June	101	1–2, 8–12	0	1989
26	#38 Jakes Branch	Closed	1	16	66	2	42	June	517	4–5, 8–12	0	1988
27	#39 Parkway	Closed	1	14	288	55	220	n/a	0	n/a	0	1989
28	#40 Windsor Ave.	Closed	1	16	318	5	120	July	1332	1,2,3,5,8,10,11,1	0	1990
29	#41 Parkway	Closed	1	12	294	61	225	Sept	431	11, 12	0	1992
30	#42 Parkway	Closed	1	16	1345	105	313	Dec	1276	1–4	0	1994
31												
32												
33												
34												

Aggregate Total Average Daily Withdrawal 10252 Thousand Gals.

Reference 38 21/21

ME OF UTILITY : TOMS RIVER WATER COMPANY — YEAR : 1994

TERRITORY SERVED DURING YEAR

Column (b) should show the estimated permanent population at end of year for area served. If there was a significant change in population for summer months use two lines for the municipality involved indicating "permanent" and "summer".

NE	NAME OF MUNICIPALITY OR OTHER POLITICAL SUBDIVISION (a)	ESTIMATED PERMANENT POPULATION SERVED (b)	NO. OF CUSTOMERS END OF YEAR (c)	NO. OF FIRE HYDRANTS (d)	FEET OF MAINS TOTAL (e)	ON PUBLIC WAYS (f)	ON PRIVATE RIGHT OF WAY (g)
1	TOWNSHIP OF DOVER	60,213	28,137	2,063	1,858,858	1,713,501	145,357
2	TOWNSHIP OF BERKELEY	20,780	12,518	378	537,579	537,579	0
3	BOROUGH OF SOUTH TOMS RIVER	3,793	1,090	53	72,810	72,810	0
4					0		
5					0		
6					0		
7					0		
8					0		
9					0		
10					0		
11					0		
12					0		
13					0		
14					0		
15					0		
16					0		
17					0		
18					0		
19					0		
20					0		
21					0		
22					0		
23					0		
24					0		
25					0		
26					0		
27					0		
28					0		
29					0		
30					0		
31					0		
32					0		
33					0		
34					0		
35					0		
36					0		
37	Total Summer Population Only		******	*****	*****	******	******
	Totals (do not include summer population	84,786	41,745	2,494	2,469,247	2,323,890	145,357