ENVIRONMENTAL STRATEGIES CORPORATION
8521 LEESBURG, PIKE, SUITE 650
VIENNA, VIRGINIA 22182
703-821-3700
FAX-703-821-3734

REMEDIAL INVESTIGATION REPORT
FOR THE
FORMER NCR CORPORATION FACILITY
MILLSBORO, SUSSEX COUNTY, DELAWARE

LABORATORY DELIVERABLES

VOLUME IV

REGIONAL OFFICES
101 Metro Drive • Suite 650 • San Jose, California • 95110 • 408-286-0100
1740 Massachusetts Avenue • Boxborough, Massachusetts • 01719 • 508-635-9600

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Data	Parameters
W12	9-21-88	601 volatiles
W20	9-21-88	601 volatiles
W200	9-21-88	601 volatiles
WP6	9-21-88	601 volatiles
WP9	9-21-88	601 volatiles
WP20	9-21-88	601 volatiles
WP21	9-21-88	601 volatiles
RW	9-21-88	601 volatiles, Chromium
AS	9-21-88	601 volatiles, Chromium
Trip Blank	9-21-88	601 volatiles

Quality Assurance Summary Report for NCR-Millsboro Water Samples Collected on September 21, 1988

This report covers fourteen water samples and an associate trip blank collected for the NCR-Millsboro Project. All fourteen samples were analyzed by Compuchem Labs Inc for EPA Method 601 volatiles. Two water samples (AS and RW) were analyzed for total chromium. Analytical results for these samples have been reviewed using USEPA Functional Guidelines for Evaluating Organic (and Inorganic) Analyses. The QA/QC requirements checked during the validation are listed below.

Organic Requirements	Inorganic Requirements
Holding Times	Holding Times
Instrument Performance	Instrument Calibration
Instrument Calibration	Preparation/Inst. blanks
Lab Blanks	MS/MSD
Surrogate Recoveries	Field Blanks
MS/MSD	Field Duplicates
Trip Blanks	Lab Transcription Errors
Field Blanks	
Field Duplictes	
Lab Transcription Errors	
Compound Identification	

A summary of the results of the data validation process for the laboratory data associated with these samples is given below.

Organic Summary

The fourteen water samples and the trip blank were analyzed for EPA Method 601 volatile compounds. All samples were analyzed within required holding times. The detection limits for method 601 stipulated in the QA Plan were achieved except for samples requiring dilution due to high levels of trichloroethylene. Surrogate recoveries for all samples were within CLP QC limits for volatiles. Two MS/MSD samples were analyzed with this batch of samples. All CLP QC requirements for MS/MSD were met for the two samples.

Target volatile compounds reported at the greatest frequency or highest concentration were methylene chloride, and trichloroethene. Most samples required dilution due to high levels of trichloroethene. Several laboratory and the trip blank associated with these samples also contained methylene chloride, a common laboratory solvent and frequent contaminant.

In evaluating data usability, the EPA uses the following general guideline for assessing the presence of common laboratory artifacts (such as methylene chloride, toluene and acetone). If the concentration of the artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible.

If blank and sample concentrations are comparable, the presence of that artifact in the sample is considered suspect. Although no methylene chloride was reported in the laboratory blank, results reported for methylene chloride in these samples should be be considered suspect due to comparable levels found in the trip blank. All other QA/QC criteria were met for the samples.

Metals Summary

Two water samples were analyzed for total chromium using CLP protocols and detection limits. All samples were analyzed within required holding times. Chromium was not detected in either of the samples. Laboratory QC checks included laboratory blanks, a spike and a duplicate. All CLP QA/QC criteria were met for these laboratory QC samples. All sample results are acceptable.

ENVIRONMENTAL STR[illegible]IES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR Millsboro PARAMETERS: VOLATILES LAB: COMPUCHEM

QA/QC ITEMS

SAMPLES	HLD TME	INST PERF	CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
W12	O	O	O	O	O	O	O	O	O	O	50:1 dilution
W20	O	O	O	O	O	O	X	O	O	O	TCE in diluted sample. 1000:1 dilution
W200	O	O	O	O	O	O	X	O	O	O	Meth? in 1000:1 dil 1000:1 dilution
WP6	O	O	O	O	O	O	X	O	O	O	5000:1 dil (TCE)
WP9	O	O	O	O	O	O	X	O	O	O	2000:1 dil (TCE)
WP20	O	O	O	O	O	O	X	O	O	O	1000:1 dil (TCE)
WP21	O	O	O	O	O	O	O	O	O	O	
RW	O	O	O	O	O	O	O	O	O	O	500 1 dil
AS	O	O	O	O	O	O	O	O	O	O	
Trip Blank	O	O	O	O	O	O	X	O	G	O	methyl in TCE "G" w/ samples
W8A	O	O	O	O	O	O	O	O	O	O	50:1 dil
W9	O	O	O	O	O	O	O	O	O	O	10:1 dil
W10	O	O	O	O	O	O	O	O	O	O	
W11A	O	O	O	O	O	O	O	O	O	O	
W11B	O	O	O	O	O	O	O	O	O	O	

COMMENTS:

AR303237

ENVIRONMENTAL STRATEGIES CORPORATION
INORGANIC DATA ' CATION SUMMARY FORM

PROJECT: NSR-Millsboro PARAMETERS: CHROMIUM LAB: COMPUCHEM

QA/QC ITEMS

SAMPLES	HLD TME	LCS	CALIBR.	LABBLKS	MS/DUP	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
RW	0	0	0	0	0	0	0	0	No Problems
AS	0	0	0	0	0	0	0	0	

AR303232

COMMENTS: Sample Data Acceptable

Table 1. List and Definitions of Data Validation Codes

O = All QC Criteria met, data acceptable.

X = Minor problem found but sample data not affected.

Q = Sample data qualified due to major QC problem.

U = Sample data rejected due to multiple-major QC problems.

COMPUCHEM LABORATORIES

October 4, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
W12	218248	455	14699	Volatiles (GC)
W20	218251			(Style 3)
W200	218252			
WP-6	218265			
WP-9	218267			
WP-20	218271			
WP-21	218285			
R.W.	218288			
A.S.	218291			
TRIP BLANK, LAB PURE WATER	218294			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

for Yolanda Dunn

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Page Two - October 4, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

AR303235

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Technical Reviewer

Deliverables Coordinator

AR303236

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

LABORATORY CHRONICLE

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier:	W12, W20, W200, WP-6, WP-9, WP-20
CompuChem Number:	218248, 218251, 218252, 218265, 218267, 218271
Date Received:	09/22/88

	Extracted	Analyzed
- VOLATILE	---	09/30/88

VOLATILE

(Blank - Volatile)	P17944
(Spike)	218249/218250

(Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: WP-21
CompuChem Number: 218285

Date Received: 09/22/88

	Extracted	Analyzed
- VOLATILE	---	10/01/88

VOLATILE

(Blank - Volatile) P17103
(Spike) 218249/218250

(Page Two - Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: R.W.
CompuChem Number: 218288

Date Received: 09/22/88

	Extracted	Analyzed
- VOLATILE	---	09/30/88

VOLATILE

(Blank - Volatile) P17944
(Spike) 218249/218250

(Page Three - Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: A.S.
CompuChem Number: 218291

Date Received: 09/22/88

	Extracted	Analyzed
- VOLATILE	---	10/01/88

VOLATILE

(Blank - Volatile) P17944
(Spike) 218249/218250

(Page Four - Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: TRIP BLANK, LAB PURE WATER
CompuChem Number: 218294

Date Received: 09/22/88

	Extracted	Analyzed
- VOLATILE	---	09/30/88

VOLATILE

(Blank - Volatile) P17970
(Spike) 218249/218250

METHOD REFERENCE AND SUMMARY

AND

QUALITY CONTROL SUMMARY

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

QUALITY ASSURANCE NOTICES

AND

CHAIN OF CUSTODY

No 013024

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801-918	NCR MILLSBORO GWS

SAMPLERS: (Signature) Scott VanDeVelde

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	TPH Chrome				REMARKS
W8A	9-20	15:20		✓	Monitoring Well 8A	2	✓	✓	218	243		* W9, W-8A, WP-6, WP-20
W9	9-20	14:50		✓	" " 9	2	✓		218	244		are Broken Due to freezing
W10	9-20	14:30		✓	" " 10	2	✓		218	245		9/22/88 GC*
W11A	9-20	13:55		✓	" " 11A	2	✓		218	246		ID's ARE USE of lot of sample
W11B	9-20	13:40		✓	" " 11B	2	✓		218	247		Containers ~~#~~ oz/bottles
W12	9-20	14:15		✓	" " 12	2	✓		218	248		9/22/88 GC
W20	9-21	10:50		✓	" " 20	2	✓		218	251		218339
W200	9-21	10:90		✓	" " 200	2	✓		218	252		218342
WP6	9-21	11:30		✓	Well Point 6	2	✓		218	265		
WP9	9-20	15:40		✓	" " 9	2	✓		218	267		
WP20	9-21	12:29		✓	" " 20	2	✓		218	271		
WP21	9-21	12:10		✓	" " 21	2	✓		218	286		
RW.	9-21	12:55		✓	Recovery Well	~~#~~ 3	✓	✓	218	288		* 2 VOAs and a 500ml Plastic
TB	9-21			✓	Trip Blank	2	✓		218	291		COC listed 3 Containers but
A.S.	9-21	13:15		✓	Air Stripper	~~#~~ 3	✓	✓	218	294		actually have 4 9/22/88 GC*

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9-21-88 16:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	9/22/88 9:10		

Distribution: Original Accompanies Shipment; Copy to Field

AE303247

SAMPLE DATA REPORT

- Compound List and Detection Limits
- Surrogate Recovery Data
- Reconstructed Ion Chromatogram (RIC)
- Quantitation Report
- Spectra (If Applicable)
- Tentatively Identified Compound List (TIC)
- Library Searches of TIC's (if Applicable)

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W12
COMPUCHEM® SAMPLE NUMBER: 218248

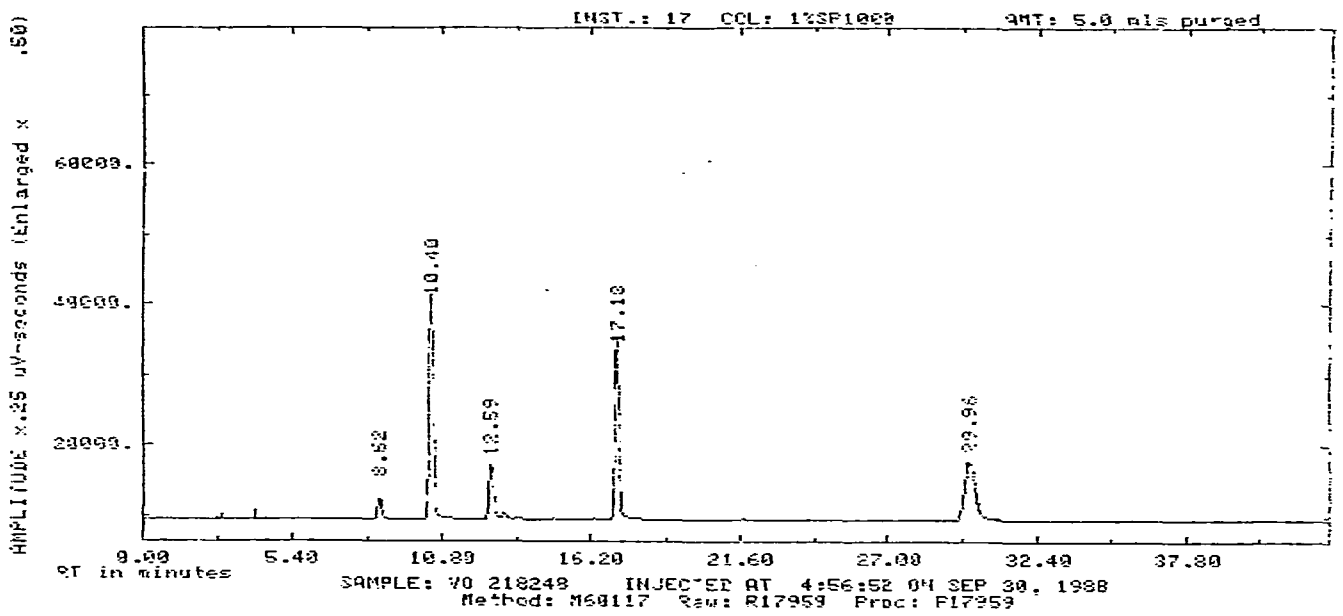
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	10
2V.	BROMOMETHANE	BDL	10
3V.	VINYL CHLORIDE	BDL	10
4V.	CHLOROETHANE	BDL	10
5V.	METHYLENE CHLORIDE	BDL	20
6V.	1,1-DICHLOROETHENE	BDL	6.0
7V.	1,1-DICHLOROETHANE	BDL	8.0
8V.	TRANS-1,2-DICHLOROETHENE	57	4.0
9V.	CHLOROFORM	BDL	4.0
10V.	1,2-DICHLOROETHANE	BDL	6.0
11V.	1,1,1-TRICHLOROETHANE	BDL	6.0
12V.	CARBON TETRACHLORIDE	BDL	6.0
13V.	BROMODICHLOROMETHANE	BDL	8.0
14V.	1,2-DICHLOROPROPANE	BDL	4.0
15V.	CIS-1,3-DICHLOROPROPENE	BDL	6.0
16V.	TRICHLOROETHENE	150	4.0
17V.	DIBROMOCHLOROMETHANE	BDL	4.0
18V.	1,1,2-TRICHLOROETHANE	BDL	4.0
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	4.0
20V.	2-CHLOROETHYL VINYL ETHER	BDL	8.0
21V.	BROMOFORM	BDL	10
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	8.0
23V.	TETRACHLOROETHENE	BDL	4.0
24V.	CHLOROBENZENE	BDL	8.0
25V.	1,3-DICHLOROBENZENE	BDL	4.0
26V.	1,2-DICHLOROBENZENE	BDL	4.0
27V.	1,4-DICHLOROBENZENE	BDL	4.0

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

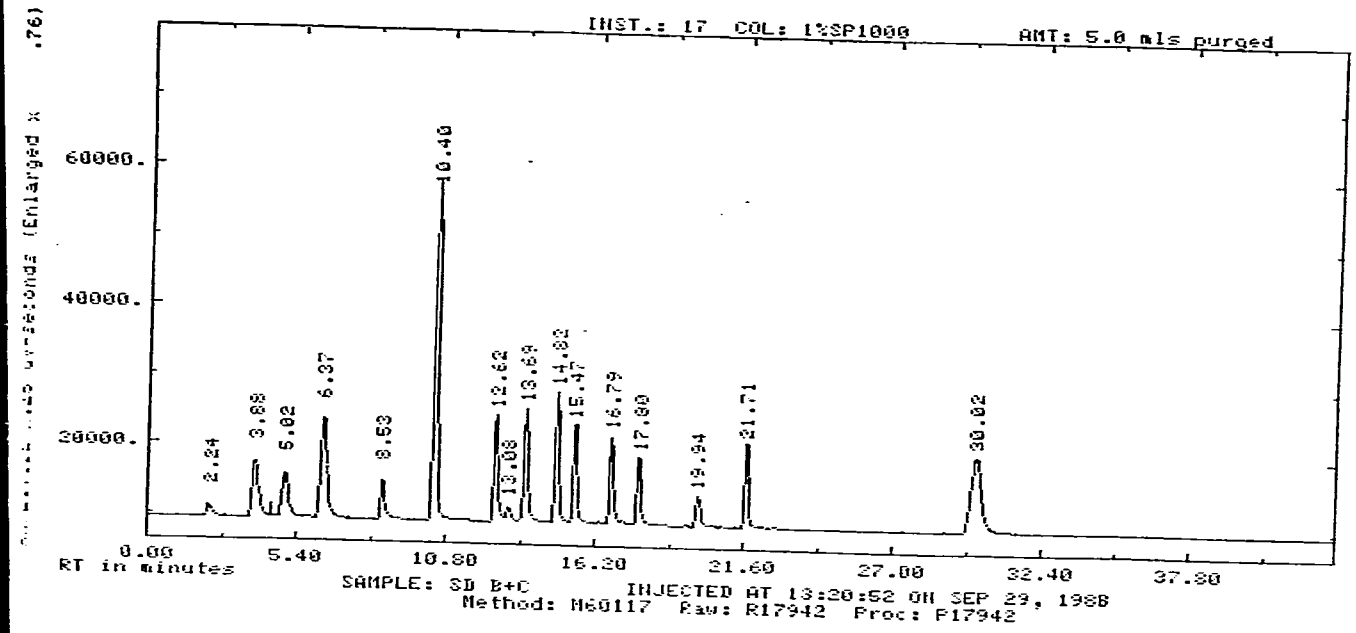
	% Recovery	Control Range%
Trichlorofluoromethane	110	(76-135)
Bromofluorobenzene	91	(69-123)

BDL=BELOW DETECTION LIMIT

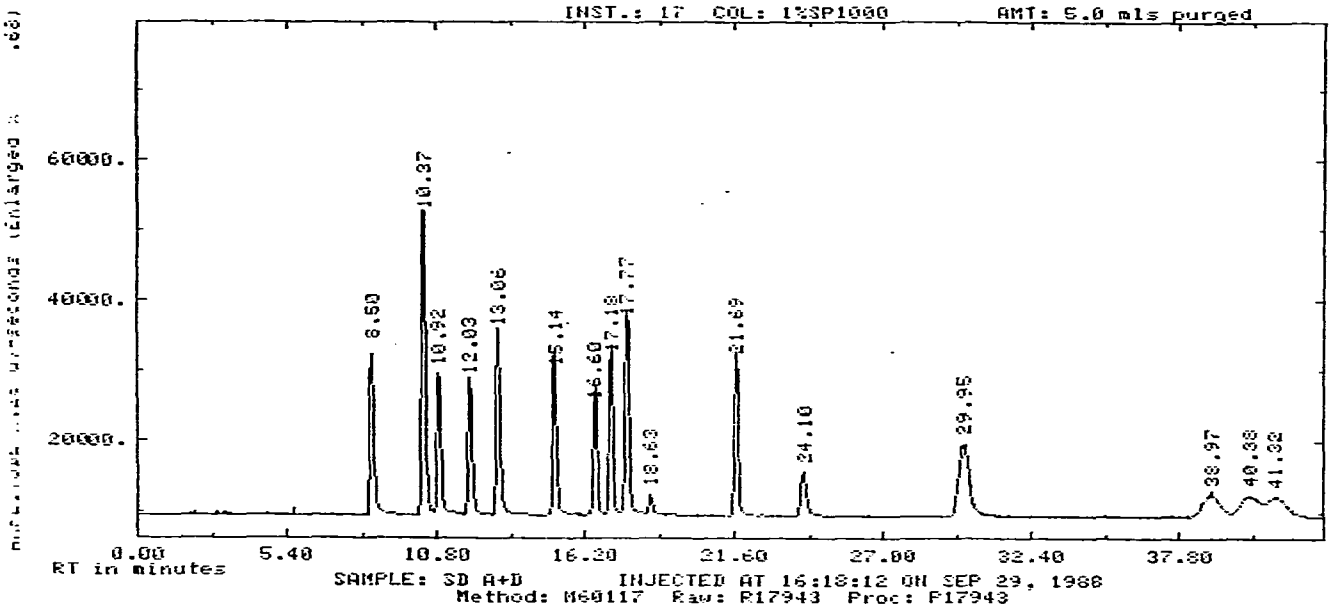
†Sample analyzed using a 20:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.52
10.49
13.59
17.10
29.96
9.00
5.40
10.20
15.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 218248 INJECTED AT 4:56:52 ON SEP 30, 1988
Method: M68117 Raw: R17959 Proc: P17959

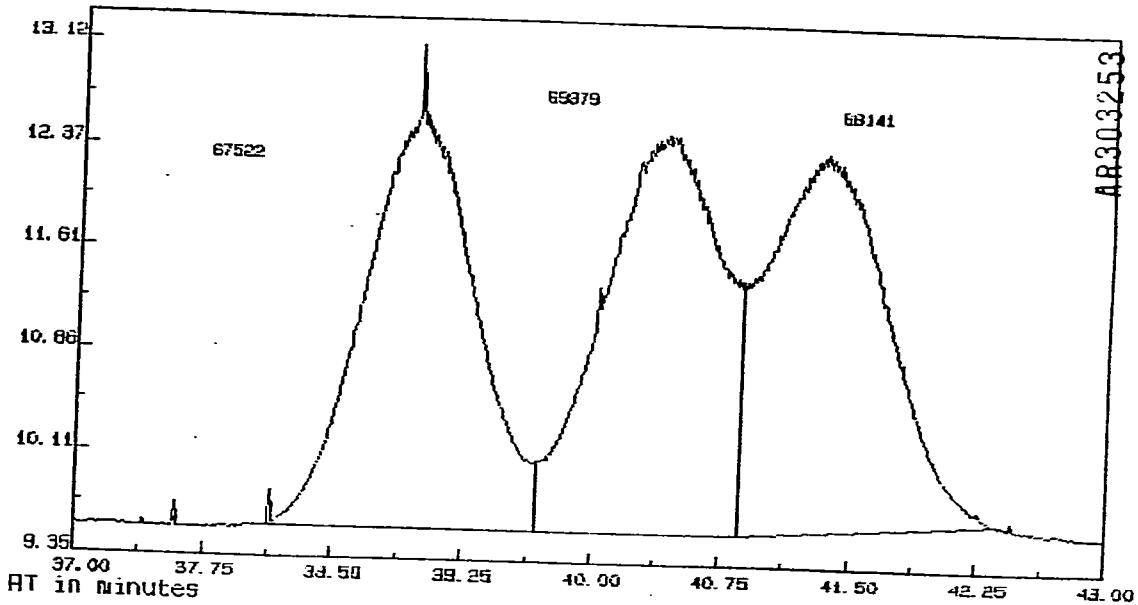
AR303250


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303251


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.82
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+B INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303252



SAMPLE: SD A+D
Meth: M60117

INJECTED AT 16:19:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W20
COMPUCHEM® SAMPLE NUMBER: 218251

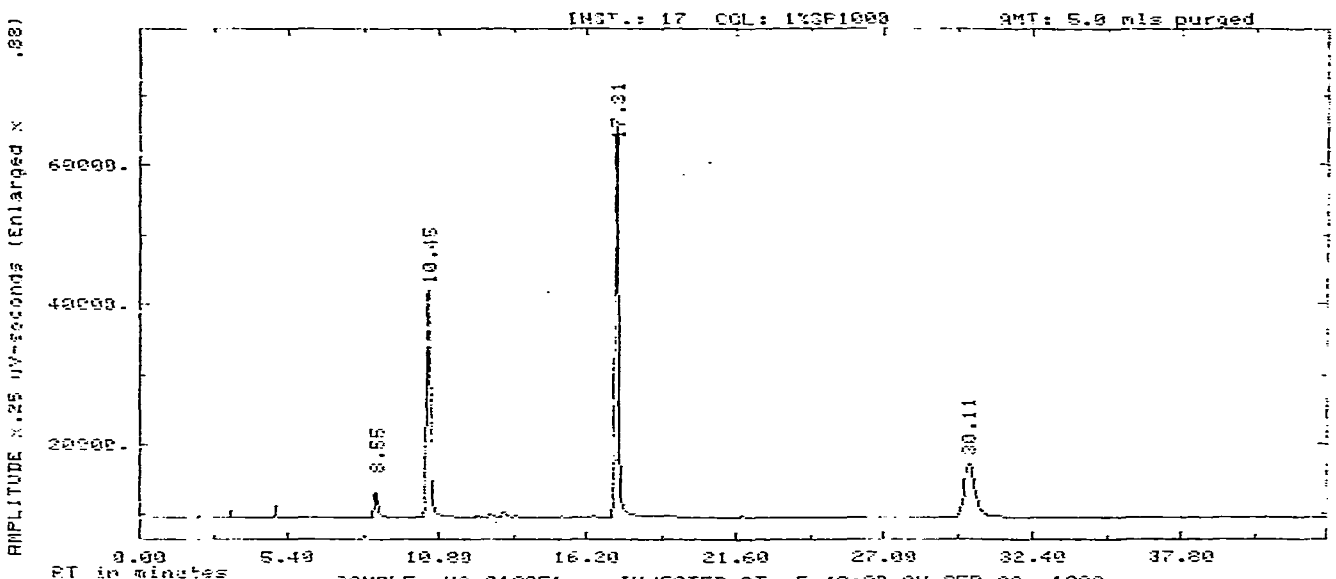
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	500
2V.	BROMOMETHANE	BDL	500
3V.	VINYL CHLORIDE	BDL	500
4V.	CHLOROETHANE	BDL	500
5V.	METHYLENE CHLORIDE	BDL	100
6V.	1,1-DICHLOROETHENE	BDL	300
7V.	1,1-DICHLOROETHANE	BDL	400
8V.	TRANS-1,2-DICHLOROETHENE	BDL	200
9V.	CHLOROFORM	BDL	200
10V.	1,2-DICHLOROETHANE	BDL	300
11V.	1,1,1-TRICHLOROETHANE	BDL	300
12V.	CARBON TETRACHLORIDE	BDL	300
13V.	BROMODICHLOROMETHANE	BDL	400
14V.	1,2-DICHLOROPROPANE	BDL	200
15V.	CIS-1,3-DICHLOROPROPENE	BDL	300
16V.	TRICHLOROETHENE	16000	200
17V.	DIBROMOCHLOROMETHANE	BDL	200
18V.	1,1,2-TRICHLOROETHANE	BDL	200
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	200
20V.	2-CHLOROETHYL VINYL ETHER	BDL	400
21V.	BROMOFORM	BDL	500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	400
23V.	TETRACHLOROETHENE	BDL	200
24V.	CHLOROBENZENE	BDL	400
25V.	1,3-DICHLOROBENZENE	BDL	200
26V.	1,2-DICHLOROBENZENE	BDL	200
27V.	1,4-DICHLOROBENZENE	BDL	200

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range%
Trichlorofluoromethane	118	(76-135)
Bromofluorobenzene	85	(69-123)

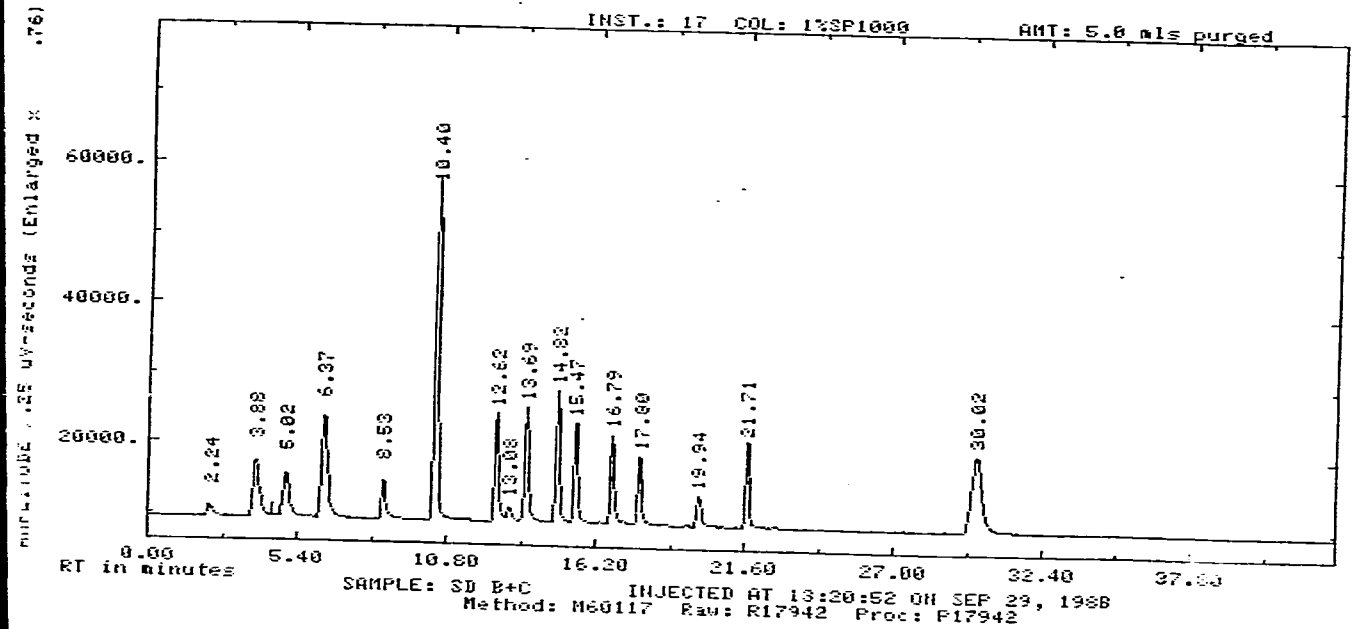
BDL=BELOW DETECTION LIMIT

†Sample analyzed using a 1000:1 dilution, thus the higher than normal detection limits.

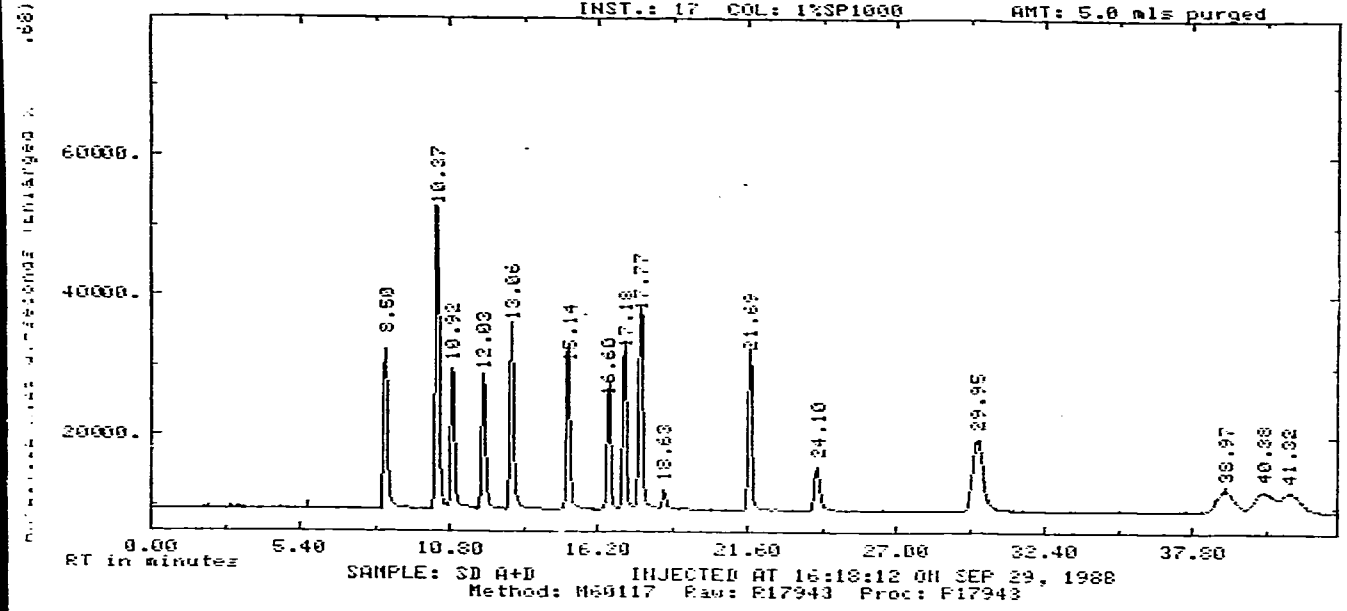


SAMPLE: V0 218251 INJECTED AT 5:43:33 ON SEP 30. 1988
Method: M60117 Raw: R17960 Proc: P17960

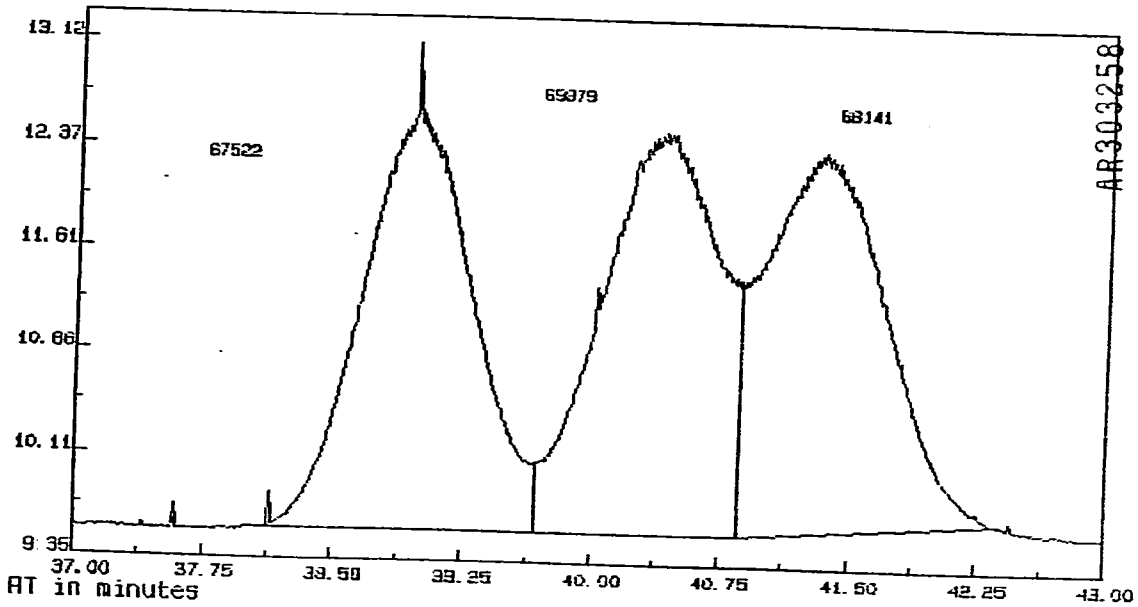
AR303255


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.84
21.71
30.62
0.00
5.40
10.80
16.20
21.60
27.00
32.40
RT in minutes
SAMPLE: SD B+C
INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303256


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.60
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.82
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303257



SAMPLE: 50 A+D
Meth: M60117

INJECTED AT 16:13:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W200
COMPUCHEM® SAMPLE NUMBER: 218252

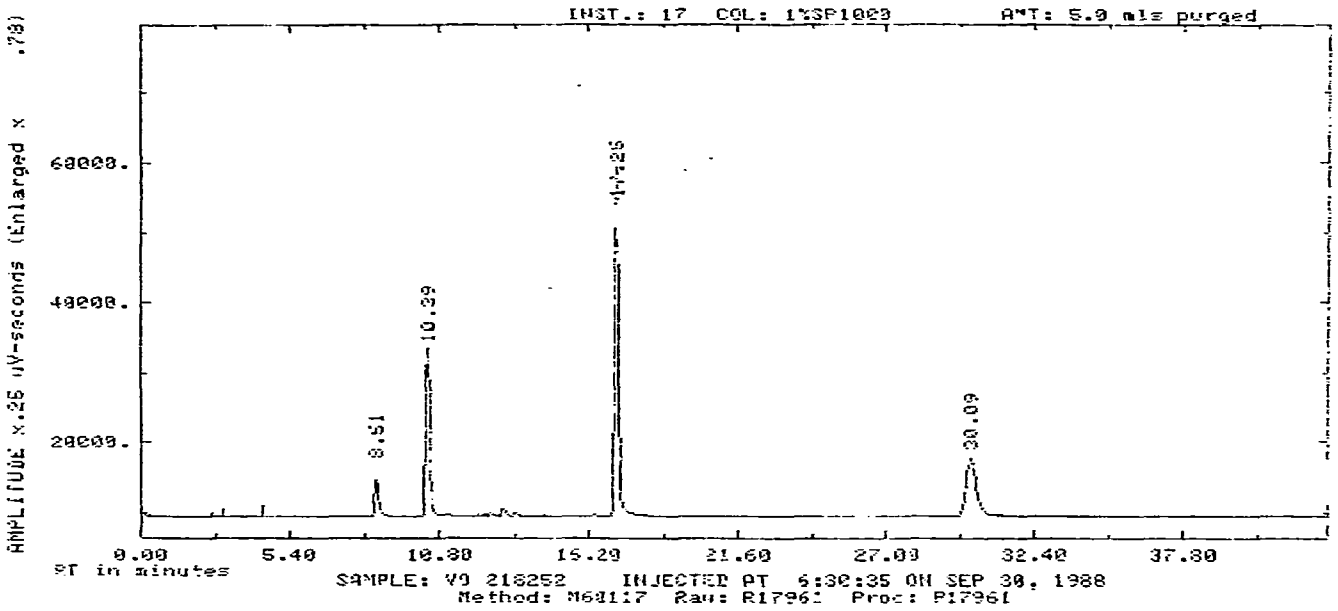
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	500
2V.	BROMOMETHANE	BDL	500
3V.	VINYL CHLORIDE	BDL	500
4V.	CHLOROETHANE	BDL	500
5V.	METHYLENE CHLORIDE	1300	100
6V.	1,1-DICHLOROETHENE	BDL	300
7V.	1,1-DICHLOROETHANE	BDL	400
8V.	TRANS-1,2-DICHLOROETHENE	BDL	200
9V.	CHLOROFORM	BDL	200
10V.	1,2-DICHLOROETHANE	BDL	300
11V.	1,1,1-TRICHLOROETHANE	BDL	300
12V.	CARBON TETRACHLORIDE	BDL	300
13V.	BROMODICHLOROMETHANE	BDL	400
14V.	1,2-DICHLOROPROPANE	BDL	200
15V.	CIS-1,3-DICHLOROPROPENE	BDL	300
16V.	TRICHLOROETHENE	20000	200
17V.	DIBROMOCHLOROMETHANE	BDL	200
18V.	1,1,2-TRICHLOROETHANE	BDL	200
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	200
20V.	2-CHLOROETHYL VINYL ETHER	BDL	400
21V.	BROMOFORM	BDL	500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	400
23V.	TETRACHLOROETHENE	BDL	200
24V.	CHLOROBENZENE	BDL	400
25V.	1,3-DICHLOROBENZENE	BDL	200
26V.	1,2-DICHLOROBENZENE	BDL	200
27V.	1,4-DICHLOROBENZENE	BDL	200

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

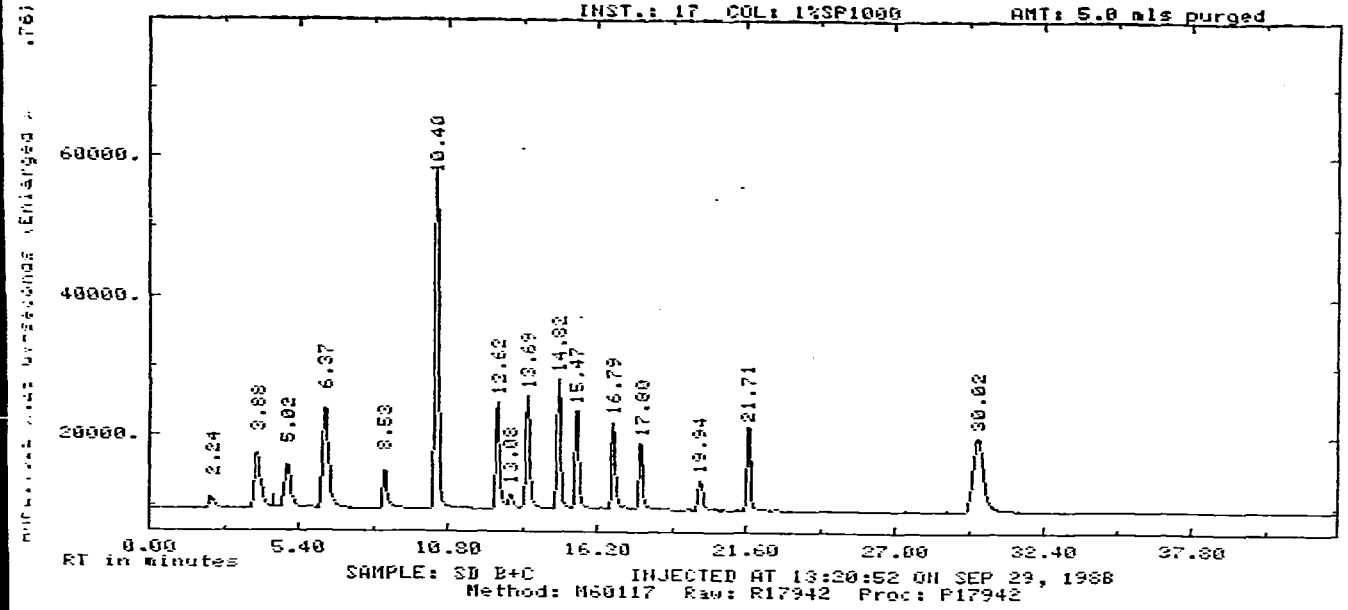
	% Recovery	Control Range%
Trichlorofluoromethane	85	(76-135)
Bromofluorobenzene	118	(69-123)

BDL=BELOW DETECTION LIMIT

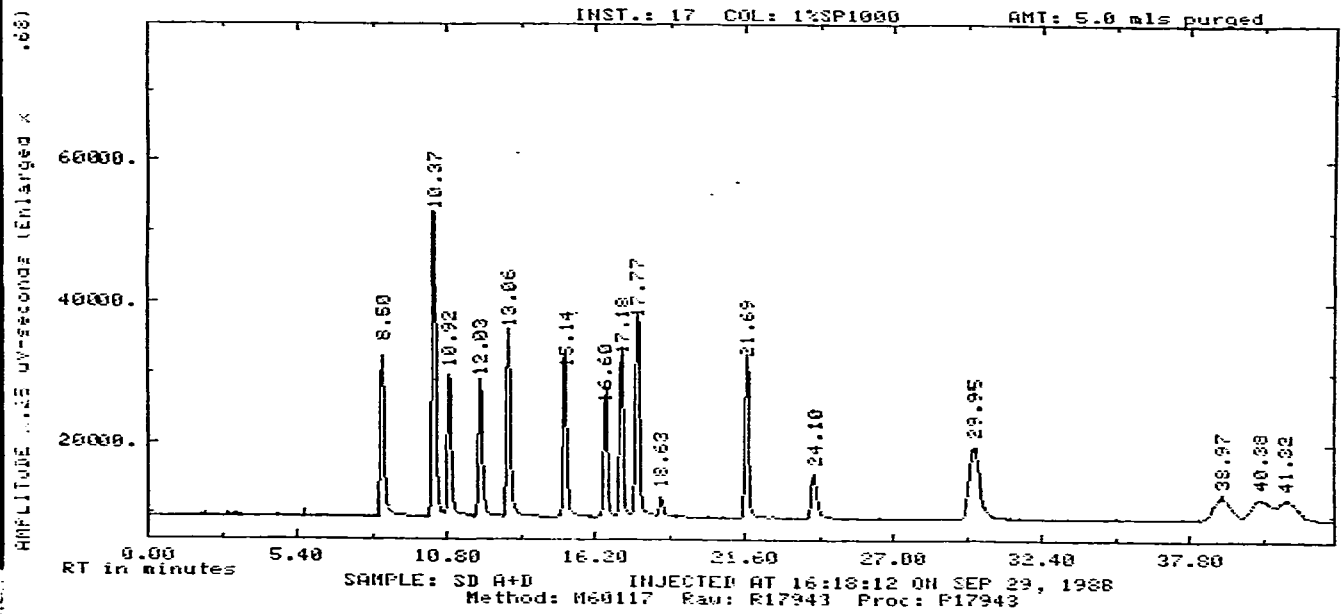
†Sample analyzed using a 1000:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 (uV-seconds (Enlarged x .78))
60000.
40000.
20000.
8.51
10.39
14.25
30.09
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V9 218252 INJECTED AT 6:30:35 ON SEP 30, 1988
Method: M68117 Raw: R17961 Proc: P17961

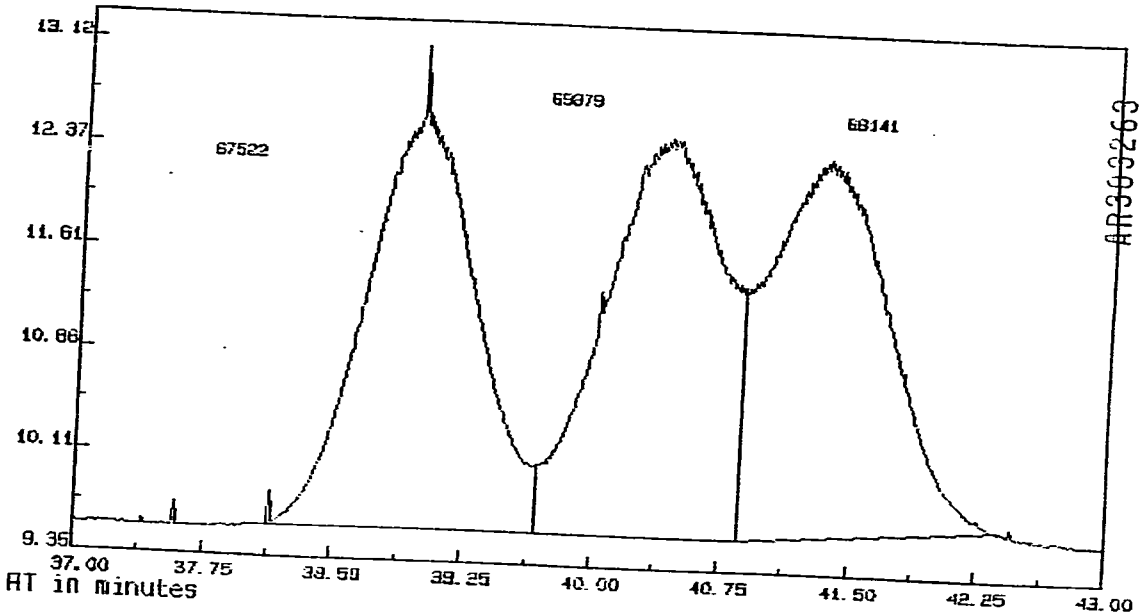
AR303260


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.83
15.47
16.79
17.80
19.94
21.71
30.62
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303261


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE ...E2 uV-seconds (Enlarged x .68)
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303262



SAMPLE: 50 A+D
Meth: M60117

INJECTED AT 16:18:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: WP-6
COMPUCHEM® SAMPLE NUMBER: 218265

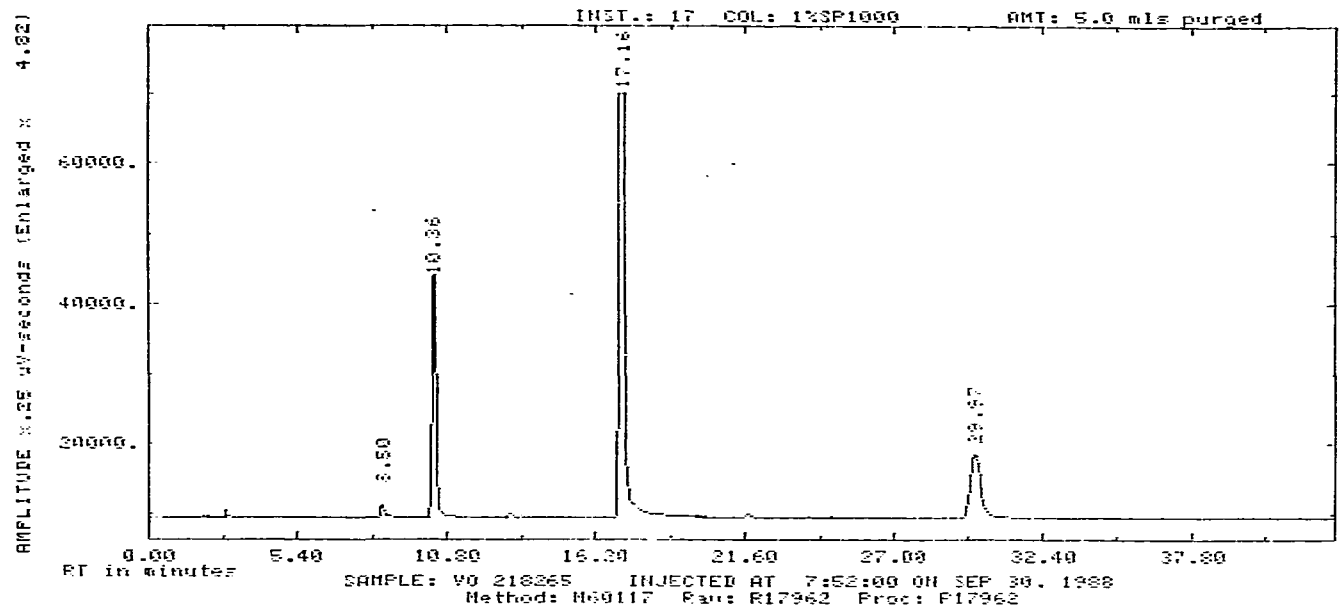
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	2500
2V.	BROMOMETHANE	BDL	2500
3V.	VINYL CHLORIDE	BDL	2500
4V.	CHLOROETHANE	BDL	2500
5V.	METHYLENE CHLORIDE	BDL	5000
6V.	1,1-DICHLOROETHENE	BDL	1500
7V.	1,1-DICHLOROETHANE	BDL	2000
8V.	TRANS-1,2-DICHLOROETHENE	BDL	1000
9V.	CHLOROFORM	BDL	1000
10V.	1,2-DICHLOROETHANE	BDL	1500
11V.	1,1,1-TRICHLOROETHANE	BDL	1500
12V.	CARBON TETRACHLORIDE	BDL	1500
13V.	BROMODICHLOROMETHANE	BDL	2000
14V.	1,2-DICHLOROPROPANE	BDL	1000
15V.	CIS-1,3-DICHLOROPROPENE	BDL	1500
16V.	TRICHLOROETHENE	410000	1000
17V.	DIBROMOCHLOROMETHANE	BDL	1000
18V.	1,1,2-TRICHLOROETHANE	BDL	1000
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	1000
20V.	2-CHLOROETHYL VINYL ETHER	BDL	2000
21V.	BROMOFORM	BDL	2500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	2000
23V.	TETRACHLOROETHENE	BDL	1000
24V.	CHLOROBENZENE	BDL	2000
25V.	1,3-DICHLOROBENZENE	BDL	1000
26V.	1,2-DICHLOROBENZENE	BDL	1000
27V.	1,4-DICHLOROBENZENE	BDL	1000

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

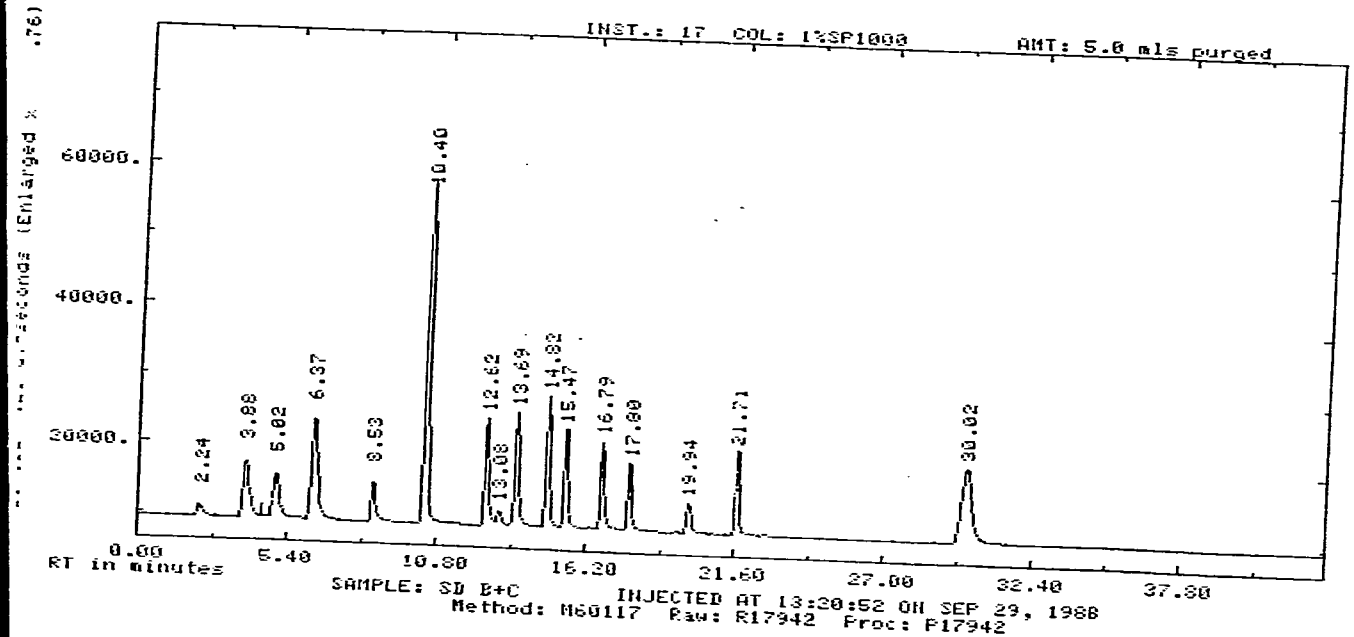
	% Recovery	Control Range%
Trichlorofluoromethane	107	(76-135)
Bromofluorobenzene	93	(69-123)

BDL=BELOW DETECTION LIMIT

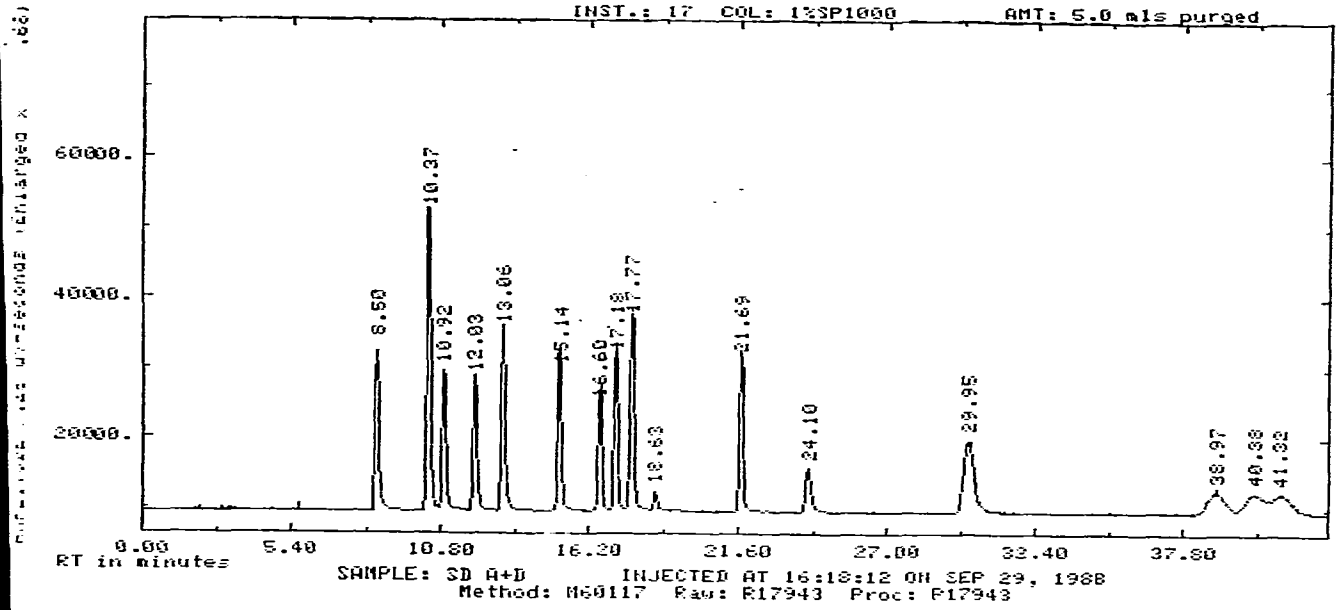
†Sample analyzed using a 5000:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 4.82)
60000.
40000.
20000.
3.50
10.36
17.16
29.57
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 218265 INJECTED AT 7:52:00 ON SEP 30, 1988
Method: M00117 Run: R17962 Proc: P17962

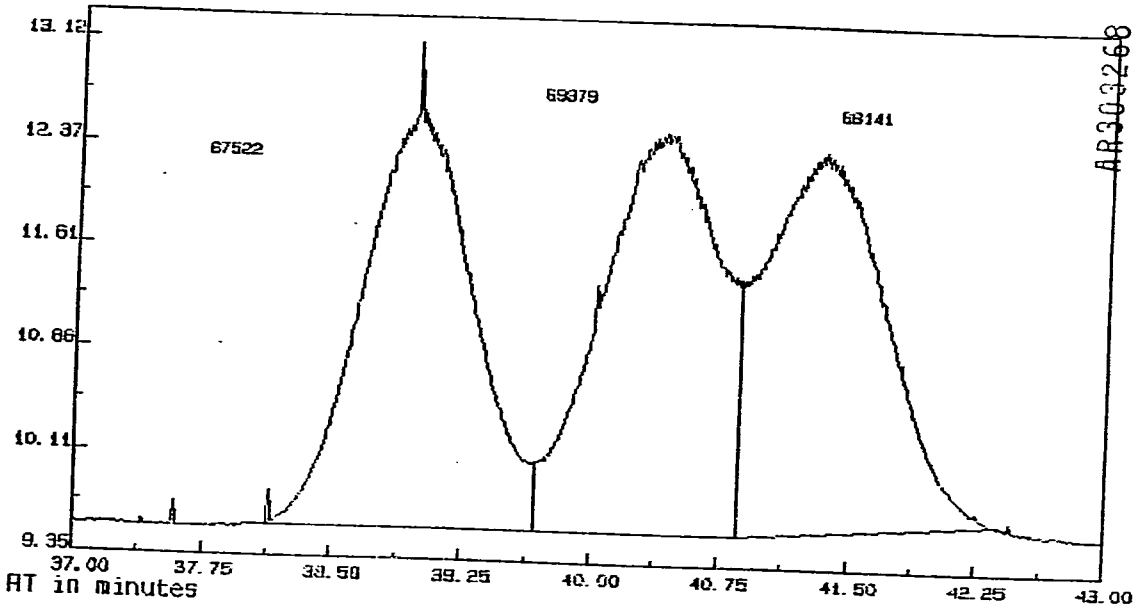
AR303265


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C
INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303266


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.69
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303267



SAMPLE: 50 A+D INJECTED AT 16:13:12 ON SEP 29, 1988
Meth: M60117 Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: WP-9
COMPUCHEM® SAMPLE NUMBER: 218267

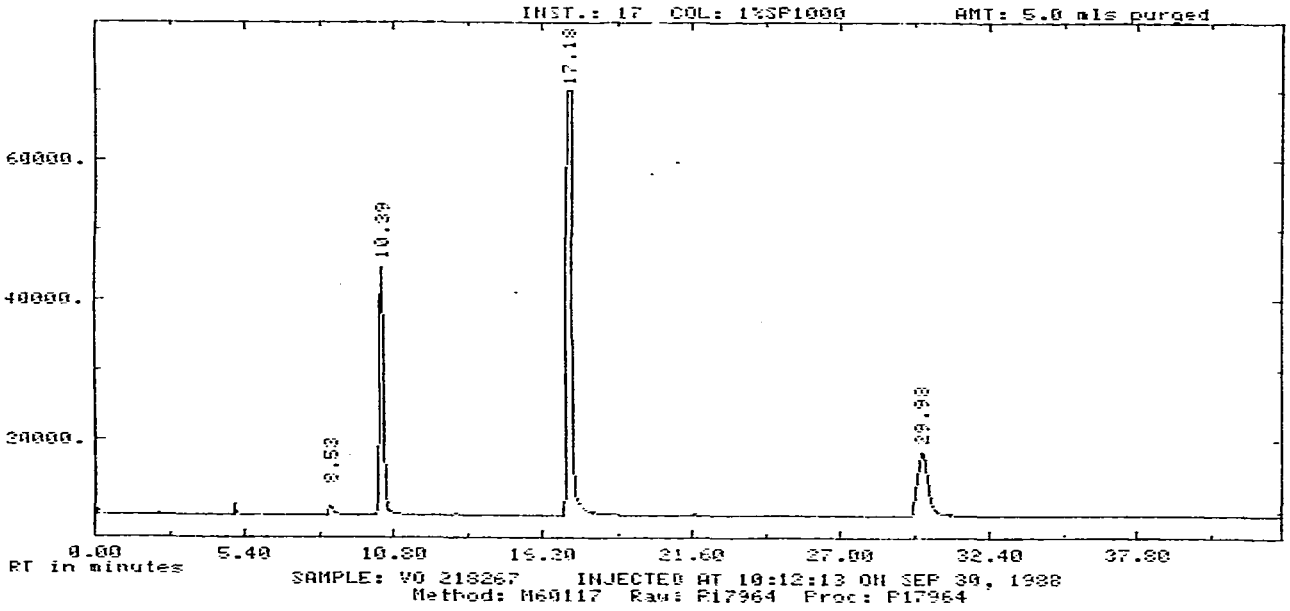
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	1000
2V.	BROMOMETHANE	BDL	1000
3V.	VINYL CHLORIDE	BDL	1000
4V.	CHLOROETHANE	BDL	1000
5V.	METHYLENE CHLORIDE	BDL	2000
6V.	1,1-DICHLOROETHENE	BDL	600
7V.	1,1-DICHLOROETHANE	BDL	800
8V.	TRANS-1,2-DICHLOROETHENE	BDL	400
9V.	CHLOROFORM	BDL	400
10V.	1,2-DICHLOROETHANE	BDL	600
11V.	1,1,1-TRICHLOROETHANE	BDL	600
12V.	CARBON TETRACHLORIDE	BDL	600
13V.	BROMODICHLOROMETHANE	BDL	800
14V.	1,2-DICHLOROPROPANE	BDL	400
15V.	CIS-1,3-DICHLOROPROPENE	BDL	600
16V.	TRICHLOROETHENE	81000	400
17V.	DIBROMOCHLOROMETHANE	BDL	400
18V.	1,1,2-TRICHLOROETHANE	BDL	400
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	400
20V.	2-CHLOROETHYL VINYL ETHER	BDL	800
21V.	BROMOFORM	BDL	1000
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	800
23V.	TETRACHLOROETHENE	BDL	400
24V.	CHLOROBENZENE	BDL	800
25V.	1,3-DICHLOROBENZENE	BDL	400
26V.	1,2-DICHLOROBENZENE	BDL	400
27V.	1,4-DICHLOROBENZENE	BDL	400

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

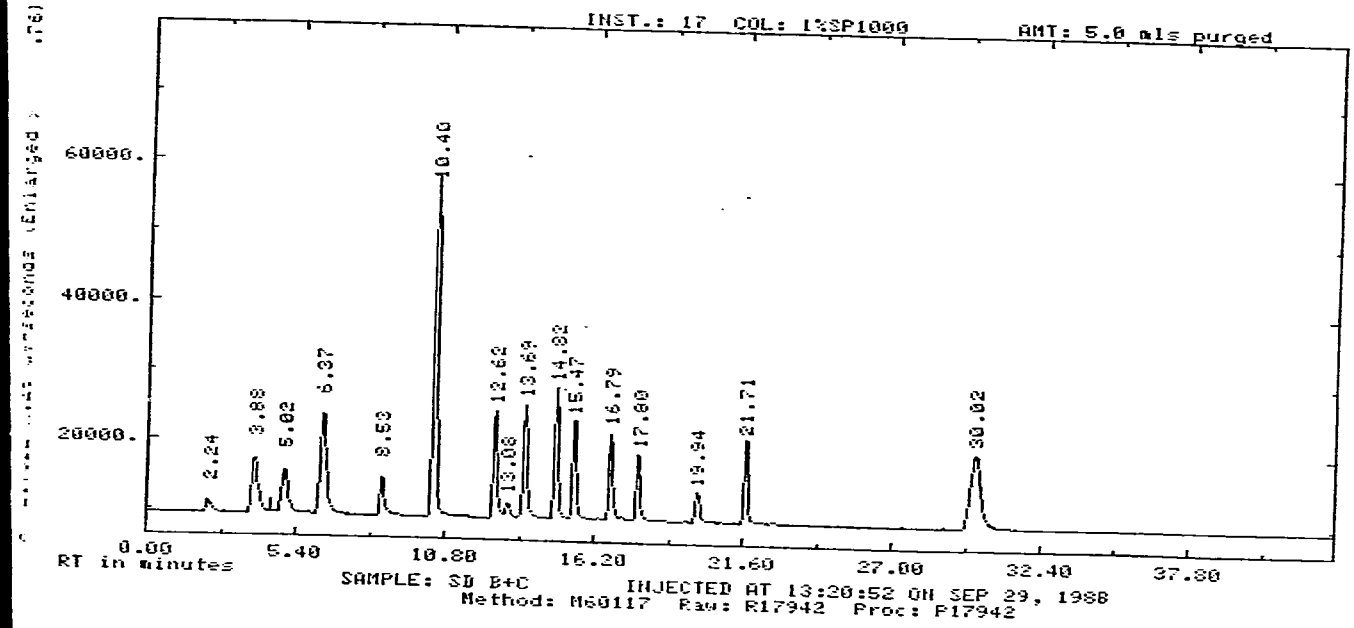
	% Recovery	Control Range%
Trichlorofluoromethane	113	(76-135)
Bromofluorobenzene	88	(69-123)

BDL=BELOW DETECTION LIMIT

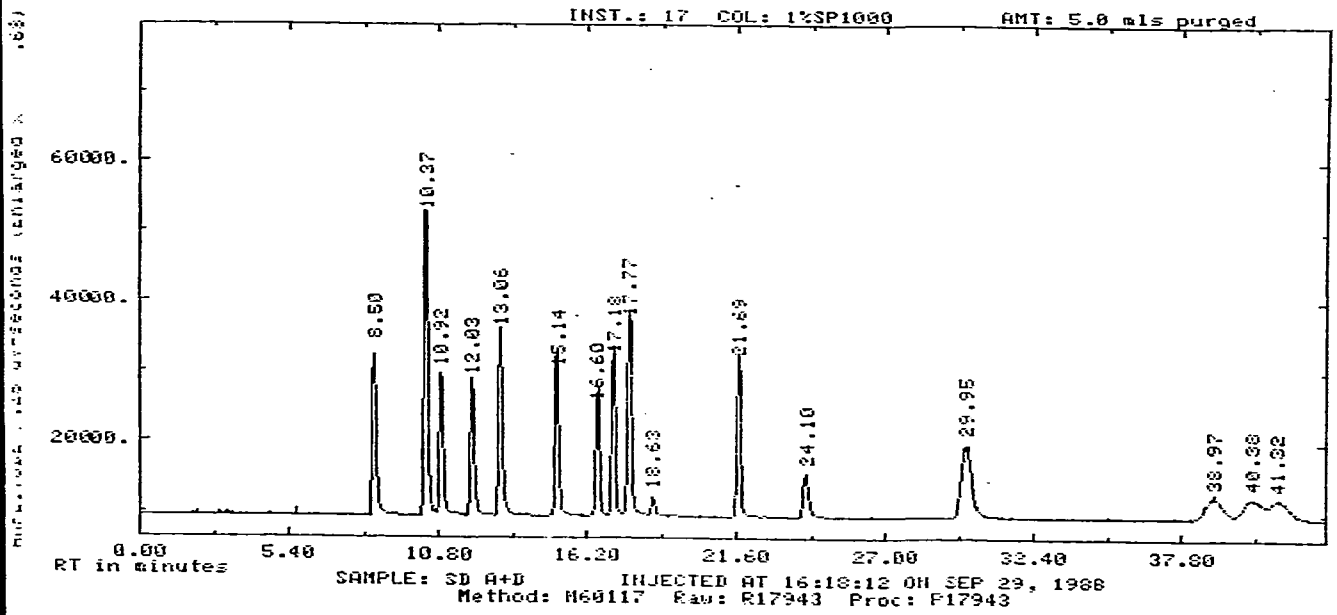
†Sample analyzed using a 2000:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE X.25 uV-seconds (Enlarged X 2.41)
60000.
40000.
20000.
8.53
10.39
17.18
29.98
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 218267 INJECTED AT 10:12:13 ON SEP 30, 1988
Method: M60117 Raw: P17964 Proc: P17964

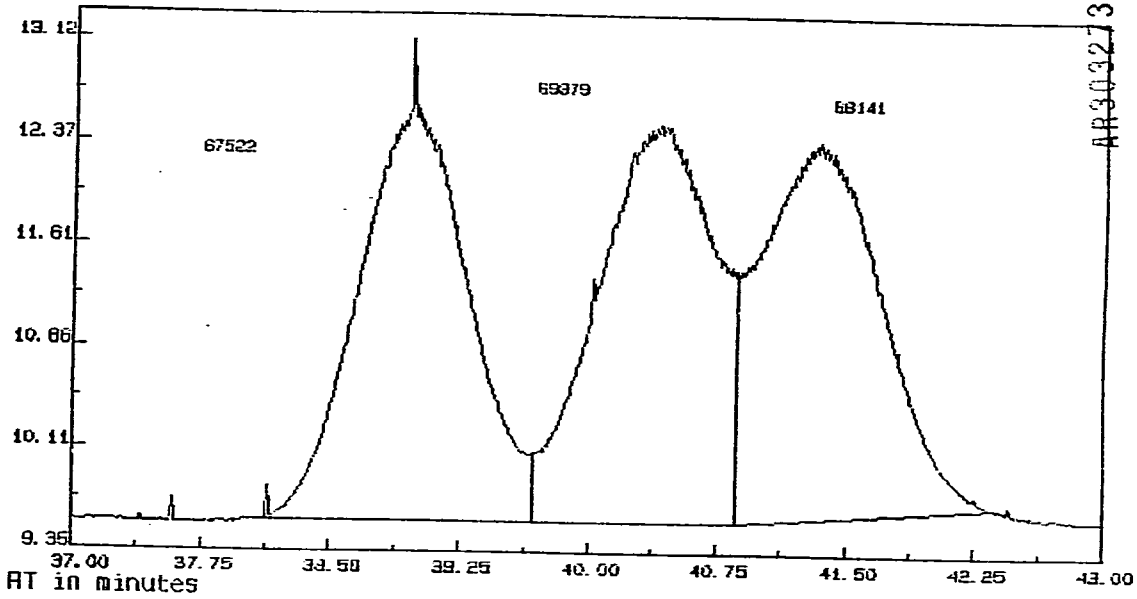
AR303270


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.60
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303271


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.82
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+B INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303272



SAMPLE: 50 A+D INJECTED AT 16:13:12 ON SEP 29, 1988
Meth: M60117 Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: WP-20
COMPUCHEM® SAMPLE NUMBER: 218271

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	500
2V.	BROMOMETHANE	BDL	500
3V.	VINYL CHLORIDE	BDL	500
4V.	CHLOROETHANE	BDL	500
5V.	METHYLENE CHLORIDE	BDL	100
6V.	1,1-DICHLOROETHENE	BDL	300
7V.	1,1-DICHLOROETHANE	BDL	400
8V.	TRANS-1,2-DICHLOROETHENE	BDL	200
9V.	CHLOROFORM	BDL	200
10V.	1,2-DICHLOROETHANE	BDL	300
11V.	1,1,1-TRICHLOROETHANE	BDL	300
12V.	CARBON TETRACHLORIDE	BDL	300
13V.	BROMODICHLOROMETHANE	BDL	400
14V.	1,2-DICHLOROPROPANE	BDL	200
15V.	CIS-1,3-DICHLOROPROPENE	BDL	300
16V.	TRICHLOROETHENE	18000	200
17V.	DIBROMOCHLOROMETHANE	BDL	200
18V.	1,1,2-TRICHLOROETHANE	BDL	200
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	200
20V.	2-CHLOROETHYL VINYL ETHER	BDL	400
21V.	BROMOFORM	BDL	500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	400
23V.	TETRACHLOROETHENE	BDL	200
24V.	CHLOROBENZENE	BDL	400
25V.	1,3-DICHLOROBENZENE	BDL	200
26V.	1,2-DICHLOROBENZENE	BDL	200
27V.	1,4-DICHLOROBENZENE	BDL	200

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

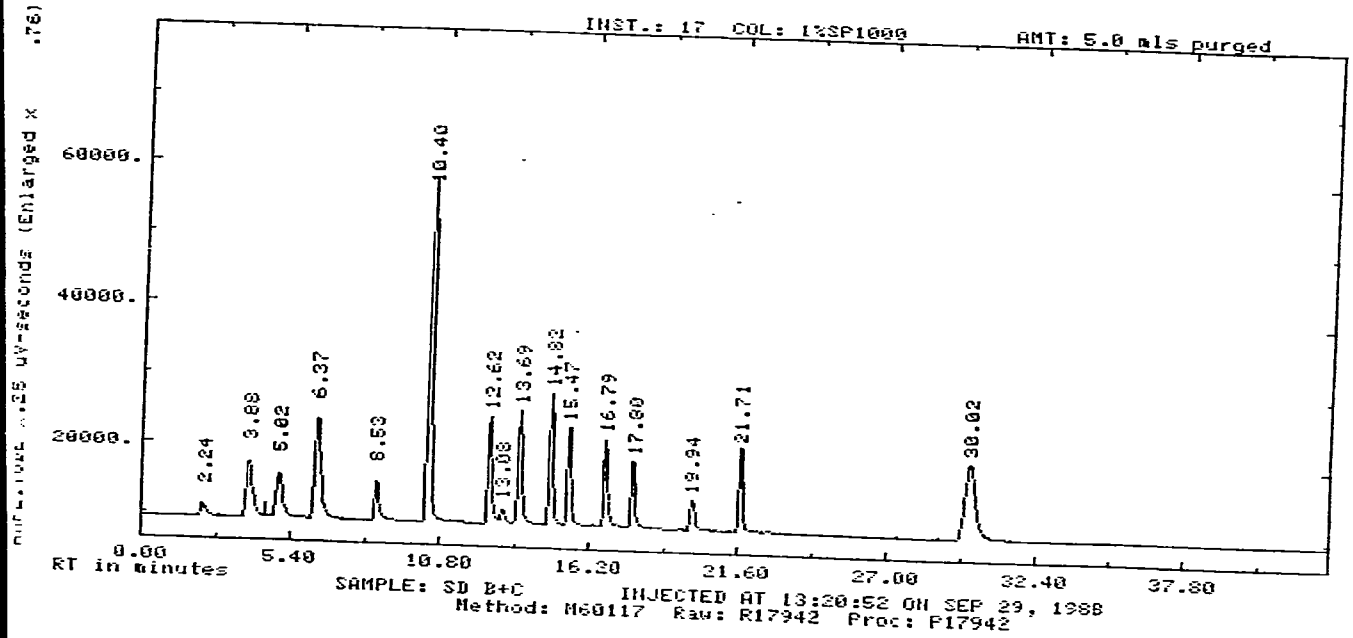
	% Recovery	Control Range%
Trichlorofluoromethane	103	(76-135)
Bromofluorobenzene	97	(69-123)

BDL=BELOW DETECTION LIMIT

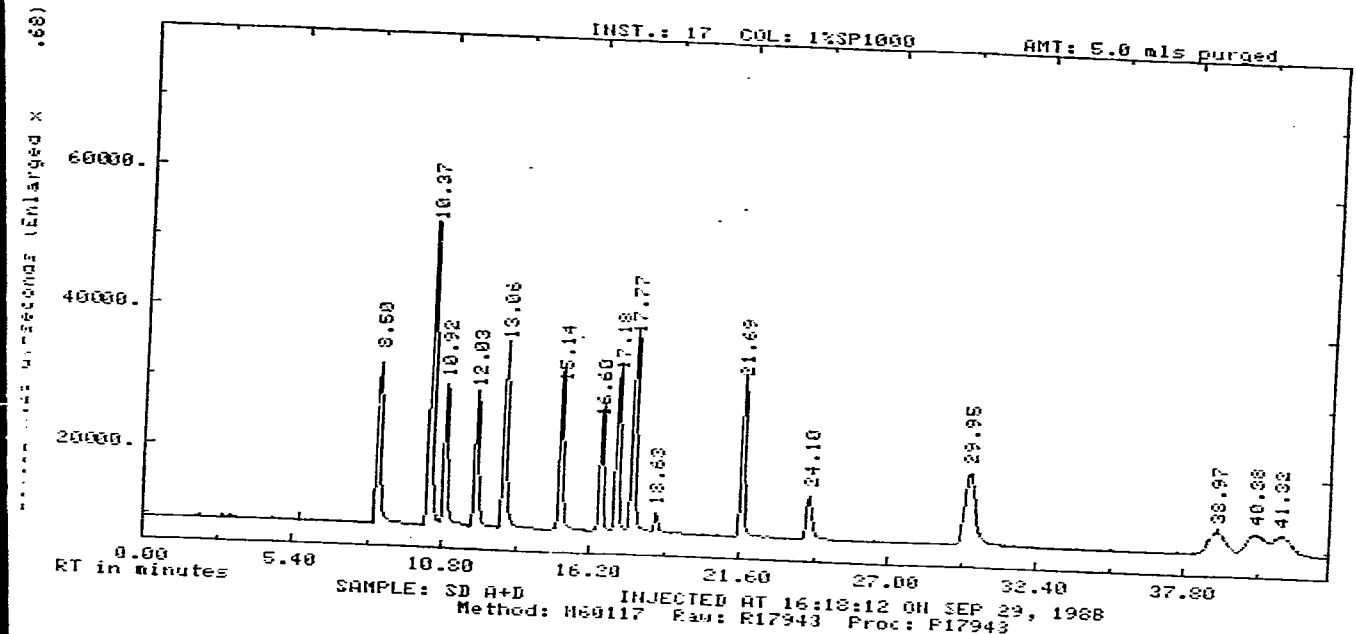
†Sample analyzed using a 1000:1 dilution, thus the higher than normal detection limits.

AMPLITUDE x.25 uV-seconds (Enlarged x .97)
.00002
.00001
.00000
0.00 minutes
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.53
10.39
12.21
39.99
INST.: 17 COL: 1%SP1000
AMT: 5.0 mls purged
SAMPLE: 90 218271 INJECTED AT 9:36:32 ON SEP 30, 1988
Method: MONIT Raw: RI7963 Proc: PI7963

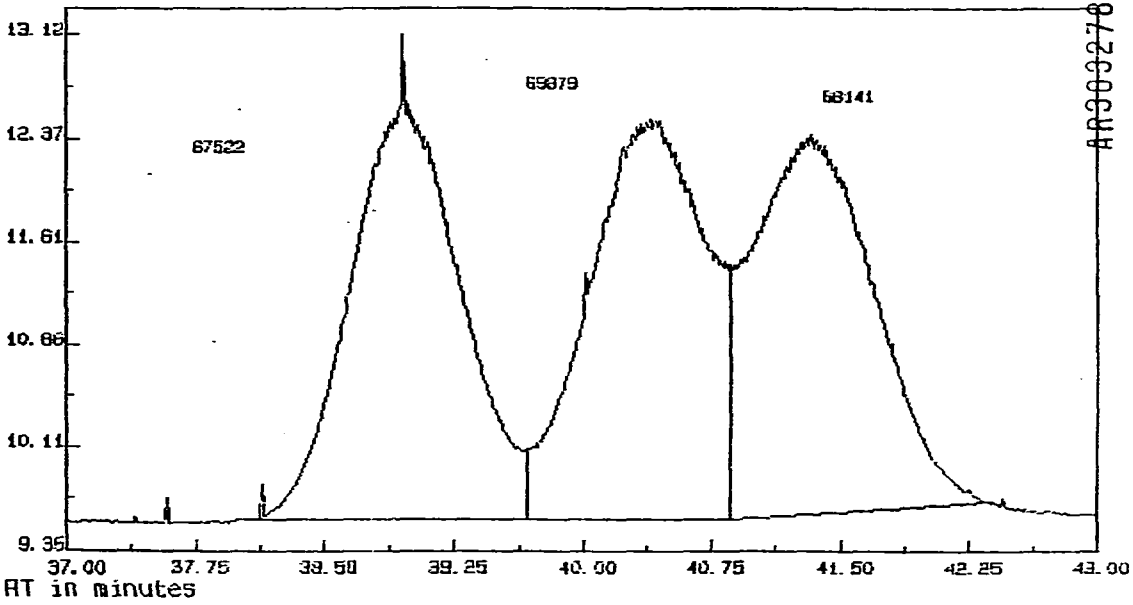
AR303275


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303276


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.60
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303277



SAMPLE: 50 A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Meth: M60117 Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

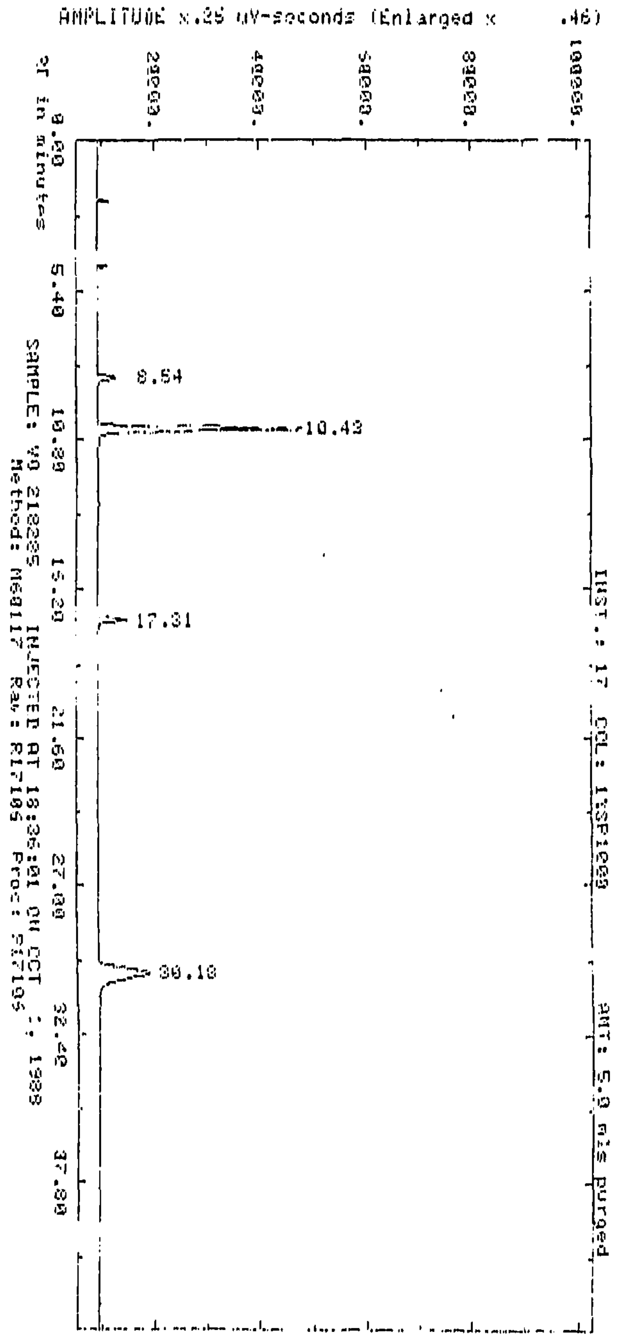
SAMPLE IDENTIFIER: WP-21
COMPUCHEM® SAMPLE NUMBER: 218285

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	1.3	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

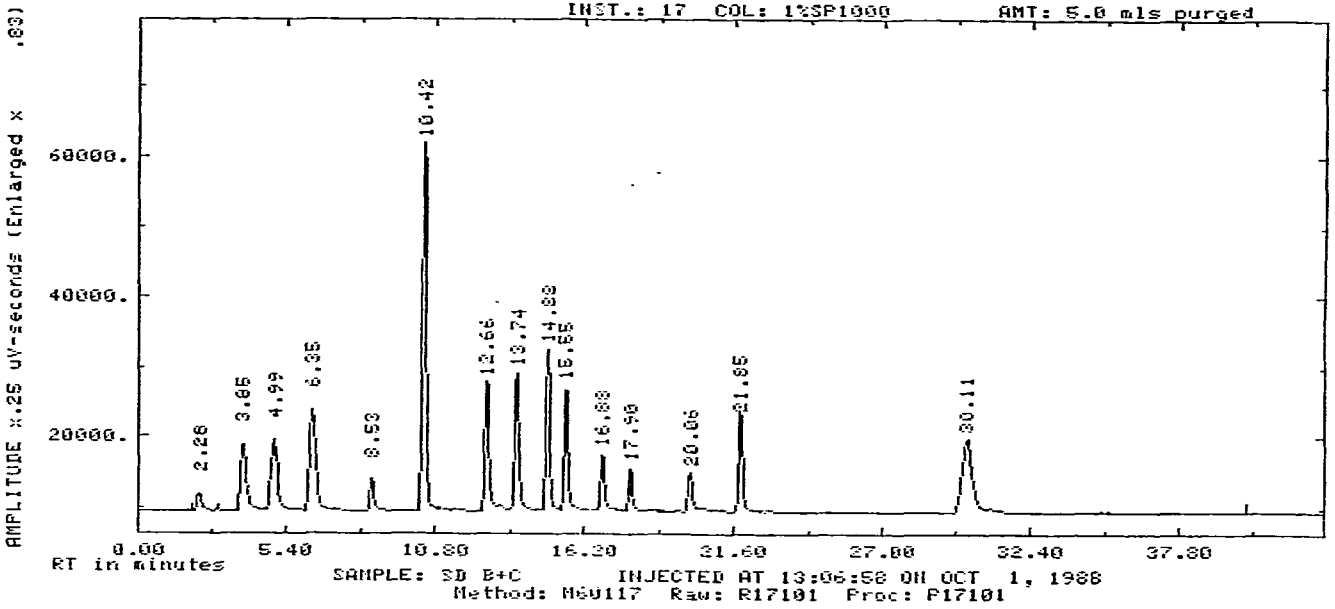
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	114	(76-135)
Bromofluorobenzene	88	(69-123)

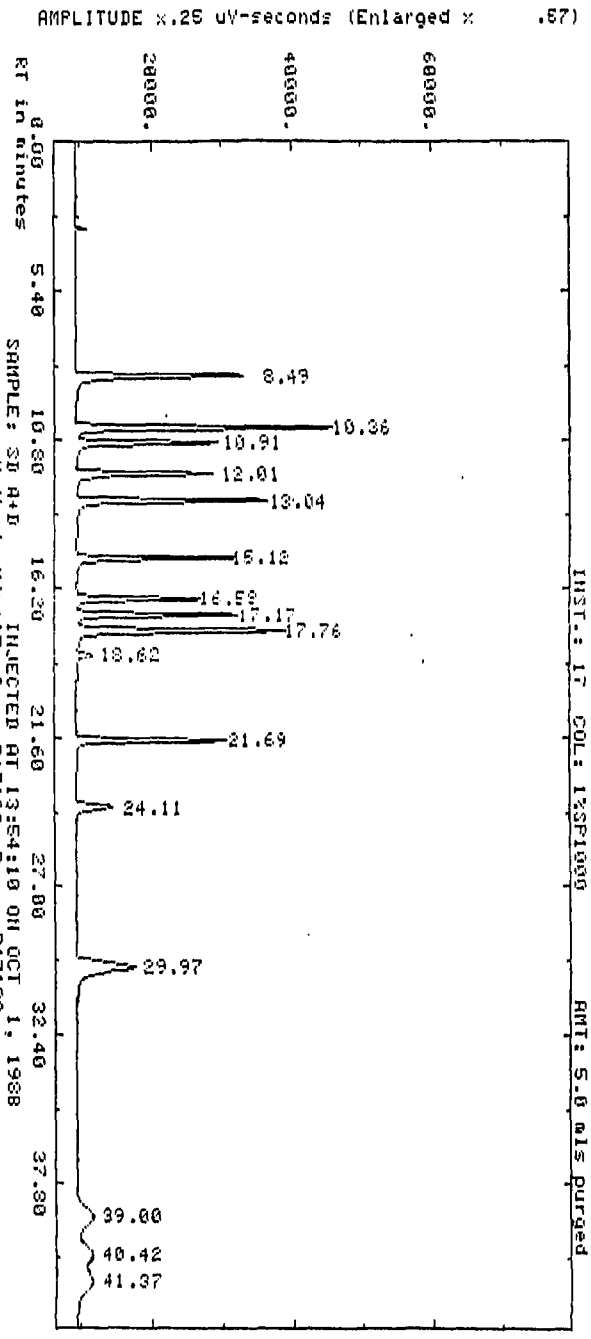
BDL=BELOW DETECTION LIMIT


AMPLITUDE x.25 uV-seconds (Enlarged x .46)
20000.
40000.
60000.
80000.
100000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.54
10.43
17.31
30.18
INJECTED AT 18:36:01 ON OCT
INST.: 17 COL: 11SP1000
AMT: 5.0 mls purged

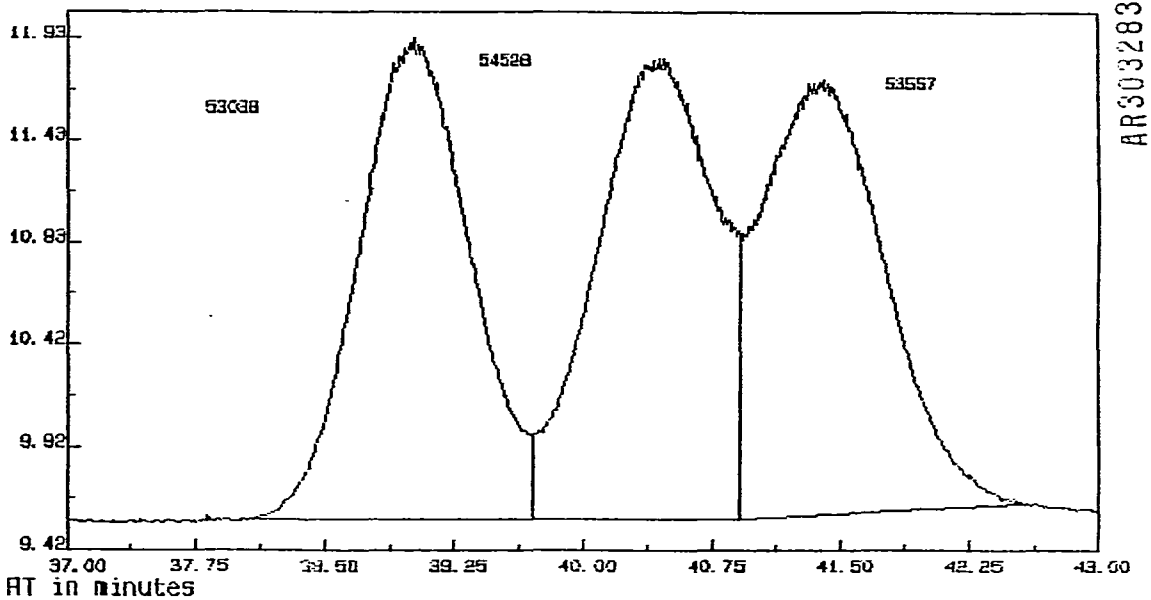
AR303280


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .03)
60000.
40000.
20000.
2.26
3.65
4.99
6.35
8.53
10.42
12.66
13.74
14.88
15.65
16.88
17.90
20.06
21.85
30.11
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:06:58 ON OCT 1, 1988
Method: M&U117 Raw: R17101 Proc: P17101

AR303281


AMPLITUDE x.25 uV-seconds (Enlarged x .67)
200000.
400000.
600000.
RT in minutes
8.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
SAMPLE: SD A+B
Method: M50117 Run: R17102 Proc: P17102
INJECTED AT 13:54:10 ON OCT 1, 1988
INST.: 17 COL: 1%SP1000
AMT: 5.0 mls purged
8.49
10.36
10.91
12.01
13.04
15.12
16.59
17.17
17.76
18.62
21.69
24.11
29.97
39.00
40.42
41.37

AR303282



AMPLITUDE/10000
Range Normalized

AR303283

SAMPLE: SD A+D INJECTED AT 13:54:10 ON OCT 1, 1988
Meth: M60117 Raw: R17102::58 Proc: P17102

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: R.W.
COMPUCHEM® SAMPLE NUMBER: 218288

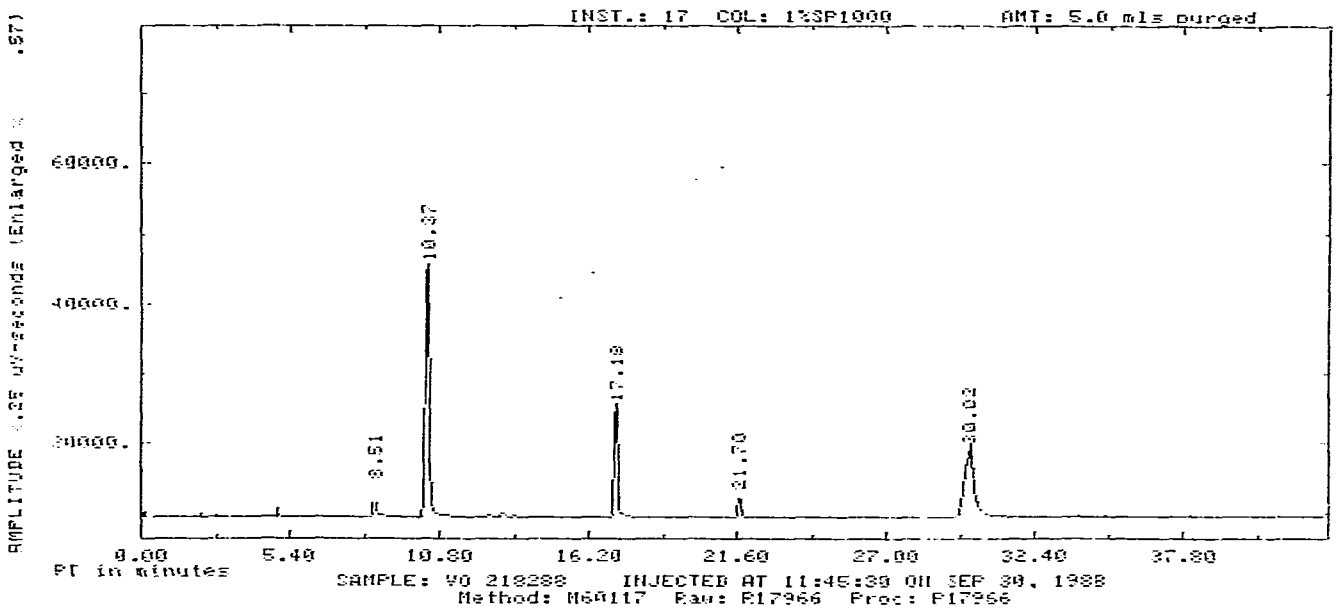
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	250
2V.	BROMOMETHANE	BDL	250
3V.	VINYL CHLORIDE	BDL	250
4V.	CHLOROETHANE	BDL	250
5V.	METHYLENE CHLORIDE	BDL	500
6V.	1,1-DICHLOROETHENE	BDL	150
7V.	1,1-DICHLOROETHANE	BDL	200
8V.	TRANS-1,2-DICHLOROETHENE	BDL	100
9V.	CHLOROFORM	BDL	100
10V.	1,2-DICHLOROETHANE	BDL	150
11V.	1,1,1-TRICHLOROETHANE	BDL	150
12V.	CARBON TETRACHLORIDE	BDL	150
13V.	BROMODICHLOROMETHANE	BDL	200
14V.	1,2-DICHLOROPROPANE	BDL	100
15V.	CIS-1,3-DICHLOROPROPENE	BDL	150
16V.	TRICHLOROETHENE	2100	100
17V.	DIBROMOCHLOROMETHANE	BDL	100
18V.	1,1,2-TRICHLOROETHANE	BDL	100
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	100
20V.	2-CHLOROETHYL VINYL ETHER	BDL	200
21V.	BROMOFORM	BDL	250
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	200
23V.	TETRACHLOROETHENE	250	100
24V.	CHLOROBENZENE	BDL	200
25V.	1,3-DICHLOROBENZENE	BDL	100
26V.	1,2-DICHLOROBENZENE	BDL	100
27V.	1,4-DICHLOROBENZENE	BDL	100

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

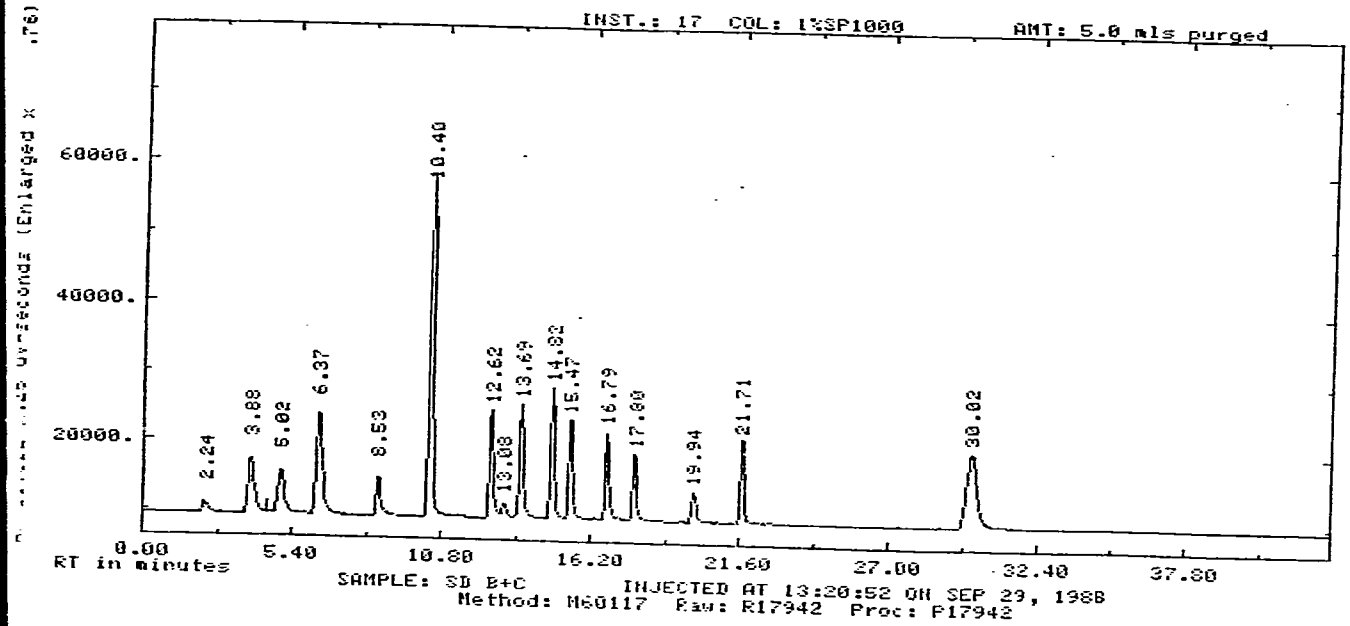
	% Recovery	Control Range%
Trichlorofluoromethane	115	(76-135)
Bromofluorobenzene	87	(69-123)

BDL=BELOW DETECTION LIMIT

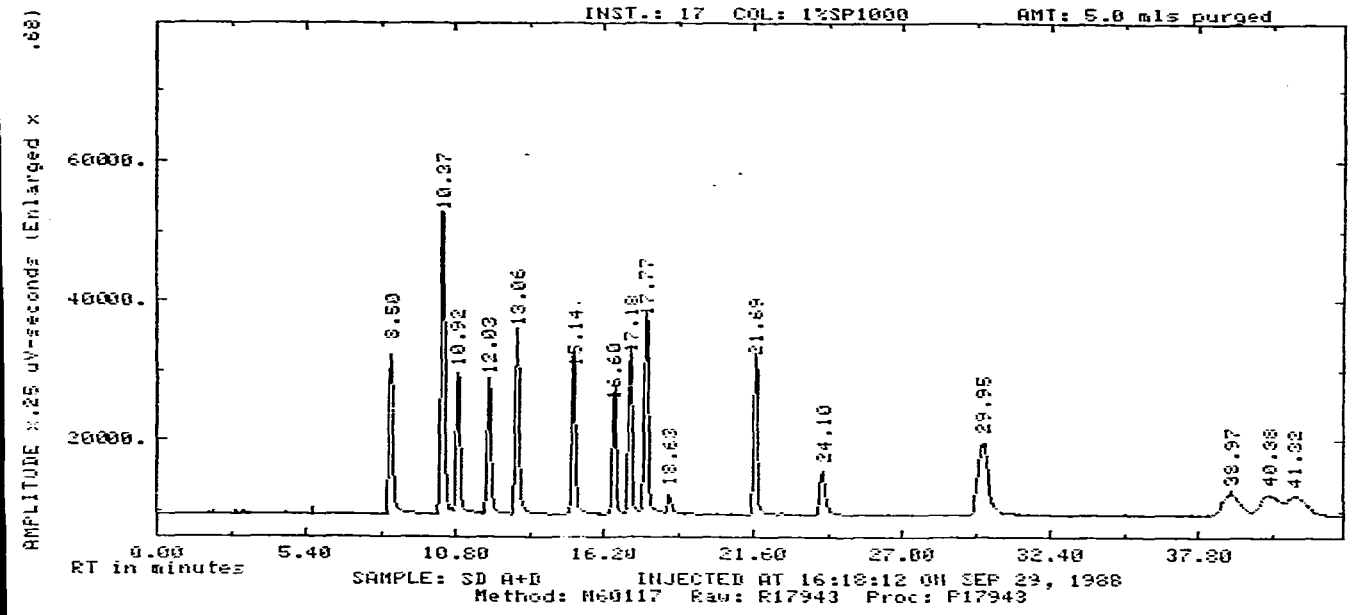
†Sample analyzed using a 500:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE (.25 uV-seconds Enlarged .67)
60000.
40000.
20000.
8.51
10.37
17.19
21.70
30.03
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
PT in minutes
SAMPLE: V0 218288 INJECTED AT 11:45:39 ON SEP 30, 1988
Method: M60117 Raw: R17966 Proc: P17966

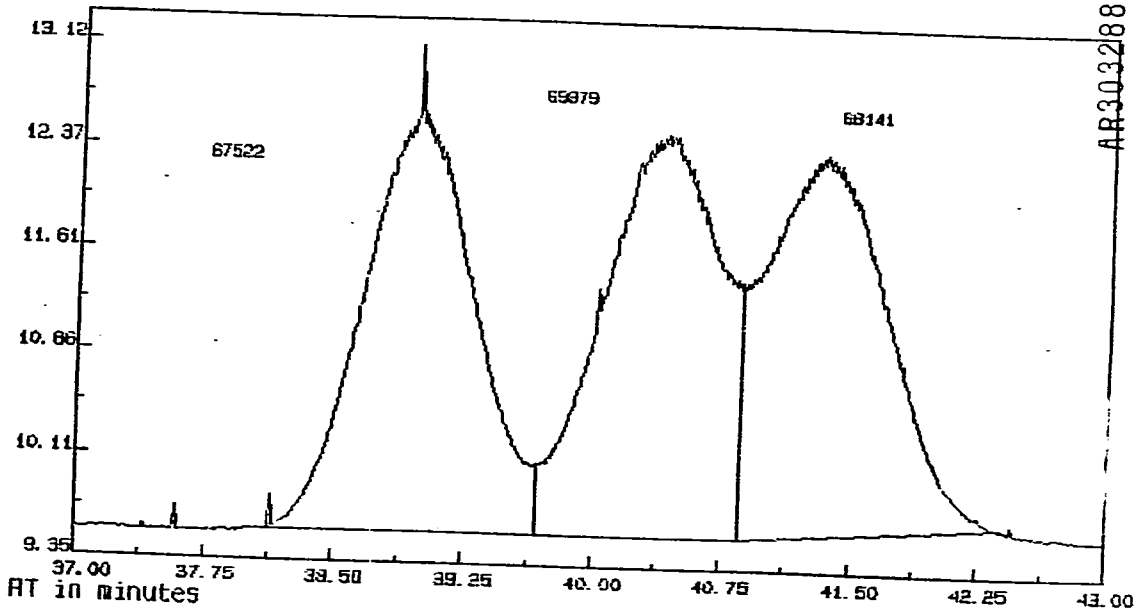
AR303285


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
6.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303286


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .08)
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+B INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303287



SAMPLE: SD A+D
Meth: M60117

INJECTED AT 16:18:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

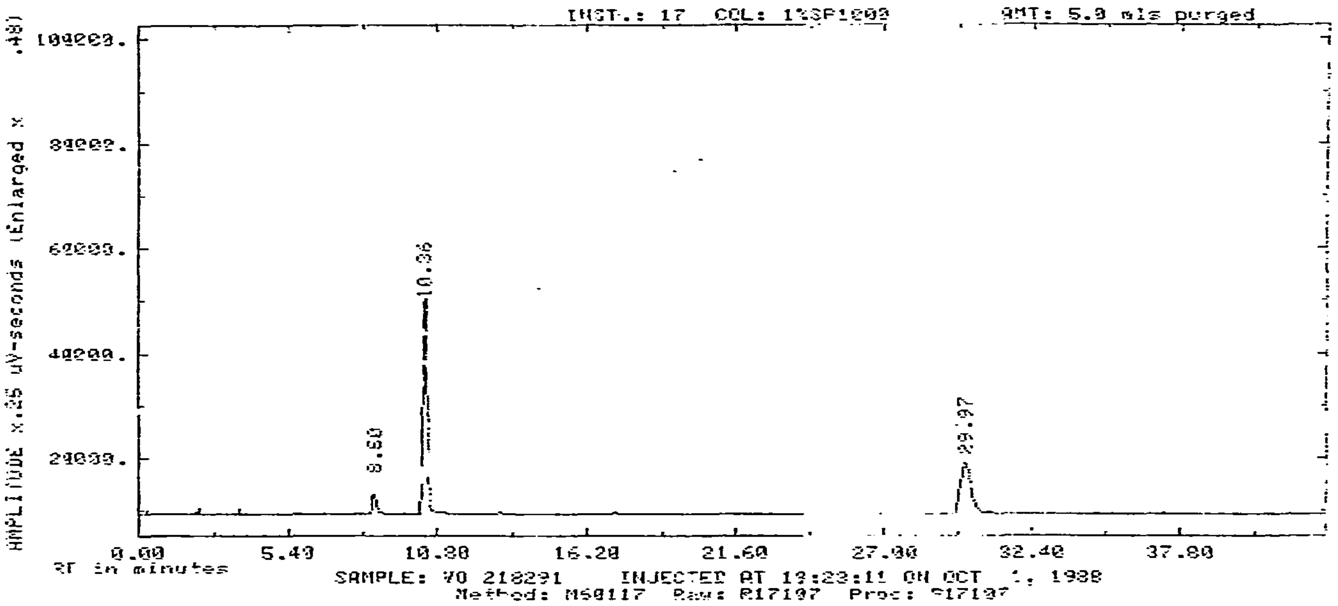
SAMPLE IDENTIFIER: A.S.
COMPUCHEM® SAMPLE NUMBER: 218291

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

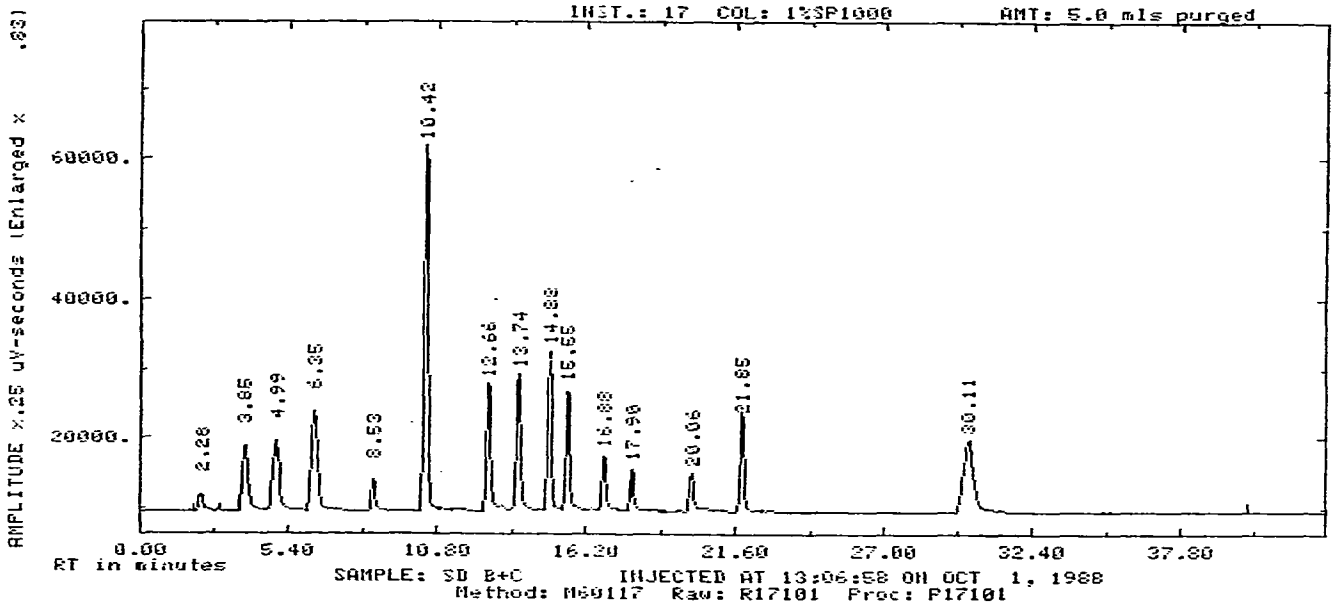
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	120	(76-135)
Bromofluorobenzene	83	(69-123)

BDL=BELOW DETECTION LIMIT

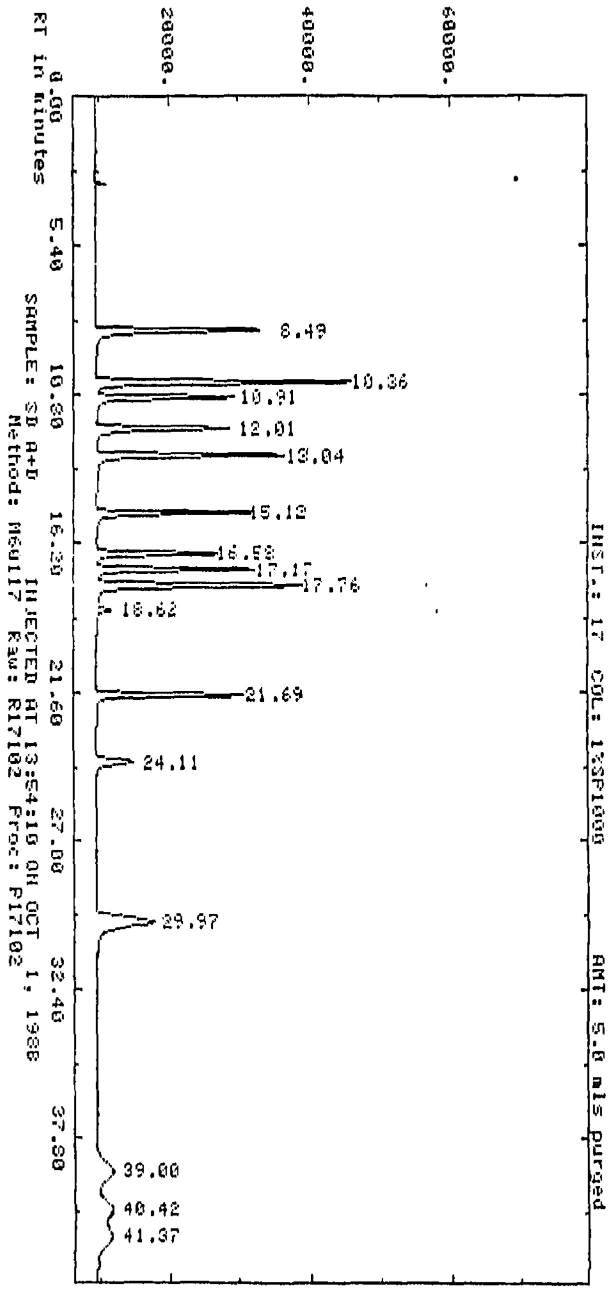

INST.: 17 COL: 1%SP1000
AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .48)
100000.
80000.
60000.
40000.
20000.
8.60
10.36
29.97
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 218291 INJECTED AT 13:23:11 ON OCT 1, 1988
Method: M60117 Raw: R17197 Proc: P17197

AR303290

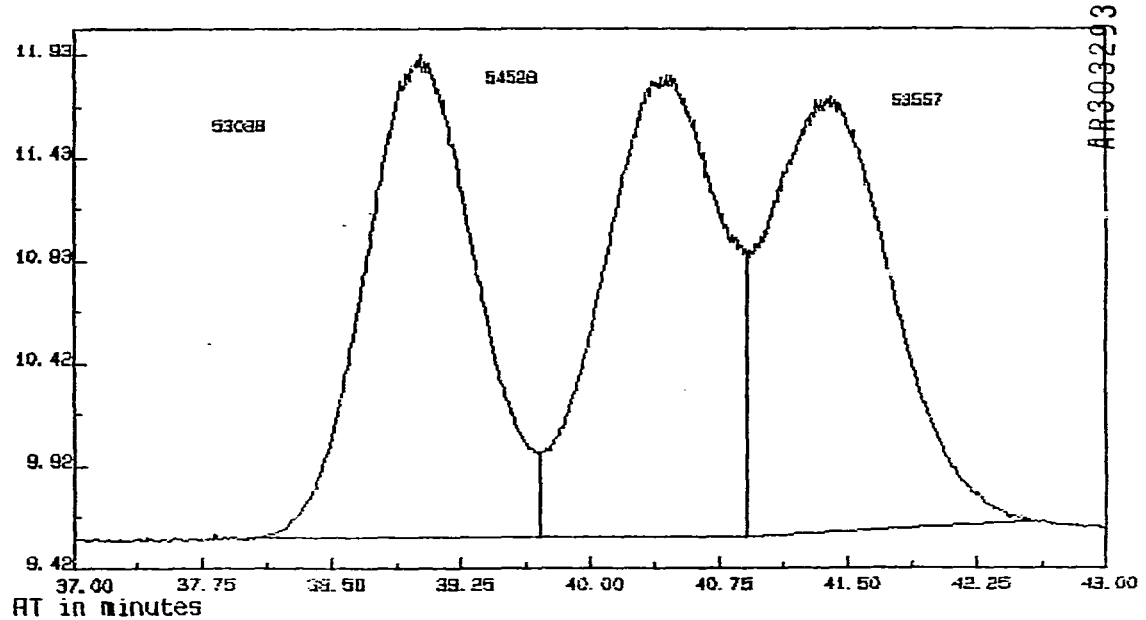

INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .03)
60000.
40000.
20000.
2.28
3.85
4.99
6.35
8.53
10.42
12.66
13.74
14.88
15.55
16.88
17.98
20.06
21.85
30.11
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:06:58 ON OCT 1, 1988
Method: M60117 Raw: R17101 Proc: P17101

AR303291

AMPLITUDE x.25 uV-seconds (Enlarged x .57)



AR303292



SAMPLE: SD A+D INJECTED AT 13:54:10 ON OCT 1, 1988
Meth: M50117 Raw: R17102::58 Proc: P17102

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

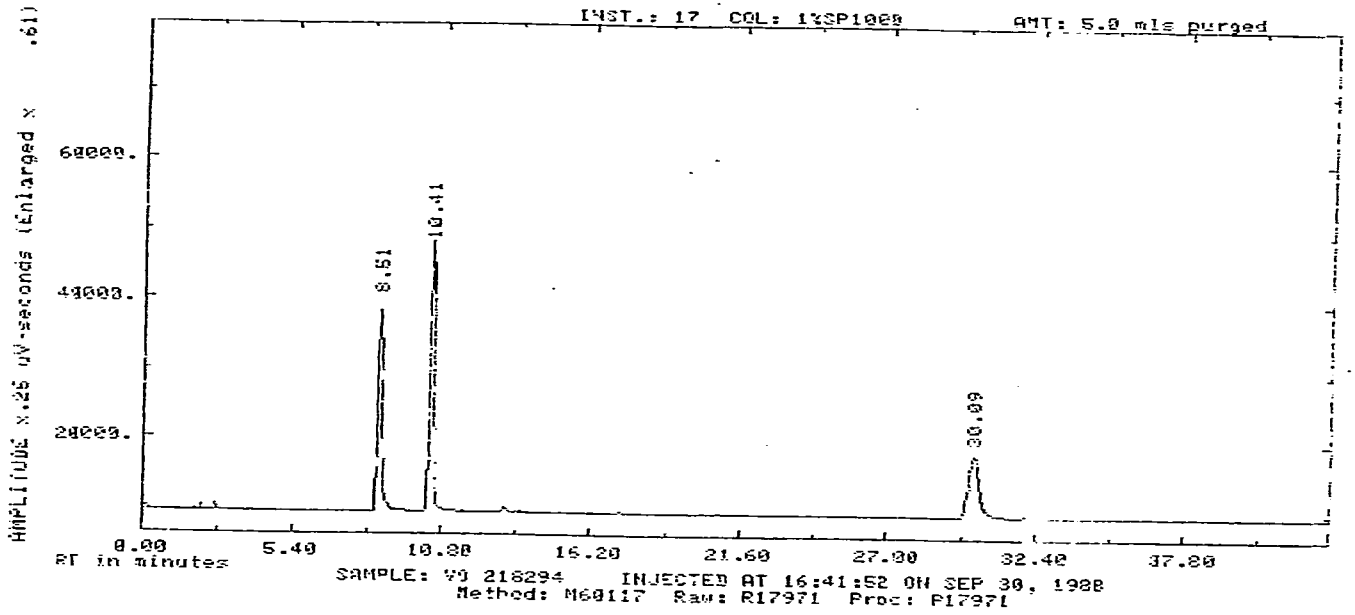
SAMPLE IDENTIFIER: TRIP BLANK, LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 218294

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	4.2	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	122	(76-135)
Bromofluorobenzene	82	(69-123)

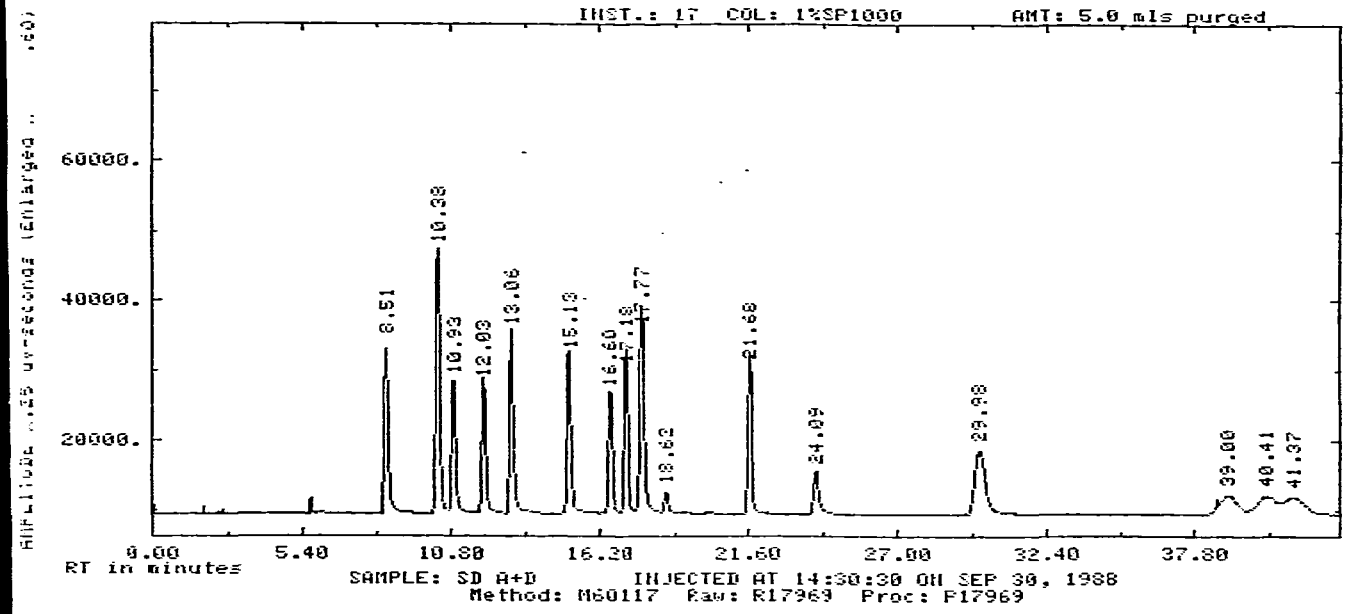
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .61)
60000.
40000.
20000.
8.51
10.41
30.09
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V9 218294 INJECTED AT 16:41:52 ON SEP 30, 1988
Method: M60117 Raw: R17971 Proc: P17971

AR303295

AMPLITUDE x.25 uV-seconds (Enlarged x .84)
200000.
400000.
600000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
2.28
3.86
4.98
6.34
8.50
10.37
12.59
13.66
14.80
15.46
16.76
17.78
19.92
21.69
29.94
SAMPLE: SB B+C
Method: M601F INJECTED AT 13:43:53 ON SEP 30, 1988
Run: R17968 Proc: P17968
INST: 17 COL: I%SP1000
AMT: 5.0 mls purged

AR303296


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.51
10.38
10.93
12.03
13.06
15.19
16.60
17.18
17.77
18.62
21.68
24.09
29.88
39.00
40.41
41.37
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 14:30:30 ON SEP 30, 1988
Method: M60117 Raw: R17969 Proc: P17969

AR303297

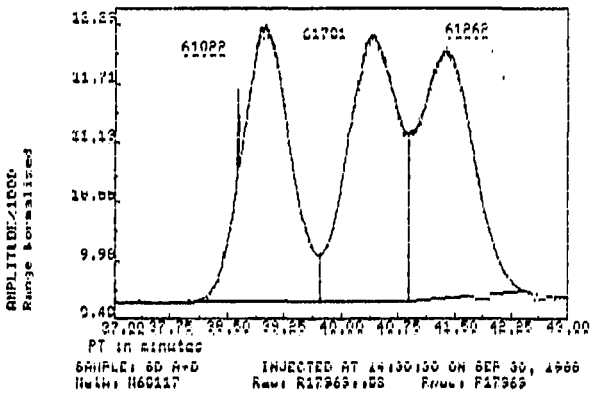
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R17969::58 INJECTED AT: 14:30:30 ON SEP 30, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	38.08	39.72	61022	33.2
2	39.72	40.90	61701	33.5
3	40.90	42.44	61262	33.3

Select softkey



AR303298

QUALITY CONTROL DATA PACKAGE

- Blank Compound List and Detection Limits
  - Surrogate Recovery Data
  - Blank Chromatogram (RIC)
  - Quantitation Report
  - Spectra (If Applicable)
- Matrix Spike Comparison
  - Quantitation Report
- Tuning Performance Summary
- Calibrations
- Standard Chromatogram (RIC)
  - Quantitation Report

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

COMPUCHEM BLANK ID: P17944

SAMPLE IDENTIFIER: W12, W20, W200, WP-6, WP-9, WP-20, R.W., A.S.

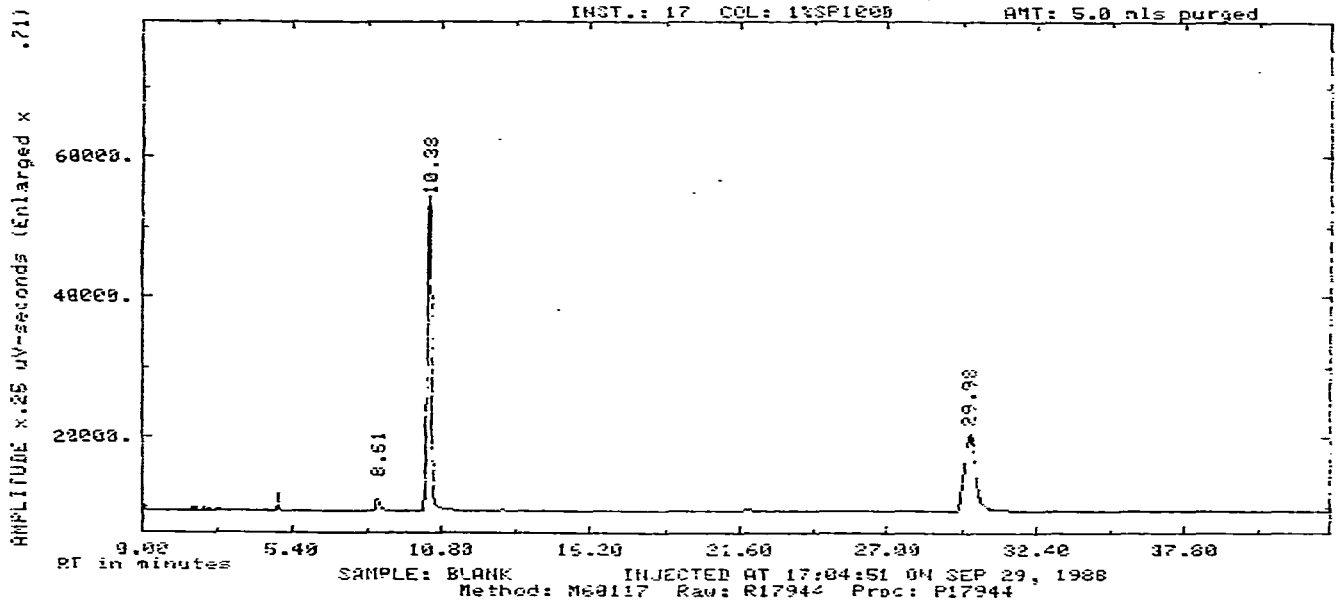
COMPUCHEM® SAMPLE NUMBER: 218248, 218251, 218252, 218265, 218267, 218271, 218288, 218291

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	114	(76-135)
Bromofluorobenzene	88	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .71)
60000.
40000.
20000.
8.61
10.38
29.98
9.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 17:04:51 ON SEP 29, 1988
Method: M80117 Raw: R17944 Proc: P17944

AR303301

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

COMPUCHEM BLANK ID. P17103

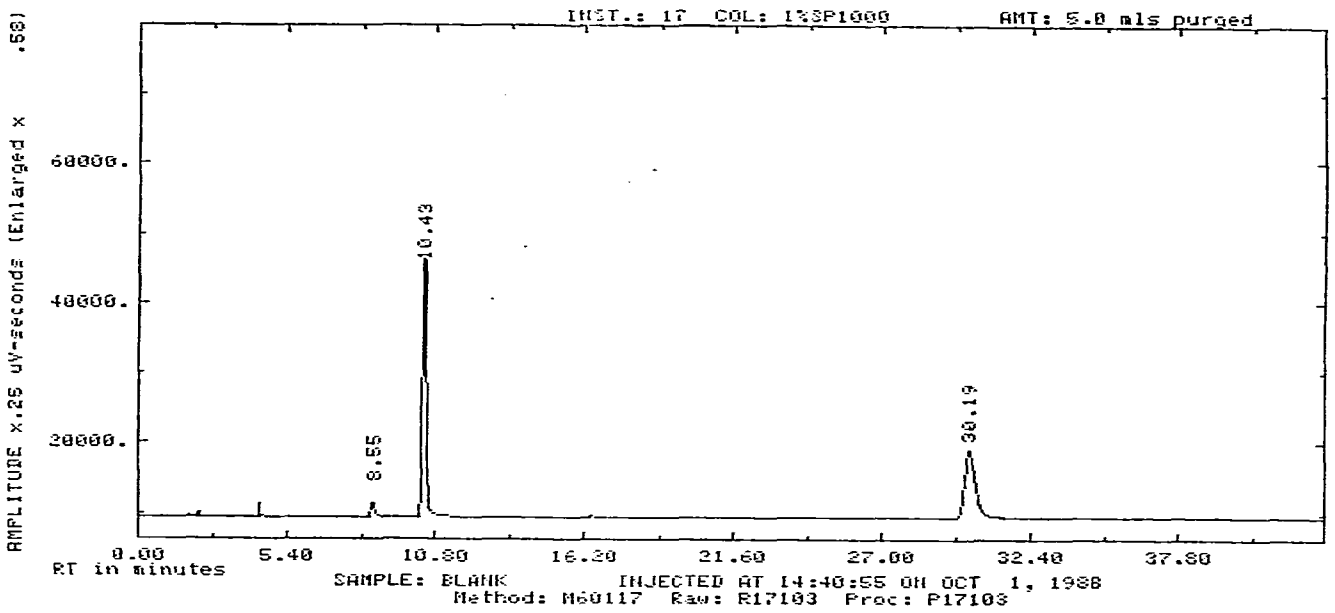
SAMPLE IDENTIFIER: WP-21
COMPUCHEM® SAMPLE NUMBER: 218285

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	108	(76-135)
Bromofluorobenzene	93	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.55
10.43
30.19
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 14:40:55 ON OCT 1, 1988
Method: M60117 Raw: R17103 Proc: P17103

AR303303

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

COMPUCHEM BLANK ID: P17970

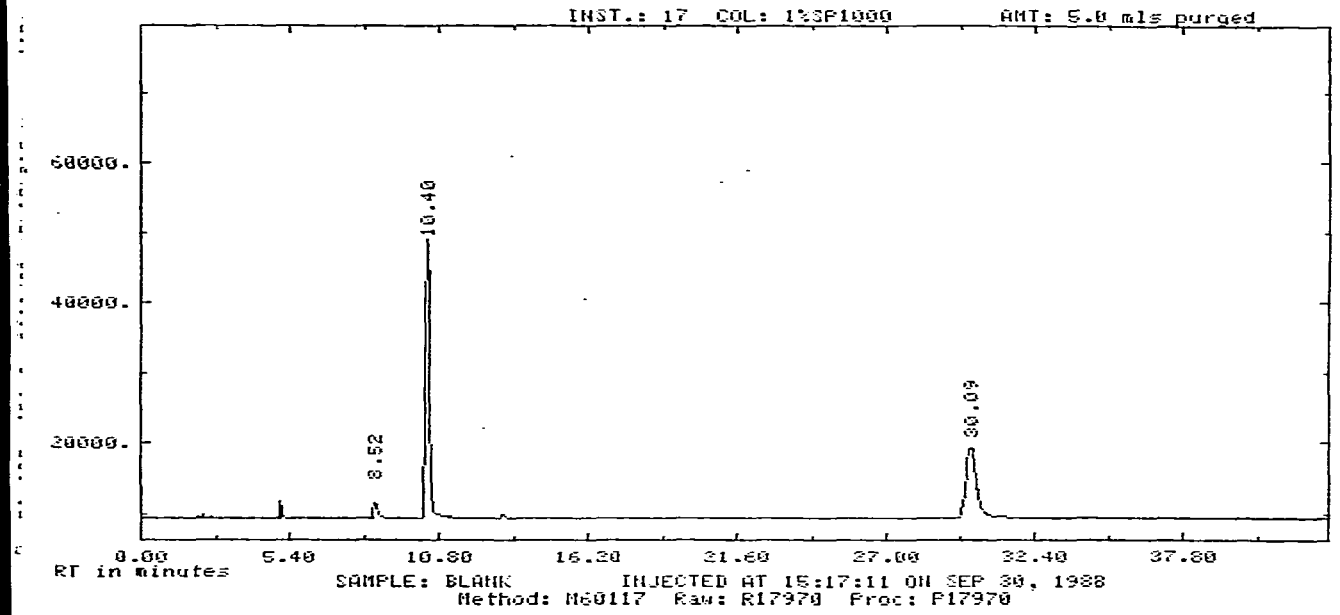
SAMPLE IDENTIFIER: TRIP BLANK, LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 218294

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	114	(76-135)
Bromofluorobenzene	88	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.52
10.40
30.09
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 15:17:11 ON SEP 30, 1988
Method: M60117 Raw: R17970 Proc: P17970

AR303305

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 218247
MATRIX SPIKE: 218249
MATRIX SPIKE DUPLICATE: 218250

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	6.70	134.00	6.70	134.00	0.00	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	6.50	130.00	6.60	132.00	0.76	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	6.80	136.00	6.90	138.00	0.73	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	6.40	128.00	6.30	126.00	0.79	2.10 - 8.60
C-1,3-DICHLOROPROPENE	6.0	0.00	3.90	65.00	3.90	65.00	0.00	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	2.80	70.00	2.80	70.00	0.00	0.88 - 7.12
BROMOFORM	5.0	0.00	6.70	134.00	6.90	138.00	1.47	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	7.20	144.00	7.60	152.00	2.70	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

OCT 12 1988

COMPUCHEM
LABORATORIES

October 10, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested	Report Format
W-8A	218243	455	14699	Volatiles (GC)	Style 3
W9	218244				
W10	218245				
W11A	218246				
W11B	218247				

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Patricia B. Hopkins
Technical Reviewer

Loretta Boyd
Deliverables Coordinator

AR303310

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: W-8A, W9, W10, W11A, W11B
CompuChem Number: 218243, 218244, 218245, 218246, 218247

Date Received: 09/22/88

	Extracted	Analyzed
- VOLATILE	---	09/30/88

VOLATILE

(Blank - Volatile) P17944
(Spike) 217203/217204

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

№ 013024

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801-918	NCR MILLSBORO GWS

SAMPLERS: (Signature) Scott VanDeVelde

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	TPH Chrome				REMARKS
WSA	9-20	15:20		✓	Monitoring Well 8A	2	✓	✓	218	243		* WJ9, W-8A, WP-6, WP-20
W9	9-20	14:50		✓	" " 9	2	✓		218	244		are Broken - Due to freezing
W10	9-20	14:30		✓	" " 10	2	✓		218	245		9/22/88 GC*
W11A	9-20	13:55		✓	" " 11A	2	✓		218	246		ID: SARE use off of sample
W11B	9-20	13:40		✓	" " 11B	2	✓		218	247		Containers 8 oz/Bottles
W12	9-20	14:15		✓	" " 12	2	✓		218	248		9/22/88 GC
W20	9-21	10:50		✓	" " 20	2	✓		218	251		218339
W200	9-21	10:90		✓	" " 200	2	✓		218	252		218342
WP6	9-21	11:30		✓	Well Point 6	2	✓		218	265		
WP9	9-20	15:40		✓	" " 9	2	✓		218	267		
WP20	9-21	12:24		✓	" " 20	2	✓		218	271		
WP21	9-21	12:10		✓	" " 21	2	✓		218	285		
RW	9-21	12:55		✓	Recovery Well	3	✓	✓	218	288		* 2 VOAs and a 500ml Plastic
TB	9-21			✓	Trip Blank	2	✓		218	291		COC listed 3 Containers but actually have 2
AS	9-21	13:15		✓	Air Stripper	3	✓	✓	218	294		9/22/88 GC*

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott VanDeVelde	9-21-88 16:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			9/22/88 9:10		

Distribution: Original Accompanies Shipment; Copy to Field Files

AR303344

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W-8A
COMPUCHEM® SAMPLE NUMBER: 218243

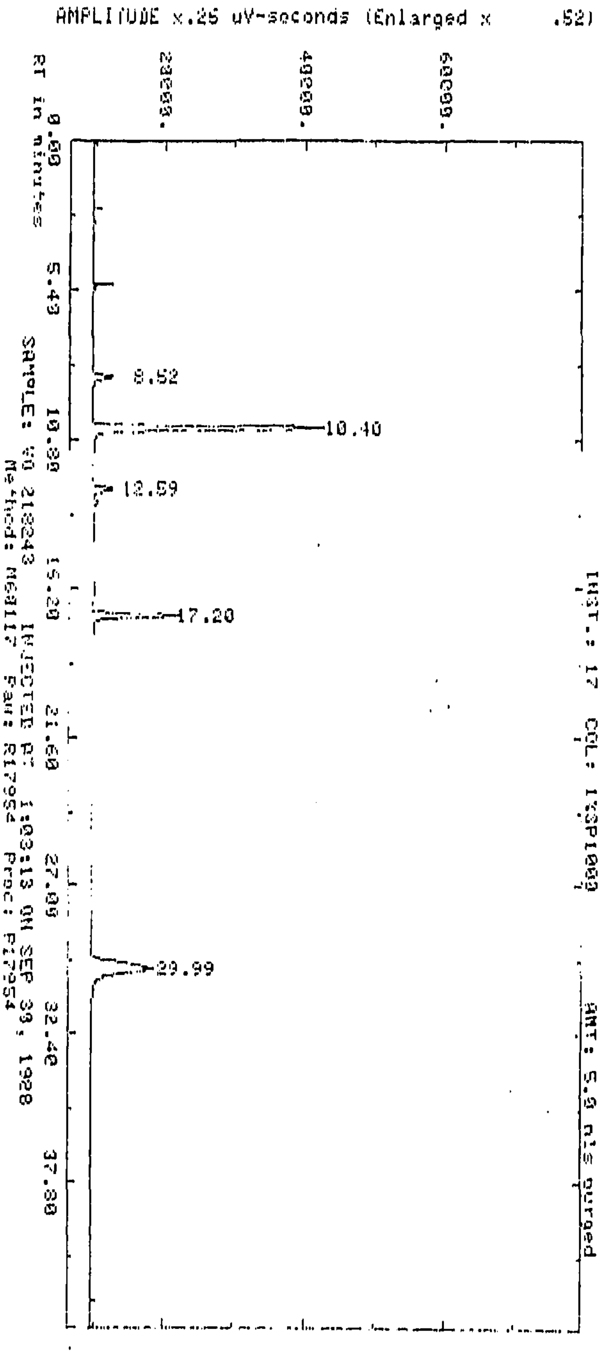
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	25
2V.	BROMOMETHANE	BDL	25
3V.	VINYL CHLORIDE	BDL	25
4V.	CHLOROETHANE	BDL	25
5V.	METHYLENE CHLORIDE	BDL	50
6V.	1,1-DICHLOROETHENE	BDL	15
7V.	1,1-DICHLOROETHANE	BDL	20
8V.	TRANS-1,2-DICHLOROETHENE	BDL	10
9V.	CHLOROFORM	BDL	10
10V.	1,2-DICHLOROETHANE	53	15
11V.	1,1,1-TRICHLOROETHANE	BDL	15
12V.	CARBON TETRACHLORIDE	BDL	15
13V.	BROMODICHLOROMETHANE	BDL	20
14V.	1,2-DICHLOROPROPANE	BDL	10
15V.	CIS-1,3-DICHLOROPROPENE	BDL	15
16V.	TRICHLOROETHENE	180	10
17V.	DIBROMOCHLOROMETHANE	BDL	10
18V.	1,1,2-TRICHLOROETHANE	BDL	10
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	10
20V.	2-CHLOROETHYL VINYL ETHER	BDL	20
21V.	BROMOFORM	BDL	25
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	20
23V.	TETRACHLOROETHENE	BDL	10
24V.	CHLOROBENZENE	BDL	20
25V.	1,3-DICHLOROBENZENE	BDL	10
26V.	1,2-DICHLOROBENZENE	BDL	10
27V.	1,4-DICHLOROBENZENE	BDL	10

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

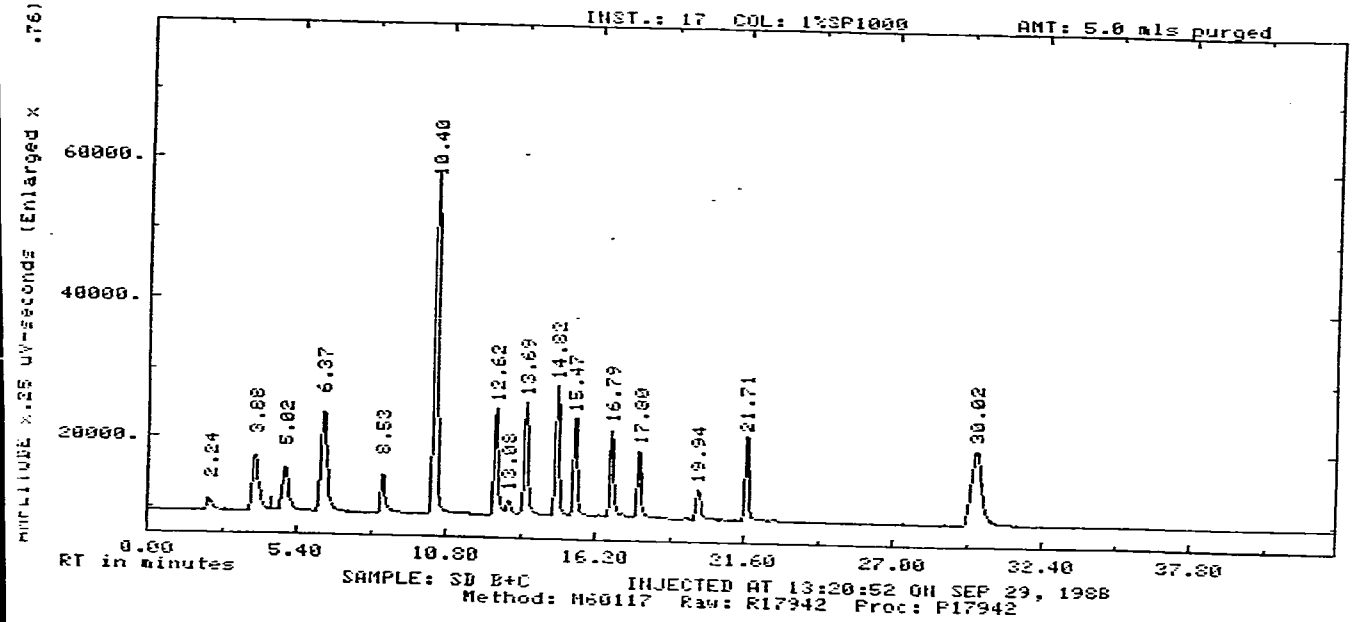
	% Recovery	Control Range%
Trichlorofluoromethane	111	(76-135)
Bromofluorobenzene	90	(69-123)

BDL=BELOW DETECTION LIMIT

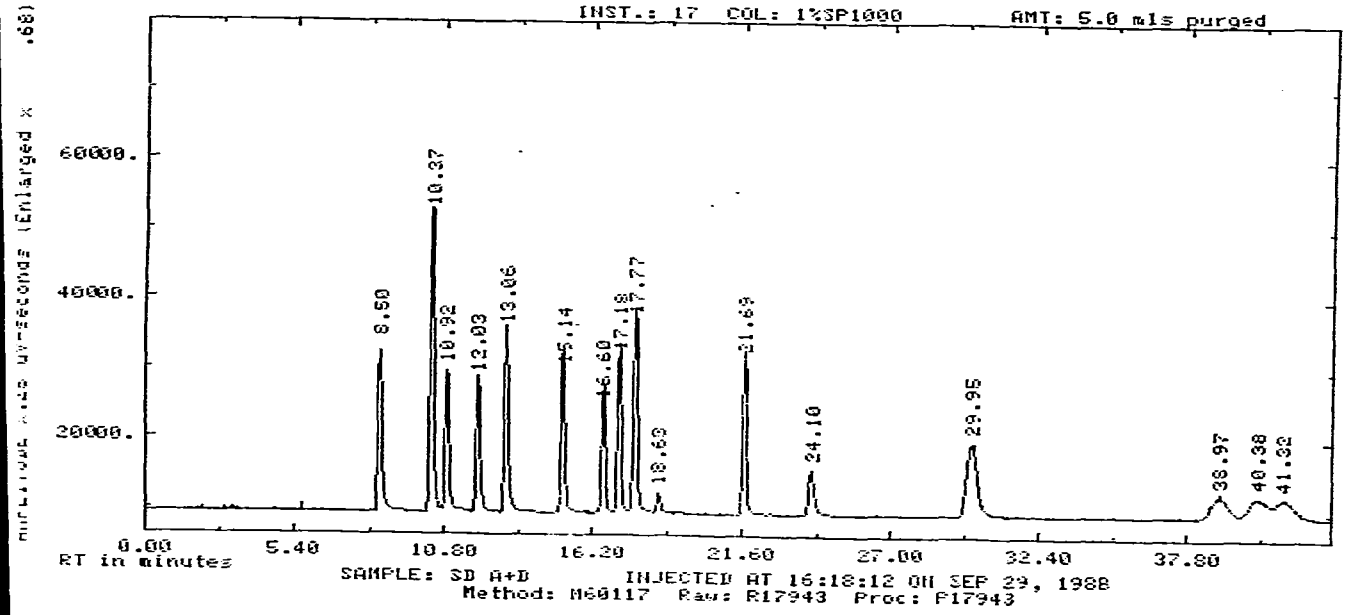
†Sample analyzed using a 50:1 dilution, thus the higher than normal detection limits.


AMPLITUDE x.25 uV-seconds (Enlarged x .52)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.52
10.40
12.59
17.20
29.99
INST.: 17 COL: 1%SP1000
AMT: 5.0 mls purged

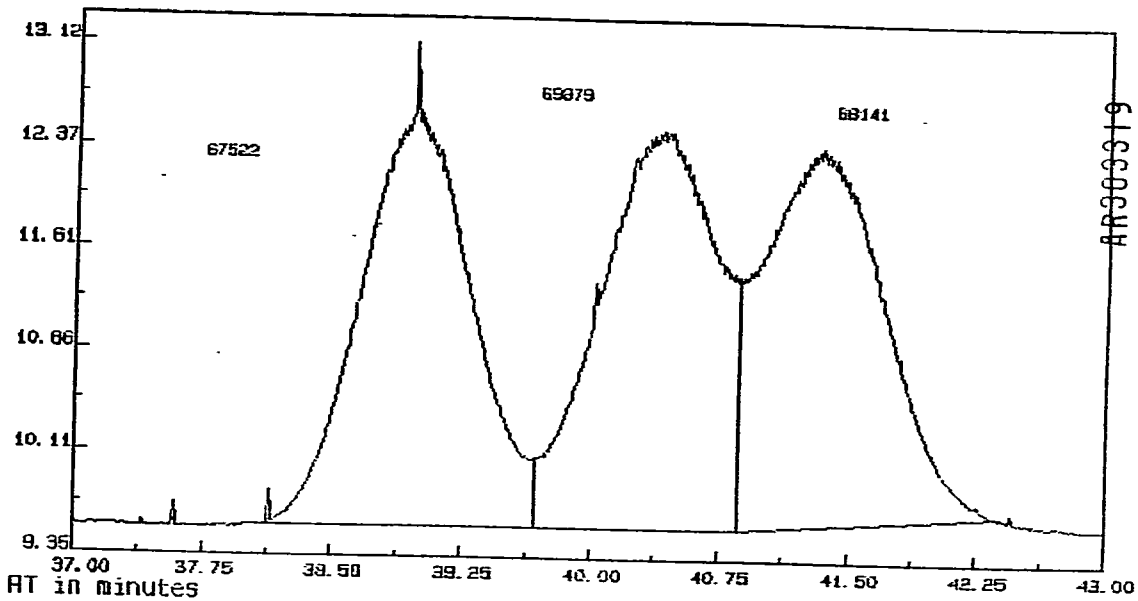
AR303316


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .76)
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.83
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303317


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.69
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303318



SAMPLE: 50 A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Meth: M60117 Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W9
COMPUCHEM® SAMPLE NUMBER: 218244

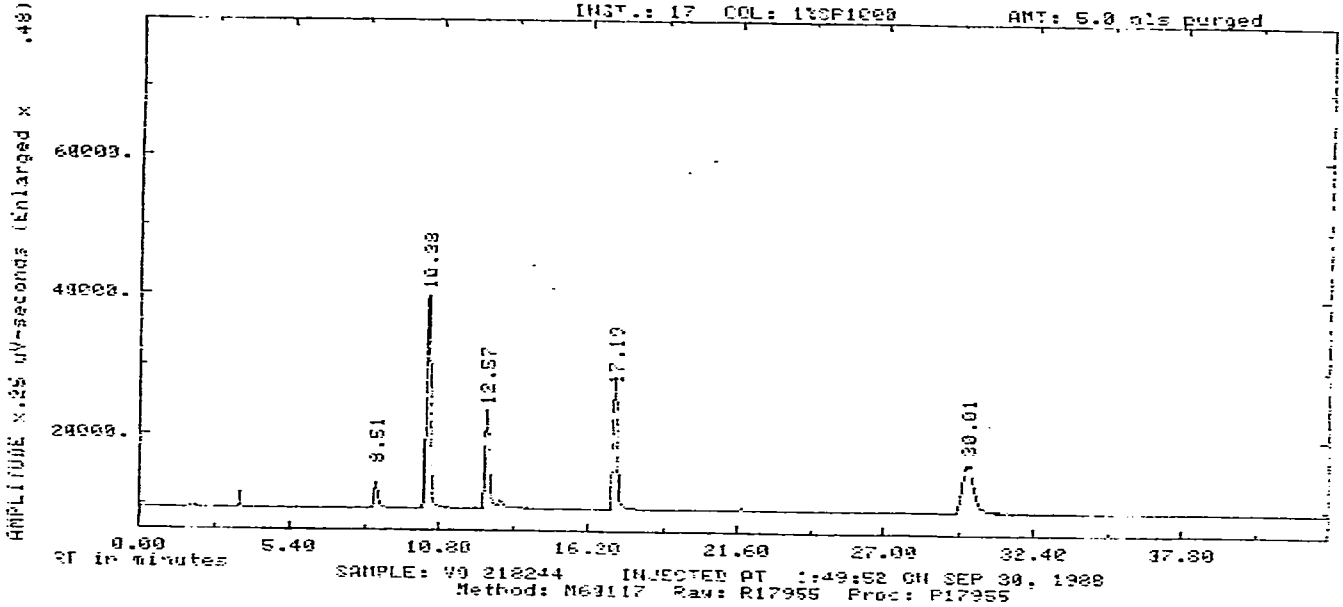
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	5.0
2V.	BROMOMETHANE	BDL	5.0
3V.	VINYL CHLORIDE	BDL	5.0
4V.	CHLOROETHANE	BDL	5.0
5V.	METHYLENE CHLORIDE	BDL	10
6V.	1,1-DICHLOROETHENE	BDL	3.0
7V.	1,1-DICHLOROETHANE	BDL	4.0
8V.	TRANS-1,2-DICHLOROETHENE	54	2.0
9V.	CHLOROFORM	BDL	2.0
10V.	1,2-DICHLOROETHANE	BDL	3.0
11V.	1,1,1-TRICHLOROETHANE	BDL	3.0
12V.	CARBON TETRACHLORIDE	BDL	3.0
13V.	BROMODICHLOROMETHANE	BDL	4.0
14V.	1,2-DICHLOROPROPANE	BDL	2.0
15V.	CIS-1,3-DICHLOROPROPENE	BDL	3.0
16V.	TRICHLOROETHENE	58	2.0
17V.	DIBROMOCHLOROMETHANE	BDL	2.0
18V.	1,1,2-TRICHLOROETHANE	BDL	2.0
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	2.0
20V.	2-CHLOROETHYL VINYL ETHER	BDL	4.0
21V.	BROMOFORM	BDL	5.0
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	4.0
23V.	TETRACHLOROETHENE	BDL	2.0
24V.	CHLOROBENZENE	BDL	4.0
25V.	1,3-DICHLOROBENZENE	BDL	2.0
26V.	1,2-DICHLOROBENZENE	BDL	2.0
27V.	1,4-DICHLOROBENZENE	BDL	2.0

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

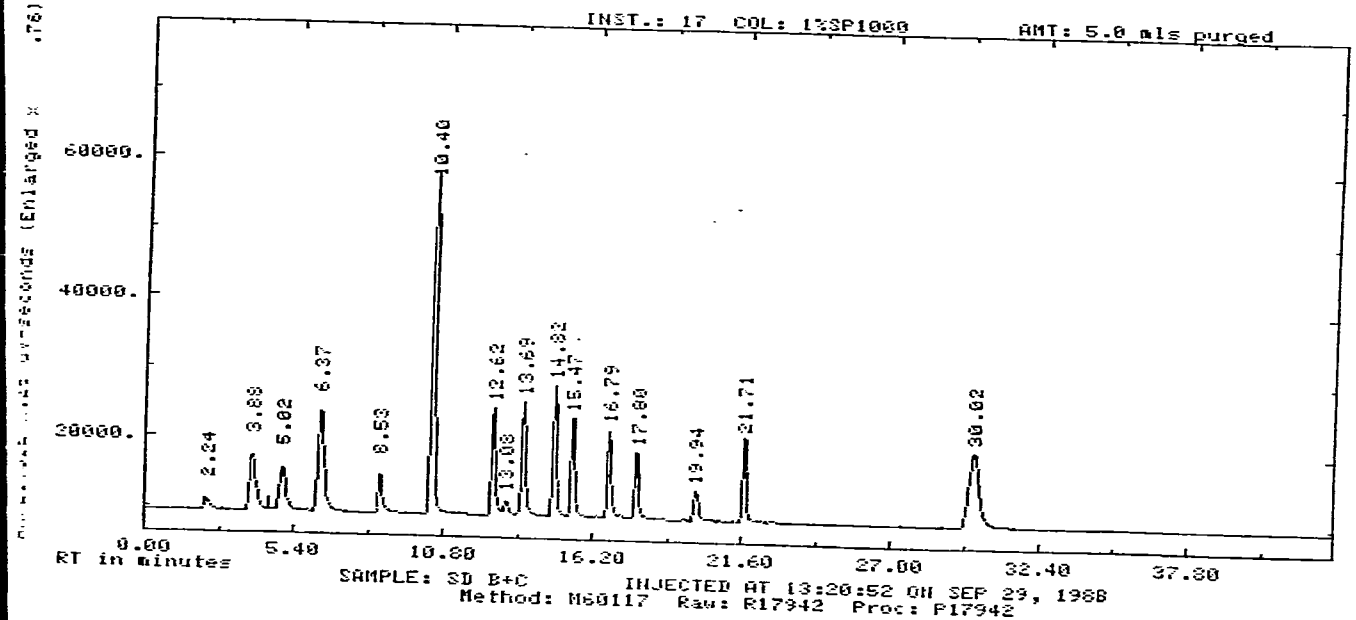
	% Recovery	Control Range%
Trichlorofluoromethane	121	(76-135)
Bromofluorobenzene	83	(69-123)

BDL=BELOW DETECTION LIMIT

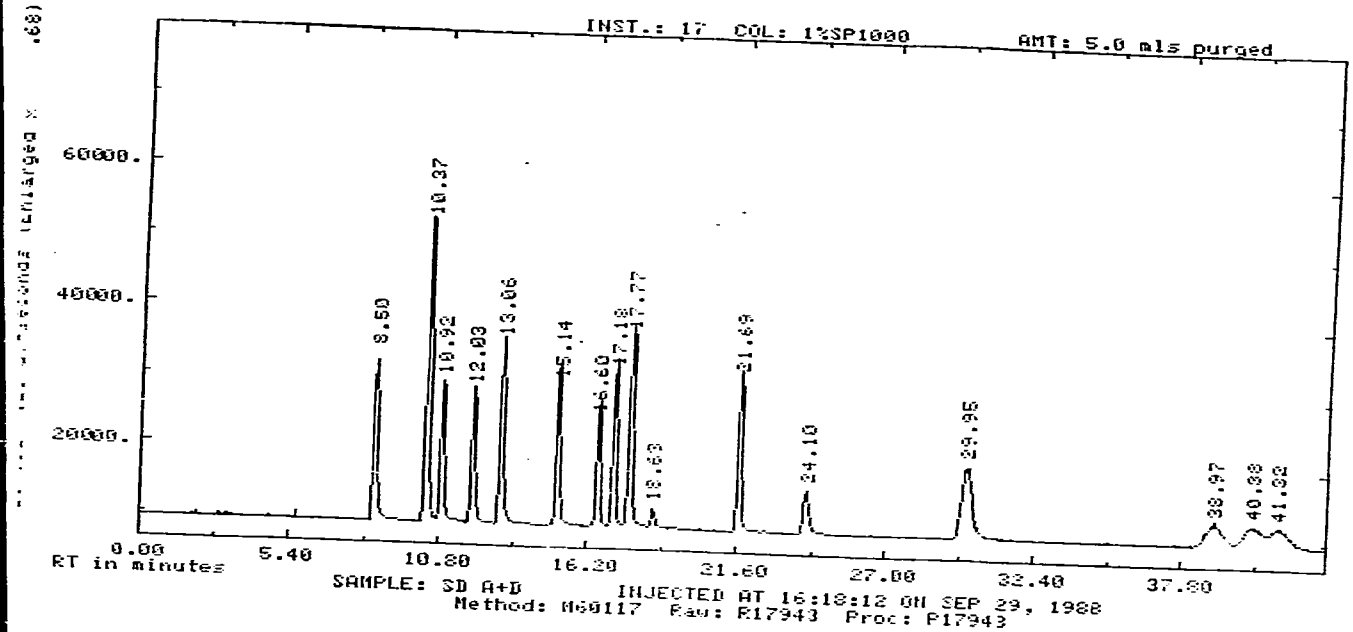
†Sample analyzed using a 10:1 dilution, thus the higher than normal detection limits.


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .40)
60000.
40000.
20000.
8.51
10.38
12.57
17.19
30.01
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V9 218244 INJECTED AT :49:52 ON SEP 30, 1988
Method: M69117 Raw: R17955 Proc: P17955

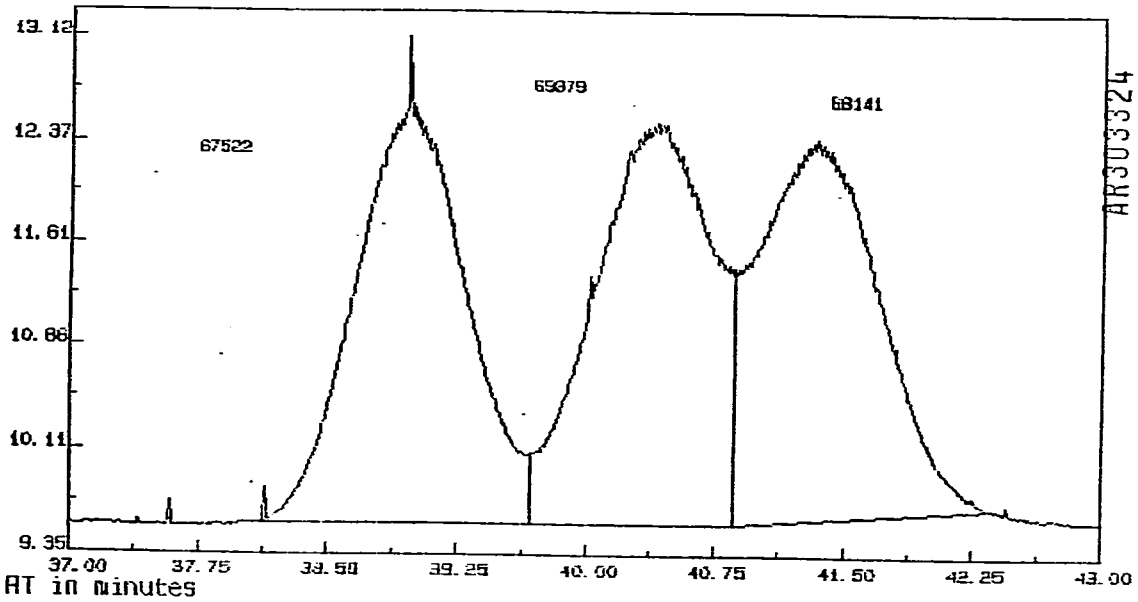
AR303321


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303322


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.82
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+B
INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303323



SAMPLE: 50 A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Meth: M60117 Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

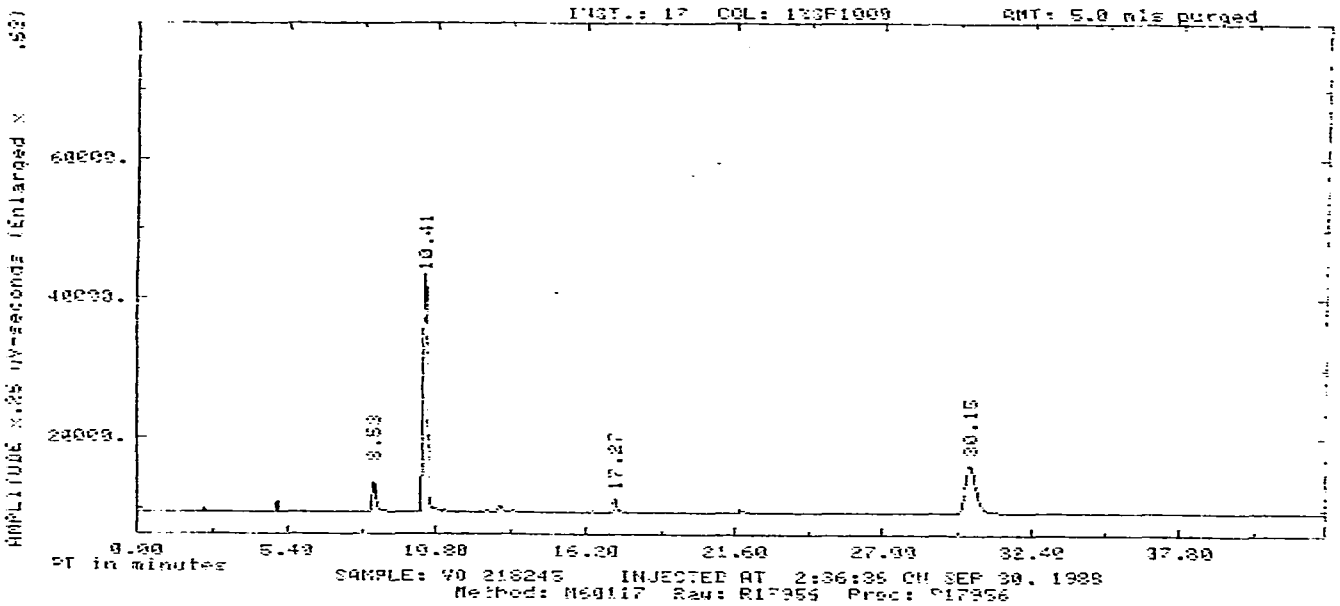
SAMPLE IDENTIFIER: W10
COMPUCHEM® SAMPLE NUMBER: 218245

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	0.67	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

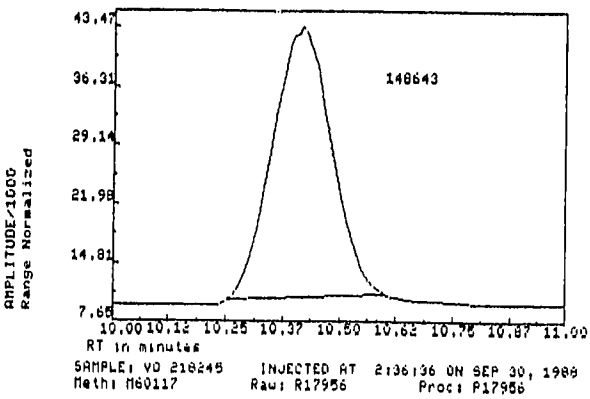
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

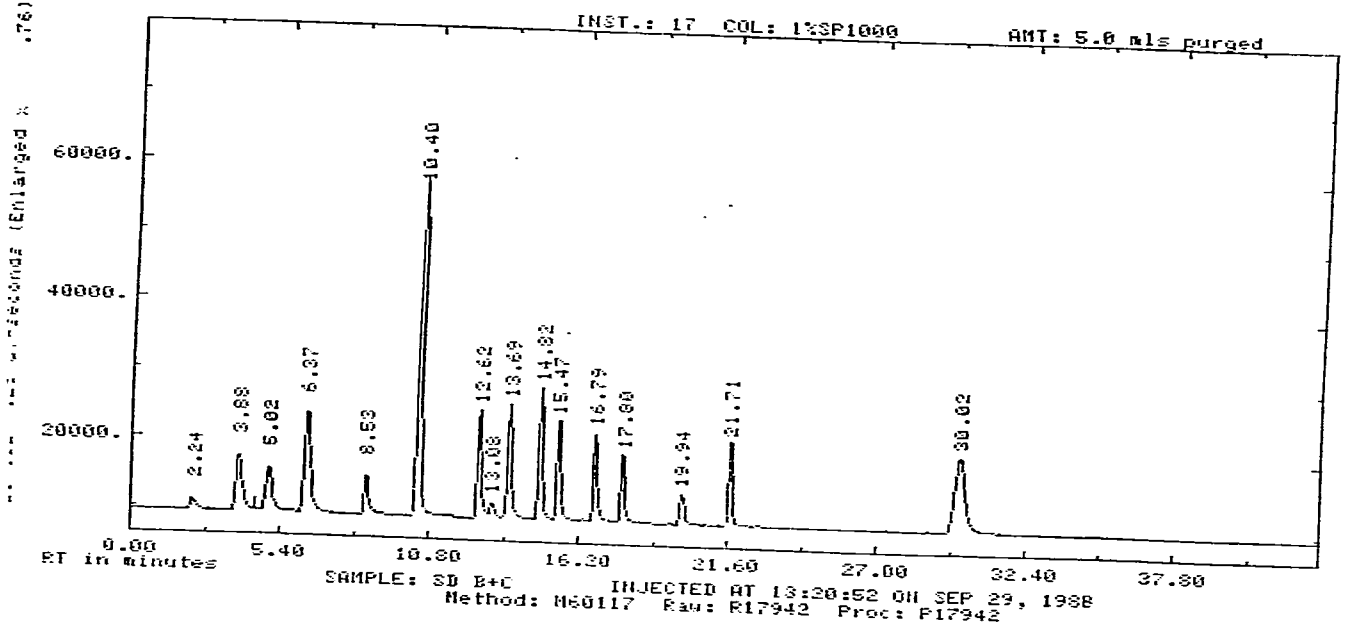
	% Recovery	Control Range %
Trichlorofluoromethane	128	(76-135)
Bromofluorobenzene	78	(69-123)

BDL=BELOW DETECTION LIMIT

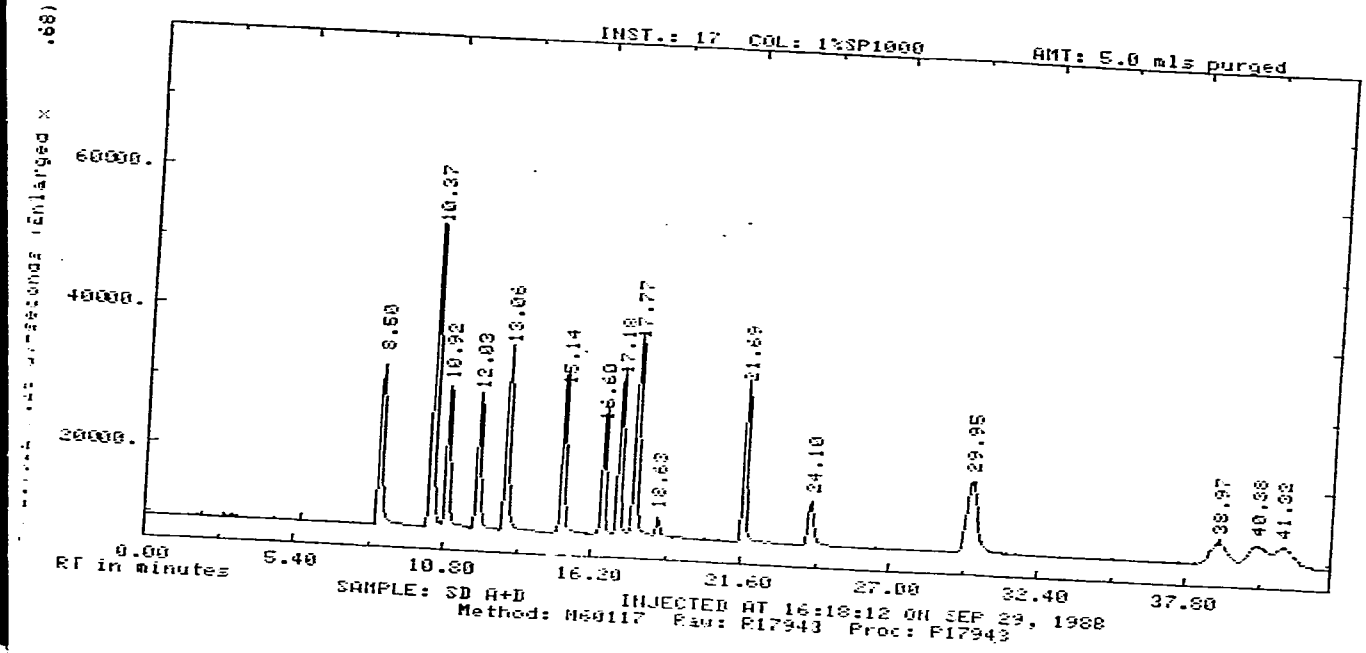

INST.: 17 COL: 123P1009 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .5)
60000.
40000.
20000.
9.53
10.41
17.27
30.15
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 218245 INJECTED AT 2:36:36 ON SEP 30, 1988
Method: M60117 Raw: R17956 Proc: P17956

AR303326

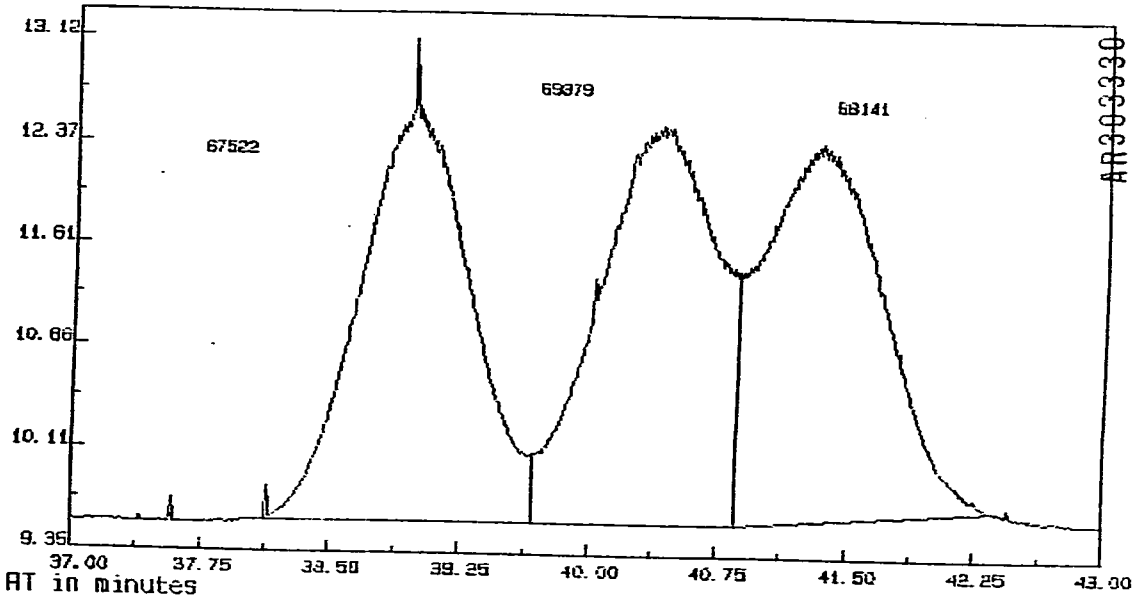

43.47
36.31
29.14
21.98
14.81
7.65
148643
AMPLITUDE/1000
Range Normalized
10.00 10.12 10.25 10.37 10.50 10.62 10.75 10.87 11.00
RT in minutes
SAMPLE: VO 218245 INJECTED AT 2:36:36 ON SEP 30, 1988
Meth: M60117 Raw: R17956 Proc: P17956


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C
INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303328


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.60
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.85
38.97
40.38
41.03
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D
INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: R17943

AR303329



AMPLITUDE/1000
Range Normalized

SAMPLE: 50 A+D
Meth: M60117

INJECTED AT 16:18:12 ON SEP 29, 1988
Raw: R17943::50 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

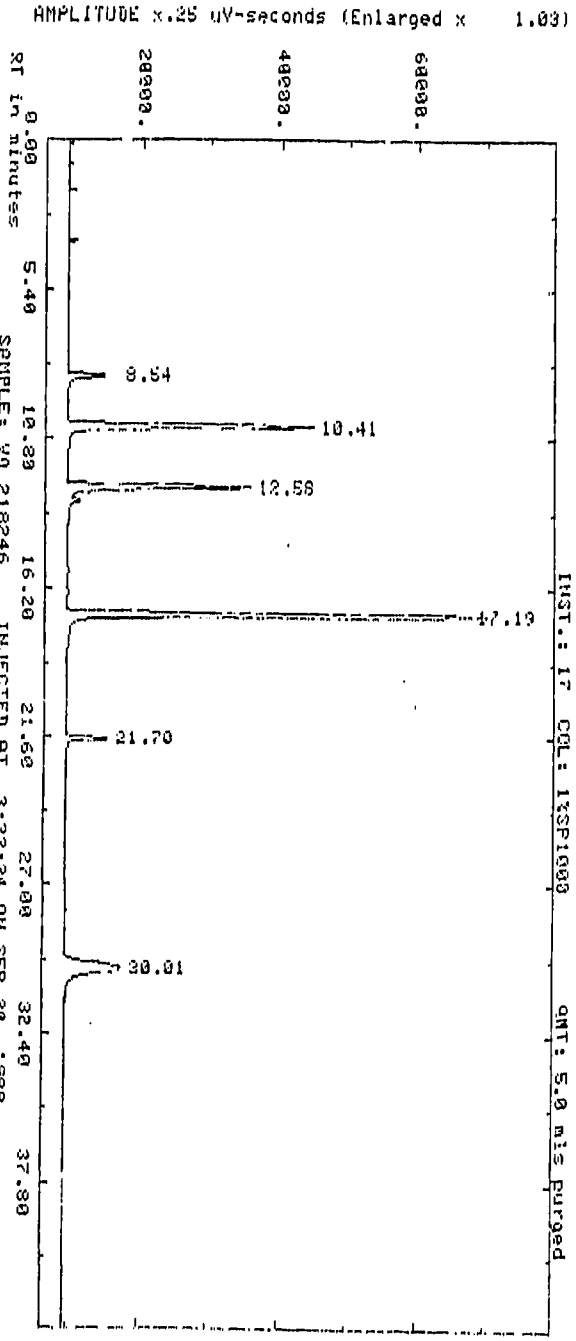
SAMPLE IDENTIFIER: W11A
COMPUCHEM® SAMPLE NUMBER: 218246

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	8.7	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	17	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	1.1	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

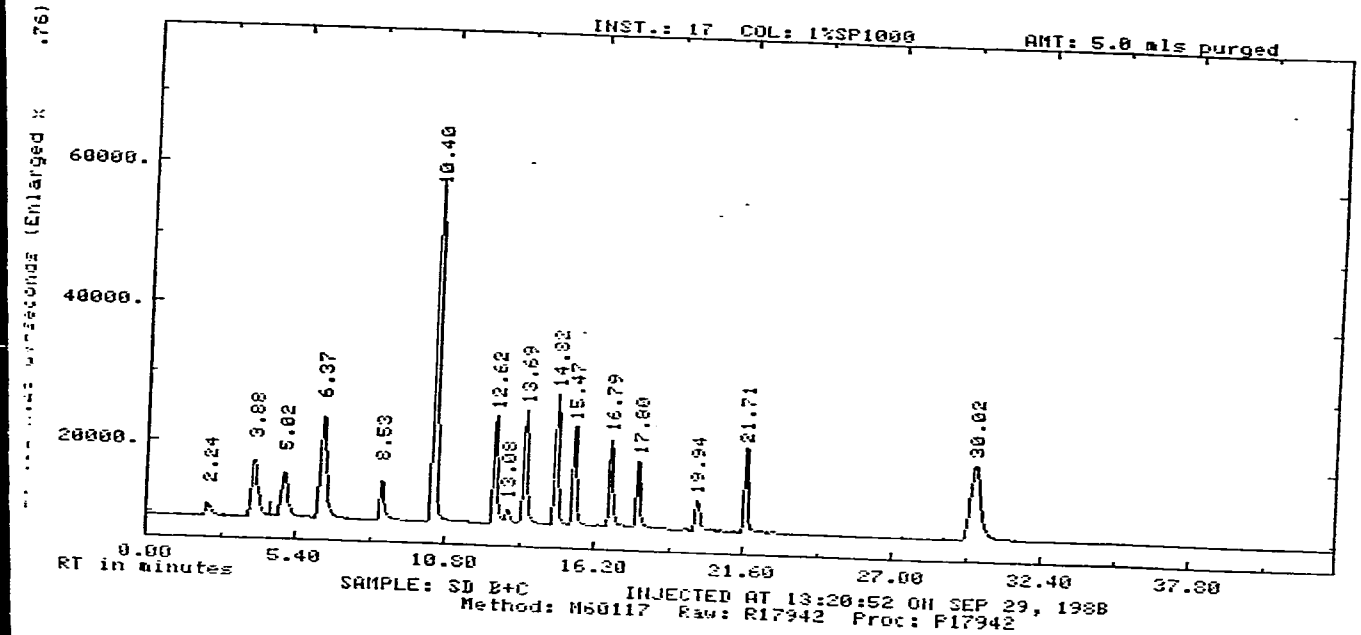
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	124	(76-135)
Bromofluorobenzene	81	(69-123)

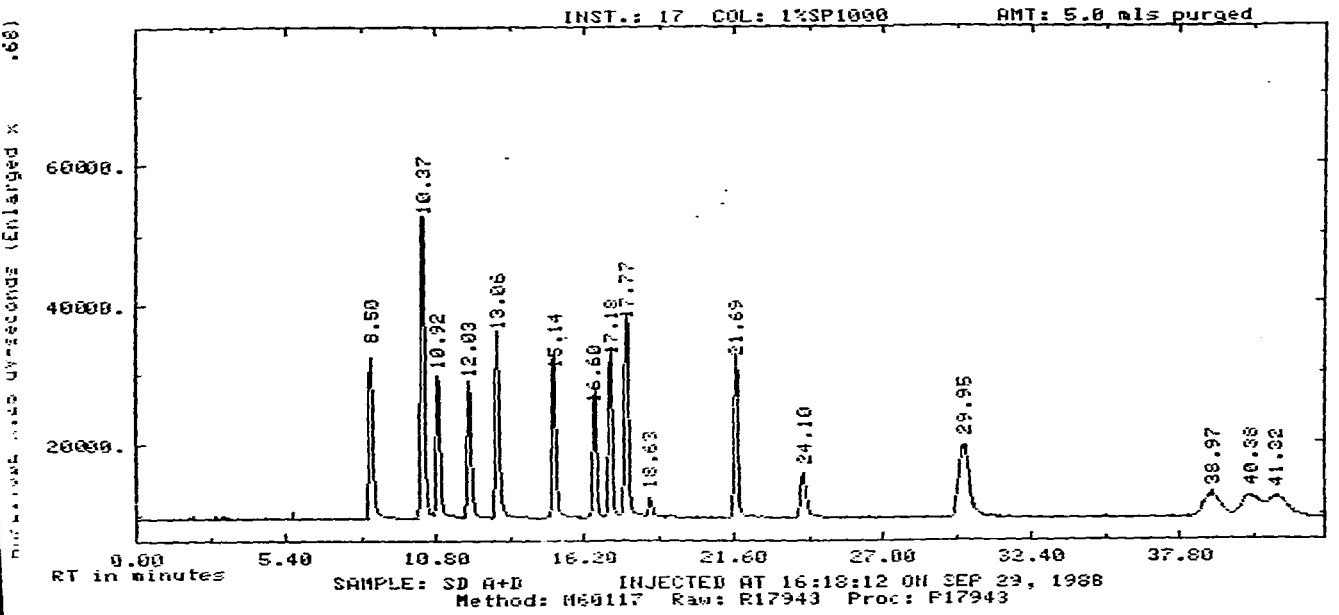
BDL=BELOW DETECTION LIMIT


AMPLITUDE x.25 uV-seconds (Enlarged x 1.03)
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.54
10.41
12.58
17.19
21.70
30.01
SAMPLE: V0 218246 INJECTED AT 3:23:34 ON SEP 30, 1988
Method: N69117 Sam: R17957 Proc: P17957
INST.: 17 COL: 1X5P1000
AMT: 5.0 mis Purged

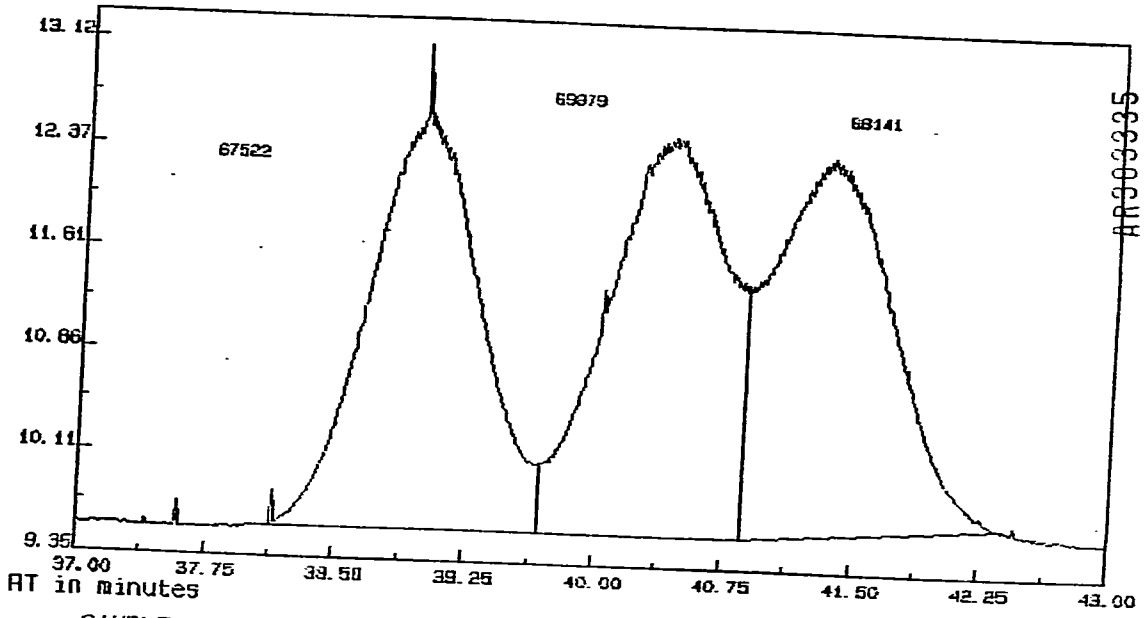
AR303332


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
8.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303333


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.63
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303334



AMPLITUDE/1000
Range Normalized

SAMPLE: SD A+D
Meth: M60117

INJECTED AT 16:18:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

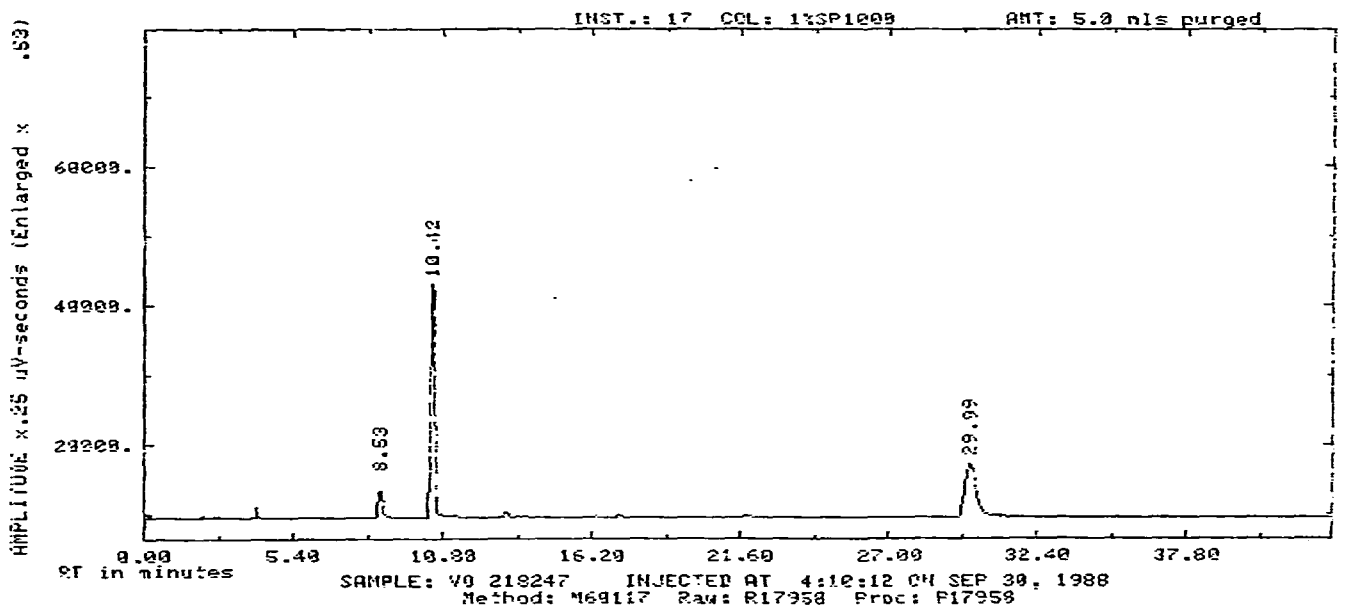
SAMPLE IDENTIFIER: W11B
COMPUCHEM® SAMPLE NUMBER: 218247

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

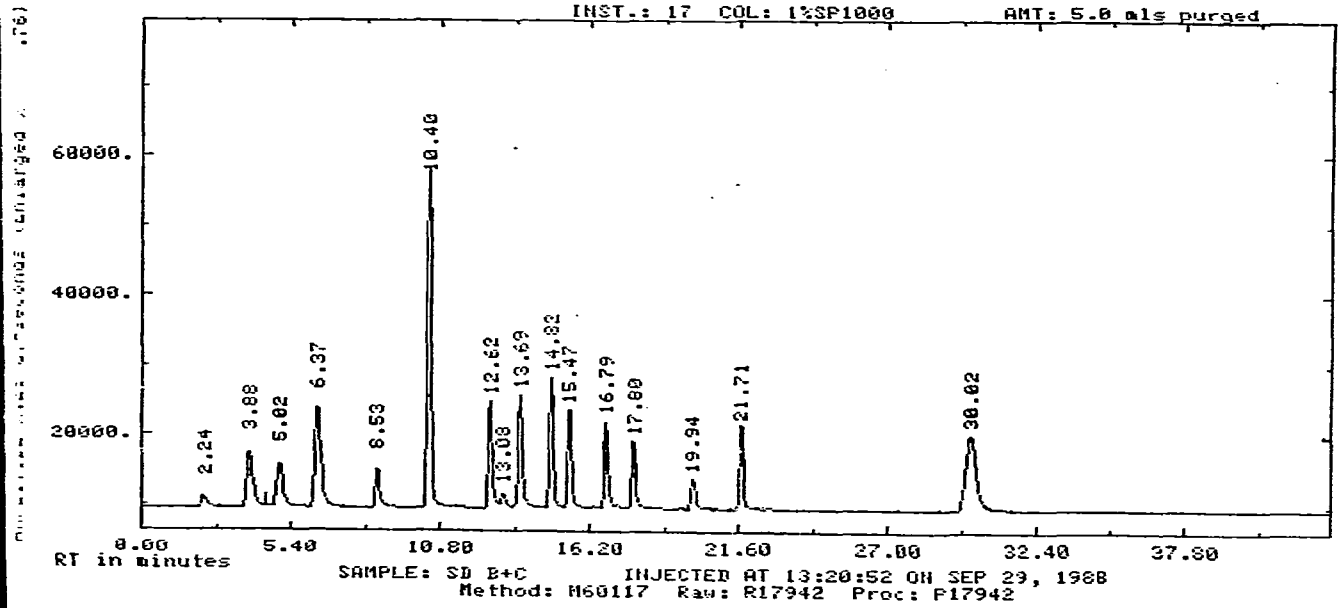
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	126	(76-135)
Bromofluorobenzene	80	(69-123)

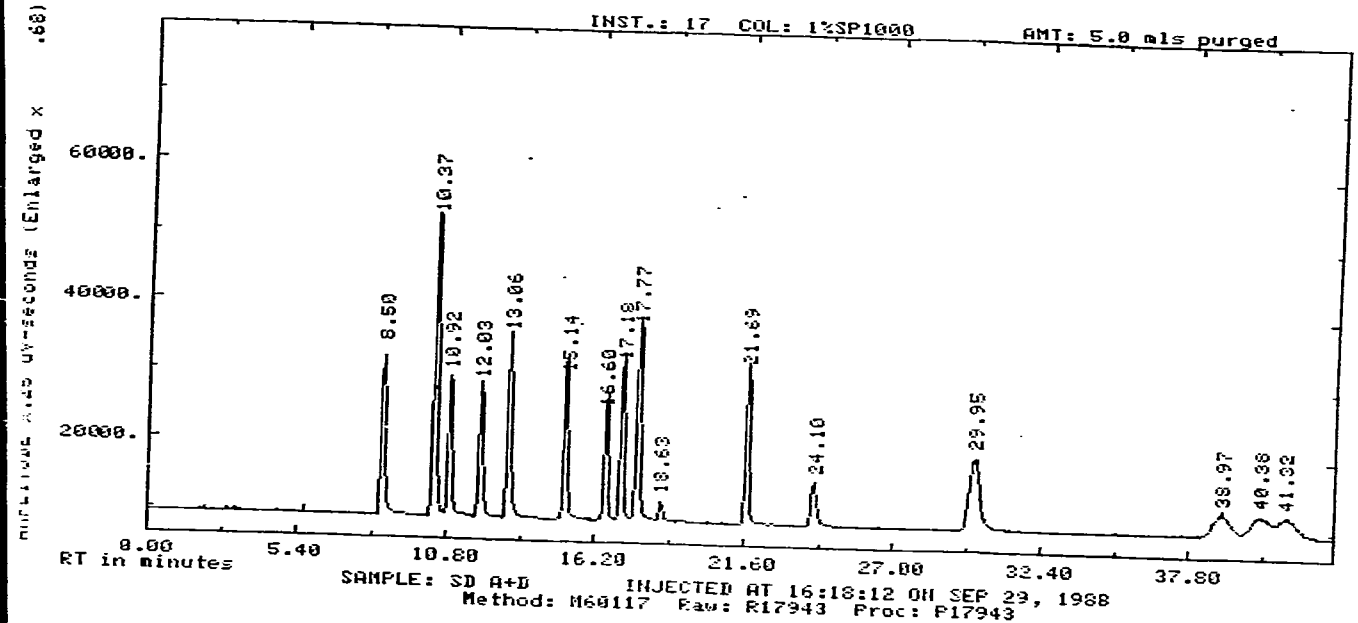
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.53
10.12
29.09
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 218247 INJECTED AT 4:10:12 ON SEP 30, 1988
Method: M69117 Raw: R17958 Proc: P17958

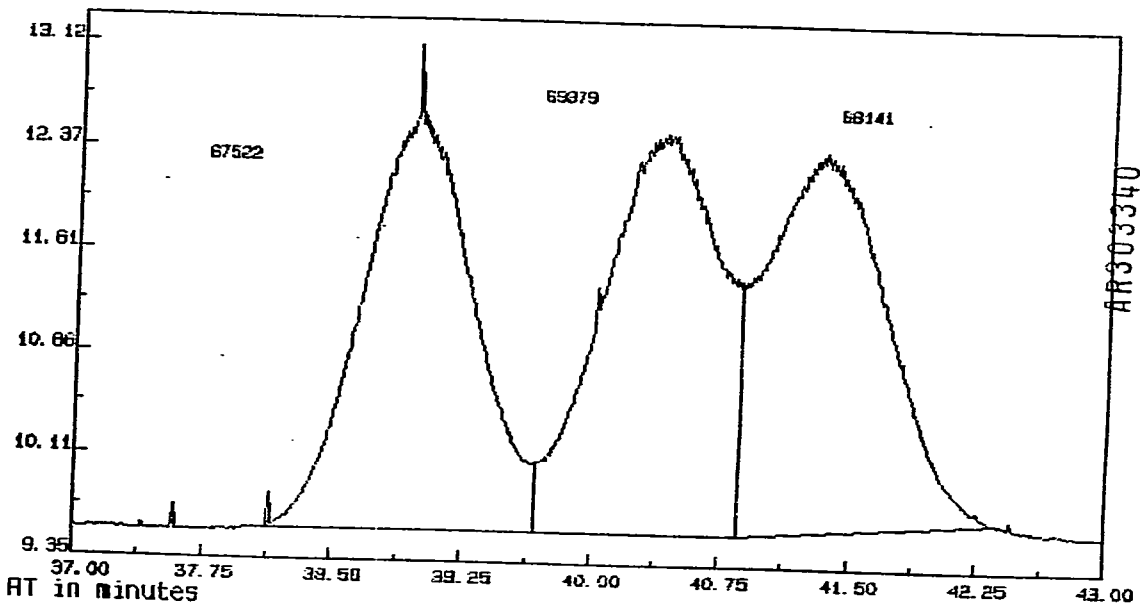
AR303337


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
2.24
3.88
5.02
6.37
6.53
10.40
12.62
13.08
13.69
14.82
15.47
16.79
17.80
19.94
21.71
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 13:20:52 ON SEP 29, 1988
Method: M60117 Raw: R17942 Proc: P17942

AR303338


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
60000.
40000.
20000.
8.50
10.37
10.92
12.03
13.06
15.14
16.60
17.18
17.77
18.68
21.69
24.10
29.95
38.97
40.38
41.32
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD A+D INJECTED AT 16:18:12 ON SEP 29, 1988
Method: M60117 Raw: R17943 Proc: P17943

AR303339



SAMPLE: 80 A+D
Meth: M60117

INJECTED AT 16:18:12 ON SEP 29, 1988
Raw: R17943::58 Proc: P17943

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

COMPUCHEM BLANK ID. P17944

SAMPLE IDENTIFIER: W-8A, W9, W10, W11A, W11B

COMPUCHEM® SAMPLE NUMBER: 218243, 218244, 218245, 218246, 218247

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	114	(76-135)
Bromofluorobenzene	90	(69-123)

BDL=BELOW DETECTION LIMIT

WATER VOLATILE MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RECOVERY

LAB NAME: COMPUCHEM LABORATORIES CONTRACT:

LAB CODE:COMPU CASE NO.: SAS SAS NO.: 41285 ~~30030~~ SDG NO.: 01

MATRIX SPIKE - EPA SAMPLE NO.: 0# JD-620

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC #	QC LIMITS REC.
1,1-DICHLOROETHENE	2.5	2.6	3.2	120	28-167
TRICHLOROETHENE	2.5	3.3	3.5	140	35-146
BENZENE	2.5	1.2	1.7	68	37-146
TOLUENE	2.5	2.5	2.3	92	37-145
CHLOROBENZENE	2.5	2.3	2.5	100	36-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS REC.
1,1-DICHLOROETHENE	2.5	2.1	84	20.75	28-167
TRICHLOROETHENE	2.5	2.4	96	18.64	35-146
BENZENE	2.5	1.3	52	13.33	37-146
TOLUENE	2.5	2.5	100	4.166	37-145
CHLOROBENZENE	2.5	1.9	76	13.63	36-150

COLUMN TO BE USED TO FLAG RECOVERY AND RPD VALUES WITH AN ASTERI
* VALUES OUTSIDE OF QC LIMITS
RPD QC LIMITS: ALL VALUES TO BE BELOW 12.

RPD:	0	OUT OF	5	OUTSIDE LIMITS.
SPIKE RECOVERY:	0	OUT OF	5	OUTSIDE LIMITS.

COMMENTS:

COMPUCHEM
LABORATORIES

October 3, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		660	14699	Chromium
R.W.	218339			
A.S.	218342			

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

D. Boyd

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE CHROMIUM ANALYZED
1.	R.W.	218339	09/22/88	09/28/88
2.	A.S.	218342	09/22/88	09/28/88

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
R.W.

DATE 9/29/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 09/22/88

LAB SAMPLE ID. NO. 218339 QC REPORT NO COM373

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER

C

AR303347

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
~~218342~~ 13A 9/29/88
A.S.

DATE 9/29/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 09/22/88

LAB SAMPLE ID. NO. 218342 QC REPORT NO COM373

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum			13.	Magnesium
2.	Antimony			14.	Manganese
3.	Arsenic			15.	Mercury
4.	Barium			16.	Nickel
5.	Beryllium			17.	Potassium
6.	Cadmium			18.	Selenium
7.	Calcium			19.	Silver
8.	Chromium	8.1U	P	20.	Sodium
9.	Cobalt			21.	Thallium
10.	Copper			22.	Vanadium
11.	Iron			23.	Zinc
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

AR303348

QUALITY CONTROL SUMMARY

METALS

	NUMBER	ACCEPTANCE CRITERIA
Blank	218967	OK
Blank Spike	218340	OK
Duplicate	218341	OK

ASSOCIATED SAMPLES

SAMPLE IDENTIFIERS	COMPUCHEM NUMBERS
R.W.	218339
A.S.	218342

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
B1

DATE 9/29/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 09/29/88

LAB SAMPLE ID. NO. 218967 QC REPORT NO COM373

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

	Aluminum		13.	Magnesium	
	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303350

Form VII

Q. C. Report No. COM373

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME: CompuChem Laboratories CASE NO.: COMMERCIAL DATE 9/29/88
LCS NO. 218340

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA ID# 3	Instrument Detection Limits (IDL)-ug/l Furnace ID# 2	Lab Control Sample (ug/L) mg/kg (circle one) True	Found	%R
Metals:						
1. Aluminum	200			NR	NR	NR
2. Antimony	60			NR	NR	NR
3. Arsenic	10			NR	NR	NR
4. Barium	200			NR	NR	NR
5. Beryllium	5			NR	NR	NR
6. Cadmium	5			NR	NR	NR
7. Calcium	5000			NR	NR	NR
8. Chromium	10	8.1		10000	9790	98
9. Cobalt	50			NR	NR	NR
10. Copper	25			NR	NR	NR
11. Iron	100			NR	NR	NR
12. Lead	5			NR	NR	NR
13. Magnesium	5000			NR	NR	NR
14. Manganese	15			NR	NR	NR
15. Mercury	0.2		(1) 0.11	NR	NR	NR
16. Nickel	40			NR	NR	NR
17. Potassium	5000			NR	NR	NR
18. Selenium	5			NR	NR	NR
19. Silver	10			NR	NR	NR
20. Sodium	5000			NR	NR	NR
21. Thallium	10			NR	NR	NR
22. Vanadium	50			NR	NR	NR
23. Zinc	20			NR	NR	NR
Other:						
Cyanide	10			NR	NR	NR

NR - Not Required

(1) Video 12 (Cold Vapor technique)
(2) Video 22/755
( ) Jarrell-Ash 1100
( ) Technicon

A

Form VI

PAGE 1

Q. C. Report No. COM373

DUPLICATES

LAB NAME COMPUCHEM LABORATORIES

CASE NO. COMMERCIAL

EPA Sample No. R.W.

DATE 9/29/88

Lab Sample ID No. 218341

Units: ug/L

Matrix WATER

Compound	Control Limit(1)	Sample(S)	Duplicate(D)	RPD(2)
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium				
5. Beryllium				
6. Cadmium				
7. Calcium				
8. Chromium		8.1U	11.5	NC
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver				
20. Sodium				
21. Thallium				
22. Vanadium				
23. Zinc				
Other:				
Arsenic		34U	34U	NC
Lead		41U	41U	NC
Cyanide				

* Out of control
(1) To be added at a later date
(2) RPD = [|S - D|/((S + D)/2] x 100
NC - Non-calculable RPD due to value(s) less than CRDL

D

AR303352

№ 013024

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
1801-918	NCR MILLSBORO GWS

SAMPLERS: (Signature) Scott VanDeVelde

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	TPH Chrome				REMARKS
GW8A	9-20	15:20		✓	Monitoring well 8A	2	✓	✓	218	243		* W9, W-8A, WP-6, WP-20
GW9	9-20	14:50		✓	" " 9	2	✓		218	244		are Broken - Due to freezing
GW10	9-20	14:30		✓	" " 10	2	✓		218	245		9/22/88 GC*
GW11A	9-20	13:55		✓	" " 11A	2	✓		218	246		ID's ARE USE off of sample
GW11B	9-20	13:40		✓	" " 11B	2	✓		218	247		Containers & or/bottles
GW12	9-20	14:15		✓	" " 12	2	✓		218	248		9/22/88 GC
GW20	9-21	10:50		✓	" " 20	2	✓		218	251		218339
GW200	9-21	10:90		✓	" " 200	2	✓		218	252		218342
GWP6	9-21	11:30		✓	Well Point 6	2	✓		218	265		
GWP9	9-20	15:40		✓	" " 9	2	✓		218	267		
GWP20	9-21	12:24		✓	" " 20	2	✓		218	271		
GWP21	9-21	12:10		✓	" " 21	2	✓		218	285		
R.W.	9-21	12:55		✓	Recovery Well	3	✓	✓	218	288		* 2 VOAS and 1 500 ml Plastic
TB	9-21			✓	Trip Blank	2	✓		218	291		COC listed 3 Containers but
A.S.	9-21	13:15		✓	Air Stripper	3	✓	✓	218	294		actually have 4 9/22/88 GC*

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9-21-88 16:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	9/22/88 9:10		

Distribution: Original Accompanies Shipment; Copy to Field

AR303353

Change in Inorganic Analytical Policies

CompuChem® Laboratories, Inc., is a member of EPA's Inorganic Contract Laboratory Program (CLP), which includes the assessment of twenty-three (23) metals in aqueous and non-aqueous (soil/sediment) matrices. The methodologies employed in the program are considered to be the State-of-the-Art and are subject to modifications as improvements are implemented.

Associated with the Inorganics CLP are certain Quality Control (QC) requirements which provide for the generation of analytical data of known, high quality. In an effort to be able to pass along the benefits of our involvement in the program, CompuChem® has made the decision to adopt the methodologies and reporting conventions utilized by the EPA in the CLP. Included in the policies being adopted for all metals analyses are the following:

1) On a quarterly basis, instrumental detection limits are experimentally determined for each Inductively Coupled Plasma (ICP) and Atomic Absorption Spectrophotometer (AAS) system in the laboratory.

2) For ICP systems, on a quarterly basis, interelement and background correction factors are determined using an Interference Check Standard. Another quarterly requirement for ICP analysis is a linear range verification determination for each element analyzed.

3) On a daily basis, and for each AAS or ICP system used, an instrument calibration is performed. For AAS calibration, a blank and at least three calibration standards are employed and for ICP calibration, a mid-concentration standard is analyzed. After this preliminary calibration, the calibration is verified for accuracy by the analysis of an Initial Calibration Verification Standard. To assure calibration accuracy during the course of analysis, a Calibration Verification Standard is analyzed at a frequency of 10% or every two hours, whichever is more frequent. Acceptance and rerun criteria, established by EPA in the CLP, for the Initial and Continuing Calibration Verification Standards will be used for all analyses.

4) An ICP Interference Check Standard is analyzed at a minimum of twice per shift to verify interelement and background correction factors. Acceptance and rerun criteria established by EPA in the CLP will be used for all analyses.

5) Other QC measures being employed for all analyses include an ICP serial dilution analysis for each group of samples analyzed and duplicate injections for each furnace AAS element, per sample. Duplicate injections must agree within 20% or the sample is rerun once.

In adopting the EPA-CLP methodologies and reporting conventions, the following points should be realized since differences in the presentation of the data will be apparent:

1) If the analytical result is a value equal to or greater than the instrument detection limit, but less than EPA's Contract Required Detection Limit (CRDL), the value will be reported in brackets (i.e., [8.7]).

2) If an element was analyzed for and not detected, the instrument detection limit value is reported with a "U" (i.e., 10U).

3) Results for the analysis of water samples will be reported in units of ug/L and for solid samples, the units will be mg/kg.

4) The instrument detection limits (reported with a "U" if the element is not detected) necessarily will be required to be determined on a per sample basis for solid matrices, since they are dependent on the sample size taken. In the CLP, a 1.0 to 1.5g. sample is taken for each of two digestion procedures; one for digestion and subsequent analysis by ICP and another for a different digestion and subsequent analysis by AAS. If mercury is required, a third, separate portion of the sample is taken. Our policy will continue to be to report results based on the as-received sample although our clients have the option to have results reported on a dry weight basis.

For informational purposes, attached is a table presenting EPA's CRDL and CompuChem's 3rd Quarter, 1988, experimentally determined instrument detection limits for both ICP and AAS instrumentation.

If clarification or any additional information is required concerning this new policy, please feel free to contact your Customer Service Representative.

Robert E. Meierer,
Director of Quality Assurance

08/01/88

Element	Water CRDL (ug/L)	Solid[1] CRDL (mg/kg)	Instrument Detection Limit (ug/L) Jarrell Ash 1100 ICP	Video 22 AAS	Video 12 AA
Aluminum	200	20	27		
Antimony	60	6	33		
Arsenic (2)	10	1	34	0.86 F	
Barium	200	20	0.83		
Beryllium	5	0.5	0.29		
Cadmium	5	0.5	4.0		
Calcium	5000	500	13		
Chromium	10	1	8.1		
Cobalt	50	5	2.4		
Copper	25	2.5	5.4		
Iron	100	10	5.0		
Lead (2)	5	0.5	41	2.2 F	
Magnesium	5000	500	120		
Manganese	15	1.5	0.30		
Mercury	0.2	0.2			0.11 (C.V.)
Nickel	40	4	34		
Potassium	5000	500	1770		
Selenium (2)	5	0.5	82	2.0 F	
Silver	10	1	9.4		
Sodium	5000	500	888		
Thallium (2)	10	1	110	1.9 F	
Vanadium	50	5	3.2		
Zinc	20	2	2.6		

Notes: (1) based on a nominal size of 1.0 g of solid sample, in a final volume of 100 ml (after digestion).

(2) These elements typically are determined by Furnace (F) AAS

C.V. = Cold Vapor

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Date	Parameters
1	10-6-88	601 volatiles, Total Chromium
7	10-6-88	601 volatiles, Total Chromium
11	10-6-88	601 volatiles, Total Chromium
21	10-6-88	601 volatiles, Total Chromium
30	10-6-88	601 volatiles, Total Chromium
34	10-6-88	601 volatiles, Total Chromium
36	10-6-88	601 volatiles, Total Chromium
37	10-6-88	601 volatiles, Total Chromium
90	10-6-88	601 volatiles, Chromium
Trip Blank	10-6-88	601 volatiles

Quality Assurance Summary Report for NCR-Millsboro
Domestic Wells Samples Collected October 1988

This report covers nine water samples and a trip blank collected for the NCR-Millsboro Project. The samples were collected on October 6, 1988 and were analyzed by Compuchem Labs Inc for method 601 volatiles and total chromium. Analytical results for these samples have been reviewed using USEPA Functional Guidelines for Evaluating Organic (and Inorganic) Analyses. The QA/QC requirements checked during the validation are listed below.

Organic Requirements	Inorganic Requirements
Holding Times	Holding Times
Instrument Performance	Instrument Calibration
Instrument Calibration	Preparation/Inst. blanks
Lab Blanks	MS/MSD
Surrogate Recoveries	Field Blanks
MS/MSD	Field Duplicates
Trip Blanks	Lab Transcription Errors
Field Blanks	
Field Duplictes	
Lab Transcription Errors	
Compound Identification	

A summary of the results of the data validation process for the laboratory data associated with these samples is given below. Data validation results are also summarized on the Data Validation Worksheets attached to this memo. A list of codes used on the worksheets and their definitions is presented as Table 1.

Organic Summary

The nine domestic well samples and the trip blank sample were analyzed for EPA Method 601 Volatile compounds. The detection limits for method 601 stipulated were achieved for all samples. All samples were analyzed within required holding times. Surrogate recoveries for all samples were within CLP QC limits for volatiles. Laboratory blanks associated with these samples were free of contamination. Sample 30 was analyzed as an MS/MSD sample. All CLP QC limts were met for the MS/MSD samples.

The only volatile compound reported above detection limits in the samples is methylene chloride. Methylene chloride is reported in two samples: Well 34 and Trip Blank. The methylene chloride result reported for Well 34 should be qualified due to the presence of the compound in the Trip Blank at comparable concentration (1.3 vs 1.7 ppb). All sample data are acceptable except as noted above.

Inorganic Summary

The nine domestic well samples were analyzed for total chromium using ICP techniques. All samples were analyzed within required

holding times. All laboratory QC samples met CLP QC criteria for metals analysis. None of the samples contained total chromium above the detection limit. All sample data are acceptable.

ENVIRONMENTAL STU[illegible]IES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR- Millsboro PARAMETERS: 601 VOLATILES LAB: COMPUCHEM

QA/QC ITEMS

SAMPLES	HLD TME	INST PERF	CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
1	O	N/A	O	O	O	O	O	O	X	O	No hits reported
7	O		O	O	O	O	O	O	X	O	"
11	O		O	O	O	O	O	O	X	O	"
21	O		O	O	O	O	O	O	X	O	"
30	O		O	O	O	O	O	O	X	O	"
34	O		O	O	O	O	O	O	Q	O	Methylene Chloride reported
36	O		O	O	O	O	O	O	X	O	No hits reported
37	O		O	O	O	O	O	O	X	O	"
90	O		O	O	O	O	O	O	X	O	"

COMMENTS: O = All QC Criteria met.
N/A = Not applicable
* Methylene Chloride also reported in the trip blank

AR303360

ENVIRONMENTAL STRATEGIES CORPORATION
INORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR- Millsboro PARAMETERS: Total Chromium LAB: COMPUCHEM

QA/QC ITEMS

SAMPLES	HLD TME	LCS	CALIBR.	LABBLKS	MS/DUP	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
1	0	0	0	0	0	0	0	0	No chromium Detected
7	0								"
11	0								"
21	0								"
30	0								"
34	0								"
36	0								"
37	0								"
90	0								"

COMMENTS: NO problems noted during review

AR303361

Table 1. List and Definitions of Data Validation Codes

O	= All QC Criteria met, data acceptable.
X	= Minor problem found but sample data not affected.
Q	= Sample data qualified due to major QC problem.
U	= Sample data rejected due to multiple-major QC problems.

Table 1. List and Definitions of Data Validation Codes

O = All QC Criteria met, data acceptable.

X = Minor problem found but sample data not affected.

Q = Sample data qualified due to major QC problem.

U = Sample data rejected due to multiple-major QC problems.

COMPUCHEM LABORATORIES

October 19, 1988

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike Suite
Suite 650
Vienna, VA 22180

Dear Mr. Edwards:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		455	14699	Volatile (GC) Method 601 (Style 3)
1	221155			
7	221164			
11	221166			
21	221167			
30	221168			
34	221169			
36	221170			
37	221171			
90	221172			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

Yolanda Dunn

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Page two- October 19, 1988
Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike Suite
Suite 650
Vienna, VA 22180

AR303365

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike Suite
Suite 650
Vienna, VA 22180

Patricia B. Hopkins
Technical Reviewer

Yolanda Dunn
Deliverables Coordinator

AR303366

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

LABORATORY CHRONICLE

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	1	221155	10/07/88	10/12 88
2.	7	221164	10/07/88	10/12/88
3.	11	221166	10/07/88	10/12/88
4.	21	221167	10/07/88	10/12/88
5.	30	221168	10/07/88	10/12/88
6.	34	221169	10/07/88	10/12/88
7.	36	221170	10/07/88	10/12/88
8.	37	221171	10/07/88	10/12/88
9.	90	221172	10/07/88	10/12/88

(Blank) P17272
(Spike) 221119/221120

METHOD REFERENCE AND SUMMARY

AND

QUALITY CONTROL SUMMARY

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

QUALITY ASSURANCE NOTICES

AND

CHAIN OF CUSTODY

NO 013789

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
1801-	NCR MILLSBORO D.W.S

SAMPLERS: (Signature) Scott VanDeMark

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chlorine	REMARKS
#34	10-7-88	12:00		✓	Paula Pukes K.S	3	✓	✓	EPONDATTLE 34 CC# 221169 221183
#37	10-7	12:10		✓	Preston Collins O.F	3	✓	✓	" 37 221171 221185
#36		12:17		✓	Elsie Layton O.F	3	✓	✓	" 36 221170 221184
21		12:45		✓	Emma King O.F	3	✓	✓	221167 221181
30		13:10		✓	Leon Wise (Property) K.S	3	✓	✓	221168 221182
90		12:55		✓	Leslie Williams K.S	3	✓	✓	221172 221186
7		13:35		✓	Billfield O.F	3	✓	✓	221164 221179 - Lynn Warren #5 was vacant
11		13:45		✓	Willie Smith K.S	3	✓	✓	221166 221180
1		14:00		✓	Sarah Allen K.S	3	✓	✓	680 East State Street 221177 221176 - from ornamental water
T.B.		—	—	—	Trip Blank	2	✓		EDGATE LABORATORY WATER 221173
									#15 - Miriam Bagwell - Vacant

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott VanDeMark	10-6-88 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Scott Cole	10-7-88 8:30	NO SAMPLE ORLABELED WITH THE # IN FRONT OF NUMBER FOR ID	

Distribution: Original Accompanies Shipment; Copy to Field Files

- Volatile Purgeable Halocarbons Compound List and Detection Limits
- Surrogate Recovery Data
- Reconstructed Ion Chromatogram (RIC)
- Spectra (If Applicable)

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

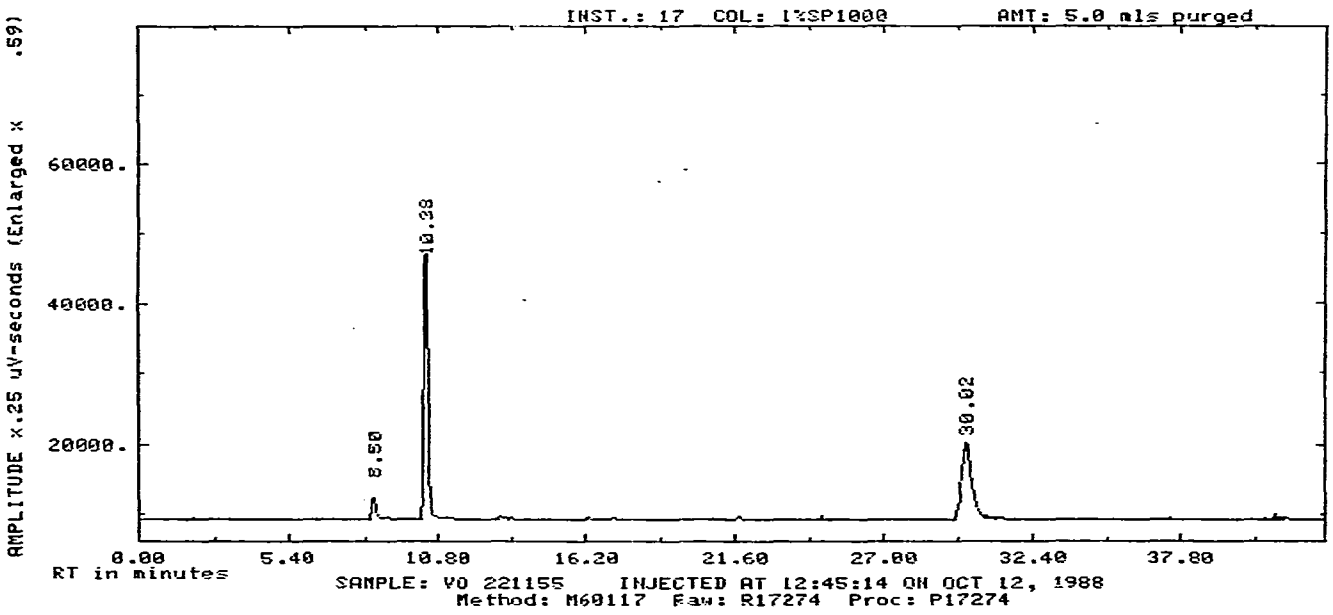
SAMPLE IDENTIFIER: 1
COMPUCHEM® SAMPLE NUMBER: 221155

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

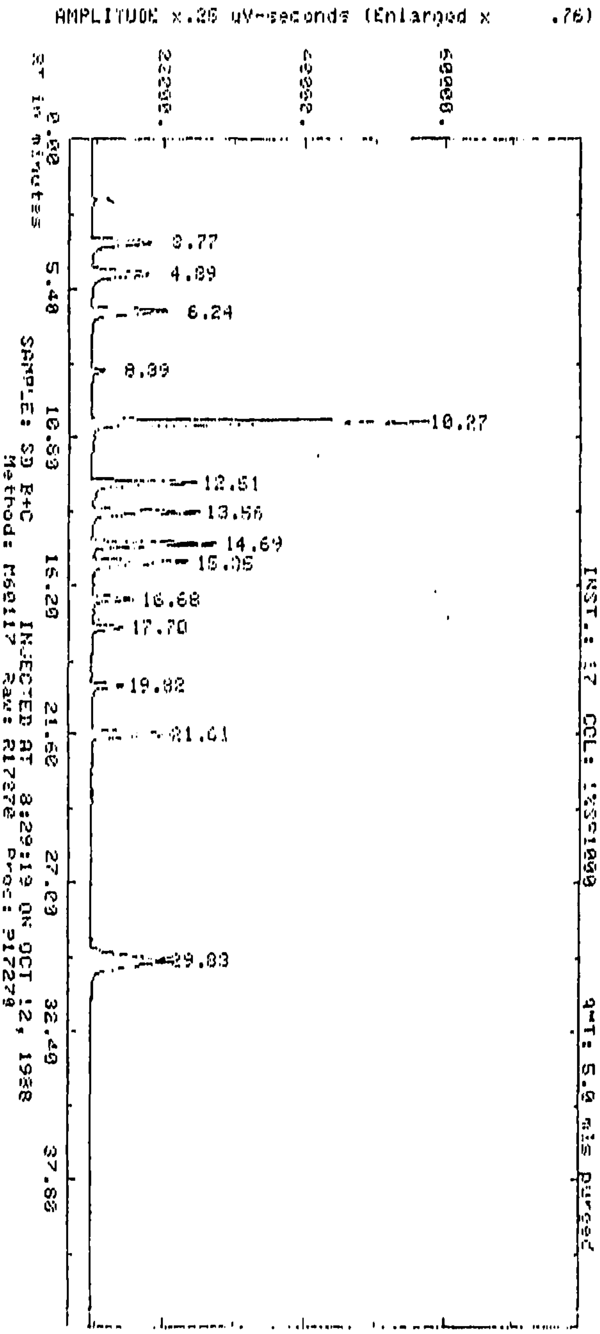
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	107	(76-135)
Bromofluorobenzene	94	(69-123)

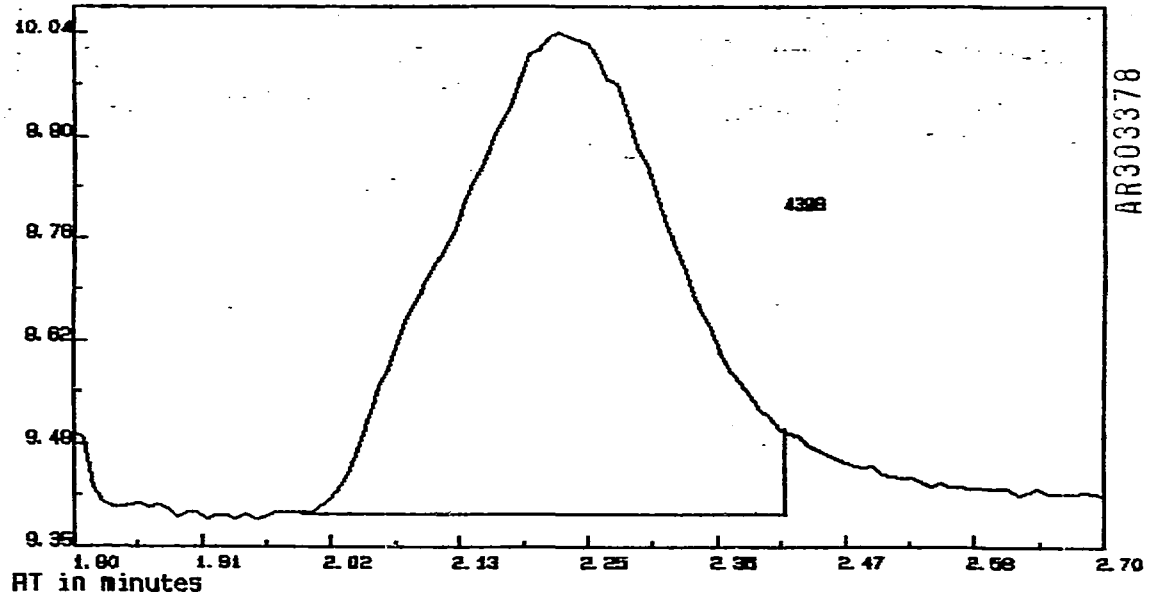
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .59)
60000.
40000.
20000.
8.50
10.38
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 221155 INJECTED AT 12:45:14 ON OCT 12, 1988
Method: M60117 Raw: R17274 Proc: P17274

AR303376

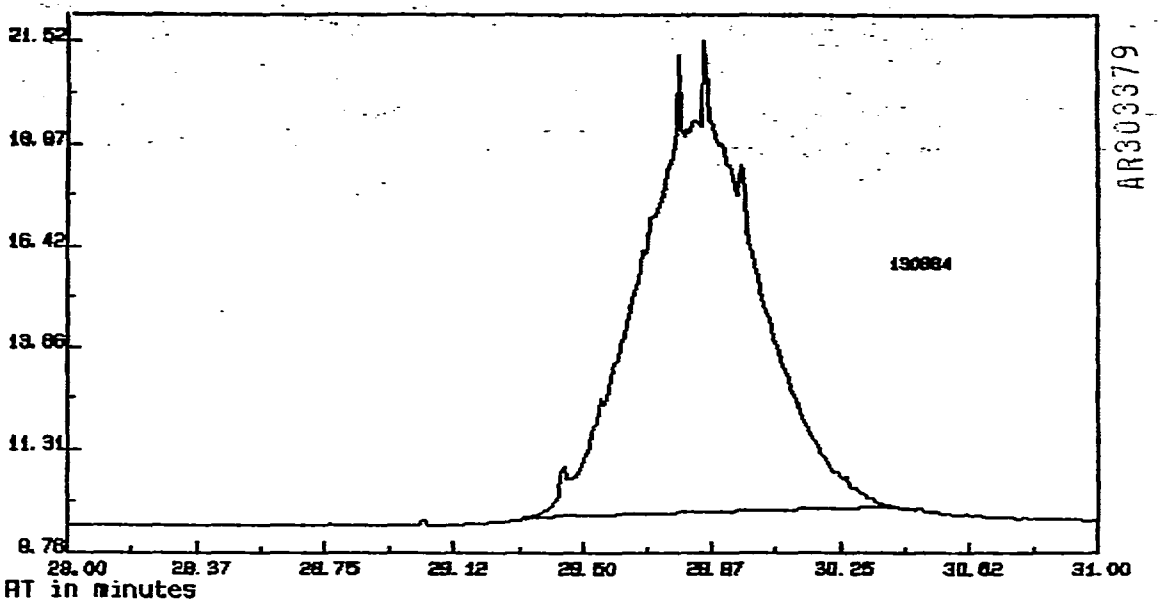

AMPLITUDE x.25 uV-seconds (Enlarged x .76)
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
3.77
4.89
6.24
8.39
10.27
12.51
13.56
14.69
15.06
16.68
17.70
19.82
21.61
29.83
SAMPLE: SD B+C
INJECTED AT 8:29:19 ON OCT 12, 1988
Method: M60117 Raw: R17278 Proc: P17279
INST.: 17
5.0 min purged

AR303377



AR303378

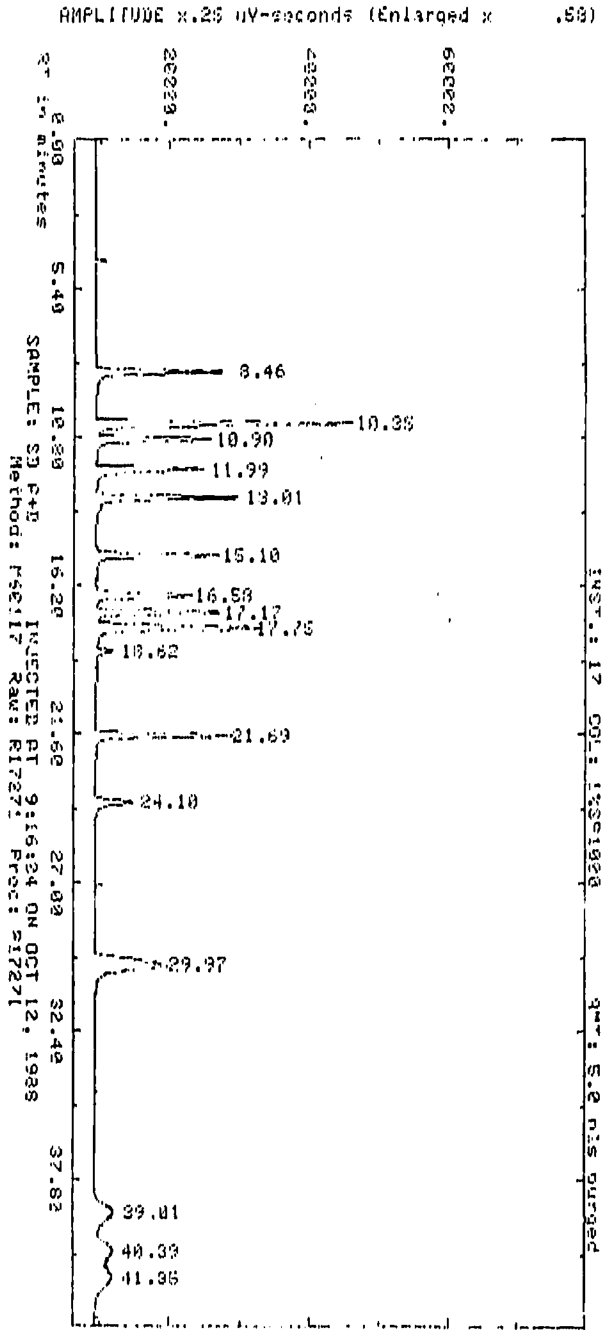
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



AMPLITUDE/1000
Range Normalized

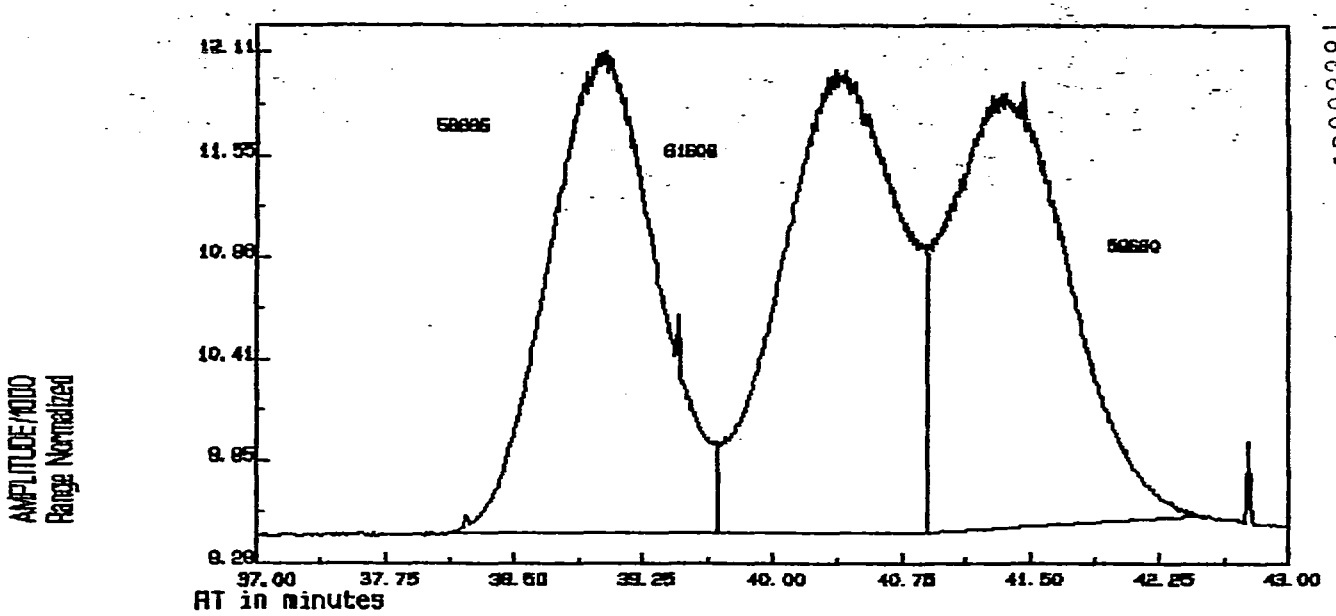
AR303379

SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



AMPLITUDE x.25 uV-seconds (Enlarged x .50)
RT in minutes
SAMPLE: S3 F+D
INJECTED AT 9:16:24 ON OCT 12, 1988
8.46
10.38
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36

AR303380


AMPLITUDE/1000
Range Normalized
12.11
11.55
10.98
10.41
9.85
9.28
58885
61508
59580
37.00
37.75
38.50
39.25
40.00
40.75
41.50
42.25
43.00
RT in minutes
SAMPLE: SD A+D
Meth: M60117
INJECTED AT 9:16:04 ON OCT 12, 1988
Raw: R17271::58
Proc: P17271
AR303381

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

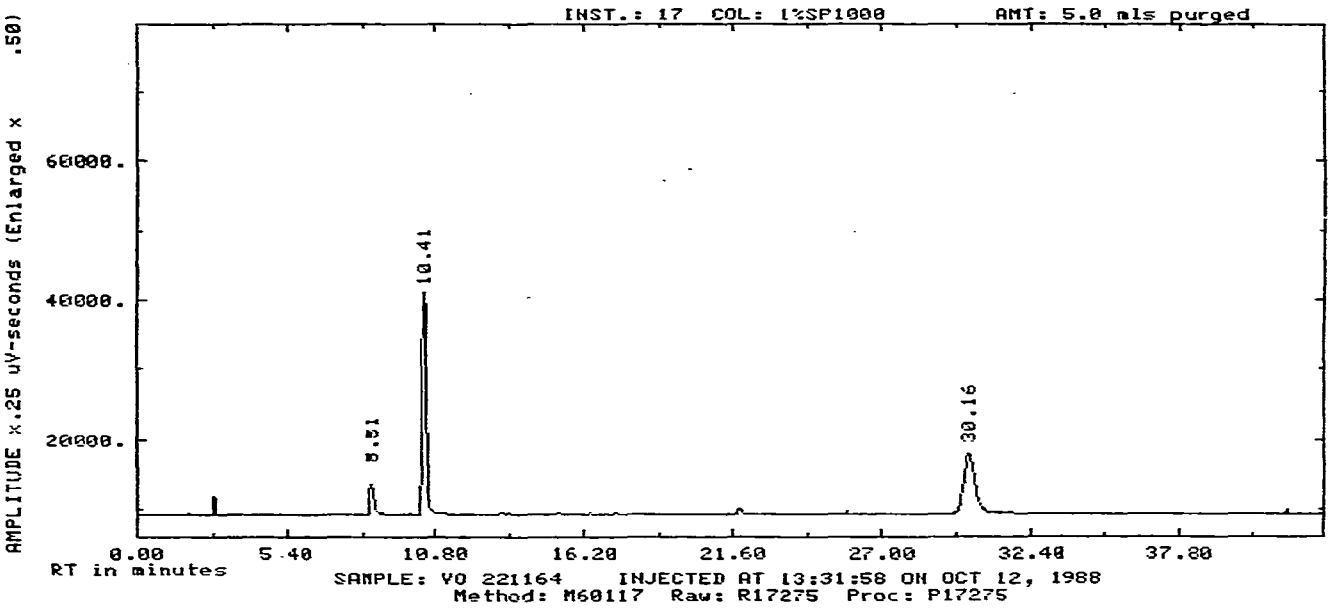
SAMPLE IDENTIFIER: 7
COMPUCHEM® SAMPLE NUMBER: 221164

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

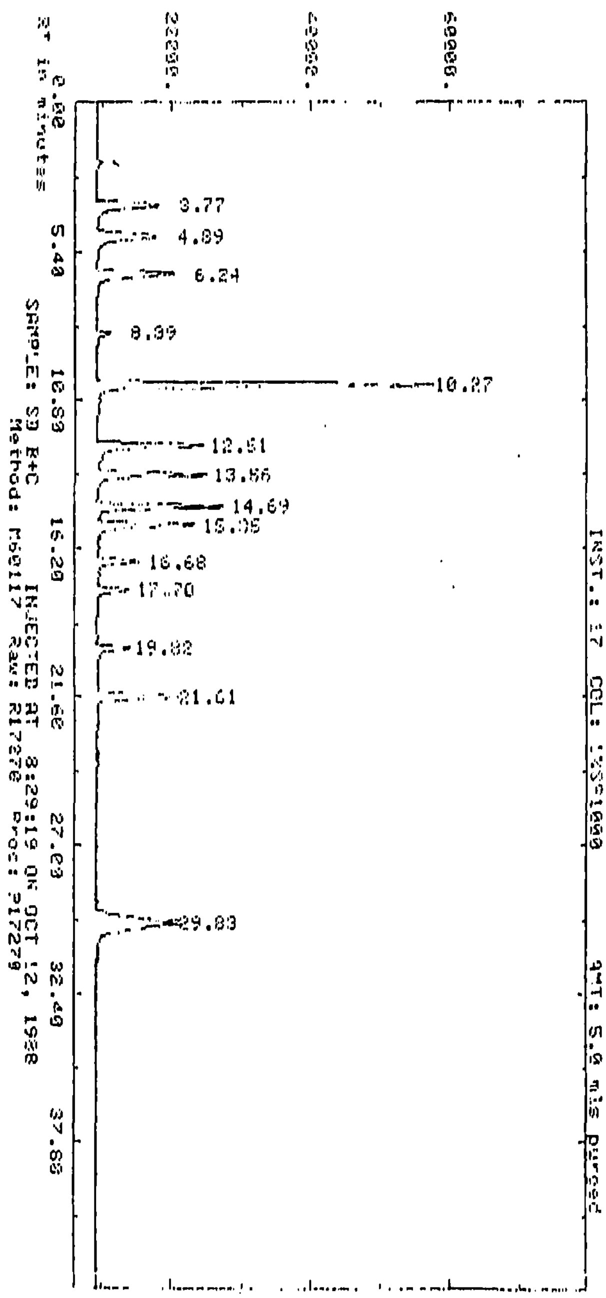
	% Recovery	Control Range %
Trichlorofluoromethane	105	(76-135)
Bromofluorobenzene	95	(69-123)

BDL=BELOW DETECTION LIMIT

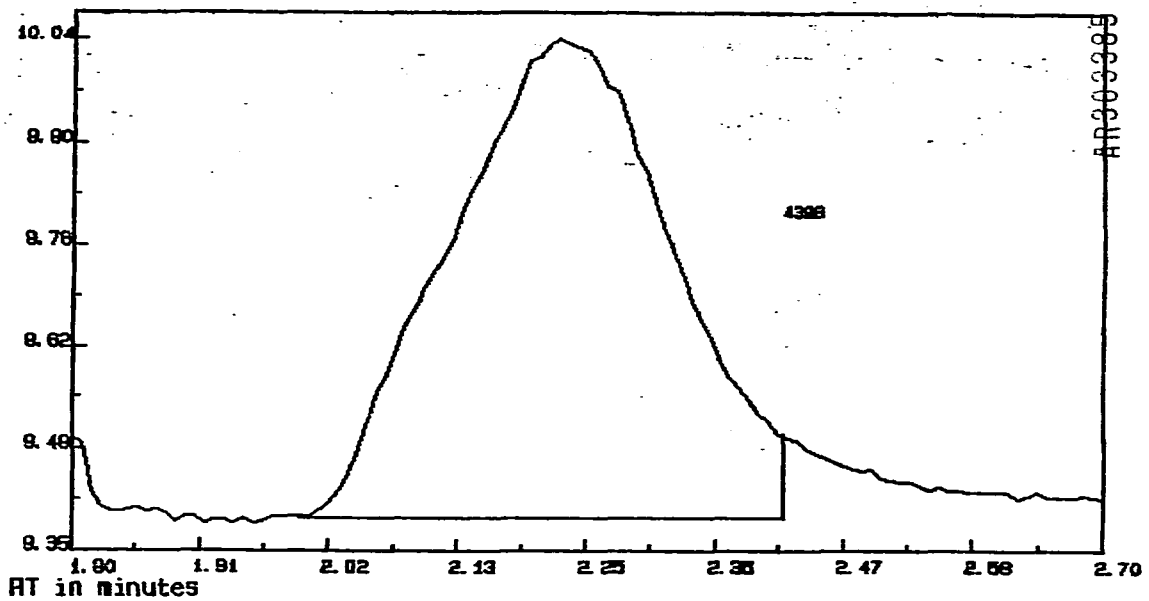

INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.51
10.41
30.16
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 221164 INJECTED AT 13:31:58 ON OCT 12, 1988
Method: M60117 Raw: R17275 Proc: P17275

AR303383

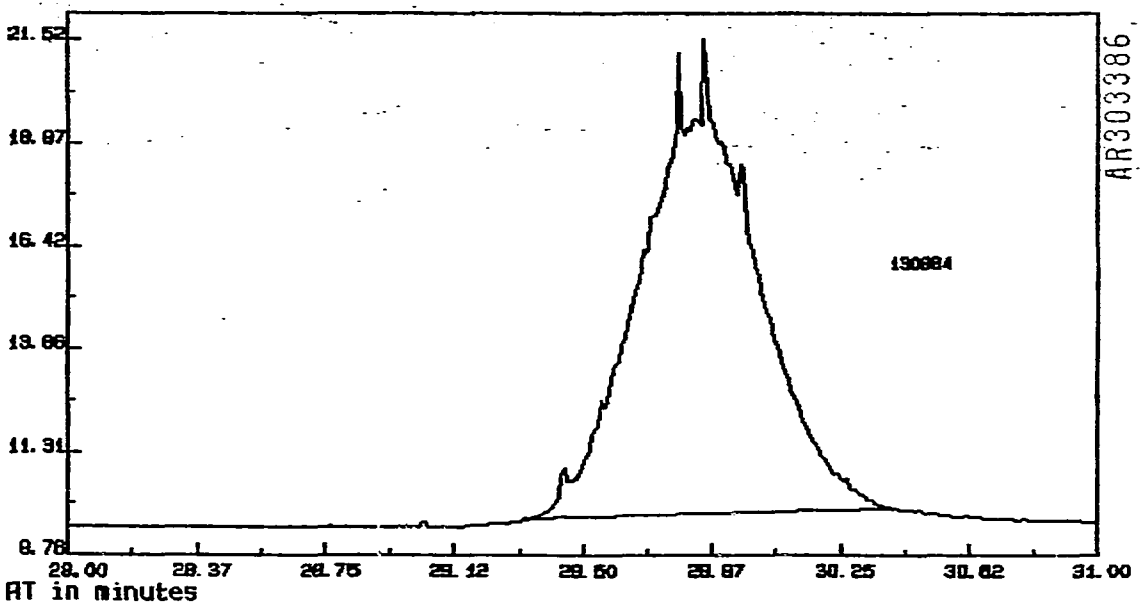
AMPLITUDE x.25 uV-seconds (Enlarged x .76)



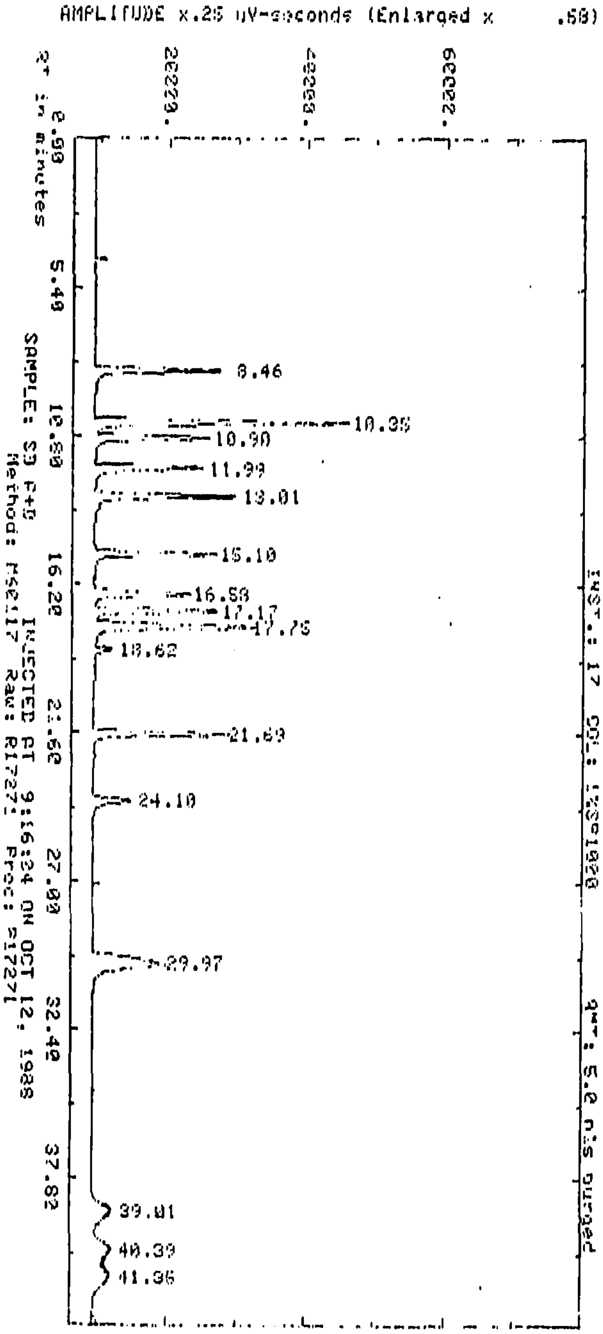
AR303384

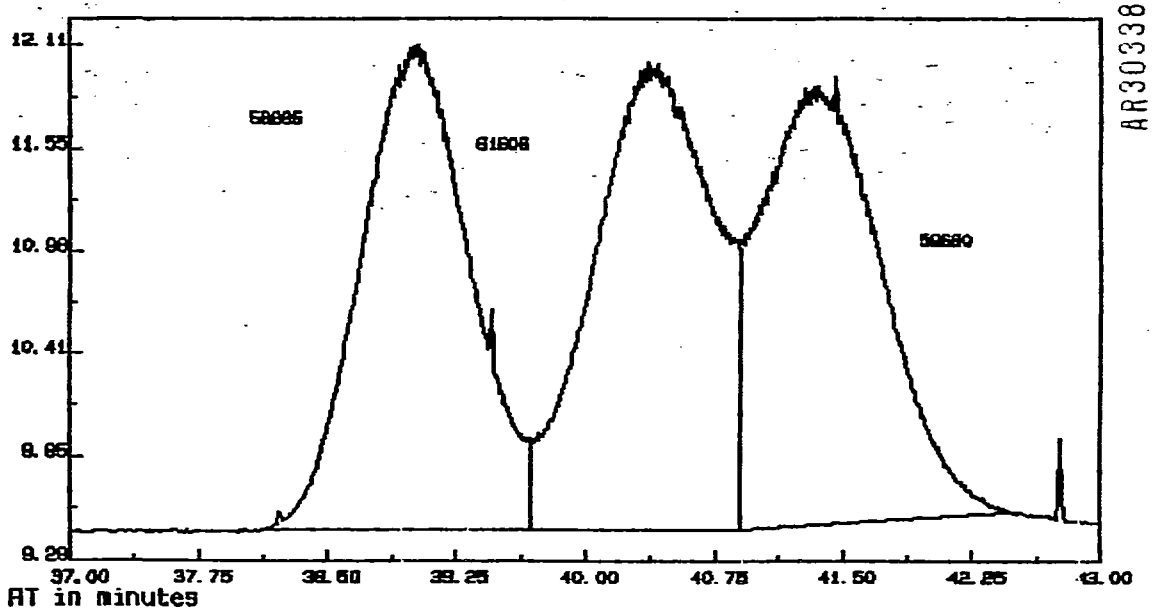


SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



SAMPLE: SO B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.25 uV-seconds (Enlarged x .50)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.82
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36
SAMPLE: S3 F+D INJECTED AT 9:16:24 ON OCT 12, 1988
Method: MSE:17 Raw: R17271 Proc: P17271
INST.: 17 COL: 1M51000
AMT: 5.0 mls purged



AR303388

SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

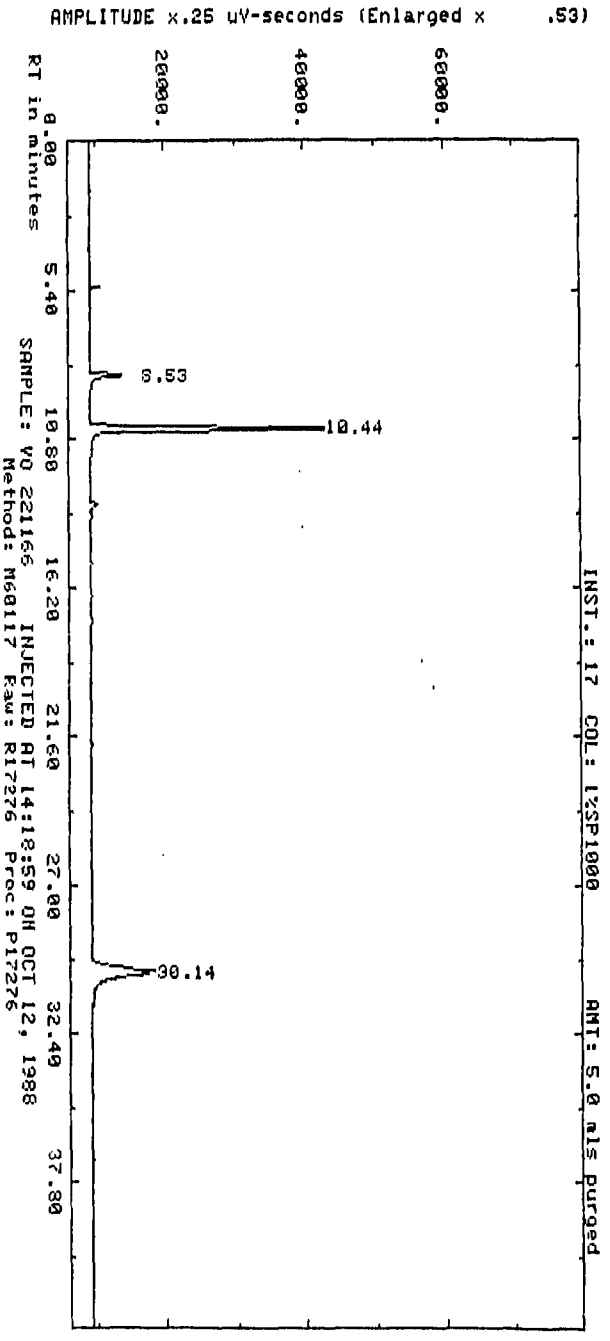
SAMPLE IDENTIFIER: 11
COMPUCHEM® SAMPLE NUMBER: 221166

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

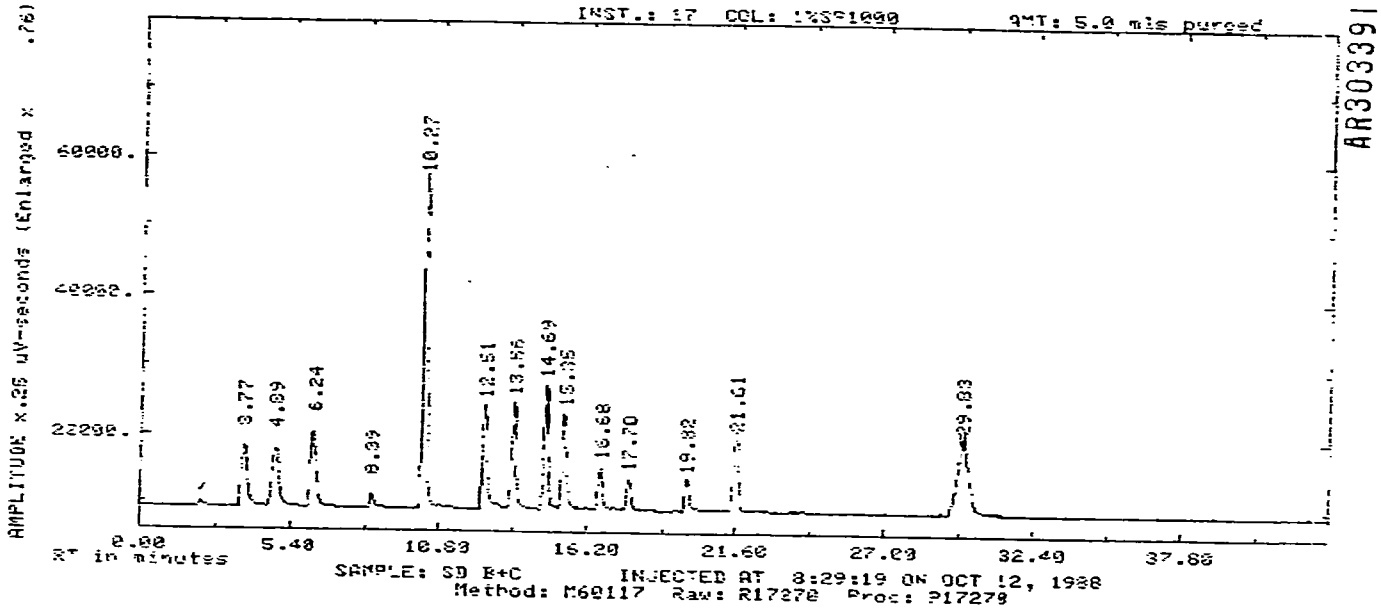
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

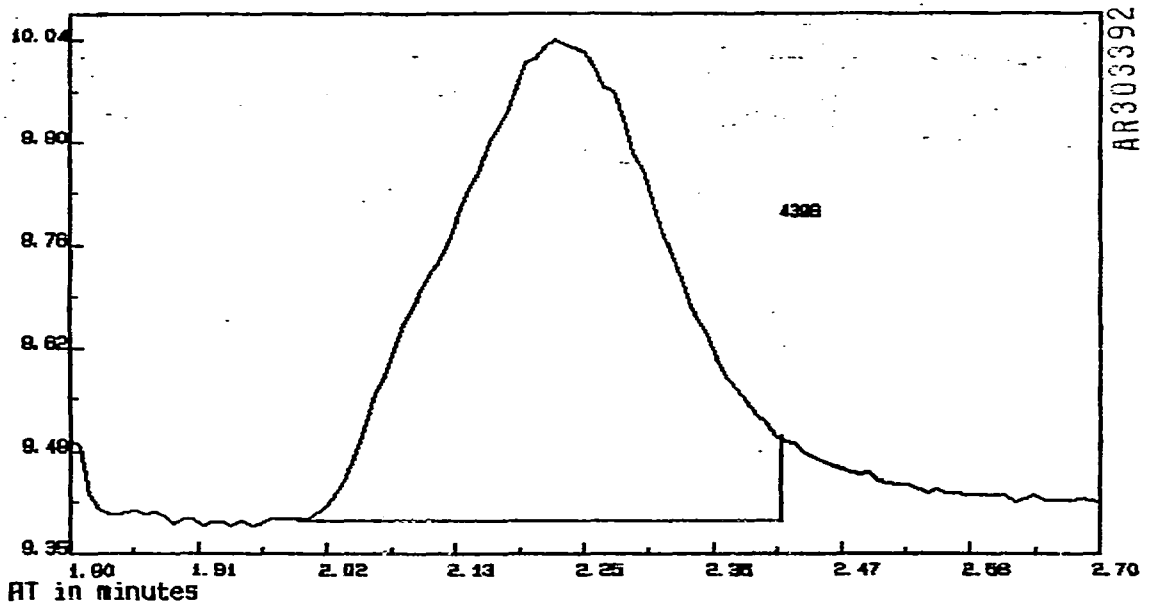
	% Recovery	Control Range %
Trichlorofluoromethane	118	(76-135)
Bromofluorobenzene	85	(69-123)

BDL=BELOW DETECTION LIMIT

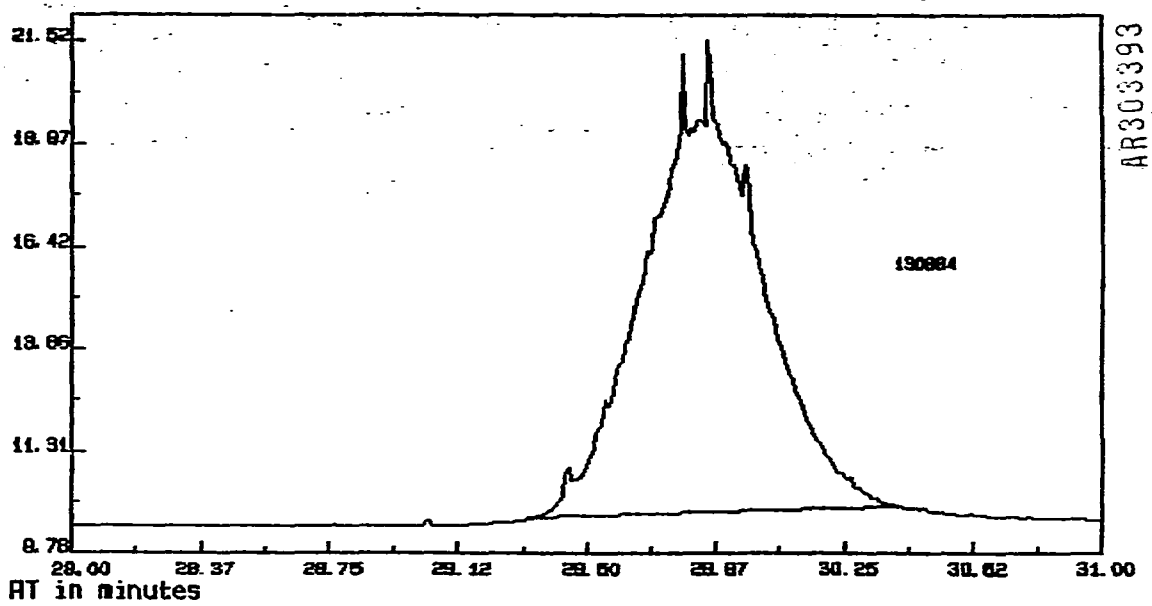

AMPLITUDE x.25 uV-seconds (Enlarged x .53)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.53
10.44
30.14
SAMPLE: VQ 221166 INJECTED AT 14:18:59 ON OCT 12, 1988
Method: M60117 Raw: R17276 Proc: P17276
INST: 17 COL: 1%SP1000
AMT: 5.0 mls purged

AR303390


INST.: 17 COL: 1%SP1000 QMT: 5.0 mls purged
AR303391
AMPLITUDE x.25 uV-seconds (Enlarged x .76)
60000.
40000.
22200.
3.77
4.89
6.24
8.39
10.27
12.51
13.86
14.69
15.35
16.68
17.70
19.82
21.61
29.83
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Method: M60117 Raw: R17270 Proc: P17279

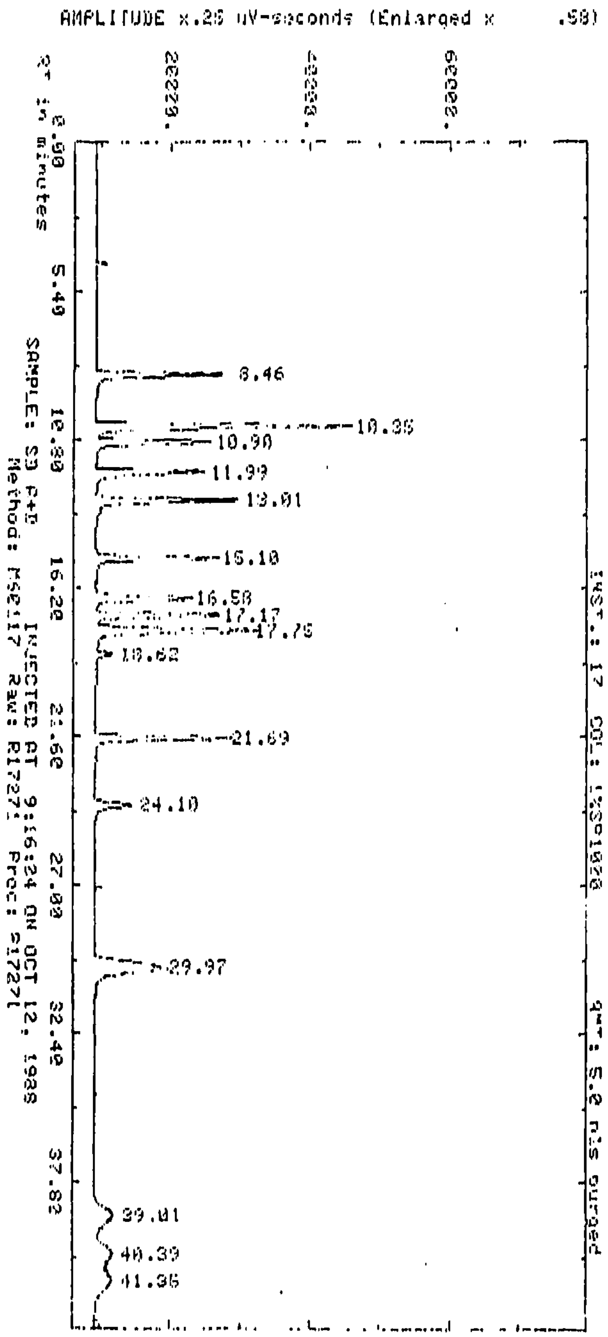


SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::50 Proc: P17270

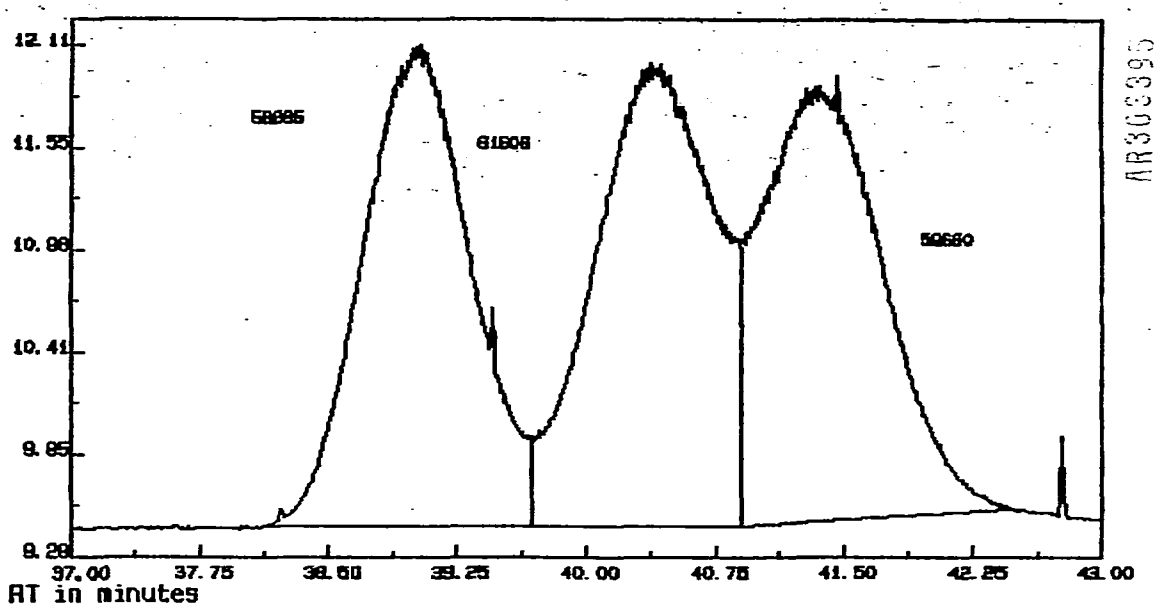


AR303393

SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.20 uV-seconds (Enlarged x .50)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.82
8.46
10.39
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36
SAMPLE: S3 A+B
Method: MSE117 Raw: R17271 Proc: S17271
INJECTED AT 9:16:24 ON OCT 12, 1988
INST.: 17 COL: %SP1000
QT: 5.0 min purged

AR303394



AR303395

SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

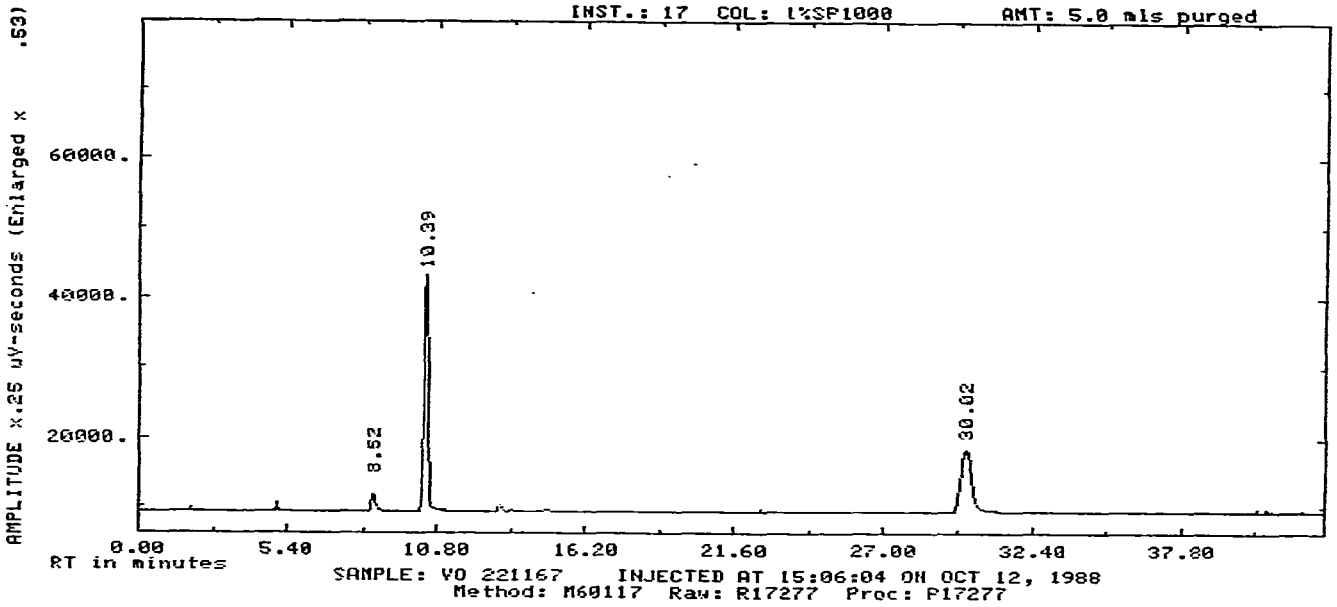
SAMPLE IDENTIFIER: 21
COMPUCHEM® SAMPLE NUMBER: 221167

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

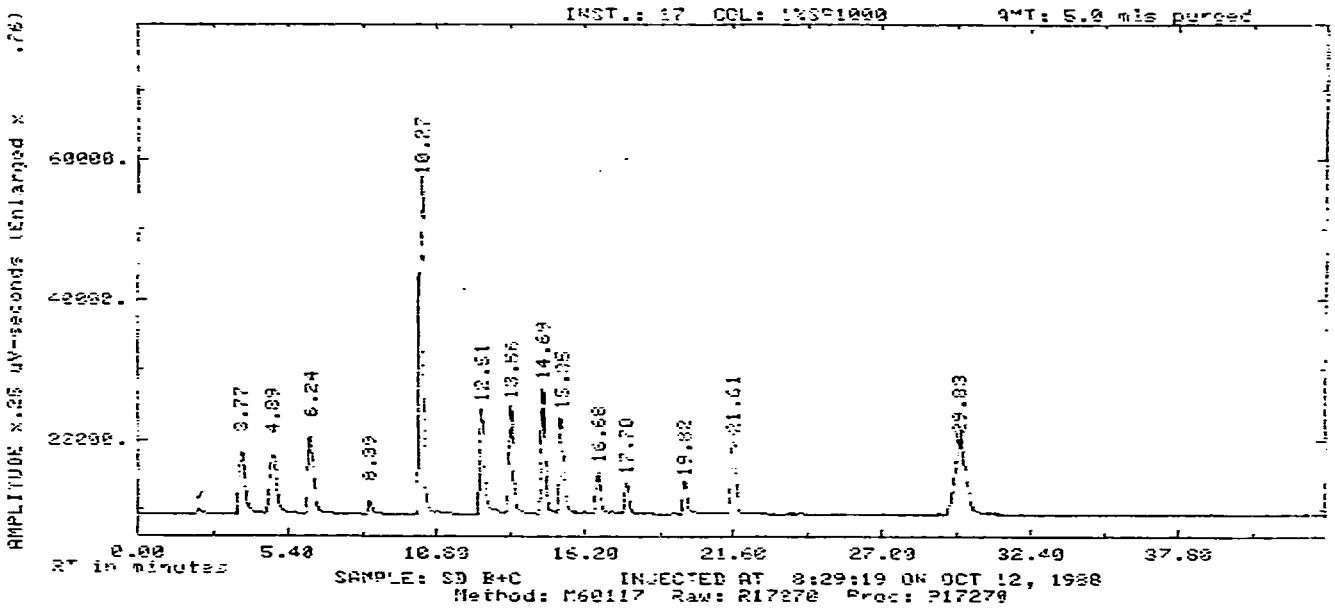
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	103	(76-135)
Bromofluorobenzene	97	(69-123)

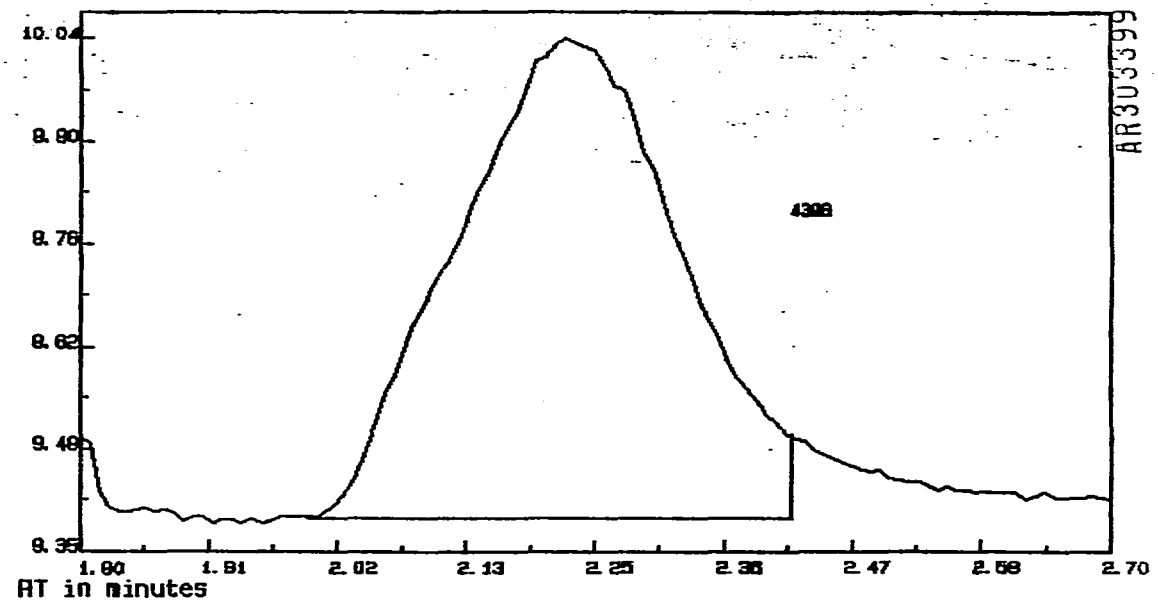
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .53)
60000.
40000.
20000.
8.52
10.39
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 221167 INJECTED AT 15:06:04 ON OCT 12, 1988
Method: M60117 Raw: R17277 Proc: P17277

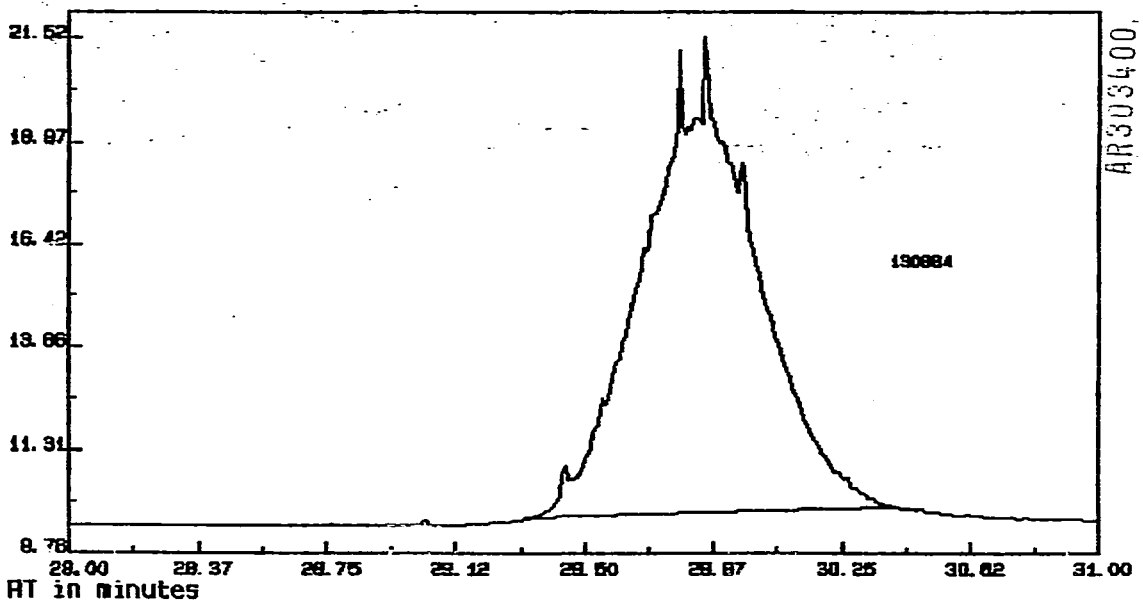
AR303397


INST.: 17 COL: DB5-1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .75)
60000.
40000.
20000.
3.77
4.09
6.24
8.39
10.27
12.61
13.56
14.64
15.35
16.68
17.70
19.82
21.61
29.83
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Method: M60117 Raw: R17270 Proc: P17270

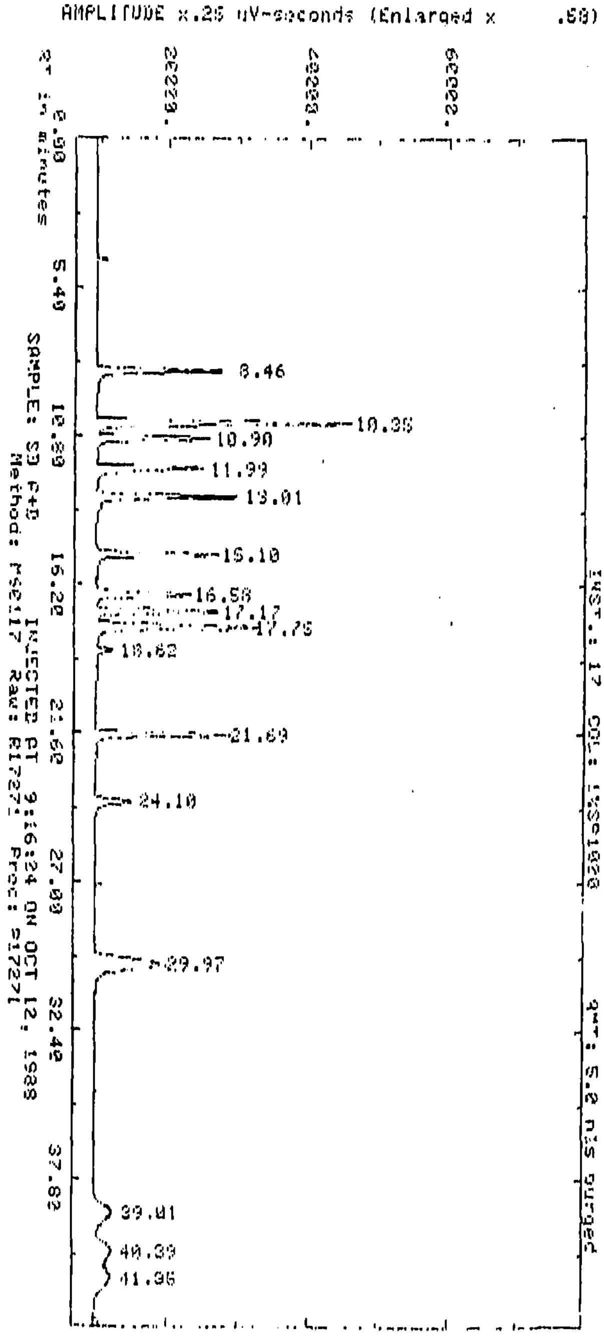
AR303698



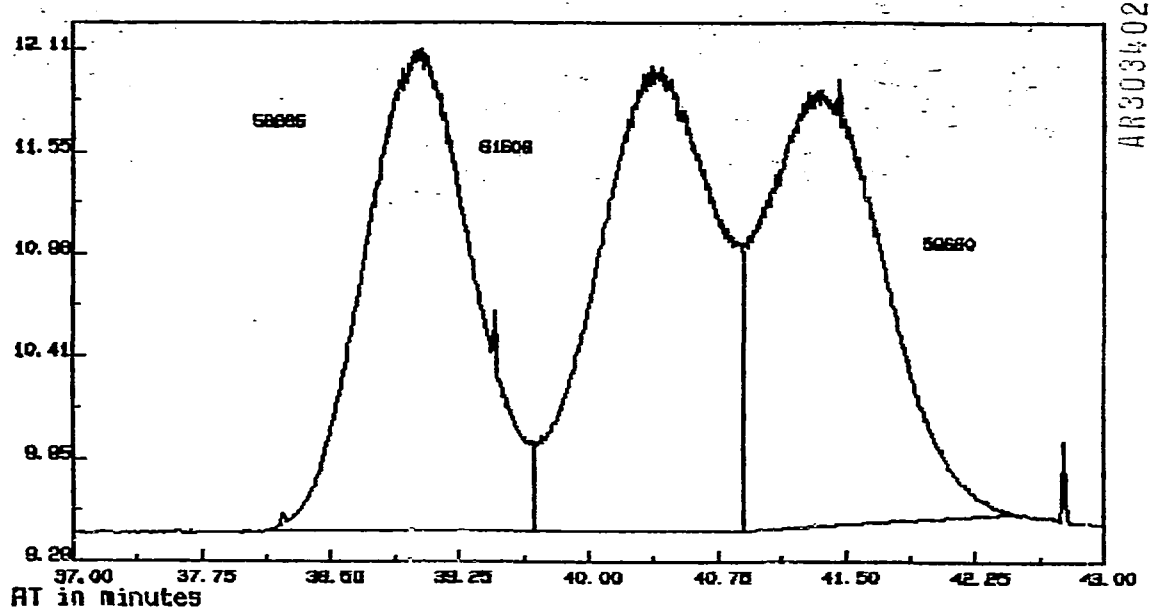
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.25 uV-seconds (Enlarged x .50)
RT in minutes
SAMPLE: S3 F+D
INJECTED AT 9:16:24 ON OCT 12, 1988
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36

AR303401



SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

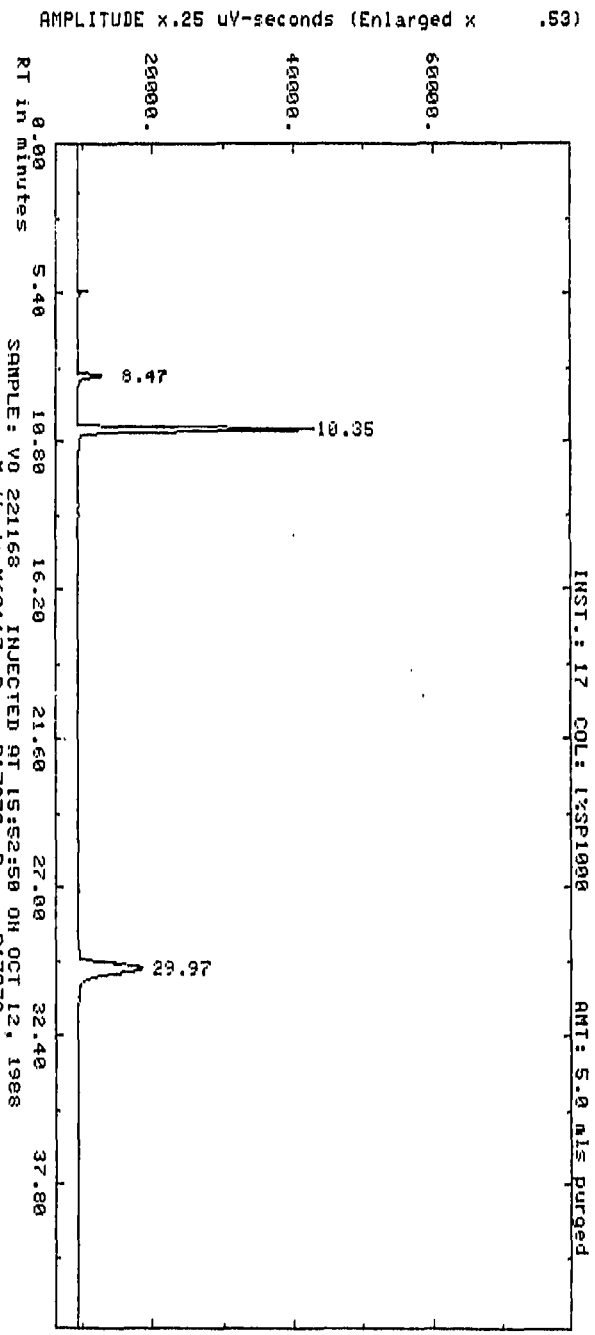
SAMPLE IDENTIFIER: 30
COMPUCHEM® SAMPLE NUMBER: 221168

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

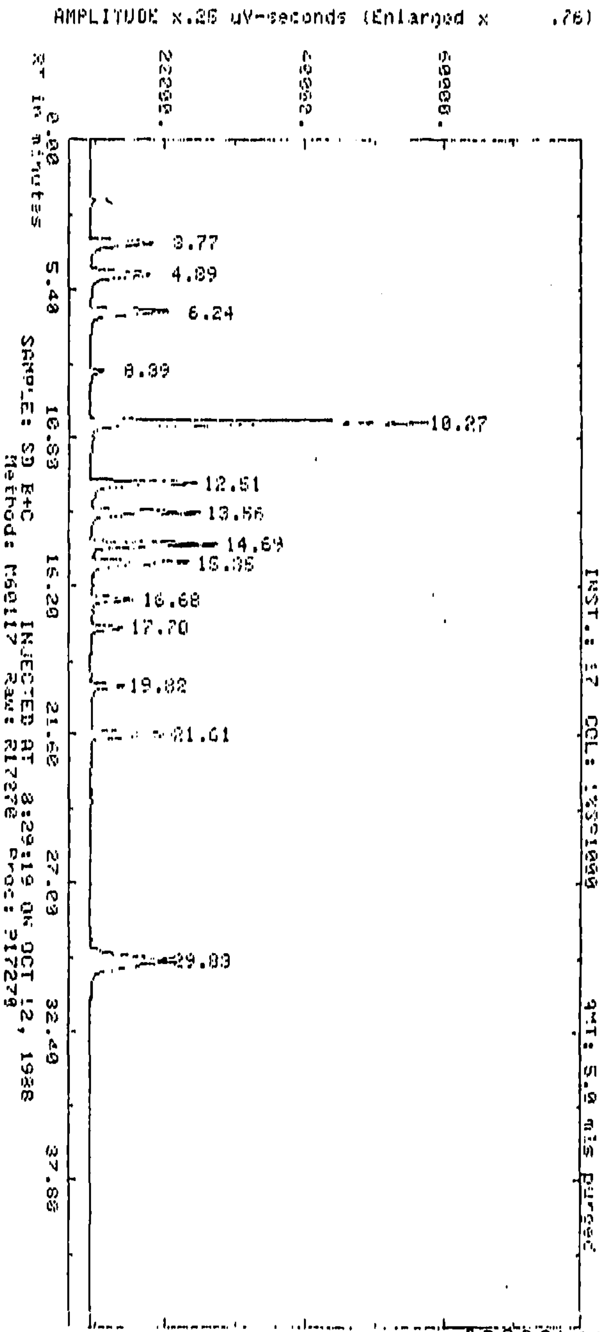
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	102	(76-135)
Bromofluorobenzene	98	(69-123)

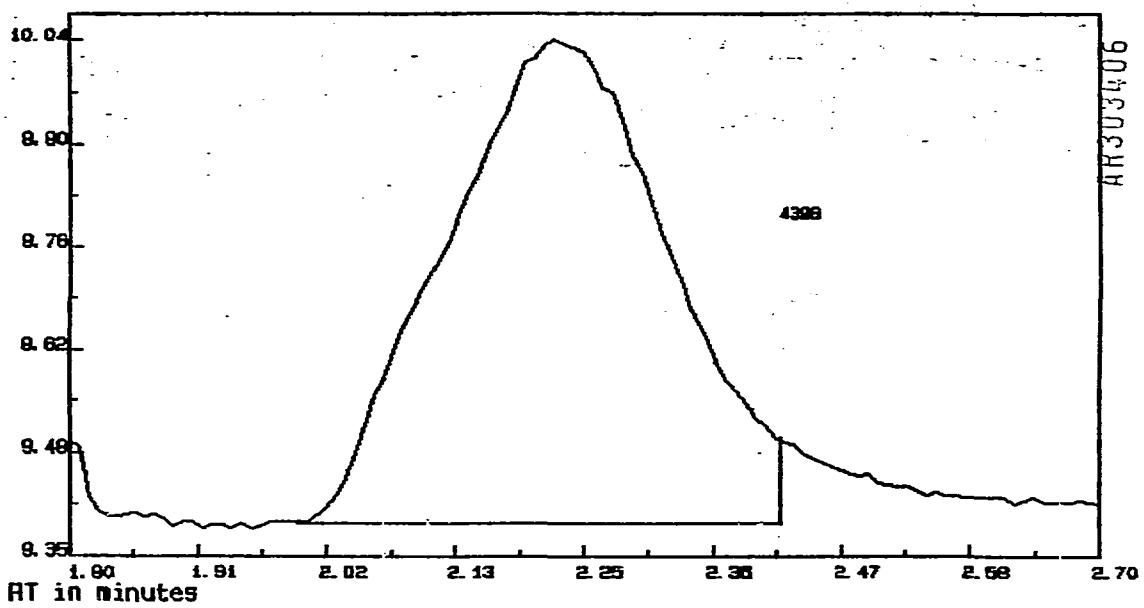
BDL=BELOW DETECTION LIMIT


AMPLITUDE x.25 uV-seconds (Enlarged x .53)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.47
10.35
29.97
SAMPLE : V0 221698 INJECTED AT 15:52:50 ON OCT 12, 1988
Method: N60127 Rev: R12278 Proc: P12278
INST: 17 COL: 1%SP100
AMT: 5.0 mls purged

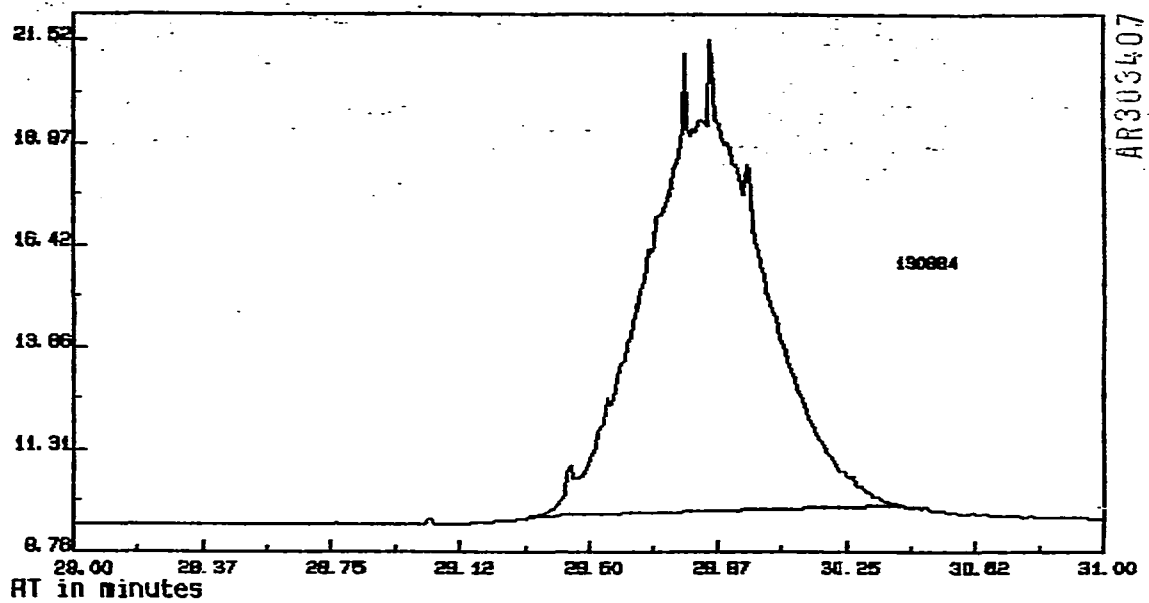
AR303404


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
RT in minutes
5.40
10.80
16.20
21.60
27.00
32.40
37.80
3.77
4.09
6.24
8.39
10.27
12.51
13.56
14.69
15.35
16.68
17.70
19.82
21.61
29.03
SAMPLE: SD B+C
INJECTED AT 8:29:19 ON OCT 12, 1988
INST.# 17
AMT: 5.0 mls purged

AR303405



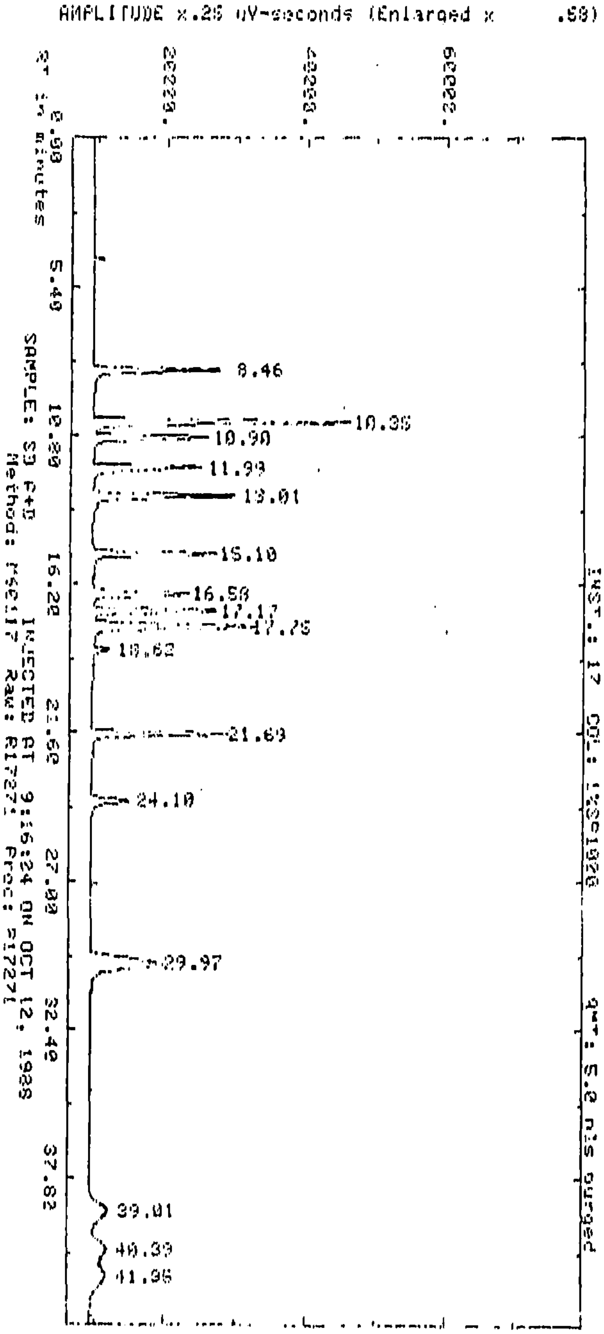
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



AMPLITUDE/1000
Range Normalized

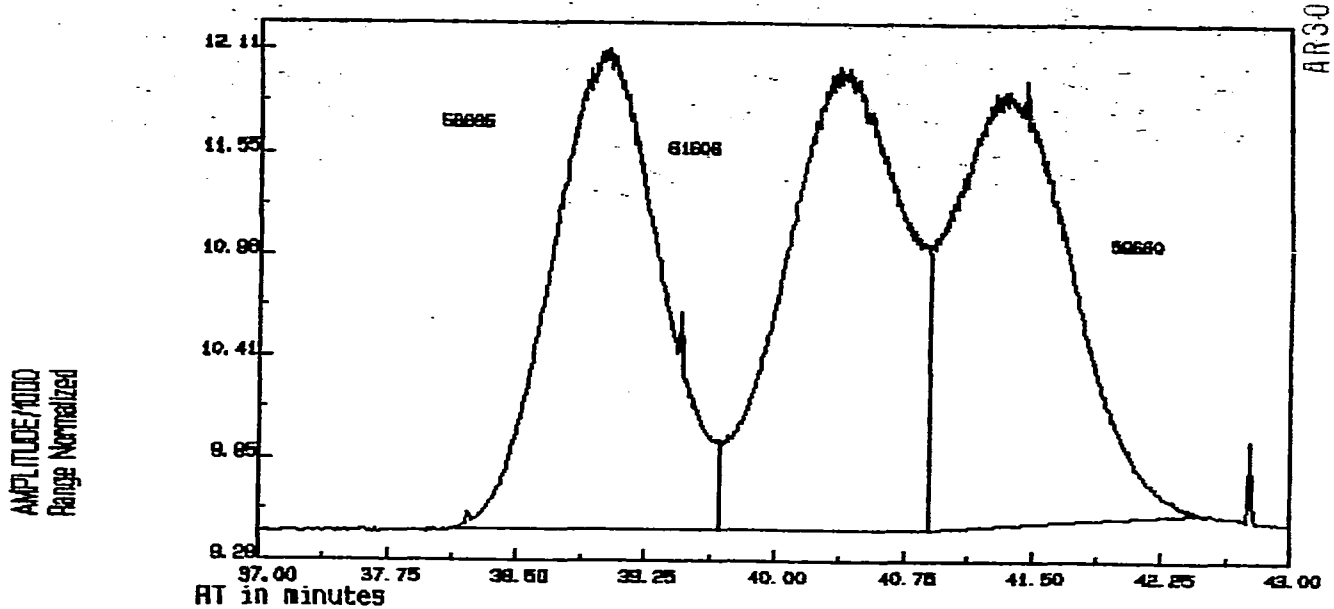
AR303407

SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.25 uV-seconds (Enlarged x .50)
RT in minutes
SAMPLE: S3 F+D
INJECTED AT 9:16:24 ON OCT 12, 1988
8.46
10.38
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.96
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.82
20000.
40000.
60000.
INST: 17
9"T: 5.0 mis purged

AR303408

AR303409



SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

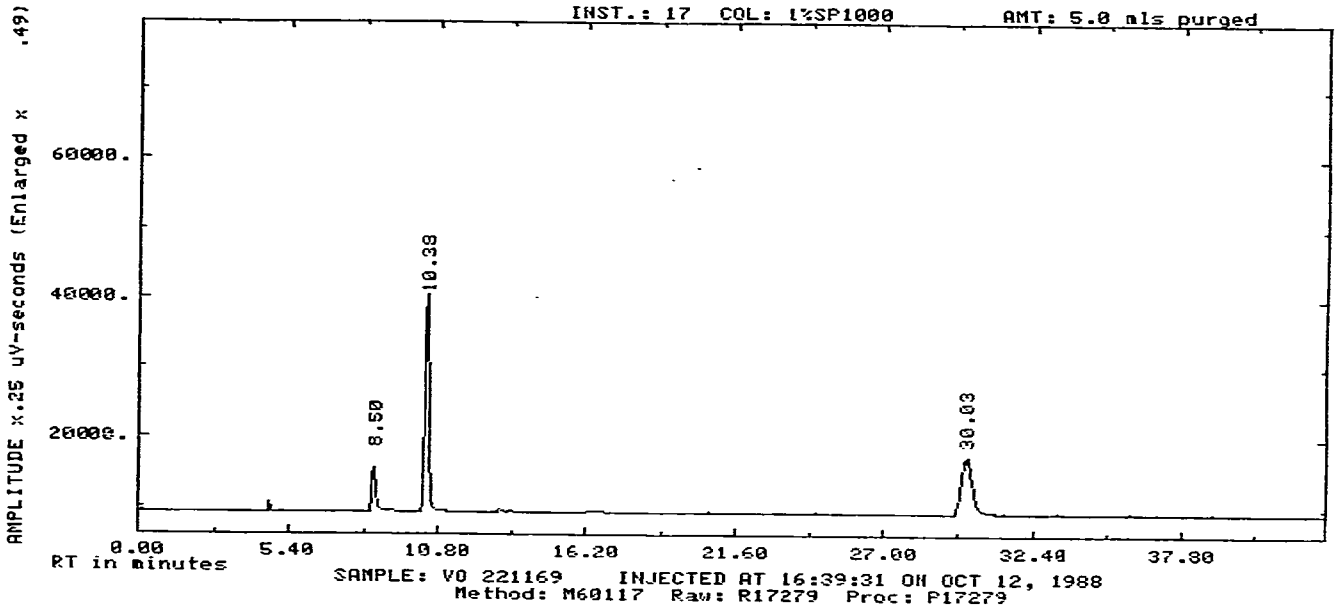
SAMPLE IDENTIFIER: 34
COMPUCHEM® SAMPLE NUMBER: 221169

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	1.3	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

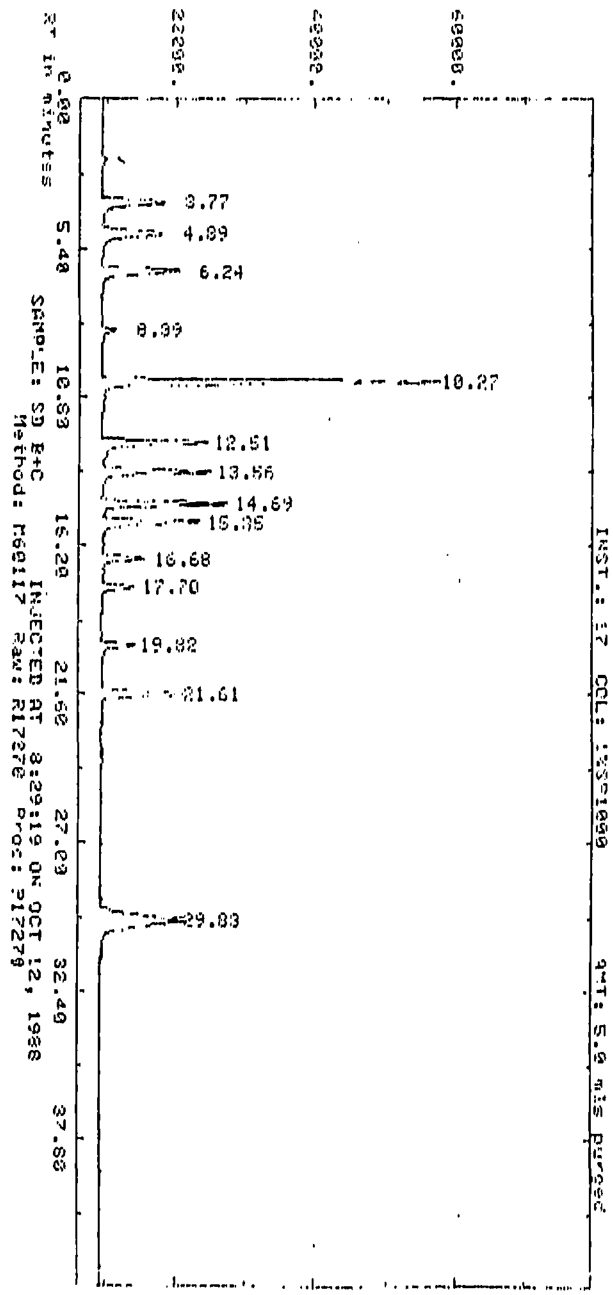
	% Recovery	Control Range %
Trichlorofluoromethane	106	(76-135)
Bromofluorobenzene	94	(69-123)

BDL=BELOW DETECTION LIMIT

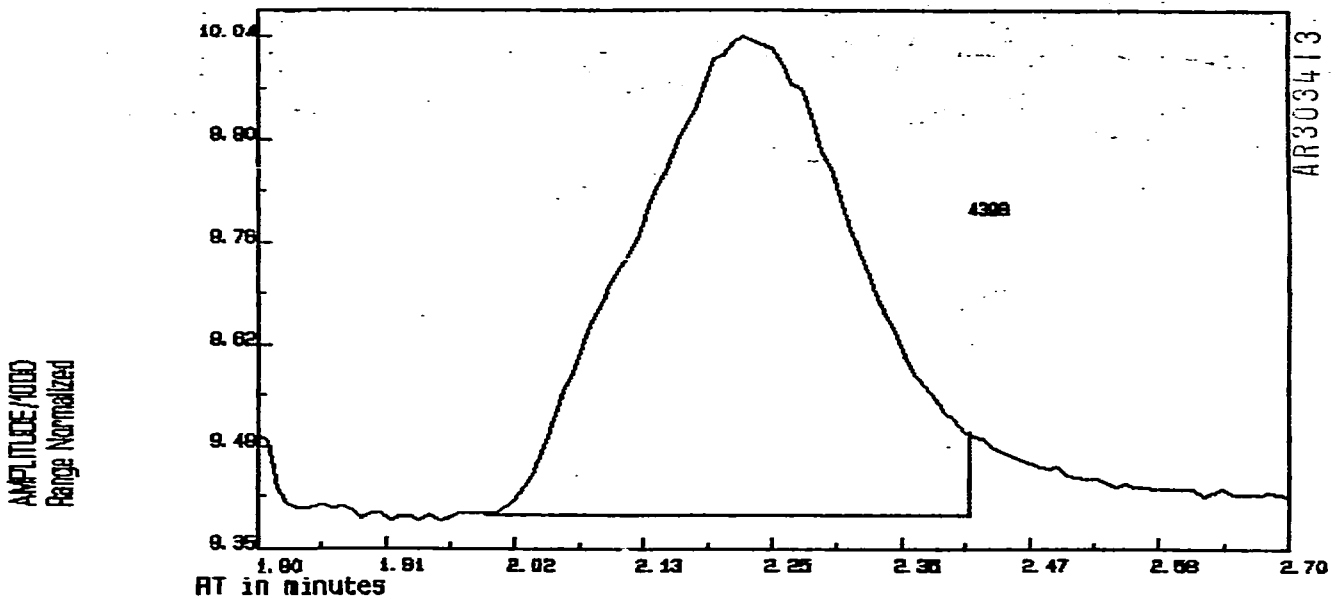

INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .49)
60000.
40000.
20000.
8.50
10.38
30.03
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 221169 INJECTED AT 16:39:31 ON OCT 12, 1988
Method: M60117 Raw: R17279 Proc: P17279

AR303411

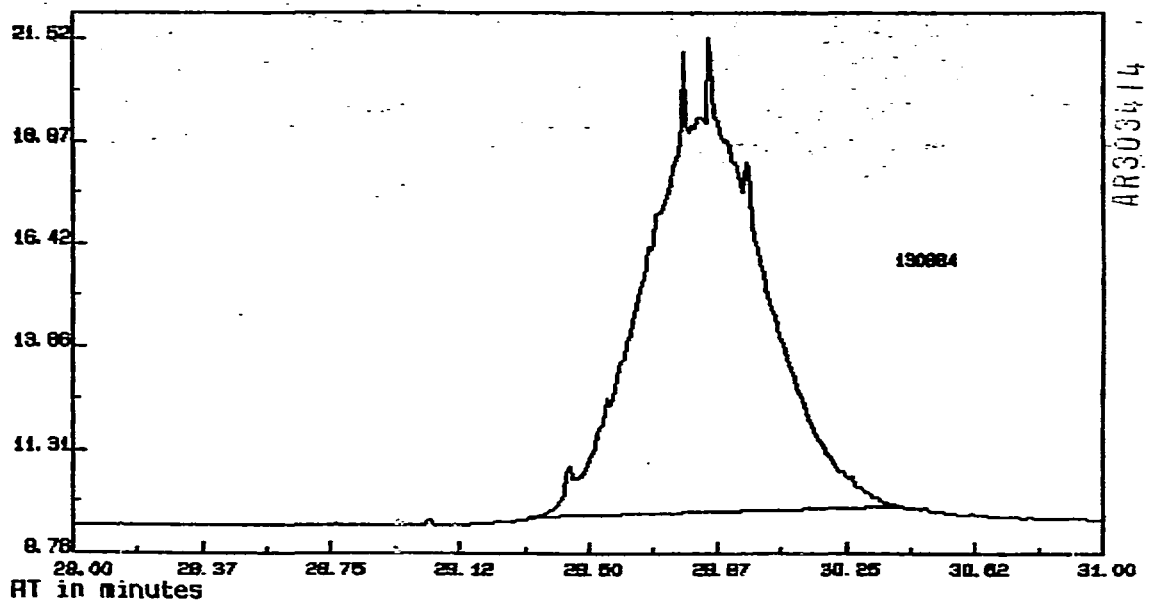
AMPLITUDE x.25 uV-seconds (Enlarged x .76)



AR303412

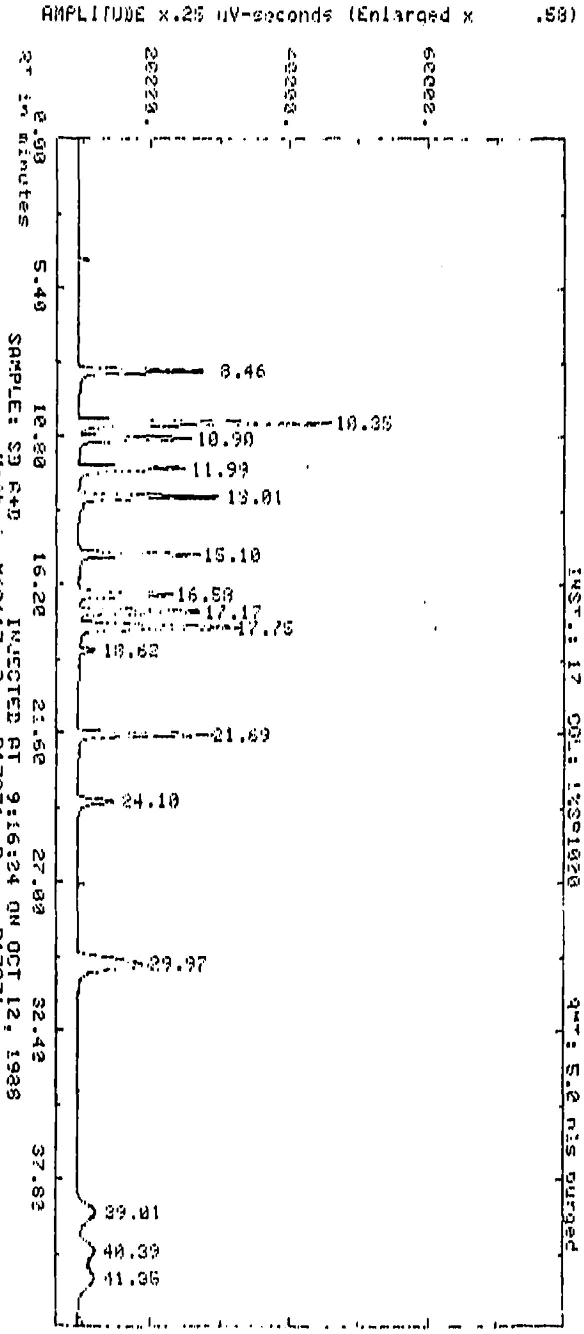


SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270

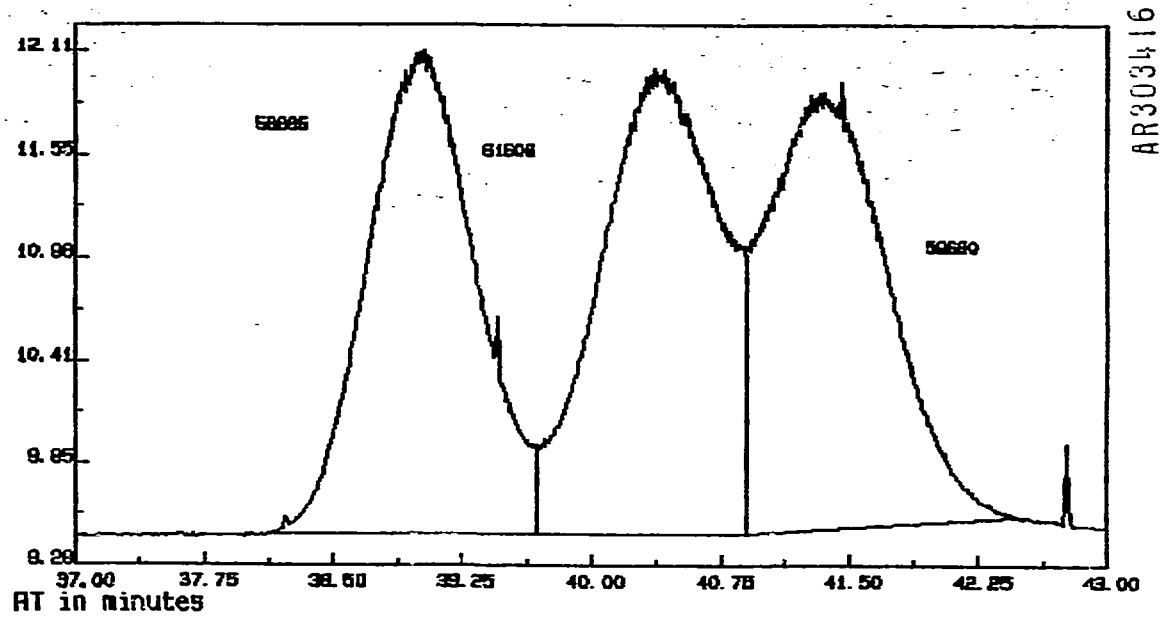


AR303414

SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.25 uV-seconds (Enlarged x .50)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.42
37.82
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36
SAMPLE: S3 F+D INJECTED AT 9:16:24 ON OCT 12, 1988
Method: MSC17 Raw: R17271 Proc: P17271
INST.: 17
purged

AR303415



AMPLITUDE/1000
Range Normalized

AR303416

SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

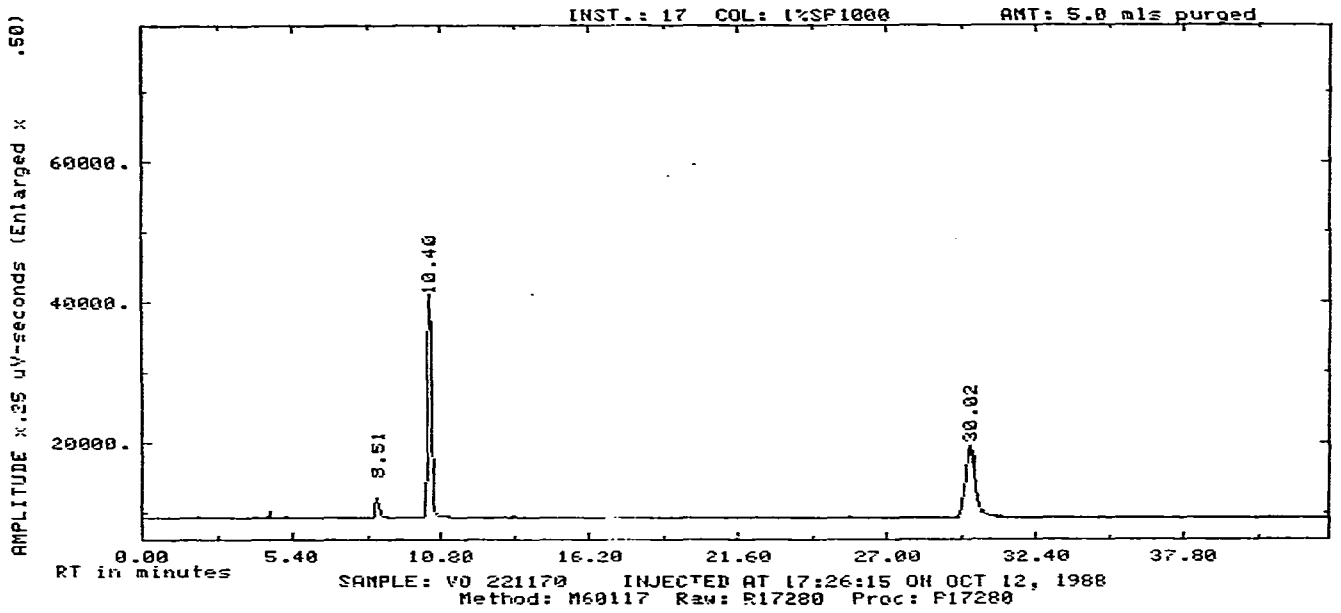
SAMPLE IDENTIFIER: 36
COMPUCHEM® SAMPLE NUMBER: 221170

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

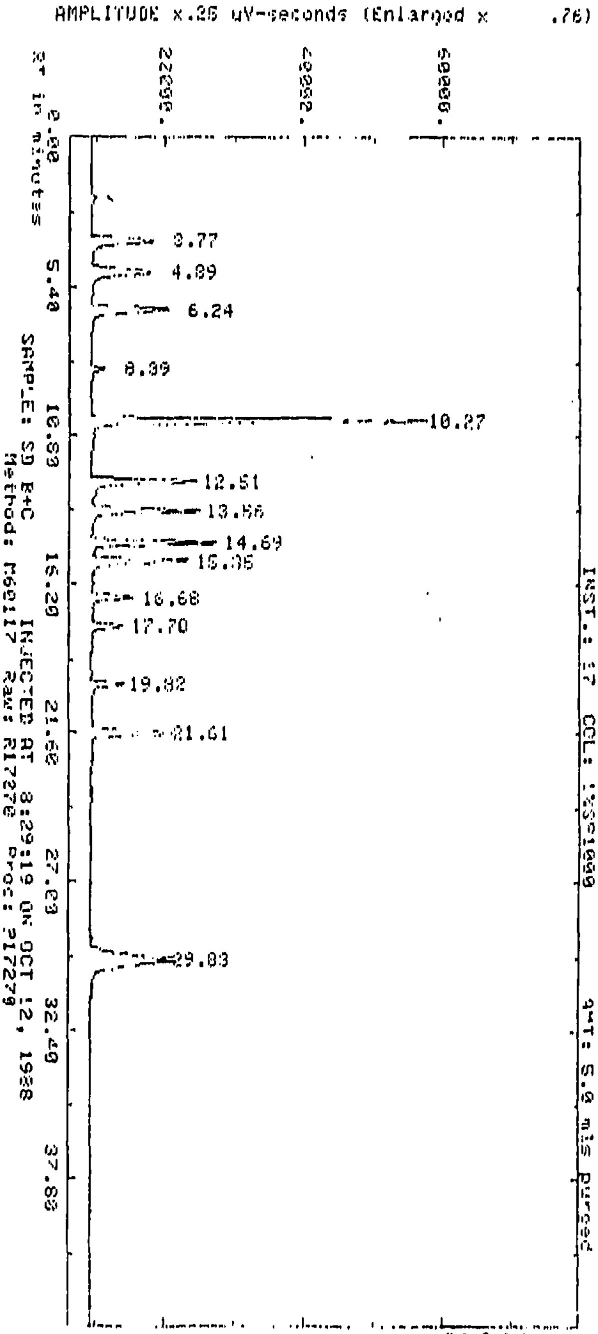
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	96	(76-135)
Bromofluorobenzene	104	(69-123)

BDL=BELOW DETECTION LIMIT

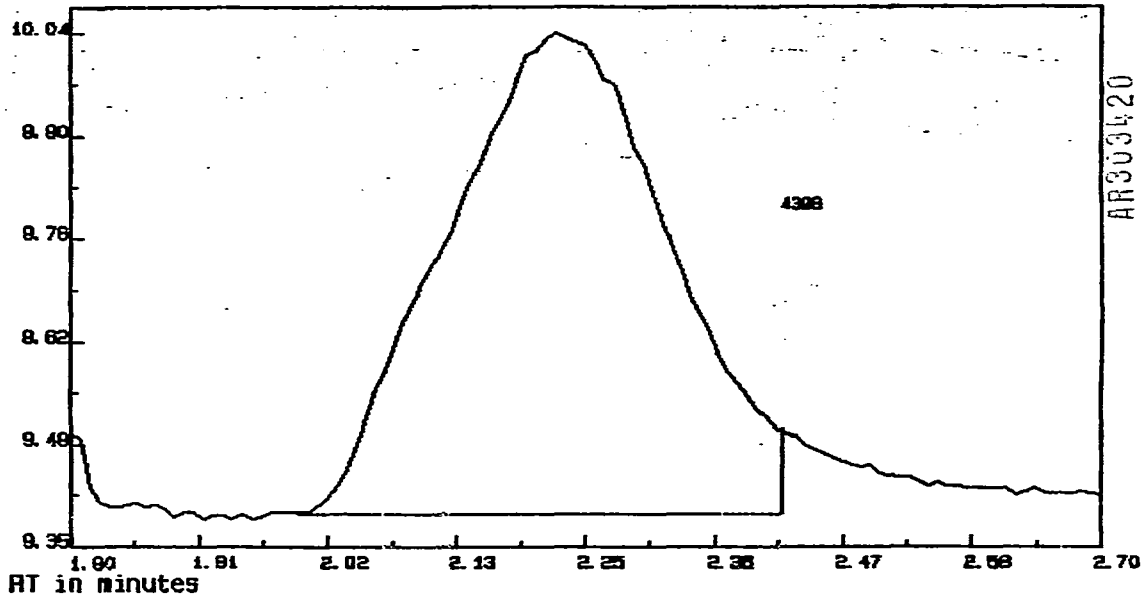

INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.51
10.40
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 221170 INJECTED AT 17:26:15 ON OCT 12, 1988
Method: M60117 Raw: R17280 Proc: P17280

AR303418

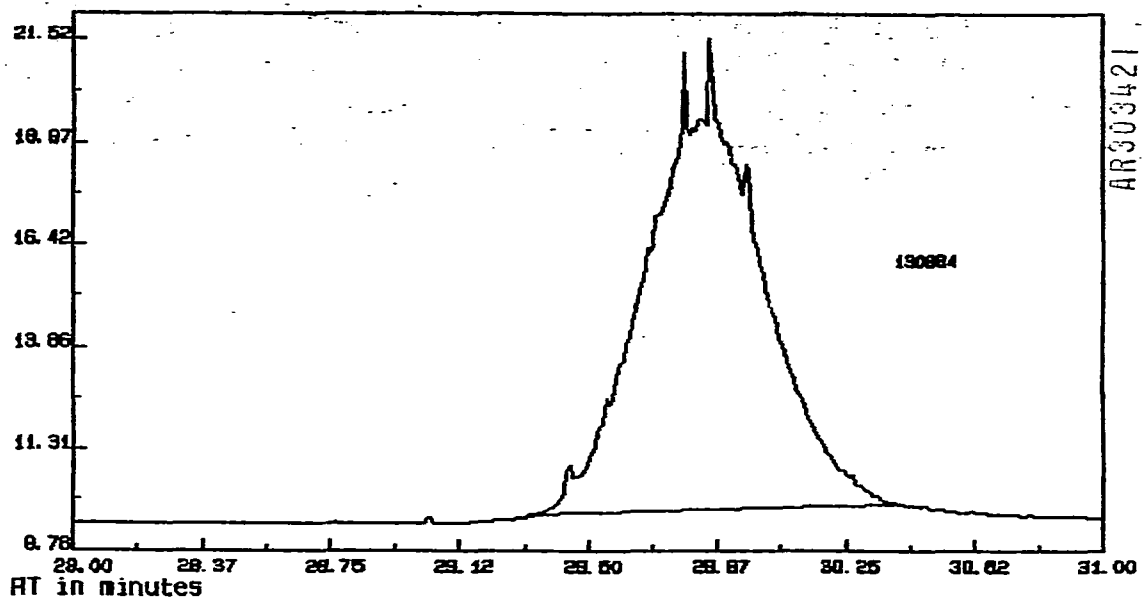


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
RT in minutes
SAMPLE: SD E+C
INJECTED AT 8:29:19 ON OCT 12, 1988
Method: M60117 Raw: R17278 Proc: P17279
INST.: 17 CCL: 1SC1000
4-T: 5.0 mls purged
3.77
4.89
6.24
8.39
10.27
12.51
13.56
14.69
15.35
16.68
17.70
19.82
21.61
29.83

AR303419



SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



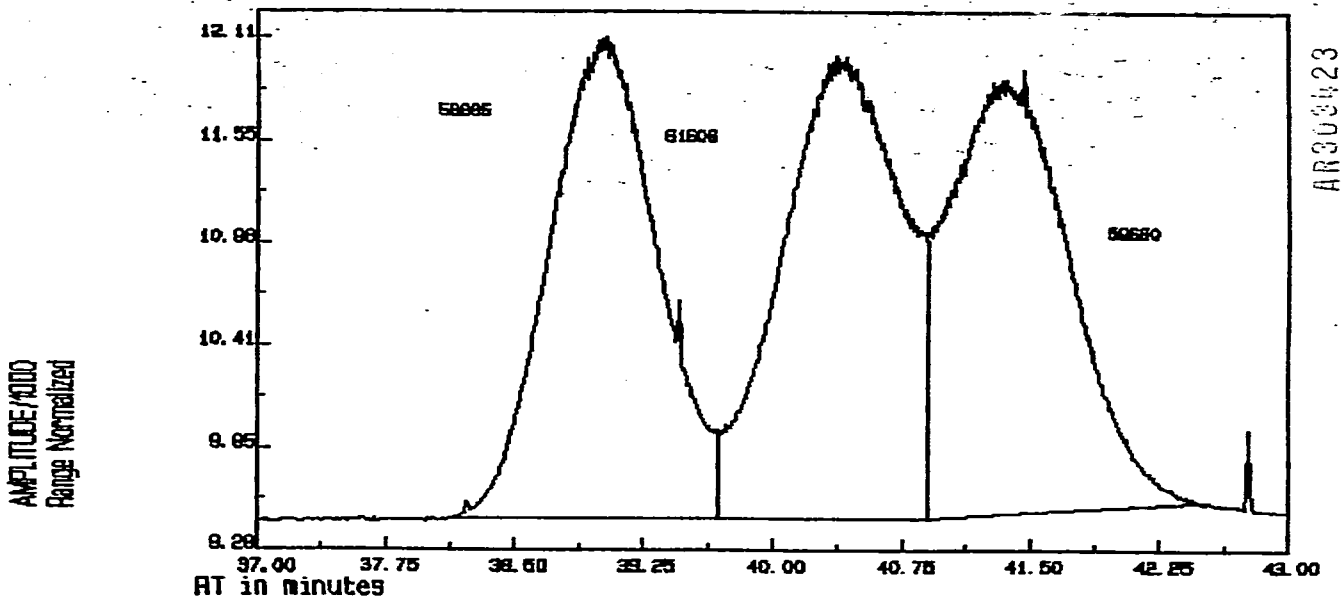
AMPLITUDE/1000
Range Normalized

AR3034211

SAMPLE: SD B+C INJECTED AT 8:28:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270

AMPLITUDE x.25 uV-seconds (Enlarged x .50)
.22222
.55555
.22039
hr in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.82
SAMPLE: S9 F+9
Method: FS217 Raw: R17271 Proc: S17271
INJECTED AT 9:16:24 ON OCT 12, 1988
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.96

AR303422



SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

AR303423

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

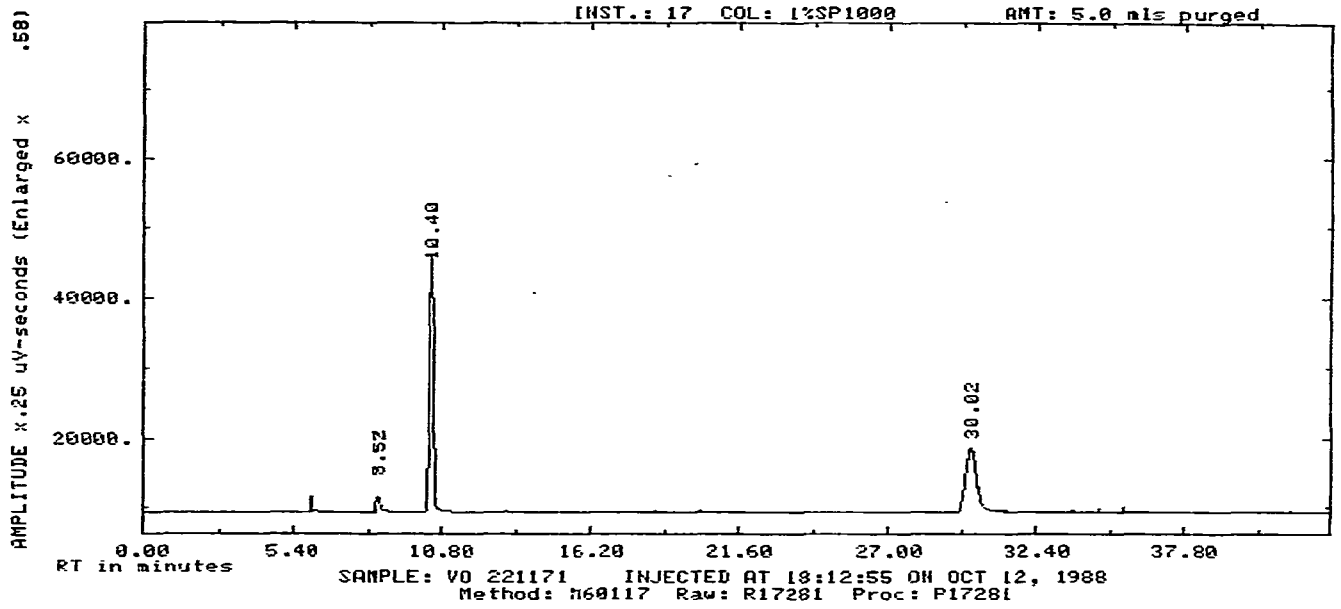
SAMPLE IDENTIFIER: 37
COMPUCHEM® SAMPLE NUMBER: 221171

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

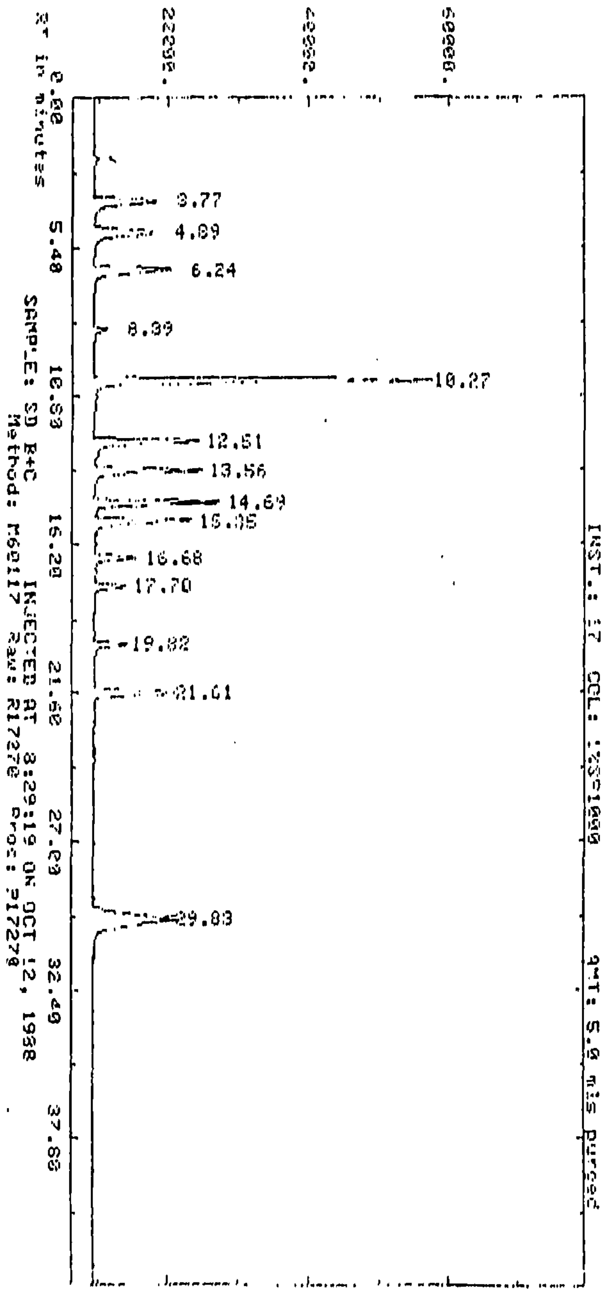
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	110	(76-135)
Bromofluorobenzene	91	(69-123)

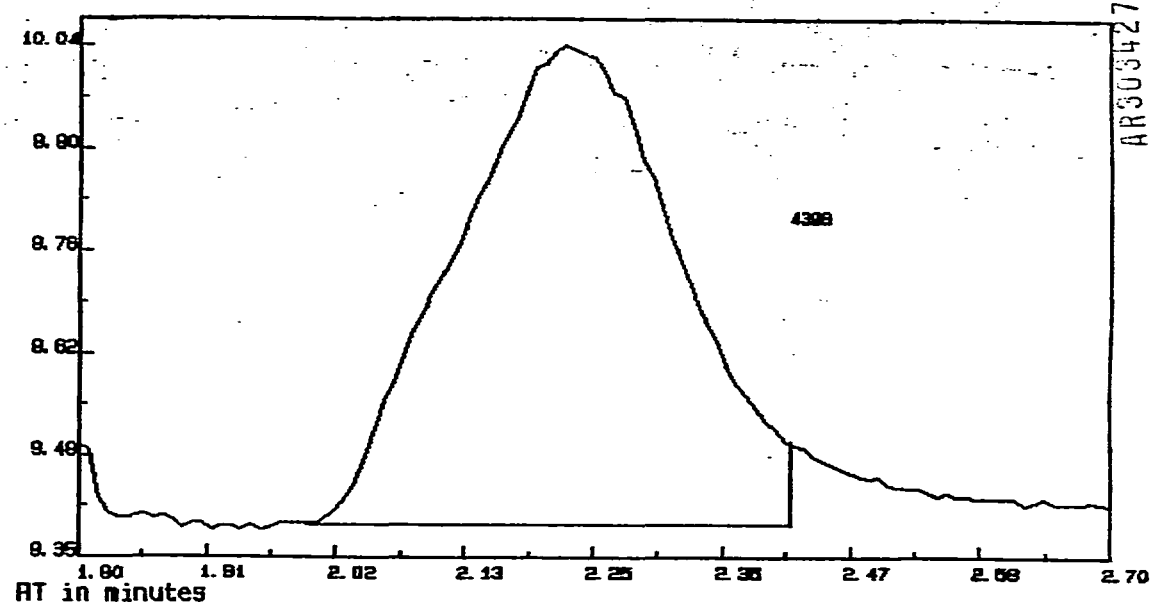
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .58)
60000.
40000.
20000.
8.52
10.40
30.02
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 221171 INJECTED AT 18:12:55 ON OCT 12, 1988
Method: M60117 Raw: R17281 Proc: P17281

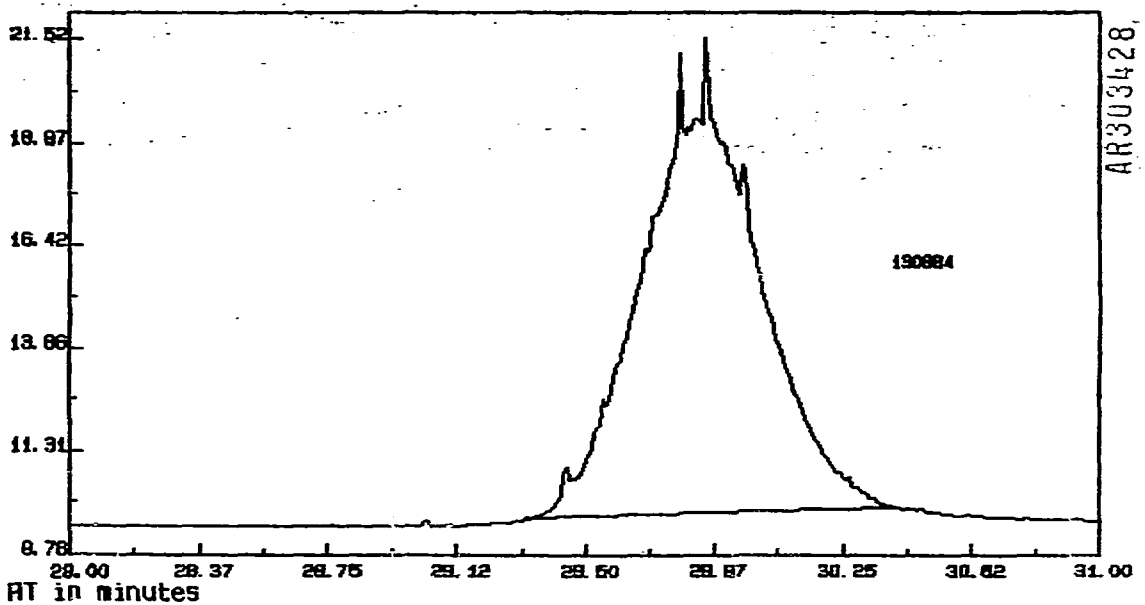
AMPLITUDE x.25 uV-seconds (Enlarged x .76)



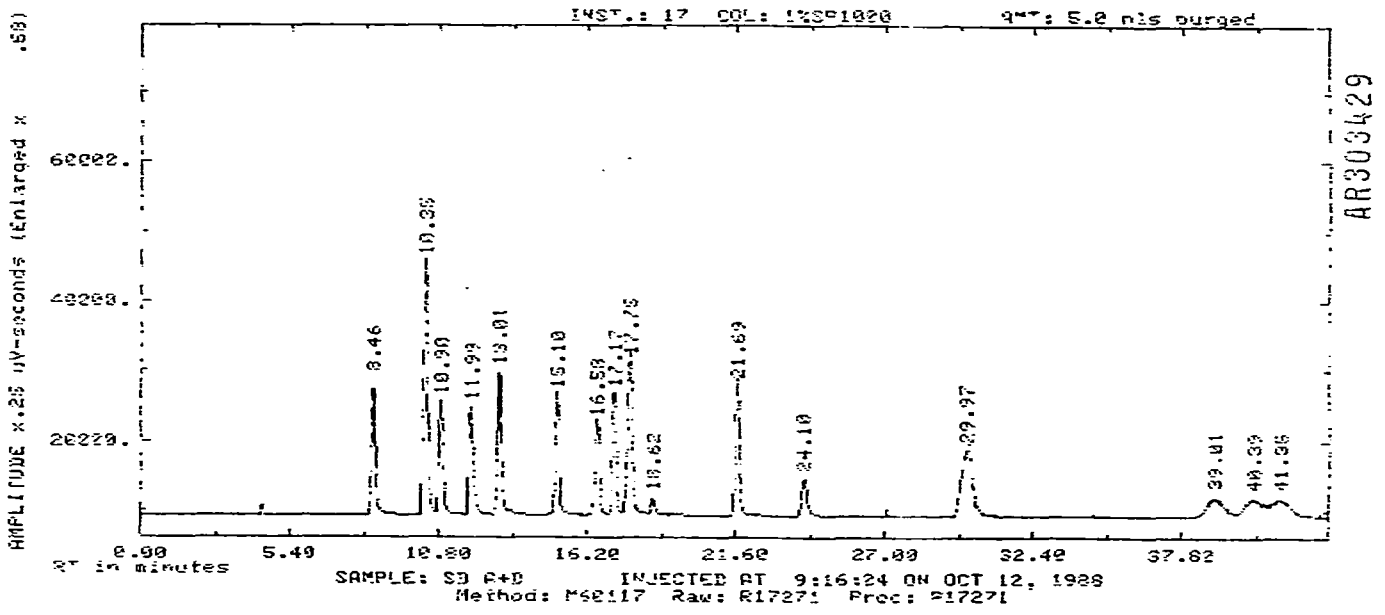
AR303426



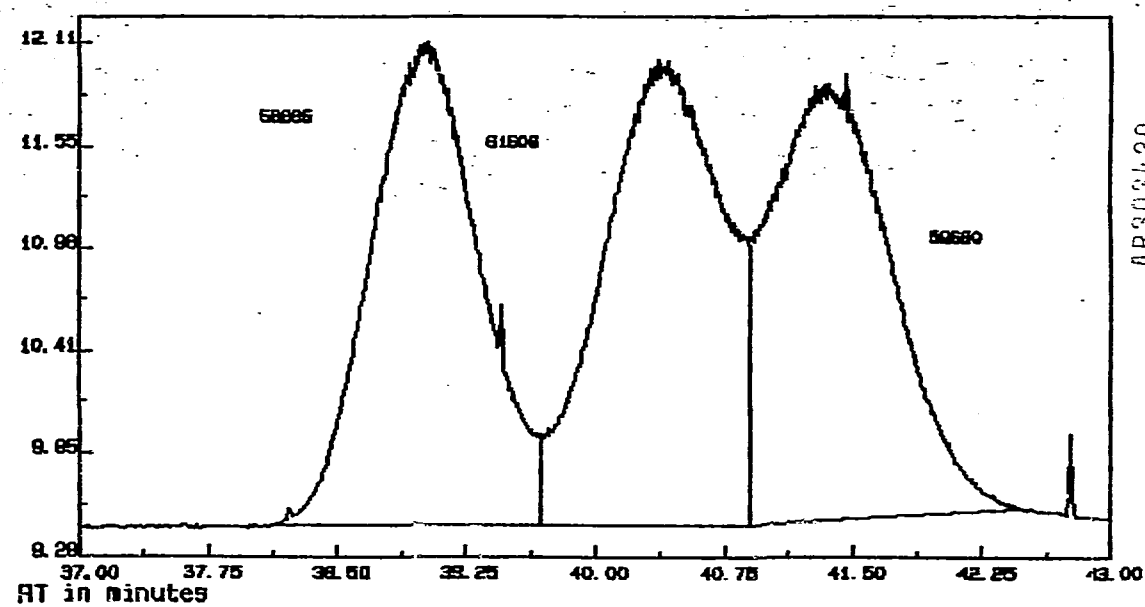
SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270



SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


INST.: 17 COL: 1%SP1000 PRT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .50)
60000.
40000.
20000.
8.46
10.30
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.82
RT in minutes
SAMPLE: S3 A+D INJECTED AT 9:16:24 ON OCT 12, 1988
Method: MSE117 Raw: R17271 Proc: P17271

AR303429



AMPLITUDE/1000
Range Normalized

AR303430

SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

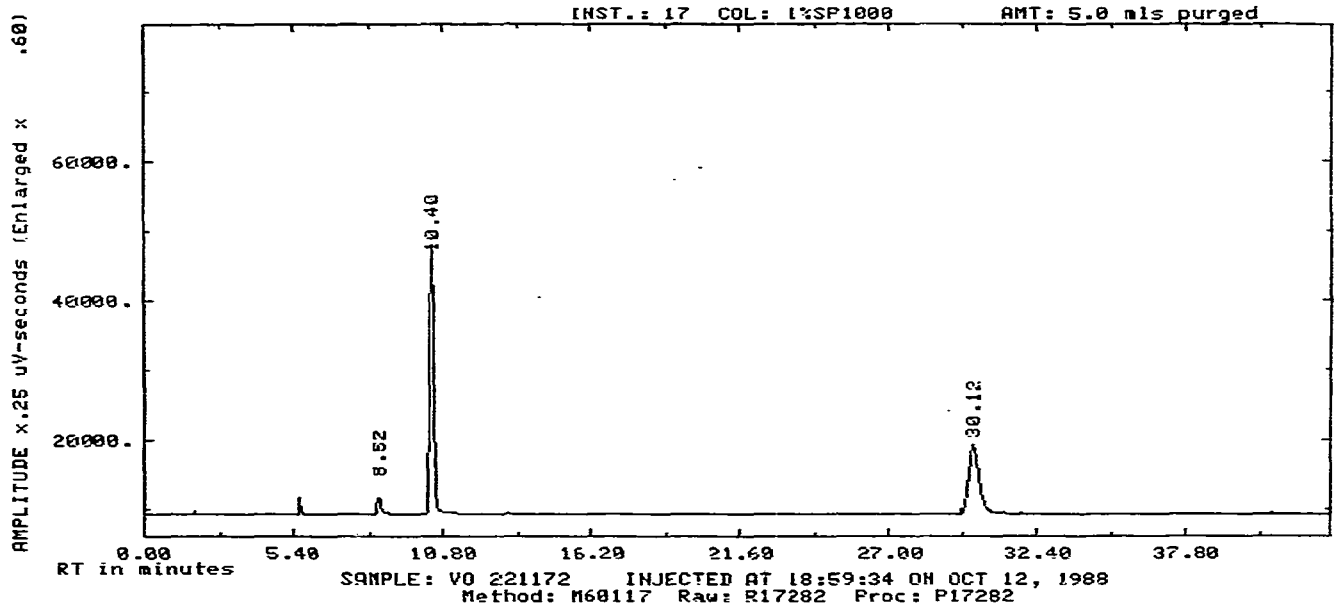
SAMPLE IDENTIFIER: 90
COMPUCHEM® SAMPLE NUMBER: 221172

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

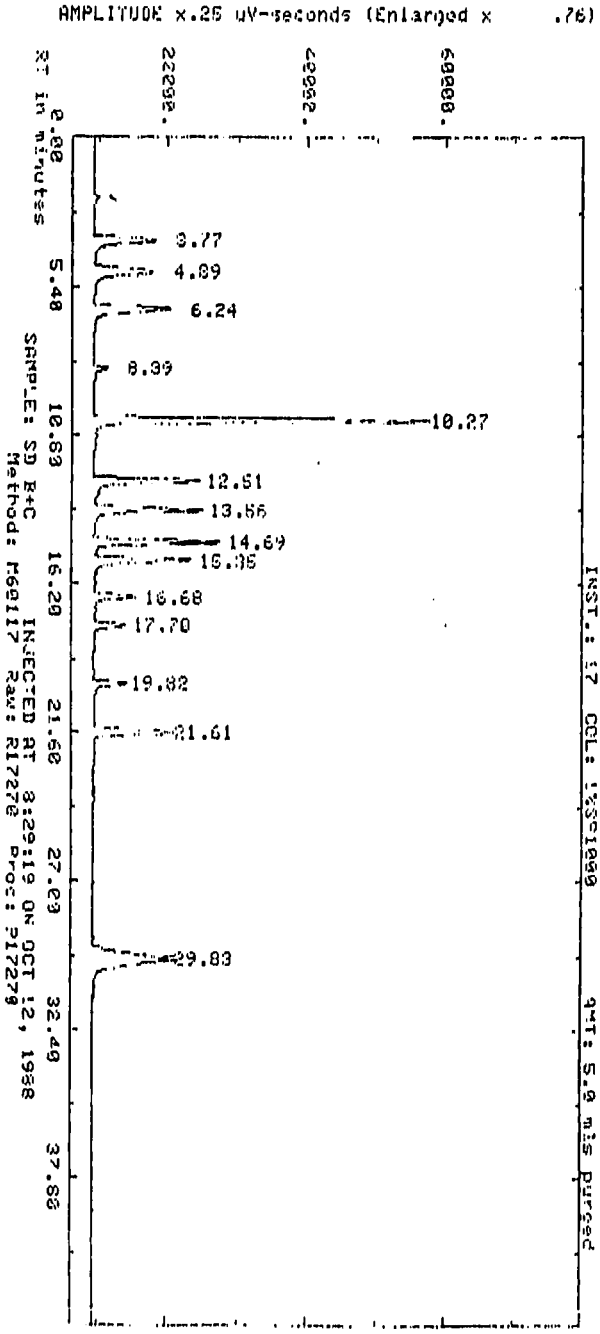
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	112	(76-135)
Bromofluorobenzene	90	(69-123)

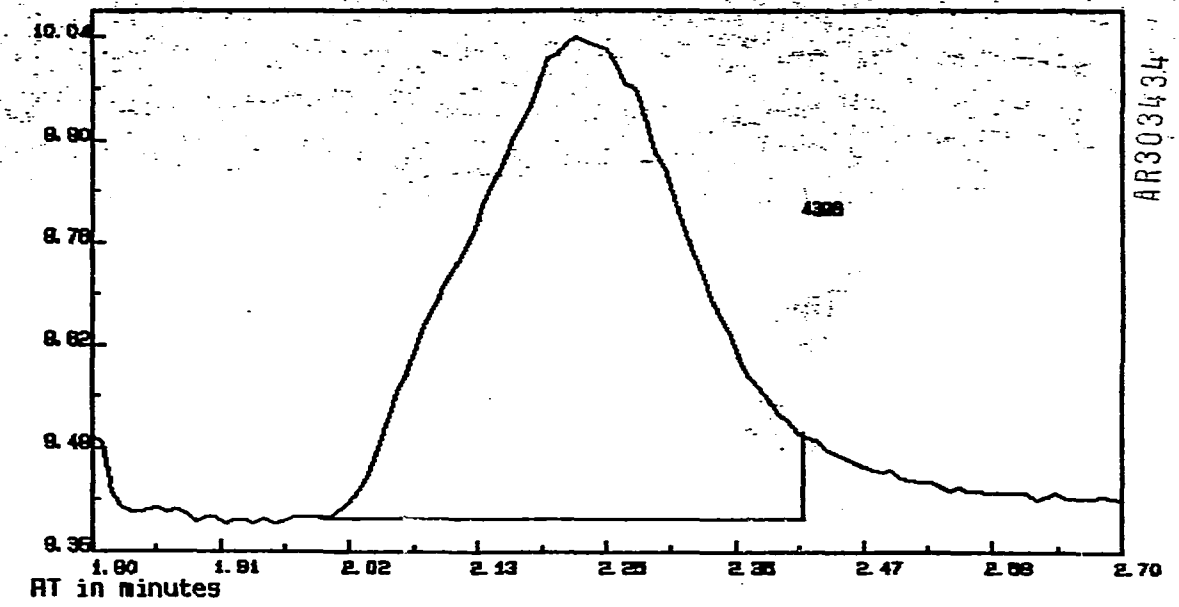
BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .60)
60000.
40000.
20000.
8.52
10.40
30.12
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 221172 INJECTED AT 18:59:34 ON OCT 12, 1988
Method: M60117 Raw: R17282 Proc: P17282

AR303432

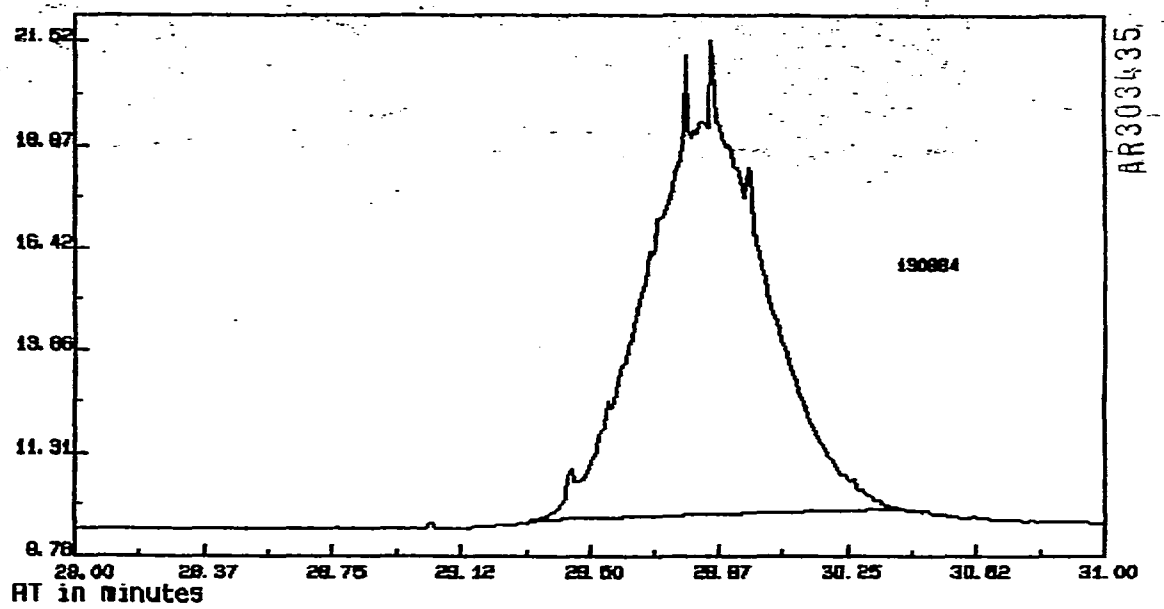

AMPLITUDE x.25 uV-seconds (Enlarged x .76)
.22222
.26667
.00000
RT in minutes
2.00
5.48
10.83
16.20
21.50
27.29
32.49
37.89
3.77
4.89
6.24
8.39
10.27
12.51
13.56
14.69
15.35
16.68
17.70
19.82
21.61
29.83
SAMPLE: SD B+C
Method: F66II7 Raw: RI7270 Proc: RI7276
INJECTED AT 8:29:19 ON OCT 12, 1988
INST.: 17 COL: 1%sp1000
4MT: 5.0 mis purge

AR303433



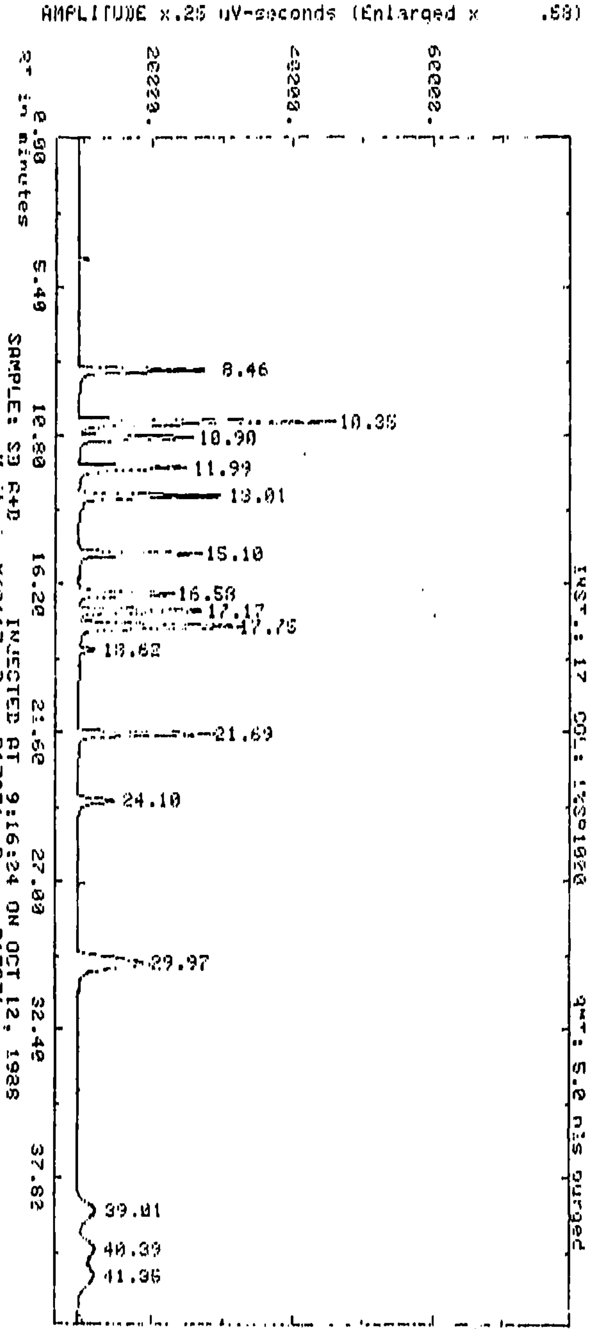
SAMPLE: 50 B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270

AR303434

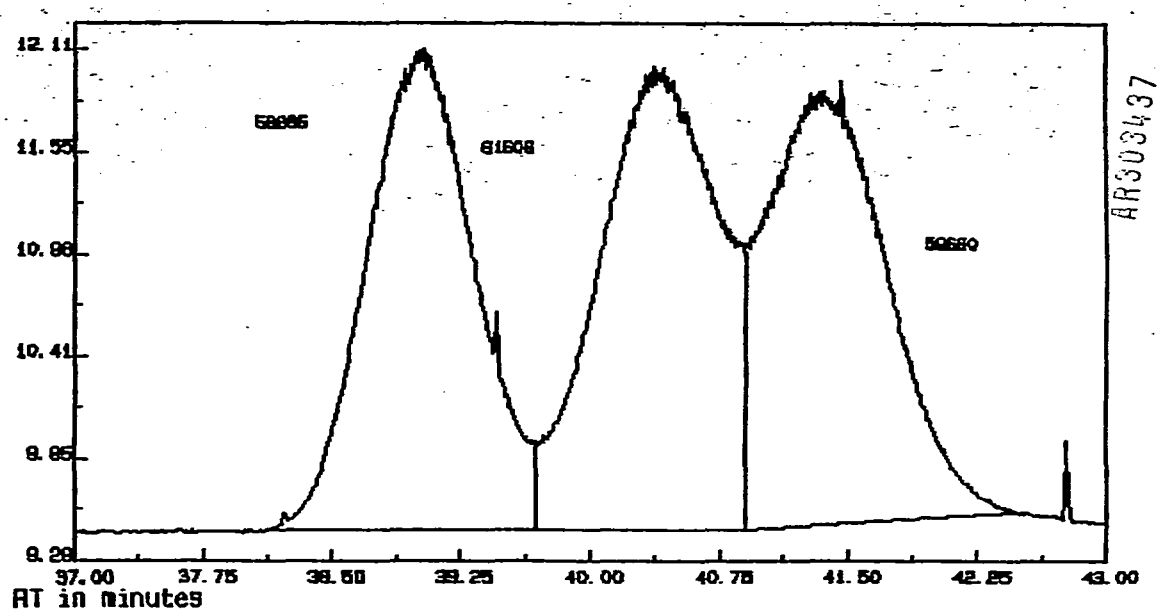


AR303435

SAMPLE: SD B+C INJECTED AT 8:29:19 ON OCT 12, 1988
Meth: M60117 Raw: R17270::58 Proc: P17270


AMPLITUDE x.25 uV-seconds (Enlarged x .50)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36

AR303436

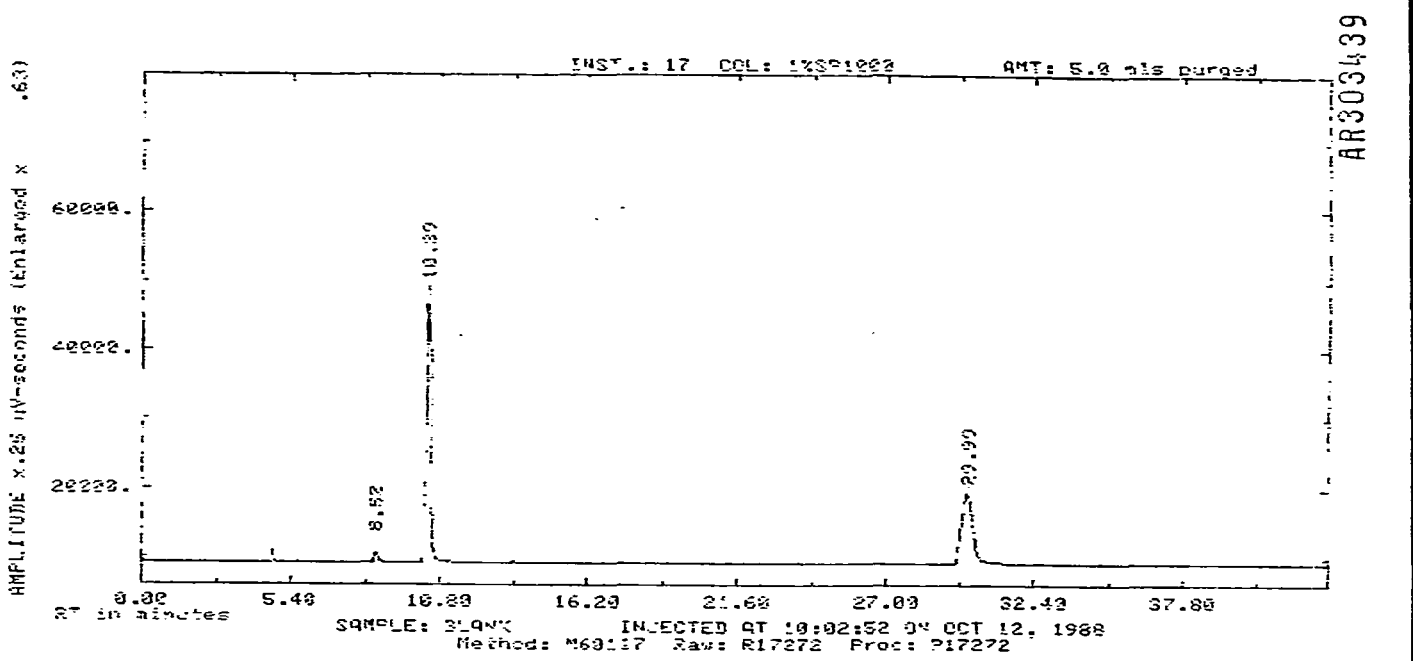


SAMPLE: SD A+D INJECTED AT 9:16:04 ON OCT 12, 1988
Meth: M60117 Raw: R17271::58 Proc: P17271

AR303437

Quality Control Data Package

- Blank Compound List & Detection Limits
  - Surrogate Recovery Data
  - Spectra (If Applicable)
- Matrix Spike Comparison


INST.: 17 COL: 1%SP1000 AMT: 5.0 gls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .63)
60000.
40000.
20000.
8.52
10.39
29.99
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 10:02:52 ON OCT 12, 1988
Method: M60137 Raw: R17272 Proc: P17272

AR303439

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: 1, 7, 11, 21, 30, 34, 36, 37, 90

COMPUCHEM® SAMPLE NUMBER: 221155, 221164, 221166, 221167, 221168 221169, 221170, 221171, 221172

COMPUCHEM BLANK NUMBER: P17272

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	112	(76-135)
Bromofluorobenzene	89	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 221168
MATRIX SPIKE: 221119
MATRIX SPIKE DUPLICATE: 221120

A.	B.	C.	D.	E.	F.	G.	H.	
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	6.20	124.00	5.30	106.00	7.83	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	6.00	120.00	5.50	110.00	4.35	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	6.00	120.00	5.60	112.00	3.45	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	5.70	114.00	5.30	106.00	3.64	2.10 - 8.60
C-1,3-DICHLOROPROPENE	6.0	0.00	3.50	58.33	3.40	56.67	1.45	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	2.60	65.00	2.60	65.00	0.00	0.88 - 7.12
BROMOFORM	5.0	0.00	6.60	132.00	6.30	126.00	2.33	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	7.30	146.00	7.10	142.00	1.39	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE

OCT 2 1 1988

COMPUCHEM LABORATORIES

October 19, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested	Report Format
LAB PURE WATER	221173	455	14699	Volatiles (GC)	Style 3

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

P. Bock

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

David Board.
Technical Reviewer

Martha Board
Deliverables Coordinator

AR303444

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

LABORATORY CHRONICLE

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: LAB PURE WATER
CompuChem Number: 221173

Date Received: 10/07/88

	Extracted	Analyzed
- VOLATILE	---	10/12/88

VOLATILE

(Blank - Volatile) P17272
(Spike) 221174/221175

AR303447

METHOD REFERENCE AND SUMMARY

AND

QUALITY CONTROL SUMMARY

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

QUALITY ASSURANCE NOTICES

AND

CHAIN OF CUSTODY

№ 013789

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PRES. H2O

PROJ. NO.	PROJECT NAME
1801-	NCR MILLSBORO D.W.S

SAMPLERS: (Signature) Scott VanderMolen

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chrom					REMARKS
#34	10-7-88	12:00		✓	Paula Dukes K.S	3	✓	✓					FRONT DOOR 34 C# 221169 221183
#37	10-7	12:10		✓	Preston Collins O.F	3	✓	✓					" 37 221171 221185
#36		12:17		✓	Elsie Layton O.F	3	✓	✓					" 36 221170 221184
21		12:45		✓	Emma King O.F	3	✓	✓					221167 221181
30		13:10		✓	Leon Wise (Peggy at) K.S	3	✓	✓					221168 221182
90		12:55		✓	Leslie Williams K.S	3	✓	✓					221172 221186
7		13:35		✓	Byfield O.F	3	✓	✓					221164 221179 - Lynn Warren #5 was vacant
11		13:45		✓	Willie Smith K.S	3	✓	✓					221166 221180
1		14:00		✓	Sarah Allen K.S	3	✓	✓					221153 ~~221176~~ 686 East State Street - from orange cooler
T.B.		—	—	—	Trip Blank	2	✓						FROM TB LAB PURE WATER 221173
													#15 - Miriam Bagwell - Vacant

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott VanderMolen	10-6-88 / 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Cotter	10-7-88 / 8:30	NO SAMPLE ARE LABELLED WITH THE # IN FRONT OF NUMBER FOR ID	

Distribution: Original Accompanies Shipment; Copy to Field Files

- Volatile Purgeable Halocarbons Compound List and Detection Limits
- Surrogate Recovery Data
- Reconstructed Ion Chromatogram (RIC)
- Spectra (If Applicable)

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

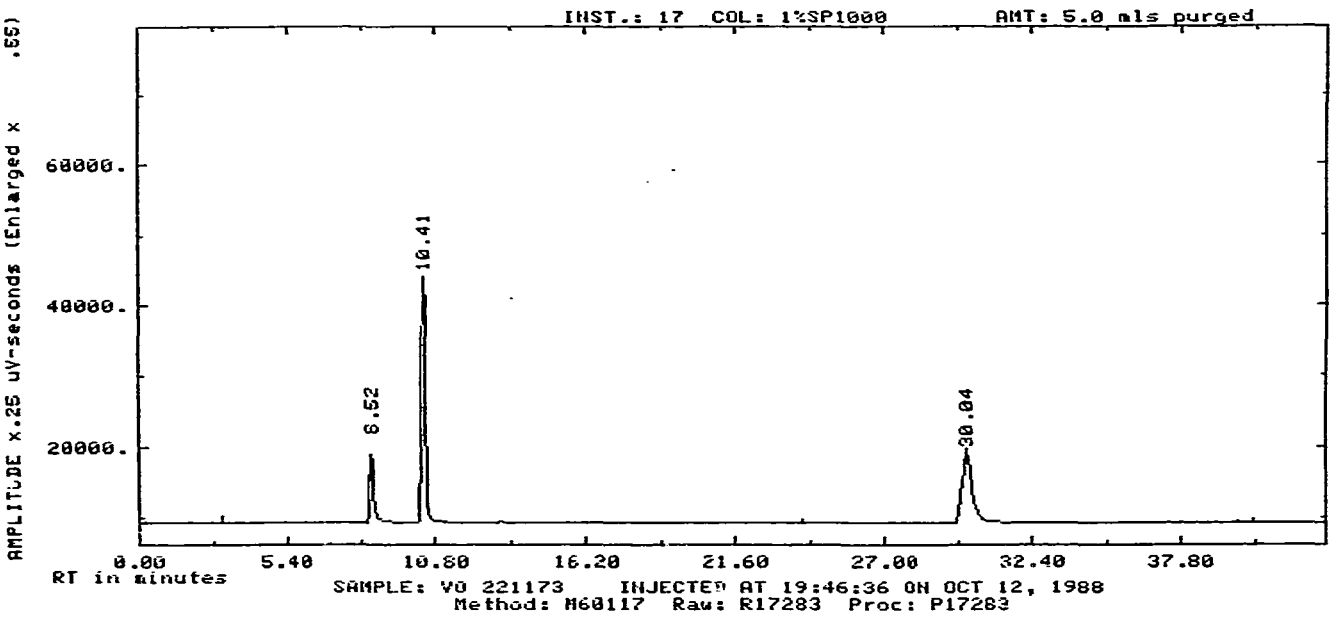
SAMPLE IDENTIFIER: LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 221173

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	1.7	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

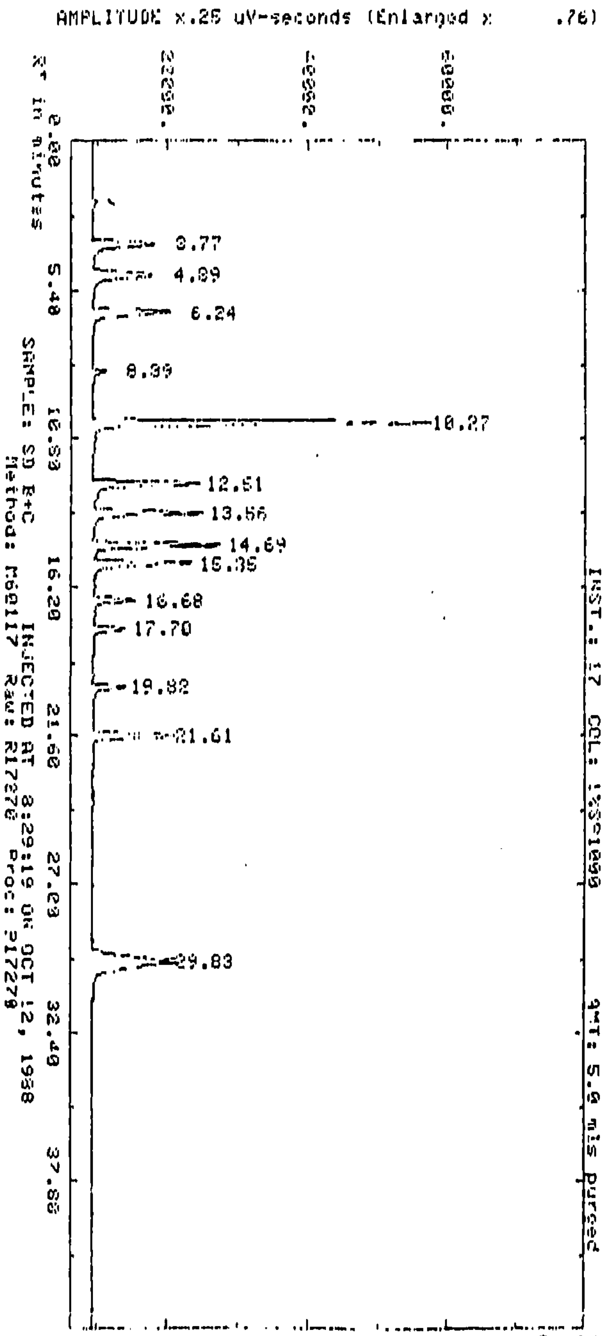
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

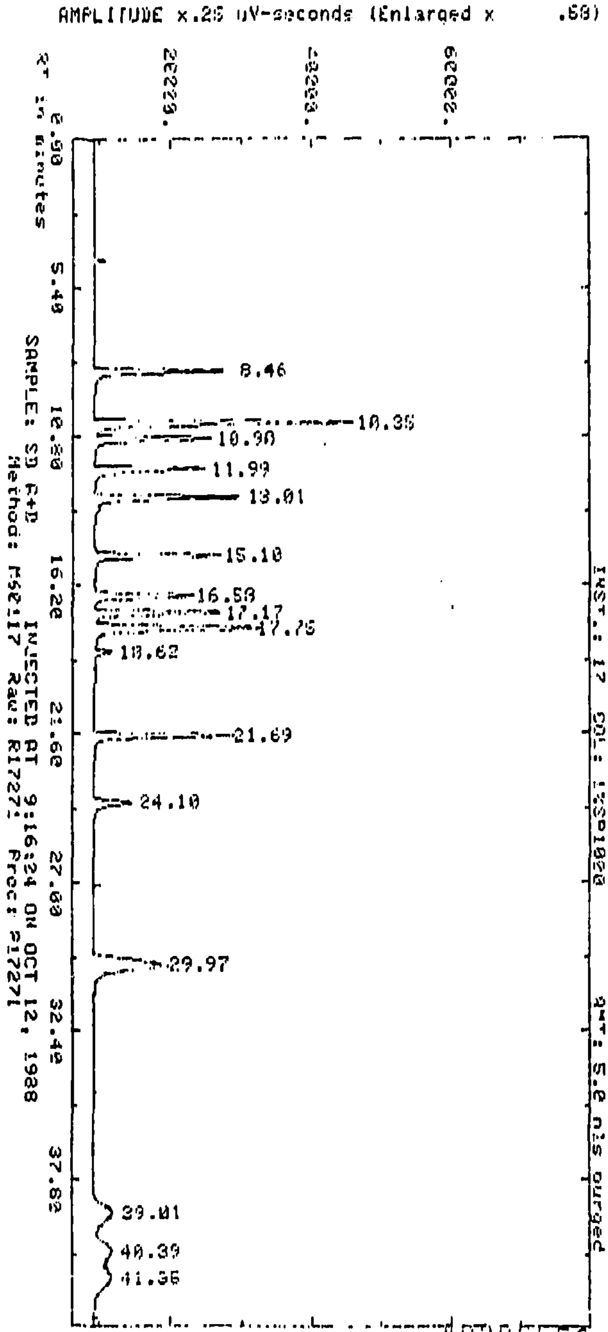
	% Recovery	Control Range %
Trichlorofluoromethane	111	(76-135)
Bromofluorobenzene	90	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .55)
60000.
40000.
20000.
8.52
10.41
30.84
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 221173 INJECTED AT 19:46:36 ON OCT 12, 1988
Method: M60117 Raw: R17283 Proc: P17283

AR303454


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
3.77
4.89
6.24
8.39
10.27
12.51
13.66
14.69
15.35
16.68
17.70
19.82
21.61
29.83
SAMPLE: SD B+C
INJECTED AT 8:29:19 ON OCT 12, 1988
Method: M001I7 Raw: RI7278 Proc: PI7278
INST.: 17 COL: 1%SP1000
AMT: 5.0 mls purged


AMPLITUDE x.25 uV-seconds (Enlarged x .68)
20000.
40000.
60000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.46
10.35
10.90
11.99
13.01
15.10
16.58
17.17
17.75
18.62
21.69
24.10
29.97
39.01
40.39
41.36
SAMPLE: SD 6+D
INJECTED AT 9:16:24 ON OCT 12, 1988
INST.: 17
RT: 5.0 mins purged

AR305456

Quality Control Data Package

- Blank Compound List & Detection Limits
  - Surrogate Recovery Data
  - Spectra (If Applicable)
- Matrix Spike Comparison

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

COMPUCHEM BLANK ID: P17272

SAMPLE IDENTIFIER: LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 221173

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	112	(76-135)
Bromofluorobenzene	89	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 221206
MATRIX SPIKE: 221174
MATRIX SPIKE DUPLICATE: 221175

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	25.0	0.00	21.00	84.00	22.00	88.00	2.33	1.90 - 7.75
1,2-DICHLOROETHENE	25.0	0.00	10.00	40.00	9.60	38.40	2.04	2.55 - 7.35
1,1,1-TRICHLOROETHANE	25.0	0.00	12.00	48.00	12.00	48.00	0.00	2.05 - 6.90
BROMODICHLOROMETHANE	25.0	20.00	30.00	66.67	26.00	57.78	7.14	2.10 - 8.60
C-1,3-DICHLOROPROPENE	30.0	0.00	19.00	63.33	18.00	60.00	2.70	1.32 - 10.09
T-1,3-DICHLOROPROPENE	20.0	0.00	11.00	55.00	10.00	50.00	4.76	0.88 - 7.12
BROMOFORM	25.0	0.00	30.00	120.00	30.00	120.00	0.00	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	25.0	0.00	24.00	96.00	27.00	108.00	5.88	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

COMPUCHEM LABORATORIES

November 4, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		660	14699	Chromium
1	221176			
7	221179			
11	221180			
21	221181			
30	221182			
34	221183			
36	221184			
37	221185			
90	221186			

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Boyd

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill-Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE CHROMIUM ANALYZED
1.	1	221176	10/07/88	10/22/88
2.	7	221179	10/07/88	10/22/88
3.	11	221180	10/07/88	10/22/88
4.	21	221181	10/07/88	10/22/88
5.	30	221182	10/07/88	10/22/88
6.	34	221183	10/07/88	10/22/88
7.	36	221184	10/07/88	10/22/88
8.	37	221185	10/07/88	10/22/88
9.	90	221186	10/07/88	10/22/88

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
1

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221176 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS:ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER

C

AR303464

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
7

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221179 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER Rob Stubbs

C

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
11

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221180 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303466

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
21

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221181 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303467

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
30

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221182 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303468

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
34

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221183 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER Pat Polakowski

C

AR303469

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
36

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221184 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS:ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303470

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
37

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221185 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303471

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
90

DATE 10/24/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/07/88

LAB SAMPLE ID. NO. 221186 QC REPORT NO COM376

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
	Arsenic		15.	Mercury	
	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide Percent Solids(%)

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER

C

AR303472

QUALITY CONTROL SUMMARY

METALS

	NUMBER	ACCEPTANCE CRITERIA
Blank	222012	OK
Sample Spike	221177	OK
Sample Spike	221178	OK

ASSOCIATED SAMPLES

SAMPLE IDENTIFIERS	COMPUCHEM NUMBERS
1	221176
7	221179
11	221180
21	221181
30	221182
34	221183
36	221184
37	221185
90	221186

№ 013789

CHAIN OF CUSTODY RECORD — PRES. IN NB

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
1801-	NCR MILLSBORO D.W.S

SAMPLERS: (Signature) Scott VanDeMark

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chromium	REMARKS
#34	10-7-88	12:00		✓	Paula Pukes K.S	3	✓	✓	FROM BATTLE 34 C# 221169 221183
#37	10-7	12:10		✓	Preston Collins O.F	3	✓	✓	" 37 221171 221185
#36		12:17		✓	Elsie Lawton O.F	3	✓	✓	" 36 221170 221184
21		12:45		✓	Emma King O.F	3	✓	✓	221167 221181
30		13:10		✓	Leon Wise (Property of) K.S	3	✓	✓	221168 221182
90		12:55		✓	Leslie Williams K.S	3	✓	✓	221172 221186
7		13:35		✓	Byfield O.F	3	✓	✓	221164 221179 - Lynn Warren's was vacant
11		13:45		✓	William Smith K.S	3	✓	✓	221166 221180
1		14:00		✓	Sarah Allen K.S	3	✓	✓	680 East State Street - 221153 221176 from small trailer
T.B.		—	—	—	Trip Blank	2	✓		FROM TB CHAPLES WATER 221173
									#15-Miriam Bagwell - Vacant

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott VanDeMark	10-6-88 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Susan Cole	10-7-88 8:30	NO SAMPLE ORLABELED WITH THEM IN FRONT OF NUMBER FOR ID	

Distribution: Original Accompanies Shipment; Copy to Field Files

AP30474

Change in Inorganic Analytical Policies

CompuChem® Laboratories, Inc., is a member of EPA's Inorganic Contract Laboratory Program (CLP), which includes the assessment of twenty-three (23) metals in aqueous and non-aqueous (soil/sediment) matrices. The methodologies employed in the program are considered to be the State-of-the-Art and are subject to modifications as improvements are implemented.

Associated with the Inorganics CLP are certain Quality Control (QC) requirements which provide for the generation of analytical data of known, high quality. In an effort to be able to pass along the benefits of our involvement in the program, CompuChem® has made the decision to adopt the methodologies and reporting conventions utilized by the EPA in the CLP. Included in the policies being adopted for all metals analyses are the following:

1) On a quarterly basis, instrumental detection limits are experimentally determined for each Inductively Coupled Plasma (ICP) and Atomic Absorption Spectrophotometer (AAS) system in the laboratory.

2) For ICP systems, on a quarterly basis, interelement and background correction factors are determined using an Interference Check Standard. Another quarterly requirement for ICP analysis is a linear range verification determination for each element analyzed.

3) On a daily basis, and for each AAS or -ICP system used, an instrument calibration is performed. For AAS calibration, a blank and at least three calibration standards are employed and for ICP calibration, a mid-concentration standard is analyzed. After this preliminary calibration, the calibration is verified for accuracy by the analysis of an Initial Calibration Verification Standard. To assure calibration accuracy during the course of analysis, a Calibration Verification Standard is analyzed at a frequency of 10% or every two hours, whichever is more frequent. Acceptance and rerun criteria, established by EPA in the CLP, for the Initial and Continuing Calibration Verification Standards will be used for all analyses.

4) An ICP Interference Check Standard is analyzed at a minimum of twice per shift to verify interelement and background correction factors. Acceptance and rerun criteria established by EPA in the CLP will be used for all analyses.

5) Other QC measures being employed for all analyses include an ICP serial dilution analysis for each group of samples analyzed and duplicate injections for each furnace AAS element, per sample. Duplicate injections must agree within 20% or the sample is rerun once.

In adopting the EPA-CLP methodologies and reporting conventions, the following points should be realized since differences in the presentation of the data will be apparent:

1) If the analytical result is a value equal to or greater than the instrument detection limit, but less than EPA's Contract Required Detection Limit (CRDL), the value will be reported in brackets (i.e., [8.7]).

2) If an element was analyzed for and not detected, the instrument detection limit value is reported with a "U" (i.e., 10U).

3) Results for the analysis of water samples will be reported in units of ug/L and for solid samples, the units will be mg/kg.

4) The instrument detection limits (reported with a "U" if the element is not detected) necessarily will be required to be determined on a per sample basis for solid matrices, since they are dependent on the sample size taken. In the CLP, a 1.0 to 1.5g. sample is taken for each of two digestion procedures; one for digestion and subsequent analysis by ICP and another for a different digestion and subsequent analysis by AAS. If mercury is required, a third, separate portion of the sample is taken. Our policy will continue to be to report results based on the as-received sample although our clients have the option to have results reported on a dry weight basis.

For informational purposes, attached is a table presenting EPA's CRDL and CompuChem's 3rd Quarter, 1988, experimentally determined instrument detection limits for both ICP and AAS instrumentation.

If clarification or any additional information is required concerning this new policy, please feel free to contact your Customer Service Representative.

Robert E. Meierer,
Director of Quality Assurance

08/01/88

Element	Water CRDL (ug/L)	Solid[1] CRDL (mg/kg)	Instrument Detection Limit (ug/L) Jarrell Ash 1100 ICP	Video 22 AAS	Video 12 A/
Aluminum	200	20	27		
Antimony	60	6	33		
Arsenic (2)	10	1	34	0.86 F	
Barium	200	20	0.83		
Beryllium	5	0.5	0.29		
Cadmium	5	0.5	4.0		
Calcium	5000	500	13		
Chromium	10	1	8.1		
Cobalt	50	5	2.4		
Copper	25	2.5	5.4		
Iron	100	10	5.0		
Lead (2)	5	0.5	41	2.2 F	
Magnesium	5000	500	120		
Manganese	15	1.5	0.30		
Mercury	0.2	0.2			0.11 (C.V.)
Nickel	40	4	34		
Potassium	5000	500	1770		
Selenium (2)	5	0.5	82	2.0 F	
Silver	10	1	9.4		
Sodium	5000	500	888		
Thallium (2)	10	1	110	1.9 F	
Vanadium	50	5	3.2		
Zinc	20	2	2.6		

Notes: (1) based on a nominal size of 1.0 g of solid sample, in a final volume of 100 ml (after digestion).

(2) These elements typically are determined by Furnace (F) AAS

C.V. = Cold Vapor

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Date	Parameters
W8A	10-19-88	601 volatiles
W9	10-19-88	601 volatiles
WP9	10-19-88	601 volatiles
W11A	10-19-88	601 volatiles
W11B	10-19-88	601 volatiles
W12	10-19-88	601 volatiles
W20	10-19-88	601 volatiles
W21	10-19-88	601 volatiles
WP20	10-19-88	601 volatiles
W36	10-19-88	601 volatiles
Lab Pure Water	10-19-88	601 volatiles
W10	10-19-88	601 volatiles
AS	10-19-88	601 volatiles, Chromium
RW	10-19-88	601 volatiles, Chromium
WP6	10-19-88	601 volatiles

Quality Assurance Summary Report for NCR-Millsboro Water Samples Collected on October 19, 1988

This report covers fourteen water samples and associate Trip and field blanks collected for the NCR-Millsboro Project. The samples were analyzed by Compuchem Labs Inc for EPA Method 601 volatiles. Two samples were analyzed for total chromium. Analytical results for these samples have been reviewed using USEPA Functional Guidelines for Evaluating Organic (and Inorganic) Analyses. The QA/QC requirements checked during the validation are listed below.

Organic Requirements	Inorganic Requirements
Holding Times	Holding Times
Instrument Performance	Instrument Calibration
Instrument Calibration	Preparation/Inst. blanks
Lab Blanks	MS/MSD
Surrogate Recoveries	Field Blanks
MS/MSD	Field Duplicates
Trip Blanks	Lab Transcription Errors
Field Blanks	
Field Duplictes	
Lab Transcription Errors	
Compound Identification	

A summary of the results of the data validation process for the laboratory data associated with these samples is given below.

Organic Summary

The fourteen water samples and the trip blank were analyzed for EPA Method 601 volatile compounds. All samples were analyzed within required holding times. Detection limits for method 601 volatiles stipulated in the QA Plan were achieved except for samples requiring dilution due to high levels of trichloroethylene. Surrogate recoveries for all samples were within CLP QC limits for volatiles. Samples W10 and W36 were analyzed as MS/MSD samples for this batch. All CLP QC requirements for MS/MSD were met for the two samples.

Target volatile compounds reported at the greatest frequency or highest concentration were methylene chloride and trichloroethene. Most of the samples required dilution due to high levels of trichloroethene. The laboratory blanks associated with these samples were free of contamination. The trip blank associated with these samples contained methylene chloride, a common laboratory solvent and frequent contaminant.

In evaluating data usability, the EPA uses the following general guideline for assessing the presence of common laboratory artifacts (such as methylene chloride, toluene and acetone). If the concentration of the artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible.

If blank and sample concentrations are comparable, the presence of that artifact in the sample is considered suspect. Methylene chloride was reported in only one sample, WP6, this result should be considered suspect. All other QA/QC criteria were met for the samples.

Inorganic Summary

Two water samples, AS and RW were also analyzed for total and dissolved chromium using CLP protocols and detection limits. Chromium was not detected in either sample. All samples were analyzed within required holding times. Laboratory QC checks included with this batch include laboratory blanks, a spike and a duplicate. All CLP QA/QC criteria were met for the laboratory QC check samples. All sample results are acceptable.

ENVIRONMENTAL STR. ...ES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR-Millsboro PARAMETERS: 601 VOLATILES LAB: COMPU CHEM

QA/QC ITEMS

SAMPLES	HLD TME	INST PERF	CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
W-1D	O	O	O	O	O	O	O	O	O	O	NO dil
W-3b	O	O	O	O	O	O	O	O	O	O	NO dil (TCE 14PPb)
Lab Water	O	O	O	O	O	O	Q	O	O	O	Trip blank contains methylene chloride
W-8A	O	O	O	O	O	O	O	O	O	O	dil 50:1
W9	O	O	O	O	O	O	O	O	O	O	" 10:1
WP9	O	O	O	O	O	O	O	O	O	O	" 5000:1
W11A	O	O	O	O	O	O	O	O	O	O	" 5:1 (TCE=16 PPb)
W11B	O	O	O	O	O	O	O	O	O	O	NO dil
W12	O	O	O	O	O	O	O	O	O	O	" (TCE = 120)
W20	O	O	O	O	O	O	O	O	O	O	dil 1000:1
W21	O	O	O	O	O	O	O	O	O	O	NO dil
WP20	O	O	O	O	O	O	O	O	O	O	dil 5000:1
A.S.	O	O	O	O	O	O	O	O	O	O	
R.W.	O	O	O	O	O	O	O	O	O	O	dil 100:1
WP6	O	O	O	O	O	O	O	O	O	O	dil 5000:1

COMMENTS:

AR303487

ENVIRONMENTAL STRATEGIES CORPORATION
INORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR- Millsboro PARAMETERS: CHROMIUM LAB: COMPUCHEM

QA/QC ITEMS

SAMPLES	HLD TME	LCS	CALIBR.	LABBLKS	MS/DUP	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
AS	0	0	0	0	0	0	0	0	Chromium not detected
RW	0	0	0	0	0	0	0	0	"

COMMENTS:

Table 1. List and Definitions of Data Validation Codes

O = All QC Criteria met, data acceptable.

X = Minor problem found but sample data not affected.

Q = Sample data qualified due to major QC problem.

U = Sample data rejected due to multiple-major QC problems.

COMPUCHEM LABORATORIES

October 28, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		455	14699	Volatile (GC) Method 601 (Style 3)
W-8A	223252			
W9	223254			
WP9	223256			
W11A	223260			
W11B	223261			
W12	223262			
W20	223263			
W21	223264			
WP20	223265			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status, or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Page - Two October 28, 1988
Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

AR303486

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Patricia B. Hopkins
Technical Reviewer

Deliverables Coordinator

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	W-8A	223252	10/20/88	10/22/88
2.	W9	223254	10/20/88	10/22/88
3.	WP9	223256	10/20/88	10/22/88
4.	W11A	223260	10/20/88	10/22/88
5.	W11B	223261	10/20/88	10/22/88
6.	W12	223262	10/20/88	10/22/88
7.	W20	223263	10/20/88	10/22/88
8.	W21	223264	10/20/88	10/22/88
9.	WP20	223265	10/20/88	10/22/88

(BLANK)	P19555
(STANDARD)	P19553-P19554
(SPIKE)	223253/223255

AR303489

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

J. NO. 21-9. | PROJECT NAME NCR MILLSBORO G.W.S | CHAIN OF CUSTODY RECORD (10) | COMPUCHEM LABORATORIES

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chrome					REMARKS
W-11A	10-18	16:35		✓	Monitoring Well 11A	2	✓	✓					223260
W-11B	10-18	17:10		✓	" " 11B	2	✓						223261
W-12	10-18	17:24		✓	" " 12	2	✓						223262
W-9	10-18	17:40		✓	" " 9	2	✓						223254
W-36	10-18	17:50		✓	" " 36	2	✓						223266
W-10	10-19	10:20		✓	" " 10	2	✓						223259
W-20	10-19	11:50		✓	" " 20	2	✓						223263
W-8A	10-19	10:30		✓	" " 8A	2	✓						223252
WP 6	10-19	13:16		✓	Well point 6	2	✓						223251
WP 9	10-19	14:51		✓	" " 9	2	✓						223254
WP 20	10-19	14:22		✓	" " 20	2	✓						223265
WP 21	10-19	14:33		✓	" " 21	2	✓						223264
R.W.	10-19	12:28		✓	Recovery Well Faucet	3	✓	✓	223247/223271				preserved with H_2NO_3
A.S.	10-19	15:04		✓	Air Stripper Dis	3	✓	✓					" 223249, 223274 "
T.B	10-19	18:00		✓	Trip Blanks	2	✓						223269

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	10-19-88 18:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	10-20-88 8:00	Received in good condition 10-20-88	

2-VOA HARRIER LAB Prewater not 10-20-88

Distribution: Original Accompanies Shipment; Copy to Field Files

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

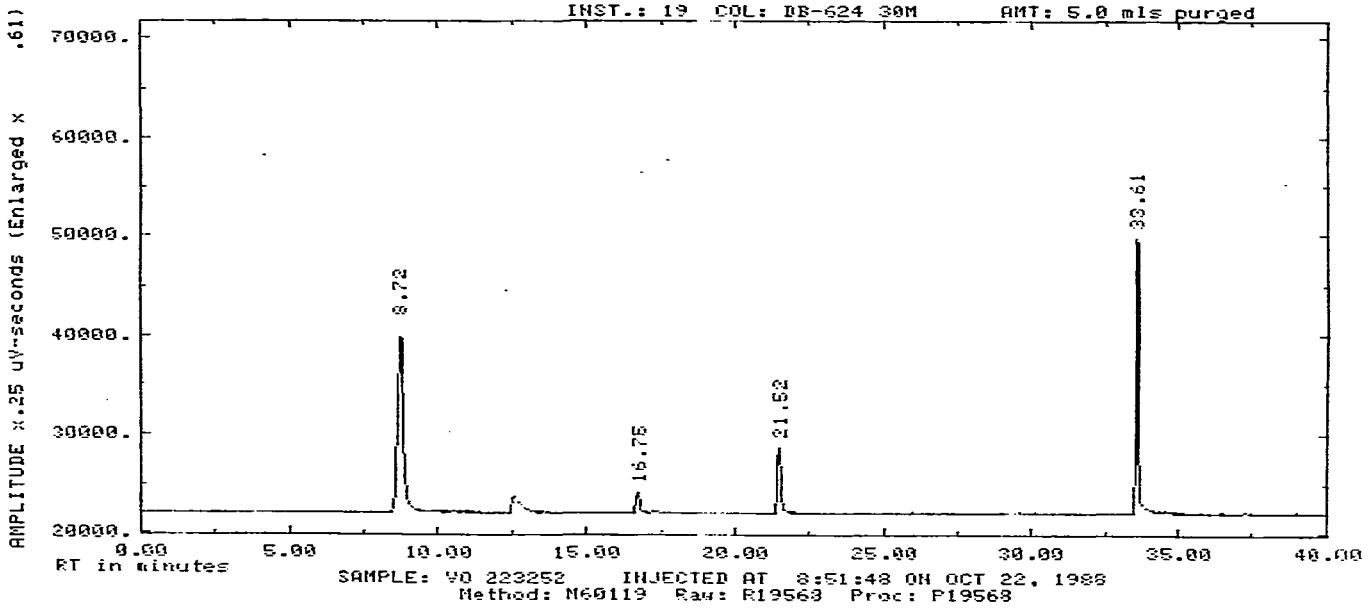
SAMPLE IDENTIFIER: W-8A
COMPUCHEM® SAMPLE NUMBER: 223252

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	25
2V.	BROMOMETHANE	BDL	25
3V.	VINYL CHLORIDE	BDL	25
4V.	CHLOROETHANE	BDL	25
5V.	METHYLENE CHLORIDE	BDL	50
6V.	1,1-DICHLOROETHENE	BDL	15
7V.	1,1-DICHLOROETHANE	BDL	20
8V.	T-1,2-DICHLORDETHENE	BDL	10
9V.	CHLOROFORM	BDL	10
10V.	1,2-DICHLOROETHANE	BDL	15
11V.	1,1,1-TRICHLOROETHANE	BDL	15
12V.	CARBON TETRACHLORIDE	BDL	15
13V.	BROMODICHLOROMETHANE	BDL	20
14V.	1,2-DICHLOROPROPANE	BDL	10
15V.	CIS-1,3-DICHLOROPROPENE	BDL	15
16V.	TRICHLOROETHENE	120	10
17V.	DIBROMOCHLOROMETHANE	BDL	10
18V.	1,1,2-TRICHLOROETHANE	BDL	10
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	10
20V.	2-CHLOROETHYL VINYL ETHER	BDL	20
21V.	BROMOFORM	BDL	25
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	20
23V.	TETRACHLOROETHENE	BDL	10
24V.	CHLOROBENZENE	BDL	20
25V.	1,3-DICHLOROBENZENE	BDL	10
26V.	1,2-DICHLOROBENZENE	BDL	10
27V.	1,4-DICHLOROBENZENE	BDL	10

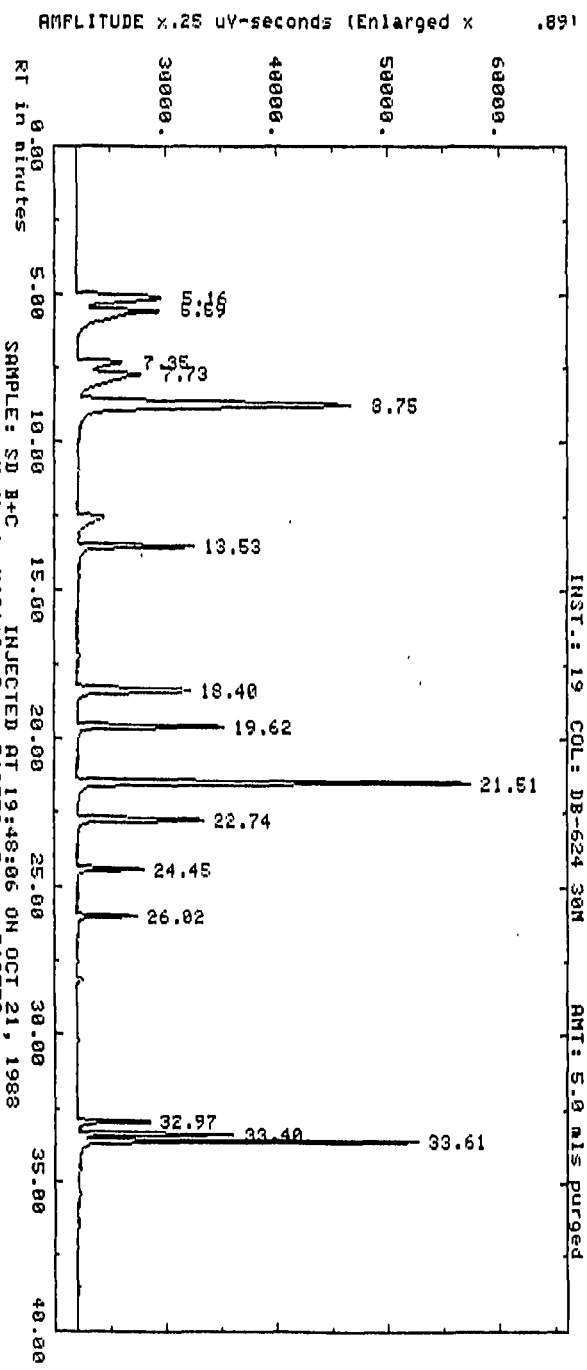
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	121	(76-135)
Bromofluorobenzene	83	(69-123)

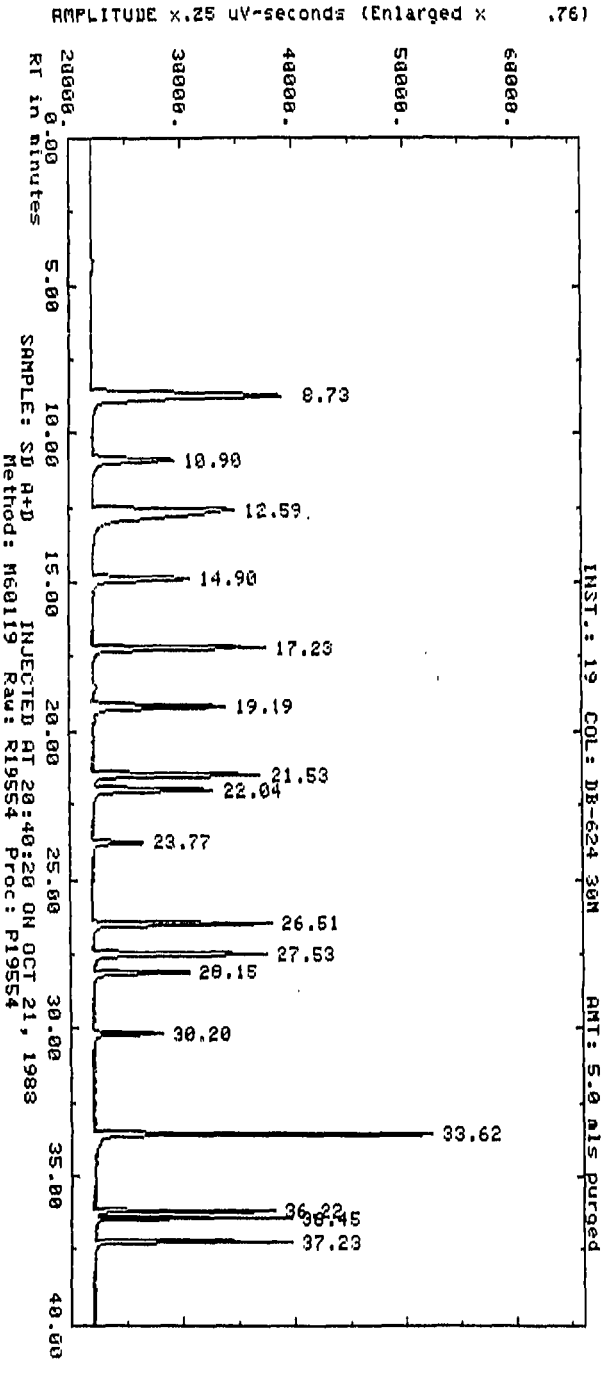
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 50:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .61)
70000.
60000.
50000.
40000.
30000.
20000.
8.72
16.75
21.52
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223252 INJECTED AT 8:51:48 ON OCT 22, 1986
Method: N60119 Raw: R19563 Proc: P19568

AR303493


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
300000.
400000.
500000.
600000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C
Method: M60119 Raw: R19553 Proc: P19553
INJECTED AT 19:48:06 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303494


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
RT in minutes
SAMPLE: SS A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1983
INST.: 19 COL: DB-624 30M
AMT: 5.0 mls purged
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23

AR303495

Lu for print (1)?

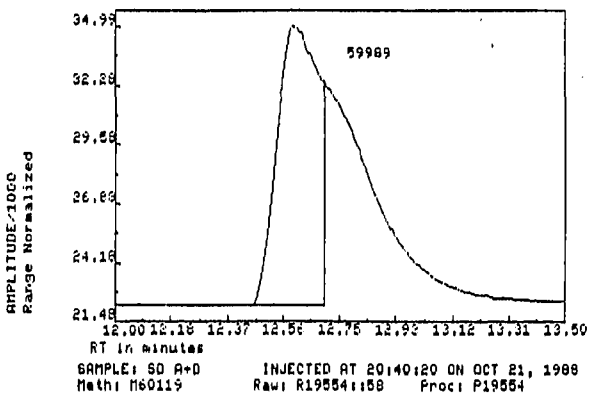
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303496

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W9
COMPUCHEM® SAMPLE NUMBER: 223254

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	5.0
2V.	BROMOMETHANE	BDL	5.0
3V.	VINYL CHLORIDE	BDL	5.0
4V.	CHLOROETHANE	BDL	5.0
5V.	METHYLENE CHLORIDE	BDL	10
6V.	1,1-DICHLOROETHENE	BDL	3.0
7V.	1,1-DICHLOROETHANE	BDL	4.0
8V.	T-1,2-DICHLOROETHENE	BDL	2.0
9V.	CHLOROFORM	BDL	2.0
10V.	1,2-DICHLOROETHANE	BDL	3.0
11V.	1,1,1-TRICHLOROETHANE	BDL	3.0
12V.	CARBON TETRACHLORIDE	BDL	3.0
13V.	BROMODICHLOROMETHANE	BDL	4.0
14V.	1,2-DICHLOROPROPANE	BDL	2.0
15V.	CIS-1,3-DICHLOROPROPENE	BDL	3.0
16V.	TRICHLOROETHENE	57	2.0
17V.	DIBROMOCHLOROMETHANE	BDL	2.0
18V.	1,1,2-TRICHLOROETHANE	BDL	2.0
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	2.0
20V.	2-CHLOROETHYL VINYL ETHER	BDL	4.0
21V.	BROMOFORM	BDL	5.0
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	4.0
23V.	TETRACHLOROETHENE	BDL	2.0
24V.	CHLOROBENZENE	BDL	4.0
25V.	1,3-DICHLOROBENZENE	BDL	2.0
26V.	1,2-DICHLOROBENZENE	BDL	2.0
27V.	1,4-DICHLOROBENZENE	BDL	2.0

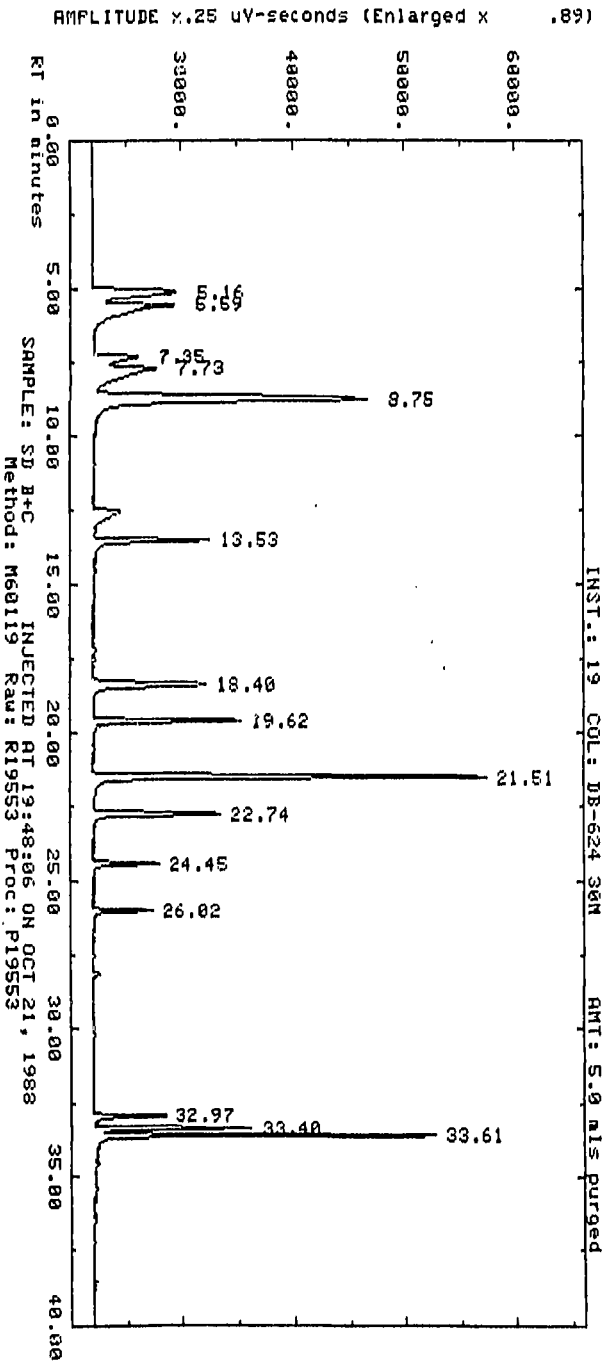
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	117	(76-135)
Bromofluorobenzene	86	(69-123)

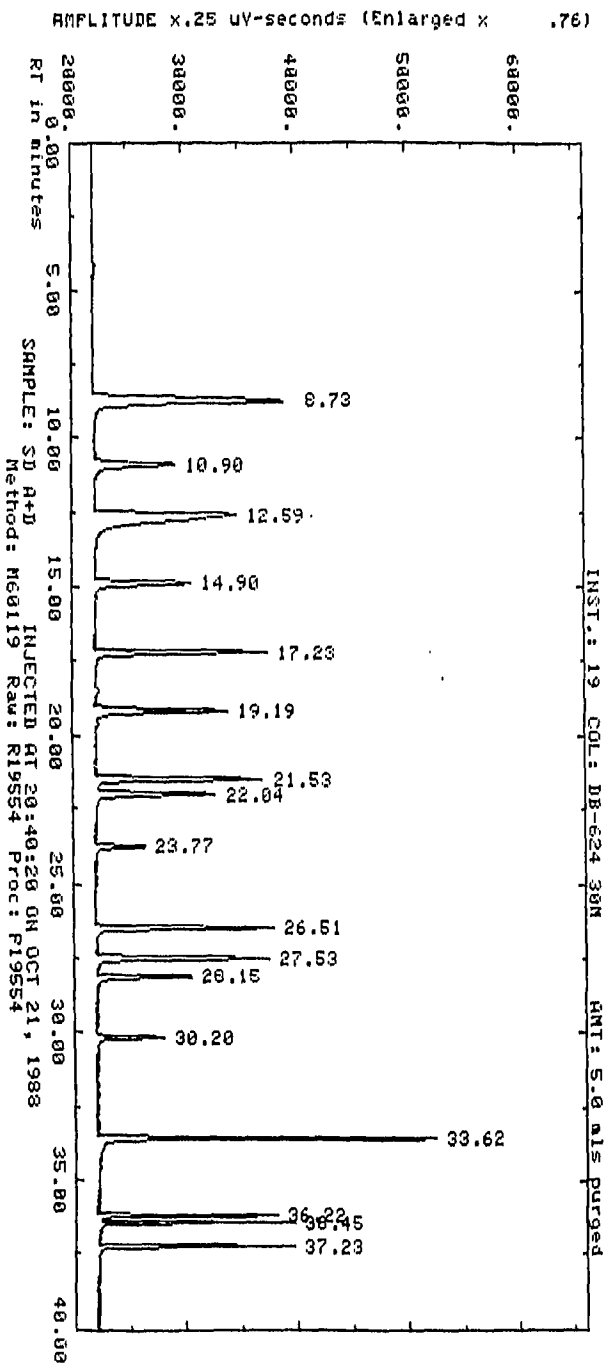
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 10:1 dilution, thus the higher than normal detection limits.

AMPLITUDE x.25 uV-seconds (Enlarged x .57)
.00002
.00003
.00004
.00005
.00006
.00007
Minutes
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.75
16.74
21.51
33.62
INST.: 19 COL: DB-624 30M
AMT.: 5.0 mls purged
SAMPLE: 00 223254 INJECTED AT 10:01:17 ON OCT 22, 1988
Method: M5019 Run: R19559 Proc: R19559

AR303498


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
6.69
7.85
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: RI9553 Proc: P19553
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303499


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
20000.
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D INJECTED AT 20:40:20 ON OCT 21, 1988
Method: M60119 Raw: R19554 Proc: P19554
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303500

Lu for print (1)?

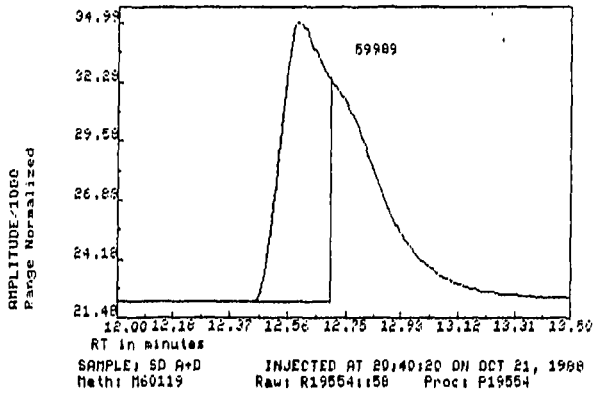
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303501

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

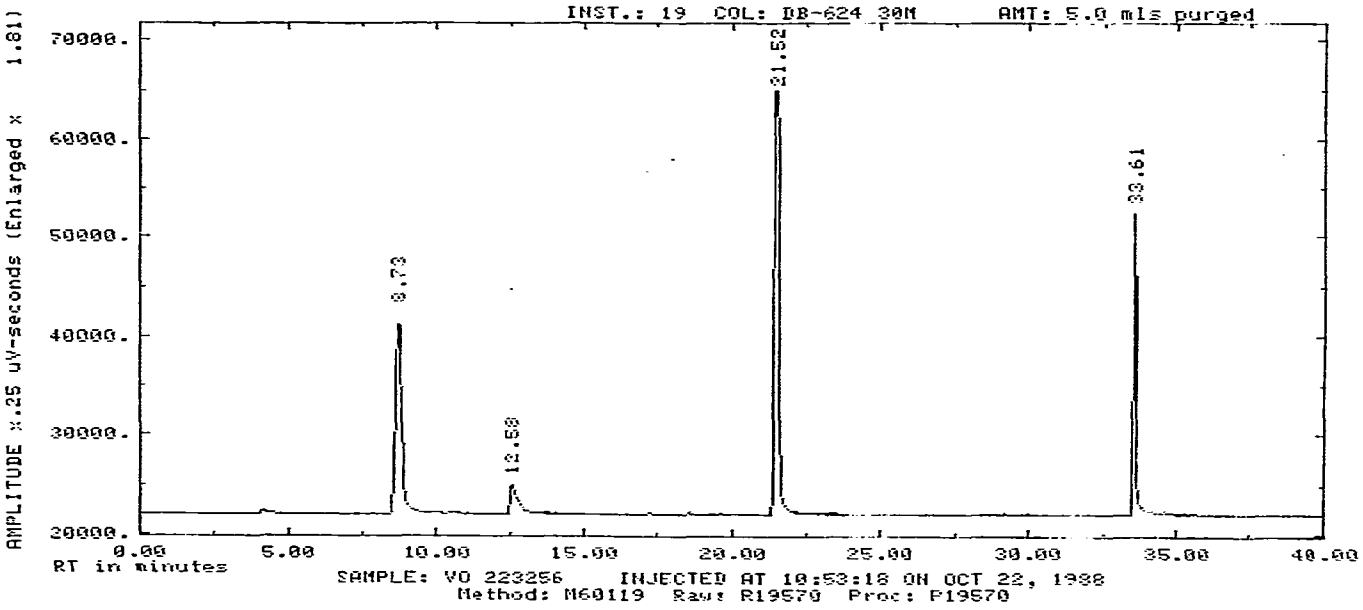
SAMPLE IDENTIFIER: WP9
COMPUCHEM® SAMPLE NUMBER: 223256

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	2500
2V.	BROMOMETHANE	BDL	2500
3V.	VINYL CHLORIDE	BDL	2500
4V.	CHLOROETHANE	BDL	2500
5V.	METHYLENE CHLORIDE	BDL	5000
6V.	1,1-DICHLOROETHENE	BDL	1500
7V.	1,1-DICHLOROETHANE	BDL	2000
8V.	T-1,2-DICHLOROETHENE	BDL	1000
9V.	CHLOROFORM	BDL	1000
10V.	1,2-DICHLOROETHANE	BDL	1500
11V.	1,1,1-TRICHLOROETHANE	BDL	1500
12V.	CARBON TETRACHLORIDE	BDL	1500
13V.	BROMODICHLOROMETHANE	BDL	2000
14V.	1,2-DICHLOROPROPANE	BDL	1000
15V.	CIS-1,3-DICHLOROPROPENE	BDL	1500
16V.	TRICHLOROETHENE	140000	1000
17V.	DIBROMOCHLOROMETHANE	BDL	1000
18V.	1,1,2-TRICHLOROETHANE	BDL	1000
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	1000
20V.	2-CHLOROETHYL VINYL ETHER	BDL	2000
21V.	BROMOFORM	BDL	2500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	2000
23V.	TETRACHLOROETHENE	BDL	1000
24V.	CHLOROBENZENE	BDL	2000
25V.	1,3-DICHLOROBENZENE	BDL	1000
26V.	1,2-DICHLOROBENZENE	BDL	1000
27V.	1,4-DICHLOROBENZENE	BDL	1000

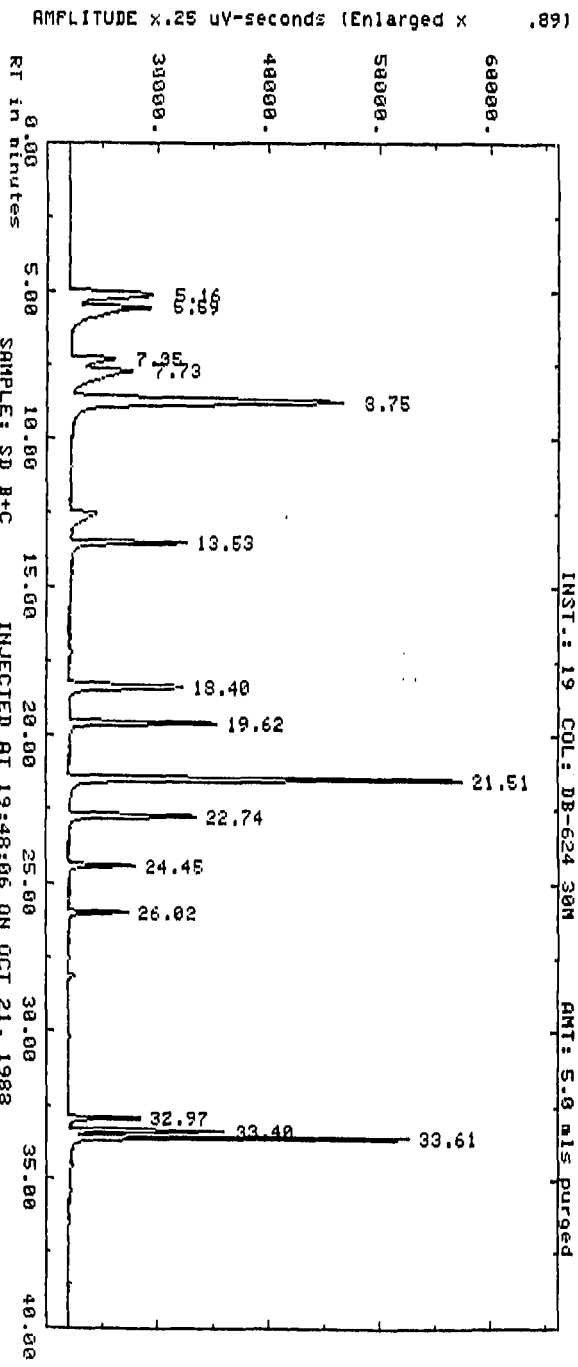
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	115	(76-135)
Bromofluorobenzene	87	(69-123)

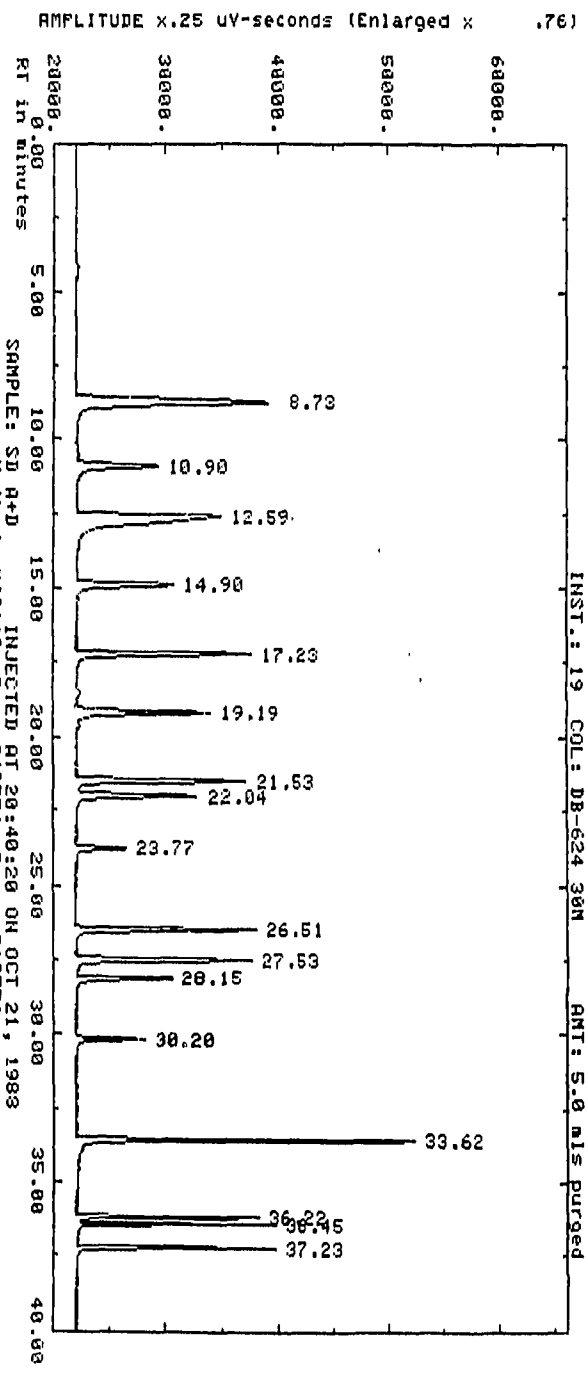
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 5000:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 1.81)
70000.
60000.
50000.
40000.
30000.
20000.
8.73
12.58
21.52
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223256 INJECTED AT 10:53:18 ON OCT 22, 1988
Method: M60119 Raw: R19570 Proc: P19570

AR303503


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
6.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: R19553 Proc: P19553
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303504


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
20000.
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1983
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303505

Lu for print (1)?

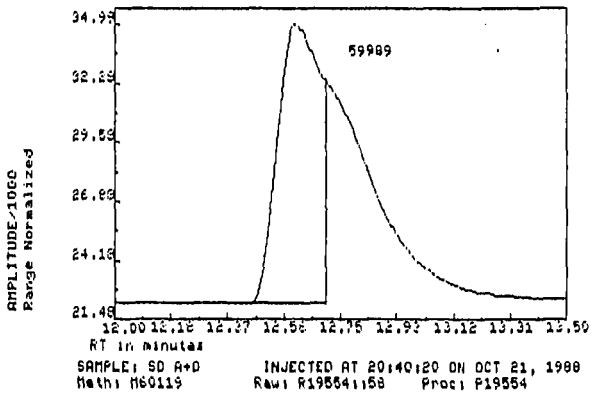
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303506

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

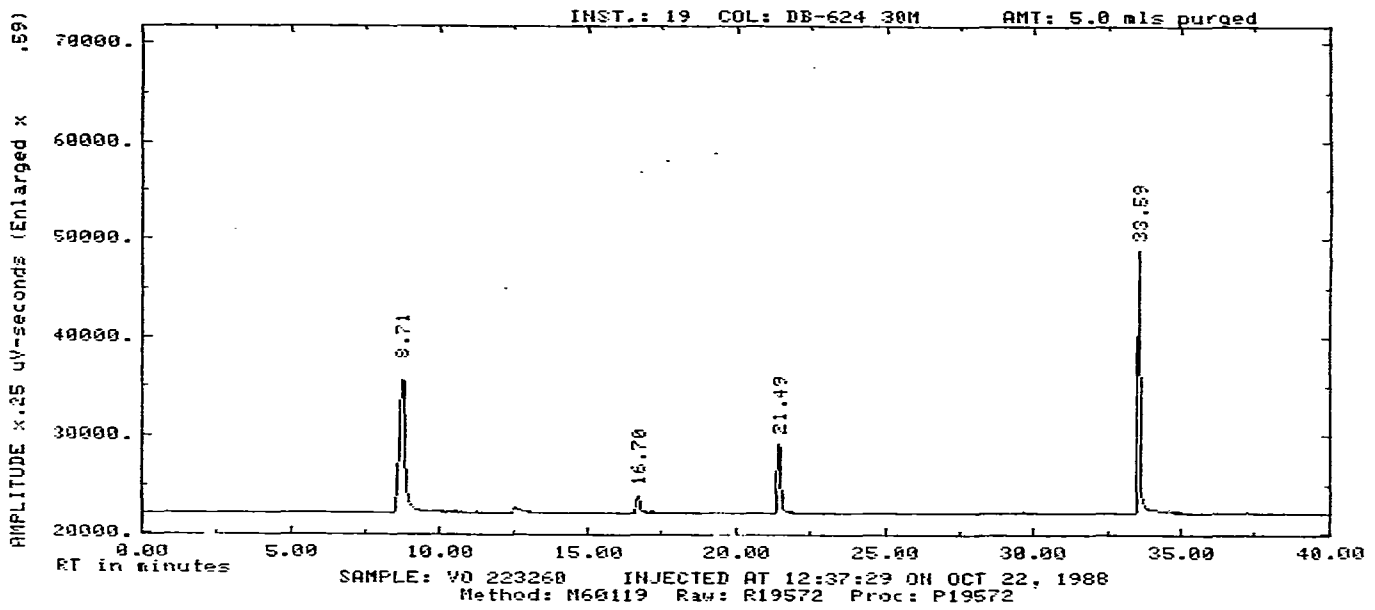
SAMPLE IDENTIFIER: WP11A
COMPUCHEM® SAMPLE NUMBER: 223260

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	2.5
2V.	BROMOMETHANE	BDL	2.5
3V.	VINYL CHLORIDE	BDL	2.5
4V.	CHLOROETHANE	BDL	2.5
5V.	METHYLENE CHLORIDE	BDL	5.0
6V.	1,1-DICHLOROETHENE	BDL	1.5
7V.	1,1-DICHLOROETHANE	BDL	2.0
8V.	T-1,2-DICHLOROETHENE	BDL	1.0
9V.	CHLOROFORM	BDL	1.0
10V.	1,2-DICHLOROETHANE	BDL	1.5
11V.	1,1,1-TRICHLOROETHANE	BDL	1.5
12V.	CARBON TETRACHLORIDE	BDL	1.5
13V.	BROMODICHLOROMETHANE	BDL	2.0
14V.	1,2-DICHLOROPROPANE	BDL	1.0
15V.	CIS-1,3-DICHLOROPROPENE	BDL	1.5
16V.	TRICHLOROETHENE	16	1.0
17V.	DIBROMOCHLOROMETHANE	BDL	1.0
18V.	1,1,2-TRICHLOROETHANE	BDL	1.0
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	1.0
20V.	2-CHLOROETHYL VINYL ETHER	BDL	2.0
21V.	BROMOFORM	BDL	2.5
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	2.0
23V.	TETRACHLOROETHENE	BDL	1.0
24V.	CHLOROBENZENE	BDL	2.0
25V.	1,3-DICHLOROBENZENE	BDL	1.0
26V.	1,2-DICHLOROBENZENE	BDL	1.0
27V.	1,4-DICHLOROBENZENE	BDL	1.0

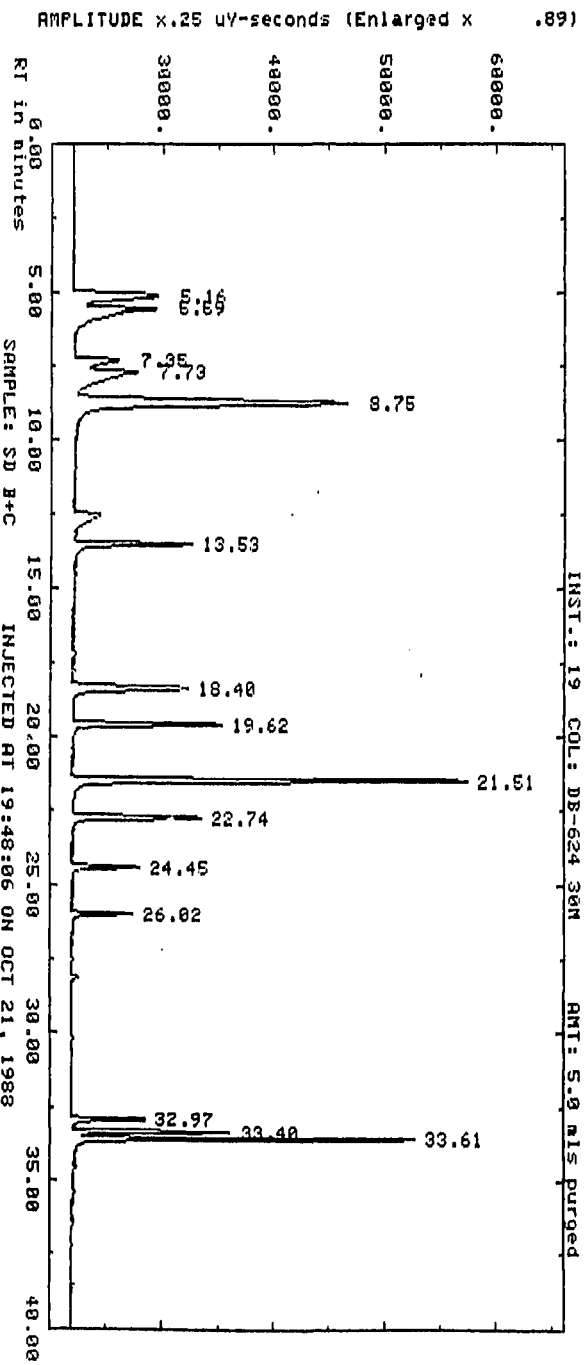
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	96	(76-135)
Bromofluorobenzene	104	(69-123)

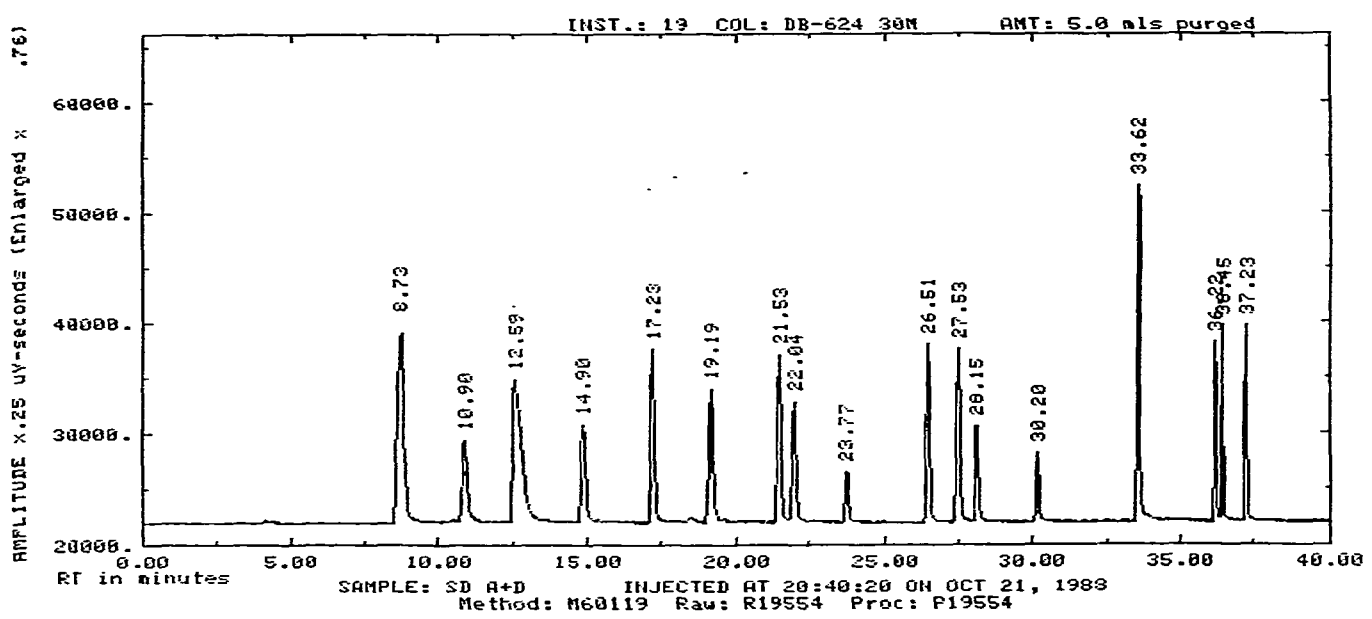
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 5:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .59)
70000.
60000.
50000.
40000.
30000.
20000.
8.71
16.70
21.49
33.59
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223260 INJECTED AT 12:37:29 ON OCT 22, 1988
Method: M60119 Raw: R19572 Proc: P19572

AR303508


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: R19553 Proc: P19553
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303509


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .76)
60000.
50000.
40000.
30000.
20000.
8.73
10.90
12.59
14.90
17.28
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: SD A+D INJECTED AT 20:40:20 ON OCT 21, 1983
Method: M60119 Raw: R19554 Proc: P19554

AR303510

Lu for print (1)?

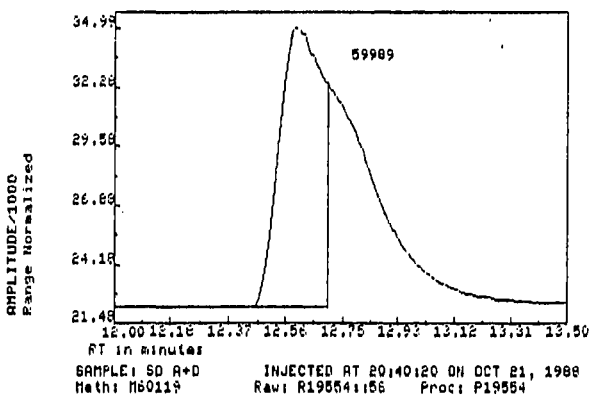
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303511

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

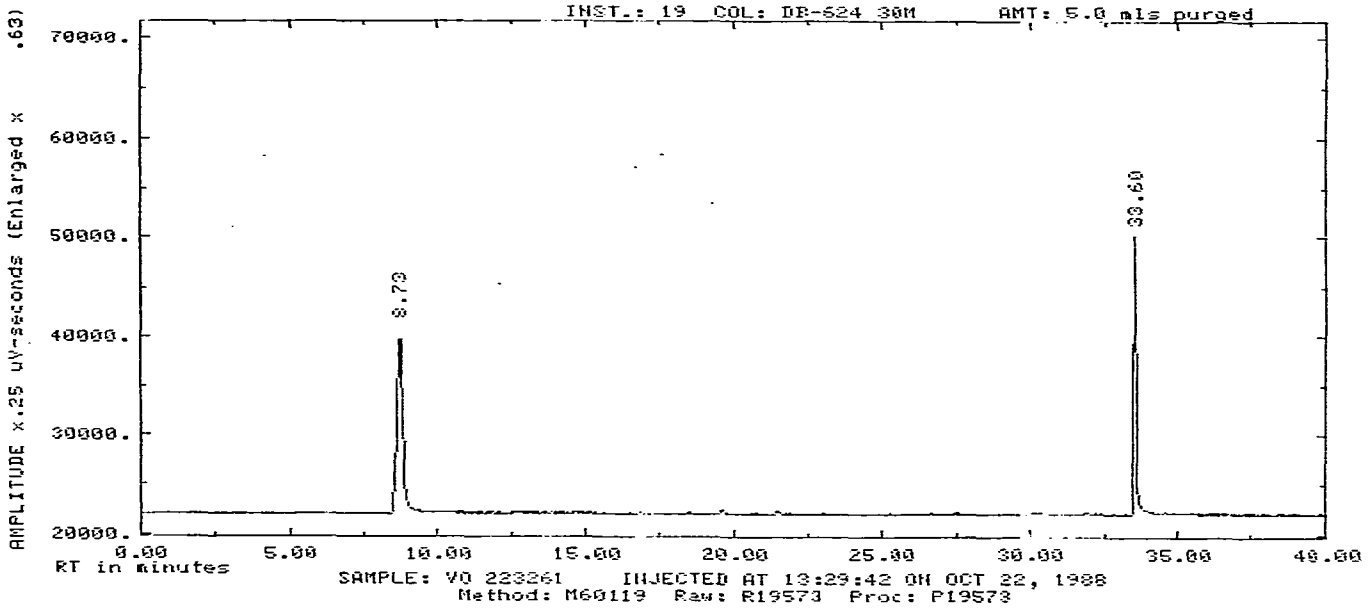
SAMPLE IDENTIFIER: W11B
COMPUCHEM® SAMPLE NUMBER: 223261

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

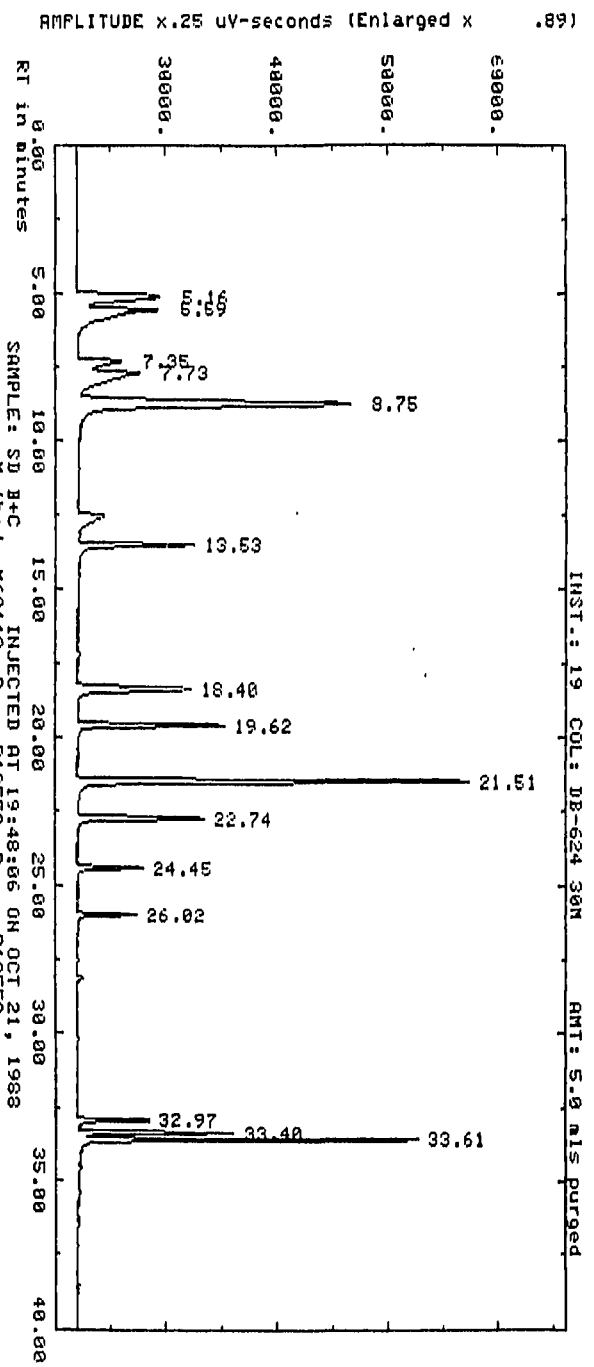
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	125	(76-135)
Bromofluorobenzene	80	(69-123)

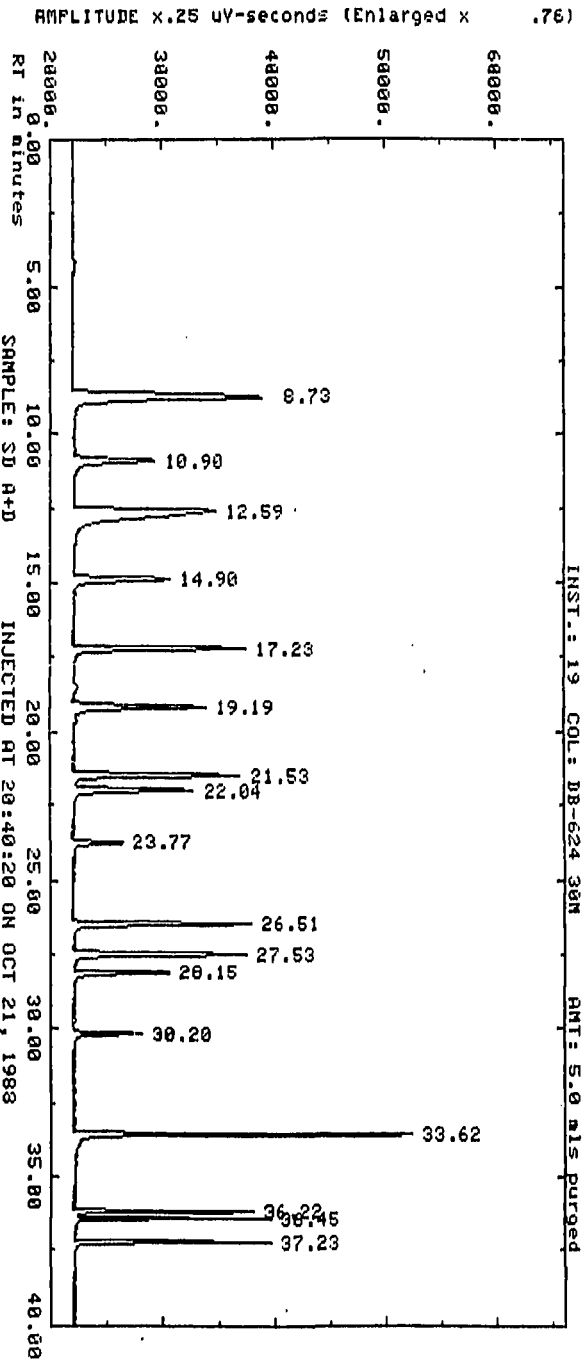
BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .63)
70000.
60000.
50000.
40000.
30000.
20000.
8.79
39.60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223261 INJECTED AT 13:29:42 ON OCT 22, 1988
Method: M60119 Raw: R19573 Proc: P19573

AR303513


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
SAMPLE: SD B+C
Method: M60119 Raw: R19553 Proc: P19553
INJECTED AT 19:48:06 ON OCT 21, 1988

AR303514


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
28000.
38000.
48000.
58000.
68000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD R+D INJECTED AT 20:40:20 ON OCT 21, 1988
Method: M60119 Raw: R19554 Proc: P19554
INST.: 19 COL: DB-624 30M ANT: 5.0 mls purged

AR303515

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

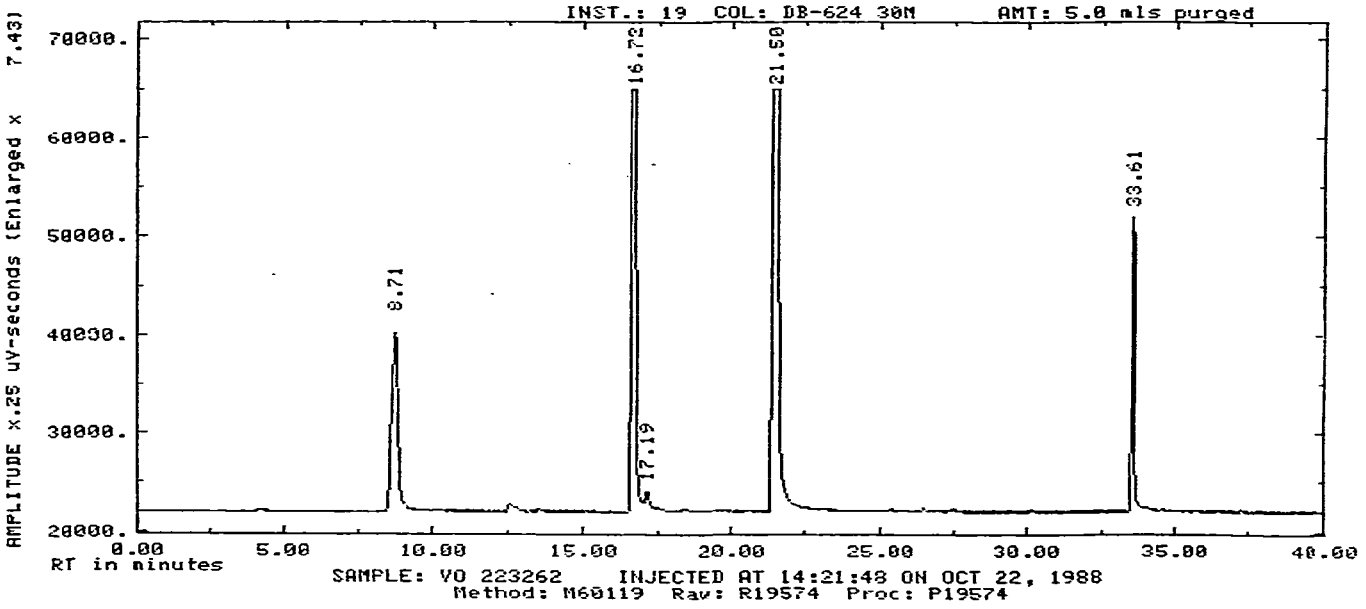
SAMPLE IDENTIFIER: W12
COMPUCHEM® SAMPLE NUMBER: 223262

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	0.65	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	120	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

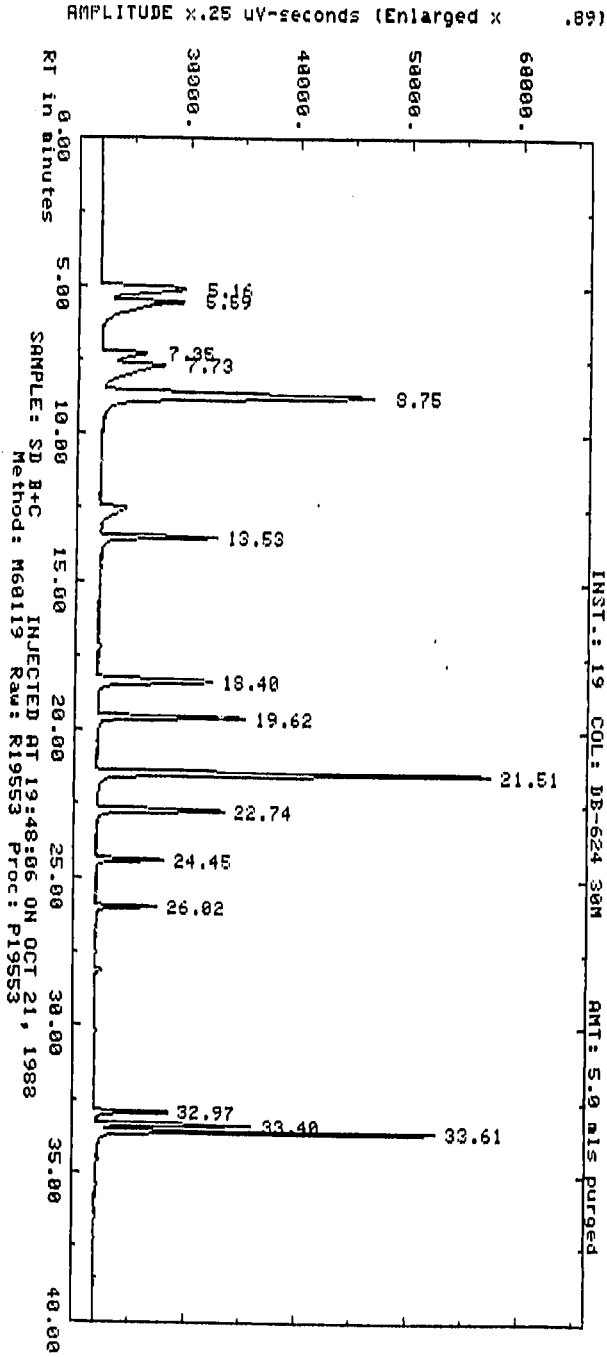
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	118	(76-135)
Bromofluorobenzene	85	(69-123)

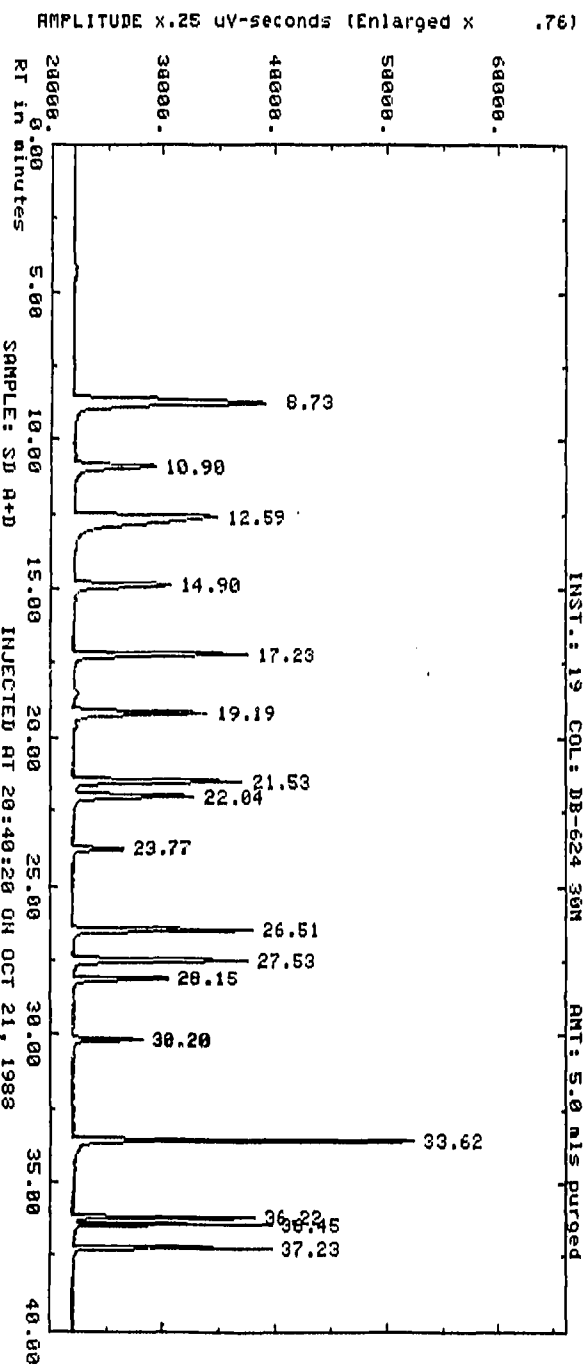
BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 7.43)
70000.
60000.
50000.
40000.
30000.
20000.
8.71
16.72
17.19
21.50
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223262 INJECTED AT 14:21:48 ON OCT 22, 1988
Method: M60119 Raw: R19574 Proc: P19574

AR303517


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
9.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C
Method: M60119 Raw: R19553 Proc: P19553
INJECTED AT 19:48:06 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M
AMT: 5.0 mls purged

AR303518


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
20000. 30000. 40000. 50000. 60000.
RT in minutes
0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303519

Lu for print (1)?

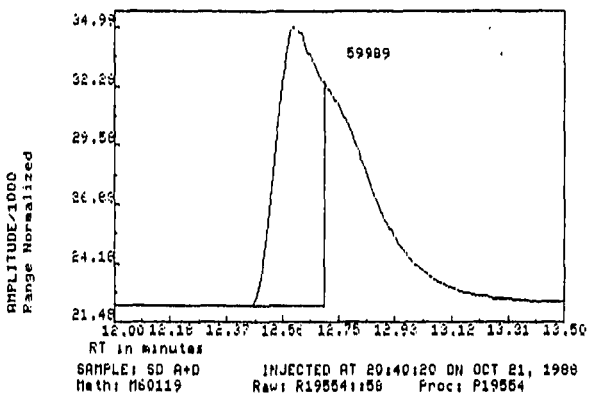
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303520

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

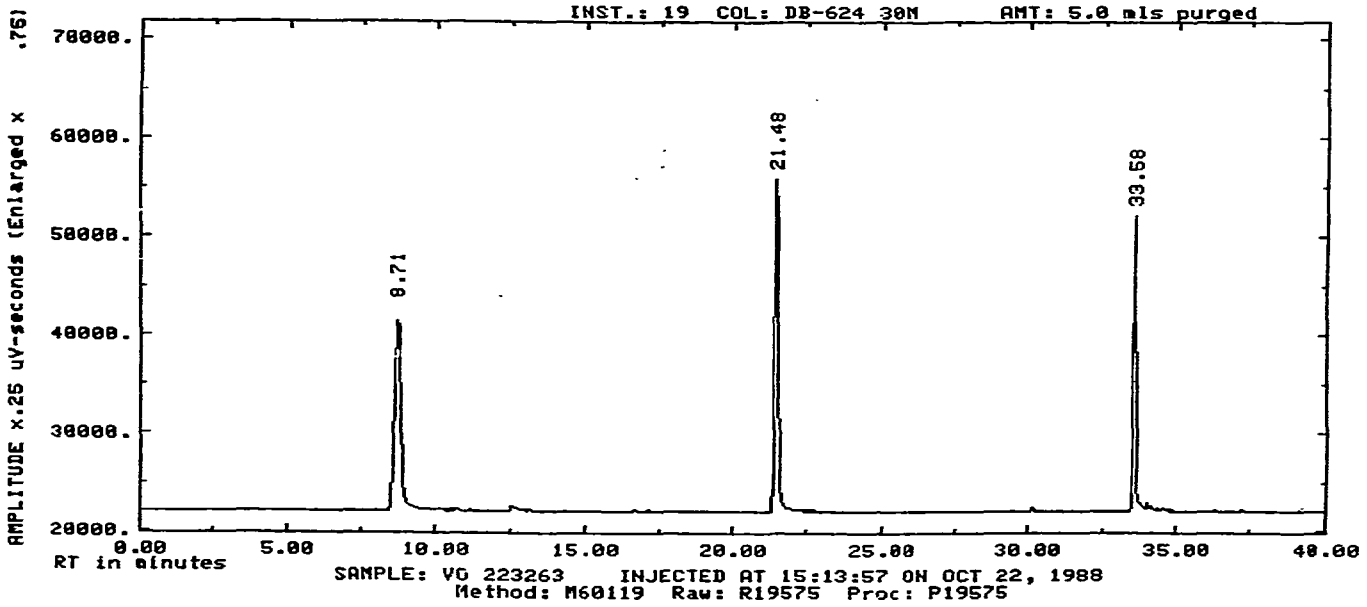
SAMPLE IDENTIFIER: W20
COMPUCHEM® SAMPLE NUMBER: 223263

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	500
2V.	BROMOMETHANE	BDL	500
3V.	VINYL CHLORIDE	BDL	500
4V.	CHLOROETHANE	BDL	500
5V.	METHYLENE CHLORIDE	BDL	1000
6V.	1,1-DICHLOROETHENE	BDL	300
7V.	1,1-DICHLOROETHANE	BDL	400
8V.	T-1,2-DICHLOROETHENE	BDL	200
9V.	CHLOROFORM	BDL	200
10V.	1,2-DICHLOROETHANE	BDL	300
11V.	1,1,1-TRICHLOROETHANE	BDL	300
12V.	CARBON TETRACHLORIDE	BDL	300
13V.	BROMODICHLOROMETHANE	BDL	400
14V.	1,2-DICHLOROPROPANE	BDL	200
15V.	CIS-1,3-DICHLOROPROPENE	BDL	300
16V.	TRICHLOROETHENE	11000	200
17V.	DIBROMOCHLOROMETHANE	BDL	200
18V.	1,1,2-TRICHLOROETHANE	BDL	200
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	200
20V.	2-CHLOROETHYL VINYL ETHER	BDL	400
21V.	BROMOFORM	BDL	500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	400
23V.	TETRACHLOROETHENE	BDL	200
24V.	CHLOROBENZENE	BDL	400
25V.	1,3-DICHLOROBENZENE	BDL	200
26V.	1,2-DICHLOROBENZENE	BDL	200
27V.	1,4-DICHLOROBENZENE	BDL	200

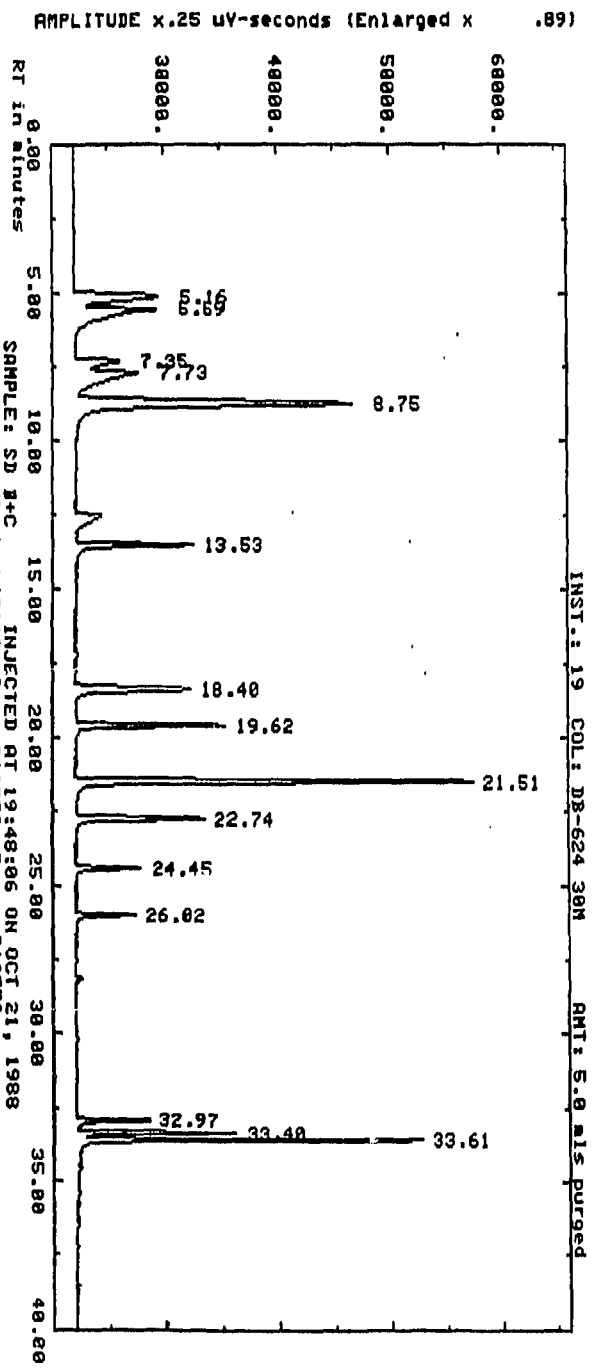
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	127	(76-135)
Bromofluorobenzene	79	(69-123)

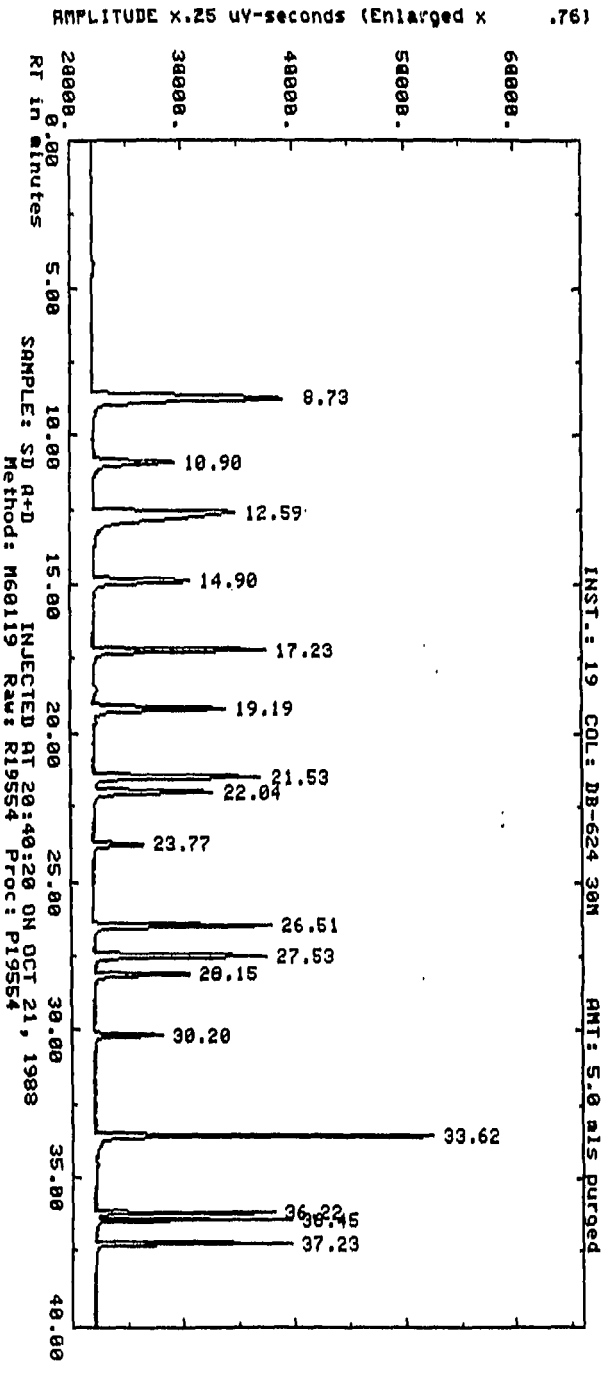
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 1000:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .76)
70000.
60000.
50000.
40000.
30000.
20000.
8.71
21.48
33.58
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VG 223263 INJECTED AT 15:13:57 ON OCT 22, 1988
Method: M60119 Raw: R19575 Proc: P19575

AR303522


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD #+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: R19553 Proc: P19553
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303523


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
20000.
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D INJECTED AT 20:40:20 ON OCT 21, 1988
Method: M60119 Raw: R19554 Proc: P19554
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303524

Lu for print (1)?

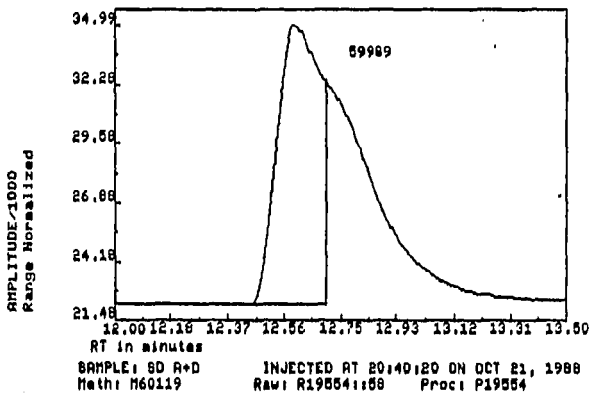
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303525

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

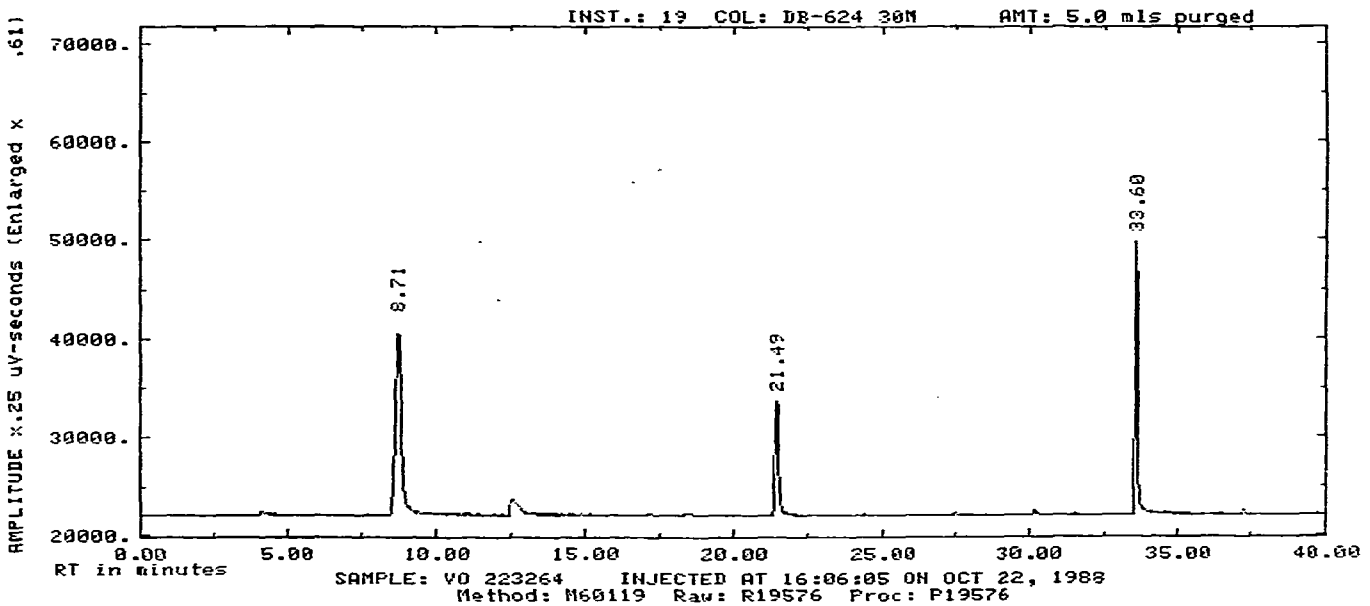
SAMPLE IDENTIFIER: W21
COMPUCHEM® SAMPLE NUMBER: 223264

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	3.8	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

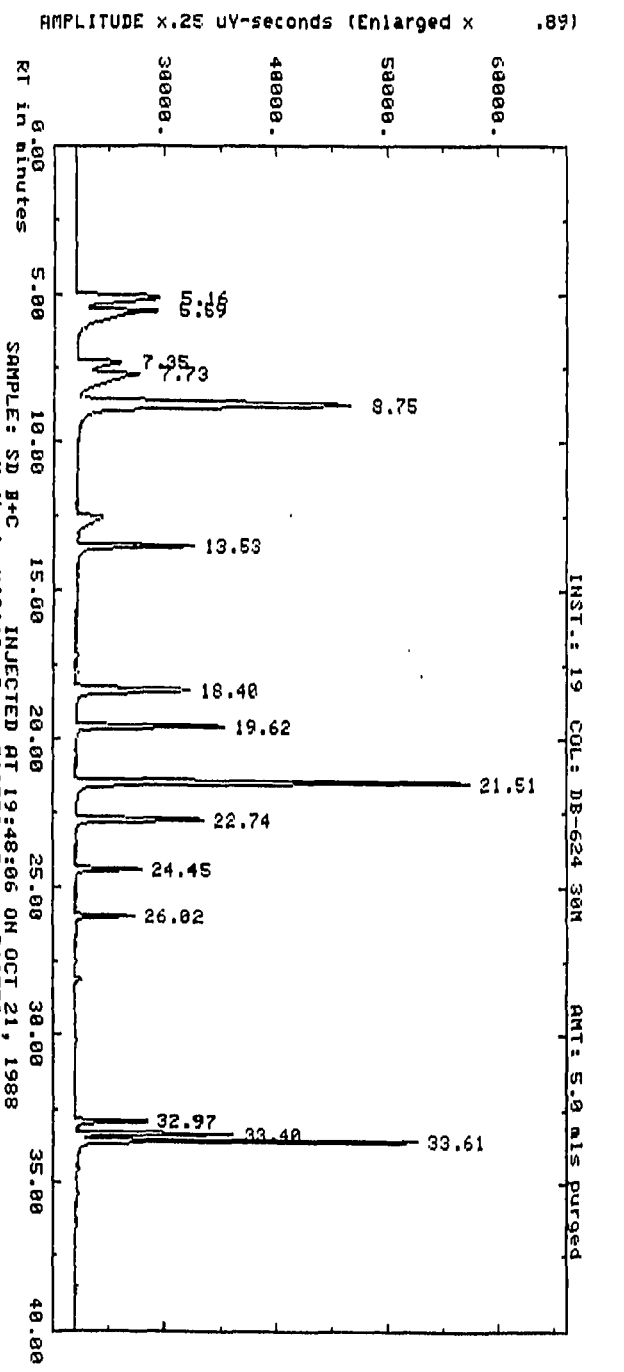
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	130	(76-135)
Bromofluorobenzene	77	(69-123)

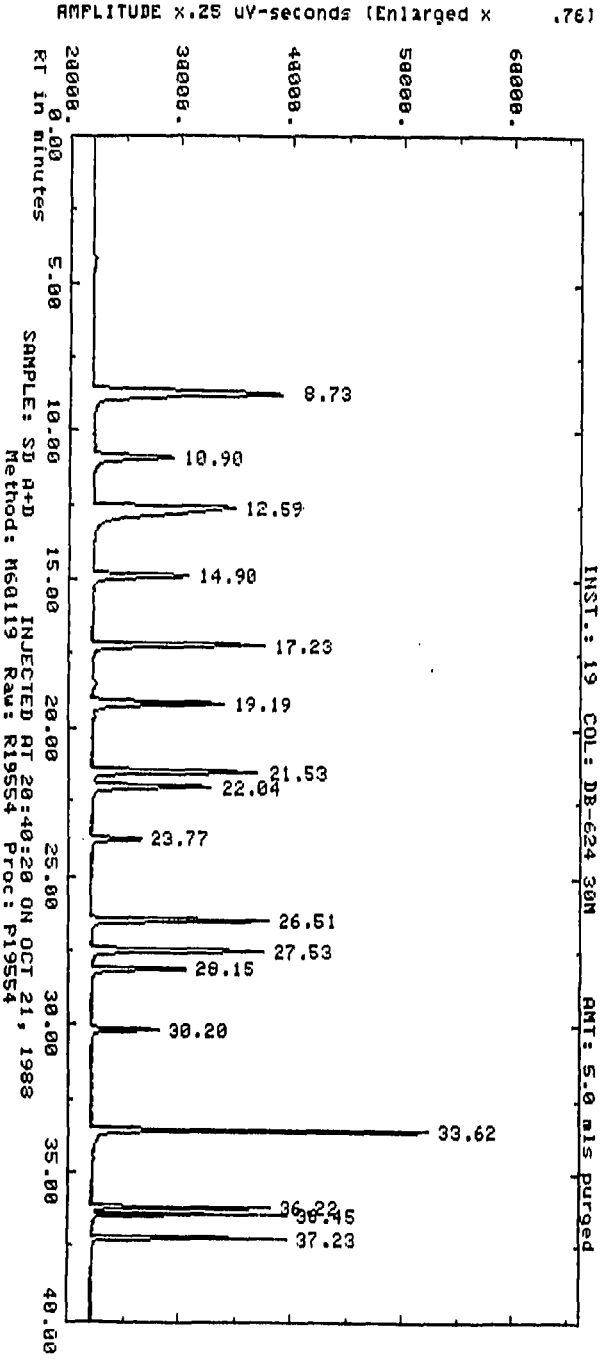
BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .61)
70000.
60000.
50000.
40000.
30000.
20000.
8.71
21.49
33.60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223264 INJECTED AT 16:06:05 ON OCT 22, 1988
Method: M60119 Raw: R19576 Proc: P19576

AR303527


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
300000.
400000.
500000.
600000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
5.69
7.35
7.73
9.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C
Method: M60119 INJECTED AT 19:48:06 ON OCT 21, 1988
Raw: R19553 Proc: P19553
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303528


AMPLITUDE X.25 UV-seconds (Enlarged x .76)
20000.
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303529

Lu for print (1)?

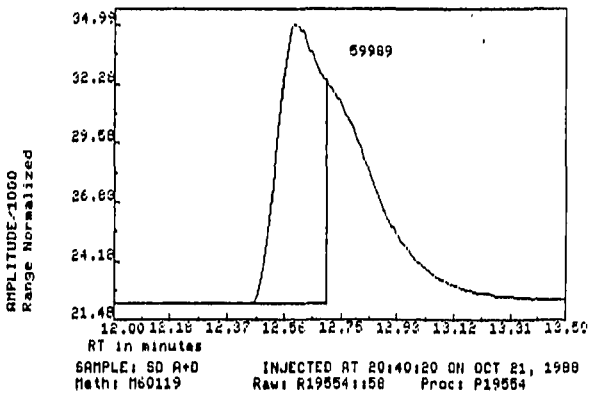
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303530

Lu for print (1)?

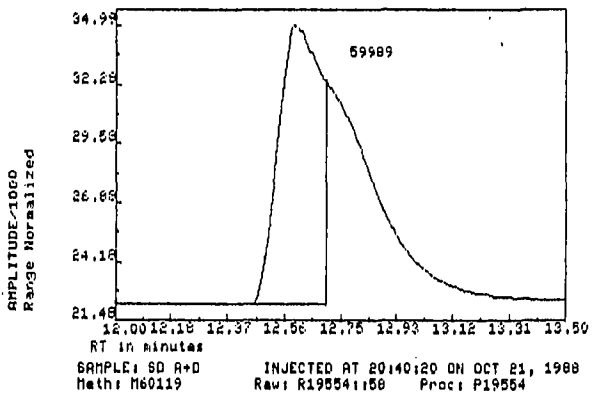
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303531

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

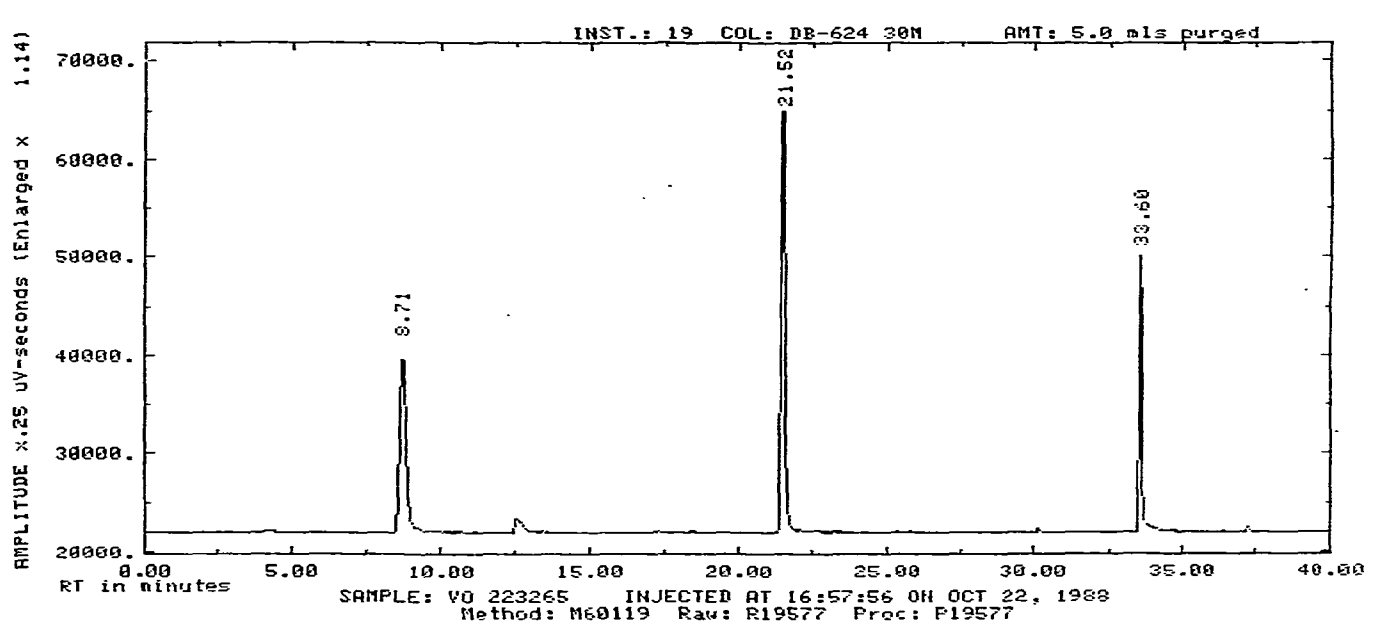
SAMPLE IDENTIFIER: WP20
COMPUCHEM® SAMPLE NUMBER: 223265

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	2500
2V.	BROMOMETHANE	BDL	2500
3V.	VINYL CHLORIDE	BDL	2500
4V.	CHLOROETHANE	BDL	2500
5V.	METHYLENE CHLORIDE	BDL	5000
6V.	1,1-DICHLOROETHENE	BDL	1500
7V.	1,1-DICHLOROETHANE	BDL	2000
8V.	T-1,2-DICHLOROETHENE	BDL	1000
9V.	CHLOROFORM	BDL	1000
10V.	1,2-DICHLOROETHANE	BDL	1500
11V.	1,1,1-TRICHLOROETHANE	BDL	1500
12V.	CARBON TETRACHLORIDE	BDL	1500
13V.	BROMODICHLOROMETHANE	BDL	2000
14V.	1,2-DICHLOROPROPANE	BDL	1000
15V.	CIS-1,3-DICHLOROPROPENE	BDL	1500
16V.	TRICHLOROETHENE	89000	1000
17V.	DIBROMOCHLOROMETHANE	BDL	1000
18V.	1,1,2-TRICHLOROETHANE	BDL	1000
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	1000
20V.	2-CHLOROETHYL VINYL ETHER	BDL	2000
21V.	BROMOFORM	BDL	2500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	2000
23V.	TETRACHLOROETHENE	BDL	1000
24V.	CHLOROBENZENE	BDL	2000
25V.	1,3-DICHLOROBENZENE	BDL	1000
26V.	1,2-DICHLOROBENZENE	BDL	1000
27V.	1,4-DICHLOROBENZENE	BDL	1000

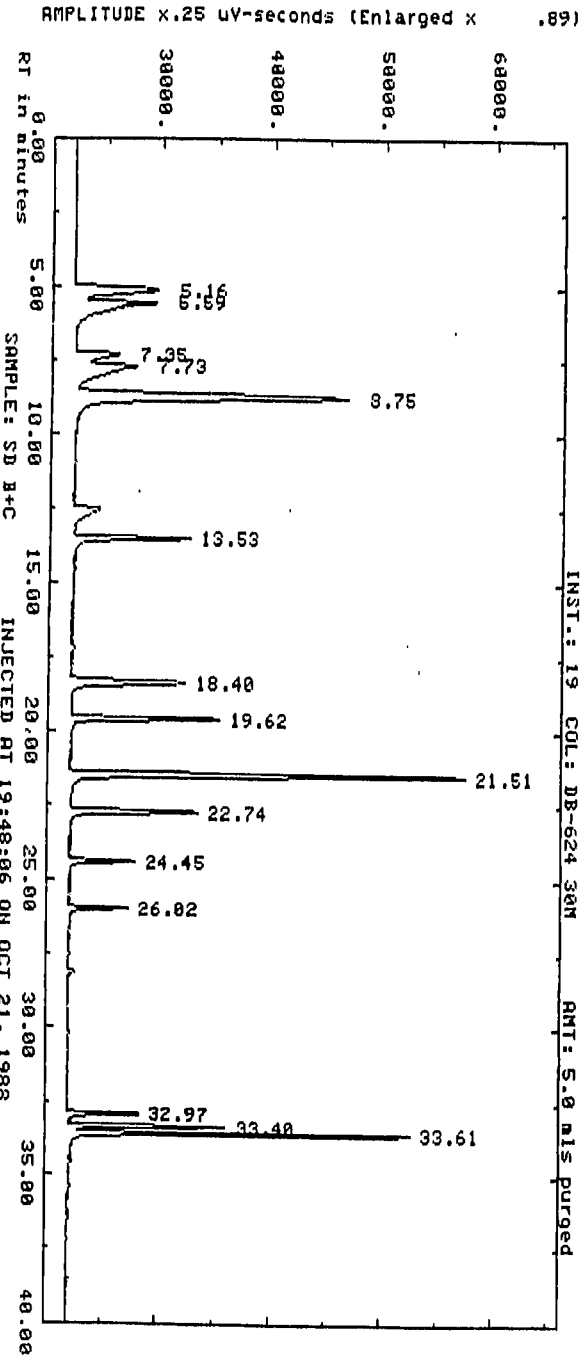
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	120	(76-135)
Bromofluorobenzene	84	(69-123)

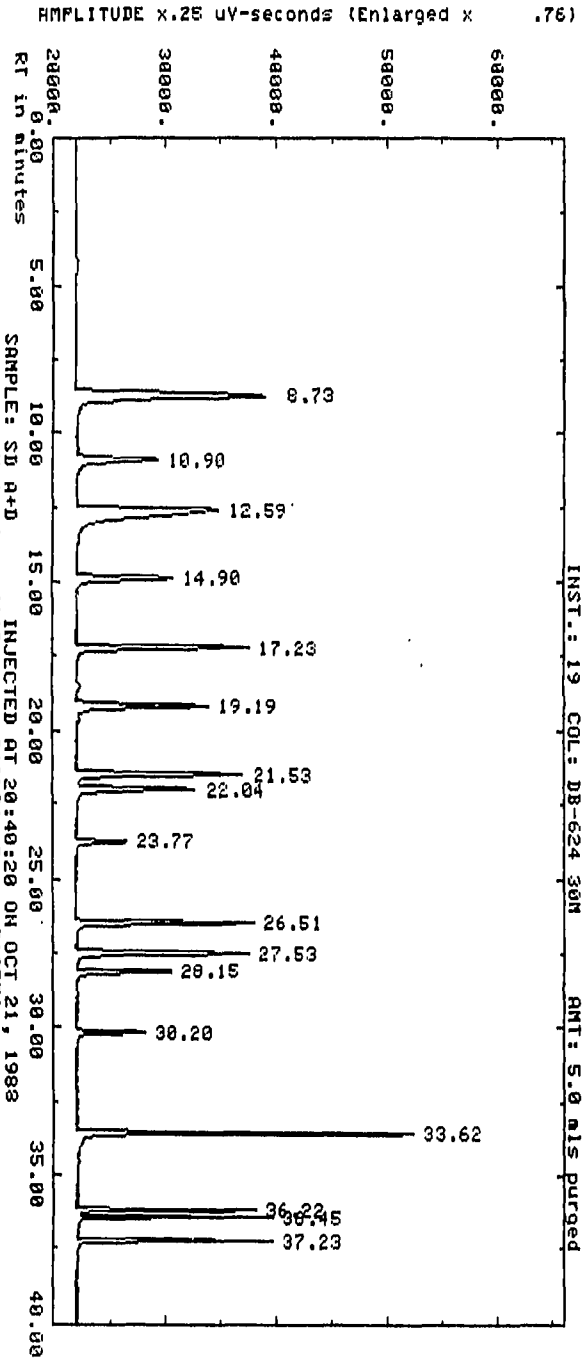
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 5000:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 1.14)
70000.
60000.
50000.
40000.
30000.
20000.
8.71
21.52
33.60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223265 INJECTED AT 16:57:56 ON OCT 22, 1988
Method: M60119 Raw: R19577 Proc: P19577

AR303533


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.16
6.59
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C
Method: M60119 Raw: R19553 Proc: P19553
INJECTED AT 19:48:06 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M
AMT: 5.0 mls purged

AR303534


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
20000.
30000.
40000.
50000.
60000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D INJECTED AT 20:40:20 ON OCT 21, 1988
Method: M60119 Raw: R19554 Proc: P19554
INST.: 19 COL: DB-624 30M ANT: 5.0 mls purged

AR303535

Lu for print (1)?

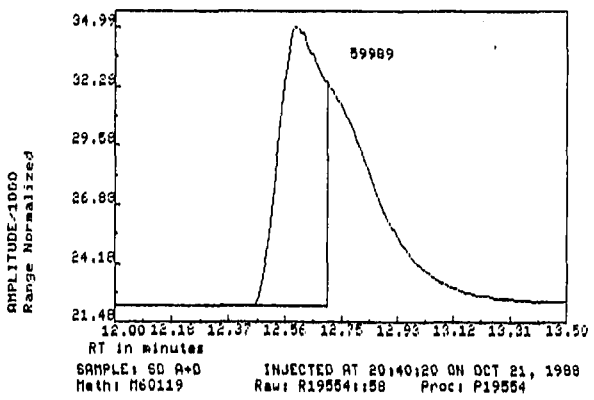
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

BLANK ID: P19555

SAMPLE IDENTIFIER: W-8A, W9, WP9, W11A, W11B, W12 W20, W21, WP20

COMPUCHEM® SAMPLE NUMBER: 223252, 223254, 223256, 223260, 223261, 223262, 223263, 223264, 223265.

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	122	(76-135)
Bromofluorobenzene	82	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 223259
MATRIX SPIKE: 223253
MATRIX SPIKE DUPLICATE: 223255

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	3.80	76.00	4.50	90.00	8.43	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	4.30	86.00	5.20	104.00	9.47	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	4.40	88.00	5.30	106.00	9.28	2.05 - 6.99
BROMODICHLOROMETHANE	5.0	0.00	4.20	84.00	5.20	104.00	10.64	2.10 - 8.60
C-1,3-DICHLOROPROPENE	6.0	0.00	4.60	76.67	5.60	93.33	9.80	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	3.40	85.00	4.10	102.50	9.33	0.88 - 7.12
BROMOFORM	5.0	0.00	4.00	80.00	4.90	98.00	10.11	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	4.00	80.00	4.90	98.00	10.11	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

COMPUCHEM LABORATORIES

November 2, 1988

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike Suite
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		455	14699	Volatile GC Method 601 (Style 3)
W36	223266			
LAB PURE WATER	223269			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

R. Byrd

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

SECTION III CONTINUED

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike Suite
Suite 650
Vienna, VA 22180

Daniel E. Bowman
Technical Reviewer

Dorothea Boyd
Deliverables Coordinator

AR303541

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	W36	223266	10/20/88	10/24/88
2.	LAB PURE WATER	223269	10/20/88	10/22/88 10/24/88*

(Blank) P19582
(Blank) P19555(Confirmation)
(Spikes) 223267/223268

*Second column confirmation analysis which serves to verify the presence or absence of volatile compounds.

AR303543

JJ. NO. 01-918

PROJECT NAME NCR MILLSBORO G.W.S

CHAIN OF CUSTODY RECORD (18)

COMPUCHEM LABORATORIES

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chrome					REMARKS
W-11A	10-18	16:35		✓	Monitoring Well 11A	2	✓	✓					223260
W-11B	10-18	17:10		✓	" " 11B	2	✓						223261
W-12	10-18	17:25		✓	" " 12	2	✓						223262
W-9	10-18	17:40		✓	" " 9	2	✓						223254
W-36	10-18	17:50		✓	" " 36	2	✓						223266
W-10	10-19	10:20		✓	" " 10	2	✓						223259
W-20	10-19	11:50		✓	" " 20	2	✓						223263
W-8A	10-19	10:30		✓	" " 8A	2	✓						223252
WP 6	10-19	13:16		✓	Well point 6	2	✓						223251
WP 9	10-19	14:51		✓	" " 9	2	✓						223254
WP 20	10-19	14:22		✓	" " 20	2	✓						223265
WP 21	10-19	14:33		✓	" " 21	2	✓						223264
R.W.	10-19	12:28		✓	Recovery Well Faucet	3	✓	✓	223254/223277				preserved with H_2NO_3
A.S.	10-19	15:04		✓	Air Stripper Dis	3	✓	✓					" 223249, 223274 "
T.B	10-19	18:00		✓	Trip Blanks	2	✓						223269

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	10-19-88 18:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	10-20-88 8:00	Received in good condition 10-20-88	

2-VOA LABELED AND PRESERVED WITH H_2NO_3 10-20-88

Distribution: Original Accompanies Shipment; Copy to Field Files

AH 036544

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

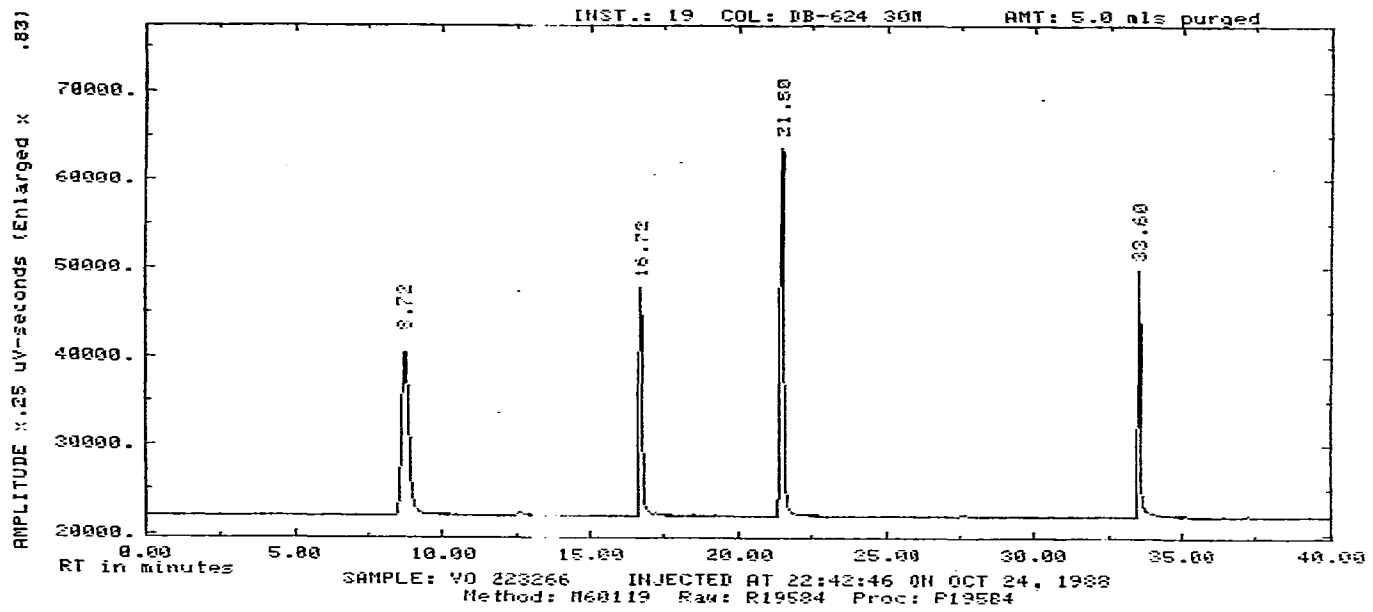
SAMPLE IDENTIFIER: W36
COMPUCHEM® SAMPLE NUMBER: 223266

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	14	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	133	(76-135)
Bromofluorobenzene	75	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .83)
70000.
60000.
50000.
40000.
30000.
20000.
8.72
16.72
21.60
33.60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223266 INJECTED AT 22:42:46 ON OCT 24, 1988
Method: M60119 Raw: R19584 Proc: P19584

AR303547

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

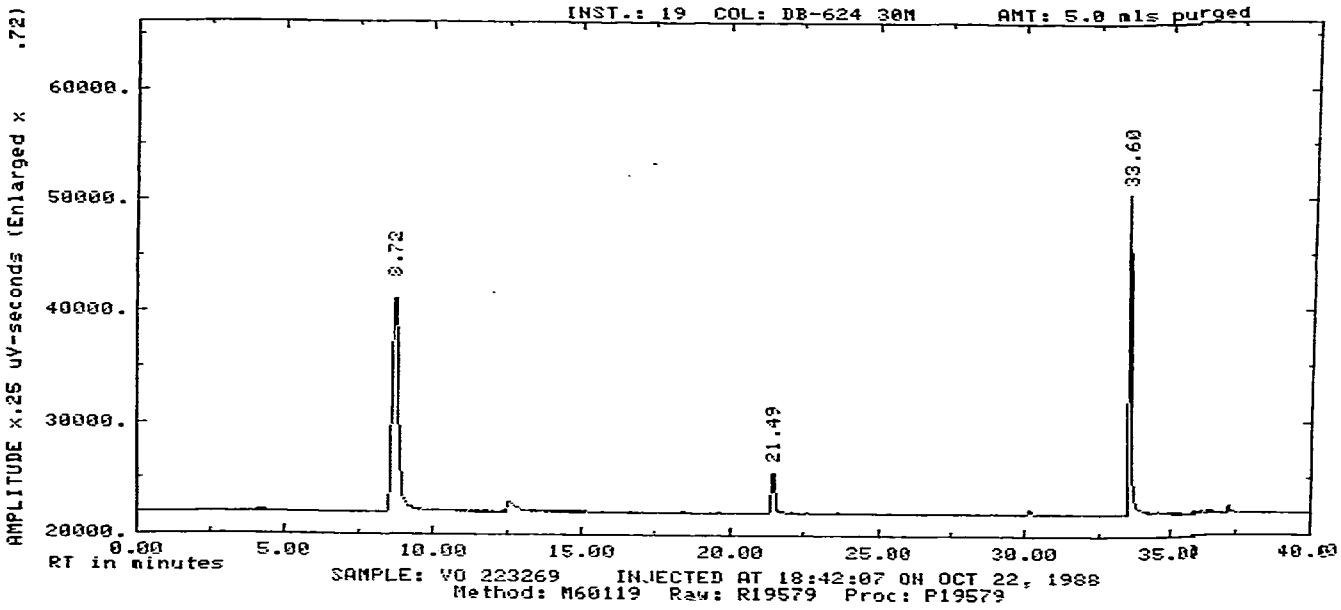
SAMPLE IDENTIFIER: LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 223269

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	1.5	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	1.1	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

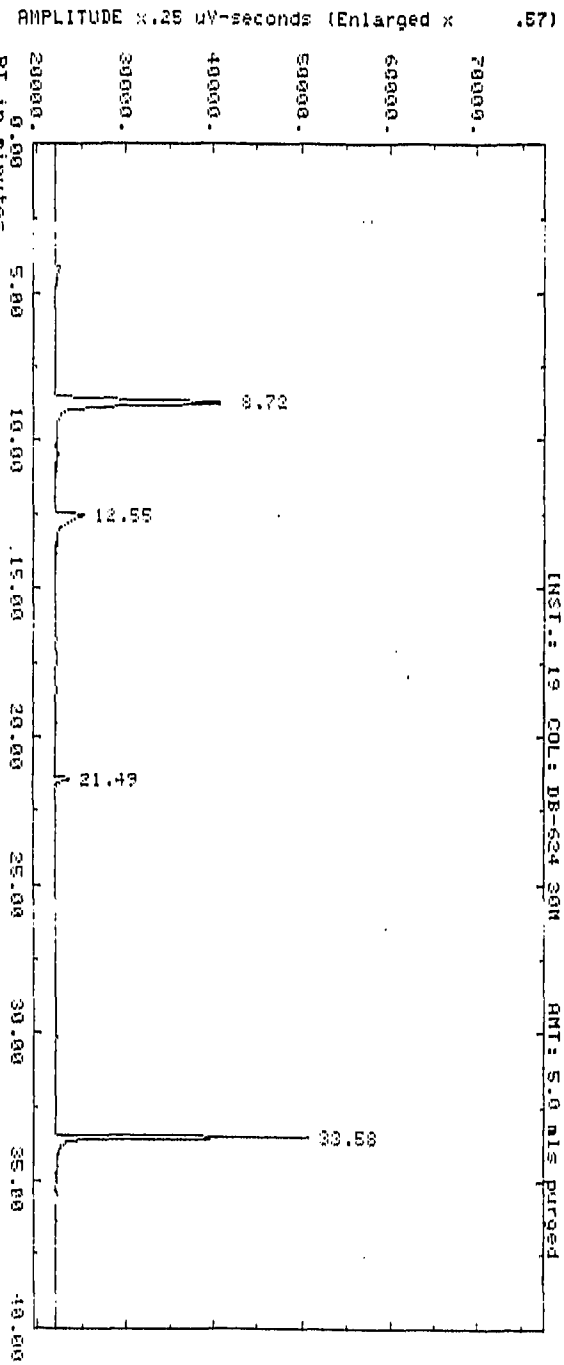
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	130	(76-135)
Bromofluorobenzene	77	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .72)
60000.
50000.
40000.
30000.
20000.
8.72
21.49
33.60
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223269 INJECTED AT 18:42:07 ON OCT 22, 1988
Method: M60119 Raw: R19579 Proc: P19579

AR303549


AMPLITUDE x.25 uV-seconds (Enlarged x .57)
RT in minutes
8.72
12.55
21.49
33.58
SAMPLE: #0 223266
INJECTED AT 23:42:46 ON OCT 24, 1988
Method: M9019 Raw: R19585 Proc: P19585
INST.: 19 COL: DB-624 30M
AMT: 5.0 mls purged

AR303550

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: W36, LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 223266, 223269
COMPUCHEM BLANK NUMBER: P19582

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	112	(76-135)
Bromofluorobenzene	89	(69-123)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: LAB PURE WATER
COMPUCHEM® SAMPLE NUMBER: 223269
COMPUCHEM BLANK NUMBER: P19555

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	122	(76-135)
Bromofluorobenzene	82	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 223266
MATRIX SPIKE: 223267
MATRIX SPIKE DUPLICATE: 223268

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	4.40	88.00	5.00	100.00	6.38	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	5.20	104.00	6.00	120.00	7.14	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	5.40	108.00	6.20	124.00	6.90	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	5.30	106.00	6.00	120.00	6.19	2.10 - 8.60
C-1,3-DICHLOROPROPENE	4.0	0.00	5.80	96.67	6.20	103.33	3.33	1.32 - 10.68
T-1,3-DICHLOROPROPENE	5.0	0.00	4.20	105.00	4.70	117.50	5.62	0.88 - 7.12
BROMOFORM	5.0	0.00	5.00	100.00	5.90	118.00	8.26	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	5.10	102.00	5.70	114.00	5.56	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

COMPUCHEM LABORATORIES

November 8, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
W10	223259	455	14699	Volatile (GC) Method 601 (Style 3)

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status, or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Cynthia L. Edwards
Technical Reviewer

Dorothea Bond
Deliverables Coordinator

AR303557

COMPUCHEM LABORATORIES

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	W10	223259	10/20/88	10/24/88
		(Blank) P19582		
		(Spikes) 223253/223255		

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

No. 01[illegible]46

CHAIN OF CUSTODY RECORD (18)

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
1801-918	NCR MILLSBORO G.W.S

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	Total Chrome					REMARKS
													CCA's
W-11A	10-18	16:35		✓	Monitoring Well 11A	2	✓	✓					223260
W-11B	10-18	17:10		✓	" " 11B	2	✓						223261
W-12	10-18	17:25		✓	" " 12	2	✓						223262
W-9	10-18	17:40		✓	" " 9	2	✓						223257
W-36	10-18	17:50		✓	" " 36	2	✓						223266
W-10	10-19	10:20		✓	" " 10	2	✓						223259
W-20	10-19	11:50		✓	" " 20	2	✓						223263
W-8A	10-19	10:30		✓	" " 8A	2	✓						223252
WP 6	10-19	13:16		✓	Well point 6	2	✓						223251
WP 9	10-19	14:51		✓	" " 9	2	✓						223254
WP 20	10-19	14:40		✓	" " 20	2	✓						223265
WP 21	10-19	14:33		✓	" " 21	2	✓						223264
R.W.	10-19	12:28		✓	Recovery Well Faucet	3	✓	✓	223247/223277				preserved with H_2NO_3
A.S.	10-19	15:04		✓	Air Stripper Dis	3	✓	✓					" 223249, 223274 "
T.B	10-19	18:00		✓	Trip. Blanks	2	✓						223269

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	10-19-88 18:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	10-20-88 8:00	Received in good condition VS 10-20-88	
				2-VOA LABELED AND PRESERVED NOT VS 10-20-88 Trip Blank	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR303560

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

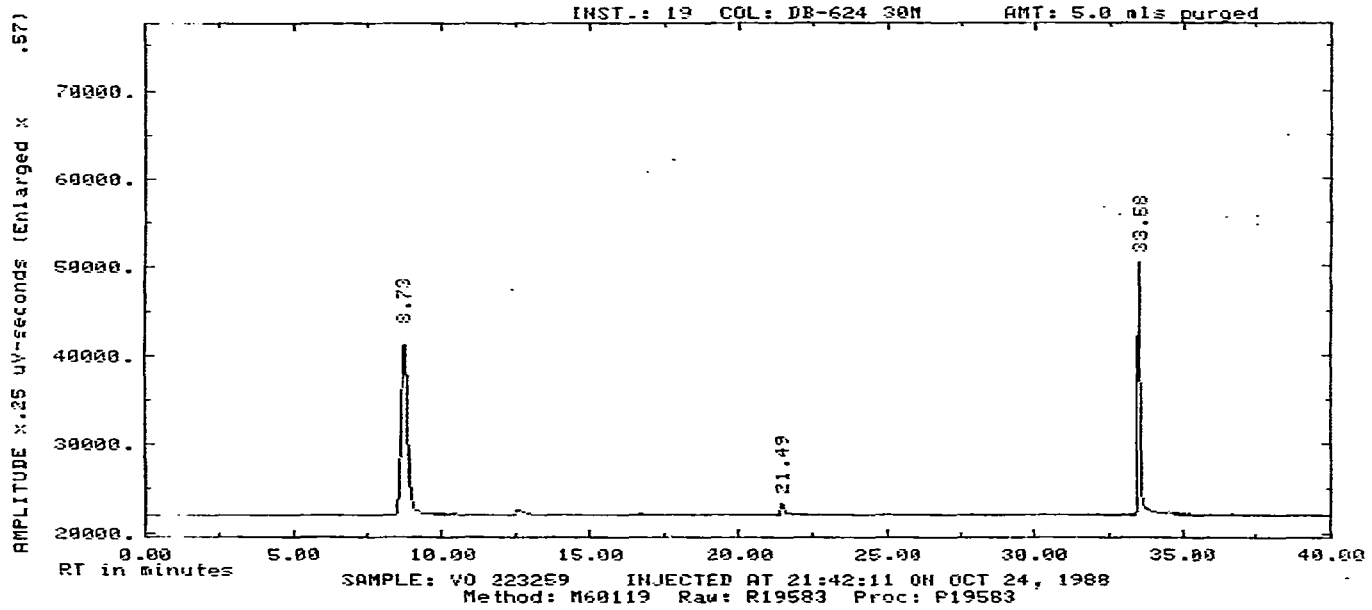
SAMPLE IDENTIFIER: W10
COMPUCHEM® SAMPLE NUMBER: 223259

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	0.40	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

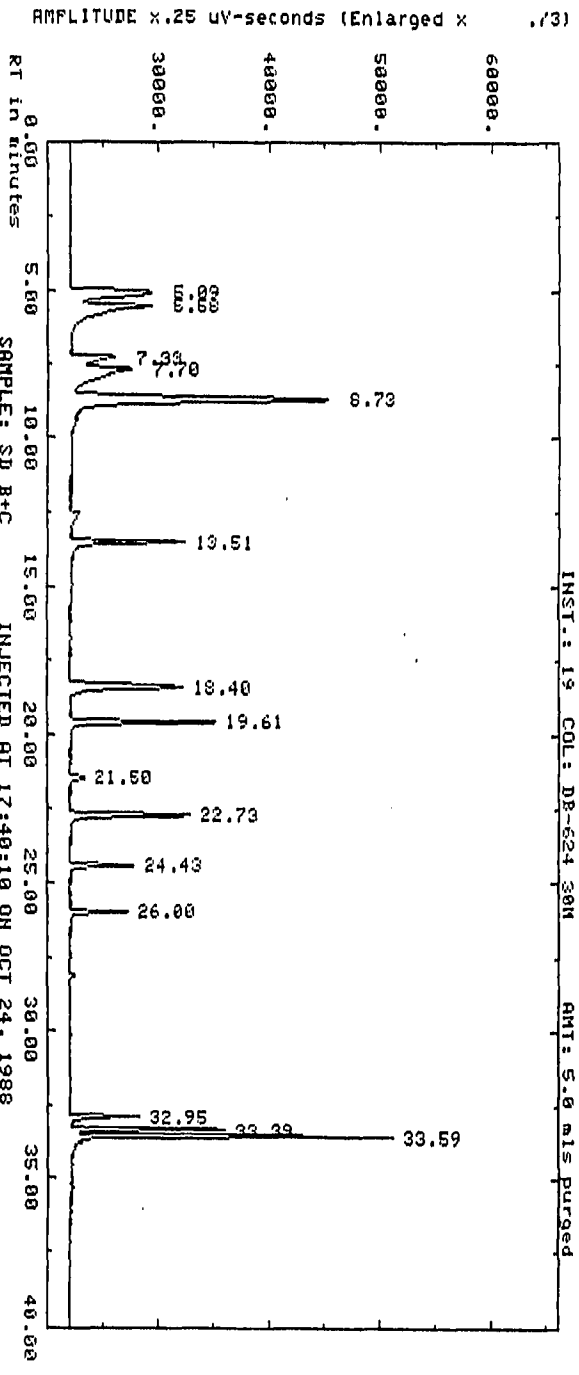
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	128	(76-135)
Bromofluorobenzene	78	(69-123)

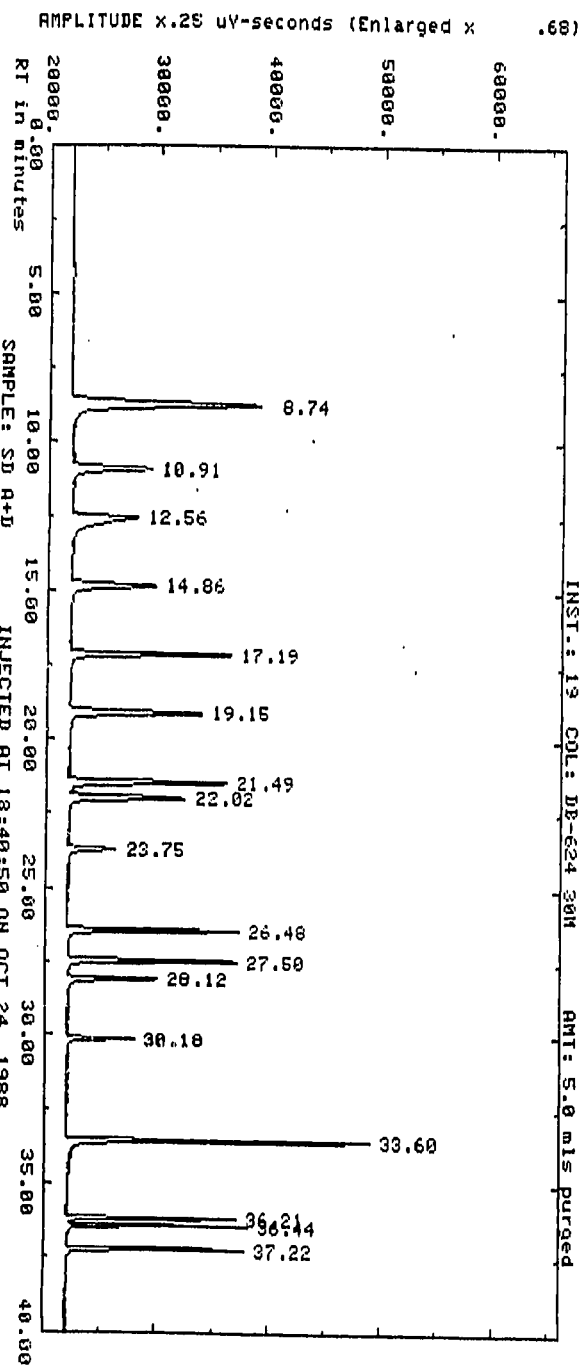
BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .57)
70000.
60000.
50000.
40000.
30000.
20000.
8.73
21.49
33.58
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223259 INJECTED AT 21:42:11 ON OCT 24, 1988
Method: M60119 Raw: R19583 Proc: P19583

AR303562


AMPLITUDE x.25 uV-seconds (Enlarged x ./3)
30000.
40000.
50000.
60000.
RT in Minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
5.03
5.58
7.39
7.70
8.73
13.51
18.40
19.61
21.50
22.73
24.43
26.00
32.95
33.39
33.59
SAMPLE: SD B+C INJECTED AT 17:40:10 ON OCT 24, 1988
Method: M60119 Raw: R19580 Proc: P19580
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303563


AMPLITUDE x.25 uV-seconds (Enlarged x .68)
200000.
300000.
400000.
500000.
600000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.74
10.91
12.56
14.86
17.19
19.15
21.49
22.02
23.75
26.48
27.50
28.12
30.10
33.60
36.21
36.44
37.22
SAMPLE: SD A+D
Method: M60119 Raw: RI9581 Proc: PI9581
INJECTED AT 18:40:50 ON OCT 24, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303564

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

BLANK ID: P19582

SAMPLE IDENTIFIER: W10
COMPUCHEM® SAMPLE NUMBER: 223259

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	112	(76-135)
Bromofluorobenzene	89	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 223259
MATRIX SPIKE: 223253
MATRIX SPIKE DUPLICATE: 223255

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	3.80	76.00	4.50	90.00	8.43	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	4.30	86.00	5.20	104.00	9.47	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	4.40	88.00	5.30	106.00	9.28	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	4.20	84.00	5.20	104.00	10.64	2.10 - 8.60
C-1,3-DICHLOROPROPENE	6.0	0.00	4.60	76.67	5.60	93.33	9.80	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	3.40	85.00	4.10	102.50	9.33	0.88 - 7.12
BROMOFORM	5.0	0.00	4.00	80.00	4.90	98.00	10.11	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	4.00	80.00	4.90	98.00	10.11	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = RPD$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

COMPUCHEM LABORATORIES

November 8, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		455	14699	Volatile (GC) Method 601 (Style 3)
A.S.	223249			
R.W.	223250			
WP6	223251			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status, or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

D. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Cynthia L. Edwards
Technical Reviewer

Martha Byrd
Deliverables Coordinator

AR303569

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	A.S.	223249	10/20/88	10/22/88
2.	R.W.	223250	10/20/88	10/22/88
3.	WP6	223251	10/20/88	10/22/88

(Blank) P19555
(Spike) 222840

AR303571

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJECT NAME: NCRMILLSBORO G.W.S

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 601	TOX Cl Chrome					REMARKS
													CCH's
W-11A	10-18	16:35		✓	Monitoring Well 11A	2	✓	✓					223260
W-11B	10-18	17:10		✓	" 11B	2	✓						223261
W-12	10-18	17:34		✓	" 12	2	✓						223262
W-9	10-18	17:40		✓	" 9	2	✓						223254
W-36	10-18	17:50		✓	" 36	2	✓						223266
W-10	10-19	10:20		✓	" 10	2	✓						223259
W-20	10-19	11:50		✓	" 20	2	✓						223263
W-8A	10-19	10:30		✓	" 8A	2	✓						223252
WP 6	10-19	13:16		✓	Well point 6	2	✓						223251
WP 9	10-19	14:51		✓	" 9	2	✓						223254
WP 20	10-19	14:42		✓	" 20	2	✓						223265
WP 21	10-19	14:33		✓	" 21	2	✓						223264
R.W.	10-19	12:28		✓	Recovery Well Faucet	3	✓	✓	223247/223271				Preserved with H_2NO_3
A.S.	10-19	15:04		✓	Air Stripper Dis	3	✓	✓					I: 223249, 223274 "
T.B	10-19	18:00		✓	Trip Blanks	2	✓						223269

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	10-19-88 18:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	10-20-88 8:00	Received in good condition 10-20-88	

2-VOA LABELED LAB Rinsewater NOT TB 10-20-88 TRIP BLANK

Distribution: Original Accompanies Shipment; Copy to Field Files

APR 30 1573

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

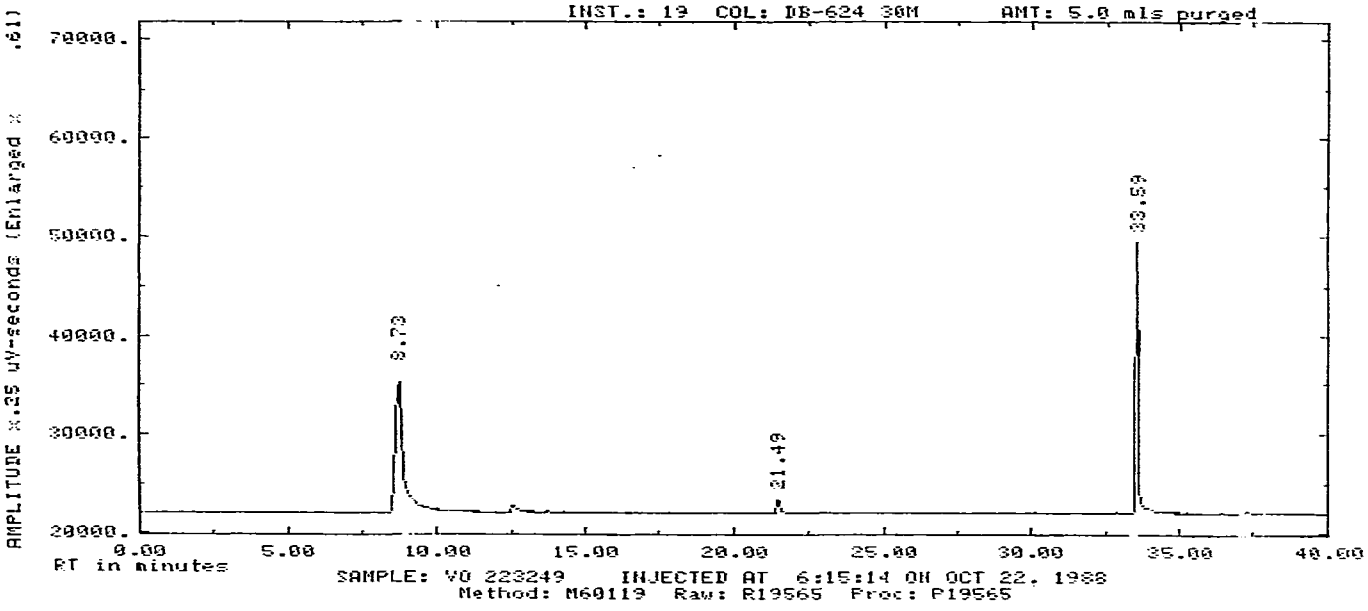
SAMPLE IDENTIFIER: A.S
COMPUCHEM® SAMPLE NUMBER: 223249

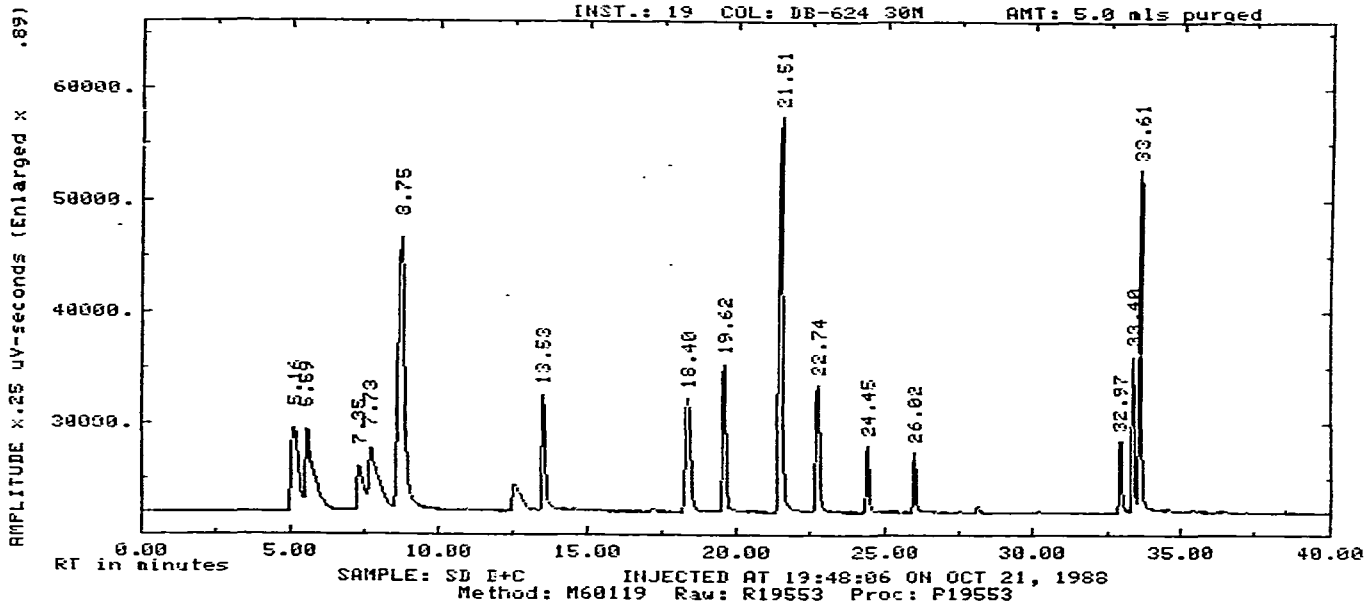
		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	0.57	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

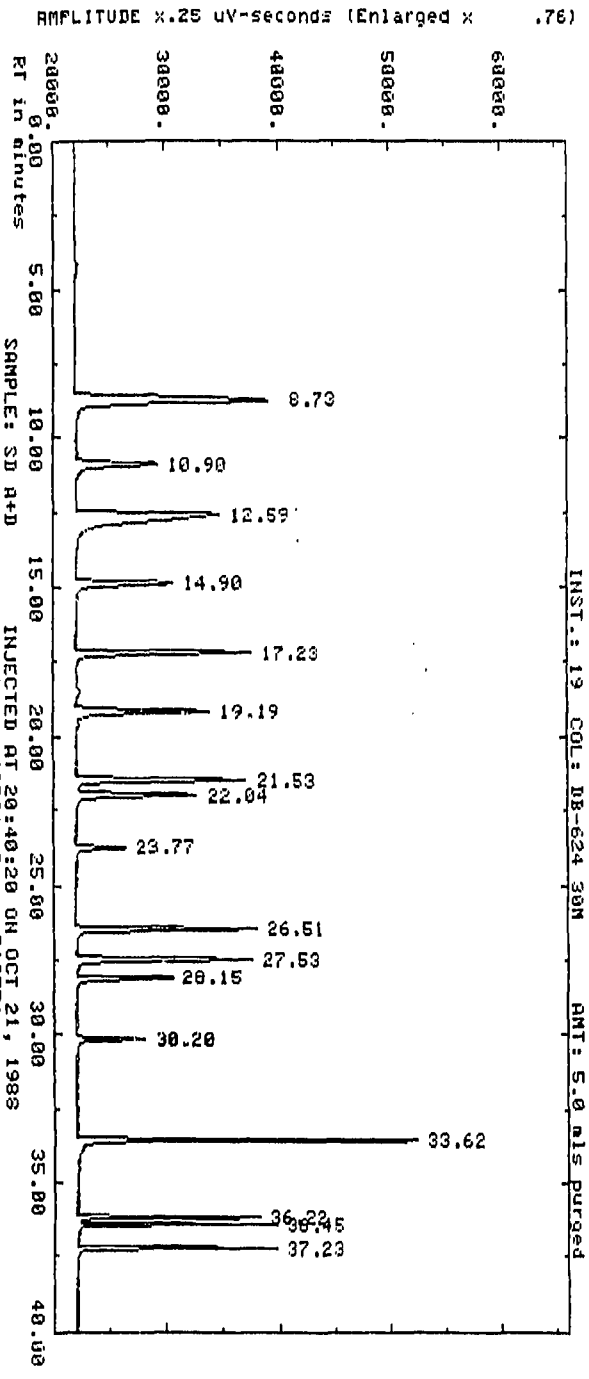
	% Recovery	Control Range %
Trichlorofluoromethane	94	(76-135)
Bromofluorobenzene	106	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .61)
70000.
60000.
50000.
40000.
30000.
20000.
8.73
21.49
33.59
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: V0 223249 INJECTED AT 6:15:14 ON OCT 22, 1988
Method: M60119 Raw: R19565 Proc: P19565


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x .89)
60000.
50000.
40000.
30000.
5.16
5.69
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: SD E+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: R19553 Proc: P19553

AR303576


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
200000.
300000.
400000.
500000.
600000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303577

Lu for print (1)?

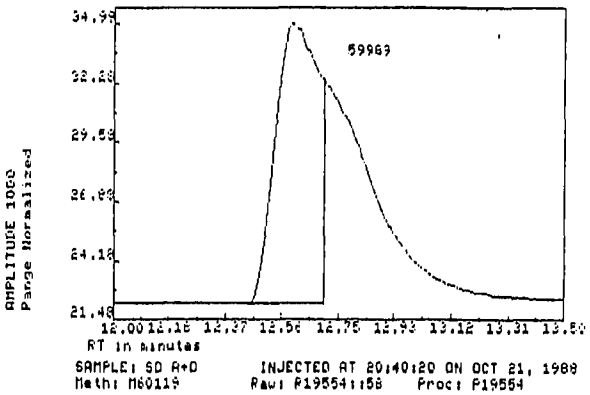
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303578

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

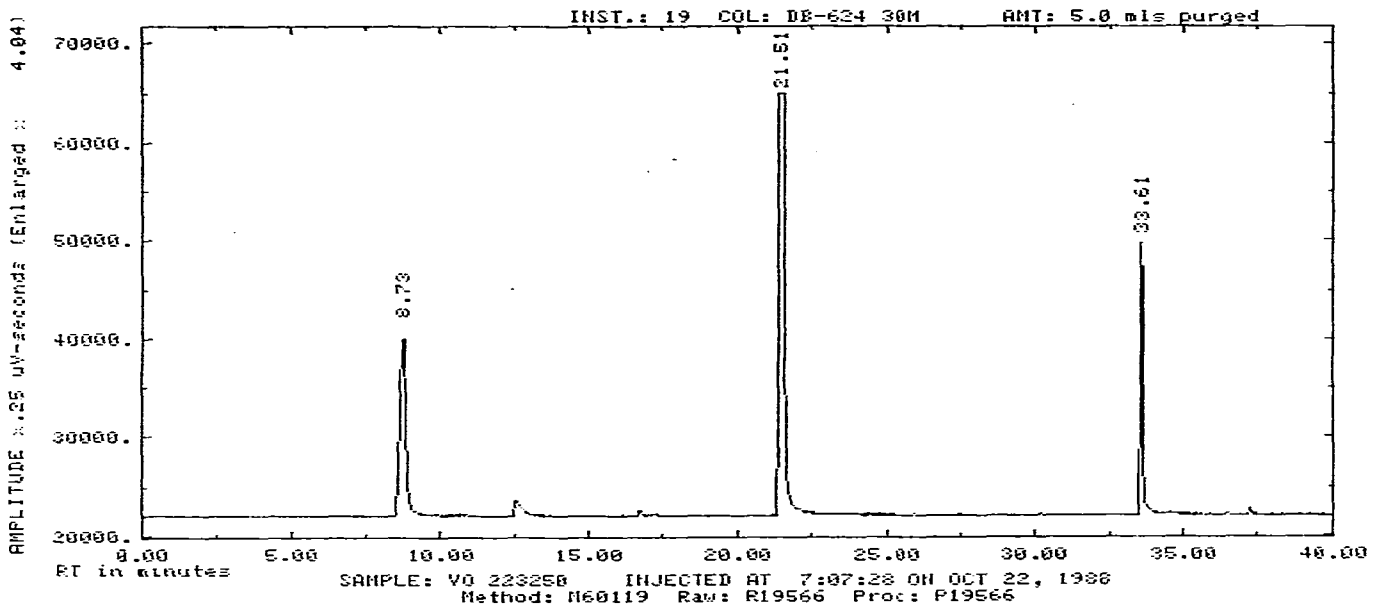
SAMPLE IDENTIFIER: R.W
COMPUCHEM® SAMPLE NUMBER: 223250

		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	50
2V.	BROMOMETHANE	BDL	50
3V.	VINYL CHLORIDE	BDL	50
4V.	CHLOROETHANE	BDL	50
5V.	METHYLENE CHLORIDE	BDL	100
6V.	1,1-DICHLOROETHENE	BDL	30
7V.	1,1-DICHLOROETHANE	BDL	40
8V.	TRANS-1,2-DICHLOROETHENE	BDL	20
9V.	CHLOROFORM	BDL	20
10V.	1,2-DICHLOROETHANE	BDL	30
11V.	1,1,1-TRICHLOROETHANE	BDL	30
12V.	CARBON TETRACHLORIDE	BDL	30
13V.	BROMODICHLOROMETHANE	BDL	40
14V.	1,2-DICHLOROPROPANE	BDL	20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	30
16V.	TRICHLOROETHENE	6400	20
17V.	DIBROMOCHLOROMETHANE	BDL	20
18V.	1,1,2-TRICHLOROETHANE	BDL	20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	40
21V.	BROMOFORM	BDL	50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	40
23V.	TETRACHLOROETHENE	BDL	20
24V.	CHLOROBENZENE	BDL	40
25V.	1,3-DICHLOROBENZENE	BDL	20
26V.	1,2-DICHLOROBENZENE	BDL	20
27V.	1,4-DICHLOROBENZENE	BDL	20

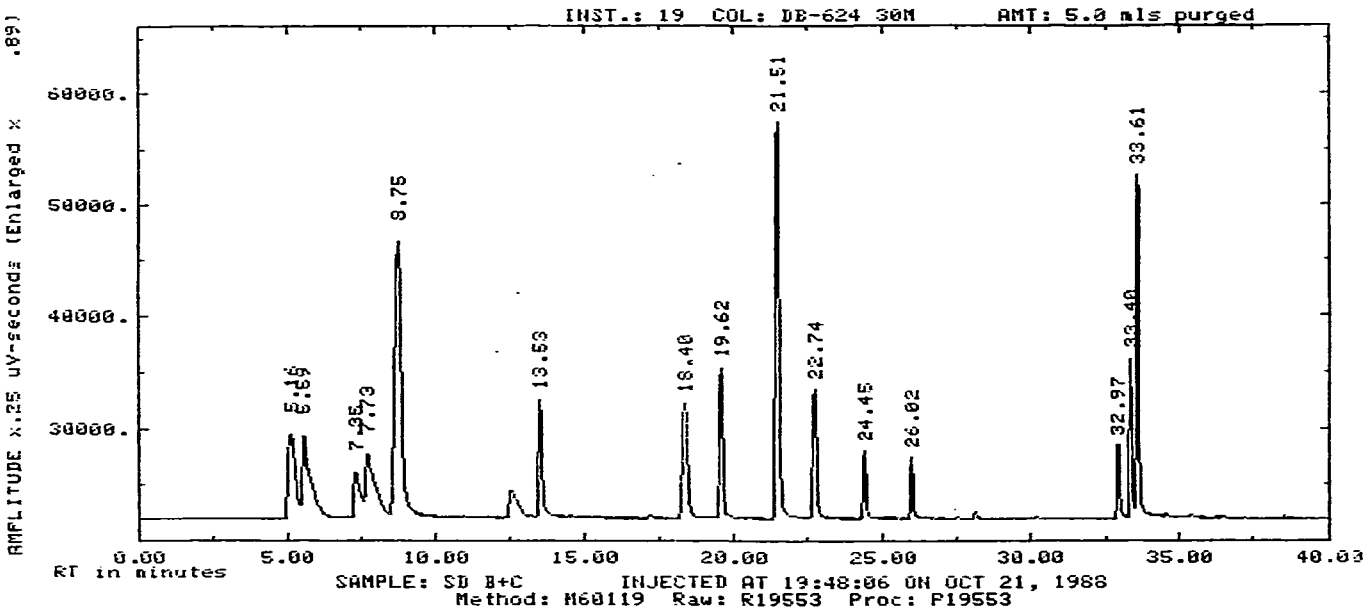
Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range%
Trichlorofluoromethane	120	(76-135)
Bromofluorobenzene	83	(69-123)

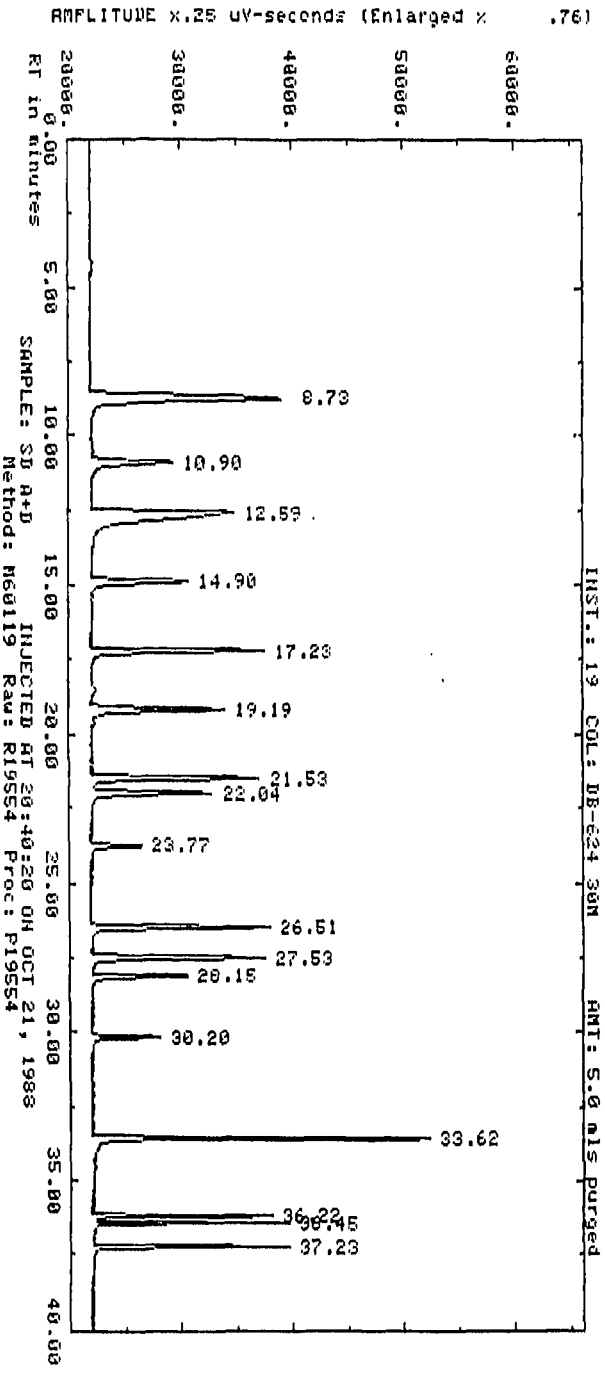
BDL=BELOW DETECTION LIMIT
†Sample analyzed using a 100:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 4.04)
70000.
60000.
50000.
40000.
30000.
20000.
8.73
21.51
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223250 INJECTED AT 7:07:28 ON OCT 22, 1988
Method: M60119 Raw: R19566 Proc: P19566

AR303580


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE X.25 uV-seconds (Enlarged x .89)
60000.
50000.
40000.
30000.
5.89
7.35
7.73
8.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: SB B+C INJECTED AT 19:48:06 ON OCT 21, 1988
Method: M60119 Raw: R19553 Proc: P19553

AR303581


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
280000.
380000.
480000.
580000.
680000.
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
SAMPLE: SD A+D
Method: M60119 Raw: R19554 Proc: P19554
INJECTED AT 20:40:20 ON OCT 21, 1988
INST: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303582

Lu for print (1)?

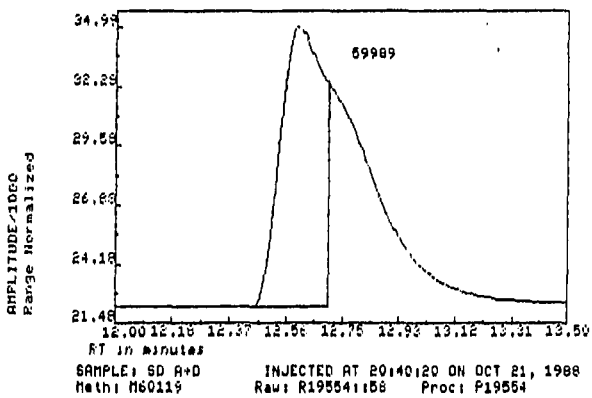
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



AR303583

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

SAMPLE IDENTIFIER: WP6
COMPUCHEM® SAMPLE NUMBER: 223251

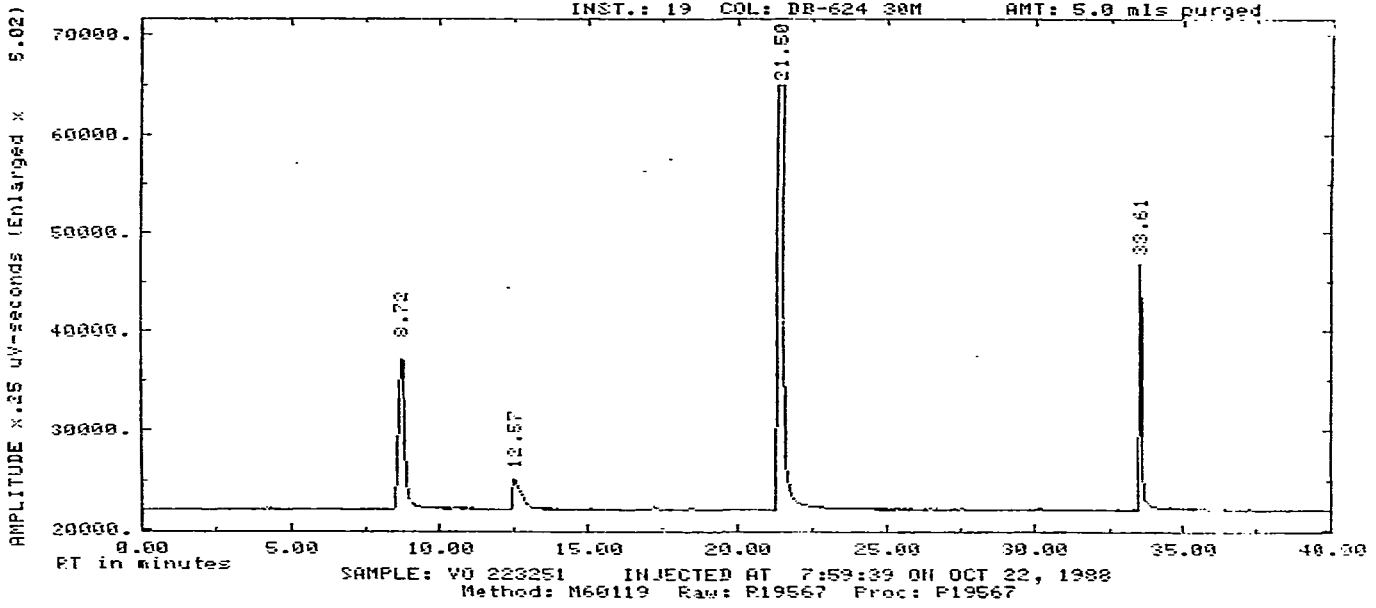
		CONCENTRATION (ug/L)	DETECTION† LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	2500
2V.	BROMOMETHANE	BDL	2500
3V.	VINYL CHLORIDE	BDL	2500
4V.	CHLOROETHANE	BDL	2500
5V.	METHYLENE CHLORIDE	7700	5000
6V.	1,1-DICHLOROETHENE	BDL	1500
7V.	1,1-DICHLOROETHANE	BDL	2000
8V.	T-1,2-DICHLOROETHENE	BDL	1000
9V.	CHLOROFORM	BDL	1000
10V.	1,2-DICHLOROETHANE	BDL	1500
11V.	1,1,1-TRICHLOROETHANE	BDL	1500
12V.	CARBON TETRACHLORIDE	BDL	1500
13V.	BROMODICHLOROMETHANE	BDL	2000
14V.	1,2-DICHLOROPROPANE	BDL	1000
15V.	CIS-1,3-DICHLOROPROPENE	BDL	1500
16V.	TRICHLOROETHENE	460000	1000
17V.	DIBROMOCHLOROMETHANE	BDL	1000
18V.	1,1,2-TRICHLOROETHANE	BDL	1000
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	1000
20V.	2-CHLOROETHYL VINYL ETHER	BDL	2000
21V.	BROMOFORM	BDL	2500
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	2000
23V.	TETRACHLOROETHENE	BDL	1000
24V.	CHLOROBENZENE	BDL	2000
25V.	1,3-DICHLOROBENZENE	BDL	1000
26V.	1,2-DICHLOROBENZENE	BDL	1000
27V.	1,4-DICHLOROBENZENE	BDL	1000

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

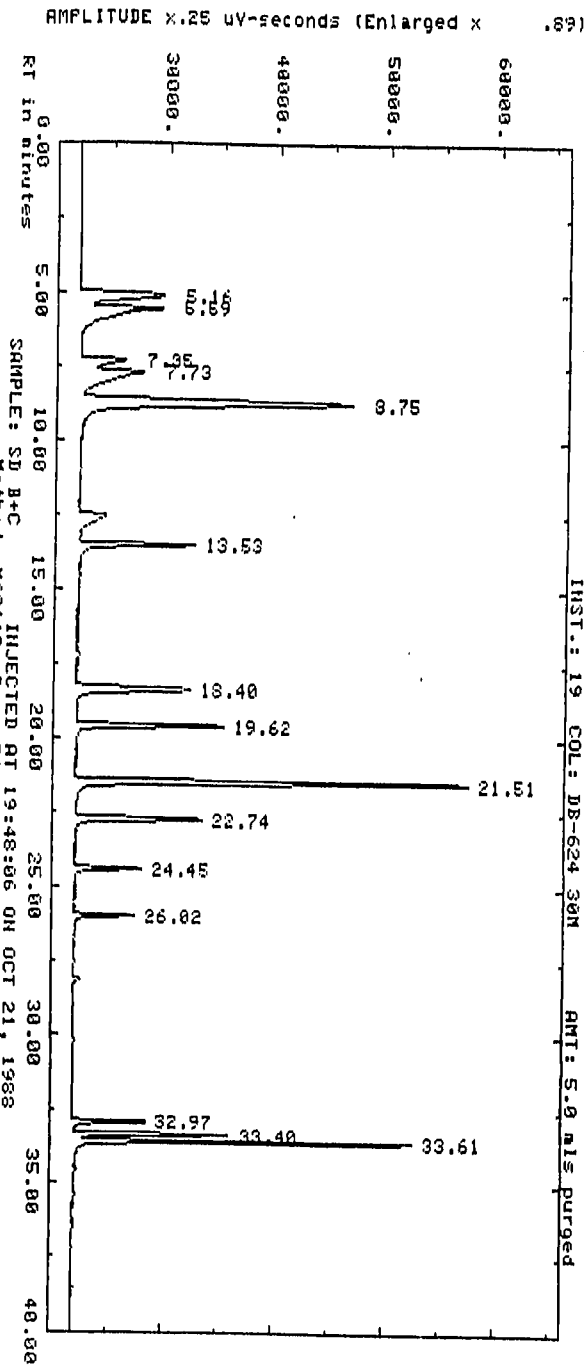
	% Recovery	Control Range %
Trichlorofluoromethane	119	(76-135)
Bromofluorobenzene	84	(69-123)

BDL=BELOW DETECTION LIMIT

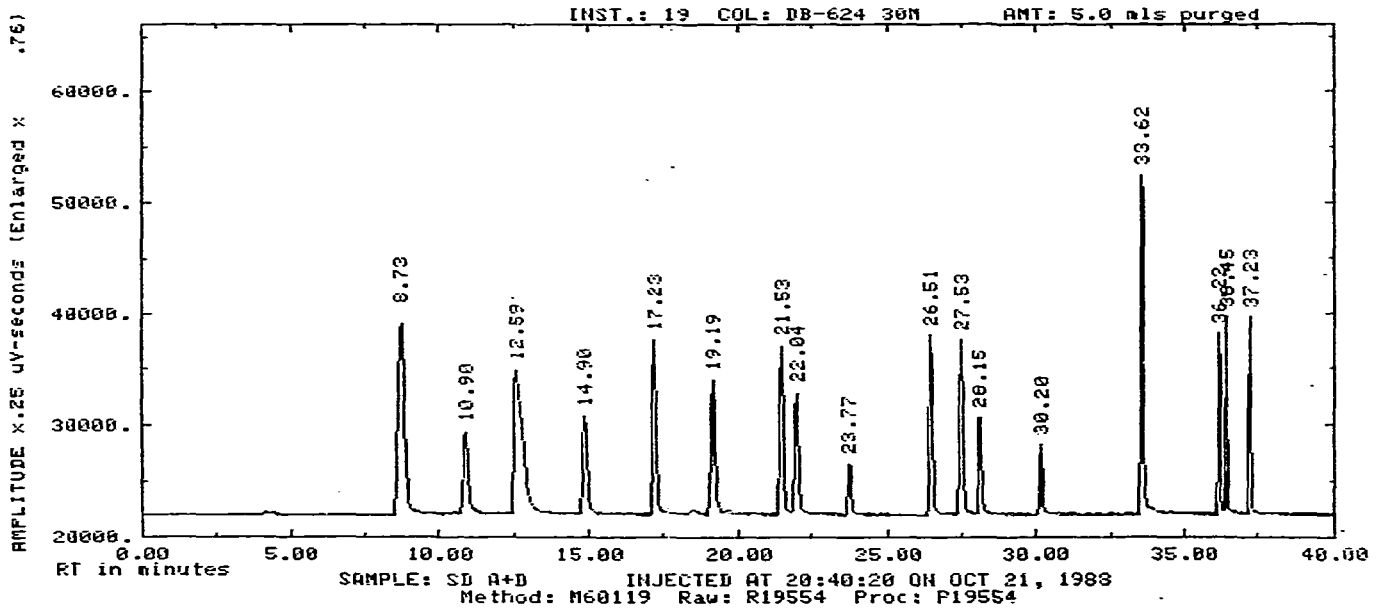
†Sample analyzed using a 5000:1 dilution, thus the higher than normal detection limits.


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE x.25 uV-seconds (Enlarged x 5.02)
70000.
60000.
50000.
40000.
30000.
20000.
8.73
12.57
21.50
33.61
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: VO 223251 INJECTED AT 7:59:39 ON OCT 22, 1988
Method: M60119 Raw: P19567 Proc: P19567

AR303585


AMPLITUDE x.25 uV-seconds (Enlarged x .89)
RT in minutes
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
30000.
40000.
50000.
60000.
5.15
5.69
7.35
7.73
9.75
13.53
18.40
19.62
21.51
22.74
24.45
26.02
32.97
33.40
33.61
SAMPLE: SD B+C
Method: M60119 Raw: R19553 Proc: P19553
INJECTED AT 19:48:06 ON OCT 21, 1988
INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged

AR303586


INST.: 19 COL: DB-624 30M AMT: 5.0 mls purged
AMPLITUDE X.25 uV-seconds (Enlarged x .76)
60000.
50000.
40000.
30000.
20000.
8.73
10.90
12.59
14.90
17.23
19.19
21.53
22.04
23.77
26.51
27.53
28.15
30.20
33.62
36.22
36.45
37.23
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
RT in minutes
SAMPLE: SD A+D INJECTED AT 20:40:20 ON OCT 21, 1988
Method: M60119 Raw: R19554 Proc: P19554

AR303587

Lu for print (1)?

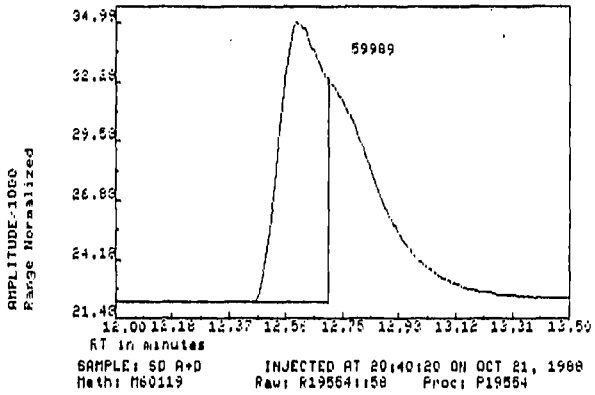
RESULTS OF MANUAL INTEGRATION FROM CPLOT

RAW DATA FILE: R19554::58 INJECTED AT: 20:40:20 ON OCT 21, 1988

RESULTS ARE IN AREA PERCENT

AREA#	TIME1	TIME2	AREA	AREA%
1	12.45	12.70	59989	100.0

Select softkey



COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

BLANK ID: P19555

SAMPLE IDENTIFIER: A.S. R.W. WP6
COMPUCHEM® SAMPLE NUMBER: 223249 223250 223251

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	122	(76-135)
Bromofluorobenzene	82	(69-123)

BDL=BELOW DETECTION LIMIT

VOLATILES

BLANK SPIKE: 222840

A. COMPOUNDS	B. CONC. SPIKE ADDED (ug/L)	C. SAMPLE RESULT	D. CONC. MS	E. % REC	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	5.50	110.00	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	6.00	120.00	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	6.00	120.00	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	6.20	124.00	2.10 - 8.60
C-1,3-DICHLOROPROPENE	8.0	0.00	8.30	105.00	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	4.80	120.00	0.88 - 7.12
BROMOFORM	5.0	0.00	6.20	124.00	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	5.80	116.00	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

COMPUCHEM LABORATORIES

November 16, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested	Report Format
A.S.	223274	660	14699	Metals	Style J
R.W.	223277				

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE METALS ANALYZED
1.	A.S.	223274	10/20/88	11/01/88
2.	R.W.	223277	10/20/88	11/01/88

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
A.S.

DATE 11/ 1/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/20/88

LAB SAMPLE ID. NO. 223274 QC REPORT NO COM112

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[ ] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER Bill Colobach

C

AR303594

FORM I

CompuChem Laboratories, Inc.
P.O. Box 12652
3308 Chapel Hill/Nelson Highway
Research Triangle Park, NC 27709

Client Sample No.
R.W.

DATE 11/ 1/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Inorganics Laboratory CASE NO: COMMERCIAL

SOW NO: 785 Lab Receipt Date 10/20/88

LAB SAMPLE ID. NO. 223277 QC REPORT NO COM112

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER XXX SOIL _____ SLUDGE _____ OTHER _____

UNITS: ug/l

1.	Aluminum		13.	Magnesium	
2.	Antimony		14.	Manganese	
3.	Arsenic		15.	Mercury	
4.	Barium		16.	Nickel	
5.	Beryllium		17.	Potassium	
6.	Cadmium		18.	Selenium	
7.	Calcium		19.	Silver	
8.	Chromium	8.1U P	20.	Sodium	
9.	Cobalt		21.	Thallium	
10.	Copper		22.	Vanadium	
11.	Iron		23.	Zinc	
12.	Lead				

Cyanide _____ Percent Solids(%) _____

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Comments: CLEAR, COLORLESS

LAB MANAGER [signature]

C

AR303595

QUALITY CONTROL SUMMARY

METALS

	NUMBER	ACCEPTANCE CRITERIA
Blank	224809	OK
Duplicate	223276	OK
Blank Spike	223275	OK

ASSOCIATED SAMPLES

SAMPLE IDENTIFIERS	COMPUCHEM NUMBERS
A.S.	223274
R.W.	223277

REAGENT BLANK SHEET

DATE 11/ 1/88

LAB NAME: CompuChem Laboratories CASE NO: COMMERCIAL

LAB SAMPLE ID. NO. 224809 QC REPORT NO COM112

DATE PREPARED: 10/20/88

MATRIX: WATER UNITS: ug/L

	Analyte	Concentration	Method
1.	Aluminum		
2.	Antimony		
3.	Arsenic		
4.	Barium		
5.	Beryllium		
6.	Cadmium		
7.	Calcium		
8.	Chromium	8.1U	P
9.	Cobalt		
10.	Copper		
11.	Iron		
12.	Lead		
13.	Magnesium		
14.	Manganese		
15.	Mercury		
16.	Nickel		
17.	Potassium		
18.	Selenium		
19.	Silver		
20.	Sodium		
21.	Thallium		
22.	Vanadium		
23.	Zinc		
24.	Cyanide		

Flags used: U = Element analyzed for but not detected
Value reported is the instrument detection limit.
[] = Value reported is less than contract-required detection limit
Methods used: P = ICP; F = Furnace AA; CV = Cold Vapor

Form VI

PAGE 1

Q. C. Report No. COM112

DUPLICATES

LAB NAME COMPUCHEM LABORATORIES

CASE NO. COMMERCIAL

EPA Sample No. A.S.

DATE 11/ 1/88

Lab Sample ID No. 223276

Units: ug/L

Matrix WATER

Compound	Control Limit(1)	Sample(S)	Duplicate(D)	RPD(2)
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium				
5. Beryllium				
6. Cadmium				
7. Calcium				
8. Chromium		8.1U	8.1U	NC
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver				
20. Sodium				
21. Thallium				
22. Vanadium				
23. Zinc				
Other:				
Cyanide				

* Out of control
(1) To be added at a later date
(2) RPD = [|S - D|/((S + D)/2] x 100
NC - Non-calculable RPD due to value(s) less than CRDL

D

Form VII

Page 1

Q. C. Report No. COM112

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME: CompuChem Laboratories CASE NO.: COMMERCIAL DATE 11/ 1/88
LCS NO. 223275

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA ID# 3	Instrument Detection Limits (IDL)-ug/l Furnace ID# 2	Lab Control Sample (ug/L) mg/kg (circle one) True	Found	%R
Metals:						
1. Aluminum	200			NR	NR	NR
2. Antimony	60			NR	NR	NR
3. Arsenic	10			NR	NR	NR
4. Barium	200			NR	NR	NR
5. Beryllium	5			NR	NR	NR
6. Cadmium	5			NR	NR	NR
7. Calcium	5000			NR	NR	NR
8. Chromium	10	8.1		10000	9628	96
9. Cobalt	50			NR	NR	NR
10. Copper	25			NR	NR	NR
11. Iron	100			NR	NR	NR
12. Lead	5			NR	NR	NR
13. Magnesium	5000			NR	NR	NR
14. Manganese	15			NR	NR	NR
15. Mercury	0.2		(1) 0.11	NR	NR	NR
16. Nickel	40			NR	NR	NR
17. Potassium	5000			NR	NR	NR
18. Selenium	5			NR	NR	NR
19. Silver	10			NR	NR	NR
20. Sodium	5000			NR	NR	NR
21. Thallium	10			NR	NR	NR
22. Vanadium	50			NR	NR	NR
23. Zinc	20			NR	NR	NR
Other:						
Cyanide	10			NR	NR	NR

NR - Not Required

(1) Video 12 (Cold Vapor technique)
(2) Video 22/755
(3) Jarrell-Ash 1100
(4) Technicon

A

AR303599

[X]

FORM X
Q.C. REPORT No.A
HOLDING TIMES

DATE: 10/27/88 CASE # Commercial

CCN #	EPA ID#	DATE RECIEVED	HG PREP	CN PREP	MATRIX
1 223274	A.S.	10-20-88	NR	NR	water
2 223277	B.W.	10-20-88	NR	NR	water
3					
4					
5					
6					
7					
8					
9					
10					
12					
13					
14					
15					
16					
17					
18					
19					
20					

AR303600

6/2/1/4/3/45

CompuChem Laboratories, Inc.
ICP Analysis Run Log

Page: 1 of 1

Operator: ANTHONY S. NAGEL
Date: 10/31/88

ICP DATA 154744

File Name: ASN103188
Case Name: 154744, COM351, COM352, COM112, COM110, COM111

#	SAMPLE ID.	COMMENTS	#	SAMPLE ID.	COMMENTS
	ICV	SEE (1)	1	223952	
	ICB		2	223950	D(223952)
1	ICS	0887	3	223948	
2	LRS	2xCRDL	4	225903 B1	COM352
3	225190	154744	5	225896	Leach Blk
4		LCS PA	6	225896	+2
5		LCS PB	7	225830	
6	224428		8	225830	+2
7	224431	SS(224428)	9	224827	B1 COM111
8	224432	D(224428)	10	223765	LCS PA
9	224429			CCV	SEE(2)
10	224430			CCB	-4-
	ICV	SEE (1)	1	223752	
	CCB	-1-	2	223752	+2
1	224764		3	223766	D(223752)
2	224767		4	223766	+2
3	224768		5	223758	
4	224768(1+4)	SERIAL DIL	6	223758	+2
5	225257 B1	COM351C	7	224222	
6	224904		8	224222	+2
7	224909		9	LRS	2xCRDL
8	225259 B1	COM352	10	ICS	0887
9	225123	LCS PA		CCV	SEE(2)
10	225123	LCS PB		CCB	-5-
	CCV	SEE(2)			
	CCB	-2-			
1	225117				
2	225125	D(225117)			
3	224809 B1	COM112			
4	223275	LCS PA			
5	223274				
6	223276	D(223274)			
7	223277				
8	224825 B1	COM110			
9	223949	LCS PA			
10	223953				
	CCV	SEE(2)			
	CCB	-3-			

(1) ICV SOLUTIONS:
10/25/88 ICV-1(0487)
10/88 ICV-2(0887) 20x
10/25/88 ICV-3(0787)

(2) CCV SOLUTIONS:
ICV-1(0487) 10/25/88
ICV-3(0787) 10/25/88
SPIKE 3 10/25/88

Instrument Hours: 3
Production Smpls: 20
QC Samples: 44

AR303601

ANTHONY S. NAGEL
10/31/88
UNITS (mg/L)
PAGES 1-79

CASE: COM112
FILE: ASN103188

BURN # 1 785 31-OCT-88 14:06:39
BLANK
LV
3741.5

AL	SB	AS	BA	BE	CD	CA	CR
.00060	.00040	-.0027	-.0001	.00080	-.0004	-.0033	.00160
CO	CU	FE	PB	MG	MN	NI	K
.11613	.00027	.00374	.00027	.89697	.00935	.00454	.90044
SE	AG	NA	TL	V	ZN	SR	B
.00334	.00000	.23440	.01189	.19685	.00107	.00267	.00000
MO	TI	SN	SI	XX			
.01791	.00321	-.0004	.09475	.00160			

BURN # 2 785 31-OCT-88 14:06:57
BLANK
LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
.00013	.00067	-.0017	.00013	.00080	-.0006	-.0032	-.0003
CO	CU	FE	PB	MG	MN	NI	K
.11665	.00063	.00321	.00227	.89711	.00935	-.0013	.89695
SE	AG	NA	TL	V	ZN	SR	B
.00722	.00042	.23423	.01162	.19735	.00147	.00297	.00013
MO	TI	SN	SI	XX			
.02646	.00321	-.0021	.09701	.00160			

BURN # 3 785 31-OCT-88 14:07:15
BLANK
LV
3741.5

AL	SB	AS	BA	BE	CD	CA	CR
.00040	-.0021	-.0043	-.0001	.00060	.00053	-.0029	.00107
CO	CU	FE	PB	MG	MN	NI	K
.11707	.00027	.00241	.00706	.89550	.00935	.00535	.89517
SE	AG	NA	TL	V	ZN	SR	B
.00481	.00053	.23159	.00134	.19671	.00134	.00227	.00094
MO	TI	SN	SI	XX			
-.0234	.00321	.00134	.09461	.00160			

AVERAGE N=3 785 31-OCT-88 14:08:04
BLANK
LV
3741.7

AL	SB	AS	BA	BE	CD	CA	CR
.00045	-.0004	-.0029	-.0000	.00080	-.0002	-.0032	.00080
CO	CU	FE	PB	MG	MN	NI	K
.11661	.00036	.00312	.00321	.89653	.00935	.00285	.89920
SE	AG	NA	TL	V	ZN	SR	B
.00512	.00031	.23341	.00828	.19697	.00129	.00294	.00036
MO	TI	SN	SI	XX			
.00695	.00321	.00027	.09548	.00160			

2

BURN # 1 785 31-OCT-88 14:09:01
XCL ONE
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.47155	.00842	.00685	.00013	.00080	1.5664	-.0037	3.1476
CO	CU	FE	PB	MG	MN	NI	K
.13866	.33342	.00227	2.5651	.89060	.00935	4.1631	.89594
SE	AG	NA	TL	V	ZN	SR	B
3.8442	.28827	.24205	1.8434	.19837	4.8328	.00080	.00214
MO	TI	SN	SI	XX			
.00828	.00374	-.0024	.10166	.00160			

BURN # 2 785 31-OCT-88 14:09:19
XCL ONE
LV
3741.5

AL	SB	AS	BA	BE	CD	CA	CR
.47120	.00962	.00535	.00013	.00080	1.5649	-.0041	3.1401
CO	CU	FE	PB	MG	MN	NI	K
.13925	.33329	.00281	2.5617	.89202	.00935	4.1995	.89710
SE	AG	NA	TL	V	ZN	SR	B
3.8569	.28865	.24055	1.8379	.19778	4.8251	-.0005	.00107
MO	TI	SN	SI	XX			
.04876	.00321	-.0027	.10237	.00160			

BURN # 3 785 31-OCT-88 14:09:37
XCL ONE
LV
3741.5

AL	SB	AS	BA	BE	CD	CA	CR
.46920	.00909	.00575	.00013	.00080	1.5525	-.0044	3.1209
CO	CU	FE	PB	MG	MN	NI	K
.13952	.33169	.00187	2.5561	.88855	.00935	4.1430	.89576
SE	AG	NA	TL	V	ZN	SR	B
3.8467	.28505	.24085	1.8364	.19778	4.8020	-.0126	.00080
MO	TI	SN	SI	XX			
.01350	.00321	-.0017	.10049	.00160			

AVERAGE N=3 785 31-OCT-88 14:09:46
XCL ONE
LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
.47065	.00904	.00601	.00013	.00080	1.5612	-.0041	3.1362
CO	CU	FE	PB	MG	MN	NI	K
.13914	.33280	.00232	2.5609	.89039	.00935	4.1687	.89627
SE	AG	NA	TL	V	ZN	SR	B
3.8499	.28732	.24109	1.8393	.19798	4.8199	-.0041	.00134
MO	TI	SN	SI	XX			
.02352	.00338	-.0023	.10151	.00160			

AR303603

3

BURN # 1 785 31-OCT-88 14:10:36
XCL TWO
LV
3742.0

AL	SE	AS	BA	BE	CD	CA	CR
.00641	1.6545	1.2201	1.4399	1.9317	.02592	.00214	.00414
CO	CU	FE	PB	MG	MN	NI	K
4.5711	.00000	3.7072	-.0043	.93346	2.0012	-.0035	.89551
SE	AG	NA	TL	V	ZN	SR	B
.00748	-.0086	.23223	-.0168	7.0013	.00508	.14818	.00160
MO	TI	SN	SI	XX			
6.7268	.00120	-.0059	.13322	.00160			

BURN # 2 785 31-OCT-88 14:10:57
XCL TWO
LV
3741.0

AL	SE	AS	BA	BE	CD	CA	CR
.00628	1.6457	1.2136	1.4412	1.9223	.02648	.00214	.00134
CO	CU	FE	PB	MG	MN	NI	K
4.5545	.00057	3.6918	-.0136	.92970	1.9948	-.0090	.88640
SE	AG	NA	TL	V	ZN	SR	B
.01096	-.0076	.23162	.00454	6.9736	.00388	.12781	.00214
MO	TI	SN	SI	XX			
6.7443	.00107	-.0022	.13312	.00160			

BURN # 3 785 31-OCT-88 14:11:14
XCL TWO
LV
3742.0

AL	SE	AS	BA	BE	CD	CA	CR
.00655	1.6443	1.2127	1.4367	1.9178	.02459	.00281	.00167
CO	CU	FE	PB	MG	MN	NI	K
4.5506	.00000	3.6903	-.0102	.93640	1.9929	.00174	.89711
SE	AG	NA	TL	V	ZN	SR	B
.02672	-.0066	.23343	-.0090	6.9657	.00334	.14110	.00294
MO	TI	SN	SI	XX			
6.7239	.00107	-.0045	.13709	.00160			

AVERAGE N=3 785 31-OCT-88 14:11:28
XCL TWO
LV
3741.7

AL	SE	AS	BA	BE	CD	CA	CR
.00641	1.6482	1.2155	1.4392	1.9239	.02566	.00236	.00245
CO	CU	FE	PB	MG	MN	NI	K
4.5589	.00018	3.6965	-.0094	.93385	1.9963	-.0036	.89367
SE	AG	NA	TL	V	ZN	SR	B
.01506	-.0063	.23243	-.0071	6.9803	.00410	.13906	.00223
MO	TI	SN	SI	XX			
6.7317	.00111	-.0045	.13448	.00160			

AR303604

4

BURN # 1 785 31-OCT-88 14:12:31
XCL THREE
LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
.00027	.00241	-.0036	.00040	.00107	-.0004	6.7726	.00053
CO	CU	FE	PB	MG	MN	NI	K
.11438	.00053	.00347	.00147	5.9196	.01109	-.0086	1.1386
SE	AG	NA	TL	V	ZN	SR	B
-.0015	.00080	.37814	.01710	.19629	.00374	.05385	.00174
MO	TI	SN	SI	XX			
.01149	.00294	-.0019	.10823	.00160			

BURN # 2 785 31-OCT-88 14:12:49
XCL THREE
LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
.00053	.00120	.00080	.00013	.00107	.00053	6.8004	.00000
CO	CU	FE	PB	MG	MN	NI	K
.11484	.00053	.00281	.00107	5.9238	.01082	-.0013	1.1379
SE	AG	NA	TL	V	ZN	SR	B
.00855	.00107	.37974	.02151	.19585	.00426	.04383	.00084
MO	TI	SN	SI	XX			
-.0235	.00294	.00000	.10903	.00160			

BURN # 3 785 31-OCT-88 14:13:07
XCL THREE
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00000	.00067	-.0033	.00027	.00107	-.0009	6.8126	.00107
CO	CU	FE	PB	MG	MN	NI	K
.11435	.00027	.00227	.00695	5.9267	.01002	.01029	1.1348
SE	AG	NA	TL	V	ZN	SR	B
.00708	-.0005	.37857	.02137	.19610	.00427	.05956	.00107
MO	TI	SN	SI	XX			
.01069	.00294	-.0009	.10593	.00160			

AVERAGE N=3 785 31-OCT-88 14:13:16
XCL THREE
LV
3742.3

AL	SB	AS	BA	BE	CD	CA	CR
.00027	.00143	-.0020	.00027	.00107	-.0003	6.7952	.00053
CO	CU	FE	PB	MG	MN	NI	K
.11446	.00045	.00285	.00316	5.9233	.01064	.00013	1.1371
SE	AG	NA	TL	V	ZN	SR	B
.00472	.00045	.37882	.02000	.19609	.00410	.05242	.00125
MO	TI	SN	SI	XX			
-.0004	.00294	-.0009	.10773	.00160			

AR303605

5

BURN # 1 785 31-OCT-88 14:14:21
STANDARD FOUR

LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00494	1.5462	1.1587	.00000	.00053	.01990	.00786	.00120
CO	CU	FE	PB	MG	MN	NI	K
.12276	.00000	-.0008	.00160	.89327	.00935	.00240	.88058
SE	AG	NA	TL	V	ZN	SR	B
-.0055	-.0003	.23310	-.0077	.20291	.00214	.00427	.88619
MO	TI	SN	SI	XX			
6.5394	1.4259	1.4125	.11889	.00160			

BURN # 2 785 31-OCT-88 14:14:39
STANDARD FOUR

LV
3741.5

AL	SB	AS	BA	BE	CD	CA	CR
.00535	1.5607	1.1896	.00013	.00050	.01978	.00080	.00134
CO	CU	FE	PB	MG	MN	NI	K
.12268	.00000	-.0001	.00585	.88347	.00935	-.0052	.87759
SE	AG	NA	TL	V	ZN	SR	B
.00753	-.0005	.23413	.00815	.20328	.00214	.00174	.90231
MO	TI	SN	SI	XX			
6.8175	1.4362	1.4260	.12295	.00160			

BURN # 3 785 31-OCT-88 14:14:57
STANDARD FOUR

LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
.00461	1.5492	1.1826	.00013	.00080	.01991	.00013	.00107
CO	CU	FE	PB	MG	MN	NI	K
.12213	.00000	.00013	.00428	.88288	.00935	.00748	.87627
SE	AG	NA	TL	V	ZN	SR	B
.00762	-.0001	.23223	.00160	.20257	.00214	.01363	.89177
MO	TI	SN	SI	XX			
6.5599	1.4345	1.4049	.11758	.00160			

AVERAGE N=3 785 31-OCT-88 14:15:20
STANDARD FOUR

LV
3742.2

AL	SB	AS	BA	BE	CD	CA	CR
.00503	1.5527	1.1836	.00009	.00071	.01986	.00294	.00120
CO	CU	FE	PB	MG	MN	NI	K
.12252	.00000	-.0003	.00392	.88647	.00935	.00156	.87815
SE	AG	NA	TL	V	ZN	SR	B
.00989	-.0003	.23315	.00067	.20291	.00214	.00655	.89342
MO	TI	SN	SI	XX			
6.5724	1.4389	1.4145	.11961	.00160			

AR303606

6

BURN # 1 785 31-OCT-88 14:20:20
ICV ICV-1(0487)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9798	-.0051	-.0126	1.9766	.47666	.48400	49.652	.47632
CO	CU	FE	PB	MG	MN	NI	K
.48192	.51421	1.9567	4.2010	24.653	.49942	.45619	53.948
SE	AG	NA	TL	V	ZN		
.00851	.48792	49.731	.00946	.50207	2.8945		

BURN # 2 785 31-OCT-88 14:20:41
ICV ICV-1(0487)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9769	.03962	.00343	1.9951	.48153	.49489	50.134	.48697
CO	CU	FE	PB	MG	MN	NI	K
.48810	.52225	1.9759	4.2485	25.054	.50480	.46740	54.454
SE	AG	NA	TL	V	ZN		
.01827	.49304	51.460	-.0584	.50519	2.9223		

BURN # 3 785 31-OCT-88 14:21:02
ICV ICV-1(0487)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
2.0025	.00557	.00558	1.9989	.48222	.50513	50.211	.48395
CO	CU	FE	PB	MG	MN	NI	K
.48734	.52225	1.9777	4.2225	24.948	.50547	.43881	52.320
SE	AG	NA	TL	V	ZN		
-.0144	.49304	50.080	-.0577	.50516	2.9256		

AVERAGE N=3 785 31-OCT-88 14:22:04
ICV ICV-1(0487)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9864	.01338	-.0012	1.9902	.48014	.49468	49.999	.48243
CO	CU	FE	PB	MG	MN	NI	K
.48512	.51957	1.9701	4.2233	24.884	.50323	.45340	53.574
SE	AG	NA	TL	V	ZN		
.00413	.49133	50.424	-.0355	.50414	2.9142		

AR303607

7

BURN # 1 785 31-OCT-88 14:24:47
ICV ICV-2(0887) 20X
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00284	.00732	1.0435	.00082	-.0005	.00141	-.0033	.00341
CO	CU	FE	PB	MG	MN	NI	K
.00431	.01607	-.0018	.00054	.20473	-.0000	-.0161	6.1605
SE	AG	NA	TL	V	ZN		
2.0453	-.0003	3.1222	.02980	.00569	.00172		

BURN # 2 785 31-OCT-88 14:25:09
ICV ICV-2(0887) 20X
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00566	-.0065	1.0229	.00082	-.0005	.00096	-.0033	.00285
CO	CU	FE	PB	MG	MN	NI	K
.00610	.00604	-.0014	-.0110	.30039	-.0000	-.0040	6.2166
SE	AG	NA	TL	V	ZN		
2.0158	.00015	2.0198	-.0096	.00591	.00173		

BURN # 3 785 31-OCT-88 14:25:30
ICV ICV-2(0887) 20X
LV
3742.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0142	.00049	1.0311	.00082	-.0005	-.0010	.00065	-.0017
CO	CU	FE	PB	MG	MN	NI	K
.00432	.00000	-.0011	-.0076	.14331	.00000	.00919	6.3797
SE	AG	NA	TL	V	ZN		
1.9434	-.0026	1.9493	.04606	.00434	.00175		

AVERAGE N=3 785 31-OCT-88 14:26:12
ICV ICV-2(0887) 20X
LV
3742.8

AL	SB	AS	BA	BE	CD	CA	CR
-.0019	-.0004	1.0325	.00082	-.0005	.00043	-.0020	.00085
CO	CU	FE	PB	MG	MN	NI	K
.00491	.00804	-.0014	-.0061	.21614	.00000	-.0036	6.2522
SE	AG	NA	TL	V	ZN		
2.0015	-.0009	2.3636	.02276	.00532	.00173		

AR303608

BURN # 1 785 31-OCT-88 14:26:47
ICV ICV-3(0787)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00000	1.0420	.00493	.00062	-.0033	.00136	-.0111	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.00401	-.0080	-.0047	-.0078	.10109	-.0000	-.0136	4.0827
SE	AG	NA	TL	V	ZN		
.01070	-.0031	.72803	.06056	.00472	-.0005		

BURN # 2 785 31-OCT-88 14:27:08
ICV ICV-3(0787)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0057	1.0367	.02099	.00062	-.0005	.00369	-.0190	-.0017
CO	CU	FE	PB	MG	MN	NI	K
.00252	.00000	-.0076	-.0026	.12768	-.0000	-.0251	3.5212
SE	AG	NA	TL	V	ZN		
.02632	-.0064	1.1877	-.0212	.00272	-.0005		

BURN # 3 785 31-OCT-88 14:27:30
ICV ICV-3(0787)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0028	1.0640	.01645	.00062	.00091	.00290	-.0033	.00085
CO	CU	FE	PB	MG	MN	NI	K
.00400	-.0090	-.0065	-.0026	.13563	-.0000	-.0043	4.4758
SE	AG	NA	TL	V	ZN		
.03398	-.0012	2.0135	.03430	.00456	-.0005		

AVERAGE N=3 785 31-OCT-88 14:28:06
ICV ICV-3(0787)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0028	1.0476	.01412	.00062	-.0009	.00265	-.0111	-.0004
CO	CU	FE	PB	MG	MN	NI	K
.00351	-.0054	-.0063	-.0043	.12146	-.0000	-.0143	4.0266
SE	AG	NA	TL	V	ZN		
.02366	-.0036	1.3097	.02457	.00400	-.0005		

8

9

BURN # 1 765 31-OCT-88 14:30:07
ICB
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0104	-.0089	.00701	.00031	-.0023	-.0032	-.0095	-.0021
CO	CU	FE	PB	MG	MN	NI	K
-.0031	-.0161	.00024	-.0178	-.1763	.00000	.01518	-3.388
SE	AG	NA	TL	V	ZN		
-.0006	-.0034	-1.009	-.0146	-.0022	-.0005		

BURN # 2 765 31-OCT-88 14:30:28
ICB
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0133	-.0385	-.0377	.00031	-.0005	-.0052	-.0065	-.0030
CO	CU	FE	PB	MG	MN	NI	K
-.0034	.00000	-.0035	-.0110	-.2029	.00000	-.0021	-4.287
SE	AG	NA	TL	V	ZN		
.00230	-.0035	.02111	.00055	-.0064	-.0006		

BURN # 3 765 31-OCT-88 14:30:50
ICB
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.00547	.03475	.00813	.00031	-.0009	.00187	-.0046	.00383
CO	CU	FE	PB	MG	MN	NI	K
-.0043	-.0161	-.0005	.00260	-.3384	-.0000	.00364	-5.634
SE	AG	NA	TL	V	ZN		
-.0142	-.0029	-1.929	.03210	-.0101	-.0002		

AVERAGE N=3 765 31-OCT-88 14:31:46
ICB
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0047	-.0139	-.0075	.00031	-.0014	-.0022	-.0065	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0036	-.0107	-.0004	-.0087	-.2392	.00000	.00557	-4.436
SE	AG	NA	TL	V	ZN		
.00248	-.0034	-.9789	.02601	-.0062	-.0005		

AR303610

BURN # 1 785 31-OCT-86 14:32:36
ICS 0367
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
513.28	.05690	.17236	.49270	.46010	.95949	480.48	.47875
CO	CU	FE	PB	MG	MN	NI	K
.46046	.51208	214.02	4.5796	517.87	.48782	.87681	<-10.0
SE	AG	NA	TL	V	ZN		
.06786	.96410	-2.600	.96595	.48532	1.0110		

BURN # 2 785 31-OCT-86 14:32:57
ICS 0367
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
515.51	-.0042	.12795	.49366	.46142	.95403	481.33	.48922
CO	CU	FE	PB	MG	MN	NI	K
.48324	.52030	214.51	4.6134	519.77	.49033	.86984	<-10.0
SE	AG	NA	TL	V	ZN		
.05185	.97607	-1.980	1.1725	.48656	1.0162		

BURN # 3 785 31-OCT-86 14:33:19
ICS 0367
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
517.22	.03508	.11217	.49449	.46142	.96111	481.68	.48252
CO	CU	FE	PB	MG	MN	NI	K
.46413	.51899	214.78	4.5933	520.45	.49024	.82503	<-10.0
SE	AG	NA	TL	V	ZN		
.07378	.97235	-2.989	1.1265	.48786	1.0155		

AVERAGE N=3 785 31-OCT-86 14:34:16
ICS 0367
LV
3744.3

AL	SB	AS	BA	BE	CD	CA	CR
515.34	.02927	.13750	.49358	.46098	.95821	481.16	.48353
CO	CU	FE	PB	MG	MN	NI	K
.46261	.51735	214.44	4.5956	519.36	.48946	.85718	<-10.0
SE	AG	NA	TL	V	ZN		
.06451	.97084	-2.523	1.0890	.48659	1.0142		

10

AR303611

BURN # 1 785 31-OCT-88 14:34:49
LRS 2X CRDL
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
.05112	.11403	.16234	.00000	.00988	.01229	.03930	.01704
CO	CU	FE	PB	MG	MN	NI	K
.09777	.05892	.01614	.07786	-.0481	.03090	.07834	-2.586
SE	AG	NA	TL	V	ZN		
.17252	.02094	.17726	.74272	.09684	.04238		

BURN # 2 785 31-OCT-88 14:35:11
LRS 2X CRDL
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
.02272	.12178	.17647	.00093	.00988	.01120	.01966	.02215
CO	CU	FE	PB	MG	MN	NI	K
.09892	.05891	.01038	.07055	-.1248	.03089	.08508	-3.198
SE	AG	NA	TL	V	ZN		
.14432	.02140	-1.496	.74699	.09660	.04098		

BURN # 3 785 31-OCT-88 14:35:32
LRS 2X CRDL
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
.02556	.12617	.18015	.00000	.00988	.01318	.01376	.02257
CO	CU	FE	PB	MG	MN	NI	K
.10075	.05692	.00464	.06012	.01038	.03090	.06263	.7604E
SE	AG	NA	TL	V	ZN		
.17981	.02233	-.5573	.63463	.09685	.04209		

AVERAGE N=3 785 31-OCT-88 14:36:09
LRS 2X CRDL
LV
3744.2

AL	SB	AS	BA	BE	CD	CA	CR
.03313	.12066	.16699	.00031	.00988	.01222	.02424	.02059
CO	CU	FE	PB	MG	MN	NI	K
.09916	.05891	.01048	.06951	-.0542	.03090	.07534	-1.669
SE	AG	NA	TL	V	ZN		
.16545	.02156	-.6253	.77478	.09676	.04182		

AR303612

12

BURN # 1 785 31-OCT-88 14:38:22
225190 PREP BLANK SOIL 15474A
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.01136	.00349	.00647	.00000	.00048	.00076	.01965	.00256
CO	CU	FE	PB	MG	MN	NI	K
-.0001	.01071	.00422	.00925	-.2161	-.0000	-.0359	-1.984
SE	AG	NA	TL	V	ZN		
-.0101	.00372	-1.696	-.0274	-.0039	.01304		

BURN # 2 785 31-OCT-88 14:38:43
225190 PREP BLANK SOIL 15474A
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.00000	.00482	.02140	.00000	.00048	.00136	.02182	-.0000
CO	CU	FE	PB	MG	MN	NI	K
-.0026	.01071	.00206	.02022	-.2572	-.0000	-.0173	-2.125
SE	AG	NA	TL	V	ZN		
.01559	.00000	-3.525	-.0012	-.0041	.01276		

BURN # 3 785 31-OCT-88 14:39:05
225190 PREP BLANK SOIL 15474A
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
.02272	-.0012	.00072	.00166	.00046	.00255	.01770	.00258
CO	CU	FE	PB	MG	MN	NI	K
-.0320	.01071	.00348	-.0208	-.1553	-.0000	-.0053	-.3519
SE	AG	NA	TL	V	ZN		
-.0143	.00512	-2.309	-.0377	-.0040	.01304		

AVERAGE N=3 785 31-OCT-88 14:40:15
225190 PREP BLANK SOIL 15474A
LV
3744.2

AL	SB	AS	BA	BE	CD	CA	CR
.01136	.00232	.00953	.00062	.00048	.00157	.01966	.00170
CO	CU	FE	PB	MG	MN	NI	K
-.0016	.01071	.00325	.00296	-.2109	-.0000	-.0205	-1.500
SE	AG	NA	TL	V	ZN		
-.0029	.00295	-2.510	-.0221	-.0040	.01295		

13

BURN # 1 785 31-OCT-88 14:40:45
LCS PA
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
9.8665	10.050	9.7935	9.9666	9.8897	9.4455	.09233	9.6073
CO	CU	FE	PB	MG	MN	NI	K
9.7236	9.6902	9.7968	9.3527	.09039	9.7728	9.4525	-8.531
SE	AG	NA	TL	V	ZN		
9.6484	.92862	-7.185	9.3197	9.8147	9.3636		

BURN # 2 785 31-OCT-88 14:41:10
LCS PA
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
9.8720	10.067	9.8588	9.9574	9.9020	9.4463	.08645	9.6282
CO	CU	FE	PB	MG	MN	NI	K
9.7530	9.7003	9.8319	9.4023	.18277	9.8064	9.4720	-5.964
SE	AG	NA	TL	V	ZN		
9.5831	.93166	-5.421	9.2930	9.8418	9.4028		

BURN # 3 785 31-OCT-88 14:41:31
LCS PA
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
9.9277	10.111	9.9244	9.9701	9.9551	9.4866	.06643	9.6393
CO	CU	FE	PB	MG	MN	NI	K
9.7885	9.7611	9.8460	9.4382	.26059	9.8272	9.4836	-4.148
SE	AG	NA	TL	V	ZN		
9.6426	.93697	-5.418	9.4271	9.8517	9.4452		

AVERAGE N=3 785 31-OCT-88 14:42:09
LCS PA
LV
3744.3

AL	SB	AS	BA	BE	CD	CA	CR
9.8887	10.076	9.8589	9.9647	9.9156	9.4595	.08841	9.6249
CO	CU	FE	PB	MG	MN	NI	K
9.7484	9.7174	9.8246	9.3971	.17795	9.8022	9.4727	-6.213
SE	AG	NA	TL	V	ZN		
9.6247	.93238	-6.008	9.3466	9.8360	9.4039		

AR303614

14

BURN # 1 785 31-OCT-88 14:42:42
LCS PB
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
.02272	.01881	.02027	.00093	.00228	.00311	96.776	.00554
CO	CU	FE	PB	MG	MN	NI	K
-.0072	-.0054	.00783	.01861	96.346	.00805	.01123	98.520
SE	AG	NA	TL	V	ZN		
-.0143	.00093	94.220	.02306	-.0088	.02282		

BURN # 2 785 31-OCT-88 14:43:03
LCS PB
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0195	-.0134	.00095	.00000	.00050	.00254	96.778	-.0000
CO	CU	FE	PB	MG	MN	NI	K
-.0099	-.0054	.00169	.00139	96.505	-.0000	-.0045	96.449
SE	AG	NA	TL	V	ZN		
.04783	-.0023	92.419	.02962	-.0111	.02004		

BURN # 3 785 31-OCT-88 14:43:25
LCS PB
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
.03125	.00951	.00995	.00000	.00050	.00326	97.989	.00428
CO	CU	FE	PB	MG	MN	NI	K
-.0111	-.0054	.00783	.00605	97.421	-.0000	.00515	97.354
SE	AG	NA	TL	V	ZN		
-.0296	.00140	94.196	.01796	-.0101	.02112		

AVERAGE N=3 785 31-OCT-88 14:44:01
LCS PB
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
.01136	.00496	.01039	.00031	.00143	.00297	97.175	.00327
CO	CU	FE	PB	MG	MN	NI	K
-.0094	-.0054	.00578	.00868	96.757	.00268	.00397	97.441
SE	AG	NA	TL	V	ZN		
.00128	.00000	93.612	.02355	-.0100	.02133		

BURN # 1 785 31-OCT-88 14:44:34
224428 E0-12
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
13.433	.02535	-.0022	.07421	.00174	.00347	736.54	.02172
CO	CU	FE	PB	MG	MN	NI	K
.00984	.04097	31.034	.12070	223.07	1.6220	.01953	-2.237
SE	AG	NA	TL	V	ZN		
.02601	.00279	.28960	-.0381	.03222	.57372		

BURN # 2 785 31-OCT-88 14:44:55
224428 E0-12
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
13.442	.03055	-.0079	.07605	.00174	.00355	737.60	.02087
CO	CU	FE	PB	MG	MN	NI	K
.00810	.04095	31.062	.11341	223.01	1.6232	.01797	-3.430
SE	AG	NA	TL	V	ZN		
.04964	-.0009	-1.045	-.0249	.03309	.57611		

BURN # 3 785 31-OCT-88 14:45:17
224428 E0-12
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
13.456	.03399	.03217	.07886	.00174	.00210	739.07	.02082
CO	CU	FE	PB	MG	MN	NI	K
.00833	.04097	31.161	.11077	223.89	1.6256	.02274	-2.468
SE	AG	NA	TL	V	ZN		
.02774	.00093	-.2456	.00052	.03222	.57631		

AVERAGE N=3 785 31-OCT-88 14:45:56
224428 E0-12
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
13.444	.02996	.00736	.07638	.00174	.00304	737.74	.02087
CO	CU	FE	PB	MG	MN	NI	K
.00876	.04098	31.086	.11496	223.35	1.6236	.02007	-2.712
SE	AG	NA	TL	V	ZN		
.03446	.00093	-.3352	-.0208	.03251	.57538		

16

BURN # 1 765 31-OCT-88 14:46:30
224431 SS(224428)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
12.051	.20447	1.0647	2.0660	.04890	.04746	592.97	.20365
CO	CU	FE	PB	MG	MN	NI	K
.48026	.28211	30.706	.57910	204.98	2.2536	.47393	-2.153
SE	AG	NA	TL	V	ZN		
1.0252	.05352	1.2636	1.9779	.49901	.63299		

BURN # 2 785 31-OCT-88 14:46:51
224431 SS(224428)
LV
3743.0

AL	SB	AS	BA	BE	CD	CA	CR
12.023	.21470	1.0727	2.0604	.04959	.04478	592.13	.20671
CO	CU	FE	PB	MG	MN	NI	K
.48118	.28212	30.652	.56225	204.05	2.2462	.46812	-2.040
SE	AG	NA	TL	V	ZN		
.97634	.05073	1.3550	1.8532	.50376	.63162		

BURN # 3 765 31-OCT-88 14:47:13
224431 SS(224428)
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
12.132	.21395	1.0513	2.0754	.04865	.04935	593.98	.20612
CO	CU	FE	PB	MG	MN	NI	K
.48263	.28188	30.752	.56468	204.83	2.2534	.48713	-2.166
SE	AG	NA	TL	V	ZN		
.99984	.05071	.92366	1.8465	.50697	.63473		

AVERAGE N=3 765 31-OCT-88 14:47:53
224431 SS(224428)
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
12.069	.21104	1.0629	2.0673	.04911	.04719	593.03	.20533
CO	CU	FE	PB	MG	MN	NI	K
.48136	.28207	30.717	.57535	204.62	2.2511	.48573	-2.127
SE	AG	NA	TL	V	ZN		
1.0011	.05166	1.1807	1.8925	.50325	.63311		

17

BURN # 1 785 31-OCT-88 14:48:28
224432 D(224428)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.117	.02735	.00549	.06493	.00173	.00079	660.26	.02470
CO	CU	FE	PB	MG	MN	NI	K
.00914	.04068	35.961	.07691	215.47	1.5528	.02498	-2.855
SE	AG	NA	TL	V	ZN		
-.0330	.00279	-.2837	-.0171	.03552	.14750		

BURN # 2 785 31-OCT-88 14:48:49
224432 D(224428)
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
14.036	.03564	.04569	.06567	.00173	.00105	658.46	.02215
CO	CU	FE	PB	MG	MN	NI	K
.00830	.04069	35.919	.10402	214.66	1.5510	.02723	-3.648
SE	AG	NA	TL	V	ZN		
.00566	.00166	-.6120	.00261	.03561	.14863		

BURN # 3 785 31-OCT-88 14:49:11
224432 D(224428)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.051	.03070	.00611	.06401	.00314	.00417	656.34	.02299
CO	CU	FE	PB	MG	MN	NI	K
.00921	.04065	35.885	.07373	213.54	1.5421	.02656	-3.609
SE	AG	NA	TL	V	ZN		
.04300	.00093	-1.475	.00195	.03135	.14695		

AVERAGE N=3 785 31-OCT-88 14:49:47
224432 D(224428)
LV
3744.8

AL	SB	AS	BA	BE	CD	CA	CR
14.088	.03130	.01976	.06494	.00220	.00200	658.36	.02328
CO	CU	FE	PB	MG	MN	NI	K
.00888	.04068	35.902	.08555	214.63	1.5486	.02626	-3.437
SE	AG	NA	TL	V	ZN		
.00623	.00186	-.8568	-.0042	.03422	.14769		

AR303618

18

BURN # 1 785 31-OCT-88 14:50:20
224429 E24-36
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
22.541	.01827	.05788	.07782	.00309	-.0025	3.3249	.02838
CO	CU	FE	PB	MG	MN	NI	K
.01292	.05575	52.501	.02760	5.5674	.62577	.04186	.34442
SE	AG	NA	TL	V	ZN		
.02855	.00279	-.3700	.07807	.04523	.23561		

BURN # 2 785 31-OCT-88 14:50:42
224429 E24-36
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
22.357	.01112	.07557	.07885	.00309	.00233	3.1701	.02881
CO	CU	FE	PB	MG	MN	NI	K
.01466	.05579	52.016	.03899	5.4935	.62184	.01886	-1.008
SE	AG	NA	TL	V	ZN		
.02335	.00000	.66310	.04127	.04496	.23351		

BURN # 3 785 31-OCT-88 14:51:03
224429 E24-36
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
22.331	-.0100	.04389	.07608	.00309	-.0006	3.1210	.02768
CO	CU	FE	PB	MG	MN	NI	K
.01365	.05578	52.009	.02692	5.4244	.61882	.03202	-.9531
SE	AG	NA	TL	V	ZN		
.00946	.00372	-.3482	.00771	.04477	.23434		

AVERAGE N=3 785 31-OCT-88 14:51:40
224429 E24-36
LV
3744.7

AL	SB	AS	BA	BE	CD	CA	CR
22.409	.00647	.05895	.07762	.00309	-.0003	3.2054	.02896
CO	CU	FE	PB	MG	MN	NI	K
.01381	.05577	52.175	.03157	5.4951	.62248	.03095	-.5394
SE	AG	NA	TL	V	ZN		
.02046	.00217	-.0177	.04235	.04499	.23449		

AR303619

BURN # 1 765 31-OCT-88 14:52:13
224430 E12-24
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
36.469	-.0051	.04259	.11131	.00162	-.0032	8.8237	.04256
CO	CU	FE	PB	MG	MN	NI	K
.02609	.05491	66.411	.05999	9.2141	.74468	.05731	.34442
SE	AG	NA	TL	V	ZN		
-.0219	.00186	-.8572	.01108	.06739	.39056		

BURN # 2 765 31-OCT-88 14:52:35
224430 E12-24
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
36.842	.01423	.04234	.11318	.00302	.00112	8.8836	.04557
CO	CU	FE	PB	MG	MN	NI	K
.02332	.05488	67.025	.05450	9.2390	.75014	.04895	-1.065
SE	AG	NA	TL	V	ZN		
.01556	.00489	-1.759	.06901	.06693	.39446		

BURN # 3 765 31-OCT-88 14:52:56
224430 E12-24
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
36.776	.01853	.02426	.11317	.00301	.00054	8.8505	.04343
CO	CU	FE	PB	MG	MN	NI	K
.02571	.05498	66.574	.05059	9.2568	.75071	.03809	1.8568
SE	AG	NA	TL	V	ZN		
.02634	.00140	-.8762	.00434	.06828	.39550		

AVERAGE N=3 765 31-OCT-88 14:53:33
224430 E12-24
LV
3744.8

AL	SB	AS	BA	BE	CD	CA	CR
36.696	.00935	.03640	.11256	.00255	-.0005	8.8660	.04386
CO	CU	FE	PB	MG	MN	NI	K
.02504	.05489	66.803	.05513	9.2366	.74851	.04845	.37958
SE	AG	NA	TL	V	ZN		
.00667	.00264	-1.164	.02814	.06753	.39351		

BURN # 1 765 31-OCT-88 14:54:06
CCV ICV-1(0487)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
2.0554	.00669	.00230	2.0139	.48705	.50521	50.484	.48884
CO	CU	FE	PB	MG	MN	NI	K
.49450	.54071	2.0126	4.2956	25.450	.51189	.48519	54.393
SE	AG	NA	TL	V	ZN		
.00942	.49960	51.939	-.0932	.51270	2.9684		

BURN # 2 765 31-OCT-88 14:54:28
CCV ICV-1(0487)
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0356	-.0030	.03554	2.0076	.48711	.51415	50.471	.49148
CO	CU	FE	PB	MG	MN	NI	K
.49521	.54078	2.0024	4.2922	25.395	.50895	.47595	56.190
SE	AG	NA	TL	V	ZN		
-.0218	.50013	53.806	-.0006	.51255	2.9654		

BURN # 3 765 31-OCT-88 14:54:49
CCV ICV-1(0487)
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0505	.00311	.01026	2.0256	.49142	.50616	50.859	.49713
CO	CU	FE	PB	MG	MN	NI	K
.50294	.54033	2.0243	4.3629	25.510	.51548	.46196	54.395
SE	AG	NA	TL	V	ZN		
-.0286	.50352	53.945	-.0203	.51496	2.9823		

AVERAGE N=3 765 31-OCT-88 14:56:22
CCV ICV-1(0487)
LV
3744.3

AL	SB	AS	BA	BE	CD	CA	CR
2.0472	.00259	.01604	2.0156	.48853	.50852	50.605	.49248
CO	CU	FE	PB	MG	MN	NI	K
.49755	.54080	2.0131	4.3169	25.452	.51244	.47437	54.992
SE	AG	NA	TL	V	ZN		
-.0137	.50109	53.230	-.0380	.51340	2.9720		

20

21

BURN # 1 785 31-OCT-88 14:56:55
CCV ICV-3(0787)
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
.02272	1.0391	.01438	.00093	.00183	.00065	.01376	-.0004
CO	CU	FE	PB	MG	MN	NI	K
.00522	.02678	.00168	.00242	.24152	-.0000	.01473	4.8787
SE	AG	NA	TL	V	ZN		
.01431	.00279	2.3124	.01193	.00747	.00049		

BURN # 2 785 31-OCT-88 14:57:16
CCV ICV-3(0787)
LV
3744.5

AL	SB	AS	BA	BE	CD	CA	CR
.00264	1.0560	.01901	.00166	.00163	.00229	.00591	-.0013
CO	CU	FE	PB	MG	MN	NI	K
.00461	.01071	.00166	.00559	.16211	-.0000	-.0056	4.8646
SE	AG	NA	TL	V	ZN		
-.0069	.00166	.27071	-.0362	.00561	.00053		

BURN # 3 785 31-OCT-88 14:57:38
CCV ICV-3(0787)
LV
3743.5

AL	SB	AS	BA	BE	CD	CA	CR
.00566	1.0641	-.0131	.00000	.00322	.00277	.00963	.00066
CO	CU	FE	PB	MG	MN	NI	K
.00555	.01071	-.0016	.01252	.29703	-.0000	-.0170	5.6556
SE	AG	NA	TL	V	ZN		
-.0242	.00093	2.3336	.00575	.00826	.00107		

AVERAGE N=3 785 31-OCT-88 14:58:14
CCV ICV-3(0787)
LV
3744.0

AL	SB	AS	BA	BE	CD	CA	CR
.01041	1.0537	.00677	.00093	.00230	.00190	.00983	-.0003
CO	CU	FE	PB	MG	MN	NI	K
.00514	.01607	.00060	.00698	.23355	-.0000	-.0026	5.1407
SE	AG	NA	TL	V	ZN		
-.0056	.00186	1.6389	-.0048	.00745	.00070		

22

BURN # 1 785 31-OCT-88 14:58:47
CCV SPEXM3
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.02556	.02390	5.2814	.00000	.00044	-.0054	.02163	.00255
CO	CU	FE	PB	MG	MN	NI	K
.00699	.01071	.00059	.00663	.26459	-.0000	-.0157	8.8193
SE	AG	NA	TL	V	ZN		
.00767	.00372	2.6375	-.0056	.00798	.00135		

BURN # 2 786 31-OCT-88 14:59:09
CCV SPEXM3
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.01420	.00691	5.2116	.00093	.00183	-.0080	.01377	.00255
CO	CU	FE	PB	MG	MN	NI	K
.00648	.01071	-.0016	.00297	.27662	-.0000	-.0019	6.5743
SE	AG	NA	TL	V	ZN		
-.0371	.00247	2.7264	.03666	.00778	.00135		

BURN # 3 788 31-OCT-88 14:59:30
CCV SPEXM3
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.02556	.00661	5.2665	.00186	.00323	-.0043	.00395	-.0009
CO	CU	FE	PB	MG	MN	NI	K
.00695	-.0054	-.0027	.00619	.20481	-.0002	-.0036	8.0130
SE	AG	NA	TL	V	ZN		
.02364	.00372	1.6282	.06509	.00617	.00111		

AVERAGE N=3 785 31-OCT-88 15:00:07
CCV SPEXM3
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.02177	.01247	5.2532	.00093	.00183	-.0052	.01312	.00142
CO	CU	FE	PB	MG	MN	NI	K
.00748	.00535	-.0012	.00593	.25537	-.0000	-.0091	7.1355
SE	AG	NA	TL	V	ZN		
-.0019	.00264	2.3321	.03205	.00731	.00127		

23

BURN # 1 785 31-OCT-88 15:02:23
CCB (1)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.00566	-.0020	.00230	.00000	-.0005	.00660	-.0046	.00255
CO	CU	FE	PB	MG	MN	NI	K
-.0011	.01071	-.0000	-.0051	-.0602	-.0000	-.0014	-1.572
SE	AG	NA	TL	V	ZN		
.00102	.00047	.39783	-.0350	-.0018	.00007		

BURN # 2 785 31-OCT-88 15:02:44
CCB (1)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.00566	-.0033	.01031	.00000	-.0019	.00241	-.0025	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0017	.01071	.00036	.01376	-.1050	-.0000	.00118	-3.143
SE	AG	NA	TL	V	ZN		
.01666	.00047	-1.898	-.0056	-.0008	.00007		

BURN # 3 785 31-OCT-88 15:03:05
CCB (1)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.01704	.02002	.00105	.00186	-.0005	.00165	-.0124	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0002	.01071	-.0007	.01114	-.1000	-.0000	-.0075	-2.526
SE	AG	NA	TL	V	ZN		
.00416	.00047	.21513	-.0215	-.0006	.00007		

AVERAGE N=3 785 31-OCT-88 15:07:14
CCB (1)
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
.00946	-.0018	.00457	.00062	-.0009	.00364	-.0085	.00028
CO	CU	FE	PB	MG	MN	NI	K
-.0010	.01071	-.0001	.00661	-.0894	-.0000	-.0026	-2.413
SE	AG	NA	TL	V	ZN		
.00728	.00047	-.4263	-.0209	-.0011	.00007		

AR303624

24

BURN # 1 785 31-OCT-88 15:11:36
224764 F0-12
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.385	.04092	.01667	.16048	-.0001	.00290	682.92	.01831
CO	CU	FE	PB	MG	MN	NI	K
.00751	.06470	37.298	.03600	227.11	2.6055	.05874	-4.513
SE	AG	NA	TL	V	ZN		
-.0468	-.0036	-1.954	-.0365	.03287	.20757		

BURN # 2 785 31-OCT-88 15:11:57
224764 F0-12
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.629	.01662	.02545	.16418	-.0001	-.0024	671.36	.01674
CO	CU	FE	PB	MG	MN	NI	K
.00795	.06467	37.764	.01597	230.28	2.6445	.03535	-3.503
SE	AG	NA	TL	V	ZN		
.01294	-.0003	-1.401	-.0493	.03263	.21179		

BURN # 3 785 31-OCT-88 15:12:16
224764 F0-12
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.677	.02535	.00636	.16233	-.0001	.00134	673.63	.02214
CO	CU	FE	PB	MG	MN	NI	K
.00826	.06466	37.878	.03266	230.71	2.6515	.01483	-5.635
SE	AG	NA	TL	V	ZN		
-.0162	-.0012	-.3960	-.0936	.03414	.21126		

AVERAGE N=3 785 31-OCT-88 15:12:55
224764 F0-12
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
14.564	.02837	.01751	.16233	-.0001	.00061	669.31	.01973
CO	CU	FE	PB	MG	MN	NI	K
.00793	.06468	37.646	.02822	229.37	2.6340	.03631	-4.550
SE	AG	NA	TL	V	ZN		
-.0167	-.0017	-1.250	-.0598	.03328	.21020		

25

BURN # 1 785 31-OCT-88 15:13:26
224767 F12-24
LV
3744.5

AL	SE	AS	BA	BE	CD	CA	CR
44.991	.02204	.04243	.14009	-.0003	.00086	3.3216	.05261
CO	CU	FE	PB	MG	MN	NI	K
.03995	.06189	84.292	.07333	9.9920	1.5439	.06830	2.2161
SE	AG	NA	TL	V	ZN		
.02311	.00016	-.6938	.01955	.07766	.22712		

BURN # 2 785 31-OCT-88 15:13:50
224767 F12-24
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
45.002	-.0052	.05185	.14037	-.0003	-.0010	3.2523	.04854
CO	CU	FE	PB	MG	MN	NI	K
.03780	.06186	84.306	.03984	9.9431	1.5437	.07162	2.6149
SE	AG	NA	TL	V	ZN		
-.0130	-.0007	-1.354	.05978	.07724	.22571		

BURN # 3 785 31-OCT-88 15:14:11
224767 F12-24
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
45.278	.00103	.05960	.14007	-.0003	.00060	3.2464	.05195
CO	CU	FE	PB	MG	MN	NI	K
.03807	.06165	84.782	.06365	10.025	1.5551	.06125	3.2323
SE	AG	NA	TL	V	ZN		
.01343	-.0003	.38747	.04101	.08344	.22811		

AVERAGE N=3 785 31-OCT-88 15:14:46
224767 F12-24
LV
3744.8

AL	SB	AS	BA	BE	CD	CA	CR
45.090	.00601	.05119	.14008	-.0003	.00016	3.2734	.05110
CO	CU	FE	PB	MG	MN	NI	K
.03860	.06187	84.460	.05895	9.9868	1.5475	.06712	2.6878
SE	AG	NA	TL	V	ZN		
.00784	-.0002	-.5535	.04345	.07945	.22698		

26

BURN # 1 765 31-OCT-88 15:15:21
224768 F24-36
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
33.465	.01217	.01719	.11595	.00116	.00036	4.6408	.04088
CO	CU	FE	PB	MG	MN	NI	K
.02905	.06270	70.687	.08118	7.3429	1.3877	.07376	3.2323
SE	AG	NA	TL	V	ZN		
-.0006	.00295	.74289	.00587	.06509	.23910		

BURN # 2 785 31-OCT-88 15:15:42
224768 F24-36
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
33.126	-.0015	.05610	.11410	-.0002	-.0007	4.5995	.04083
CO	CU	FE	PB	MG	MN	NI	K
.02949	.04667	69.964	.06209	7.2711	1.3709	.05645	3.4566
SE	AG	NA	TL	V	ZN		
.00144	.00109	1.7566	-.0316	.06585	.23637		

BURN # 3 765 31-OCT-88 15:16:04
224768 F24-36
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
33.255	.01898	.02037	.11410	-.0002	.00117	4.6054	.04069
CO	CU	FE	PB	MG	MN	NI	K
.03095	.04666	70.193	.05877	7.3269	1.3763	.06254	3.4613
SE	AG	NA	TL	V	ZN		
.01061	-.0003	2.0287	-.0251	.06562	.23839		

AVERAGE N=3 765 31-OCT-88 15:17:16
224768 F24-36
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
33.283	.00986	.04120	.11472	.00023	.00029	4.6152	.04060
CO	CU	FE	PB	MG	MN	NI	K
.02983	.05201	70.288	.06668	7.3136	1.3783	.06425	3.4568
SE	AG	NA	TL	V	ZN		
.00387	.00124	1.5101	-.0169	.06552	.23795		

27

BURN # 1 785 31-OCT-86 15:17:59
224768(1+4) SERIAL DIL
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
6.5538	-.0057	.00812	.02133	-.0001	-.0021	.44173	.00724
CO	CU	FE	PB	MG	MN	NI	K
.01359	-.0142	13.799	.01353	1.7918	.27016	.00841	2.2336
SE	AG	NA	TL	V	ZN		
-.0275	-.0008	4.7597	-.0550	.02217	.02625		

BURN # 2 785 31-OCT-86 15:18:20
224768(1+4) SERIAL DIL
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
6.5424	.00003	.03793	.02133	-.0001	.00259	.44369	.00213
CO	CU	FE	PB	MG	MN	NI	K
.01241	-.0142	13.756	-.0035	1.7839	.26660	-.0031	3.9171
SE	AG	NA	TL	V	ZN		
-.0223	-.0003	3.7500	.01576	.01999	.02734		

BURN # 3 785 31-OCT-86 15:16:42
224768(1+4) SERIAL DIL
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
6.5366	-.0167	-.0170	.02133	-.0001	-.0000	.41032	.00296
CO	CU	FE	PB	MG	MN	NI	K
.00995	-.0142	13.705	.00621	1.6909	.26882	.01902	1.6168
SE	AG	NA	TL	V	ZN		
-.0441	-.0003	4.0268	-.0338	.01903	.02594		

AVERAGE N=3 785 31-OCT-86 15:19:34
224768(1+4) SERIAL DIL
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
6.5443	-.0088	.00968	.02133	-.0001	.00016	.43191	.00411
CO	CU	FE	PB	MG	MN	NI	K
.01200	-.0142	13.755	.00465	1.7556	.26792	.00777	2.5892
SE	AG	NA	TL	V	ZN		
-.0313	-.0005	4.1788	-.0243	.02040	.02651		

AR303628

28

BURN # 1 785 31-OCT-88 15:21:15
225257 PREP BLANK WATER CM351C
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0010	-.0066	-.0145	-.0009	-.0014	.00076	-.5635	.00085
CO	CU	FE	PB	MG	MN	NI	K
-.0021	.00267	.07926	.01619	-.3112	-.0016	.00972	-2.592
SE	AG	NA	TL	V	ZN		
-.0346	-.0022	-1.521	-.0239	-.0019	-.0099		

BURN # 2 785 31-OCT-88 15:21:36
225257 PREP BLANK WATER CM351C
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0719	-.0045	-.0142	-.0005	-.0026	-.0001	-.5612	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0020	.01874	-.0475	.00214	-.3749	-.0016	.00716	-2.143
SE	AG	NA	TL	V	ZN		
-.0242	.00155	-1.702	-.0159	-.0051	-.0102		

BURN # 3 785 31-OCT-88 15:21:58
225257 PREP BLANK WATER CM351C
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0691	-.0031	.00413	-.0008	-.0014	-.0012	-.5733	-.0034
CO	CU	FE	PB	MG	MN	NI	K
-.0026	.01874	-.0895	.00833	-.3643	-.0016	-.0220	-3.862
SE	AG	NA	TL	V	ZN		
-.0031	-.0031	-2.695	-.0486	-.0053	-.0119		

AVERAGE N=3 785 31-OCT-88 15:22:58
225257 PREP BLANK WATER CM351C
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0473	-.0049	-.0082	-.0009	-.0018	-.0002	-.5727	-.0010
CO	CU	FE	PB	MG	MN	NI	K
-.0022	.01338	-.0093	.00822	-.3501	-.0016	-.0017	-2.872
SE	AG	NA	TL	V	ZN		
-.0206	-.0012	-2.040	-.0294	-.0041	-.0107		

29

BURN # 1 785 31-OCT-88 15:23:29
224904 PG-BCD-1
LV
3745.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0521	-.0005	.00871	.01391	-.0014	-.0030	1.0584	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0041	.01874	.00700	-.0068	.42148	.07368	.00524	-2.430
SE	AG	NA	TL	V	ZN		
-.0087	-.0031	4.4662	-.0085	-.0090	-.0083		

BURN # 2 785 31-OCT-88 15:23:50
224904 PG-BCD-1
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0375	-.0039	-.0052	.01296	-.0014	.00084	1.0700	-.0024
CO	CU	FE	PB	MG	MN	NI	K
-.0024	.01873	.00607	.02562	.43764	.07366	.01485	-1.740
SE	AG	NA	TL	V	ZN		
.00320	-.0012	4.6278	-.0450	-.0054	-.0069		

BURN # 3 785 31-OCT-88 15:24:12
224904 PG-BCD-1
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0435	-.0063	-.0035	.01391	-.0014	.00091	1.0602	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0014	.01872	.00518	.00883	.43488	.07366	-.0143	-1.245
SE	AG	NA	TL	V	ZN		
.03026	.00246	4.2803	-.0071	-.0057	-.0069		

AVERAGE N=3 785 31-OCT-88 15:25:00
224904 PG-BCD-1
LV
3745.8

AL	SB	AS	BA	BE	CD	CA	CR
-.0445	-.0043	-.0066	.01360	-.0014	-.0005	1.0629	-.0007
CO	CU	FE	PB	MG	MN	NI	K
-.0027	.01874	.00675	.00856	.43137	.07367	.00193	-1.472
SE	AG	NA	TL	V	ZN		
.00827	-.0006	4.4515	-.0202	-.0067	-.0074		

AR303630

30

BURN # 1 785 31-OCT-86 15:25:56
224909 PG-BCU-1
LV
3745.5

AL	SE	AS	BA	BE	CD	CA	CR
-.0436	.00702	-.0224	.01484	-.0014	.00432	1.1183	-.0030
CO	CU	FE	PB	MG	MN	NI	K
-.0027	.01872	.25061	.02981	.42414	.08443	.01806	1.2178
SE	AG	NA	TL	V	ZN		
-.0298	.00155	6.5726	-.0656	-.0012	.00263		

BURN # 2 785 31-OCT-86 15:26:20
224909 PG-BCU-1
LV
3745.0

AL	SE	AS	BA	BE	CD	CA	CR
-.0438	-.0064	-.0147	.01484	-.0014	.00376	1.1176	-.0030
CO	CU	FE	PB	MG	MN	NI	K
-.0009	.01873	.24740	.02145	.52464	.08445	.02254	-.0230
SE	AG	NA	TL	V	ZN		
-.0271	.00255	5.3955	-.0027	-.0050	.00263		

BURN # 3 785 31-OCT-86 15:26:41
224909 PG-BCU-1
LV
3745.0

AL	SE	AS	BA	BE	CD	CA	CR
-.0407	-.0043	-.0235	.01391	.00141	-.0006	1.1055	.00000
CO	CU	FE	PB	MG	MN	NI	K
.00009	.00268	.25136	.01936	.58326	.08445	.01677	1.6606
SE	AG	NA	TL	V	ZN		
.03134	-.0017	6.8688	-.0291	-.0035	.00155		

AVERAGE N=3 785 31-OCT-86 15:27:16
224909 PG-BCU-1
LV
3745.2

AL	SE	AS	BA	BE	CD	CA	CR
-.0426	-.0012	-.0200	.01453	-.0004	.00143	1.1142	-.0020
CO	CU	FE	PB	MG	MN	NI	K
-.0012	.01337	.24979	.02354	.51075	.08444	.01913	.95186
SE	AG	NA	TL	V	ZN		
-.0085	.00093	6.2803	-.0318	-.0046	.00227		

```
BURN # 1        785     31-OCT-88 15:28:30
225259 B1 PREP BLANK WATER COM352
  LV
3746.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0549  .00353  -.0006  -.0009  -.0000  -.0011  -.5812  -.0009
  CO      CU      FE      PB      MG      MN      NI       K
.00068  .01874  -.0559  .00266  -.1572  -.0016  -.0076  -.6639
  SE      AG      NA      TL       V      ZN
-.0353  .00015  .13129  -.0406  .00101  -.0086

BURN # 2        785     31-OCT-88 15:28:51
225259 B1 PREP BLANK WATER COM352
  LV
3746.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0379  -.0031  -.0121  .00083  -.0000  .00332  -.5690  .00170
  CO      CU      FE      PB      MG      MN      NI       K
.00156  .00288  -.0596  .02460  -.0626  -.0016  -.0156  1.2600
  SE      AG      NA      TL       V      ZN
-.0033  .00155  1.0495  -.0340  .00181  -.0091

BURN # 3        785     31-OCT-88 15:29:13
225259 B1 PREP BLANK WATER COM352
  LV
3746.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0435  .01046  -.0132  .00093  -.0000  .00246  -.5792  -.0009
  CO      CU      FE      PB      MG      MN      NI       K
.00157  .00266  -.0591  .01310  -.1279  -.0016  -.0012  .60663
  SE      AG      NA      TL       V      ZN
.01333  .00015  .49628  .04399  .00098  -.0083

AVERAGE N=3     785     31-OCT-88 15:30:00
225259 B1 PREP BLANK WATER COM352
  LV
3746.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0454  .00383  -.0086  .00031  -.0000  .00155  -.5831  -.0000
  CO      CU      FE      PB      MG      MN      NI       K
.00128  .00803  -.0583  .01346  -.1226  -.0016  -.0081  .40090
  SE      AG      NA      TL       V      ZN
-.0084  .00062  .55969  -.0102  .00120  -.0086
```

32

BURN # 1 785 31-OCT-88 15:30:33
225123 LCS PA
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
10.080	10.628	10.489	10.095	10.199	10.120	-.5184	9.9556
CO	CU	FE	PB	MG	MN	NI	K
10.149	10.007	10.078	9.9386	.98198	10.145	9.9532	4.6466
SE	AG	NA	TL	V	ZN		
10.159	.97211	2.9552	9.6691	10.105	10.002		

BURN # 2 785 31-OCT-88 15:30:54
225123 LCS PA
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
10.043	10.599	10.472	10.101	10.178	10.114	-.5223	9.9279
CO	CU	FE	PB	MG	MN	NI	K
10.132	10.007	10.057	9.9213	.86639	10.128	9.8949	1.8411
SE	AG	NA	TL	V	ZN		
9.9848	.97165	1.4975	9.6726	10.083	9.9836		

BURN # 3 785 31-OCT-88 15:31:16
225123 LCS PA
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
10.100	10.621	10.564	10.110	10.221	10.122	-.5184	9.9513
CO	CU	FE	PB	MG	MN	NI	K
10.165	10.015	10.091	9.9588	.85718	10.162	9.9817	3.0755
SE	AG	NA	TL	V	ZN		
10.129	.97351	1.8363	9.8893	10.110	10.032		

AVERAGE N=3 785 31-OCT-88 15:31:53
225123 LCS PA
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
10.074	10.615	10.508	10.102	10.199	10.119	-.5197	9.9449
CO	CU	FE	PB	MG	MN	NI	K
10.149	10.010	10.071	9.9196	.90851	10.144	9.9433	3.1877
SE	AG	NA	TL	V	ZN		
10.091	.97242	2.0963	9.7437	10.099	10.006		

BURN # 1 785 31-OCT-88 15:32:26
225123 LCS PB
LV
3745.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0662	.01723	.01322	.00186	.00140	.00123	99.620	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0010	.00268	-.0722	-.0026	100.26	.00784	.00748	105.60
SE	AG	NA	TL	V	ZN		
-.0013	-.0003	100.77	-.1025	-.0014	-.0123		

BURN # 2 785 31-OCT-88 15:32:48
225123 LCS PB
LV
3745.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0606	.00386	.00269	.00000	.00140	.00136	99.259	.00341
CO	CU	FE	PB	MG	MN	NI	K
-.0016	.01875	-.0707	-.0035	100.34	.00765	-.0015	107.46
SE	AG	NA	TL	V	ZN		
.00151	.00202	102.00	.02803	-.0004	-.0132		

BURN # 3 785 31-OCT-88 15:33:09
225123 LCS PB
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0748	.00524	-.0004	-.0009	.00000	.00226	98.480	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0016	.00266	-.0695	.00634	99.202	.00763	-.0151	105.20
SE	AG	NA	TL	V	ZN		
.02231	-.0003	100.19	-.0172	-.0010	-.0131		

AVERAGE N=3 785 31-OCT-88 15:33:46
225123 LCS PB
LV
3745.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0672	.00871	.00522	.00031	.00092	.00163	99.120	.00000
CO	CU	FE	PB	MG	MN	NI	K
-.0014	.00804	-.0708	-.0020	99.936	.00784	-.0044	106.08
SE	AG	NA	TL	V	ZN		
.00751	.00047	100.99	-.0306	-.0009	-.0128		

34

BURN # 1 785 31-OCT-88 15:34:19
CCV ICV-1(0487)

LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9063	.01433	-.0135	1.9818	.48162	.49988	49.272	.48020
CO	CU	FE	PB	MG	MN	NI	K
.48869	.52451	1.8949	4.2944	24.957	.50551	.48197	54.977
SE	AG	NA	TL	V	ZN		
-.0027	.49451	51.649	.02060	.50070	2.9171		

BURN # 2 785 31-OCT-88 15:34:40
CCV ICV-1(0487)

LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9465	-.0010	.01035	2.0013	.48716	.50467	49.667	.48656
CO	CU	FE	PB	MG	MN	NI	K
.49468	.53254	1.9119	4.3628	25.275	.50819	.48100	52.789
SE	AG	NA	TL	V	ZN		
-.0127	.50241	51.536	-.0450	.50477	2.9463		

BURN # 3 786 31-OCT-88 15:35:02
CCV ICV-1(0487)

LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9176	-.0067	-.0033	1.9790	.47957	.50494	49.115	.47652
CO	CU	FE	PB	MG	MN	NI	K
.48602	.51646	1.8885	4.2505	24.874	.50282	.44656	51.274
SE	AG	NA	TL	V	ZN		
.00977	.49451	51.008	-.0333	.49980	2.9127		

AVERAGE N=3 785 31-OCT-88 15:35:59
CCV ICV-1(0487)

LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9243	.00156	-.0040	1.9874	.48278	.50316	49.352	.48190
CO	CU	FE	PB	MG	MN	NI	K
.48980	.52451	1.8974	4.3026	25.036	.50551	.47054	53.013
SE	AG	NA	TL	V	ZN		
-.0019	.49714	51.398	-.0192	.50179	2.9254		

35

BURN # 1 785 31-OCT-88 15:36:32
CCV ICV-3(0787)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0061	1.0344	.01101	-.0009	-.0000	-.0004	-.5773	.00065
CO	CU	FE	PB	MG	MN	NI	K
-.0014	.00268	-.0790	-.0057	-.1094	-.0016	-.0166	.94330
SE	AG	NA	TL	V	ZN		
.02061	.01085	1.2444	.00754	.00122	-.0266		

BURN # 2 785 31-OCT-88 15:36:53
CCV ICV-3(0787)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0075	1.0164	-.0462	-.0005	.00139	.00040	-.5812	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0005	-.0134	-.0681	.01262	-.1366	-.0016	-.0062	1.5805
SE	AG	NA	TL	V	ZN		
-.0214	.00341	-.2242	.02649	-.0005	-.0263		

BURN # 3 785 31-OCT-88 15:37:15
CCV ICV-3(0787)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0778	1.0371	-.0131	-.0005	-.0000	.00419	-.5733	.00255
CO	CU	FE	PB	MG	MN	NI	K
.00155	-.0054	-.0783	.02147	-.0430	-.0016	.02253	3.5244
SE	AG	NA	TL	V	ZN		
.01090	.00606	1.0600	.00462	.00230	-.0252		

AVERAGE N=3 785 31-OCT-88 15:37:51
CCV ICV-3(0787)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0871	1.0300	-.0161	-.0006	.00046	.00138	-.5773	.00099
CO	CU	FE	PB	MG	MN	NI	K
-.0001	-.0054	-.0791	.00912	-.0970	-.0016	-.0001	2.0094
SE	AG	NA	TL	V	ZN		
.00337	.00744	.69337	.01288	.00101	-.0260		

BURN # 1 785 31-OCT-88 15:38:24
CCV SPEXM3
LV
3747.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0833	.00530	5.0703	-.0000	.00000	-.0120	-.5655	-.0021
CO	CU	FE	PB	MG	MN	NI	K
-.0009	-.0134	-.0805	.01155	-.1911	-.0016	.01004	-1.905
SE	AG	NA	TL	V	ZN		
.01256	.00015	-.2666	-.0333	-.0010	-.0257		

BURN # 2 785 31-OCT-88 15:38:46
CCV SPEXM3
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0549	.00092	5.0899	-.0009	.00141	-.0060	-.5773	-.0021
CO	CU	FE	PB	MG	MN	NI	K
-.0017	.00268	-.0605	-.0120	-.2527	-.0016	.01561	-1.518
SE	AG	NA	TL	V	ZN		
-.0238	-.0006	.14236	-.0304	-.0055	-.0256		

BURN # 3 785 31-OCT-88 15:39:07
CCV SPEXM3
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0804	-.0144	5.0838	-.0005	.00000	-.0175	-.5871	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0026	-.0134	-.0797	-.0067	-.3216	-.0016	.00460	-3.265
SE	AG	NA	TL	V	ZN		
-.0235	-.0022	-2.151	-.0435	-.0013	-.0263		

AVERAGE N=3 785 31-OCT-88 15:39:44
CCV SPEXM3
LV
3746.3

AL	SB	AS	BA	BE	CD	CA	CR
-.0729	-.0027	5.0746	-.0006	.00047	-.0126	-.5766	-.0016
CO	CU	FE	PB	MG	MN	NI	K
-.0018	-.0080	-.0802	-.0024	-.2552	-.0016	.01015	-2.363
SE	AG	NA	TL	V	ZN		
-.0115	-.0009	-.7585	-.0357	-.0026	-.0259		

BURN # 1 765 31-OCT-88 15:40:17
CCB (2)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0265	-.0042	-.0029	-.0009	.00002	.00146	-.5066	-.0038
CO	CU	FE	PB	MG	MN	NI	K
-.0020	.00268	-.0357	-.0073	-.2634	-.0016	.00780	-2.760
SE	AG	NA	TL	V	ZN		
-.0749	.00248	-1.250	.03230	-.0053	-.0010		

BURN # 2 765 31-OCT-88 15:40:38
CCB (2)
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0066	.00186	-.0076	-.0005	-.0014	.00239	-.4986	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0033	.00267	-.0274	.00522	-.3082	-.0016	.00716	-2.529
SE	AG	NA	TL	V	ZN		
-.0360	.00248	-1.364	-.0262	-.0020	-.0002		

BURN # 3 765 31-OCT-88 15:41:00
CCB (2)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0237	-.0065	-.0238	-.0009	.00002	.00091	-.5125	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0027	-.0214	-.0325	.01516	-.2793	-.0016	.01357	-3.714
SE	AG	NA	TL	V	ZN		
.00146	.00155	-2.170	.05273	-.0053	.00097		

AVERAGE N=3 765 31-OCT-88 15:41:46
CCB (2)
LV
3746.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0189	-.0031	-.0114	-.0009	-.0005	.00159	-.5053	-.0023
CO	CU	FE	PB	MG	MN	NI	K
-.0027	-.0054	-.0322	.00436	-.2836	-.0016	.00951	-3.001
SE	AG	NA	TL	V	ZN		
-.0365	.00217	-1.595	.01894	-.0042	-.0001		

38

BURN # 1 785 31-OCT-88 15:42:22
225117 MW-1S
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
.40203	-.0073	-.0184	.01205	-.0000	.00254	135.77	-.0000
CO	CU	FE	PB	MG	MN	NI	K
-.0046	.01872	.22767	.02739	1.9061	.00914	-.0053	-1.800
SE	AG	NA	TL	V	ZN		
-.0335	-.0022	22.908	-.1129	.00157	.07389		

BURN # 2 785 31-OCT-88 15:42:43
225117 MW-1S
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
.39925	-.0086	.02737	.01206	.00136	.00358	136.68	-.0021
CO	CU	FE	PB	MG	MN	NI	K
-.0024	.03476	.22695	.01536	1.9657	.00915	.00136	-.5156
SE	AG	NA	TL	V	ZN		
-.0172	.00255	24.762	-.0289	.00351	.07553		

BURN # 3 785 31-OCT-88 15:43:04
225117 MW-1S
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
.41626	.00867	.00809	.01113	-.0000	.00300	137.26	.00085
CO	CU	FE	PB	MG	MN	NI	K
-.0021	.03476	.23532	.02009	2.0995	.00915	-.0252	.99542
SE	AG	NA	TL	V	ZN		
-.0006	.00255	25.409	.01252	.00362	.07561		

AVERAGE N=3 785 31-OCT-88 15:43:41
225117 MW-1S
LV
3746.2

AL	SB	AS	BA	BE	CD	CA	CR
.40585	-.0015	.00602	.01175	.00045	.00304	136.64	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0030	.02943	.22999	.02095	1.9972	.00915	-.0097	-.4386
SE	AG	NA	TL	V	ZN		
-.0171	.00124	24.360	-.0431	.00297	.07507		

BURN # 1 785 31-OCT-88 15:44:14
225125 D(225117)
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
.41628	-.0057	.00672	.00927	-.0000	.00047	139.16	-.0017
CO	CU	FE	PB	MG	MN	NI	K
-.0024	.03476	.24144	-.0008	2.0574	.00915	.01037	-.1789
SE	AG	NA	TL	V	ZN		
-.0564	.00155	25.767	-.0144	.00514	.09052		

BURN # 2 785 31-OCT-88 15:44:36
225125 D(225117)
LV
3747.0

AL	SB	AS	BA	BE	CD	CA	CR
.43034	.00109	.00694	.01113	-.0000	.00043	139.18	.00089
CO	CU	FE	PB	MG	MN	NI	K
-.0022	.03477	.23846	.01537	2.1397	.00914	-.0178	1.4803
SE	AG	NA	TL	V	ZN		
.00121	.00015	25.628	.00157	.00465	.09132		

BURN # 3 785 31-OCT-88 15:44:57
225125 D(225117)
LV
3747.5

AL	SB	AS	BA	BE	CD	CA	CR
.43311	.00480	-.0003	.01112	-.0000	.00229	140.76	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0026	.03476	.24203	.02215	2.1076	.00913	-.0106	2.0272
SE	AG	NA	TL	V	ZN		
.00362	.00248	25.600	.03948	.00484	.09166		

AVERAGE N=3 785 31-OCT-88 15:45:57
225125 D(225117)
LV
3746.8

AL	SB	AS	BA	BE	CD	CA	CR
.42658	.00007	.00516	.01051	-.0000	.00106	139.71	-.0007
CO	CU	FE	PB	MG	MN	NI	K
-.0025	.03477	.24065	.01223	2.1016	.00914	-.0061	1.1029
SE	AG	NA	TL	V	ZN		
-.0172	.00139	25.664	.00886	.00494	.09123		

40

BURN # 1 765 31-OCT-86 15:46:53
224809 PREP BLANK WATER COM112
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0719	-.0065	-.040E	-.0019	-.0000	.00032	-.5537	-.0009
CO	CU	FE	PB	MG	MN	NI	K
.00188	.00268	-.0790	.00006	-.0244	-.0016	-.0101	-.3472
SE	AG	NA	TL	V	ZN		
-.0023	-.0003	2.3400	-.0209	.00318	-.0155		

BURN # 2 765 31-OCT-86 15:47:14
224809 PREP BLANK WATER COM112
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0776	-.0061	-.0026	-.0005	-.0000	.00061	-.5655	-.0021
CO	CU	FE	PB	MG	MN	NI	K
.00098	.00266	-.0605	.00266	-.0562	-.0016	-.0050	1.1678
SE	AG	NA	TL	V	ZN		
.00605	-.0003	.66660	.03241	.00317	-.0152		

BURN # 3 765 31-OCT-86 15:47:35
224809 PREP BLANK WATER COM112
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0604	-.0169	.02011	-.0000	-.0000	-.0031	-.5812	-.0013
CO	CU	FE	PB	MG	MN	NI	K
.00096	.00266	-.0754	.02096	-.0586	-.0016	-.0274	1.2299
SE	AG	NA	TL	V	ZN		
-.0453	.00062	1.8595	-.0552	.00333	-.0155		

AVERAGE N=3 765 31-OCT-86 15:48:12
224809 PREP BLANK WATER COM112
LV
3746.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0766	-.0105	-.0078	-.0009	-.0000	-.0007	-.5668	-.0014
CO	CU	FE	PB	MG	MN	NI	K
.00127	.00268	-.0796	.00791	-.0464	-.0016	-.0142	.68347
SE	AG	NA	TL	V	ZN		
-.0139	-.0000	1.6294	-.0246	.00322	-.0154		

41

BURN # 1 785 31-OCT-88 15:48:45
223275 LCS PA
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
9.8011	10.189	9.9817	9.6549	9.6531	9.8900	-.5203	9.6273
CO	CU	FE	PB	MG	MN	NI	K
9.6664	9.7119	9.5662	9.6399	.91639	9.6574	9.5534	1.6465
SE	AG	NA	TL	V	ZN		
9.7484	.95102	2.4623	9.3767	9.6200	9.7144		

BURN # 2 785 31-OCT-88 15:49:07
223275 LCS PA
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
9.7756	10.153	10.000	9.6595	9.6455	9.8700	-.5203	9.6127
CO	CU	FE	PB	MG	MN	NI	K
9.6523	9.7119	9.5424	9.5867	.86066	9.6480	9.5413	.87648
SE	AG	NA	TL	V	ZN		
9.7916	.95102	1.7348	9.2088	9.6021	9.7056		

BURN # 3 785 31-OCT-88 15:49:29
223275 LCS PA
LV
3747.5

AL	SB	AS	BA	BE	CD	CA	CR
9.8206	10.197	10.017	9.6890	9.6849	9.9263	-.5164	9.6469
CO	CU	FE	PB	MG	MN	NI	K
9.6907	9.7466	9.5926	9.6691	.83730	9.6909	9.6362	1.2960
SE	AG	NA	TL	V	ZN		
9.8320	.95174	1.9404	9.6641	9.6286	9.7433		

AVERAGE N=3 785 31-OCT-88 15:50:05
223275 LCS PA
LV
3746.2

AL	SB	AS	BA	BE	CD	CA	CR
9.7982	10.180	9.9998	9.6678	9.6612	9.8955	-.5190	9.6283
CO	CU	FE	PB	MG	MN	NI	K
9.6696	9.7235	9.5671	9.6319	.90478	9.6655	9.5776	1.0070
SE	AG	NA	TL	V	ZN		
9.7907	.95126	2.0458	9.4169	9.6170	9.7212		

AR303642

42

BURN # 1 785 31-OCT-88 15:50:36
223274 AS
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0549	.00260	-.0006	.15386	-.0000	.00571	4.9486	.00425
CO	CU	FE	PB	MG	MN	NI	K
.00195	.00267	-.0494	.01623	3.1906	.00914	.00715	2.5378
SE	AG	NA	TL	V	ZN		
-.0058	-.0026	20.116	.00306	.00207	.03266		

BURN # 2 785 31-OCT-88 15:50:59
223274 AS
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0435	-.0225	.00051	.15394	-.0000	.00396	4.9692	.00255
CO	CU	FE	PB	MG	MN	NI	K
.00028	.00268	-.0456	.03451	3.2096	.00917	.01741	3.0755
SE	AG	NA	TL	V	ZN		
.02336	-.0022	19.476	-.0355	.00063	.03214		

BURN # 3 785 31-OCT-88 15:51:21
223274 AS
LV
3747.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0492	-.0142	-.0006	.15366	.00139	-.0011	4.9276	.00298
CO	CU	FE	PB	MG	MN	NI	K
.00170	.00267	-.0501	.03819	3.2516	.00915	-.0026	3.5976
SE	AG	NA	TL	V	ZN		
-.0172	.00103	21.515	.04173	.00131	.03235		

AVERAGE N=3 785 31-OCT-88 15:51:56
223274 AS
LV
3747.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0492	-.0114	-.0002	.15390	.00046	.00285	4.9485	.00326
CO	CU	FE	PB	MG	MN	NI	K
.00131	.00267	-.0484	.02964	3.2174	.00916	.00726	3.0703
SE	AG	NA	TL	V	ZN		
.00013	-.0012	20.370	.00309	.00133	.03239		

AR303643

43

BURN # 1 785 31-OCT-88 15:52:34
223276 D(223274)
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0662	-.0202	-.0097	.15382	.00140	.00242	4.9724	.00170
CO	CU	FE	PB	MG	MN	NI	K
-.0021	.00268	-.0516	.01626	3.1698	.00917	-.0230	-.0605
SE	AG	NA	TL	V	ZN		
.01468	-.0003	19.819	.05707	-.0018	.03241		

BURN # 2 785 31-OCT-88 15:52:55
223276 D(223274)
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0549	.01750	.00406	.15382	-.0000	-.0021	4.9940	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0001	.01673	-.0515	-.0115	3.2760	.00917	.02061	1.7348
SE	AG	NA	TL	V	ZN		
-.0398	.00527	19.821	.02716	.00065	.03237		

BURN # 3 785 31-OCT-88 15:53:17
223276 D(223274)
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0379	.01048	.00169	.15392	.00000	.00225	5.0097	.00296
CO	CU	FE	PB	MG	MN	NI	K
-.0006	.01673	-.0505	.01990	3.2613	.00917	-.0242	1.2298
SE	AG	NA	TL	V	ZN		
.02891	-.0012	19.820	.01698	-.0006	.03126		

AVERAGE N=3 785 31-OCT-88 15:54:08
223276 D(223274)
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0530	.00260	-.0013	.15392	.00046	.00087	4.9921	.00128
CO	CU	FE	PB	MG	MN	NI	K
-.0010	.01338	-.0513	.00823	3.2424	.00917	-.0089	.96807
SE	AG	NA	TL	V	ZN		
.00126	.00124	19.820	.03374	-.0006	.03201		

44

BURN # 1 785 31-OCT-88 15:54:41
223277 RW
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0662	-.0062	-.0085	.15114	.00141	-.0002	4.8311	.00085
CO	CU	FE	PB	MG	MN	NI	K
-.0012	.03479	-.0693	.02408	3.0397	.00782	.00075	-.4532
SE	AG	NA	TL	V	ZN		
-.0308	-.0008	5.8709	-.0493	-.0047	.02900		

BURN # 2 785 31-OCT-88 15:55:02
223277 RW
LV
3747.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0662	-.0118	-.0406	.15205	.00140	.00031	4.8578	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0019	.03479	-.0711	.02460	2.9732	.00762	.00780	-.3347
SE	AG	NA	TL	V	ZN		
-.0228	-.0012	7.4083	-.0224	-.0020	.03011		

BURN # 3 785 31-OCT-88 15:55:23
223277 RW
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0520	-.0059	-.0029	.15209	.00135	-.0020	4.9300	.00426
CO	CU	FE	PB	MG	MN	NI	K
-.0005	.03480	-.0695	.02564	3.1328	.00763	.00075	-.9083
SE	AG	NA	TL	V	ZN		
.00045	-.0022	6.9943	-.0092	-.0007	.02964		

AVERAGE N=3 785 31-OCT-88 15:56:04
223277 RW
LV
3746.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0615	-.0099	-.0173	.15176	.00140	-.0006	4.8730	.00142
CO	CU	FE	PB	MG	MN	NI	K
-.0013	.03479	-.0696	.02477	3.0486	.00782	.00310	-.5654
SE	AG	NA	TL	V	ZN		
-.0177	-.0014	6.7577	-.0270	-.0025	.02965		

45

BURN # 1 785 31-OCT-88 15:57:19
224825 PREP BLANK WATER COM110
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0833	-.0066	-.0383	-.0019	.00000	.00455	-.5792	.00085
CO	CU	FE	PB	MG	MN	NI	K
-.0015	.00268	-.0376	.00371	-.1094	-.0016	.01036	.21387
SE	AG	NA	TL	V	ZN		
.00324	-.0008	.04987	.03810	-.0006	-.0224		

BURN # 2 785 31-OCT-88 15:57:41
224825 PREP BLANK WATER COM110
LV
3747.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0604	-.0006	.01100	-.0000	-.0000	.00126	-.5651	-.0009
CO	CU	FE	PB	MG	MN	NI	K
.00025	.00267	-.0371	-.0036	-.0660	-.0016	.01164	1.0737
SE	AG	NA	TL	V	ZN		
-.0513	.00201	.07764	.05554	.00032	-.0224		

BURN # 3 785 31-OCT-88 15:58:02
224825 PREP BLANK WATER COM110
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0918	-.0024	.00420	-.0009	.00141	-.0004	-.5772	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0026	.00267	-.0375	.01313	-.2143	-.0016	-.0140	-.5466
SE	AG	NA	TL	V	ZN		
.01151	-.0050	-.4018	.00233	-.0047	-.0230		

AVERAGE N=3 785 31-OCT-88 15:58:51
224825 PREP BLANK WATER COM110
LV
3747.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0852	-.0032	-.0077	-.0009	.00047	.00182	-.5805	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0013	.00267	-.0375	.00441	-.1299	-.0016	.00267	.24698
SE	AG	NA	TL	V	ZN		
-.0122	-.0012	-.0914	.03199	-.0016	-.0226		

46

BURN # 1 785 31-OCT-88 16:00:04
223949 LCS PA
LV
3746.0

AL	SB	AS	BA	BE	CD	CA	CR
9.7741	10.186	9.9592	9.6738	9.6719	9.8976	-.5164	9.6579
CO	CU	FE	PB	MG	MN	NI	K
9.6367	9.7453	9.5801	9.6406	.89765	9.6728	9.6002	.79935
SE	AG	NA	TL	V	ZN		
9.7231	.95161	2.2957	9.4581	9.5981	9.7254		

BURN # 2 785 31-OCT-88 16:00:25
223949 LCS PA
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
9.7728	10.115	9.9111	9.6401	9.6535	9.6457	-.5262	9.6422
CO	CU	FE	PB	MG	MN	NI	K
9.6336	9.7035	9.5471	9.6205	.83943	9.6460	9.6191	.63724
SE	AG	NA	TL	V	ZN		
9.6130	.94776	1.9154	9.3069	9.5903	9.7028		

BURN # 3 785 31-OCT-88 16:00:46
223949 LCS PA
LV
3742.0

AL	SB	AS	BA	BE	CD	CA	CR
9.8306	10.223	9.9995	9.7165	9.7343	9.9449	-.5144	9.7213
CO	CU	FE	PB	MG	MN	NI	K
9.6931	9.7854	9.6314	9.6749	1.0038	9.7312	9.6665	1.0088
SE	AG	NA	TL	V	ZN		
9.8989	.95114	2.0754	9.4784	9.6548	9.7605		

AVERAGE N=3 785 31-OCT-88 16:01:23
223949 LCS PA
LV
3746.2

AL	SB	AS	BA	BE	CD	CA	CR
9.7925	10.176	9.9566	9.6768	9.6867	9.8961	-.5190	9.6738
CO	CU	FE	PB	MG	MN	NI	K
9.6545	9.7449	9.5862	9.6452	.91363	9.6834	9.6354	1.0818
SE	AG	NA	TL	V	ZN		
9.8117	.95017	2.0982	9.4151	9.6143	9.7362		

BURN # 1 765 31-OCT-88 16:01:56
223953 0612
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
2.6215	.01709	.04167	.23076	-.0000	.00168	24.837	.00425
CO	CU	FE	PB	MG	MN	NI	K
.01422	-.0058	7.9789	-.0097	9.2193	.65346	.03114	7.1416
SE	AG	NA	TL	V	ZN		
.00852	.00367	9.3117	-.0437	.00947	.10186		

BURN # 2 765 31-OCT-88 16:02:19
223953 0612
LV
3749.0

AL	SB	AS	BA	BE	CD	CA	CR
2.6436	.01092	.00037	.23166	-.0000	.00656	24.848	.00342
CO	CU	FE	PB	MG	MN	NI	K
.01119	.00216	7.9826	.02575	9.1733	.65337	.02954	7.2029
SE	AG	NA	TL	V	ZN		
-.0015	.00155	8.2612	.04004	.00547	.10071		

BURN # 3 765 31-OCT-88 16:02:41
223953 0612
LV
3750.0

AL	SB	AS	BA	BE	CD	CA	CR
2.6289	.00777	-.0076	.23160	-.0000	.00563	25.064	.00510
CO	CU	FE	PB	MG	MN	NI	K
.01350	-.0135	8.0406	.03464	9.2775	.65855	.02921	7.6057
SE	AG	NA	TL	V	ZN		
.04006	-.0003	7.7779	-.0278	.00933	.10157		

AVERAGE N=3 765 31-OCT-88 16:03:23
223953 0612
LV
3749.2

AL	SB	AS	BA	BE	CD	CA	CR
2.6314	.01189	.01149	.23134	-.0000	.00469	24.916	.00425
CO	CU	FE	PB	MG	MN	NI	K
.01297	-.0058	7.9940	.01689	9.2234	.65513	.02996	7.3168
SE	AG	NA	TL	V	ZN		
.01568	.00170	8.4569	-.0105	.00941	.10138		

48

BURN # 1 785 31-OCT-88 16:05:31
CCV ICV-1(0487)
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
1.8897	.00134	.00497	1.9442	.47202	.49302	48.450	.47877
CO	CU	FE	PB	MG	MN	NI	K
.48002	.51585	1.8640	4.2256	24.746	.49478	.45485	54.294
SE	AG	NA	TL	V	ZN		
-.0153	.48462	52.613	-.0239	.49247	2.8684		

BURN # 2 785 31-OCT-88 16:05:53
CCV ICV-1(0487)
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9016	.00445	-.0179	1.9559	.47423	.49520	48.661	.47804
CO	CU	FE	PB	MG	MN	NI	K
.48170	.50797	1.8674	4.2747	24.699	.49684	.47737	55.137
SE	AG	NA	TL	V	ZN		
.02668	.48940	52.664	.00088	.49507	2.8767		

BURN # 3 765 31-OCT-88 16:06:14
CCV ICV-1(0487)
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
1.8846	.00412	-.0065	1.9486	.47215	.48649	48.310	.46911
CO	CU	FE	PB	MG	MN	NI	K
.48201	.50797	1.8577	4.2121	24.527	.49493	.47609	54.241
SE	AG	NA	TL	V	ZN		
.03499	.48382	51.843	-.0625	.48109	2.8717		

AVERAGE N=3 765 31-OCT-88 16:07:22
CCV ICV-1(0487)
LV
3749.8

AL	SB	AS	BA	BE	CD	CA	CR
1.8920	.00330	-.0065	1.9489	.47280	.49157	48.474	.47531
CO	CU	FE	PB	MG	MN	NI	K
.48124	.51059	1.8630	4.2374	24.658	.49555	.46944	54.557
SE	AG	NA	TL	V	ZN		
.01546	.48595	52.373	-.0285	.49288	2.8723		

49

BURN # 1 785 31-OCT-88 16:08:00
CCV ICV-3(0787)
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0946	.99177	-.0187	.00093	.00139	.00084	-.5733	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0017	-.0054	-.0819	-.0192	-.1710	-.0016	-.0143	-2.210
SE	AG	NA	TL	V	ZN		
-.0207	-.0017	-.7377	-.0756	-.0010	-.0266		

BURN # 2 785 31-OCT-88 16:08:22
CCV ICV-3(0787)
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0918	1.0337	.00876	-.0000	-.0000	.00215	-.5811	-.0017
CO	CU	FE	PB	MG	MN	NI	K
-.0008	.00266	-.0819	.00687	-.1730	-.0016	-.0236	-2.141
SE	AG	NA	TL	V	ZN		
.02227	-.0003	.22708	.03145	-.0011	-.0269		

BURN # 3 785 31-OCT-88 16:08:44
CCV ICV-3(0787)
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0889	1.0027	-.0039	-.0000	-.0000	-.0028	-.5831	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0005	.00266	-.0808	-.0119	-.0616	-.0016	-.0002	.10123
SE	AG	NA	TL	V	ZN		
.01154	.00062	.96149	.00740	.00085	-.0269		

AVERAGE N=3 785 31-OCT-88 16:09:24
CCV ICV-3(0787)
LV
3750.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0918	1.0094	-.0046	.00031	.00046	.00007	-.5792	-.0017
CO	CU	FE	PB	MG	MN	NI	K
-.0010	-.0000	-.0815	-.0081	-.1352	-.0016	-.0127	-1.416
SE	AG	NA	TL	V	ZN		
.00436	-.0005	.15027	-.0123	-.0004	-.0268		

50

BURN # 1 785 31-OCT-88 16:09:57
CCV SPEXM3
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0691	.00715	4.9676	-.0009	-.0014	-.0080	-.5792	.00085
CO	CU	FE	PB	MG	MN	NI	K
.00123	-.0054	-.0812	.02093	-.1170	-.0016	-.0005	-.6771
SE	AG	NA	TL	V	ZN		
-.0457	-.0022	1.6735	.04379	-.0005	-.0269		

BURN # 2 785 31-OCT-88 16:10:19
CCV SPEXM3
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0776	.00026	4.9592	-.0000	-.0000	-.0095	-.5870	-.0017
CO	CU	FE	PB	MG	MN	NI	K
-.0017	.01068	-.0819	-.0057	-.1916	-.0016	-.0024	-2.084
SE	AG	NA	TL	V	ZN		
-.0367	.00015	1.3276	-.0188	-.0010	-.0269		

BURN # 3 785 31-OCT-88 16:10:40
CCV SPEXM3
LV
3750.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0606	.00562	4.9724	-.0000	-.0000	-.0123	-.5733	.00170
CO	CU	FE	PB	MG	MN	NI	K
-.0020	.00266	-.0606	.00735	-.1919	-.0016	.00971	-1.306
SE	AG	NA	TL	V	ZN		
.00211	-.0031	.70586	-.0537	.00000	-.0258		

AVERAGE N=3 785 31-OCT-88 16:11:22
CCV SPEXM3
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0691	.00434	4.9664	-.0003	-.0005	-.0099	-.5798	.00028
CO	CU	FE	PB	MG	MN	NI	K
-.0008	.00266	-.0813	.00753	-.1668	-.0016	.00224	-1.356
SE	AG	NA	TL	V	ZN		
-.0268	-.0017	1.2356	-.0096	-.0005	-.0265		

BURN # 1 785 31-OCT-88 16:11:55
CCB (3)
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0180	.01006	.00961	.00093	.00139	.00213	-.5046	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0017	-.0134	-.0332	.01308	-.1444	-.0016	-.0188	-.7520
SE	AG	NA	TL	V	ZN		
.00945	-.0012	.43704	-.0377	-.0010	-.0019		

BURN # 2 785 31-OCT-88 16:12:16
CCB (3)
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0266	.00166	.01078	-.0000	-.0000	-.0022	-.5145	-.0004
CO	CU	FE	PB	MG	MN	NI	K
-.0026	-.0134	-.0386	-.0052	-.1757	-.0016	-.0204	-.8515
SE	AG	NA	TL	V	ZN		
-.0481	-.0012	-.4304	.01541	-.0015	-.0019		

BURN # 3 785 31-OCT-88 16:12:38
CCB (3)
LV
3749.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0492	.00243	-.0098	-.0000	.00139	.00071	-.5046	-.0009
CO	CU	FE	PB	MG	MN	NI	K
-.0022	-.0134	-.0361	-.0141	-.1978	-.0016	-.0079	-2.440
SE	AG	NA	TL	V	ZN		
-.0138	-.0012	-1.011	.03587	-.0014	-.0002		

AVERAGE N=3 785 31-OCT-88 16:13:26
CCB (3)
LV
3749.7

AL	SB	AS	BA	BE	CD	CA	CR
-.0313	.00472	.00355	.00031	.00093	.00023	-.5079	-.0006
CO	CU	FE	PB	MG	MN	NI	K
-.0022	-.0134	-.0359	-.0021	-.1726	-.0016	-.0157	-1.348
SE	AG	NA	TL	V	ZN		
-.0175	-.0012	-.3348	.00452	-.0013	-.0013		

52

BURN # 1 785 31-OCT-88 16:14:06
223952 0610
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
.34493	-.0011	.01281	.11736	.00046	.00866	79.592	.00397
CO	CU	FE	PB	MG	MN	NI	K
.01452	.01601	.63564	.02690	12.889	.54159	.03945	.03534
SE	AG	NA	TL	V	ZN		
-.0029	.00093	31.022	.02868	.00149	.01689		

BURN # 2 785 31-OCT-88 16:14:28
223952 0610
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
.33359	-.0113	-.0421	.11736	.00045	.00776	80.110	-.0003
CO	CU	FE	PB	MG	MN	NI	K
.01511	.01601	.64141	.02430	12.987	.54629	.04873	1.6610
SE	AG	NA	TL	V	ZN		
.01759	.00325	32.031	-.0405	.00265	.01772		

BURN # 3 785 31-OCT-88 16:14:49
223952 0610
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
.35639	-.0104	.00813	.11739	.00045	.00788	79.492	.00567
CO	CU	FE	PB	MG	MN	NI	K
.01637	.01601	.63726	.01802	12.995	.53705	.05770	4.4523
SE	AG	NA	TL	V	ZN		
-.0407	.00186	31.992	.00537	.00430	.01773		

AVERAGE N=3 785 31-OCT-88 16:15:27
223952 0610
LV
3749.2

AL	SB	AS	BA	BE	CD	CA	CR
.34497	-.0076	-.0071	.11737	.00045	.00810	79.731	.00312
CO	CU	FE	PB	MG	MN	NI	K
.01533	.01601	.63810	.02307	12.957	.54164	.04863	2.0496
SE	AG	NA	TL	V	ZN		
-.0087	.00201	31.682	-.0022	.00281	.01745		

AR303653

BURN # 1 785 31-OCT-88 16:16:00
223950 D(223952)
LV
3749.0

AL	SB	AS	BA	BE	CD	CA	CR
.41872	-.0062	-.0013	.11552	-.0009	.00801	81.308	.00057
CO	CU	FE	PB	MG	MN	NI	K
.01575	-.0000	.67941	.02320	13.129	.55241	.03593	3.6172
SE	AG	NA	TL	V	ZN		
-.0060	-.0000	31.859	-.0551	.00106	.04080		

BURN # 2 785 31-OCT-88 16:16:22
223950 D(223952)
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
.39326	-.0044	-.0057	.11554	-.0009	.01236	81.152	-.0011
CO	CU	FE	PB	MG	MN	NI	K
.01758	.01601	.68204	.00756	13.205	.54779	.04105	4.7327
SE	AG	NA	TL	V	ZN		
.01969	.00232	32.622	-.0996	.00390	.03866		

BURN # 3 785 31-OCT-88 16:16:43
223950 D(223952)
LV
3749.0

AL	SB	AS	BA	BE	CD	CA	CR
.40454	.01583	-.0218	.11552	-.0009	.01259	81.800	.00227
CO	CU	FE	PB	MG	MN	NI	K
.01934	-.0000	.69096	.01069	13.411	.55308	.03336	7.0371
SE	AG	NA	TL	V	ZN		
.01519	.00279	32.595	.05922	.00541	.04024		

AVERAGE N=3 785 31-OCT-88 16:17:24
223950 D(223952)
LV
3748.8

AL	SB	AS	BA	BE	CD	CA	CR
.40551	.00175	-.0096	.11553	-.0009	.01099	81.420	.00057
CO	CU	FE	PB	MG	MN	NI	K
.01756	.00531	.68414	.01382	13.248	.55109	.03678	5.1290
SE	AG	NA	TL	V	ZN		
.00963	.00170	32.359	-.0318	.00345	.04023		

54

BURN # 1 785 31-OCT-88 16:17:57
223948 0608
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
41.943	.01569	.05606	1.1407	.00016	.00726	40.894	.06944
CO	CU	FE	PB	MG	MN	NI	K
.08115	.09061	93.641	.10773	17.451	19.394	.20121	10.197
SE	AG	NA	TL	V	ZN		
.00313	.00139	18.828	-.0582	.08553	.53214		

BURN # 2 785 31-OCT-88 16:18:19
223948 0608
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
41.836	.02760	.01879	1.1371	.00017	.00867	40.765	.07115
CO	CU	FE	PB	MG	MN	NI	K
.07862	.09865	93.550	.10678	17.358	19.385	.19612	9.8556
SE	AG	NA	TL	V	ZN		
.03084	.00186	19.226	.06696	.08368	.53272		

BURN # 3 785 31-OCT-88 16:18:40
223948 0608
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
41.980	-.0020	.01362	1.1479	.00017	.01045	40.985	.07028
CO	CU	FE	PB	MG	MN	NI	K
.07984	.09058	93.961	.11185	17.386	19.497	.20695	8.4089
SE	AG	NA	TL	V	ZN		
.01454	.00464	20.105	.00235	.08332	.53359		

AVERAGE N=3 785 31-OCT-88 16:19:17
223948 0608
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
41.920	.01375	.02949	1.1419	.00017	.00879	40.881	.07029
CO	CU	FE	PB	MG	MN	NI	K
.07994	.09328	93.718	.10879	17.398	19.425	.20143	9.4871
SE	AG	NA	TL	V	ZN		
.01617	.00263	19.386	.00369	.08417	.53282		

BURN # 1 785 31-OCT-88 16:19:54
225903 PREP BLANK WATER COM254
LV
3750.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0463	-.0061	-.0361	-.0012	-.0009	.00595	-.0418	-.0020
CO	CU	FE	PB	MG	MN	NI	K
.00375	.01604	-.0192	.01046	.20091	.00335	.02955	4.7499
SE	AG	NA	TL	V	ZN		
-.0188	-.0009	3.3276	-.0444	.00376	-.0164		

BURN # 2 785 31-OCT-88 16:20:16
225903 PREP BLANK WATER COM254
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0463	-.0257	-.0063	-.0012	-.0009	.00030	-.0634	-.0016
CO	CU	FE	PB	MG	MN	NI	K
.00342	.00000	-.0301	.00785	.13753	-.0000	.03114	4.0832
SE	AG	NA	TL	V	ZN		
.04394	-.0023	2.7567	-.0248	.00296	-.0161		

BURN # 3 785 31-OCT-88 16:20:37
225903 PREP BLANK WATER COM254
LV
3749.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0378	-.0063	-.0361	-.0012	-.0009	.00253	-.0517	-.0024
CO	CU	FE	PB	MG	MN	NI	K
.00169	.01505	-.0341	-.0047	.08390	.00000	.02411	4.8002
SE	AG	NA	TL	V	ZN		
.03909	.00139	.96507	.02696	.00207	-.0161		

AVERAGE N=3 785 31-OCT-88 16:21:42
225903 PREP BLANK WATER COM254
LV
3750.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0435	-.0127	-.0262	-.0012	-.0009	.00295	-.0523	-.0020
CO	CU	FE	PB	MG	MN	NI	K
.00295	.01070	-.0278	.00454	.14078	.00112	.02827	4.5444
SE	AG	NA	TL	V	ZN		
.02141	-.0006	2.3498	-.0141	.00293	-.0162		

56

BURN # 1 785 31-OCT-88 16:22:15
225896 LEACHATE BLANK
LV
3750.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0520	-.0316	-.0029	.00247	-.0023	.00630	-.0105	.00142
CO	CU	FE	PB	MG	MN	NI	K
.00017	.01604	-.0340	.01569	.03380	-.0000	.01035	.93854
SE	AG	NA	TL	V	ZN		
.02520	.00279	1.2919	-.0685	.00044	.01603		

BURN # 2 785 31-OCT-88 16:22:37
225896 LEACHATE BLANK
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0435	-.0027	.00286	.00062	-.0009	.00024	-.0085	.00057
CO	CU	FE	PB	MG	MN	NI	K
.00026	.01605	-.0344	-.0005	.02494	.00002	.02892	.69547
SE	AG	NA	TL	V	ZN		
.00265	.00279	.25493	-.0677	.00018	.01549		

BURN # 3 785 31-OCT-88 16:22:58
225896 LEACHATE BLANK
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0520	-.0268	-.0395	.00154	-.0009	.00001	-.0124	-.0003
CO	CU	FE	PB	MG	MN	NI	K
.00057	.01605	-.0351	.01413	-.0069	.00002	.01579	.47116
SE	AG	NA	TL	V	ZN		
-.0463	-.0009	.43903	.01898	-.0000	.01550		

AVERAGE N=3 785 31-OCT-88 16:23:45
225896 LEACHATE BLANK
LV
3749.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0491	-.0203	-.0132	.00154	-.0014	.00219	-.0105	.00057
CO	CU	FE	PB	MG	MN	NI	K
.00033	.01605	-.0345	.00977	.01728	.00001	.01835	.70172
SE	AG	NA	TL	V	ZN		
-.0061	.00155	.66195	-.0391	.00020	.01567		

57

BURN # 1 785 31-OCT-88 16:24:18
225896 +2PPM
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9646	2.0522	2.0097	1.9690	1.9377	2.0102	.01309	1.9379
CO	CU	FE	PB	MG	MN	NI	K
1.9771	1.9980	1.9382	1.9642	.23988	1.9635	1.9765	-.4821
SE	AG	NA	TL	V	ZN		
1.9670	.17660	.56073	1.9247	1.9385	1.9885		

BURN # 2 785 31-OCT-88 16:24:39
225896 +2PPM
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9334	2.0176	2.0057	1.9403	1.9065	1.9785	.01309	1.9056
CO	CU	FE	PB	MG	MN	NI	K
1.9357	1.9739	1.9079	1.9166	.22661	1.9333	1.9202	.86368
SE	AG	NA	TL	V	ZN		
1.9362	.17474	.94263	1.8999	1.9016	1.9642		

BURN # 3 785 31-OCT-88 16:25:01
225896 +2PPM
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9323	2.0451	2.0079	1.9550	1.9166	2.0005	.00130	1.9152
CO	CU	FE	PB	MG	MN	NI	K
1.9502	1.9809	1.9144	1.9360	.20383	1.9423	1.9294	-.6245
SE	AG	NA	TL	V	ZN		
1.9782	.17697	-.6147	1.8719	1.9102	1.9709		

AVERAGE N=3 785 31-OCT-88 16:25:38
225896 +2PPM
LV
3749.2

AL	SB	AS	BA	BE	CD	CA	CR
1.9434	2.0383	2.0078	1.9548	1.9203	1.9964	.00916	1.9196
CO	CU	FE	PB	MG	MN	NI	K
1.9543	1.9843	1.9201	1.9389	.22344	1.9464	1.9421	-.0809
SE	AG	NA	TL	V	ZN		
1.9605	.17611	.29621	1.8989	1.9168	1.9745		

BURN # 1 785 31-OCT-88 16:26:11
225830 SP3-RCRA-1028
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
9.3961	.01815	.03140	7.3551	.00040	.01520	3.1114	.03543
CO	CU	FE	PB	MG	MN	NI	K
.00714	.22399	9.7263	37.092	1.0096	.04246	.02122	-.0640
SE	AG	NA	TL	V	ZN		
-.0308	.00325	8.3458	-.0168	.01802	2.2367		

58

BURN # 2 785 31-OCT-88 16:26:32
225830 SP3-RCRA-1028
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
9.3303	-.0242	-.0036	7.3146	.00041	.01316	3.1014	.03418
CO	CU	FE	PB	MG	MN	NI	K
.00546	.22411	9.6889	36.942	1.0545	.04251	.04043	.30298
SE	AG	NA	TL	V	ZN		
.02780	.00093	6.7869	.00080	.01701	2.2265		

BURN # 3 785 31-OCT-88 16:26:54
225830 SP3-RCRA-1028
LV
3748.5

AL	SB	AS	BA	BE	CD	CA	CR
9.4267	.01577	.00386	7.3591	-.0010	.01390	3.1112	.03588
CO	CU	FE	PB	MG	MN	NI	K
.00456	.22411	9.7460	37.010	1.0704	.04251	.02987	-.3138
SE	AG	NA	TL	V	ZN		
.00975	.00046	7.7968	.07356	.01621	2.2304		

AVERAGE N=3 785 31-OCT-88 16:27:30
225830 SP3-RCRA-1028
LV
3749.2

AL	SB	AS	BA	BE	CD	CA	CR
9.3844	.00323	.01050	7.3429	-.0001	.01409	3.1080	.03516
CO	CU	FE	PB	MG	MN	NI	K
.00572	.22407	9.7204	37.014	1.0715	.04249	.03051	-.0250
SE	AG	NA	TL	V	ZN		
.00225	.00155	7.6432	.01918	.01708	2.2312		

BURN # 1 785 31-OCT-88 16:28:03
225830 +2PPM
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
11.414	2.1488	2.0902	9.3809	2.0400	2.0840	3.1232	2.0364
CO	CU	FE	PB	MG	MN	NI	K
2.0333	2.2691	11.731	38.739	1.2488	2.0787	1.9981	-1.577
SE	AG	NA	TL	V	ZN		
2.0937	.19277	7.8998	2.0400	2.0215	4.2396		

BURN # 2 785 31-OCT-88 16:28:25
225830 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
11.420	2.1447	2.1000	9.3848	2.0270	2.0619	3.1145	2.0214
CO	CU	FE	PB	MG	MN	NI	K
2.0177	2.2604	11.725	38.781	1.1775	2.0641	1.9979	-1.676
SE	AG	NA	TL	V	ZN		
1.9853	.19086	7.8596	1.9616	2.0046	4.2274		

BURN # 3 785 31-OCT-88 16:28:46
225830 +2PPM
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
11.370	2.1188	2.0401	9.3537	2.0107	2.0639	3.1091	2.0081
CO	CU	FE	PB	MG	MN	NI	K
2.0014	2.2287	11.716	38.730	1.1853	2.0442	2.0532	-2.355
SE	AG	NA	TL	V	ZN		
2.0453	.18949	7.7152	1.9000	1.9908	4.2034		

AVERAGE N=3 785 31-OCT-88 16:29:48
225830 +2PPM
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
11.402	2.1374	2.0768	9.3731	2.0259	2.0699	3.1156	2.0220
CO	CU	FE	PB	MG	MN	NI	K
2.0175	2.2527	11.725	38.750	1.2038	2.0623	2.0164	-1.869
SE	AG	NA	TL	V	ZN		
2.0448	.19104	7.8249	1.9672	2.0056	4.2235		

BURN # 1 785 31-OCT-88 16:31:24
224827 PREP BLANK WATER COM111
LV
3750.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0548	-.0147	-.0211	.00062	-.0009	-.0028	-.0830	.00057
CO	CU	FE	PB	MG	MN	NI	K
.00104	.00802	-.0409	.00734	-.0746	-.0000	.01323	.27225
SE	AG	NA	TL	V	ZN		
.02206	.00186	-1.276	-.0612	-.0006	-.0194		

BURN # 2 785 31-OCT-88 16:31:46
224827 PREP BLANK WATER COM111
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0350	-.0189	.00850	.00062	.00048	-.0006	-.0732	.00269
CO	CU	FE	PB	MG	MN	NI	K
.00038	.01604	-.0409	.01412	.03204	-.0000	.00235	1.6296
SE	AG	NA	TL	V	ZN		
-.0051	.00275	.23923	-.0262	.00091	-.0195		

BURN # 3 785 31-OCT-88 16:32:07
224827 PREP BLANK WATER COM111
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0435	-.0162	.02121	.00062	.00047	.00083	-.0771	-.0016
CO	CU	FE	PB	MG	MN	NI	K
.00155	.01604	-.0427	.02193	-.0446	-.0000	.03489	-.2754
SE	AG	NA	TL	V	ZN		
-.0053	.00046	.33180	-.0255	-.0012	-.0184		

AVERAGE N=3 785 31-OCT-88 16:33:02
224827 PREP BLANK WATER COM111
LV
3751.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0444	-.0169	.00020	.00062	-.0000	-.0009	-.0778	.00057
CO	CU	FE	PB	MG	MN	NI	K
.00099	.01337	-.0415	.01446	-.0291	-.0000	.01685	.54216
SE	AG	NA	TL	V	ZN		
.00253	.00170	-.2349	-.0376	-.0003	-.0191		

60

61

BURN # 1 785 31-OCT-88 16:33:36
223765 LCS PA
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
8.8012	10.146	9.9030	9.7034	9.6848	8.6624	-.0242	8.6525
CO	CU	FE	PB	MG	MN	NI	K
9.6481	8.7313	9.6286	8.6165	.86315	9.6929	8.6938	1.7416
SE	AG	NA	TL	V	ZN		
8.7716	.64608	1.6197	8.1708	9.6217	8.6867		

BURN # 2 785 31-OCT-88 16:33:57
223765 LCS PA
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
8.7871	10.119	9.9050	9.6330	9.6377	8.6576	-.0124	8.6161
CO	CU	FE	PB	MG	MN	NI	K
9.6045	8.6992	9.5768	8.5465	1.0449	9.6400	8.5662	3.3664
SE	AG	NA	TL	V	ZN		
8.7691	.84035	1.5446	8.5391	9.5675	8.6590		

BURN # 3 785 31-OCT-88 16:34:19
223765 LCS PA
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
8.9146	10.283	10.016	9.6053	9.7909	8.9219	-.0261	8.7449
CO	CU	FE	PB	MG	MN	NI	K
9.7426	8.8355	9.7245	8.6714	.98921	9.7902	8.6904	3.4786
SE	AG	NA	TL	V	ZN		
8.9198	.85166	.56238	8.2850	9.7102	8.7699		

AVERAGE N=3 785 31-OCT-88 16:34:55
223765 LCS PA
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
8.8343	10.182	9.9416	9.7139	9.7044	8.8873	-.0216	8.6715
CO	CU	FE	PB	MG	MN	NI	K
9.6651	8.7553	9.6436	8.6115	.97241	9.7077	8.6501	2.8622
SE	AG	NA	TL	V	ZN		
8.8269	.84593	1.2422	8.3316	9.6332	8.7052		

62

BURN # 1 765 31-OCT-88 16:35:26
CCV ICV-1(0487)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9516	-.0090	-.0011	1.9860	.48345	.49869	49.823	.48728
CO	CU	FE	PB	MG	MN	NI	K
.49366	.54512	1.9373	4.2687	25.189	.50766	.49118	55.528
SE	AG	NA	TL	V	ZN		
.02134	.49363	51.945	-.0416	.50298	2.9183		

BURN # 2 785 31-OCT-88 16:35:50
CCV ICV-1(0487)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9261	-.0076	-.0147	1.9664	.47583	.49973	49.366	.48061
CO	CU	FE	PB	MG	MN	NI	K
.48497	.52107	1.9153	4.2166	24.815	.50162	.49800	56.201
SE	AG	NA	TL	V	ZN		
.03584	.49130	52.057	-.0135	.49591	2.8878		

BURN # 3 765 31-OCT-88 16:36:11
CCV ICV-1(0487)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9176	.00105	-.0006	1.9591	.47564	.49853	49.180	.48176
CO	CU	FE	PB	MG	MN	NI	K
.48561	.52909	1.9132	4.2171	24.607	.50296	.45376	53.751
SE	AG	NA	TL	V	ZN		
-.0370	.49130	50.498	-.0423	.49321	2.8867		

AVERAGE N=3 765 31-OCT-88 16:37:35
CCV ICV-1(0487)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9318	-.0052	-.0055	1.9712	.47837	.49932	49.456	.48332
CO	CU	FE	PB	MG	MN	NI	K
.48808	.53176	1.9219	4.2348	24.937	.50408	.48031	55.173
SE	AG	NA	TL	V	ZN		
.00673	.49208	51.500	-.0326	.49737	2.8976		

BURN # 1 785 31-OCT-88 16:38:08
ICV ICV-3(0787)
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0577	1.0083	.0074	-.0003	-.0009	.0001	-.0713	.0009
CO	CU	FE	PB	MG	MN	NI	K
.0010	.0060	-.0442	-.0036	.0078	-.0000	.0013	1.3993
SE	AG	NA	TL	V	ZN		
.0310	.0032	.2643	.0553	.0003	-.0239		

BURN # 2 785 31-OCT-88 16:38:30
ICV ICV-3(0787)
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0605	1.0049	-.0045	-.0003	.0004	-.0011	-.0791	-.0003
CO	CU	FE	PB	MG	MN	NI	K
-.0020	-.0060	-.0442	.0109	.0105	-.0000	.0260	1.6795
SE	AG	NA	TL	V	ZN		
-.0105	-.0019	.5406	-.0437	.0001	-.0255		

BURN # 3 785 31-OCT-88 16:38:51
ICV ICV-3(0787)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0463	1.0054	-.0051	-.0003	.0004	-.0013	-.0791	.0031
CO	CU	FE	PB	MG	MN	NI	K
.0003	.0160	-.0452	.0261	.0240	-.0000	.0263	1.2834
SE	AG	NA	TL	V	ZN		
.0490	.0023	-.3559	-.0139	-.0003	-.0256		

AVERAGE N=3 785 31-OCT-88 16:39:28
ICV ICV-3(0787)
LV
3751.2

AL	SB	AS	BA	BE	CD	CA	CR
-.0548	1.0122	-.0074	-.0003	-.0000	-.0007	-.0765	.0012
CO	CU	FE	PB	MG	MN	NI	K
-.0002	.0053	-.0445	.0111	.0141	-.0000	.0159	1.4574
SE	AG	NA	TL	V	ZN		
.0232	.0012	.1360	-.0008	-.0000	-.0250		

64

BURN # 1 785 31-OCT-88 16:40:01
CCV SPEXM3
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0378	.01583	5.0561	-.0003	.00046	-.0155	-.0811	.00312
CO	CU	FE	PB	MG	MN	NI	K
.00156	.01604	-.0438	.02767	-.0104	-.0000	.02603	.67712
SE	AG	NA	TL	V	ZN		
-.0179	.00139	-.3977	.07567	-.0010	-.0253		

BURN # 2 785 31-OCT-88 16:40:22
CCV SPEXM3
LV
3751.0

AL	SE	AS	BA	BE	CD	CA	CR
-.0406	-.0009	5.0335	-.0012	-.0009	-.0135	-.0654	-.0003
CO	CU	FE	PB	MG	MN	NI	K
.00220	.01604	-.0445	.00472	.02644	-.0000	.01771	2.0157
SE	AG	NA	TL	V	ZN		
.01646	.00186	.54077	.00216	-.0012	-.0253		

BURN # 3 785 31-OCT-88 16:40:44
CCV SPEXM3
LV
3751.5

AL	SE	AS	BA	BE	CD	CA	CR
-.0463	-.0021	5.0481	.00052	.00046	-.0171	-.0630	.00142
CO	CU	FE	PB	MG	MN	NI	K
.00037	.01406	-.0445	.00055	.04265	-.0000	.00715	1.8537
SE	AG	NA	TL	V	ZN		
.00954	.00278	.15224	.00724	-.0002	-.0242		

AVERAGE N=3 785 31-OCT-88 16:41:20
CCV SPEXM3
LV
3751.3

AL	SB	AS	BA	BE	CD	CA	CR
-.0416	.00426	5.0460	-.0003	.00000	-.0154	-.0765	.00142
CO	CU	FE	PB	MG	MN	NI	K
.00138	.01871	-.0443	.01098	.01957	-.0000	.01696	1.5155
SE	AG	NA	TL	V	ZN		
.00271	.00201	.09844	.02836	-.0008	-.0249		

BURN # 1 765 31-OCT-88 16:41:54
CCB (4)

LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
.01887	.00026	-.0294	-.0003	-.0009	.00072	.00717	.00269
CO	CU	FE	PB	MG	MN	NI	K
-.0008	.01604	.00094	.03234	-.0210	-.0000	.00383	-1.226
SE	AG	NA	TL	V	ZN		
.02725	.00279	-.8718	-.0168	-.0016	.00051		

BURN # 2 785 31-OCT-88 16:42:15
CCB (4)

LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0066	-.0150	.00506	-.0003	.00049	.00021	-.0065	.00397
CO	CU	FE	PB	MG	MN	NI	K
-.0020	-.0160	-.0012	.02034	-.1035	-.0000	.02443	-.8962
SE	AG	NA	TL	V	ZN		
.05250	.00000	-.5762	-.0819	-.0061	-.0008		

BURN # 3 765 31-OCT-88 16:42:38
CCB (4)

LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0010	-.0152	-.0110	-.0003	.00048	.00129	-.0007	-.0003
CO	CU	FE	PB	MG	MN	NI	K
-.0044	.01604	.00347	.01303	-.0979	-.0000	.01964	-2.066
SE	AG	NA	TL	V	ZN		
-.0910	-.0006	.13560	.00669	-.0048	.00051		

AVERAGE N=3 765 31-OCT-88 16:43:23
CCB (4)

LV
3751.3

AL	SB	AS	BA	BE	CD	CA	CR
.00376	-.0114	-.0118	-.0003	.00001	.00074	-.0000	.00212
CO	CU	FE	PB	MG	MN	NI	K
-.0024	.00534	.00106	.02190	-.0741	-.0000	.01590	-1.398
SE	AG	NA	TL	V	ZN		
-.0037	.00062	-.4374	-.0233	-.0048	.00007		

BURN # 1 785 31-OCT-86 16:43:56
223752 CONCENTRATOR
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.125	.00407	.00182	.45066	.00035	.00111	2.2500	.07198
CO	CU	FE	PB	MG	MN	NI	K
.00100	.06338	12.699	.15353	.57824	.06222	.17928	.67712
SE	AG	NA	TL	V	ZN		
.00468	.00232	387.77	.01836	.03172	.23457		

BURN # 2 785 31-OCT-86 16:44:17
223752 CONCENTRATOR
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.281	-.0096	.00606	.45251	.00035	.00357	2.2556	.07283
CO	CU	FE	PB	MG	MN	NI	K
-.0038	.04734	12.786	.12001	.39264	.06222	.17449	-2.282
SE	AG	NA	TL	V	ZN		
.00157	-.0023	391.26	.04231	.03110	.23548		

BURN # 3 785 31-OCT-86 16:44:39
223752 CONCENTRATOR
LV
3751.0

AL	SB	AS	BA	BE	CD	CA	CR
16.445	.00705	-.0040	.45526	.00035	.00120	2.2718	.07454
CO	CU	FE	PB	MG	MN	NI	K
-.0008	.06338	12.910	.11867	.49646	.06222	.17674	-1.739
SE	AG	NA	TL	V	ZN		
-.0133	-.0005	393.25	-.0467	.03209	.23747		

AVERAGE N=3 785 31-OCT-86 16:45:15
223752 CONCENTRATOR
LV
3751.3

AL	SB	AS	BA	BE	CD	CA	CR
16.284	.00050	.00196	.45315	.00035	.00196	2.2592	.07312
CO	CU	FE	PB	MG	MN	NI	K
-.0012	.05804	12.798	.13081	.48978	.06222	.17683	-1.118
SE	AG	NA	TL	V	ZN		
-.0024	-.0002	390.76	.00398	.03164	.23584		

66

BURN # 1 785 31-OCT-88 16:45:48
223752 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.285	2.1587	2.1247	2.5005	2.0492	2.0573	2.2754	2.0665
CO	CU	FE	PB	MG	MN	NI	K
2.0194	2.0819	14.778	2.1161	.75589	2.0926	2.1534	-.3314
SE	AG	NA	TL	V	ZN		
2.0850	.18389	388.68	1.9655	2.0394	2.2708		

BURN # 2 785 31-OCT-88 16:46:10
223752 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.184	2.1439	2.0945	2.5005	2.0505	2.0741	2.2539	2.0650
CO	CU	FE	PB	MG	MN	NI	K
2.0251	2.0639	14.745	2.1036	.71878	2.0873	2.1393	.28464
SE	AG	NA	TL	V	ZN		
2.0542	.16621	387.45	1.9890	2.0374	2.2717		

BURN # 3 785 31-OCT-88 16:46:31
223752 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.183	2.1380	2.1183	2.4860	2.0263	2.0556	2.2617	2.0456
CO	CU	FE	PB	MG	MN	NI	K
2.0105	2.0678	14.736	2.1042	.70265	2.0724	2.0778	-2.236
SE	AG	NA	TL	V	ZN		
2.0780	.18203	386.40	1.9451	2.0268	2.2515		

AVERAGE N=3 785 31-OCT-88 16:47:06
223752 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.220	2.1469	2.1093	2.4959	2.0420	2.0623	2.2637	2.0604
CO	CU	FE	PB	MG	MN	NI	K
2.0183	2.0812	14.754	2.1080	.72583	2.0874	2.1234	-.7609
SE	AG	NA	TL	V	ZN		
2.0724	.18405	387.52	1.9698	2.0345	2.2647		

BURN # 1 785 31-OCT-88 16:47:42
223766 D(233752)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.026	.01388	-.0001	.44788	-.0011	.00029	2.2402	.07198
CO	CU	FE	PB	MG	MN	NI	K
.00097	.06338	12.820	.15621	.65778	.06290	.18344	2.3019
SE	AG	NA	TL	V	ZN		
-.0046	.00372	385.37	-.0777	.03541	.25541		

BURN # 2 785 31-OCT-88 16:48:03
223766 D(233752)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.071	.00053	.01115	.44696	-.0010	.00269	2.2421	.07113
CO	CU	FE	PB	MG	MN	NI	K
.00399	.04734	12.874	.13794	.64717	.06357	.15336	2.8822
SE	AG	NA	TL	V	ZN		
.00783	.00418	385.92	.04307	.03362	.25491		

BURN # 3 785 31-OCT-88 16:48:24
223766 D(233752)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.131	-.0029	-.0142	.45066	.00034	.00647	2.2715	.07198
CO	CU	FE	PB	MG	MN	NI	K
.00027	.04733	12.942	.11753	.56486	.06285	.16456	1.9897
SE	AG	NA	TL	V	ZN		
-.0203	.00232	389.50	-.0283	.03402	.25660		

AVERAGE N=3 785 31-OCT-88 16:49:01
223766 D(233752)
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
16.076	.00382	-.0011	.44850	-.0006	.00315	2.2513	.07170
CO	CU	FE	PB	MG	MN	NI	K
.00178	.05268	12.878	.13723	.62331	.06312	.16712	2.3580
SE	AG	NA	TL	V	ZN		
-.0057	.00341	386.93	-.0210	.03442	.25564		

68

AR303669

BURN # 1 785 31-OCT-88 16:49:34
223766 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.076	2.1415	2.0923	2.4721	2.0381	2.0535	2.2556	2.0584
CO	CU	FE	PB	MG	MN	NI	K
2.0179	2.0678	14.874	2.1157	.90701	2.0818	2.1335	4.0948
SE	AG	NA	TL	V	ZN		
2.0707	.18389	386.19	1.8302	2.0320	2.2770		

BURN # 2 785 31-OCT-88 16:49:55
223766 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.248	2.1725	2.0657	2.5016	2.0588	2.0786	2.2697	2.0618
CO	CU	FE	PB	MG	MN	NI	K
2.0385	2.0819	15.002	2.1642	.83012	2.1107	2.1492	4.8561
SE	AG	NA	TL	V	ZN		
2.0894	.18653	389.02	1.9625	2.0575	2.3026		

BURN # 3 785 31-OCT-88 16:50:17
223766 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.273	2.1573	2.1176	2.5120	2.0714	2.0668	2.3066	2.0532
CO	CU	FE	PB	MG	MN	NI	K
2.0433	2.0965	15.031	2.1506	.84603	2.1187	2.1687	5.5515
SE	AG	NA	TL	V	ZN		
2.0363	.19457	390.94	1.9675	2.0579	2.3075		

AVERAGE N=3 785 31-OCT-88 16:50:57
223766 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
18.199	2.1571	2.0985	2.4953	2.0561	2.0656	2.2846	2.0778
CO	CU	FE	PB	MG	MN	NI	K
2.0326	2.0865	14.989	2.1435	.86105	2.1037	2.1505	4.7671
SE	AG	NA	TL	V	ZN		
2.0655	.18900	388.72	1.9201	2.0492	2.2958		

BURN # 1 785 31-OCT-88 16:51:30
223758 MEOH PUMP PIT
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0237	-.0072	-.0018	.28823	.00046	.00032	2.0480	.00482
CO	CU	FE	PB	MG	MN	NI	K
.00393	.03206	.13482	.04228	.27332	.12877	.01706	4.3750
SE	AG	NA	TL	V	ZN		
-.0008	.00418	156.78	.00931	.00091	1.7075		

BURN # 2 785 31-OCT-88 16:51:51
223758 MEOH PUMP PIT
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0577	.00069	-.0028	.26731	.00047	.00545	2.0206	-.0045
CO	CU	FE	PB	MG	MN	NI	K
.00213	.03207	.12761	.00160	.15931	.12877	.02314	1.1253
SE	AG	NA	TL	V	ZN		
-.0213	.00093	157.75	.04060	-.0013	1.7053		

BURN # 3 785 31-OCT-88 16:52:13
223758 MEOH PUMP PIT
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0350	.01133	-.0007	.26268	.00046	-.0023	2.0068	.00622
CO	CU	FE	PB	MG	MN	NI	K
.00451	.03207	.12407	.02245	.29452	.12877	.03306	3.4765
SE	AG	NA	TL	V	ZN		
.03248	.00139	155.96	.02609	.00085	1.6911		

AVERAGE N=3 785 31-OCT-88 16:52:58
223758 MEOH PUMP PIT
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0388	.00162	-.0017	.26607	.00046	.00117	2.0258	.00283
CO	CU	FE	PB	MG	MN	NI	K
.00352	.03207	.12881	.02211	.24239	.12877	.02442	2.9929
SE	AG	NA	TL	V	ZN		
.00346	.00217	156.85	.02533	.00016	1.7013		

70

BURN # 1 785 31-OCT-88 16:53:31
223758 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0565	2.1921	2.1893	2.3416	2.0721	2.1025	2.0402	2.0524
CO	CU	FE	PB	MG	MN	NI	K
2.0611	2.1006	2.2072	2.0483	.32900	2.2114	2.0592	-.6676
SE	AG	NA	TL	V	ZN		
2.1881	.19039	155.36	2.0685	2.0532	3.7689		

BURN # 2 785 31-OCT-88 16:53:53
223758 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0310	2.1615	2.1623	2.3231	2.0546	2.0960	2.0147	2.0291
CO	CU	FE	PB	MG	MN	NI	K
2.0604	2.0645	2.1896	2.0366	.33696	2.1900	2.0173	1.1253
SE	AG	NA	TL	V	ZN		
2.1248	.17878	155.40	2.0401	2.0323	3.7457		

BURN # 3 785 31-OCT-88 16:54:14
223758 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0423	2.1269	2.1280	2.3166	2.0423	2.0929	2.0304	2.0193
CO	CU	FE	PB	MG	MN	NI	K
2.0571	2.0766	2.1823	2.0305	.30779	2.1799	2.0663	1.1253
SE	AG	NA	TL	V	ZN		
2.1327	.16526	154.67	1.9185	2.0232	3.7379		

AVERAGE N=3 785 31-OCT-88 16:54:52
223758 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0432	2.1675	2.1599	2.3271	2.0564	2.0938	2.0284	2.0336
CO	CU	FE	PB	MG	MN	NI	K
2.0662	2.0873	2.1930	2.0385	.32458	2.1938	2.0476	.52770
SE	AG	NA	TL	V	ZN		
2.1486	.18482	155.15	2.0090	2.0362	3.7508		

72

BURN # 1 785 31-OCT-88 16:55:26
224222
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0548	.00058	-.0040	-.0012	-.0009	-.0014	-.0379	-.0037
CO	CU	FE	PB	MG	MN	NI	K
.00007	.01604	-.0431	-.0031	-.0210	-.0000	.01067	.00476
SE	AG	NA	TL	V	ZN		
-.0237	.00046	-.4946	.00579	-.0010	-.0159		

BURN # 2 785 31-OCT-88 16:55:47
224222
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0833	-.0061	-.0026	-.0012	.00048	.00032	-.0303	-.0020
CO	CU	FE	PB	MG	MN	NI	K
-.0014	.07209	-.0416	.01622	-.0763	-.0000	.00556	1.1814
SE	AG	NA	TL	V	ZN		
.02344	.00232	.14671	.00289	-.0010	-.0159		

BURN # 3 785 31-OCT-88 16:56:06
224222
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0605	-.0130	.00073	.00062	.00047	.00113	-.0301	-.0020
CO	CU	FE	PB	MG	MN	NI	K
.00038	.07206	-.0405	-.0140	-.0855	-.0000	.00683	-.2193
SE	AG	NA	TL	V	ZN		
.03901	.00135	.23854	.01016	-.0012	-.0162		

AVERAGE N=3 765 31-OCT-88 16:56:45
224222
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0595	-.0062	-.0020	-.0006	.00000	.00003	-.0294	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0003	.02673	-.0419	-.0003	-.0519	-.0000	.00769	.32227
SE	AG	NA	TL	V	ZN		
.01291	.00139	-.0364	.00627	-.0011	-.0160		

BURN # 1 785 31-OCT-88 16:57:16
224222 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0508	2.1913	2.1620	2.0841	2.0588	2.1174	-.0164	2.0516
CO	CU	FE	PB	MG	MN	NI	K
2.0883	2.1087	2.0477	2.0770	.14340	2.0934	2.0550	-.0512
SE	AG	NA	TL	V	ZN		
2.1468	.19596	.29051	2.0038	2.0496	2.0724		

BURN # 2 785 31-OCT-88 16:57:40
224222 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.1217	2.2325	2.1641	2.1304	2.0863	2.1547	-.0048	2.0545
CO	CU	FE	PB	MG	MN	NI	K
2.1242	2.1565	2.0895	2.1316	.11156	2.1316	2.1144	-.8517
SE	AG	NA	TL	V	ZN		
2.1857	.19822	-.1853	2.0140	2.0666	2.1100		

BURN # 3 785 31-OCT-88 16:58:01
224222 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.1104	2.2540	2.2002	2.1379	2.1029	2.1809	-.0026	2.1034
CO	CU	FE	PB	MG	MN	NI	K
2.1281	2.1649	2.0954	2.1196	.10156	2.1417	2.1455	-2.262
SE	AG	NA	TL	V	ZN		
2.1840	.20432	-1.021	2.0627	2.0690	2.1194		

AVERAGE N=3 785 31-OCT-88 16:58:39
224222 +2PPM
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0943	2.2259	2.1821	2.1175	2.0864	2.1510	-.0079	2.0832
CO	CU	FE	PB	MG	MN	NI	K
2.1135	2.1434	2.0777	2.1095	.13898	2.1222	2.1050	-1.078
SE	AG	NA	TL	V	ZN		
2.1722	.19983	-.3065	2.0268	2.0751	2.1006		

74

BURN # 1 785 31-OCT-88 16:59:20
LRS 2X CRDL
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0662	.11604	.15185	.00062	.00848	.00673	-.0752	.01672
CO	CU	FE	PB	MG	MN	NI	K
.09720	.06415	-.0442	.07586	-.2411	.03084	.10294	-2.965
SE	AG	NA	TL	V	ZN		
.11655	.02043	-2.622	.78903	.09250	.01647		

BURN # 2 785 31-OCT-88 16:59:41
LRS 2X CRDL
LV
3751.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0236	.12218	.13110	-.0012	.00705	.01130	-.0732	.02097
CO	CU	FE	PB	MG	MN	NI	K
.09840	.04811	-.0431	.06540	-.1562	.03063	.10453	-1.956
SE	AG	NA	TL	V	ZN		
.17026	.02461	-.3302	.76902	.09251	.01676		

BURN # 3 785 31-OCT-88 17:00:02
LRS 2X CRDL
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0520	.12635	.15181	-.0012	.00705	.01270	-.0650	.01927
CO	CU	FE	PB	MG	MN	NI	K
.09477	.05414	-.0427	.07167	-.2831	.03083	.09845	-3.406
SE	AG	NA	TL	V	ZN		
.14840	.02275	-2.276	.69647	.09169	.01756		

AVERAGE N=3 785 31-OCT-88 17:00:39
LRS 2X CRDL
LV
3751.7

AL	SB	AS	BA	BE	CD	CA	CR
-.0473	.12152	.14492	-.0006	.00755	.01024	-.0778	.01899
CO	CU	FE	PB	MG	MN	NI	K
.09679	.05880	-.0433	.07098	-.2268	.03083	.09931	-2.776
SE	AG	NA	TL	V	ZN		
.14508	.02260	-1.743	.75817	.09224	.01694		

BURN # 1 785 31-OCT-88 17:01:12
ICS 0387
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
521.92	.03747	.07912	.49689	.46468	.97786	484.01	.48339
CO	CU	FE	PB	MG	MN	NI	K
.46057	.53217	216.61	4.6213	520.83	.49701	.89361	<-10.0
SE	AG	NA	TL	V	ZN		
.09983	.98062	-2.945	1.0799	.48352	.99705		

BURN # 2 785 31-OCT-88 17:01:34
ICS 0387
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
524.76	.00135	.10576	.49967	.46745	.98517	487.61	.48444
CO	CU	FE	PB	MG	MN	NI	K
.46291	.53207	216.32	4.6715	523.46	.49886	.89744	<-10.0
SE	AG	NA	TL	V	ZN		
.00670	.98201	-2.311	1.0284	.48716	1.0054		

BURN # 3 785 31-OCT-88 17:01:55
ICS 0387
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
525.06	.04724	.17449	.50060	.46884	.97477	487.56	.48934
CO	CU	FE	PB	MG	MN	NI	K
.46735	.53206	216.42	4.6571	524.42	.50222	.92623	<-10.0
SE	AG	NA	TL	V	ZN		
.07626	.98460	-2.769	1.0366	.48651	1.0062		

AVERAGE N=3 785 31-OCT-88 17:02:57
ICS 0387
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
523.92	.02869	.11980	.49905	.46699	.97927	486.47	.48906
CO	CU	FE	PB	MG	MN	NI	K
.46361	.53210	217.78	4.6501	522.90	.49937	.90576	<-10.0
SE	AG	NA	TL	V	ZN		
.06160	.98248	-2.675	1.0479	.48586	1.0029		

76

BURN # 1 785 31-OCT-88 17:03:30
CCV ICV-1(0487)

LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
2.0222	.00301	.02607	2.0302	.48754	.50931	50.512	.49317
CO	CU	FE	PB	MG	MN	NI	K
.49115	.54505	1.9858	4.3177	25.016	.51429	.49560	53.791
SE	AG	NA	TL	V	ZN		
.00820	.50795	51.349	-.0278	.50722	2.9492		

BURN # 2 785 31-OCT-88 17:03:52
CCV ICV-1(0487)

LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
2.0184	-.0253	-.0254	2.0292	.48824	.50410	50.516	.49147
CO	CU	FE	PB	MG	MN	NI	K
.49295	.54505	1.9793	4.3166	25.119	.51429	.49847	53.266
SE	AG	NA	TL	V	ZN		
.01235	.50285	51.073	-.0061	.50664	2.9520		

BURN # 3 785 31-OCT-88 17:04:13
CCV ICV-1(0487)

LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9967	-.0205	-.0127	2.0292	.48824	.51245	50.536	.49444
CO	CU	FE	PB	MG	MN	NI	K
.49264	.54505	1.9785	4.3114	25.101	.51429	.50579	53.230
SE	AG	NA	TL	V	ZN		
.03766	.50192	49.880	-.0445	.50742	2.9545		

AVERAGE N=3 785 31-OCT-88 17:05:04
CCV ICV-1(0487)

LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
2.0128	-.0144	-.0040	2.0296	.48801	.50862	50.522	.49303
CO	CU	FE	PB	MG	MN	NI	K
.49225	.54505	1.9812	4.3153	25.079	.51429	.50029	53.436
SE	AG	NA	TL	V	ZN		
.01940	.50424	50.767	-.0268	.50716	2.9519		

77

BURN # 1 785 31-OCT-88 17:05:37
CCV ICV-3(0787)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0548	1.0500	-.0017	-.0012	-.0023	.00031	-.0536	.00014
CO	CU	FE	PB	MG	MN	NI	K
-.0009	.00000	-.0406	.00264	-.1161	-.0000	.01387	1.4E77
SE	AG	NA	TL	V	ZN		
-.0435	.00139	-.1447	-.0437	-.0015	-.0255		

BURN # 2 785 31-OCT-88 17:05:58
CCV ICV-3(0787)
LV
3753.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0350	1.0288	.01997	-.0012	-.0023	-.0060	-.0693	.00461
CO	CU	FE	PB	MG	MN	NI	K
.00145	.00000	-.0381	.01932	-.0492	-.0000	.02474	5.2324
SE	AG	NA	TL	V	ZN		
-.0109	.00418	.06864	.05814	.00033	-.0253		

BURN # 3 785 31-OCT-88 17:06:20
CCV ICV-3(0787)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0378	1.0296	.00519	-.0012	-.0009	.00277	-.0771	-.0016
CO	CU	FE	PB	MG	MN	NI	K
-.0012	.01604	-.0351	.01620	-.0843	-.0003	.00811	.66341
SE	AG	NA	TL	V	ZN		
.04352	.00464	-.4196	-.0299	-.0010	-.0245		

AVERAGE N=3 785 31-OCT-88 17:06:57
CCV ICV-3(0787)
LV
3752.3

AL	SB	AS	BA	BE	CD	CA	CR
-.0425	1.0356	.00783	-.0012	-.0019	-.0010	-.0667	.00113
CO	CU	FE	PB	MG	MN	NI	K
-.0002	.00535	-.0396	.01272	-.0832	-.0000	.01558	2.4612
SE	AG	NA	TL	V	ZN		
-.0036	.00341	-.1586	-.0051	-.0006	-.0251		

78

BURN # 1 785 31-OCT-88 17:07:30
CCV SPEXM3
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0406	-.0020	5.1776	-.0012	-.0023	-.0122	-.0830	-.0037
CO	CU	FE	PB	MG	MN	NI	K
.00093	.00000	-.0427	.00106	-.1453	-.0000	.02602	.73941
SE	AG	NA	TL	V	ZN		
.00987	.00046	.03889	.02543	-.0020	-.0244		

BURN # 2 785 31-OCT-88 17:07:51
CCV SPEXM3
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0467	-.0073	5.2212	-.0003	-.0037	-.0154	-.0732	-.0041
CO	CU	FE	PB	MG	MN	NI	K
-.0009	.01604	-.0424	.01203	-.1347	-.0000	.00332	1.9715
SE	AG	NA	TL	V	ZN		
.02479	.00000	-.3277	.02470	-.0017	-.0245		

BURN # 3 785 31-OCT-88 17:08:13
CCV SPEXM3
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0376	-.0060	5.1892	-.0012	-.0023	-.0133	-.0752	-.0020
CO	CU	FE	PB	MG	MN	NI	K
-.0007	.01604	-.0445	-.0031	-.1055	-.0000	.00236	.62734
SE	AG	NA	TL	V	ZN		
-.0085	.00139	-.9876	-.0452	-.0058	-.0239		

AVERAGE N=3 785 31-OCT-88 17:08:49
CCV SPEXM3
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0416	-.0058	5.1961	-.0009	-.0028	-.0136	-.0771	-.0033
CO	CU	FE	PB	MG	MN	NI	K
-.0001	.01069	-.0433	.00333	-.1285	-.0000	.01057	1.1129
SE	AG	NA	TL	V	ZN		
.00871	.00062	-.4188	.00164	-.0032	-.0243		

BURN # 1 785 31-OCT-88 17:05:39
CCB (5)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
.01603	-.0031	-.0202	.00062	-.0023	.00143	.01305	.00312
CO	CU	FE	PB	MG	MN	NI	K
-.0012	.01603	.00959	.00677	-.1506	-.0000	.00364	.17923
SE	AG	NA	TL	V	ZN		
-.0207	.00418	-1.537	.03633	-.0082	.00273		

BURN # 2 785 31-OCT-88 17:10:01
CCB (5)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
.00166	-.0024	-.0293	-.0022	-.0023	.00157	.00521	.00057
CO	CU	FE	PB	MG	MN	NI	K
-.0033	.01603	.00490	-.0089	-.1903	-.0000	.00620	-.2130
SE	AG	NA	TL	V	ZN		
-.0084	.00325	-1.168	-.0263	-.0082	.00051		

BURN # 3 785 31-OCT-88 17:10:22
CCB (5)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
.00753	-.0101	-.0373	-.0003	-.0023	-.0000	.00521	-.0024
CO	CU	FE	PB	MG	MN	NI	K
-.0015	.00602	.00057	.01564	-.0670	-.0000	.01515	.01114
SE	AG	NA	TL	V	ZN		
-.0026	.00464	-.5273	-.0801	-.0036	.00219		

AVERAGE N=3 765 31-OCT-88 17:11:11
CCB (5)
LV
3752.0

AL	SB	AS	BA	BE	CD	CA	CR
.00847	-.0152	-.0289	-.0006	-.0023	.00099	.00782	.00042
CO	CU	FE	PB	MG	MN	NI	K
-.0020	.01336	.00502	.00416	-.1426	-.0000	.00033	-.0075
SE	AG	NA	TL	V	ZN		
-.0099	.00402	-1.077	-.0234	-.0066	.00181		

METALS PREPARATION LOG

CASE TYPE: COMMERCIAL METALS PREP. PREPARED BY: AHK

CASE ID : (222378) DATE: 10/26/1988

PREPARATION ANALYSIS CODE : -29 Started 10/26/88

#	CCN	CUSTOMER ID	~~PLASMA~~ INITIAL (WT/VOL)	~~FURNACE~~ INITIAL (WT/VOL)	FINAL VOLUME (mL)	DESCRIPTION	pH
1	223274	A.S.	100 ml	100 ml	100 ml	CLEAR, COLORLESS	2
2	223277	R.W.	100 ml	100 ml	100 ml	CLEAR, COLORLESS	2
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21		Sample Spike				( )	
22	223276	Duplicate Spl	100 ml	100 ml	100 ml	(223274)	
23	223275	Lab Control Spl	100 ml	100 ml	100 ml		
24	224809	Prep Blk	100 ml		100 ml	DI H_2O	

QC PREPARATION INFORMATION:

SAMPLE SPIKE:

Plasma Prep —

Furnace Prep —

LABORATORY CONTROL SAMPLE:

P1 BS1 1 ml of XCL-11 & 1 ml of XCL-2 → 100 ml

P2 BS2 1 ml of XCL-3A → 100 ml

№ 013246

(18)

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

AR303682

PROJ. NO.	PROJECT NAME
1801-93	NCRMILLSBORO G.W.S

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC	TOC	Total Chrome				REMARKS
													CCH3
W-11A	10-18	16:35		✓	Monitoring Well 11A	2	✓	✱					223260
W-11B	10-18	17:10		✓	" " 11B	2	✓						223261
W-12	10-18	17:34		✓	" " 12	2	✓						223262
W-9	10-18	17:40		✓	" " 9	2	✓						223254
W-36	10-18	17:50		✓	" " 36	2	✓						223266
W-10	10-19	10:20		✓	" " 10	2	✓						223259
W-20	10-19	11:50		✓	" " 20	2	✓						223263
W-8A	10-19	10:30		✓	" " 8A	2	✓						223252
WP 6	10-19	13:16		✓	Well point 6	2	✓						223251
WP 9	10-19	14:51		✓	" " 9	2	✓						223254
WP 20	10-19	14:40		✓	" " 20	2	✓						223265
WP 21	10-19	14:33		✓	" " 21	2	✓						223264
R.W.	10-19	12:28		✓	Recovery Well Faucet	3	✓	✓	223247	223277			preserved with H_2NO_3
A.S.	10-19	15:04		✓	A:r Stripper Dis	3	✓	✓					" 223249, 223274 "
T.B	10-19	18:00		✓	Trip. Blanks	2	✓						223269

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	10-19-88 18:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Received in good condition 10-20-88	

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Date	Parameters
SBV5-5	12-7-88	8240 volatiles
SBV6-1	12-7-88	8240 volatiles
SBV6-3	12-7-88	8240 volatiles
SBV7-1	12-7-88	8240 volatiles
SBV7-1A	12-7-88	8240 volatiles
SBV7-4	12-7-88	8240 volatiles
SBV8-2	12-7-88	8240 volatiles
SBV1-3	12-7-88	8240 volatiles
SBV1-5	12-7-88	8240 volatiles
SBV2-2	12-7-88	8240 volatiles
SBV2-3	12-7-88	8240 volatiles

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Date	Parameters
SBV3-2	12-7-88	8240 volatiles
SBV3-3	12-7-88	8240 volatiles
SBV4-3	12-7-88	8240 volatiles
SBV4-5	12-7-88	8240 volatiles
SBV5-2	12-7-88	8240 volatiles
SBV7-6	12-7-88	8240 volatiles
SBV8-5	12-7-88	8240 volatiles
FB-2	12-7-88	601 volatiles
Lab Water	12-7-88	601 volatiles
FB-1	12-7-88	601 volatiles

Analytical results and supporting raw and QA/QC data for the samples and parameters listed below are included in the package. The data package has been arranged as follows:

- Quality Assurance Summary Report
- Data Validation Summary Forms
- Metals
- Indicator Results

Sample ID	Sampling Date	Parameters
SBV12-7	12-8-88	8240 volatiles
SBV13-5	12-8-88	8240 volatiles
SBV13-7	12-8-88	8240 volatiles
SBV14-2A	12-8-88	8240 volatiles
SBV14-2	12-8-88	8240 volatiles
SBV14-5	12-8-88	8240 volatiles
SBV10-6	12-8-88	8240 volatiles
SBV10-7	12-8-88	8240 volatiles
SBV11-1	12-8-88	8240 volatiles
SBV11-2	12-8-88	8240 volatiles
SBV12-6	12-8-88	8240 volatiles
SBV9-4	12-8-88	8240 volatiles
SBV9-7	12-8-88	8240 volatiles
SBV14-6	12-8-88	8240 volatiles
FB-3	12-8-88	8240 volatiles
TB	12-8-88	8240 volatiles

Quality Assurance Summary Report for NCR-Millsboro Water Samples Collected Between December 7 and 8, 1988

This report covers thirty-two soil samples two associate trip and three field blanks collected for the NCR-Millsboro Project. The samples were analyzed by Compuchem Labs Inc for EPA Method 8240 (SW-846) volatiles. Analytical results for these samples have been reviewed using USEPA Functional Guidelines for Evaluating Organic (and Inorganic) Analyses. The QA/QC requirements checked during the validation are listed below.

Organic Requirements	Inorganic Requirements
Holding Times	Holding Times
Instrument Performance	Instrument Calibration
Instrument Calibration	Preparation/Inst. blanks
Lab Blanks	MS/MSD
Surrogate Recoveries	Field Blanks
MS/MSD	Field Duplicates
Trip Blanks	Lab Transcription Errors
Field Blanks	
Field Duplictes	
Lab Transcription Errors	
Compound Identification	

A summary of the results of the data validation process for the laboratory data associated with these samples is given below.

Organic Summary

The thirty-two soil samples and the blanks were analyzed for EPA Method 8240 Volatile compounds. CLP quantitation limits stiuplated in the QA Plan were achieved for these samples. All samples were analyzed within required holding times. Surrogate recoveries for all samples were within CLP QC limits for volatiles. Laboratory QC checks included laboratory blanks, calibration standards and two MS/MSD samples.

Target volatile compounds reported at the greatest frequency or highest concentration were methylene chloride and trichloroethene. Methylene chloride was the only target compound reported above the quantitation limit in 19 of 32 samples. The laboratory and trip blanks associated with these samples also contained methylene chloride, a common laboratory solvent and frequent contaminant. The three field blank samples were free of contamination.

In evaluating data usability, the EPA uses the following general guideline for assessing the presence of common laboratory artifacts (such as methylene chloride, toluene and acetone). If the concentration of the artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable, the presence of that artifact in the sample is considered suspect. Methylene

chloride in these samples should be therefore be considered suspect. All other QA/QC criteria were met for the samples.

ENVIRONMENTAL STRATEGIES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: [illegible] PARAMETERS: [illegible] LAB: [illegible]

QA/QC ITEMS

SAMPLES	HLD TME	INST PERF	CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
SB13-2											
SBV3-2											
SBV4-3											
SBV4-5											
SBV5-2											
SBV7-1											
SBV8-5											J

COMMENTS: Table 1 (attached) lists and defines the Data Validation Codes used on this form.

ENVIRONMENTAL STRATEGIES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCR Millsboro PARAMETERS: SOIL - Volatiles LAB: Chemtech PA

QA/QC ITEMS

SAMPLES	HLD TMS	INST PERF	CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
SBV12-7	D	C	C	Q	C	C	Q	C	Q	C	Methyl in Lab Blank and all low blanks
SBV13-5	C	C	C	Q	C	C	Q	C	Q	C	Some Methyl reported above MDL
SBV13-7	C	C	C	Q	C	C	Q	C	Q	C	"
SBV14-2A	C	C	C	Q	C	C	Q	C	Q	C	"
SBV14-2	C	C	C	Q	C	C	Q	C	Q	C	"
SBV14-5	C	C	C	Q	C	C	Q	C	Q	C	
SBV10-6	C	C	C	Q	C	C	Q	C	Q	C	Some Methyl reported above detection limit
SBV10-7	C	C	C	Q	C	C	Q	C	Q	C	Qualified due to Methyl in Blank
SBV11-1	C	C	C	Q	C	C	Q	C	Q	C	"
SBV11-2	C	C	C	Q	C	C	Q	C	Q	C	"
SBV12-6	C	C	C	Q	C	C	Q	C	Q	C	"
SBV9-4	C	C	C	Q	C	C	Q	C	Q	C	"
SBV9-7	C	C	C	Q	C	C	Q	C	Q	C	"
SBV14-6	C	C	C	Q	C	C	Q	C	Q	C	

COMMENTS: Table 1 (attached) lists and defines the Data Validation Codes used on this form.

ENVIRONMENTAL STRATEGIES CORPORATION
ORGANIC DATA VALIDATION SUMMARY FORM

PROJECT: NCP M[illegible] PARAMETERS: [illegible] LAB: [illegible]

QA/QC ITEMS

SAMPLES	HLD TME	INST PERF: CALIBR.	LABBLKS	MS/DUP	SURR.	CPD ID.	LAB ERRS.	FBLKS	FDUPS	OVERALL ASSESSMENT
SBV 1-3										Using [illegible] Could due to [illegible]
SBV 1-5										"
SBV 2-2										"
SBV 2-3										"
SBV 5-5										"
SBV 6-1										"
SBV 6-3										
SBV 7-1										[illegible]
SBV 7-1A										"
SBV 7-4										
SBV 8-2										

COMMENTS: Table 1 (attached) lists and defines the Data Validation Codes (used on this form.

Table 1. List and Definitions of Data Validation Codes

O	= All QC Criteria met, data acceptable.
X	= Minor problem found but sample data not affected.
Q	= Sample data qualified due to major QC problem.
U	= Sample data rejected due to multiple-major QC problems.

COMPUCHEM
LABORATORIES

December 21, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		787	14699	Volatiles - Priority Pollutants Method 8240 - 3rd Ed. (Style 5)
		286		Dry Weight Determination
		419		pH Determination

SBV3-2	234228
SBV3-3	234229
SBV4-3	234230

In this report we have included the analytical results, the method reference, and the quality control summaries. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

for A. Boyd
Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
Suite 650
8521 Leesburg Pike
Vienna, VA 22180

Technical Reviewer

Deliverables Coordinator

AR303695

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: SBV3-2
CompuChem Number: 234228

Date Received: 12/08/88

Date Dry Weight Determined: 12/09/88
Date pH Determined: 12/16/88

	Extracted	Analyzed
- VOLATILE	---	12/19/88

VOLATILE

(Blank - Volatile)	236720
(Spike)	234225/234226
(BFB)	BG881219C19
(Standard)	GS881219C19

(Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: SBV3-3, SBV4-3
CompuChem Number: 234229, 234230

Date Received: 12/08/88

Date Dry Weight Determined: 12/09/88
Date pH Determined: 12/16/88

	Extracted	Analyzed
- VOLATILE	---	12/16/88

VOLATILE

(Blank - Volatile)	235592
(Spike)	234225/234226
(BFB)	BH881216C10
(Standard)	GS881216C10

(Page Two)

METHOD REFERENCE

To determine the concentration of Priority Pollutants volatile organic compounds in a variety of waste matrices, CompuChem® employs the methods stated in the RCRA Method 8240.

As a point of information, the Priority Pollutants analytes present on the enclosed compound list have been validated for Method 8240 as required by SW-846.

Method Summary

The volatile compounds are introduced to the gas chromatograph by the direct injection, or the Purge-and-Trap Method (RCRA Method 5030). The components are separated via the gas chromatograph and detected using a mass spectrometer which is used to provide both qualitative and quantitative information. The chromatographic conditions as well as typical mass spectrometer operating parameters are given in the RCRA Method 8240.

QUALITY ASSURANCE NOTICE #1

Sample # 234228

Sample I.D.: SBV3-2

Method blank I.D.: 236720

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270." Many of the Quality Control requirements of these methods were derived from the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	concentration	units
Methylene Chloride	5 J	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then CLP requirements must be met.

This Notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

J - Estimated concentration of analyte which is present but at a concentration less than the stated detection limit.

Robert J. Whitehead
Manager, Quality Assurance

#2

QUALITY ASSURANCE NOTICE
CC # 234229
BLANK ID # 235592
CASE # 14699

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270". Many of the Quality Control requirements of these methods were derived form the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	blank concentration	units
methylene chloride	5	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then the CLP requirements must be met.

This notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact is greater that ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Manager, Quality Assurance

QUALITY ASSURANCE NOTICE #5
CC # 234230
BLANK ID # 235592
CASE # 14699

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270". Many of the Quality Control requirements of these methods were derived form the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	blank concentration	units
methylene chloride	5	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then the CLP requirements must be met.

This notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact is greater that ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Manager, Quality Assurance

№ 013[illegible]S

CHAIN OF CUST[illegible]Y RECORD

COMPUCHEM LABOR[illegible]ORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalejhan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	624/8010	VOC 601		REMARKS
SBV1	6/12		X		SBV1-3	1	X		234221	
SBV1	6/12		X		SBV1-5	1	X		234222	Samples packed
SBV2	6/12		X		SBV2-2	1	X		234223	with ice and
SBV2	6/12		X		SBV2-3	1	X		234224	shipped on ice
SBV3	6/12		X		SBV3-2	1	X		234228	
SBV3	6/12		X		SBV3-3	1	X		234229	Id's used are taken
SBV5	6/12		X		SBV5-2	1	X		234232	from bottle and station
SBV5	6/12		X		SBV5-5	1	X		234233	location except for
FB1	6/12		X	X	Field blank	2		X	234244	FB-2, FB-1, were taken
TB	—		X		Trip blank	1		X	234248	from bottle. They are the
SBV4	7/12		X		SBV4-3	1	X		234230	only two not taken
SBV4	7/12		X		SBV4-5	1	X		234231	from station location 12-8-88
SBV6	7/12		X		SBV6-1	1	X		234234	Trip Blank id taken from bottle 12-8-88
SBV6	7/12		X		SBV6-3	1	X		234235	Samples received in good
SBV7	7/12		X		SBV7-1	1	X		234236	condition 12-9-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Teresa Kalejta	7/12 1230				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Joan Purdie	Date / Time 12-8-88 0800	Remarks Shipped Fed Exp. Air bill #897794233	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR305703

pH DETERMINATION

SAMPLE IDENTIFIER	COMPUCHEM #	pH DETERMINATION
SBV3-2	234228	pH 6.1
SBV3-3	234229	pH 6.4
SBV4-3	234230	pH 6.3

SAMPLE IDENTIFIER: SBV3-2
COMPUCHEM® SAMPLE NUMBER: 234228

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.27g	5.84g	1.09	8.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV3-2
COMPUCHEM® SAMPLE NUMBER: 234228

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	9 J B*	11	139
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE, (TOTAL)	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	98	
ACRYLONITRILE	BDL	131	

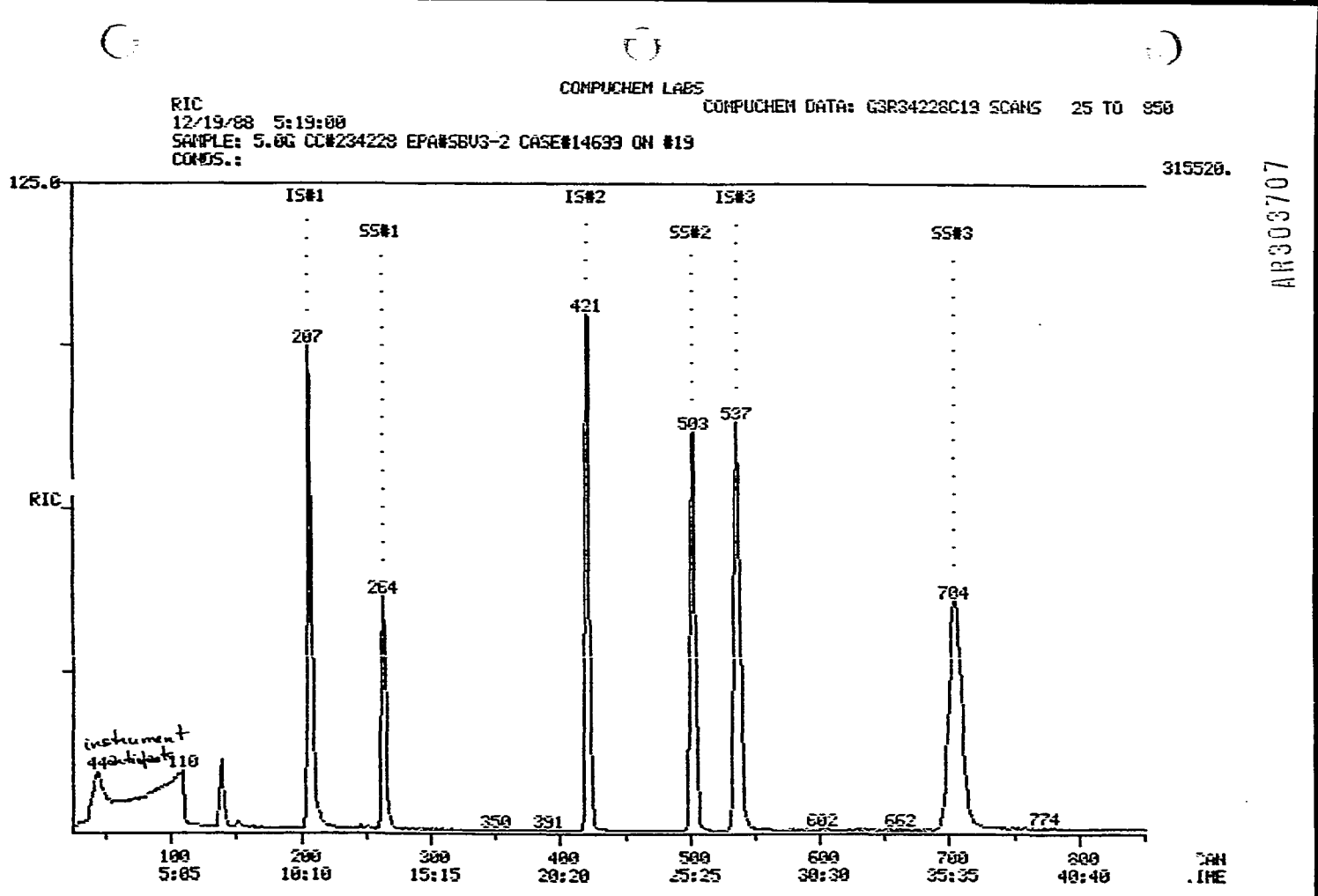
SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	91	70 - 121
BROMOFLUOROBENZENE	92	74 - 121
D8-TOLUENE	89	81 - 117

BDL - BELOW DETECTION LIMIT

J - Estimated concentration of analyte which is present but at a concentration less than the stated detection limit.

†Results and detection limit calculations were based on a dry weight factor of 1.09.

*See Quality Assurance Notice #1.


COMPUCHEM LABS
RIC
COMPUCHEM DATA: G3R34228C13 SCANS 25 TO 850
12/19/88 5:19:00
SAMPLE: 5.0G CC#234228 EPA#SBV3-2 CASE#14693 ON #19
COMDS.:
315520.
125.0
IS#1
SS#1
IS#2
IS#3
SS#2
SS#3
207
421
503
537
264
704
RIC
instrument
110
350
391
602
662
774
100
5:05
200
10:10
300
15:15
400
20:20
500
25:25
600
30:30
700
35:35
800
40:40
SCAN
TIME
AR303707

QUANTITATION REPORT FILE: 03R34228C19
DATA: 03R34228C19.TI
12/19/88 5:19:00
SAMPLE: 5.00 CC#234228/EPA#SBV3-2/CASE#14699/ON #19
CONDS. :
SUBMITTED BY: 19 ANALYST: 983

AMOUNT=AREA * REF. AMNT/(REF. AREA)* RESP. FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	#234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	#248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
	203 BENZENE <71-43-2> ES#25
	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	#270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	207	10:31	1	1.000	A BB	150722.	50.000 UG/KG	16.99
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	139	7:04	1	0.671	A BB	28434.	8.291 UG/KG	2.82 yes
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303708

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	421	21:24	12	1.000	A BV	436867.	50.000 UG/KG	16.99
[illegible]	97	NOT FOUND							
	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	536	27:15	25	1.000	A BB	388824.	50.000 UG/KG	16.99
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	264	13:25	1	1.275	A BB	134072.	45.692 UG/KG	15.52
32	95	704	35:47	25	1.313	A BB	241870.	46.140 UG/KG	15.67
33	98	502	25:31	25	0.937	A BB	309785.	44.263 UG/KG	15.04
34	56	NOT FOUND							
35	93	NOT FOUND							

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	10:31	1.00	10.000	0.10	50.00	50.00	1.000	1.000	1.00
	1:47		10.000			50.00		1.392	
	2:48		10.000			50.00		1.871	
4	3:37		10.000			50.00		1.731	
5	4:41		10.000			50.00		1.097	
6	7:01	1.01	5.000	0.13	8.29	50.00	0.189	1.138	0.17
7	9:58		5.000			50.00		0.786	
8	11:23		5.000			50.00		1.208	
9	12:06		5.000			50.00		0.812	
10	12:46		5.000			50.00		1.560	
11	13:31		5.000			50.00		0.905	
12	21:24	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	14:54		5.000			50.00		0.445	
14	15:18		5.000			50.00		0.376	
15	15:55		5.000			50.00		0.438	
16	17:20		5.000			50.00		0.241	
17	17:35		5.000			50.00		0.385	
18	18:09		5.000			50.00		0.497	
19	18:55		5.000			50.00		0.476	
20	18:58		5.000			50.00		0.289	
21	18:39		5.000			50.00		0.568	
22	18:58		5.000			50.00		0.158	
23	20:05		10.000			50.00		0.110	
24	21:48		5.000			50.00		0.323	
25	27:15	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	24:15		5.000			50.00		0.464	
27	24:15		5.000			50.00		0.476	
	25:46		5.000			50.00		0.494	

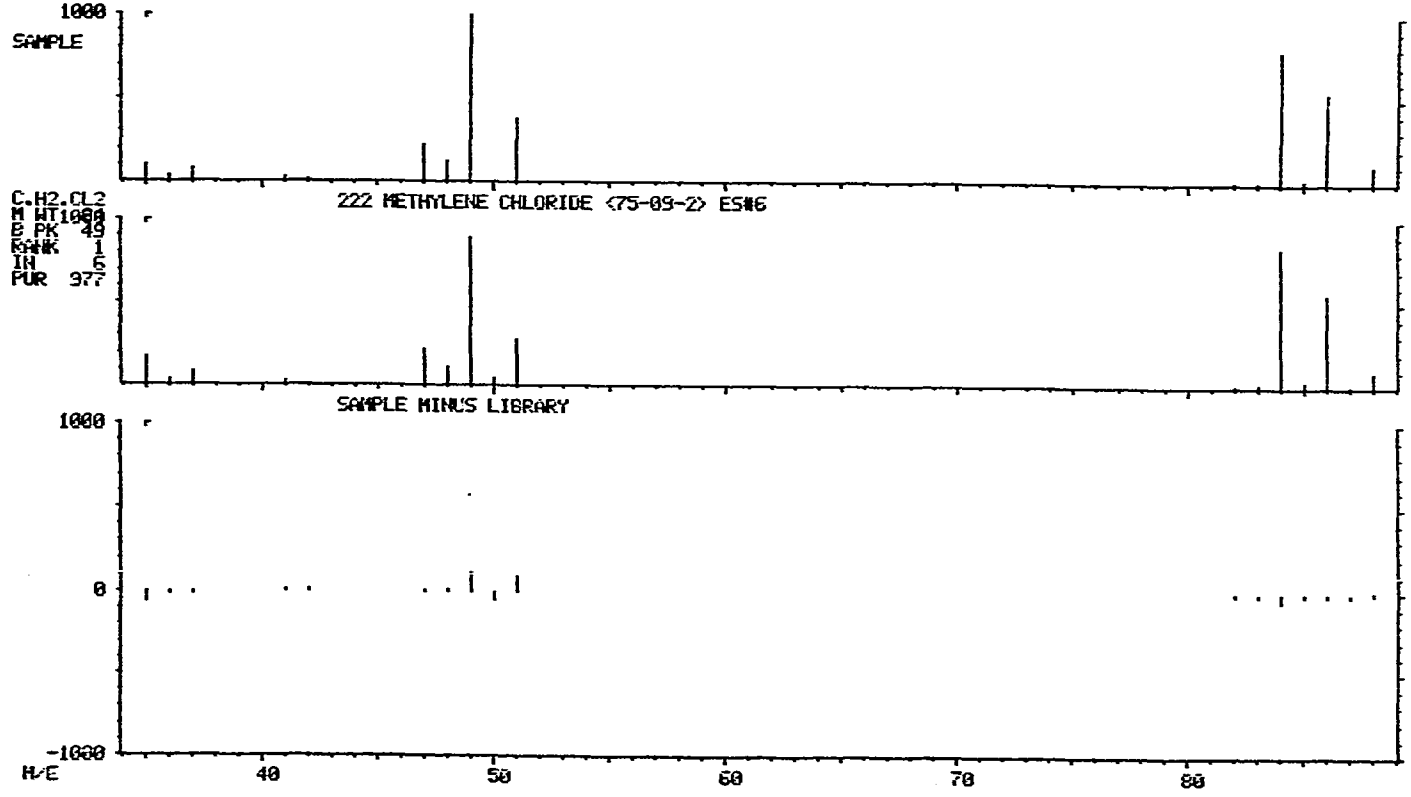
NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	27:27		5.000			50.00		0.807	
30	30:51		5.000			50.00		0.366	
31	13:25	1.00	5.000	0.26	45.69	50.00	0.890	0.973	0.91
[illegible]	35:47	1.00	5.000	0.26	46.14	50.00	0.622	0.674	0.92
[illegible]	25:31	1.00	5.000	0.19	44.26	50.00	0.797	0.900	0.89
[illegible]	7:41		100.000			500.00		0.061	
35	8:26		100.000			500.00		0.168	

COMPUCHEM LABS

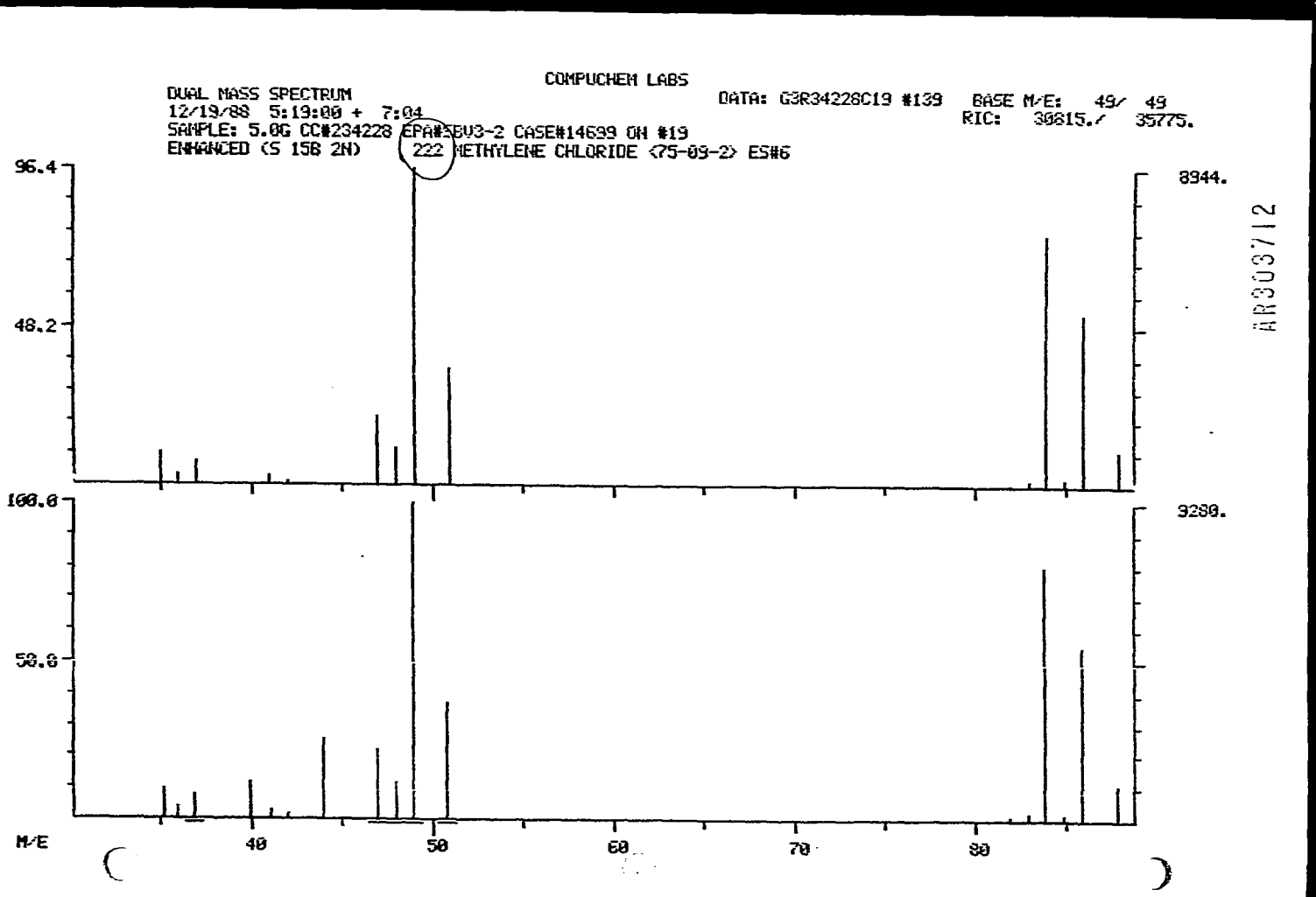
LIBRARY SEARCH
12/19/88 5:19:00 + 7:04
SAMPLE: 5.0G CC#234228 EPA#SBU3-2 CASE#14699 ON #19
ENHANCED (S 15B 2N 0T)

DATA: G3R34228C19 # 139

BASE M/E: 49
RIC: 30815.



AR303711


COMPUCHEM LABS
DUAL MASS SPECTRUM
12/19/88 5:19:00 + 7:04
DATA: G3R34228C19 #139
BASE M/E: 49/ 49
RIC: 30815./ 35775.
SAMPLE: 5.0G CC#234228 EPA#SBV3-2 CASE#14699 ON #19
ENHANCED (S 15B 2N)
222 METHYLENE CHLORIDE <75-09-2> ES#6
96.4
48.2
8344.
100.0
50.0
9280.
M/E
40
50
60
70
80
AR303712

SAMPLE IDENTIFIER: SBV3-3
COMPUCHEM® SAMPLE NUMBER: 234229

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.33g	5.98g	1.08	7.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV3-3
COMPUCHEM® SAMPLE NUMBER: 234229

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	15 B*	11	100
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE, (TOTAL)	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	97	
ACRYLONITRILE	BDL	130	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	103	70 - 121
BROMOFLUOROBENZENE	100	74 - 121
D8-TOLUENE	100	81 - 117

BDL - BELOW DETECTION LIMIT

†Results and detection limit calculations were based on a dry weight factor of 1.08.

*See Quality Assurance Notice #2.

COMPUCHEM LABS

RIC

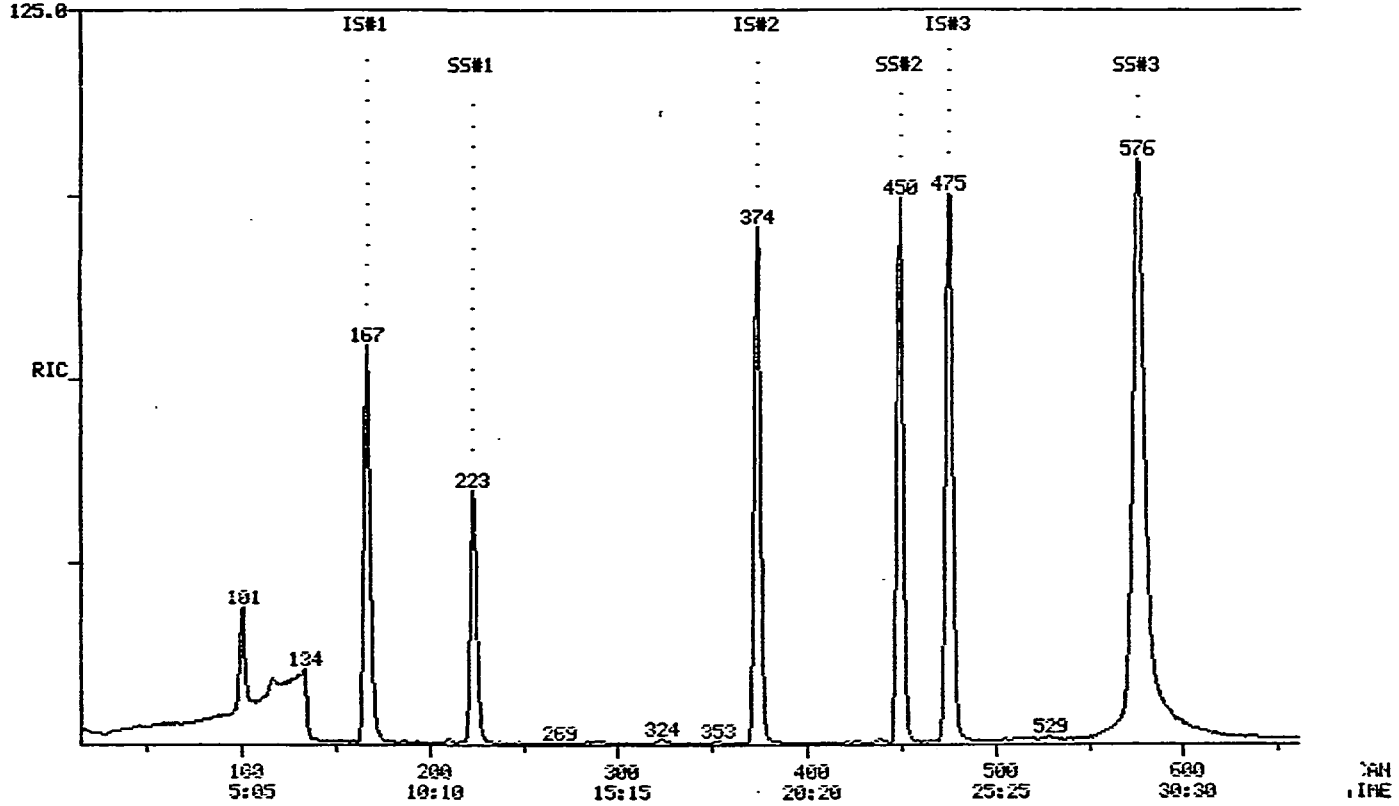
COMPUCHEM DATA: GR034229C10 SCANS 15 TO 660

12/16/88 4:39:00

SAMPLE: 5.0GM CASE# 14699 CC# 234229 EPA SAMPLE NO. SBV3-3 ON 10

CONDS.:

401920.



AR303715

QUANTITATION REPORT FILE: GR034229C10
DATA: GR034229C10.TI
12/16/88 4:39:00
SAMPLE: 5.0GM CASE# 14699 CC# 234229 EPA SAMPLE NO. SBV3-3 ON 10
CONDS.:
SUBMITTED BY: 10 ANALYST: 1171

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	*234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	*248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
	203 BENZENE <71-43-2> ES#25
	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	*270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	167	8:29	1	1.000	A BV	121693.	50.000 UG/KG	15.85
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	100	5:05	1	0.599	A BV	43865.	13.762 UG/KG	4.36
7	96	NOT FOUND							
8	63	NOT FOUND							
	96	NOT FOUND							

AR303716

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	374	19:01	12	1.000	A BB	438980.	50.000 UG/KG	15.85
13	97	NOT FOUND							
	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	475	24:09	25	1.000	A BB	400019.	50.000 UG/KG	15.85
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	223	11:20	1	1.335	A BB	200032.	51.575 UG/KG	16.35
32	95	576	29:17	25	1.213	A BB	332162.	49.985 UG/KG	15.84
33	98	450	22:52	25	0.947	A BV	381155.	50.175 UG/KG	15.90
34	56	NOT FOUND							
35	53	NOT FOUND							

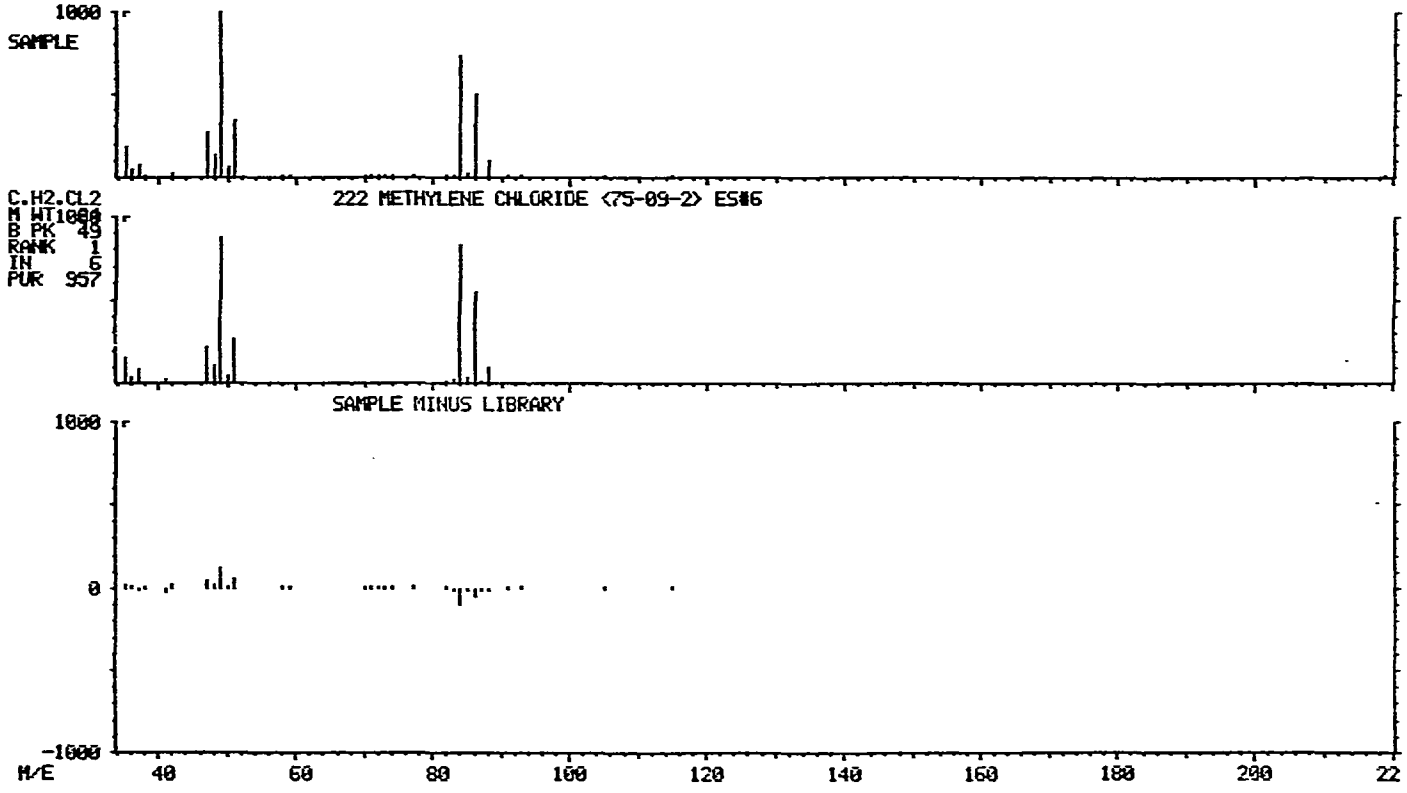
NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:20	1.02	10.000	0.10	50.00	50.00	1.000	1.000	1.00
	1:10		10.000			50.00		0.346	
	1:50		10.000			50.00		1.468	
4	2:20		10.000			50.00		0.748	
5	3:00		10.000			50.00		0.485	
6	4:50	1.05	5.000	0.12	13.76	50.00	0.360	1.310	0.28
7	7:44		5.000			50.00		0.919	
8	9:09		5.000			50.00		1.389	
9	9:58		5.000			50.00		0.988	
10	10:37		5.000			50.00		2.579	
11	11:23		5.000			50.00		1.514	
12	19:01	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	12:39		5.000			50.00		0.804	
14	13:04		5.000			50.00		0.774	
15	13:43		5.000			50.00		0.621	
16	15:03		5.000			50.00		0.230	
17	15:21		5.000			50.00		0.474	
18	15:55		5.000			50.00		0.536	
19	16:34		5.000			50.00		0.571	
20	16:40		5.000			50.00		0.301	
21	16:22		5.000			50.00		0.582	
22	16:37		5.000			50.00		0.237	
23	17:41		10.000			50.00		0.122	
24	19:19		5.000			50.00		0.321	
25	24:06	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	21:42		5.000			50.00		0.586	
27	21:42		5.000			50.00		0.485	
	23:02		5.000			50.00		0.522	

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	24:15		5.000			50.00		0.883	
30	26:23		5.000			50.00		0.397	
31	11:17	1.00	5.000	0.27	51.58	50.00	1.644	1.594	1.03
[illegible]	29:17	1.00	5.000	0.24	49.98	50.00	0.830	0.831	1.00
[illegible]	22:49	1.00	5.000	0.19	50.17	50.00	0.953	0.950	1.00
[illegible]	5:26		100.000			500.02		0.042	
35	6:12		100.000			500.02		0.093	

COMPUCHEM LABS

LIBRARY SEARCH
12/16/88 4:39:00 + 5:05
SAMPLE: 5.0GM CASE# 14699 CC# 234229 EPA SAMPLE NO. SBV3-3 ON 10
ENHANCED (S 15B 2N 0T)

DATA: GR034229C10 # 100
BASE M/E: 49
RIC: 51903.

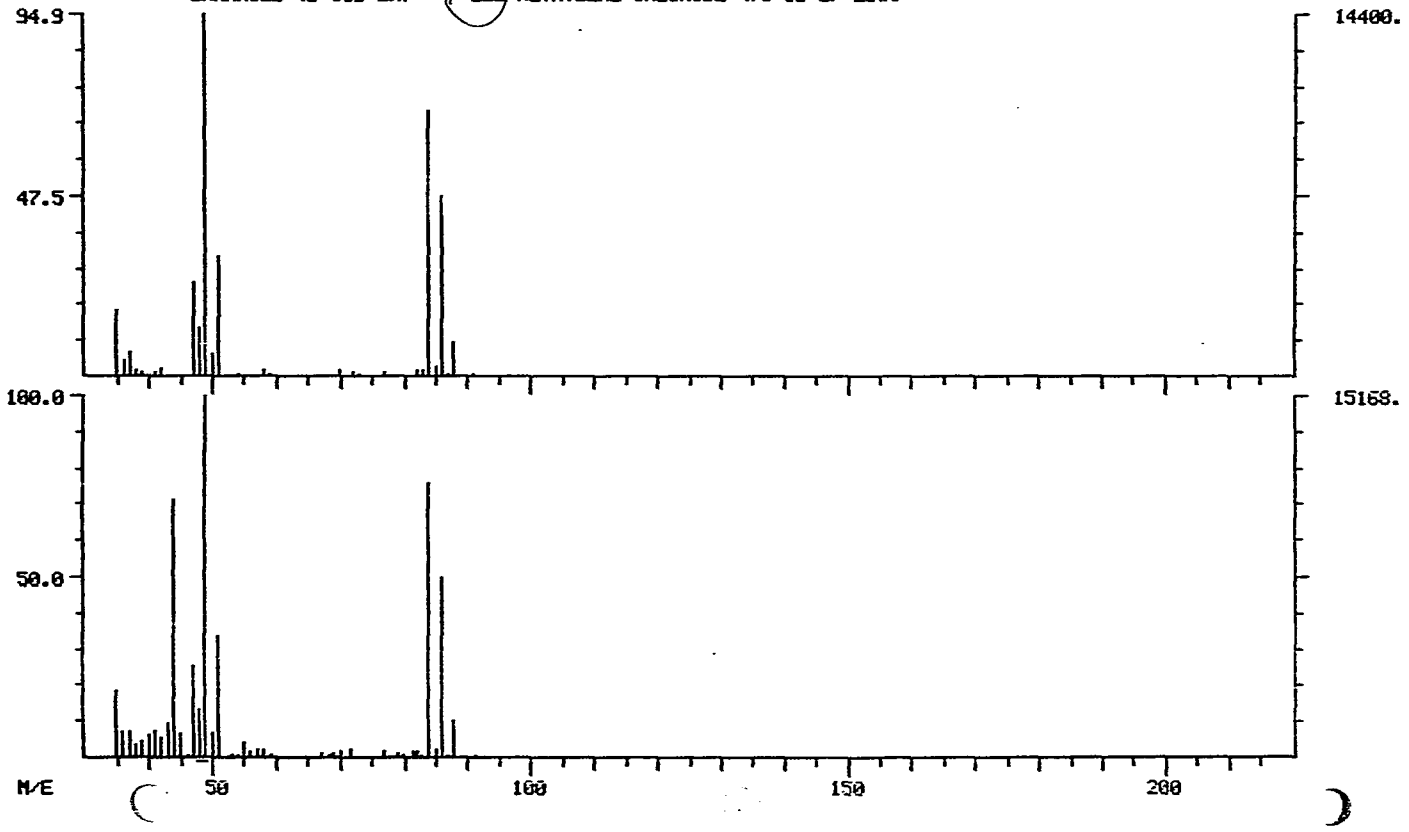


AR303719

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/16/88 4:39:00 + 5:05
SAMPLE: 5.0GM CASE# 14699 CC# 234229 EPA SAMPLE NO. SBV3-3 ON 10
ENHANCED (S 15B 2N) (222) METHYLENE CHLORIDE <75-09-2> ES#6

DATA: GR034229C10 #100 BASE M/E: 49/ 49
RIC: 52543./ 74879.



AR303720

SAMPLE IDENTIFIER: SBV4-3
COMPUCHEM® SAMPLE NUMBER: 234230

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.48g	5.83g	1.14	12.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV4-3
COMPUCHEM® SAMPLE NUMBER: 234230

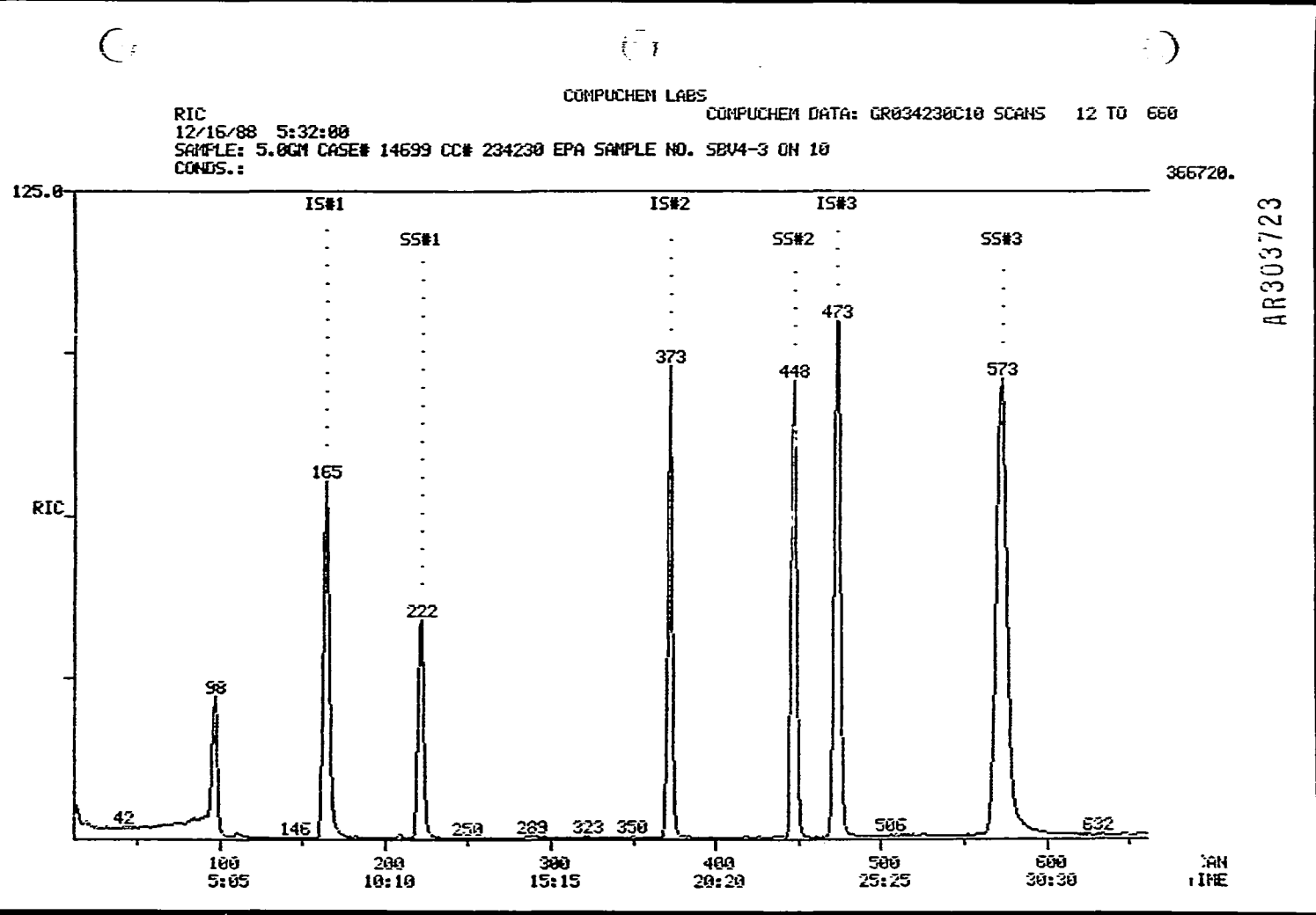
ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	6	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	18 B*	11	98
1,1-DICHLOROETHENE	BDL	6	
1,1-DICHLOROETHANE	BDL	6	
1,2-DICHLOROETHENE, (TOTAL)	BDL	6	
CHLOROFORM	BDL	6	
1,2-DICHLOROETHANE	BDL	6	
1,1,1-TRICHLOROETHANE	BDL	6	
CARBON TETRACHLORIDE	BDL	6	
BROMODICHLOROMETHANE	BDL	6	
1,2-DICHLOROPROPANE	BDL	6	
CIS-1,3-DICHLOROPROPENE	BDL	6	
TRICHLOROETHENE	BDL	6	
DIBROMOCHLOROMETHANE	BDL	6	
1,1,2-TRICHLOROETHANE	BDL	6	
BENZENE	BDL	6	
TRANS-1,3-DICHLOROPROPENE	BDL	6	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	6	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	6	
CHLOROBENZENE	BDL	6	
ETHYLBENZENE	BDL	6	
ACROLEIN	BDL	103	
ACRYLONITRILE	BDL	137	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	98	70 - 121
BROMOFLUOROBENZENE	93	74 - 121
D8-TOLUENE	90	81 - 117

BDL - BELOW DETECTION LIMIT

†Results and detection limit calculations were based on a dry weight factor of 1.14.

*See Quality Assurance Notice #3.


COMPUCHEM LABS
RIC
COMPUCHEM DATA: GR034230C10 SCANS 12 TO 660
12/16/88 5:32:00
SAMPLE: 5.0GM CASE# 14699 CC# 234230 EPA SAMPLE NO. SBV4-3 ON 10
CONDS.:
366720.
125.0
RIC
IS#1
SS#1
IS#2
IS#3
SS#2
SS#3
165
222
373
448
473
573
98
42
146
250
289
323
350
506
632
100
5:05
200
10:10
300
15:15
400
20:20
500
25:25
600
30:30
SCAN
TIME
AR303723

QUANTITATION REPORT FILE: QR034230C10
DATA: QR034230C10.TI
12/16/88 5:32:00
SAMPLE: 5.0GM CASE# 14699 CC# 234230 EPA SAMPLE NO. SBV4-3 ON 10
CONDS.:
SUBMITTED BY: 10 ANALYST: 1171

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	*234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	*248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
21	203 BENZENE <71-43-2> ES#25
22	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	*270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	165	8:23	1	1.000	A BB	117086.	50.000 UG/KG	16.23
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	98	4:59	1	0.594	A BB	48674.	15.871 UG/KG	5.15
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303724

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	372	18:55	12	1.000	A BB	418858.	50.000 UG/KG	16.23
[illegible]	97	NOT FOUND							
	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	473	24:03	25	1.000	A BB	383545.	50.000 UG/KG	16.23
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	222	11:17	1	1.345	A BB	183440.	49.158 UG/KG	15.95
32	95	573	29:08	25	1.211	A BB	295146.	46.322 UG/KG	15.03
33	98	448	22:46	25	0.947	A BB	326253.	44.792 UG/KG	14.54
34	56	99	5:02	1	0.600	A VB	197.	2.014 UG/KG	0.65
35	53	NOT FOUND							

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:20	1.01	10.000	0.10	50.00	50.00	1.000	1.000	1.00
	1:10		10.000			50.00		0.346	
	1:50		10.000			50.00		1.468	
4	2:20		10.000			50.00		0.748	
5	3:00		10.000			50.00		0.485	
6	4:50	1.03	5.000	0.12	15.87	50.00	0.416	1.310	0.32
7	7:44		5.000			50.00		0.919	
8	9:09		5.000			50.00		1.389	
9	9:58		5.000			50.00		0.988	
10	10:37		5.000			50.00		2.579	
11	11:23		5.000			50.00		1.514	
12	19:01	0.99	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	12:39		5.000			50.00		0.804	
14	13:04		5.000			50.00		0.774	
15	13:43		5.000			50.00		0.621	
16	15:03		5.000			50.00		0.230	
17	15:21		5.000			50.00		0.474	
18	15:55		5.000			50.00		0.536	
19	16:34		5.000			50.00		0.571	
20	16:40		5.000			50.00		0.301	
21	16:22		5.000			50.00		0.582	
22	16:37		5.000			50.00		0.237	
23	17:41		10.000			50.00		0.122	
24	19:19		5.000			50.00		0.321	
25	24:06	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	21:42		5.000			50.00		0.586	
27	21:42		5.000			50.00		0.485	
	23:02		5.000			50.00		0.522	

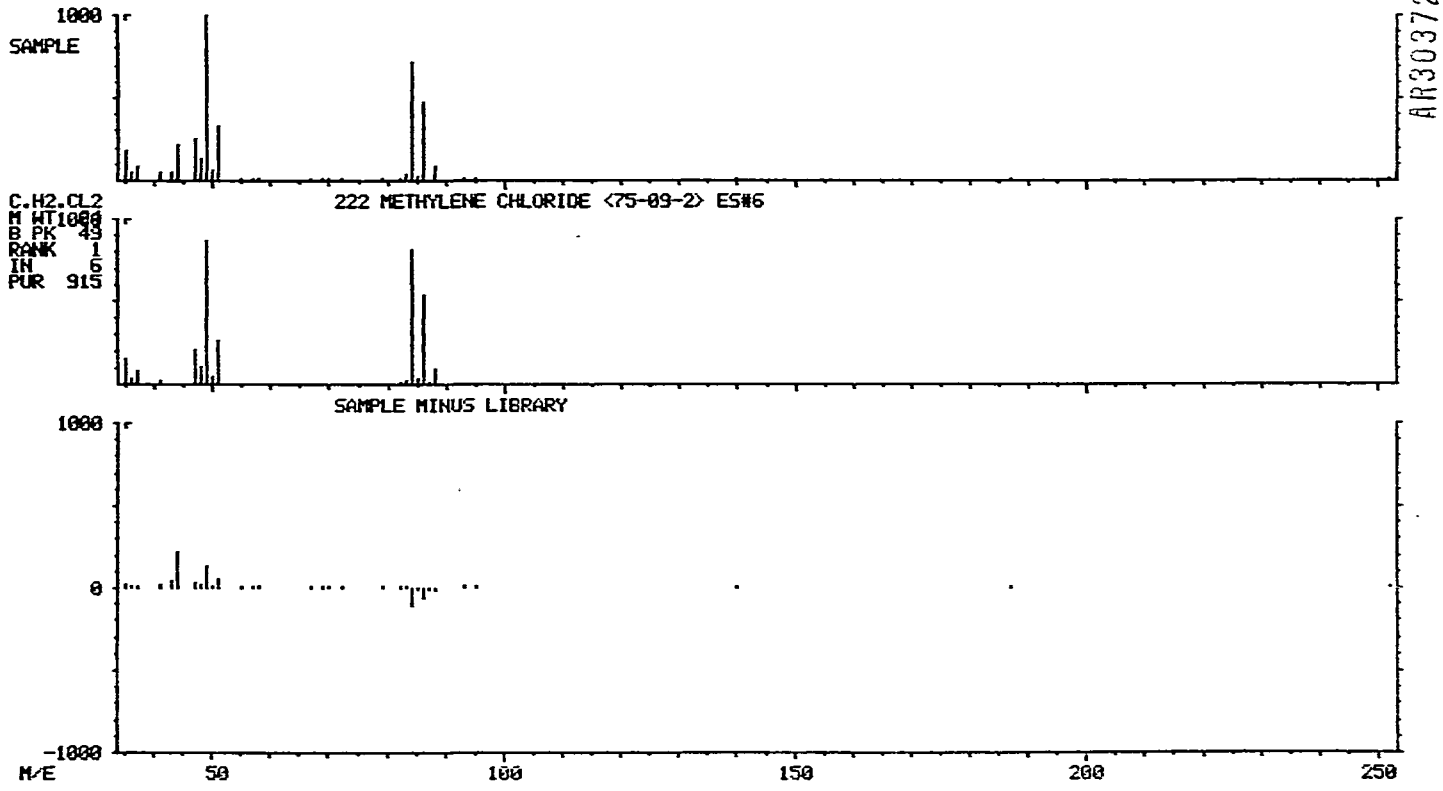
NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	24:15		5.000			50.00		0.883	
30	26:23		5.000			50.00		0.397	
31	11:17	1.00	5.000	0.27	49.16	50.00	1.567	1.594	0.98
[illegible]	29:17	0.99	5.000	0.24	46.32	50.00	0.770	0.831	0.93
	22:49	1.00	5.000	0.19	44.79	50.00	0.851	0.950	0.90
34	5:26	0.93	100.000	0.01	2.01	500.02	0.000	0.042	0.00
35	6:12		100.000			500.02		0.093	

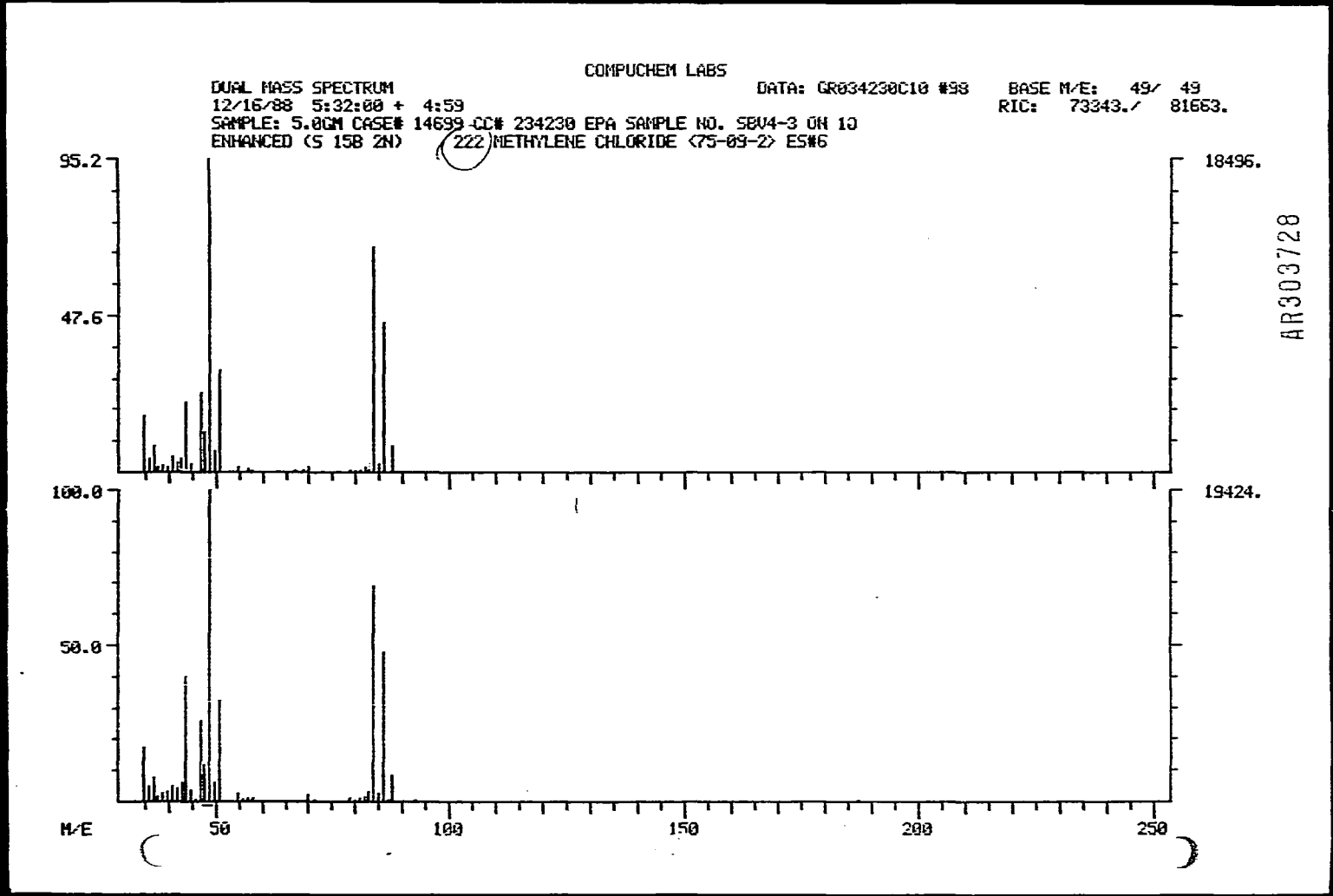
AR303726

COMPUCHEM LABS

LIBRARY SEARCH DATA: GR034230C10 # 98 BASE M/E: 49
12/16/88 5:32:00 + 4:59 RIC: 70911.
SAMPLE: 5.0GM CASE# 14699 CC# 234230 EPA SAMPLE NO. SBV4-3 ON 10
ENHANCED (S 15B 2N 0T)

AR303727




COMPUCHEM LABS
DUAL MASS SPECTRUM
DATA: GR034230C10 #98
BASE M/E: 49/ 49
12/16/88 5:32:00 + 4:59
RIC: 73343./ 81663.
SAMPLE: 5.0GM CASE# 14699 CC# 234230 EPA SAMPLE NO. SBV4-3 ON 10
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE (75-09-2) ES#6
95.2
47.6
18496.
100.0
50.0
19424.
M/E
50
100
150
200
250
AR303728

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM BLANK ID: 236720

SAMPLE IDENTIFIER: SBV3-2
COMPUCHEM® SAMPLE NUMBER: 234228

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	5 J	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE, (TOTAL)	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	BDL	120

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	94	70 - 121
BROMOFLUOROBENZENE	99	74 - 121
D8-TOLUENE	94	81 - 117

BDL - BELOW DETECTION LIMIT

COMPUCHEM LABS

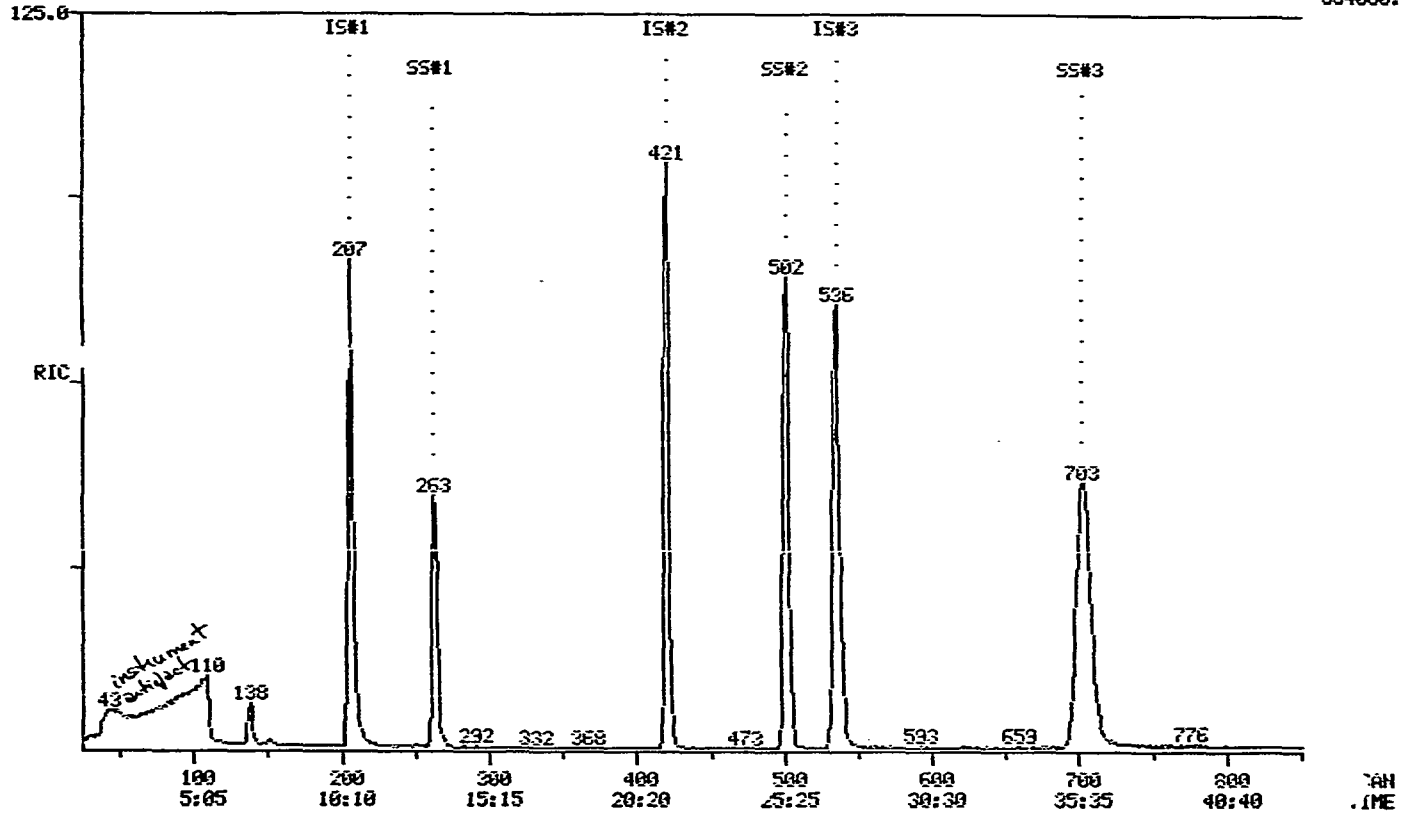
RIC

COMPUCHEM DATA: CH036720C19 SCANS 25 TO 850

12/19/88 3:48:00

SAMPLE: 10WL CC#236720 EPA#VBLK B2 CASE#VARIOUS ON #19

CONDS.:



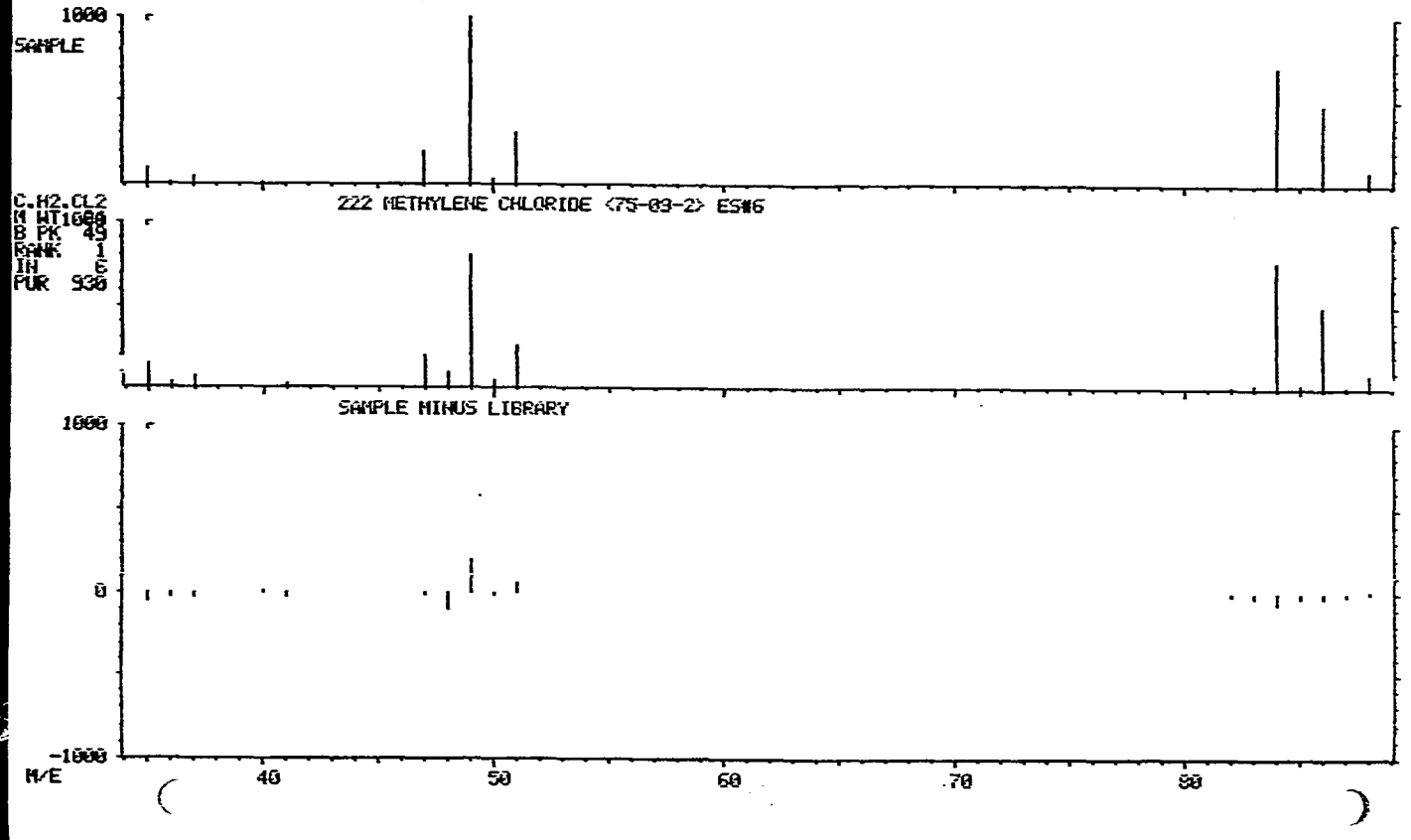
AR303730

COMPUCHEM LABS

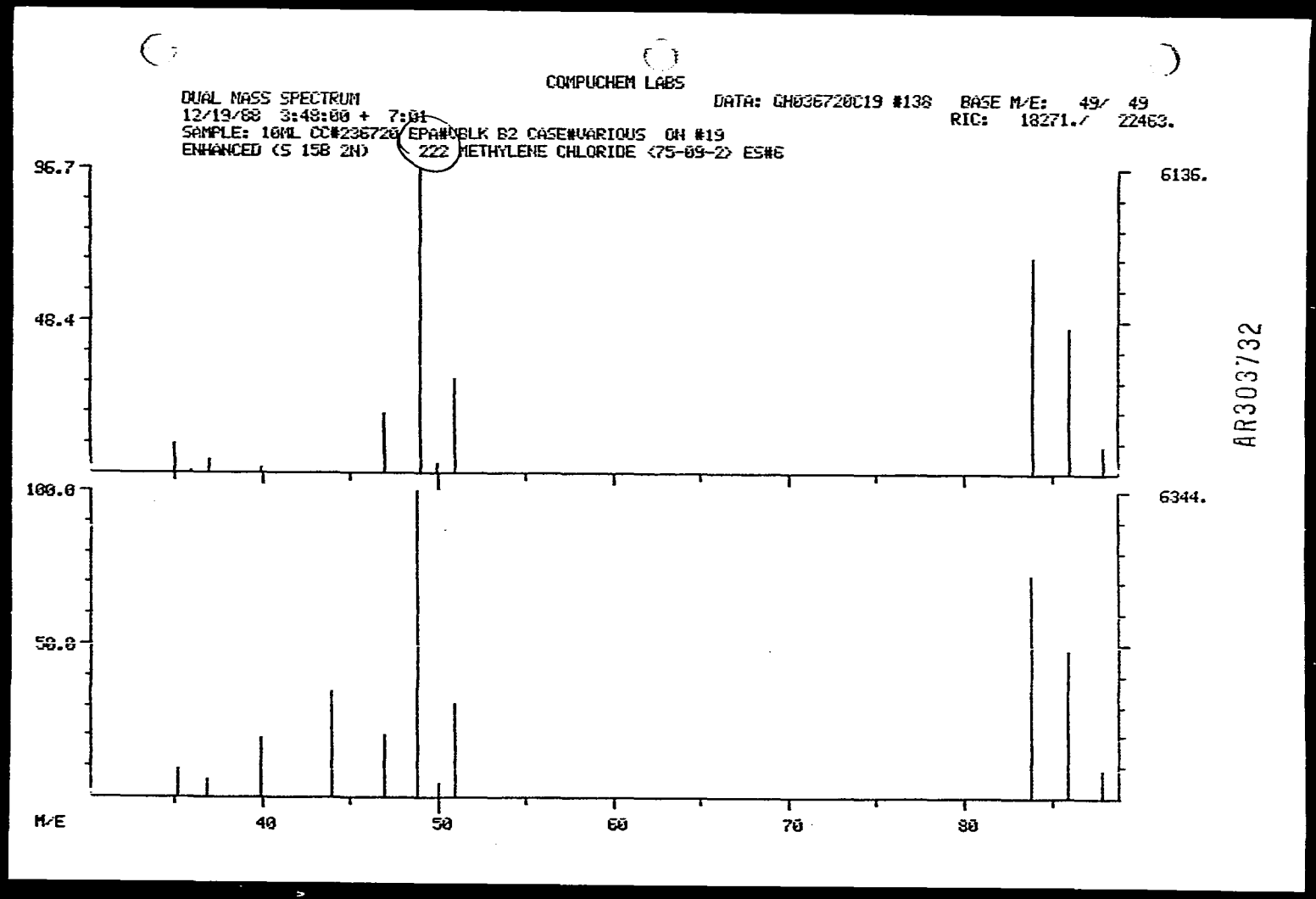
LIBRARY SEARCH
12/19/88 3:48:00 + 7:01
SAMPLE: 10ML CC#238720 EPA#VBLK 82 CASE#VARIOUS ON #19
ENHANCED (S 150 2N 0T)

DATA: GH036720C19 # 138

BASE M/E: 49
RIC: 18271.



AR303731


COMPUCHEM LABS
DUAL MASS SPECTRUM
12/19/88 3:48:00 + 7:01
DATA: GH030720C19 #138
BASE M/E: 49/ 49
RIC: 18271./ 22463.
SAMPLE: 10ML CC#230720 EPA#0BLK B2 CASE#VARIOUS ON #19
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE <75-09-2> ES#6
96.7
48.4
6136.
100.0
50.0
6344.
M/E
40
50
60
70
80
AR303732

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM BLANK ID: 235592

SAMPLE IDENTIFIER: SBV3-3, SBV4-3
COMPUCHEM® SAMPLE NUMBER: 234229, 234230

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	5 J	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE, (TOTAL)	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	BDL	120

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	101	70 - 121
BROMOFLUOROBENZENE	101	74 - 121
D8-TOLUENE	101	81 - 117

BDL - BELOW DETECTION LIMIT

COMPUCHEM LABS

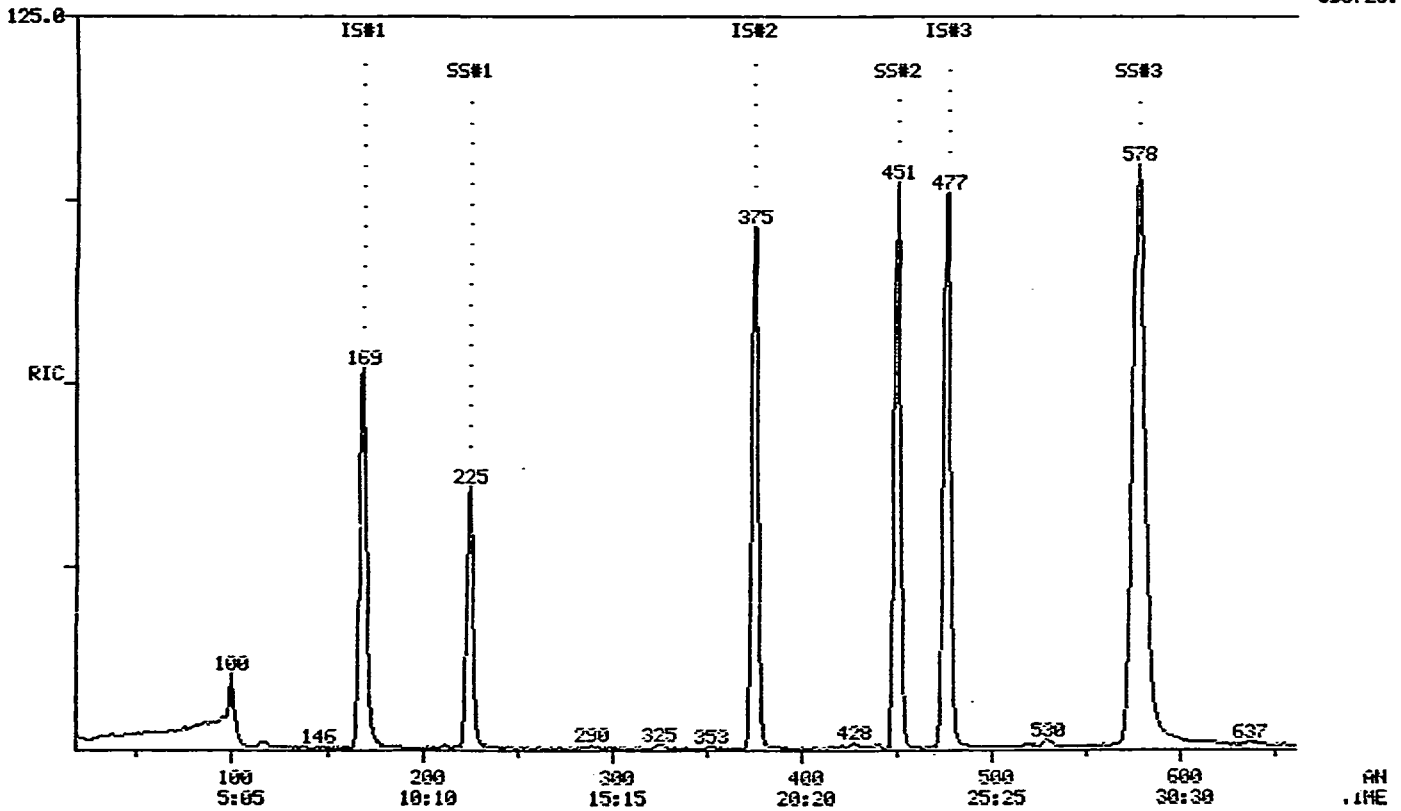
RIC

COMPUCHEM DATA: GH035592C10 SCANS 18 TO 660

12/16/88 3:50:00

SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10

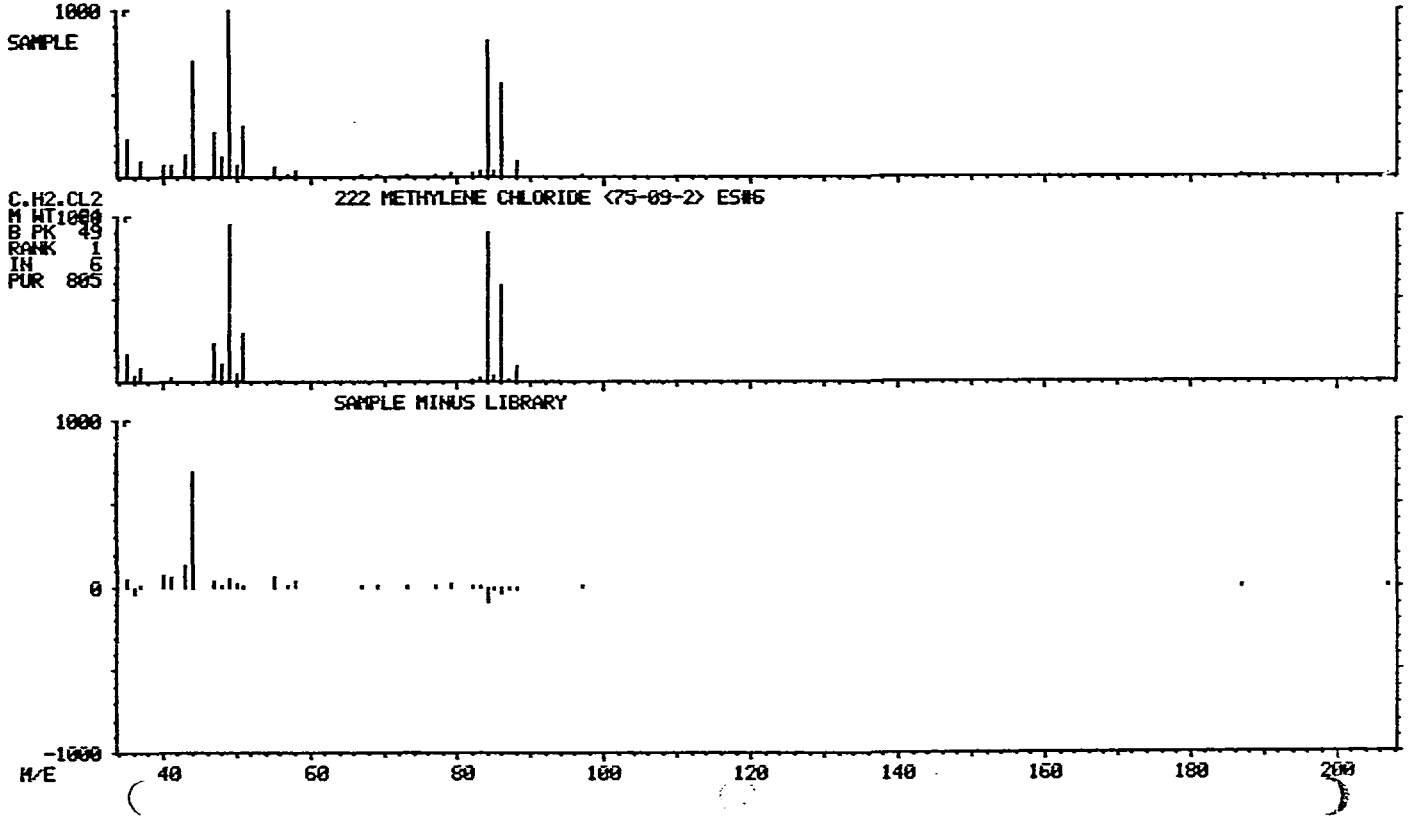
CONDS.:



AR303734

COMPUCHEM LABS

LIBRARY SEARCH DATA: GH035592C10 # 100 BASE M/E: 49
12/16/88 3:50:00 + 5:05 RIC: 24479.
SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N 0T)



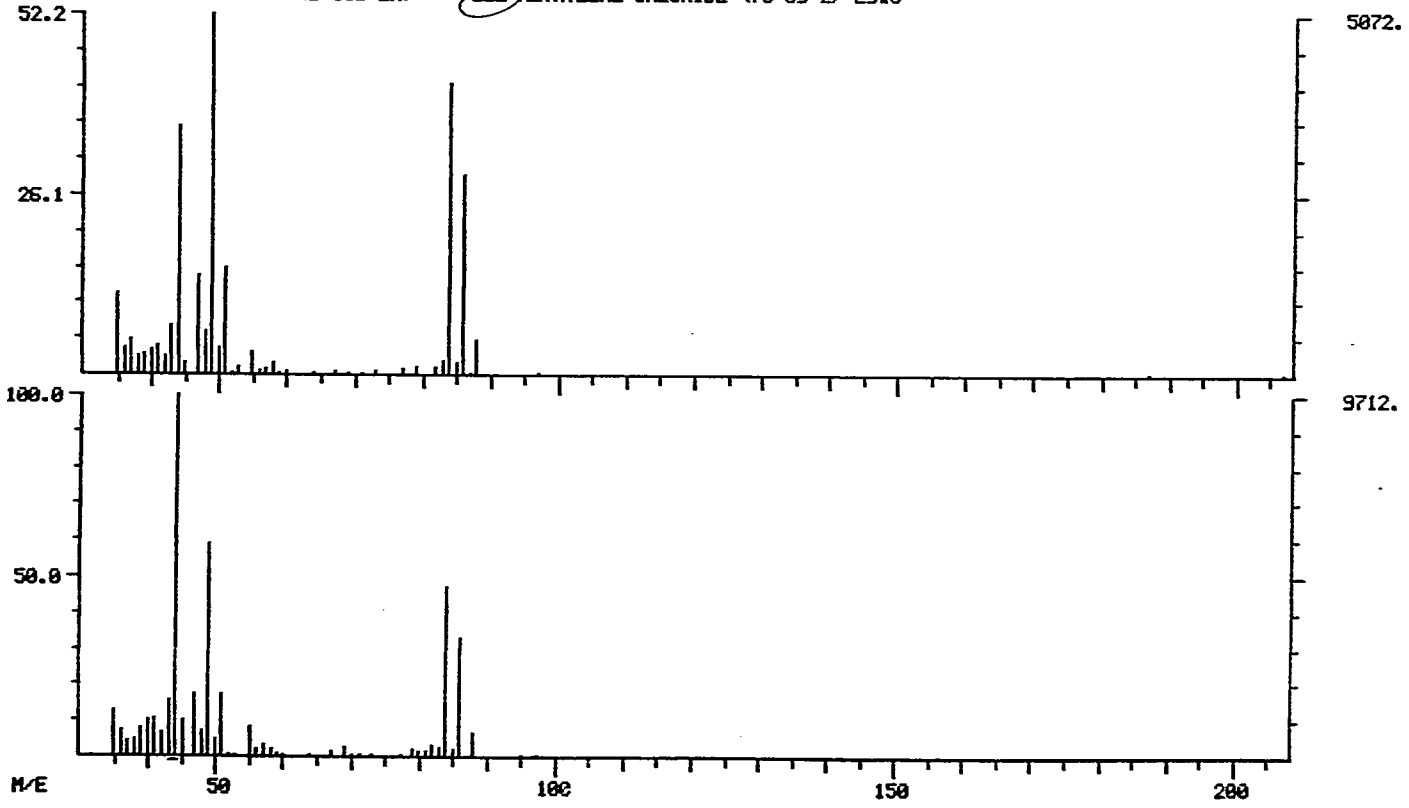
AR303735

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/16/88 3:50:00 + 5:05
SAMPLE: 10ML CASE# 14699 GC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N)

DATA: GH035592C10 #100 BASE M/E: 49/ 44
RIC: 26239./ 41343.

222 METHYLENE CHLORIDE <75-09-2> ES#6



AR303736

VOLATILES

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 234221
MATRIX SPIKE: 234225
MATRIX SPIKE DUPLICATE: 234226

A.	B.	C.	D.	E.	F.	G.	H.		
COMPOUNDS	CONC. SPIKE ADDED (ug/kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
1,1-DICHLOROETHENE	52.5	0	57.2	109	69.3	132	-18	22	59-172
TRICHLOROETHENE	52.5	0	53	101	57.4	109	-7.9	24	62-137
BENZENE	52.5	0	48.8	93	52.4	100	-7	21	66-142
TOLUENE	52.5	0	51	97	56.3	107	-9.8	21	59-139
CHLOROBENZENE	52.5	0	51.1	97	55.4	106	-8	21	60-133

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F} \div D \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

SPECTRUM: BQ881219C19 # 322 TOTAL ION: 23264.
SAMPLE: 2UL BFB 7008(27713) ON #19 ANALYST: 983
TIME OF INJECTION: 0:28 12/19/88
ENHANCEMENT:

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	860.	15-40% OF 95	16.46	OK
75	2060.	30-60% OF 95	39.43	OK
95	5224.	100% (BASE PK)	100.00	OK
96	386.	5-9% OF 95	7.39	OK
173	0.	< 1% OF 95	0.00	OK
174	4272.	> 50% OF 95	81.78	OK
175	288.	5-9% OF 174	6.74	OK
176	4076.	95-101% OF 174	95.41	OK
177	281.	5-9% OF 176	6.89	OK

SDWagner
12-20-88

AR303738

COMPUCHEM LABS

MASS LIST DATA: BCBB1219C19 # 322 BASE M/E: 95
12/19/88 0:28:00 + 16:22 RIC: 23264.
SAMPLE: 2UL BFB 7008(27713) ON #19

)8 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 5224.
_46 # 0 MAXIMA

MASS	% RA
38	2.85
40	16.19
44	33.42
50	16.46
51	2.09
68	8.31
69	8.35
73	3.89
74	11.79
75	39.43
87	2.47
88	6.64
93	2.24
94	9.11
95	100.00
96	7.39
174	81.78
175	5.51
176	78.02
177	5.38
246	3.81

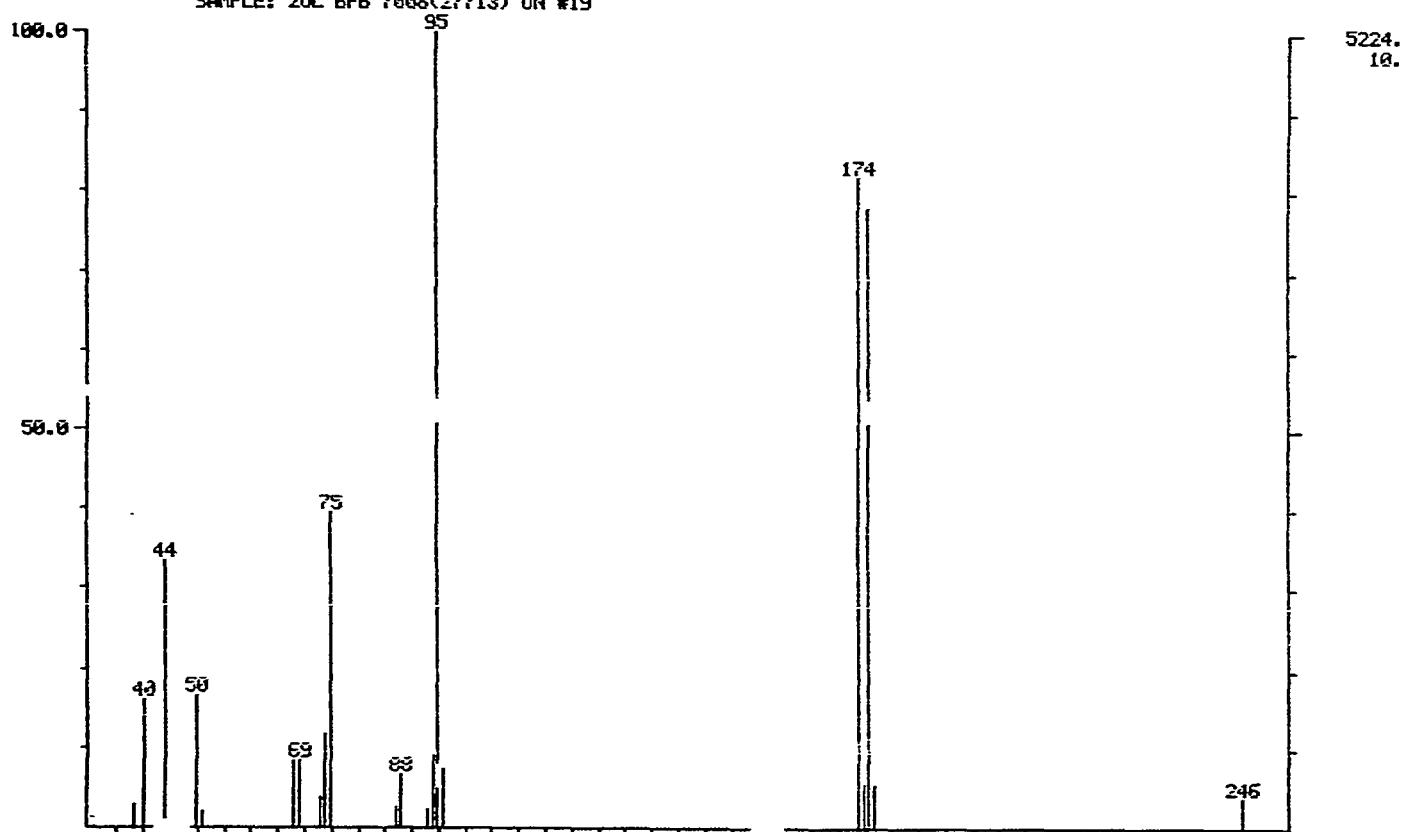
AR303739

COMPUCHEM LABS

MASS SPECTRUM
12/19/88 0:28:00 + 16:22
SAMPLE: 2UL BFB 7008(27713) ON #19

DATA: BG881219C19 #322

BASE M/E: 95
RIC: 23264.



AR303740

SPECTRUM: BH881216C10 # 184 TOTAL ION: 48448.
SAMPLE: 2UL BFB# 7008 (27713) ANALYST: 1171
TIME OF INJECTION: 2:12 12/16/88
ENHANCEMENT:

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	1902.	15-40% OF 95	21.73	OK
75	4736.	30-60% OF 95	54.11	OK
95	8752.	100% (BASE PK)	100.00	OK
96	592.	5-9% OF 95	6.76	OK
173	0.	< 1% OF 95	0.00	OK
174	8544.	> 50% OF 95	97.62	OK
175	653.	5-9% OF 174	7.64	OK
176	8240.	95-101% OF 174	96.44	OK
177	503.	5-9% OF 176	6.10	OK

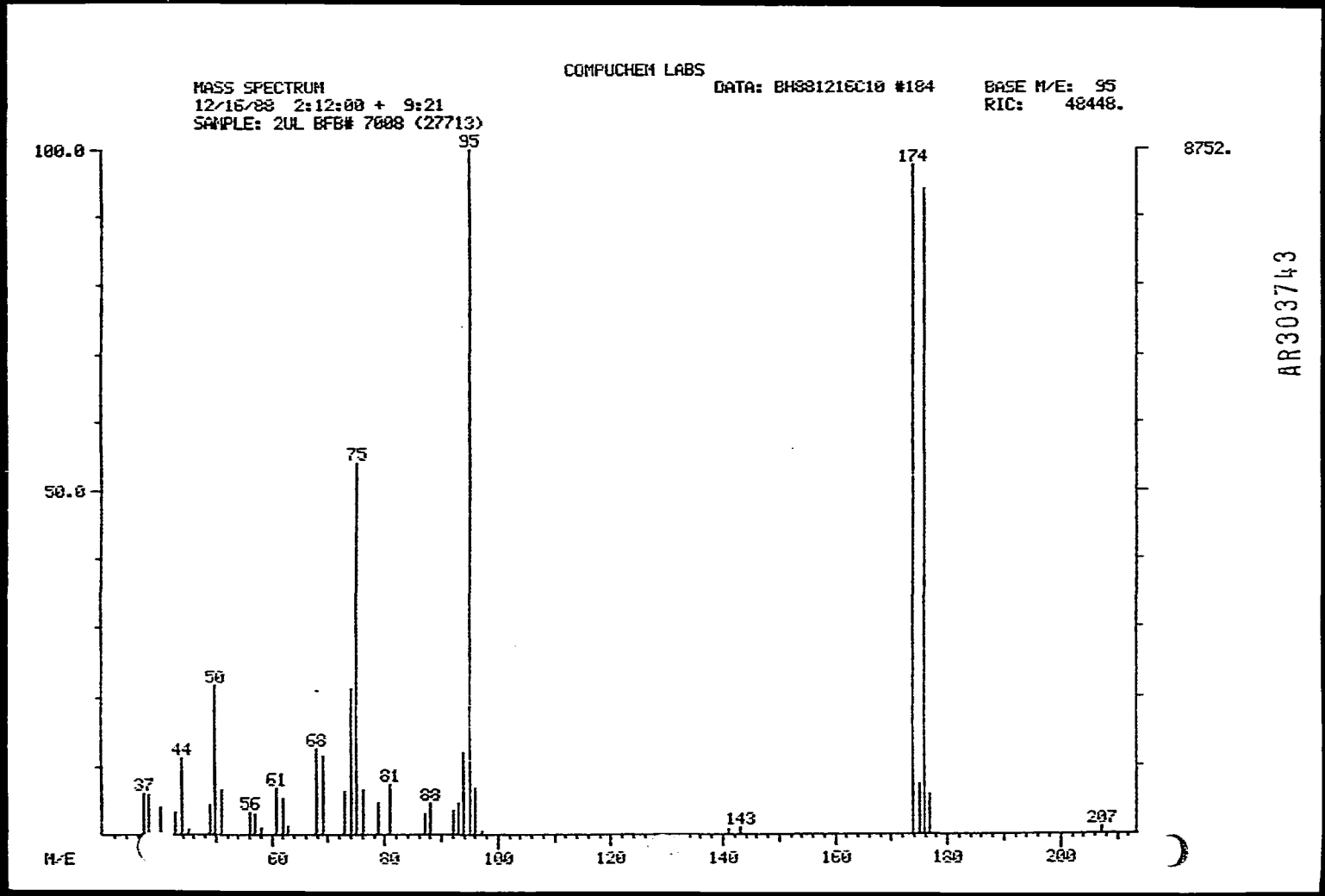
COMPUCHEM LABS

MASS LIST DATA: BH881216C10 # 184 BASE M/E: 95
12/16/88 2:12:00 + 9:21 RIC: 48448.
SAMPLE: 2UL BFB# 7008 (27713)

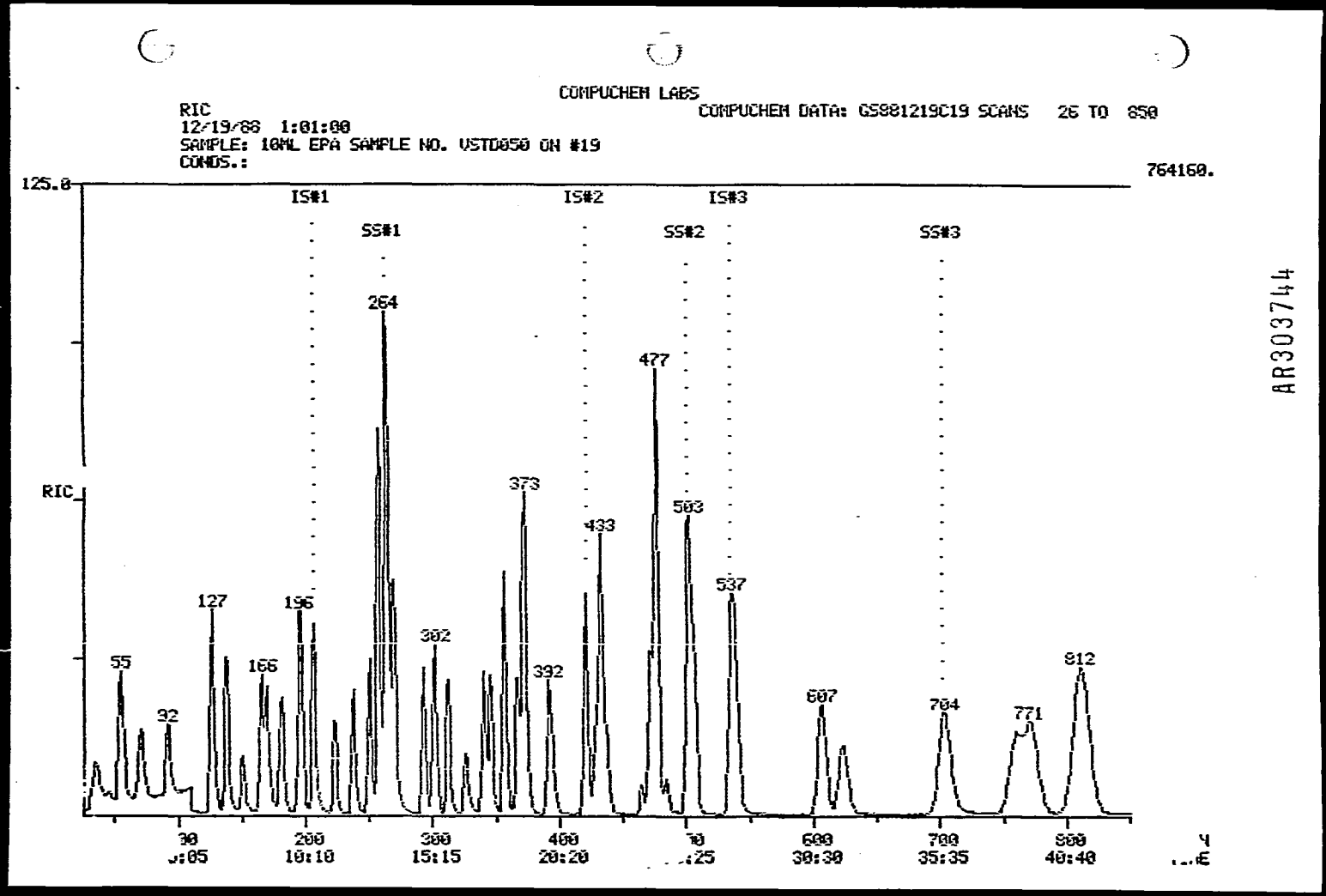
37 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 8752.
207 # 0 MAXIMA
MASS % RA

MASS	% RA
37	6.18
38	5.82
40	4.17
43	3.40
44	11.31
45	0.81
49	4.25
50	21.73
51	6.60
56	3.31
57	3.18
58	0.90
61	6.83
62	5.31
63	1.38
68	12.43
69	11.56
73	6.49
74	21.18
75	54.11
76	6.59
79	4.62
81	7.31
87	2.97
88	4.68
92	3.64
93	4.71
94	12.09
95	100.00
96	6.76
97	0.61
141	0.77
143	0.96
174	97.62
175	7.46
176	94.15
177	5.75
207	0.91

AR303742


COMPUCHEM LABS
MASS SPECTRUM
12/16/88 2:12:00 + 9:21
SAMPLE: 2UL BFB# 7008 (27713)
DATA: BHS81216C10 #184
BASE M/E: 95
RIC: 48448.
100.0
50.0
8752.
95
174
75
50
44
68
61
81
37
56
83
143
207
M/E
60
80
100
120
140
160
180
200

AR303743

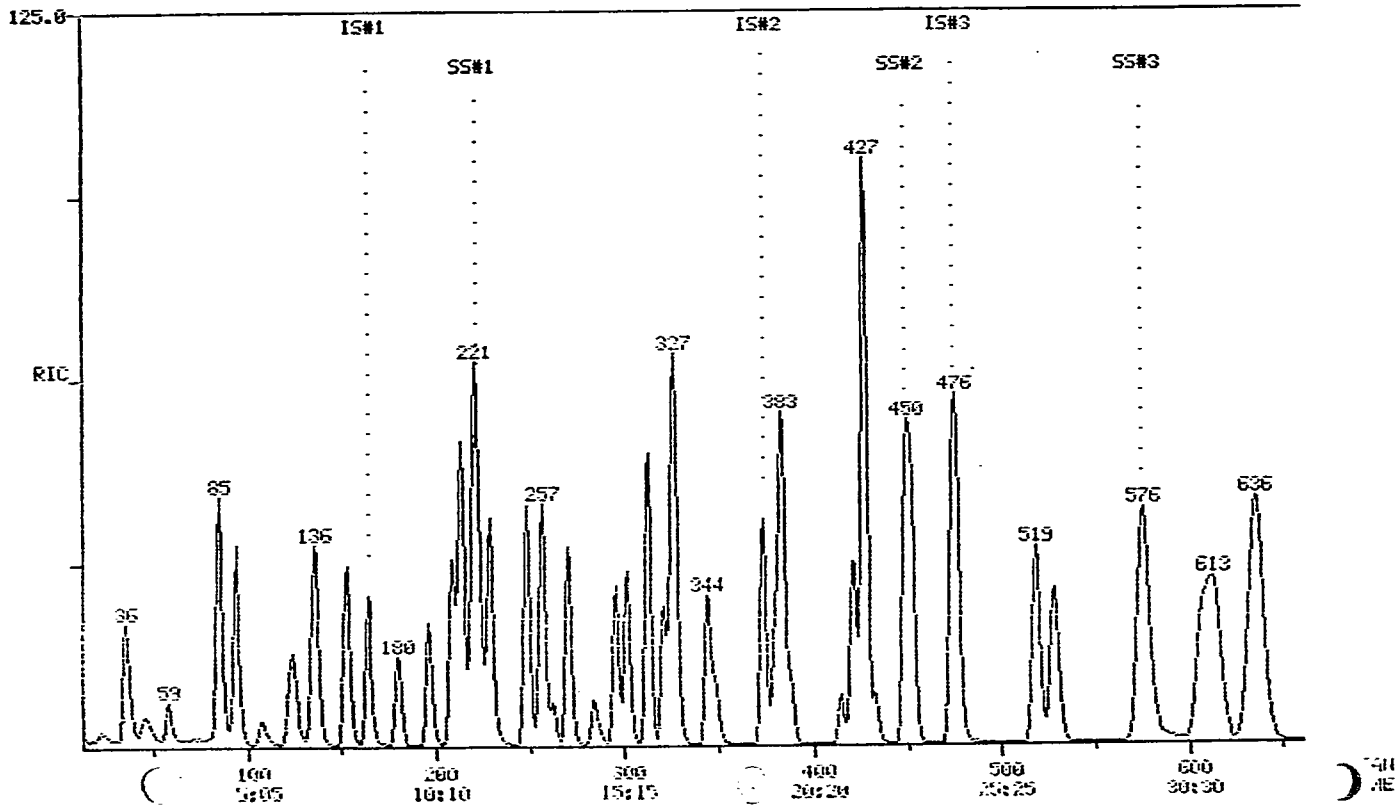

COMPUCHEM LABS
RIC
12/19/88 1:01:00
COMPUCHEM DATA: GS881219C19 SCANS 26 TO 850
SAMPLE: 10ML EPA SAMPLE NO. VSTD050 ON #19
CONDS.:
764160.
125.0
IS#1
IS#2
IS#3
SS#1
SS#2
SS#3
RIC
55
32
127
166
196
264
302
373
392
433
477
503
537
607
704
771
812
AR303744

COMPUCHEM LABS

COMPUCHEM DATA: GS881216C10 SCANS 13 TO 660

RIC
12/16/88 2:35:00
SAMPLE: EPA SAMPLE NO. VSTD050
CONDS.:

924160.



AR303745

COMPUCHEM
LABORATORIES

December 22, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		787	14699	Volatiles - Priority Pollutants Method 8240 - 3rd Ed. (Style 5)
		286		Dry Weight Determination
		419		pH Determination

SBV4-5 234231

In this report we have included the analytical results, the method reference, and the quality control summaries. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Page Two - December 22, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

AR303747

COMPUCHE
LABORATO

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Technical Reviewer

Deliverables Coordinator

AR303749

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: SBV4-5
CompuChem Number: 234231

Date Received: 12/08/88

Date Dry Weight Determined: 12/09/88
Date pH Determined: 12/16/88

	Extracted	Analyzed
- VOLATILE	---	12/16/88

VOLATILE

(Blank - Volatile)	236339
(Spike)	234225/234226
(BFB)	BJ881216C13
(Standard)	GT881216A13

METHOD REFERENCE

To determine the concentration of Priority Pollutants volatile organic compounds in a variety of waste matrices, CompuChem® employs the methods stated in the RCRA Method 8240.

As a point of information, the Priority Pollutants analytes present on the enclosed compound list have been validated for Method 8240 as required by SW-846.

Method Summary

The volatile compounds are introduced to the gas chromatograph by the direct injection, or the Purge-and-Trap Method (RCRA Method 5030). The components are separated via the gas chromatograph and detected using a mass spectrometer which is used to provide both qualitative and quantitative information. The chromatographic conditions as well as typical mass spectrometer operating parameters are given in the RCRA Method 8240.

QUALITY ASSURANCE NOTICE

Sample # 234231

Sample I.D.: SBV4-5

Method blank I.D.: 236339

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270." Many of the Quality Control requirements of these methods were derived from the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	concentration	units
Methylene Chloride	8 J	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then CLP requirements must be met.

This Notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

J - Estimated concentration of analyte which is present but at a concentration less than the stated detection limit.

Robert J. Whitehead
Manager, Quality Assurance

№ 013186

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalaghan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	9010	VOC 601			REMARKS
SBV1	6/12		X		SBV1-3	1	X			234221	
SBV1	6/12		X		SBV1-5	1	X			234222	Samples packed
SBV2	6/12		X		SBV2-2	1	X			234223	with ice and
SBV2	6/12		X		SBV2-3	1	X			234224	shipped on ice
SBV3	6/12		X		SBV3-2	1	X			234228	
SBV3	6/12		X		SBV3-3	1	X			234229	Id's used are taken
SBV5	6/12		X		SBV5-2	1	X			234232	from bottle and station
SBV5	6/12		X		SBV5-5	1	X			234233	location except for,
FB1	6/12		X	X	Field blank	2		X		234244	FB-2, FB-1, are taken
TB	—		X		Trip blank	1		X		234248	from bottle. They are the
SBV4	7/12		X		SBV4-3	1	X			234230	only two not taken
SBV4	7/12		X		SBV4-5	1	X			234231	from station location 12-8-88
SBV6	7/12		X		SBV6-1	1	X			234234	Trip Blank id taken from bottle 12-8-88
SBV6	7/12		X		SBV6-3	1	X			234235	Samples received in good
SBV7	7/12		X		SBV7-1	1	X			234236	condition 12-8-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Teresa Kalaghan	7/12 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Purdie	12-8-88 0800	Shipped Fed Exp. Air bill #897794233	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR303754

pH DETERMINATION

SAMPLE IDENTIFIER	COMPUCHEM #	pH DETERMINATION
SBV4-5	234231	pH 5.8

SAMPLE IDENTIFIER: SBV4-5
COMPUCHEM® SAMPLE NUMBER: 234231

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.50g	6.03g	1.10	9.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV4-5
COMPUCHEM® SAMPLE NUMBER: 234231

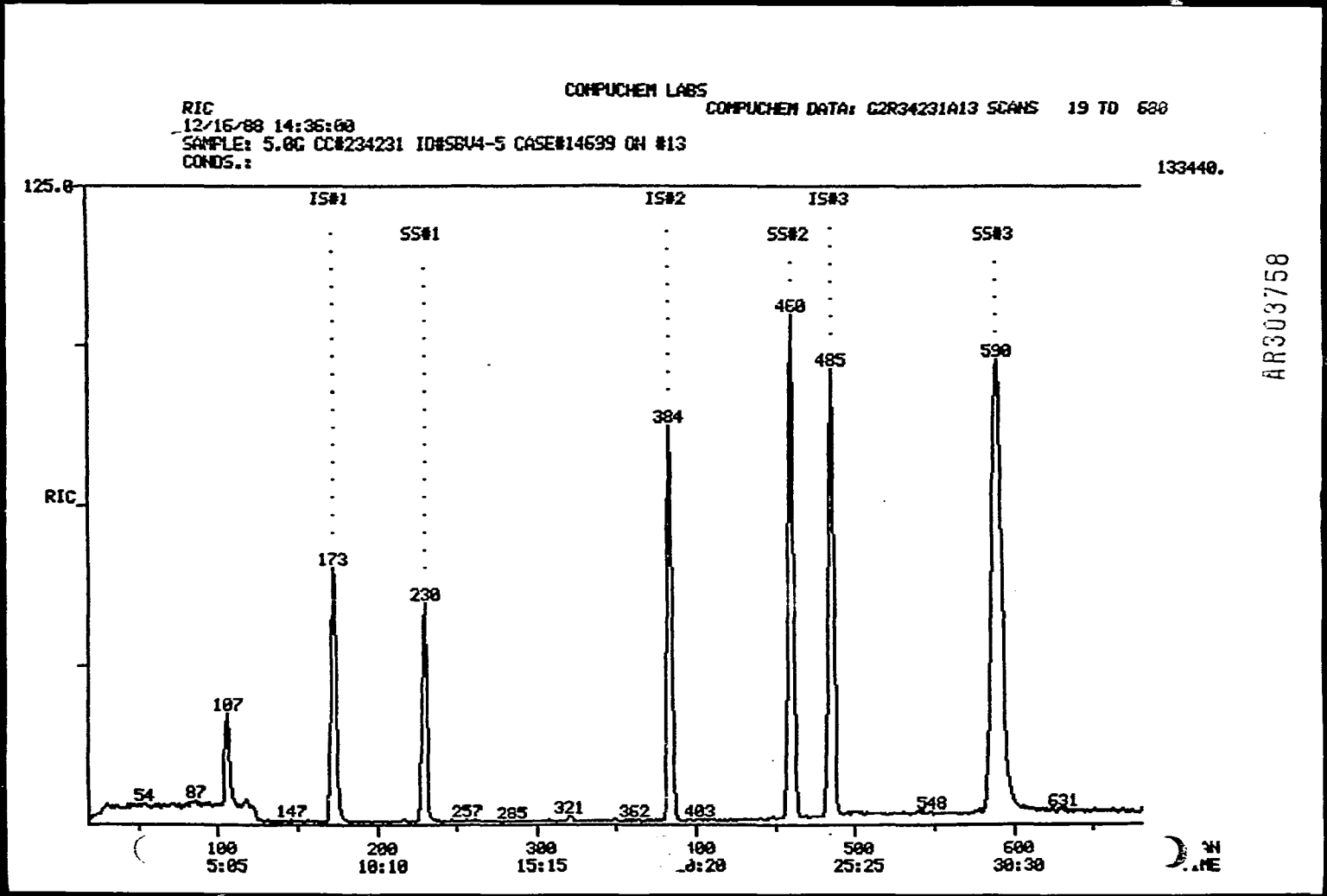
ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	18 B*	11	107
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE, (TOTAL)	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	100	
ACRYLONITRILE	BDL	130	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	114	70 - 121
BROMOFLUOROBENZENE	108	74 - 121
D8-TOLUENE	114	81 - 117

BDL - BELOW DETECTION LIMIT

†Results and detection limit calculations were based on a dry weight factor of 1.10.

*See Quality Assurance Notice.


COMPUCHEM LABS
RIC
COMPUCHEM DATA: C2R34231A13 SCANS 19 TO 680
12/16/88 14:36:00
SAMPLE: 5.0G CC#234231 ID#SBV4-5 CASE#14699 ON #13
CONDS.:
133440.
125.0
RIC
IS#1
SS#1
IS#2
IS#3
SS#2
SS#3
173
230
384
460
485
590
107
54
87
147
257
285
321
352
403
548
631
100
5:05
200
10:10
300
15:15
100
0:20
500
25:25
600
30:30
AR303758

QUANTITATION REPORT FILE: Q2R34231A13
DATA: Q2R34231A13.TI
12/16/88 14:36:00
SAMPLE: 5.00 CC#234231 ID#SBV4-5 CASE#14699 ON #13
CONDS.:
SUBMITTED BY: 13 ANALYST: 1498

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	#234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <74-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	#248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
.	203 BENZENE <71-43-2> ES#25
.	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	#270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 DB-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	173	8:48	1	1.000	A BB	30390.	50.000 UG/KG	15.39
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	~~NOT FOUND~~ 107					16304	16.857 UG/KG	yes
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303759

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	384	19:31	12	1.000	A BB	111664.	50.000 UG/KG	15.39
13	97	NOT FOUND							
14	117	NOT FOUND							
	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	485	24:39	25	1.000	A BB	108348.	50.000 UG/KG	15.39
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	230	11:41	1	1.329	A BB	64527.	57.199 UG/KG	17.61
32	95	590	29:59	25	1.216	M XX	100560.	53.896 UG/KG	16.59
33	98	460	23:23	25	0.948	M XX	119264.	56.977 UG/KG	17.54
34	56	122	6:12	1	0.705	A*BB	309.	6.851 UG/KG	2.11MD
35	93	NOT FOUND							

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:48	1.00	10.000	0.10	50.00	50.00	1.000	1.000	1.00
	1:19		10.000			50.00		1.022	
	2:05		10.000			50.00		2.017	
4	2:39		10.000			50.00		1.110	
5	3:27		10.000			50.00		0.621	
6	5:23		5.000			50.00		1.650	
7	8:17		5.000			50.00		1.060	
8	9:36		5.000			50.00		1.565	
9	10:22		5.000			50.00		1.155	
10	11:02		5.000			50.00		2.733	
11	11:45		5.000			50.00		1.809	
12	19:28	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	13:04		5.000			50.00		0.795	
14	13:28		5.000			50.00		0.758	
15	14:05		5.000			50.00		0.681	
16	15:27		5.000			50.00		0.254	
17	15:45		5.000			50.00		0.567	
18	16:19		5.000			50.00		0.506	
19	17:02		5.000			50.00		0.636	
20	17:08		5.000			50.00		0.314	
21	16:50		5.000			50.00		0.662	
22	17:05		5.000			50.00		0.325	
23	18:12		10.000			50.00		0.119	
24	19:49		5.000			50.00		0.529	
25	24:36	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	22:13		5.000			50.00		0.593	
27	22:16		5.000			50.00		0.579	
	23:32		5.000			50.00		0.585	

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	24: 45		5.000			50.00		0.890	
30	26: 56		5.000			50.00		0.428	
31	11: 38	1.00	5.000	0.27	57.20	50.00	2.123	1.856	1.14
32	29: 53	1.00	5.000	0.24	53.90	50.00	0.928	0.861	1.08
	23: 20	1.00	5.000	0.19	56.98	50.00	1.101	0.966	1.14
34	5: 57	1.04	100.000	0.01	6.85	500.00	0.001	0.074	0.01
35	6: 40		100.000			500.00		0.144	

AR303761

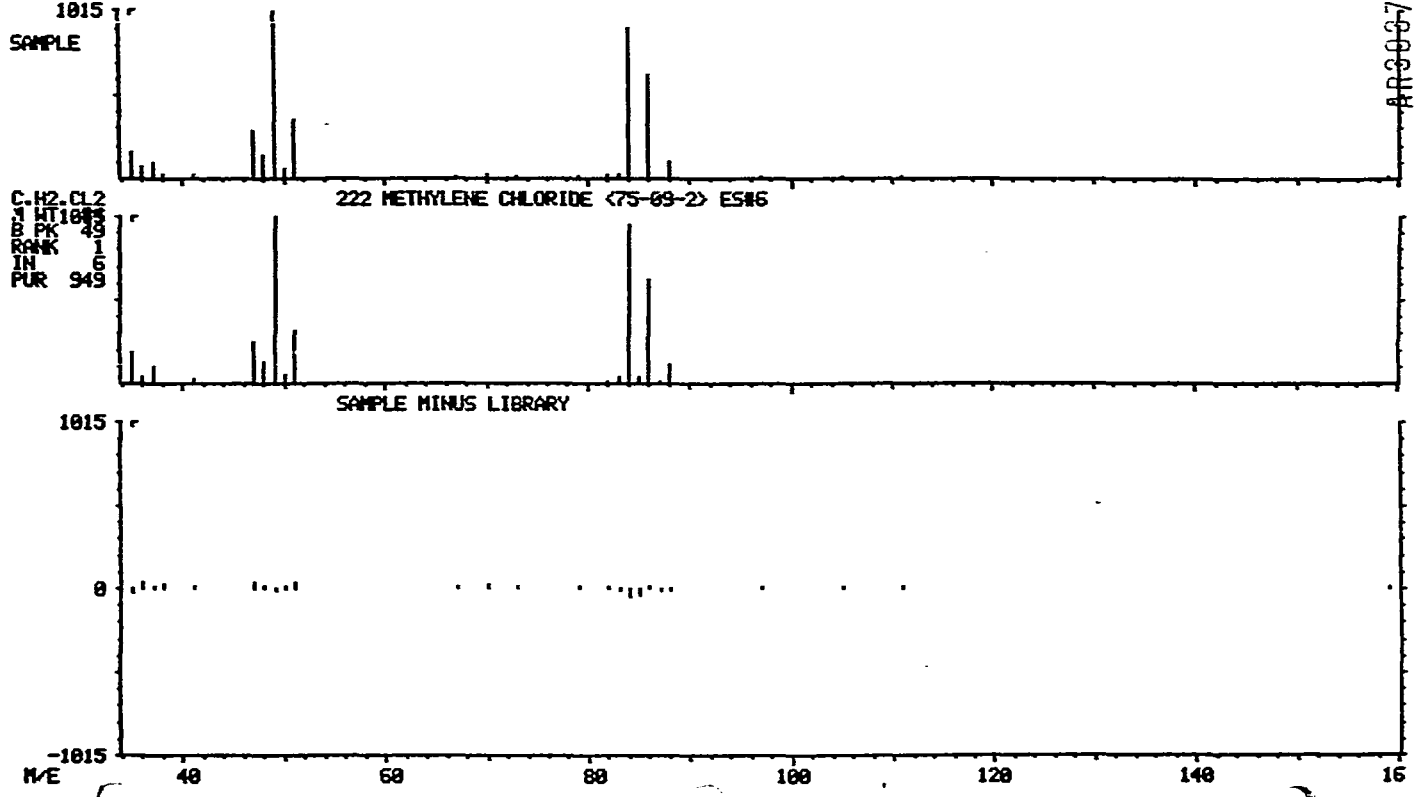
COMPUCHEM LABS

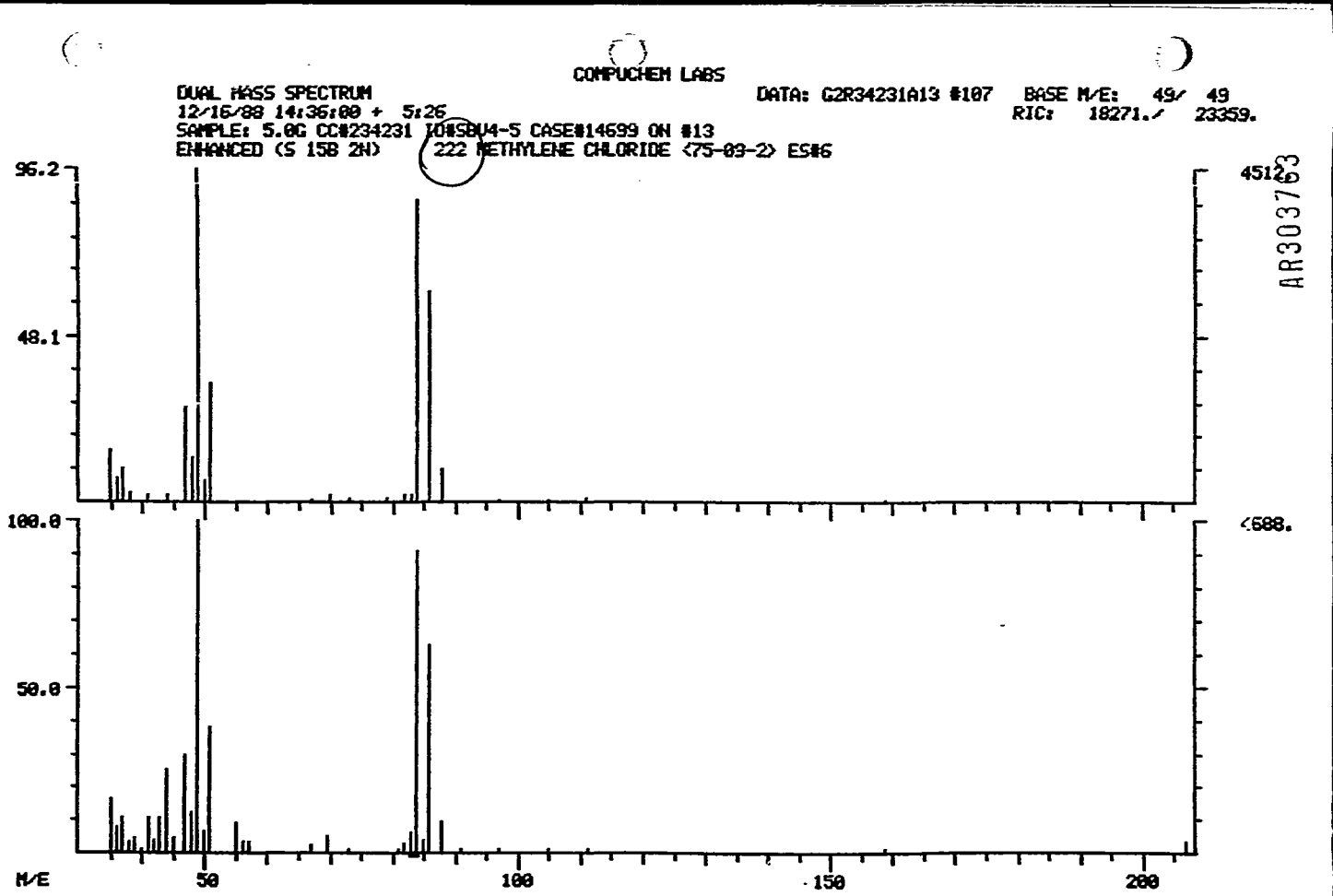
LIBRARY SEARCH
12/16/88 14:36:00 + 5:26
SAMPLE: 5.0G CC#234231 ID#SBU4-5 CASE#14699 ON #13
ENHANCED (S 15B 2N 0T)

DATA: G2K34231A13 # 107

BASE M/E: 49
RIC: 18143.

AR300762




COMPUCHEM LABS
DUAL MASS SPECTRUM
DATA: G2R34231A13 #107 BASE M/E: 49/ 49
12/16/88 14:36:00 + 5:26
RIC: 18271./ 23359.
SAMPLE: 5.0G CC#234231 10%SBU4-5 CASE#14699 ON #13
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE (75-09-2) ES#6
96.2
48.1
100.0
50.0
M/E
50
100
150
200
4512
688.
AR303763

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM BLANK ID: 236339

SAMPLE IDENTIFIER: SBV4-5
COMPUCHEM® SAMPLE NUMBER: 234231

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	8 J	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE, (TOTAL)	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	2 J	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	BDL	120

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	107	70 - 121
BROMOFLUOROBENZENE	108	74 - 121
D8-TOLUENE	102	81 - 117

BDL - BELOW DETECTION LIMIT

COMPUCHEM LABS

RIC

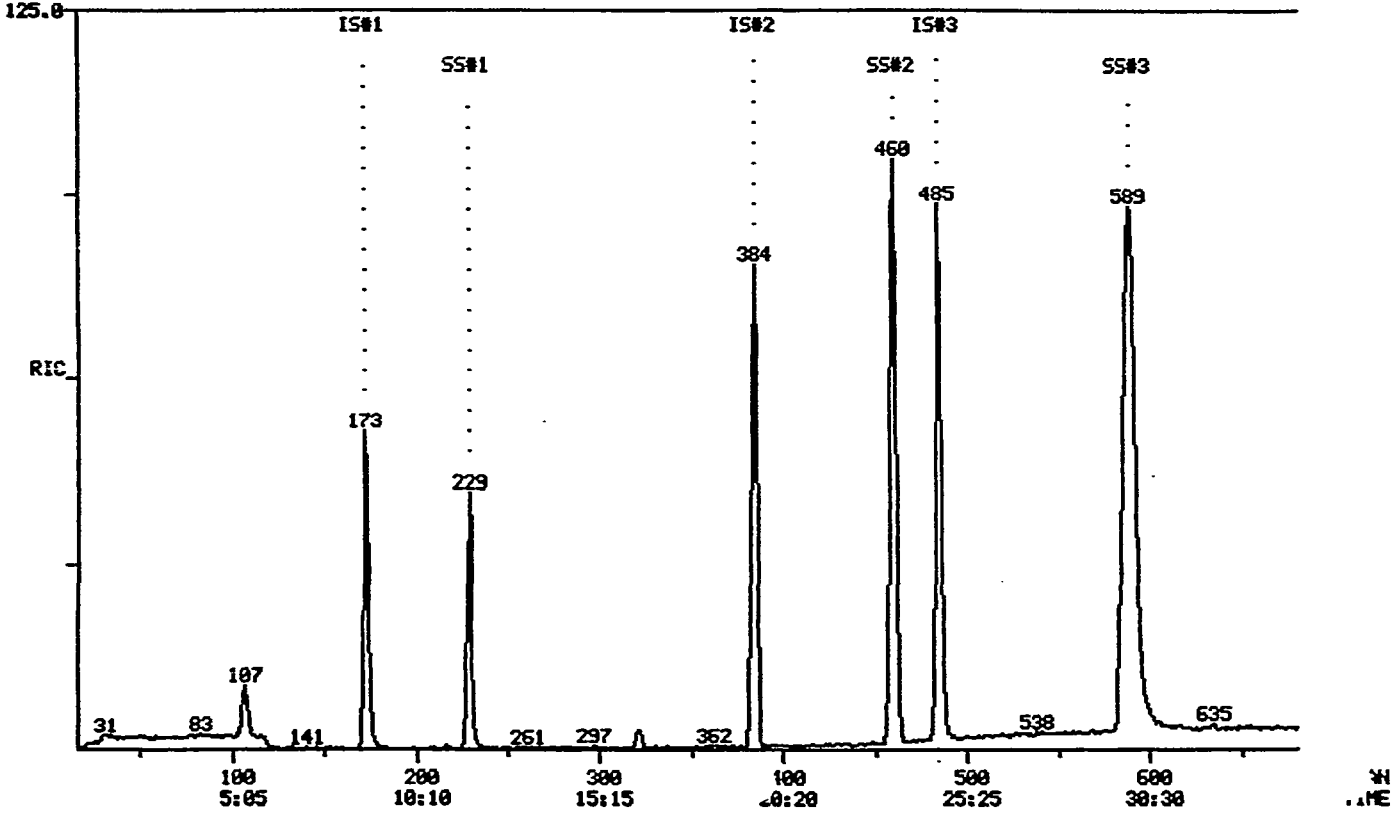
COMPUCHEM DATA: CH036339A13 SCANS 16 TO 680

12/16/88 12:51:00

SAMPLE: 10ML CC#236339 ID#VBLK B2 CASE#VARIOUS ON #13

CONDS.:

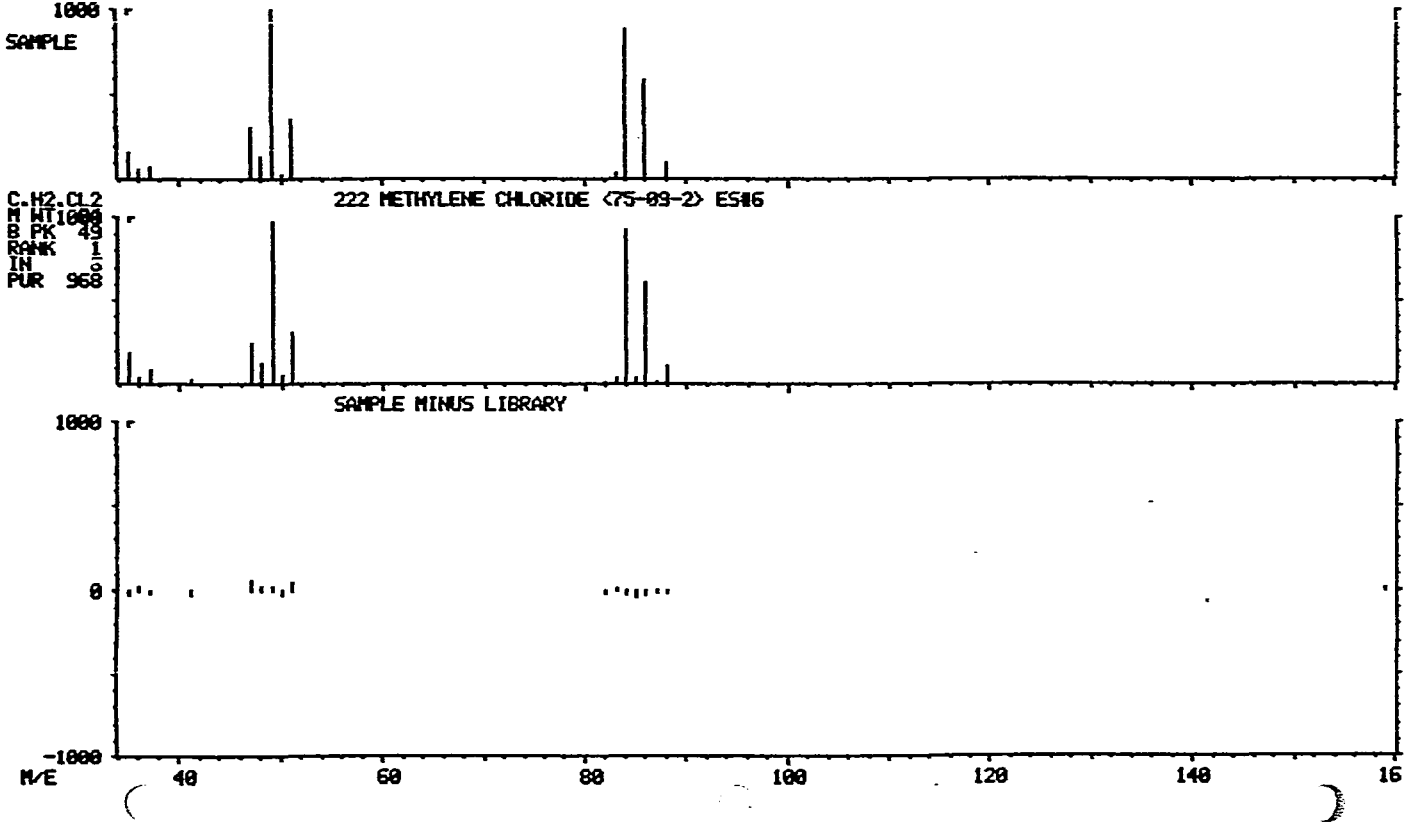
131360.



AR303765

COMPUCHEM LABS

LIBRARY SEARCH DATA: GH036339A13 # 107 BASE M/E: 49
12/16/88 12:51:00 + 5:26 RIC: 8799.
SAMPLE: 10ML CC#236339 ID#VBLK B2 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N 0T)



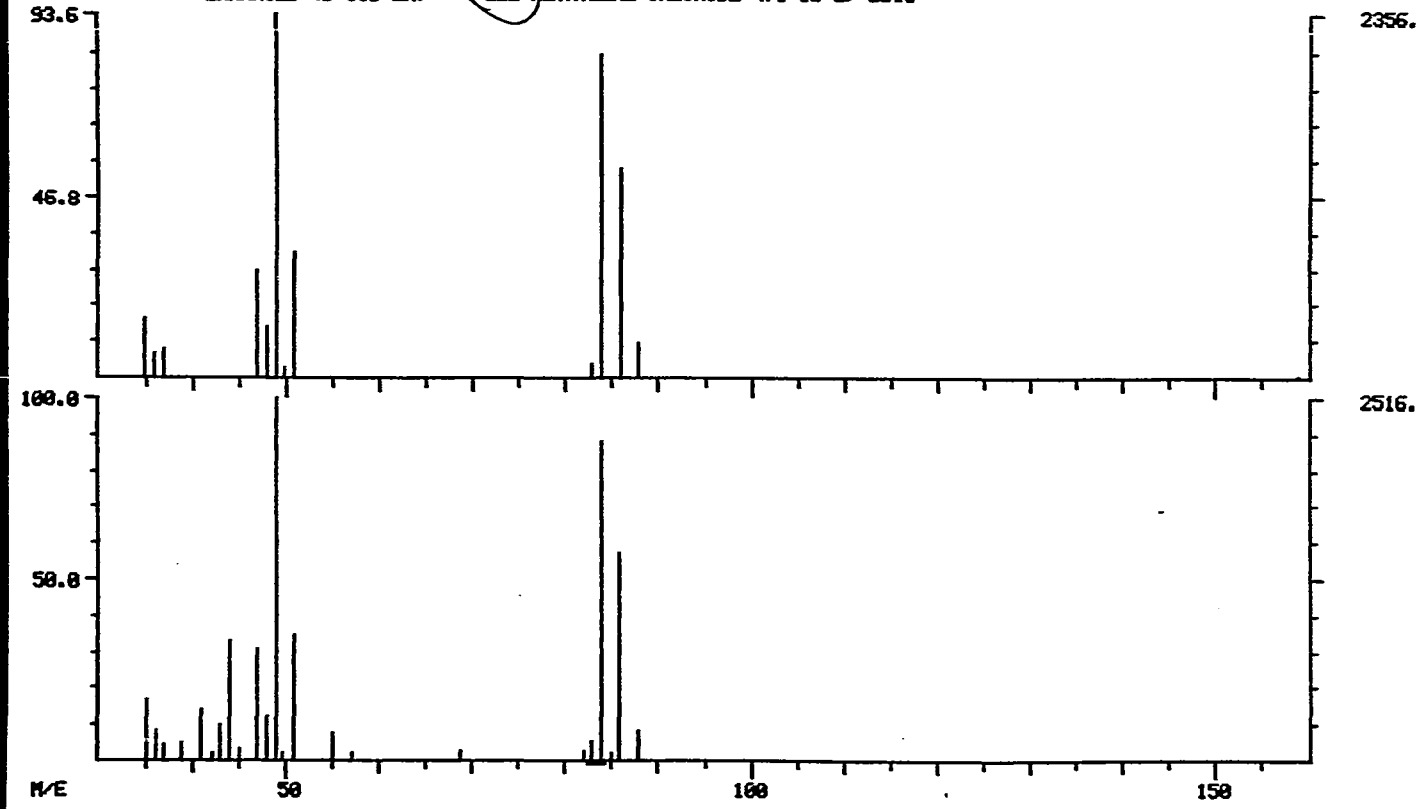
AR303766

COMPUCHEM LABS

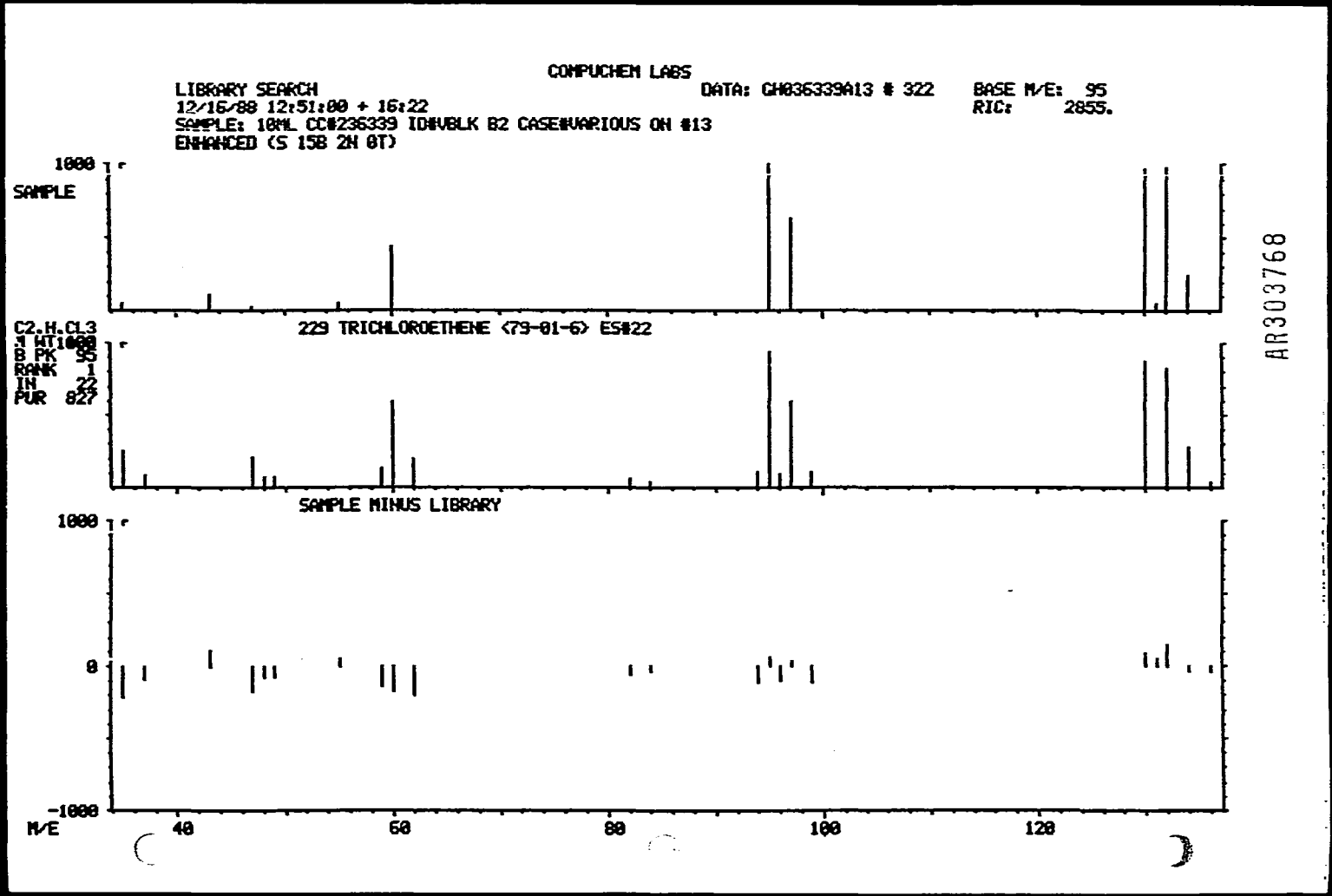
DUAL MASS SPECTRUM
12/16/88 12:51:00 + 5:26
SAMPLE: 10ML CC#236339/ID#VBLK B2 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N)

DATA: CH036339A13 #107 BASE M/E: 49/ 49
RIC: 8799./ 11487.

222 METHYLENE CHLORIDE (75-09-2) ES#6



AR303767


COMPUCHEM LABS
LIBRARY SEARCH
DATA: CH036339A13 # 322
BASE M/E: 95
12/16/88 12:51:00 + 16:22
RIC: 2855.
SAMPLE: 10ML CC#236339 ID#VBLK B2 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N 0T)
1000
SAMPLE
C2.H.CL3
229 TRICHLOROETHENE <79-01-6> ES#22
1 HT1000
B PK 95
RANK 1
IN 22
PUR 827
SAMPLE MINUS LIBRARY
1000
0
-1000
M/E
40
60
80
100
120

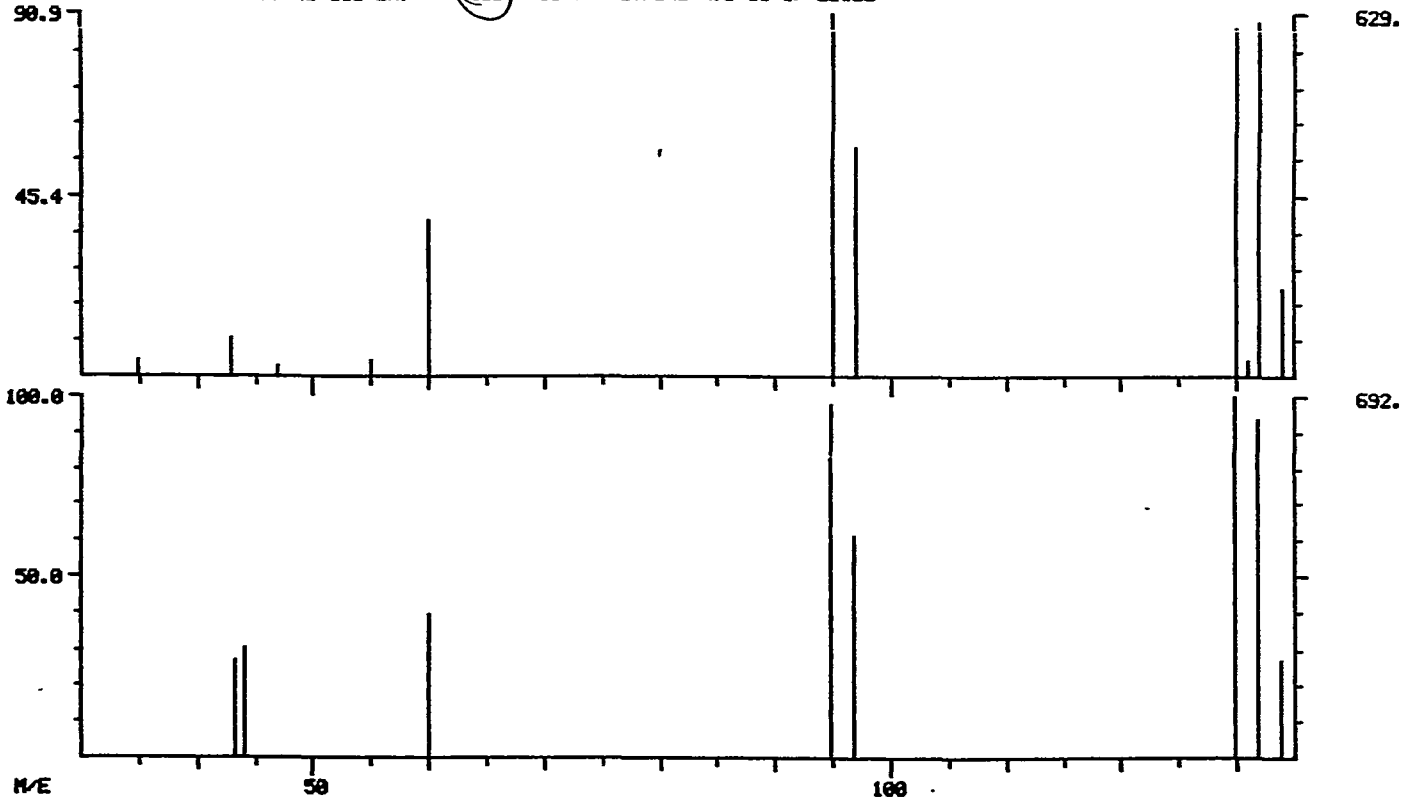
AR303768

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/16/88 12:51:00 + 16:22
SAMPLE: 10ML CC#236339 ID#VBLK B2 CASE#VARIOUS ON #13
ENHANCED (S 156 2N)

DATA: CH036339A13 #322 BASE M/E: 95/ 130
RIC: 2855./ 3303.

229 TRICHLOROETHENE (79-01-6) ES#22



AR303769

VOLATILES

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 234221
MATRIX SPIKE: 234225
MATRIX SPIKE DUPLICATE: 234226

A.	B.	C.	D.	E.	F.	G.	H.		
								QC LIMITS*	
COMPOUNDS	CONC. SPIKE ADDED (ug/kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	RPD	RECOVERY
1,1-DICHLOROETHENE	52.5	0	57.2	109	69.3	132	-18	22	59-172
TRICHLOROETHENE	52.5	0	53	101	57.4	109	-7.9	24	62-137
BENZENE	52.5	0	48.8	93	52.4	100	-7	21	66-142
TOLUENE	52.5	0	51	97	56.3	107	-9.8	21	59-139
CHLOROBENZENE	52.5	0	51.1	97	55.4	106	-8	21	60-133

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F} \div D \div 2 \times 100 = RPD$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

AR303770

SPECTRUM: BJ881216C13 # 190 TOTAL ION: 48512.
SAMPLE: 2UL BFB #27713 ON #13 ANALYST: 1539
TIME OF INJECTION: 8:02 12/16/88
ENHANCEMENT: #190 - #210 TO #220 X1.00

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	1736.	15-40% OF 95	18.36	OK
75	4608.	30-60% OF 95	48.73	OK
95	9456.	100% (BASE PK)	100.00	OK
96	642.	5-9% OF 95	6.79	OK
173	0.	< 1% OF 95	0.00	OK
174	9120.	> 50% OF 95	96.45	OK
175	785.	5-9% OF 174	8.61	OK
176	8976.	95-101% OF 174	98.42	OK
177	720.	5-9% OF 176	8.02	OK

SDWagner
12-20-88

AR303771

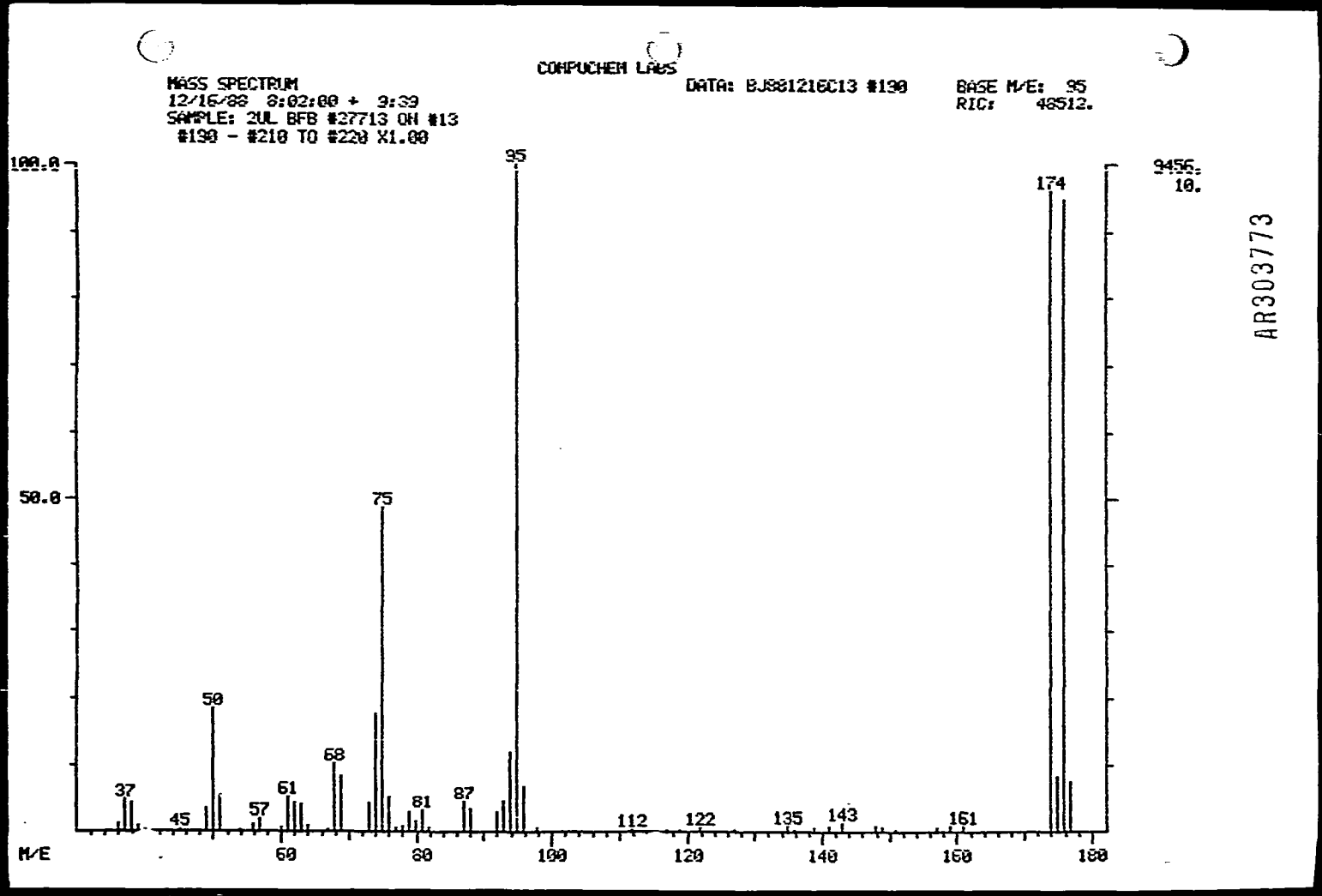
COMPUCHEM LABS

MASS LIST DATA: BJ881216C13 # 190 BASE M/E: 95
12/16/88 8:02:00 + 9:39 RIC: 48512.
SAMPLE: 2UL BFB #27713 ON #13
#190 - #210 TO #220 X1.00

36 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 9456.
77 # 0 MAXIMA

MASS	% RA	MASS	% RA
36	1.03	136	0.30
37	4.81	139	0.61
38	4.11	141	0.74
39	0.90	143	1.28
40	0.37	147	0.03
45	0.20	148	0.70
49	3.51	149	0.53
50	18.36	151	0.33
51	5.48	157	0.60
53	0.12	159	0.67
54	0.23	161	0.85
56	1.15	174	96.45
57	1.87	175	8.30
60	0.63	176	94.92
61	5.30	177	7.61
62	4.24		
63	3.86		
64	0.66		
67	0.39		
68	10.30		
69	8.40		
70	0.07		
73	4.25		
74	17.66		
75	48.73		
76	5.18		
77	0.44		
78	0.86		
79	2.80		
80	1.59		
81	3.20		
82	0.55		
86	0.07		
87	4.36		
88	3.34		
89	0.12		
92	2.97		
93	4.48		
94	12.06		
95	100.00		
96	6.79		
98	0.54		
112	0.29		
113	0.13		
117	0.20		
119	0.18		
122	0.45		
123	0.01		
127	0.31		
135	0.66		

AR303772

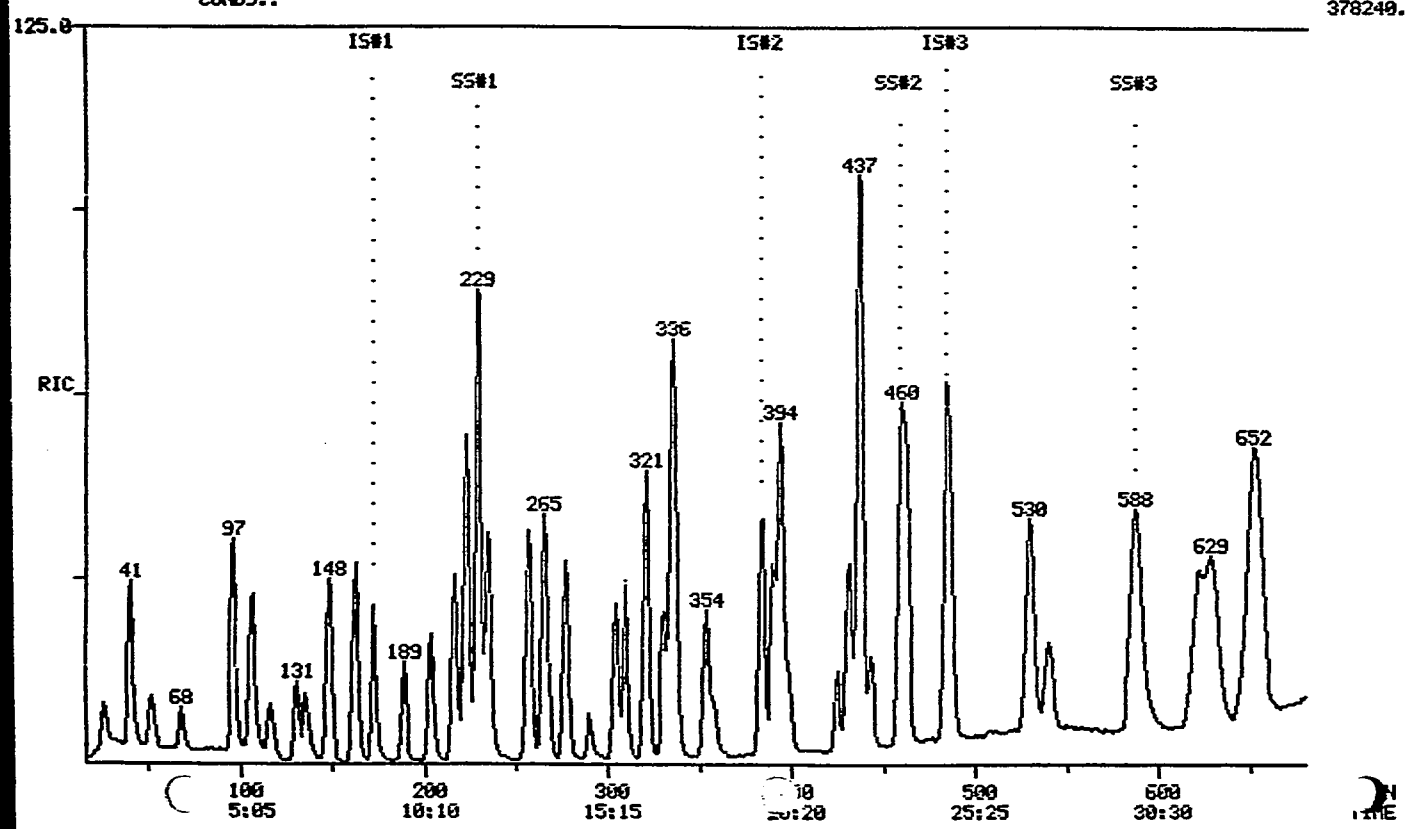

MASS SPECTRUM
12/16/88 8:02:00 + 9:39
SAMPLE: 2UL BFB #27713 ON #13
#130 - #210 TO #220 X1.00
COMPUCHEM LABS
DATA: BJ881216C13 #130
BASE M/E: 95
RIC: 48512.
100.0
50.0
9456.
10.
M/E
37
45
50
57
61
68
75
81
87
95
112
122
135
143
161
174
60
80
100
120
140
160
180

AR303773

COMPUCHEM LABS

RIC
12/16/88 10:08:00
SAMPLE: 10ML VSTD050 #1887 ON #13
CONDS.:

COMPUCHEM DATA: GT881216A13 SCANS 16 TO 680



AR303774

COMPUCHEM LABORATORIES

December 22, 1988

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		787	14699	Volatiles - Priority Pollutants Method 8240 - 3rd Ed. (Style 5)
		286		Dry Weight Determination
		419		pH Determination
SBV5-2	234232			
SBV7-6	234239			

In this report we have included the analytical results, the method reference, and the quality control summaries. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

COMPUCHEM
LABORATORIES

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

COMPUCHE
LABORATO

AR303777

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategy Corp.
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Patricia B. Hopkins
Technical Reviewer

Dorothea Ford
Deliverables Coordinator

AR303778

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: SBV5-2
CompuChem Number: 234232

Date Received: 12/08/88

Date Dry Weight Determined: 12/09/88
Date pH Determined: 12/16/88

	Extracted	Analyzed
- VOLATILE	---	12/16/88

VOLATILE

(Blank - Volatile)	235592
(Spike)	234225/234226
(BFB)	BH881216C10
(Standard)	GS881216C10

(Continued)

COMPUCHEM LABORATORIES

CHRONICLE

Sample Identifier: SBV7-6
CompuChem Number: 234239

Date Received: 12/08/88

Date Dry Weight Determined: 12/09/88
Date pH Determined: 12/16/88

	Extracted	Analyzed
- VOLATILE	---	12/14/88

VOLATILE

(Blank - Volatile)	235203
(Spike)	234225/234226
(BFB)	BF881214B13
(Standard)	GT881214B13

(Page Two)

METHOD REFERENCE

To determine the concentration of Priority Pollutants volatile organic compounds in a variety of waste matrices, CompuChem® employs the methods stated in the RCRA Method 8240.

As a point of information, the Priority Pollutants analytes present on the enclosed compound list have been validated for Method 8240 as required by SW-846.

Method Summary

The volatile compounds are introduced to the gas chromatograph by the direct injection, or the Purge-and-Trap Method (RCRA Method 5030). The components are separated via the gas chromatograph and detected using a mass spectrometer which is used to provide both qualitative and quantitative information. The chromatographic conditions as well as typical mass spectrometer operating parameters are given in the RCRA Method 8240.

#1

QUALITY ASSURANCE NOTICE
CC # 234232
BLANK ID # 235592
CASE # 14699

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270". Many of the Quality Control requirements of these methods were derived form the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	blank concentration	units
methylene chloride	5	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then the CLP requirements must be met.

This notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact is greater that ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Manager, Quality Assurance

#2

QUALITY ASSURANCE NOTICE
CC # 234239
BLANK ID # 235203
CASE # 14699

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270". Many of the Quality Control requirements of these methods were derived form the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	blank concentration	units
methylene chloride	11	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then the CLP requirements must be met.

This notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact is greater that ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Manager, Quality Assurance

№ 013186

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalaghan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	9010	VOC 601			REMARKS
SBV1	6/12		X		SBV1-3	1	X			234221	
SBV1	6/12		X		SBV1-5	1	X			234222	Samples packed
SBV2	6/12		X		SBV2-2	1	X			234223	with ice and
SBV2	6/12		X		SBV2-3	1	X			234224	shipped on ice
SBV3	6/12		X		SBV3-2	1	X			234228	
SBV3	6/12		X		SBV3-3	1	X			234229	All vocs are taken
SBV5	6/12		X		SBV5-2	1	X			234232	from bottle and station
SBV5	6/12		X		SBV5-5	1	X			234233	location except for
FB1	6/12		X	X	Field blank	2		X		234244	FB-2, FB-1, are taken
TB	—		X		Trip blank	1		X		234248	from bottle. They are the
SBV4	7/12		X		SBV4-3	1	X			234230	only two not taken
SBV4	7/12		X		SBV4-5	1	X			234231	from station location 8-2-88
SBV6	7/12		X		SBV6-1	1	X			234234	Trip Blank id taken from bottle 8-8-88
SBV6	7/12		X		SBV6-3	1	X			234235	Samples received in good
SBV7	7/12		X		SBV7-1	1	X			234236	condition 8-2-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Teresa Kalagha	7/12 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Purdie	12-8-88 0800	Shipped Fed Exp. Air bill #897794233	

Distribution: Original Accompanies Shipment; Copy to Field Files

№ 014223

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalaghan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8010 VOC (601)	REMARKS
SBV7	7/12		X		SBV7-1A	1	X	234237
SBV8	7/12		X		SBV8-2	1	X	234242
SBV8	7/12		X		SBV8-5	1	X	234243 Samples packed
EB2	7/12			X	Field blank	2	X	234245 with ice and
SBV7	7/12		X	X	SBV7-4	1	X	234238 shipped on ice
SBV7	7/12		X		SBV7-6	1	X	234239
								Samples received in good condition 12-8-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Theresa Kalaghan	7/12 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Purdie	12-8-88 0800	Shipped Fed. Ex. Airbill # 897794233	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR303786

pH DETERMINATION

SAMPLE IDENTIFIER	COMPUCHEM #	pH DETERMINATION
SBV5-2	234232	pH 5.6
SBV7-6	234239	pH 6.8

SAMPLE IDENTIFIER: SBV5-2
COMPUCHEM® SAMPLE NUMBER: 234232

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.19g	5.84g	1.08	7.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV5-2
COMPUCHEM® SAMPLE NUMBER: 234232

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	14 B*	11	106
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE, (TOTAL)	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	100	
ACRYLONITRILE	BDL	130	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	99	70 - 121
BROMOFLUOROBENZENE	96	74 - 121
D8-TOLUENE	94	81 - 117

BDL - BELOW DETECTION LIMIT

†Results and detection limit calculations were based on a dry weight factor of 1.08.

*See Quality Assurance Notice #1.

COMPUCHEM LABS

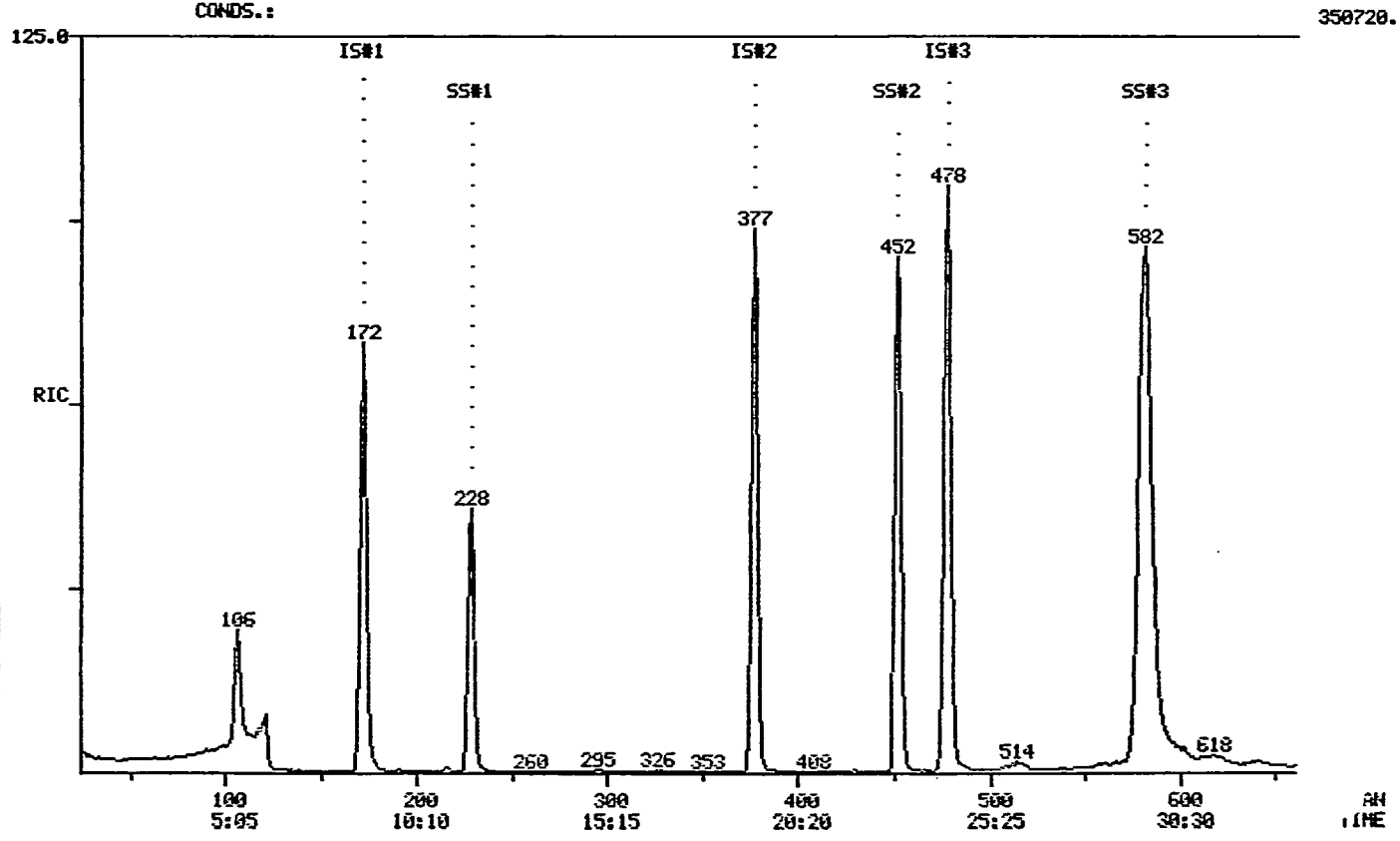
RIC

COMPUCHEM DATA: GR034232C10 SCANS 24 TO 680

12/16/88 6:55:00

SAMPLE: 5.0GM CASE# 14699 CC# 234232 EPA SAMPLE NO. SBV5-2 ON 10

CONDS.:



AR303790

QUANTITATION REPORT FILE: 0R034232C10
DATA: 0R034232C10.TI
12/16/88 6:55:00
SAMPLE: 5.00M CASE# 14699 CC# 234232 EPA SAMPLE NO. SBV5-2 ON 10
CONDS.:
SUBMITTED BY: 10 ANALYST: 1171

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	*234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	*248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
	203 BENZENE <71-43-2> ES#25
	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	*270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	172	8:45	1	1.000	A BV	110312.	50.000 UG/KG	14.56
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	106	5:23	1	0.616	A BV	38336.	13.268 UG/KG	3.86
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303791

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	377	19:10	12	1.000	A BB	387395.	50.000 UG/KG	14.56
[illegible]	97	NOT FOUND							
	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	478	24:18	25	1.000	A BB	358965.	50.000 UG/KG	14.56
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	228	11:35	1	1.326	A BB	174254.	49.564 UG/KG	14.44
32	95	582	29:35	25	1.218	A BB	287778.	48.259 UG/KG	14.06
33	98	452	22:59	25	0.946	A BB	319249.	46.832 UG/KG	13.64
34	56	121	6:09	1	0.703	A VB	3263.	35.407 UG/KG	10.31
35	53	NOT FOUND							

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:20	1.05	10.000	0.10	50.00	50.00	1.000	1.000	1.00
	1:10		10.000			50.00		0.346	
	1:50		10.000			50.00		1.468	
4	2:20		10.000			50.00		0.748	
5	3:00		10.000			50.00		0.485	
6	4:50	1.12	5.000	0.12	13.27	50.00	0.348	1.310	0.27
7	7:44		5.000			50.00		0.919	
8	9:09		5.000			50.00		1.389	
9	9:58		5.000			50.00		0.988	
10	10:37		5.000			50.00		2.579	
11	11:23		5.000			50.00		1.514	
12	19:01	1.01	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	12:39		5.000			50.00		0.804	
14	13:04		5.000			50.00		0.774	
15	13:43		5.000			50.00		0.621	
16	15:03		5.000			50.00		0.230	
17	15:21		5.000			50.00		0.474	
18	15:55		5.000			50.00		0.536	
19	16:34		5.000			50.00		0.571	
20	16:40		5.000			50.00		0.301	
21	16:22		5.000			50.00		0.582	
22	16:37		5.000			50.00		0.237	
23	17:41		10.000			50.00		0.122	
24	19:19		5.000			50.00		0.321	
25	24:06	1.01	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	21:42		5.000			50.00		0.586	
27	21:42		5.000			50.00		0.485	
	23:02		5.000			50.00		0.522	

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	24:15		5.000			50.00		0.883	
30	26:23		5.000			50.00		0.397	
31	11:17	1.03	5.000	0.27	49.56	50.00	1.580	1.594	0.99
[illegible]	29:17	1.01	5.000	0.24	48.26	50.00	0.802	0.831	0.97
[illegible]	22:49	1.01	5.000	0.19	46.83	50.00	0.889	0.950	0.94
[illegible]	5:26	1.13	100.000	0.01	35.41	500.02	0.003	0.042	0.07
35	6:12		100.000			500.02		0.093	

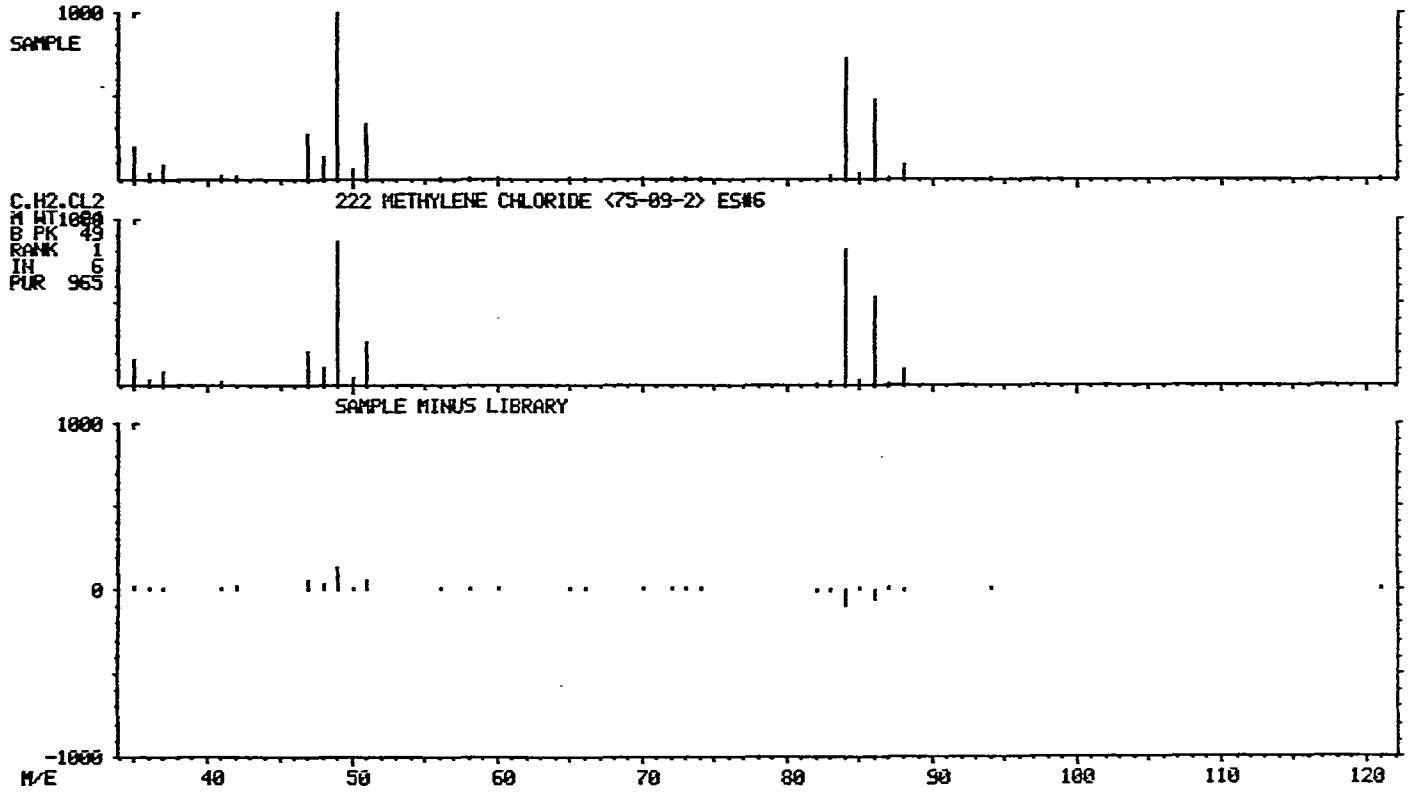
AR303793

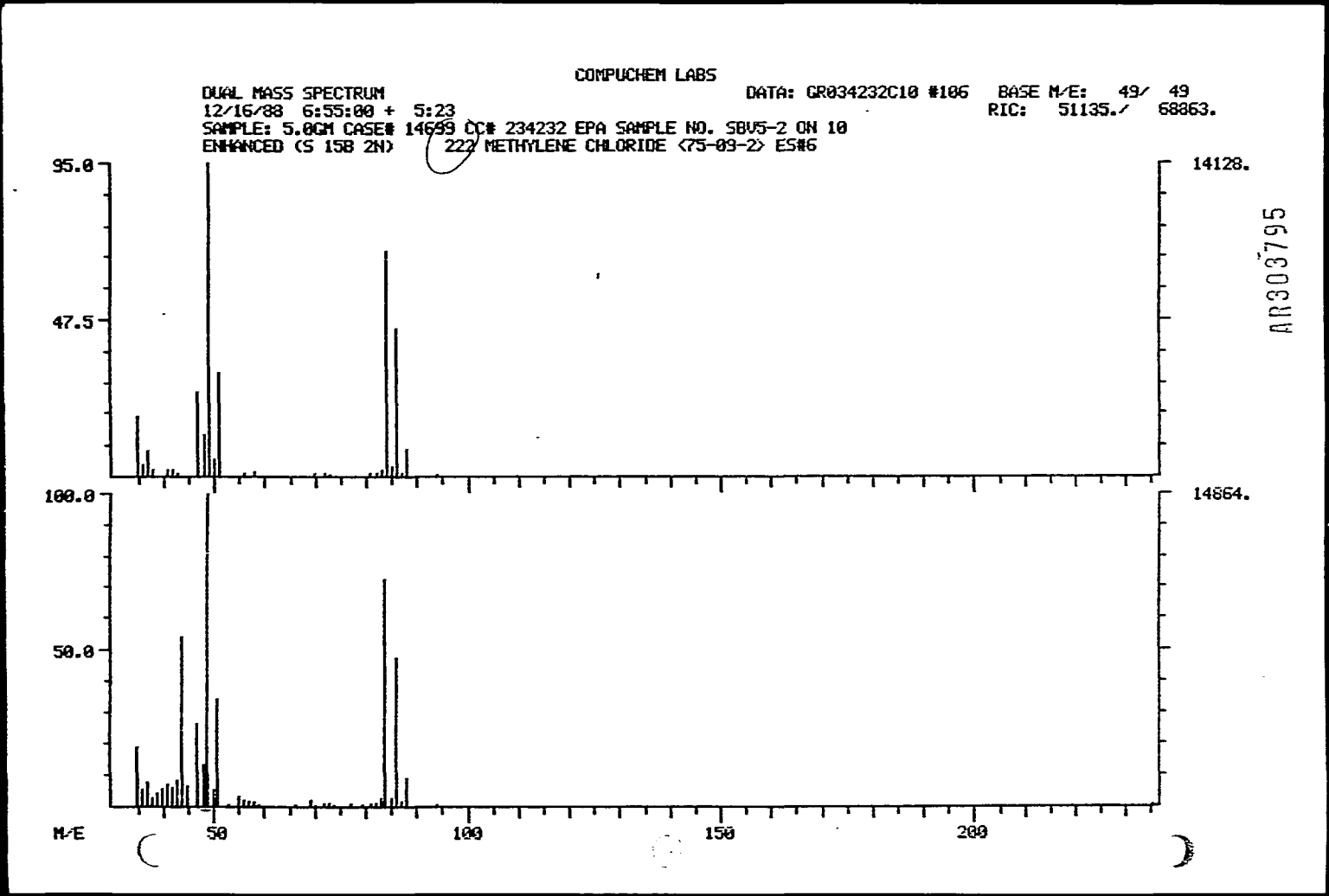
COMPUCHEM LABS

LIBRARY SEARCH
12/16/88 6:55:00 + 5:23
SAMPLE: 5.0GM CASE# 14699 CC# 234232 EPA SAMPLE NO. SBV5-2 ON 10
ENHANCED (S 15B 2N 0T)

DATA: GR034232C10 # 106
BASE M/E: 49
RIC: 50431.

AR303794




COMPUCHEM LABS
DUAL MASS SPECTRUM
DATA: GR034232C10 #106
BASE M/E: 49/ 49
12/16/88 6:55:00 + 5:23
RIC: 51135./ 68863.
SAMPLE: 5.0GM CASE# 14699 CC# 234232 EPA SAMPLE NO. SBV5-2 ON 10
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE <75-09-2> ES#6
95.0
47.5
14128.
100.0
50.0
14864.
M/E
50
100
150
200
AR303795

SAMPLE IDENTIFIER: SBV7-6
COMPUCHEM® SAMPLE NUMBER: 234239

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.43g	6.22g	1.04	4.0

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

SAMPLE IDENTIFIER: SBV7-6
COMPUCHEM® SAMPLE NUMBER: 234239

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN NUMBER
CHLOROMETHANE	BDL	10	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	10	
CHLOROETHANE	BDL	10	
METHYLENE CHLORIDE	22 B*	10	110
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE, (TOTAL)	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	10	
BROMOFORM	BDL	10	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	10	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	90	
ACRYLONITRILE	BDL	120	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	100	70 - 121
BROMOFLUOROBENZENE	106	74 - 121
D8-TOLUENE	102	81 - 117

BDL - BELOW DETECTION LIMIT

†Results and detection limit calculations were based on a dry weight factor of 1.04.

*See Quality Assurance Notice #2.

COMPUCHEM LABS

RIC COMPUCHEM DATA: C2R34233B13 SCANS 10 TO 690

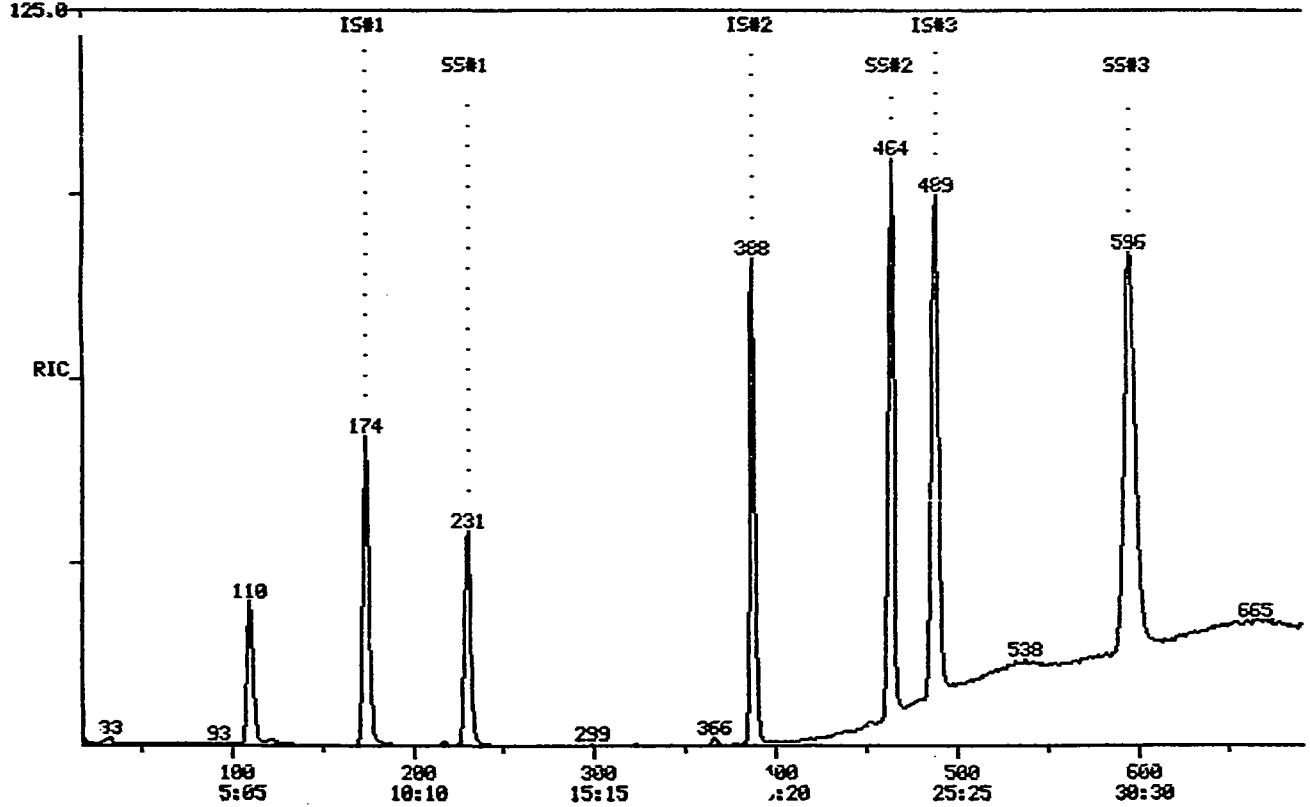
12/14/88 22:28:00

SAMPLE: HP 5.0G CC#234233 EPA#SBV7-6 CASE#14699 DN #13

CONDS.:

421120.

125.0



AR303798

QUANTITATION REPORT FILE: Q2R34239B13
DATA: Q2R34239B13.TI
12/14/88 22:28:00
SAMPLE: HP 5.00 CC#234239 EPA#SBV7-6 CASE#14699 ON #13
CONDS.:
SUBMITTED BY: 13 ANALYST: 1355

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	#234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	#248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
21	203 BENZENE <71-43-2> ES#25
22	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	#270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLORDETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	174	8:51	1	1.000	A BB	105058.	50.000 UG/KG	15.37
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	110	5:35	1	0.632	A BB	75623.	21.356 UG/KG	6.57
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303799

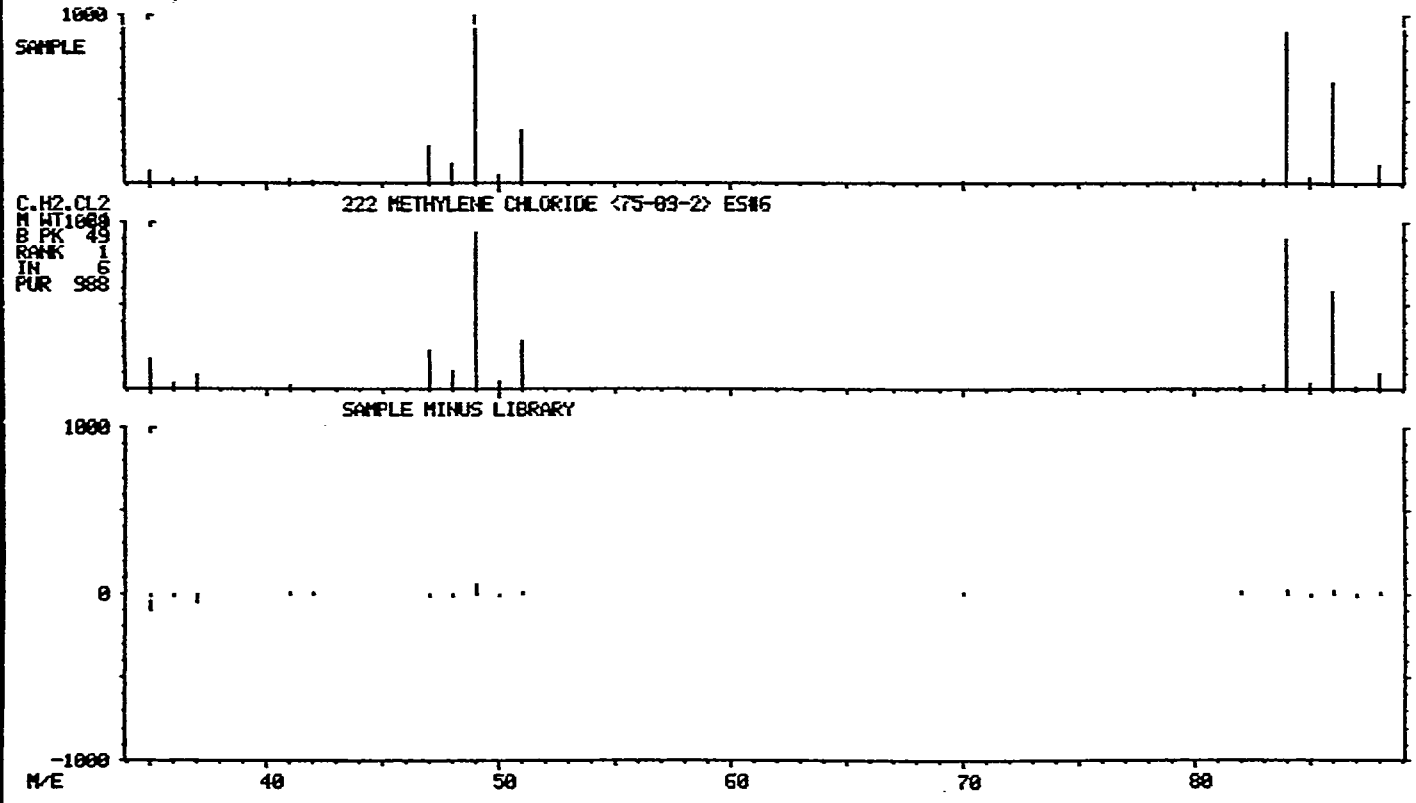
NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
11	62	NOT FOUND							
12	114	388	19:43	12	1.000	A BB	420727.	50.000 UG/KG	15.37
13	97	NOT FOUND							
	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	489	24:51	25	1.000	A BB	394681.	50.000 UG/KG	15.37
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	231	11:45	1	1.328	A BB	183257.	49.792 UG/KG	15.31
32	95	596	30:18	25	1.219	A BB	366259.	53.005 UG/KG	16.30
33	98	464	23:35	25	0.949	A BB	428155.	51.111 UG/KG	15.71
34	56	NOT FOUND							
35	53	NOT FOUND							

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:51	1.00	10.000	0.10	50.00	50.00	1.000	1.000	1.00
2	1:25		10.000			50.00		0.835	
3	2:08		10.000			50.00		1.373	
4	2:48		10.000			50.00		0.989	
5	3:37		10.000			50.00		0.548	
6	5:35	1.00	5.000	0.13	21.36	50.00	0.720	1.685	0.43
7	8:26		5.000			50.00		0.970	
8	9:43		5.000			50.00		1.658	
9	10:31		5.000			50.00		1.001	
10	11:02		5.000			50.00		2.399	
11	11:48		5.000			50.00		1.518	
12	19:43	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	13:07		5.000			50.00		0.520	
14	13:31		5.000			50.00		0.459	
15	14:05		5.000			50.00		0.508	
16	15:30		5.000			50.00		0.278	
17	15:45		5.000			50.00		0.466	
18	16:25		5.000			50.00		0.415	
19	16:59		5.000			50.00		0.432	
20	17:08		5.000			50.00		0.295	
21	17:02		5.000			50.00		0.656	
22	17:08		5.000			50.00		0.246	
23	18:18		10.000			50.00		0.143	
24	19:46		5.000			50.00		0.294	
25	24:48	1.00	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	22:22		5.000			50.00		0.442	
27	22:13		5.000			50.00		0.532	
	23:47		5.000			50.00		0.527	

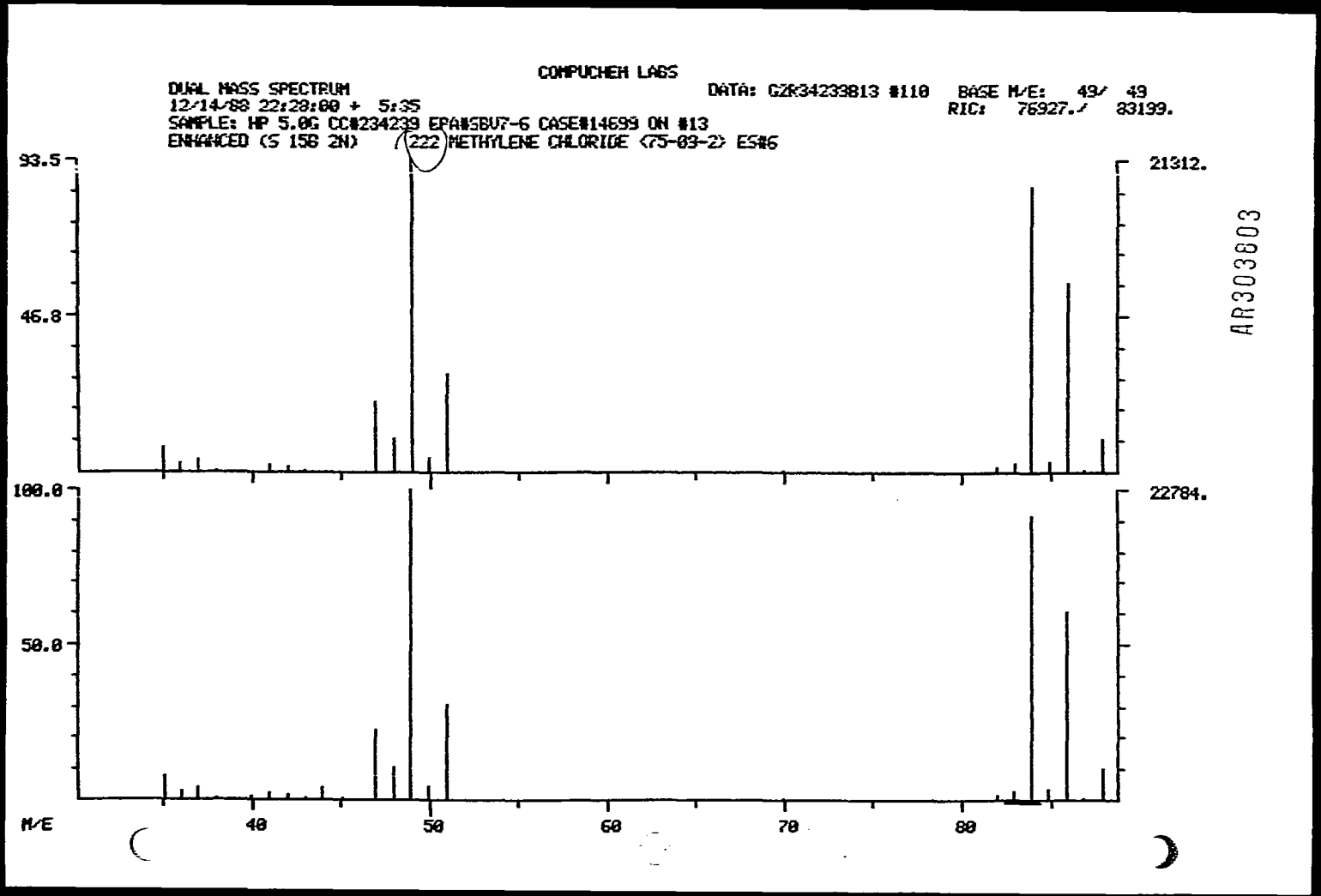
NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
29	24:58		5.000			50.00		0.822	
30	27:15		5.000			50.00		0.387	
31	11:41	1.00	5.000	0.27	49.79	50.00	1.744	1.752	1.00
33	30:21	1.00	5.000	0.24	53.00	50.00	0.928	0.875	1.06
	23:35	1.00	5.000	0.19	51.11	50.00	1.085	1.061	1.02
34	6:09		100.000			500.00		0.081	
35	6:49		100.000			500.00		0.176	

COMPUCHEM LABS

LIBRARY SEARCH DATA: G2R34239B13 # 110 BASE M/E: 49
12/14/88 22:28:00 + 5:35 RIC: 76671.
SAMPLE: HP 5.0G CC#234239 EPA#SBV7-6 CASE#14693 ON #13
ENHANCED (S 15G 2N 0T)



AR303802


COMPUCHEM LABS
DUAL MASS SPECTRUM
12/14/88 22:28:00 + 5:35
SAMPLE: HP 5.0G CC#234239 EPA#SBU7-6 CASE#14699 ON #13
ENHANCED (S 15B 2N)
222 METHYLENE CHLORIDE (75-03-2) ES#6
DATA: GZK34233813 #110
BASE M/E: 49/ 49
RIC: 76927./ 83199.
93.5
46.8
21312.
100.0
50.0
22784.
M/E
40
50
60
70
80

AR303803

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

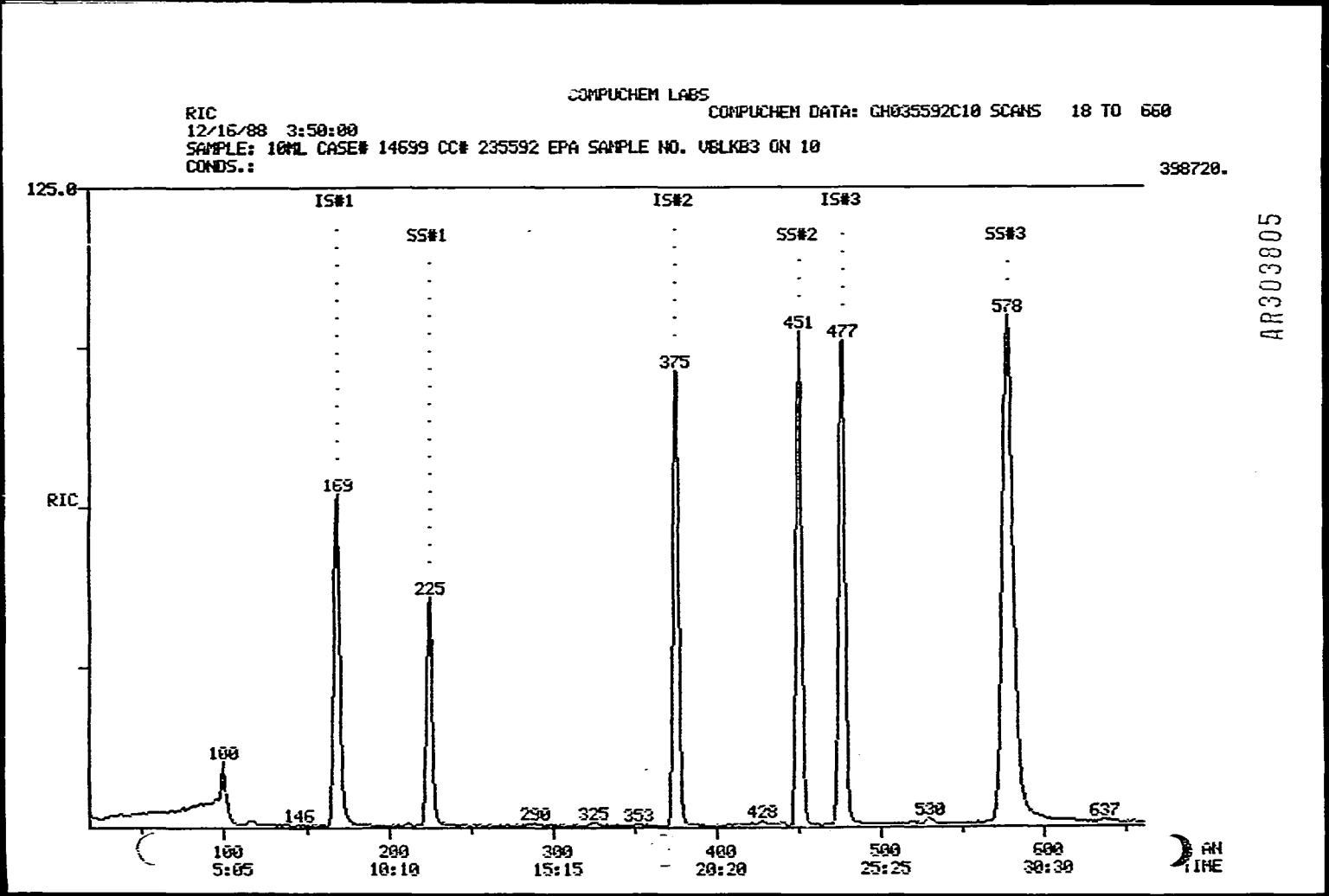
COMPUCHEM BLANK ID: 235592

SAMPLE IDENTIFIER: SBV5-2
COMPUCHEM® SAMPLE NUMBER: 234232

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	5 J	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE, (TOTAL)	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	BDL	120

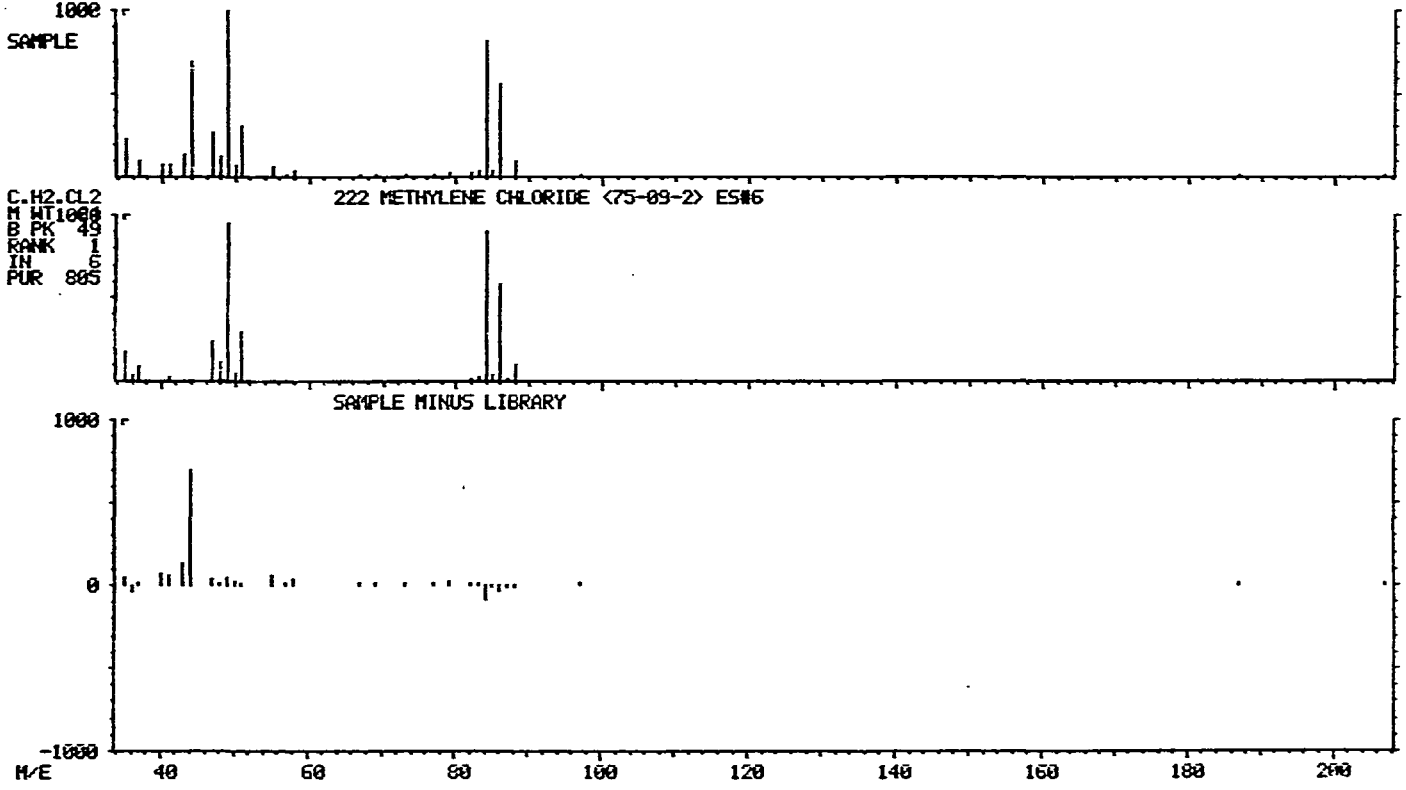
SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	101	70 - 121
BROMOFLUOROBENZENE	101	74 - 121
D8-TOLUENE	101	81 - 117

BDL - BELOW DETECTION LIMIT


COMPUCHEM LABS
RIC
COMPUCHEM DATA: GH035592C10 SCANS 18 TO 660
12/16/88 3:50:00
SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
CONDS.:
398720.
125.0
IS#1
SS#1
IS#2
IS#3
SS#2
SS#3
RIC
169
225
375
451
477
578
100
146
290
325
353
428
530
637
100
5:05
200
10:10
300
15:15
400
20:20
500
25:25
600
30:30
AN
TIME
AR303805

COMPUCHEM LABS

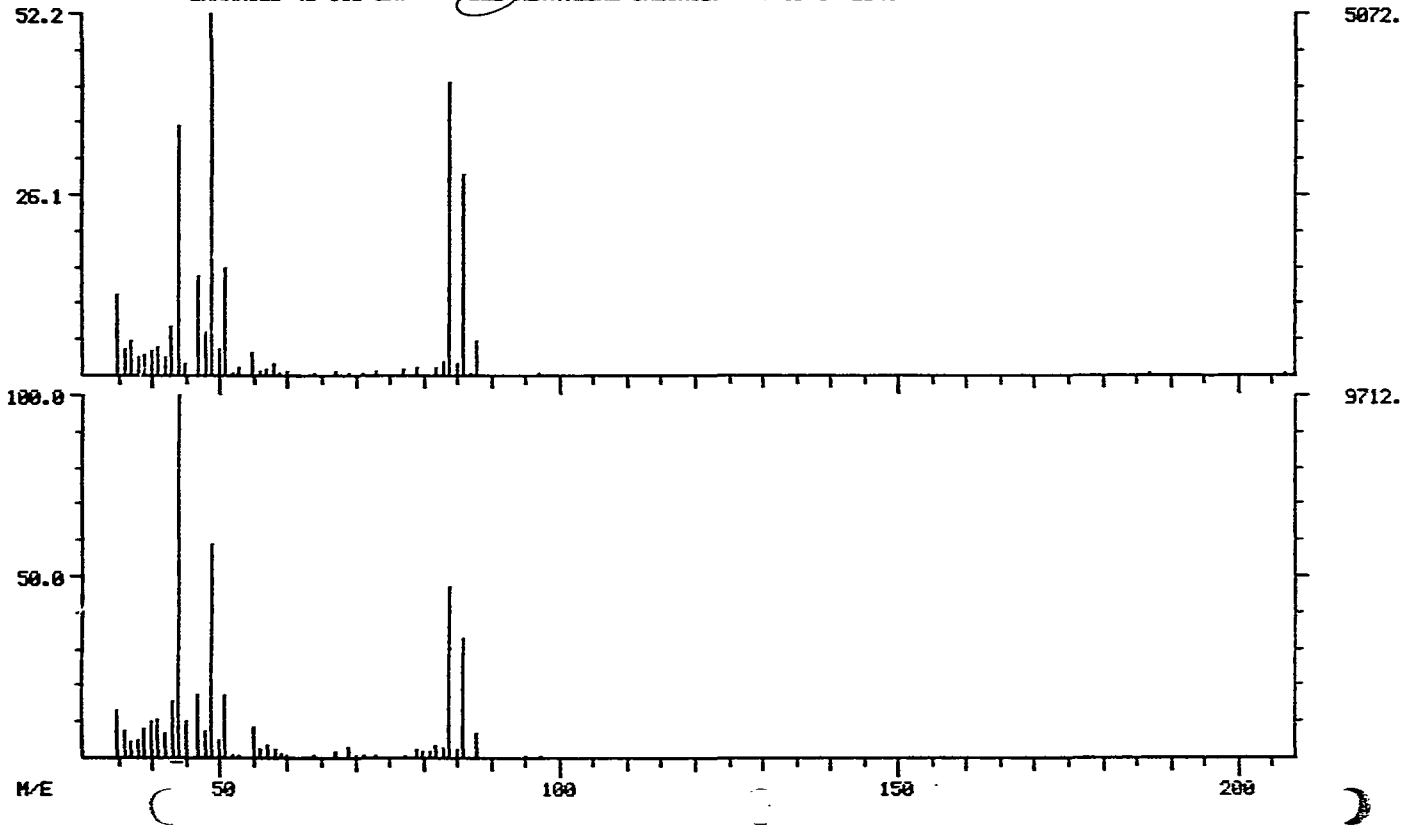
LIBRARY SEARCH
12/16/88 3:50:00 + 5:05
DATA: GH035592C10 # 100
BASE M/E: 49
RIC: 24479.
SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N 0T)



AR303806

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/16/88 3:50:00 + 5:05
DATA: GH035592C10 #100
BASE M/E: 49/ 44
RIC: 26239./ 41343.
SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE (75-09-2) ES#6



AR303807

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM BLANK ID: 235203

SAMPLE IDENTIFIER: SBV7-6
COMPUCHEM® SAMPLE NUMBER: 234239

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	11	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE, (TOTAL)	BDL	5
CHLOROFORM	1 J	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	3 J	120

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	102	70 - 121
BROMOFLUOROBENZENE	106	74 - 121
D8-TOLUENE	109	81 - 117

BDL - BELOW DETECTION LIMIT

COMPUCHEM LABS

RIC

COMPUCHEM DATA: GH035203B13 SCANS 19 TO 690

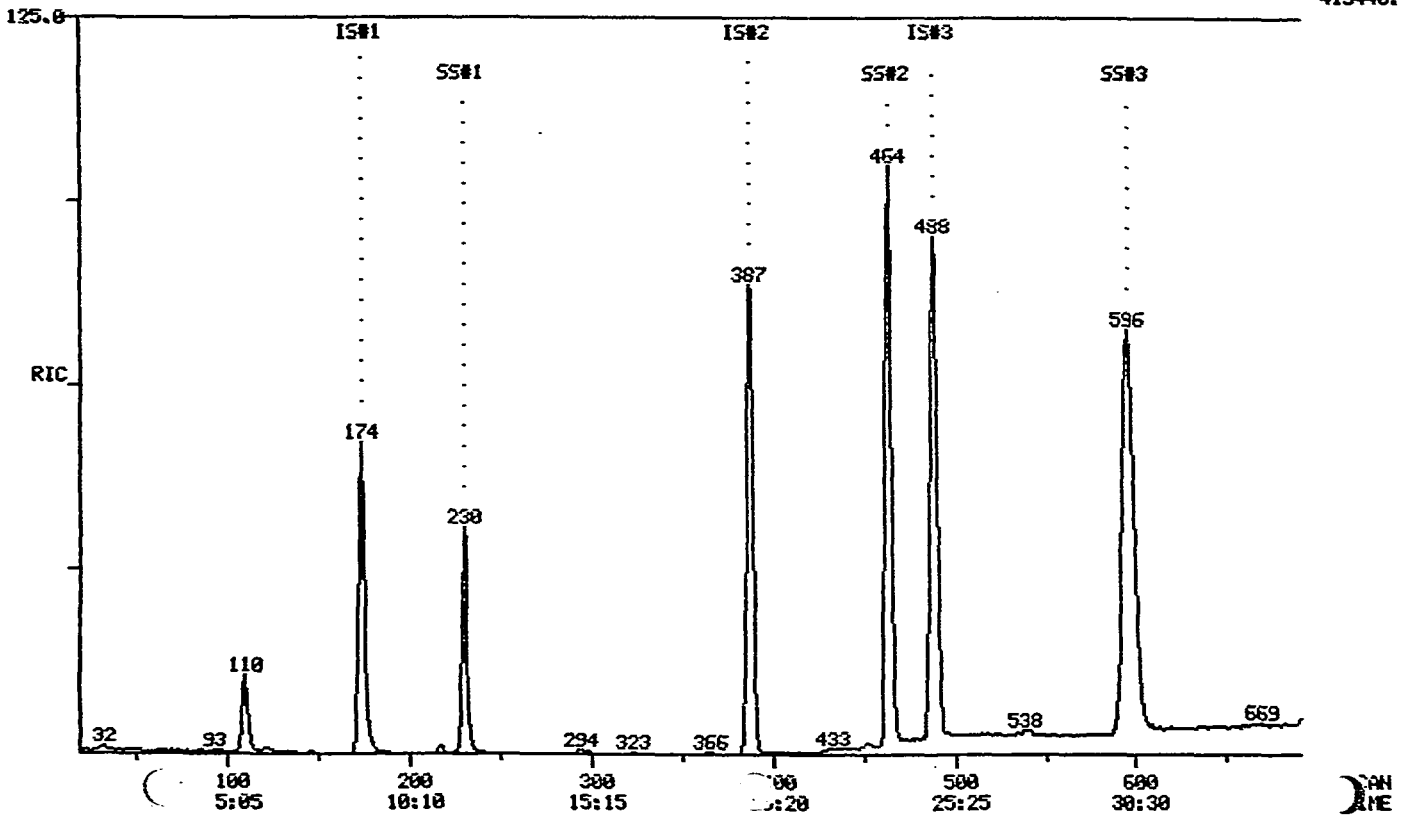
12/14/88 21:34:00

SAMPLE: HP 10ML CC#235203 EPA#UBLK03 CASE#VARIOUS ON #13

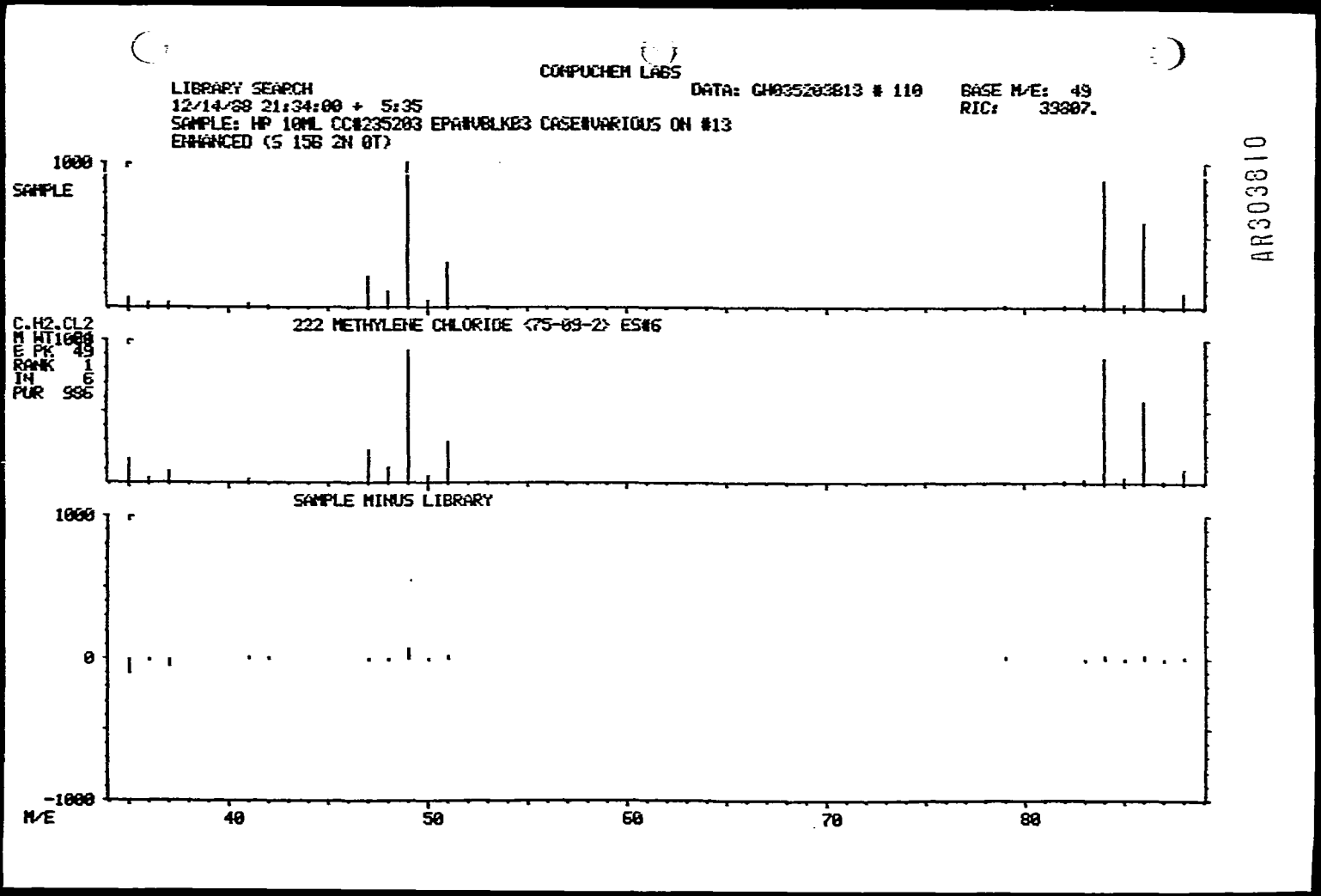
CONDS.:

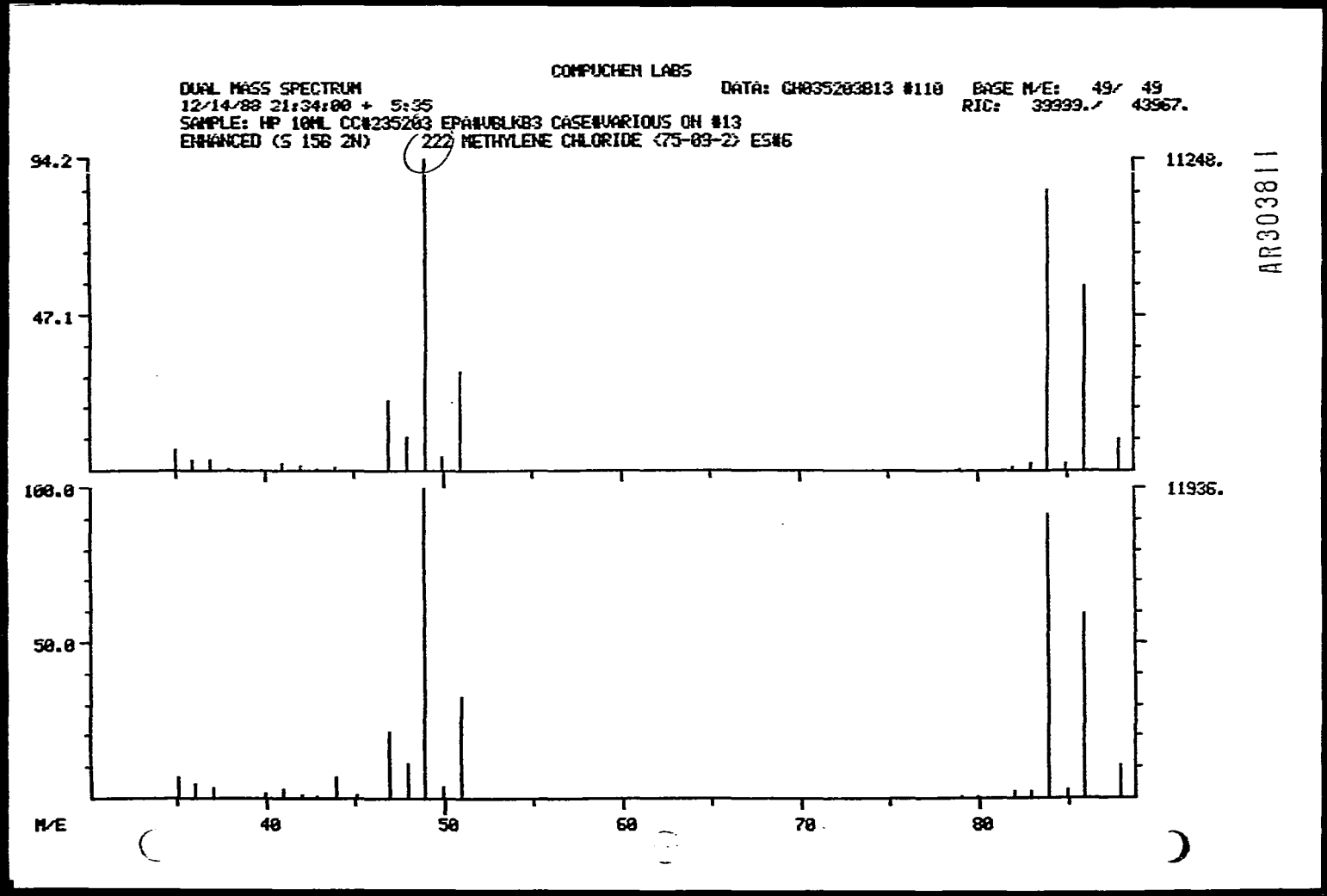
413440.

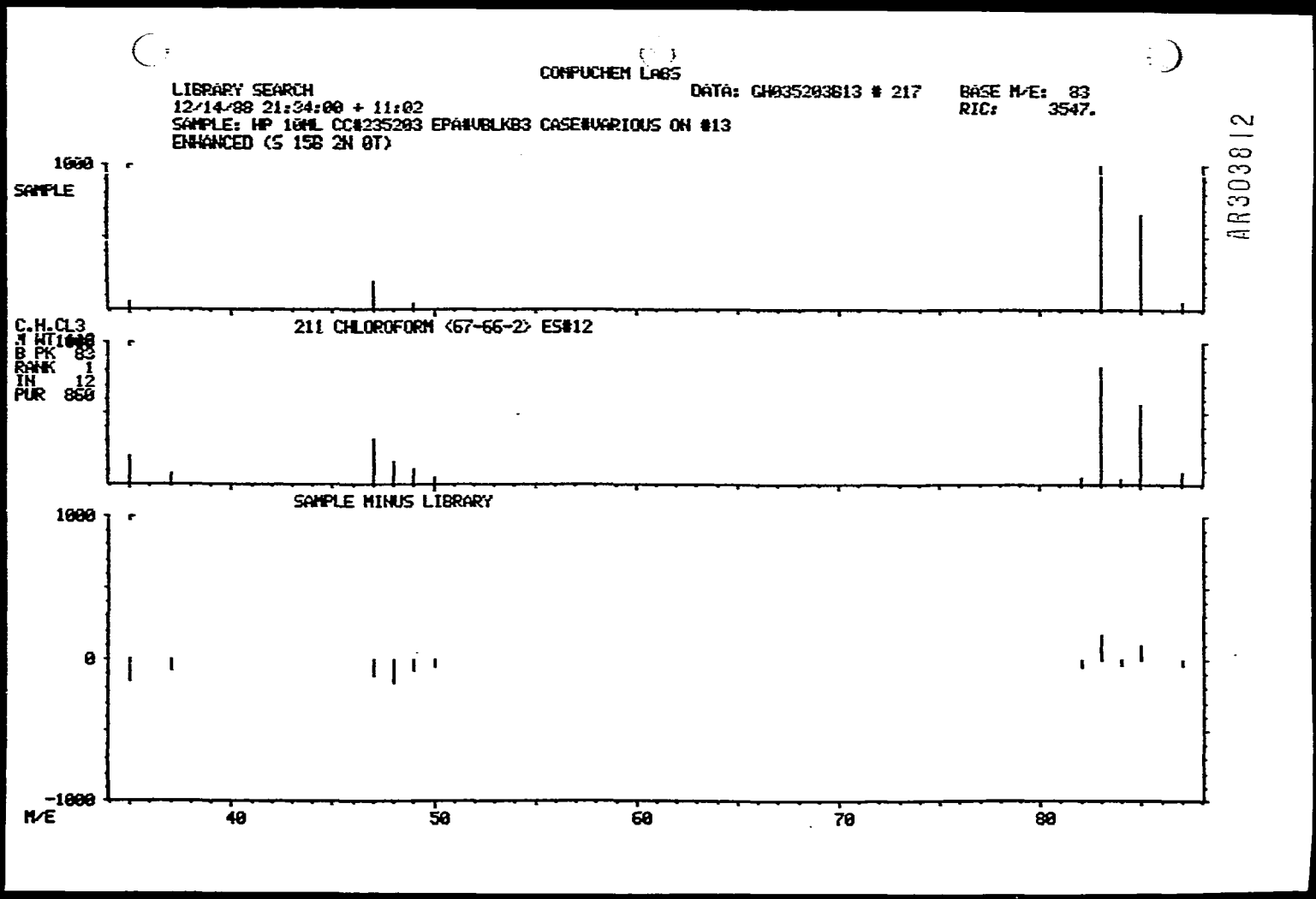
125.0



AR303809


COMPUCHEM LABS
LIBRARY SEARCH
DATA: GH035203813 # 110
BASE M/E: 49
RIC: 33307.
12/14/88 21:34:00 + 5:35
SAMPLE: HP 10ML CC#235203 EPA#VBLK83 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N 0T)
1000
SAMPLE
C.H2.CL2
M WT1000
E PK 49
RANK 1
IN 6
PUR 996
222 METHYLENE CHLORIDE <75-09-2> ES#6
SAMPLE MINUS LIBRARY
1000
0
-1000
M/E
40
50
60
70
80
AR303810


COMPUCHEM LABS
DUAL MASS SPECTRUM
DATA: GH035203813 #110
BASE M/E: 49/ 49
12/14/88 21:34:00 + 5:35
RIC: 39999./ 43967.
SAMPLE: HP 10ML CC#235203 EPA#VBLKB3 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N)
222 METHYLENE CHLORIDE <75-09-2> ES#6
94.2
47.1
11248.
100.0
50.0
11936.
M/E
40
50
60
70
80
AR303811

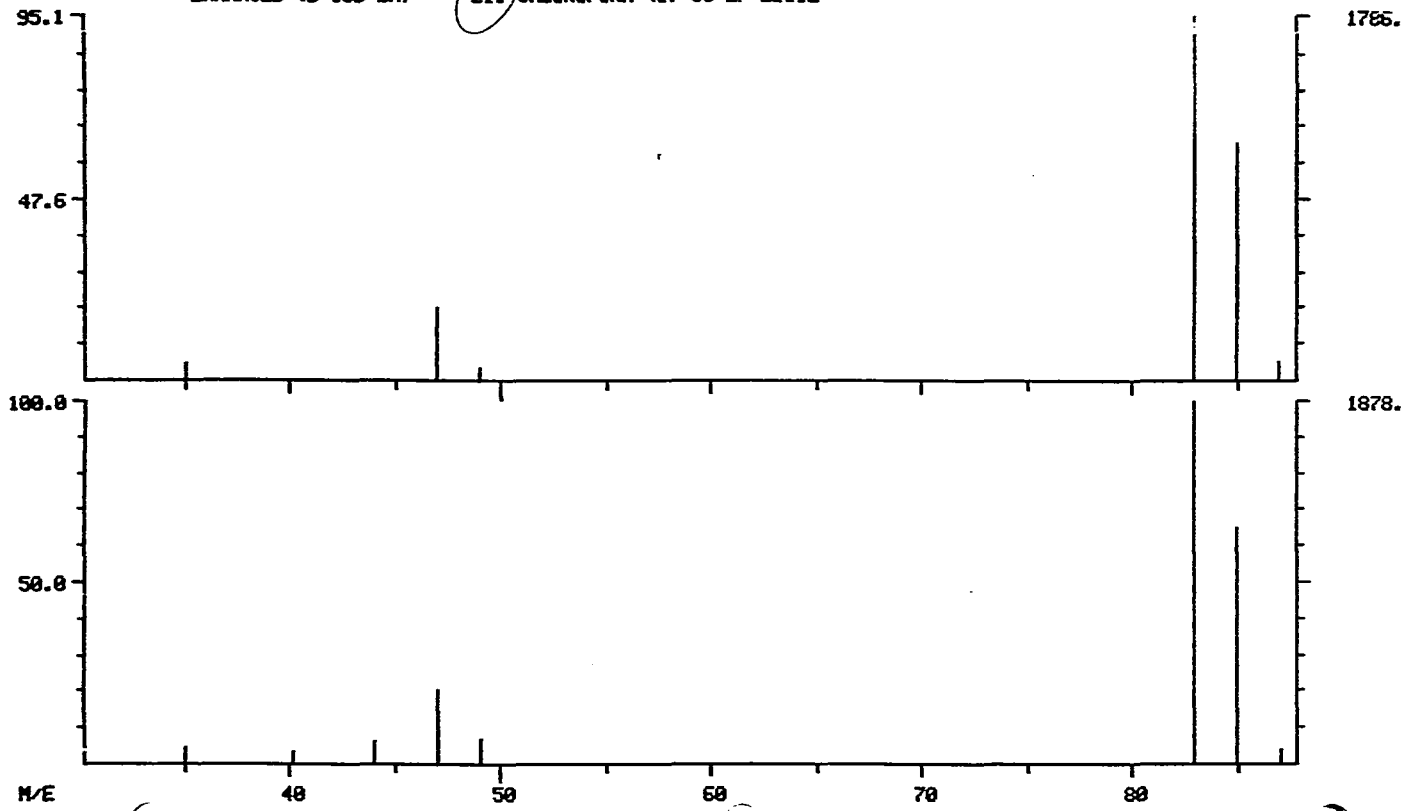

COMPUCHEM LABS
LIBRARY SEARCH
DATA: GH035203B13 # 217
BASE M/E: 83
12/14/88 21:34:00 + 11:02
RIC: 3547.
SAMPLE: HP 10ML CC#235203 EPA#VBLKB3 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N 0T)
1000
SAMPLE
AR303812
C.H.CL3
211 CHLOROFORM (67-66-2) ES#12
B PK 83
RANK 1
IN 12
PUR 850
SAMPLE MINUS LIBRARY
1000
0
-1000
M/E
40
50
60
70
80

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/14/88 21:34:00 + 11:02
SAMPLE: HP 10ML CC#235203 EPA#VBLKB3 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N)

DATA: CH035203B13 #217 BASE M/E: 83/ 83
RIC: 3547./ 3931.

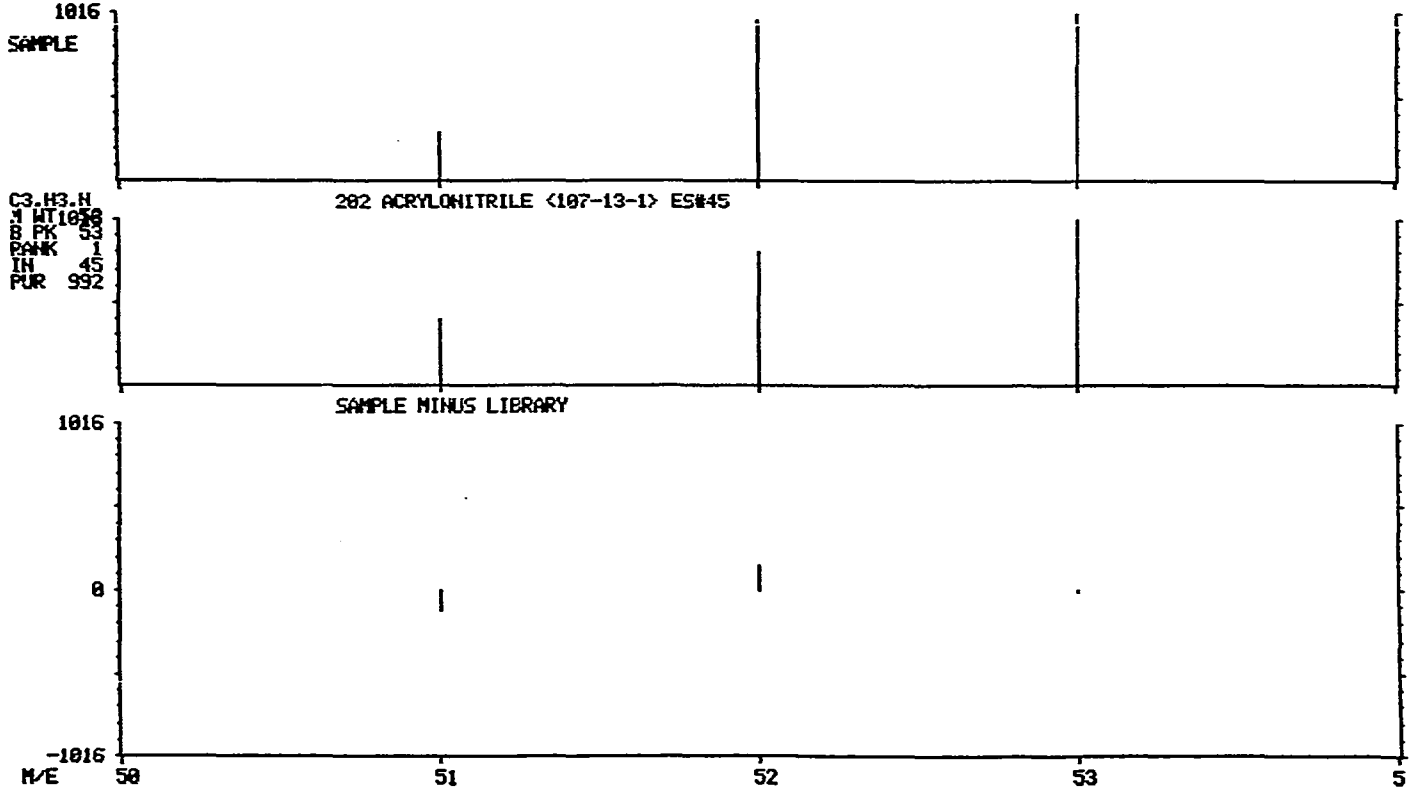
211 CHLOROFORM (67-66-2) ES#12



AR303813

COMPUCHEM LABS

LIBRARY SEARCH DATA: GH035203B13 # 135 BASE M/E: 53
12/14/88 21:34:00 + 6:52 RIC: 516.
SAMPLE: HP 10ML CC#235203 EPA#VBLKB3 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N 0T)

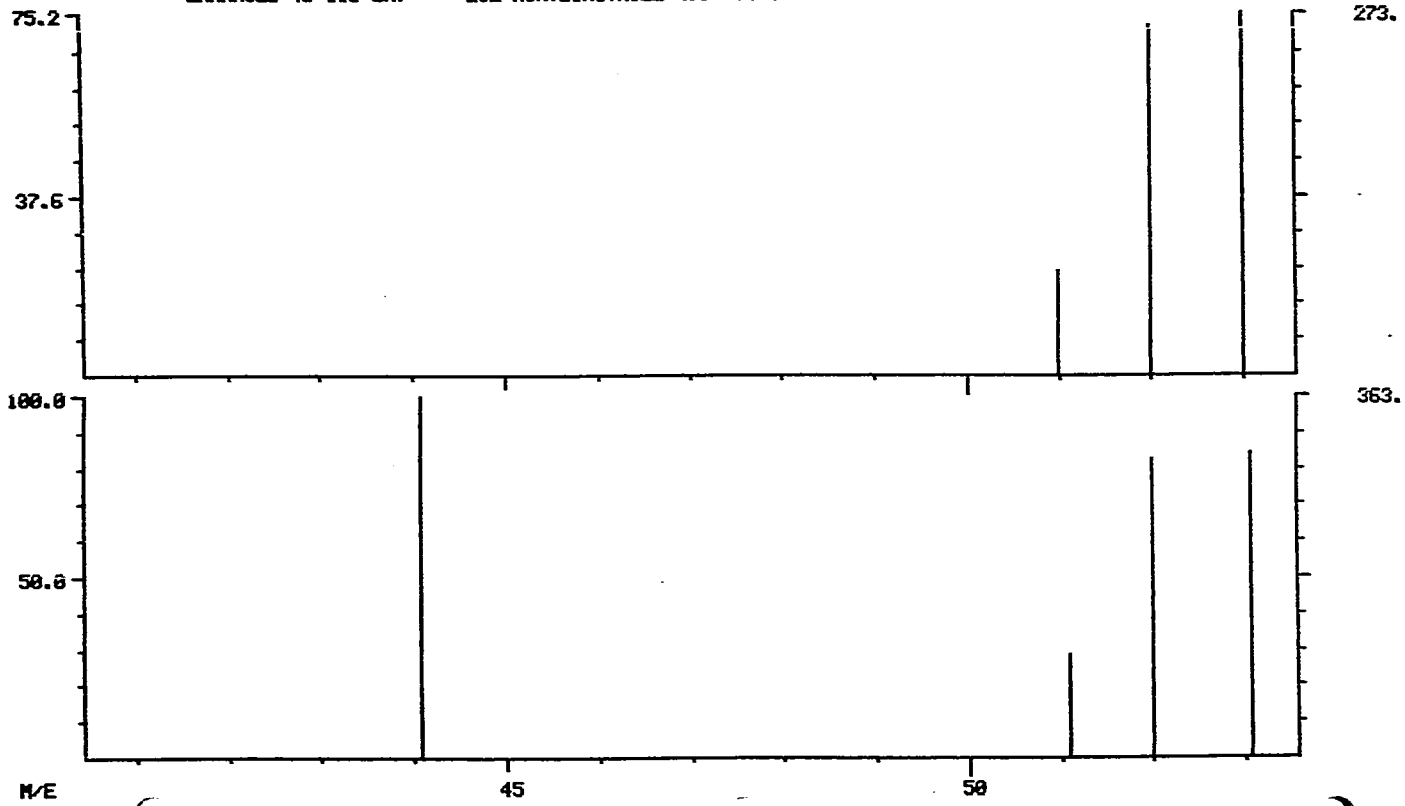


AR303814

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/14/88 21:34:00 + 6:52
SAMPLE: HP 10ML CC#235203 EPA#VBLKB3 CASE#VARIOUS ON #13
ENHANCED (S 15B 2N) 202 ACRYLONITRILE <107-13-1> ES#45

DATA: GH035203813 #135 BASE M/E: 53/ 44
RIC: 616./ 1073.



AR303815

VOLATILES

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 234221
MATRIX SPIKE: 234225
MATRIX SPIKE DUPLICATE: 234226

A.	B.	C.	D.	E.	F.	G.	H.		
								QC LIMITS*	
COMPOUNDS	CONC. SPIKE ADDED (ug/kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	RPD	RECOVERY
1,1-DICHLOROETHENE	52.5	0	57.2	109	69.3	132	-18	22	59-172
TRICHLOROETHENE	52.5	0	53	101	57.4	109	-7.9	24	62-137
BENZENE	52.5	0	48.8	93	52.4	100	-7	21	66-142
TOLUENE	52.5	0	51	97	56.3	107	-9.8	21	59-139
CHLOROBENZENE	52.5	0	51.1	97	55.4	106	-8	21	60-133

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F} \div D \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

SPECTRUM: BH881216C10 # 184 TOTAL ION: 48448.
SAMPLE: 2UL BFB# 7008 (27713) ANALYST: 1171
TIME OF INJECTION: 2:12 12/16/88
ENHANCEMENT:

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	1902.	15-40% OF 95	21.73	OK
75	4736.	30-60% OF 95	54.11	OK
95	8752.	100% (BASE PK)	100.00	OK
96	592.	5-9% OF 95	6.76	OK
173	0.	< 1% OF 95	0.00	OK
174	8544.	> 50% OF 95	97.62	OK
175	653.	5-9% OF 174	7.64	OK
176	8240.	95-101% OF 174	96.44	OK
177	503.	5-9% OF 176	6.10	OK

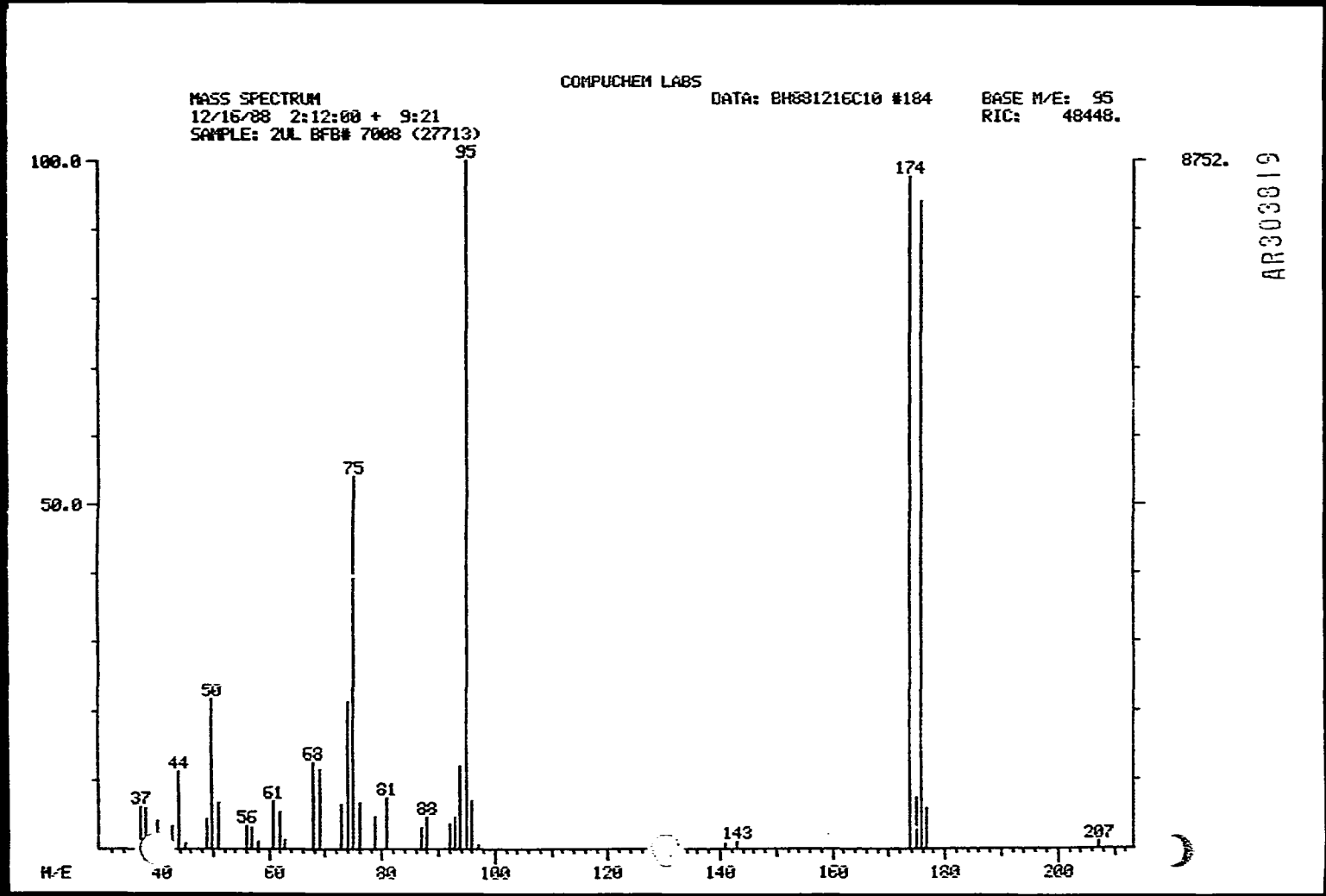
COMPUCHEM LABS

MASS LIST DATA: BH881216C10 # 184 BASE M/E: 95
12/16/88 2:12:00 + 9:21 RIC: 48448.
SAMPLE: 2UL BFB# 7008 (27713)

37 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 8752.
97 # 0 MAXIMA
MASS % RA

MASS	% RA
37	6.18
38	5.82
40	4.17
43	3.40
44	11.31
45	0.81
49	4.25
50	21.73
51	6.60
56	3.31
57	3.18
58	0.90
61	6.83
62	5.31
63	1.38
68	12.43
69	11.56
73	6.49
74	21.18
75	54.11
76	6.59
79	4.62
81	7.31
87	2.97
88	4.68
92	3.64
93	4.71
94	12.09
95	100.00
96	6.76
97	0.61
141	0.77
143	0.96
174	97.62
175	7.46
176	94.15
177	5.75
207	0.91

AR303818


COMPUCHEM LABS
MASS SPECTRUM
12/16/88 2:12:00 + 9:21
SAMPLE: 2UL BFB# 7008 (27713)
DATA: BH881216C10 #184
BASE M/E: 95
RIC: 48448.
8752.
100.0
50.0
95
174
75
50
44
68
37
61
81
56
88
143
207
M/E
40
60
80
100
120
140
160
180
200
AR303819

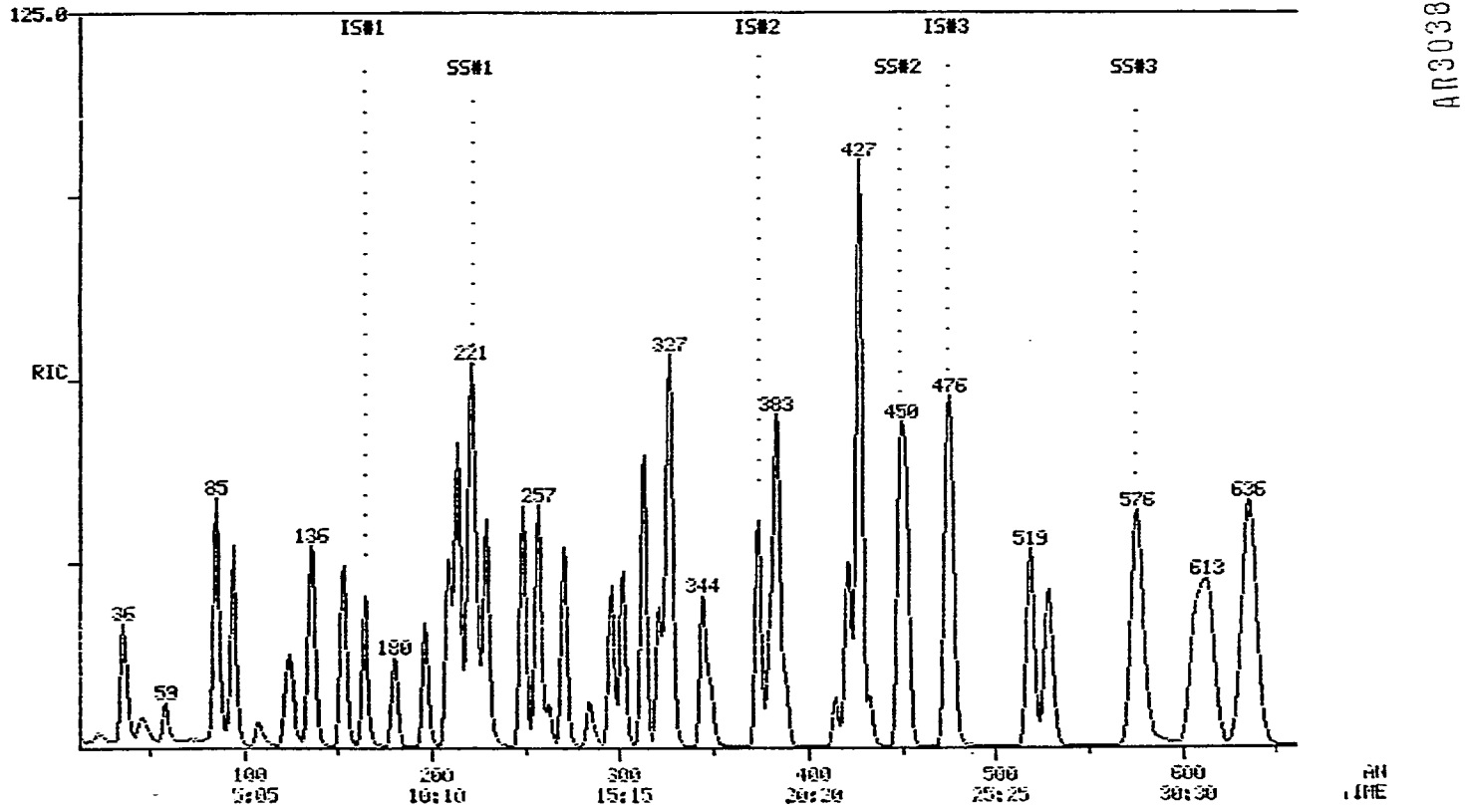
COMPUCHEM LABS

RIC
12/16/88 2:35:00
SAMPLE: EPA SAMPLE NO. VSTD050
CONDS.:

COMPUCHEM DATA: GS881216C10 SCANS 13 TO 660

924160.

AR303820



SPECTRUM: BF881214B13 # 199 TOTAL ION: 48640.
SAMPLE: 2UL BFB LOT#27713 ON #13 ANALYST: 1355
TIME OF INJECTION: 18:22 12/14/88
ENHANCEMENT: #199 - #179 X1.00

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	1790.	15-40% OF 95	17.11	OK
75	5136.	30-60% OF 95	49.08	OK
95	10464.	100% (BASE PK)	100.00	OK
96	847.	5-9% OF 95	8.09	OK
173	0.	< 1% OF 95	0.00	OK
174	8384.	> 50% OF 95	80.12	OK
175	547.	5-9% OF 174	6.52	OK
176	8336.	95-101% OF 174	99.43	OK
177	580.	5-9% OF 176	6.96	OK

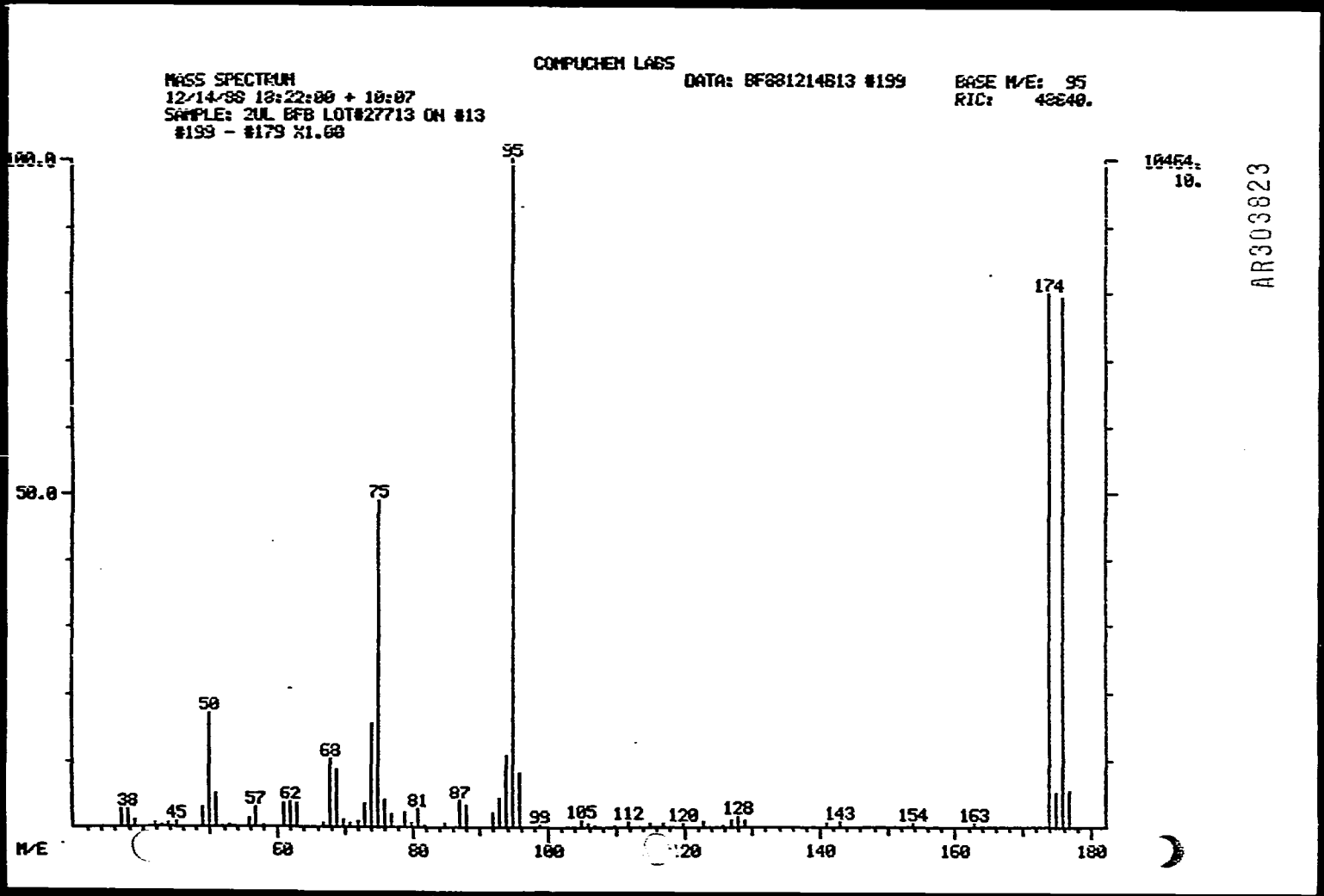
AR303821

COMPUCHEM LABS

MASS LIST DATA: BFB81214B13 # 199 BASE M/E: 95
12/14/88 18:22:00 + 10:07 RIC: 48640.
SAMPLE: 2UL BFB LOT#27713 ON #13
#199 - #179 X1.00

37 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 10464.
177 # 0 MAXIMA

MASS	% RA	MASS	% RA
37	2.64	120	0.51
38	2.69	123	0.68
39	0.95	126	0.19
41	0.04	127	1.00
42	0.51	128	1.63
43	0.36	129	1.07
44	0.62	133	0.09
45	0.73	141	0.52
49	2.89	143	0.82
50	17.11	154	0.49
51	4.96	163	0.49
53	0.39	174	80.12
56	1.25	175	5.23
57	2.77	176	79.66
58	0.31	177	5.54
61	3.37		
62	3.57		
63	3.46		
67	0.60		
68	10.13		
69	8.69		
70	0.93		
71	0.64		
72	0.68		
73	3.49		
74	15.44		
75	49.08		
76	3.82		
77	1.95		
79	2.22		
80	0.51		
81	2.56		
82	0.24		
85	0.53		
87	3.94		
88	3.04		
91	0.11		
92	1.99		
93	4.26		
94	10.68		
95	100.00		
96	8.09		
99	0.36		
105	1.06		
106	0.60		
107	0.23		
110	0.29		
112	0.72		
115	0.47		
117	0.41		


COMPUCHEM LABS
MASS SPECTRUM
12/14/88 18:22:00 + 10:07
SAMPLE: 2UL BFB LOT#27713 ON #13
#199 - #179 X1.60
DATA: BF881214B13 #199
BASE M/E: 95
RIC: 48840.
100.0
50.0
95
75
174
50
68
38
45
57
62
81
87
99
105
112
120
128
143
154
163
M/E
60
80
100
120
140
160
180
10464.
10.
AR303823

COMPUCHEM LABS

RIC
12/14/88 20:04:00
SAMPLE: HP 10ML EPA SAMPLE NO.VSTD050 ON NO.13
CONDS.:

COMPUCHEM DATA: CT881214B13 SCANS 18 TO 690

582400.

125.0

RIC

IS#1 IS#2 IS#3

SS#1 SS#2 SS#3

42 71 110 134 152 166 191 221 258 305 335 354 388 440 464 490 537 597 643 668

100 200 300 400 500 600
5:05 10:10 15:15 20 25:25 30:30

SCAN

AR303824

COMPUCHEM LABORATORIES

December 28, 1988

Mr. Dave Kindig
Environmental Strategies
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested	Report Format
SBV8-5	234243	787	14699	Volatile Method 8240	Style 5
		419		pH Determination	
		286		Dry Weight Determination	

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

M. Eger

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategies
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Technical Reviewer

Deliverables Coordinator

AR303826

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Dave Kindig
Environmental Strategies
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE DRY WEIGHT DETERMINED	DATE pH DETERMINED	DATE VOLATILE FRACTION ANALYZED
1.	SBV8-5	234243	12/08/88	12/09/88	12/16/88	12/16/88

(BLANK)	235592
(SPIKE)	234425/234426
(BFB)	BH881216C10
(STANDARD)	GS881216C10

METHOD REFERENCE

To determine the concentration of volatile organic compounds in a variety of waste matrices, CompuChem® employs the methods stated in the RCRA Method 8240.

As a point of information, the analytes present on the enclosed compound list have been validated for Method 8240 as required by SW-846.

Method Summary

The volatile compounds are introduced to the gas chromatograph by the direct injection, or the Purge-and-Trap Method (RCRA Method 5030). The components are separated via the gas chromatograph and detected using a mass spectrometer which is used to provide both qualitative and quantitative information. The chromatographic conditions as well as typical mass spectrometer operating parameters are given in the RCRA Method 8240.

QUALITY ASSURANCE NOTICE

Sample # 234243

Sample I.D.: SBV8-5

Blank I.D.: 235592

CompuChem offers various types of analytical services, two of which are characterized as "Volatile Analysis by GC/MS--Method 8240" and "Semivolatile Analysis by GC/MS--Method 8270." Many of the Quality Control requirements of these methods were derived from the EPA's Contract Laboratory Program (CLP). Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the CLP Caucus Organics Protocols, we have reported the following compound(s) with the "B" footnote:

common laboratory artifact	concentration	units
Methylene Chloride	5 J	ug/kg

The reporting convention used in the CLP is to "flag" with a "B" all allowable analytes present in the sample and its associated Method Blank (and/or Instrument Blank). No adjustments are made to the analytical results.

The CLP protocols allow certain levels of common laboratory solvents (acetone, methylene chloride, and toluene) and phthalates to be present in blanks, up to five times the Contract Required Detection Limit (CRDL). CompuChem has a more stringent policy for liquid samples, which allows up to a maximum of twice the CRDL for the common solvents and phthalates. The only exception to our policy is made when the volatile analysis or extraction holding times are in jeopardy of being exceeded, then CLP requirements must be met.

This Notice serves to explain the use of the "B" flag in reporting analytical results, while presenting the actual levels of the common laboratory solvents or phthalates seen in the associated blank.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Manager, Quality Assurance

J - Estimated concentration of analyte which is present but at a concentration less than the stated detection limit.

№ 014222

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalahan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8010	NOC 601					REMARKS
SBV7	7/12		X		SBV7-1A	1	X						234237
SBV8	7/12		X		SBV8-2	1	X						234242
SBV8	7/12		X		SBV8-5	1	X						234243 Samples packed
FB2	7/12			X	Field blank	2		X					234245 with ice and
SBV7	7/12		X		SBV7-4	1	X						234238 shipped on ice
SBV7	7/12		X		SBV7-6	1	X						234239
													Samples received in good condition 12.8.88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Theresa Kalahan	7/12 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Joan Purdie	Date / Time 12-8-88 0800	Remarks Shipped Fed. Ex. Air bill # 8977942330	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR303032

SAMPLE IDENTIFIER: SBV8-5
COMPUCHEM® SAMPLE NUMBER: 234243

DRY WEIGHT DETERMINATION

WEIGHT OF CONTAINER	WEIGHT OF CONTAINER + WET SAMPLE	WEIGHT OF CONTAINER + DRY SAMPLE	DRY WEIGHT FACTOR	% MOISTURE
0.99g	6.46g	5.97g	1.10	9

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

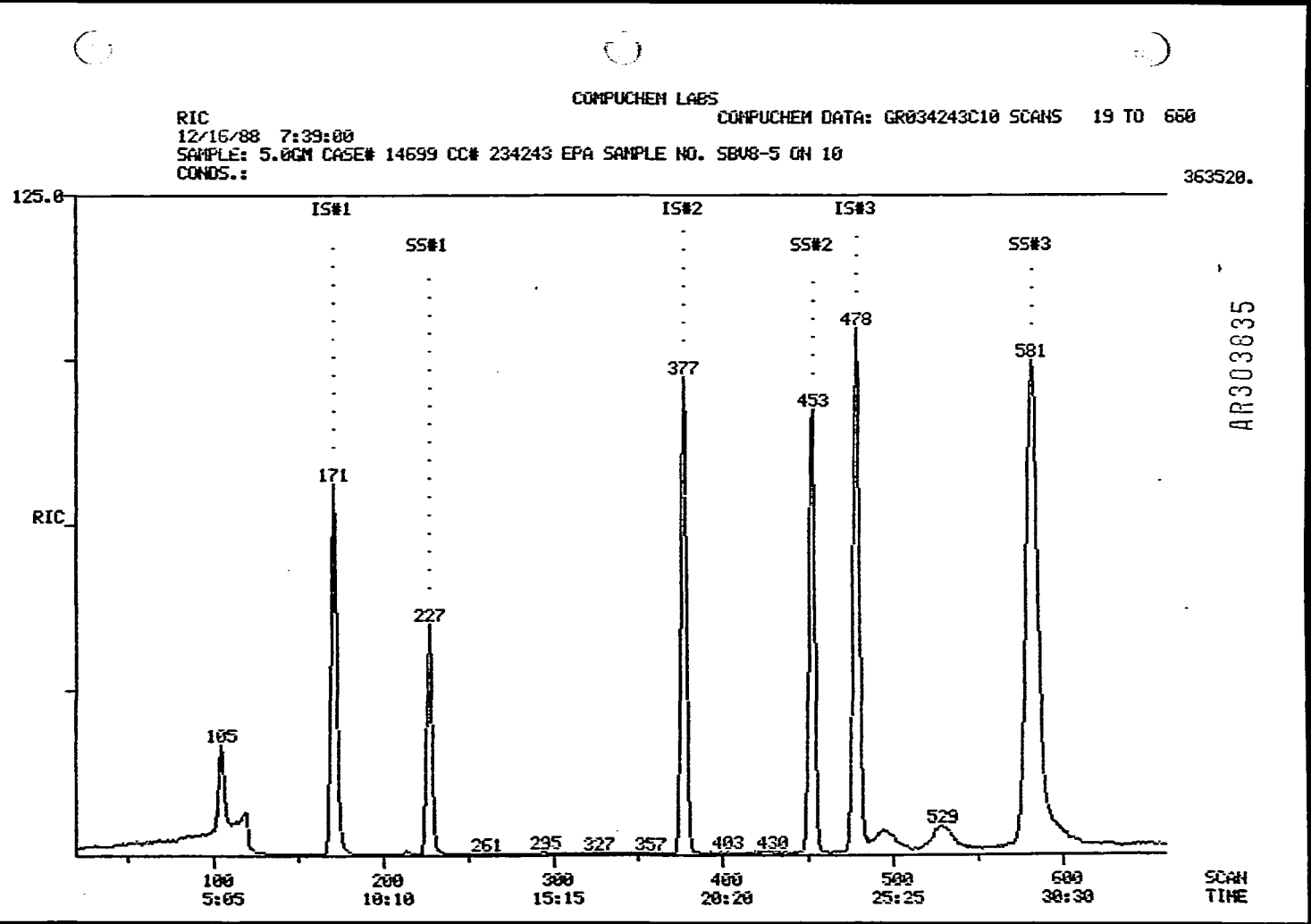
CLIENT SAMPLE ID SBV8-5
COMPUCHEM SAMPLE ID 234243

SAMPLE WEIGHT 5.0g
DATA REPORTED ON A DRY WEIGHT BASIS 1.10
pH 5.4

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION† LIMIT (ug/kg)	SCAN
CHLOROMETHANE	BDL	11	
BROMOMETHANE	BDL	5	
VINYL CHLORIDE	BDL	11	
CHLOROETHANE	BDL	11	
METHYLENE CHLORIDE	13 B*	11	105
1,1-DICHLOROETHENE	BDL	5	
1,1-DICHLOROETHANE	BDL	5	
1,2-DICHLOROETHENE	BDL	5	
CHLOROFORM	BDL	5	
1,2-DICHLOROETHANE	BDL	5	
1,1,1-TRICHLOROETHANE	BDL	5	
CARBON TETRACHLORIDE	BDL	5	
BROMODICHLOROMETHANE	BDL	5	
1,2-DICHLOROPROPANE	BDL	5	
CIS-1,3-DICHLOROPROPENE	BDL	5	
TRICHLOROETHENE	BDL	5	
DIBROMOCHLOROMETHANE	BDL	5	
1,1,2-TRICHLOROETHANE	BDL	5	
BENZENE	BDL	5	
TRANS-1,3-DICHLOROPROPENE	BDL	5	
2-CHLOROETHYL VINYL ETHER	BDL	11	
BROMOFORM	BDL	11	
TETRACHLOROETHENE	BDL	5	
1,1,2,2-TETRACHLOROETHANE	BDL	11	
TOLUENE	BDL	5	
CHLOROBENZENE	BDL	5	
ETHYLBENZENE	BDL	5	
ACROLEIN	BDL	100	
ACRYLONITRILE	BDL	130	

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	97	70 - 121
BROMOFLUOROBENZENE	101	74 - 121
D8-TOLUENE	94	81 - 117

BDL - BELOW DETECTION LIMIT
*See Quality Assurance Notice.
†Results and detection limit calculations were based dry weight.


COMPUCHEM LABS
RIC
COMPUCHEM DATA: GR034243C10 SCANS 19 TO 660
12/16/88 7:39:00
SAMPLE: 5.0GM CASE# 14699 CC# 234243 EPA SAMPLE NO. SBU8-5 ON 10
CONDS.:
363520.
125.0
RIC
IS#1
SS#1
IS#2
IS#3
SS#2
SS#3
105
171
227
261
295
327
357
377
403
430
453
478
529
581
100
5:05
200
10:10
300
15:15
400
20:20
500
25:25
600
30:30
SCAN
TIME
AR303835

QUANTITATION REPORT FILE: GR034243C10
DATA: GR034243C10.TI
12/16/88 7:39:00
SAMPLE: 5.0GM CASE# 14699 CC# 234243 EPA SAMPLE NO. SBVB-5 ON 10
CONDS.:
SUBMITTED BY: 10 ANALYST: 1171

AMOUNT=AREA * REF.AMNT/(REF.AREA)* RESP.FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME
1	*234 BROMOCHLOROMETHANE (IS) <75-97-5> ES#1
2	221 CHLOROMETHANE <74-87-3> ES#2
3	220 BROMOMETHANE <78-83-9> ES#3
4	231 VINYL CHLORIDE <75-01-4> ES#4
5	209 CHLOROETHANE <75-00-3> ES#5
6	222 METHYLENE CHLORIDE <75-09-2> ES#6
7	216 1,1-DICHLOROETHENE <75-35-4> ES#9
8	214 1,1-DICHLOROETHANE <75-34-3> ES#10
9	299 1,2-DICHLOROETHENE (TOTAL) <156-60-5> ES#11
10	211 CHLOROFORM <67-66-2> ES#12
11	215 1,2-DICHLOROETHANE <107-06-2> ES#13
12	*248 1,4-DIFLUOROBENZENE (IS) <540-36-3> ES#14
13	227 1,1,1-TRICHLOROETHANE <71-55-6> ES#16
14	206 CARBON TETRACHLORIDE <56-23-5> ES#17
15	212 BROMODICHLOROMETHANE <75-27-4> ES#19
16	217 1,2-DICHLOROPROPANE <78-87-5> ES#20
17	218 CIS-1,3-DICHLOROPROPENE <10061-01-5> ES#21
18	229 TRICHLOROETHENE <79-01-6> ES#22
19	208 DIBROMOCHLOROMETHANE <124-48-1> ES#23
20	228 1,1,2-TRICHLOROETHANE <79-00-5> ES#24
21	203 BENZENE <71-43-2> ES#25
22	250 TRANS-1,3-DICHLOROPROPENE <10061-02-6> ES#26
23	210 2-CHLOROETHYL VINYL ETHER <110-75-8> ES#27
24	205 BROMOFORM <75-25-2> ES#28
25	*270 D5-CHLOROBENZENE (IS) ES#29
26	224 TETRACHLOROETHENE <127-18-4> ES#32
27	223 1,1,2,2-TETRACHLOROETHANE <79-34-5> ES#33
28	225 TOLUENE <108-88-3> ES#34
29	207 CHLOROBENZENE <108-90-7> ES#35
30	219 ETHYLBENZENE <100-41-4> ES#36
31	#258 D4-1,2-DICHLOROETHANE ES#40
32	#247 BROMOFLUOROBENZENE <460-00-4> ES#41
33	#233 D8-TOLUENE ES#42
34	201 ACROLEIN <107-02-8> ES#44
35	202 ACRYLONITRILE <107-13-1> ES#45

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	171	8:42	1	1.000	A BB	112464.	50.000 UG/KG	16.91
2	50	NOT FOUND							
3	94	NOT FOUND							
4	62	NOT FOUND							
5	64	NOT FOUND							
6	84	~~NOT FOUND~~ 105					34021	11.55 µg/kg YP	
7	96	NOT FOUND							
8	63	NOT FOUND							
9	96	NOT FOUND							

AR303836

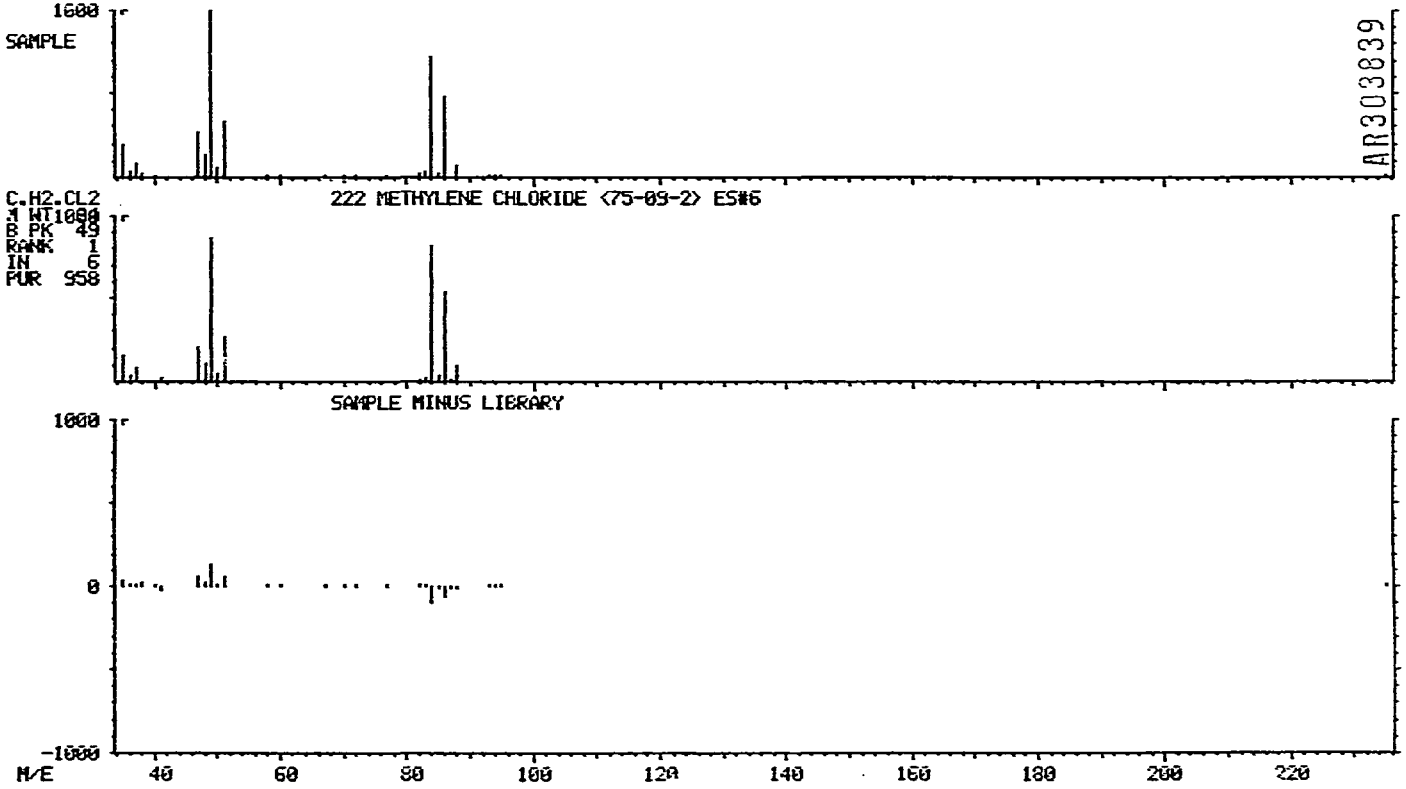
NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
10	83	NOT FOUND							
	62	NOT FOUND							
12	114	377	19:10	12	1.000	A BB	389793.	50.000 UG/KG	16.91
13	97	NOT FOUND							
14	117	NOT FOUND							
15	83	NOT FOUND							
16	63	NOT FOUND							
17	75	NOT FOUND							
18	130	NOT FOUND							
19	129	NOT FOUND							
20	97	NOT FOUND							
21	78	NOT FOUND							
22	75	NOT FOUND							
23	63	NOT FOUND							
24	173	NOT FOUND							
25	117	478	24:18	25	1.000	A BV	356983.	50.000 UG/KG	16.91
26	164	NOT FOUND							
27	83	NOT FOUND							
28	92	NOT FOUND							
29	112	NOT FOUND							
30	106	NOT FOUND							
31	65	227	11:32	1	1.327	A BB	173025.	48.273 UG/KG	16.32
32	95	581	29:32	25	1.215	A BB	300503.	50.672 UG/KG	17.13
33	98	452	22:59	25	0.946	A BB	317498.	46.834 UG/KG	15.84
34	56	NOT FOUND							
35	53	NOT FOUND							

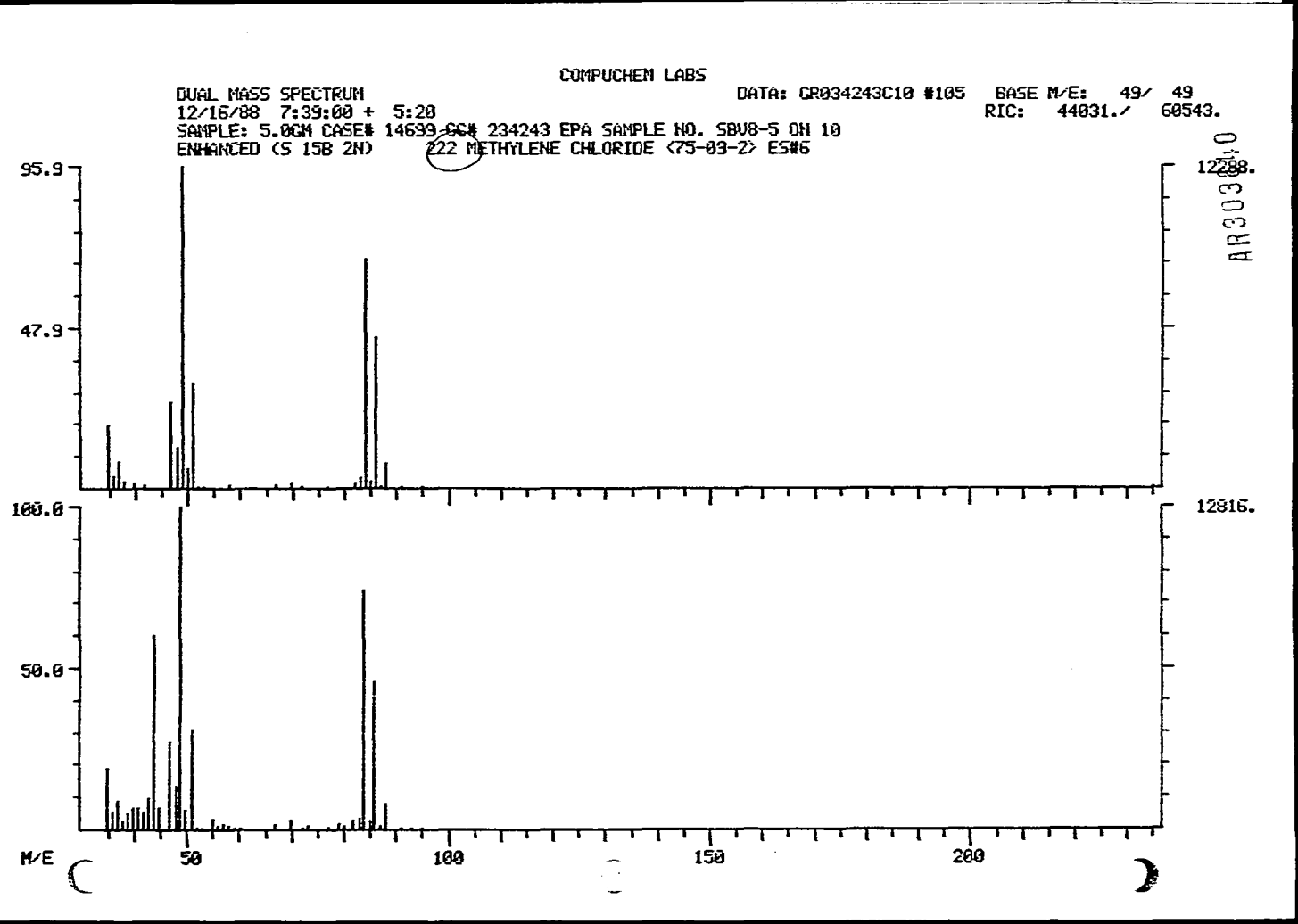
	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R.FAC	R.FAC(L)	RATIO
1	8:20	1.04	10.000	0.10	50.00	50.00	1.000	1.000	1.00
2	1:10		10.000			50.00		0.346	
3	1:50		10.000			50.00		1.468	
4	2:20		10.000			50.00		0.748	
5	3:00		10.000			50.00		0.485	
6	4:50		5.000			50.00		1.310	
7	7:44		5.000			50.00		0.919	
8	9:09		5.000			50.00		1.389	
9	9:58		5.000			50.00		0.988	
10	10:37		5.000			50.00		2.579	
11	11:23		5.000			50.00		1.514	
12	19:01	1.01	5.000	0.20	50.00	50.00	1.000	1.000	1.00
13	12:39		5.000			50.00		0.804	
14	13:04		5.000			50.00		0.774	
15	13:43		5.000			50.00		0.621	
16	15:03		5.000			50.00		0.230	
17	15:21		5.000			50.00		0.474	
18	15:55		5.000			50.00		0.536	
19	16:34		5.000			50.00		0.571	
20	16:40		5.000			50.00		0.301	
21	16:22		5.000			50.00		0.582	
22	16:37		5.000			50.00		0.237	
23	17:41		10.000			50.00		0.122	
24	19:19		5.000			50.00		0.321	
25	24:06	1.01	5.000	0.20	50.00	50.00	1.000	1.000	1.00
26	21:42		5.000			50.00		0.586	
27	21:42		5.000			50.00		0.485	
28	23:02		5.000			50.00		0.522	

NO	RET(L)	RATIO	RRT(L)	RATIO	AMNT	AMNT(L)	R. FAC	R. FAC(L)	RATIO
[illegible]	24: 15		5.000			50.00		0.883	
[illegible]	26: 23		5.000			50.00		0.397	
[illegible]	11: 17	1.02	5.000	0.27	48.27	50.00	1.538	1.594	0.97
32	29: 17	1.01	5.000	0.24	50.67	50.00	0.842	0.831	1.01
33	22: 49	1.01	5.000	0.19	46.83	50.00	0.889	0.950	0.94
34	5: 26		100.000			500.02		0.042	
35	6: 12		100.000			500.02		0.093	

COMPUCHEM LABS

LIBRARY SEARCH DATA: GR034243C10 # 105 BASE M/E: 49
12/16/88 7:39:00 + 5:20 RIC: 43647.
SAMPLE: 5.0GM CASE# 14699 CC# 234243 EPA SAMPLE NO. SBV8-5 ON 10
ENHANCED (S 15B 2N 0T)




COMPUCHEM LABS
DUAL MASS SPECTRUM
DATA: GR034243C10 #105 BASE M/E: 49/ 49
12/16/88 7:39:00 + 5:20
RIC: 44031./ 60543.
SAMPLE: 5.0GM CASE# 14699 GC# 234243 EPA SAMPLE NO. SBV8-5 ON 10
ENHANCED (S 15B 2N) 222 METHYLENE CHLORIDE (75-03-2) ES#6
95.9
47.9
12288.
100.0
50.0
12816.
M/E
50
100
150
200
AR303240

COMPOUND LIST - VOLATILE ORGANICS
BY METHOD 8240

CLIENT SAMPLE ID	SBV8-5
COMPUCHEM SAMPLE ID	234243
BLANK ID	235592

ANALYTES:	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
CHLOROMETHANE	BDL	10
BROMOMETHANE	BDL	5
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	10
METHYLENE CHLORIDE	5 J	10
1,1-DICHLOROETHENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
CIS-1,3-DICHLOROPROPENE	BDL	5
TRICHLOROETHENE	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
BENZENE	BDL	5
TRANS-1,3-DICHLOROPROPENE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	10
BROMOFORM	BDL	10
TETRACHLOROETHENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	10
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACROLEIN	BDL	90
ACRYLONITRILE	BDL	120

SURROGATES:	% RECOVERY	CONTROL RANGE
D4-1,2-DICHLOROETHANE	101	70 - 121
BROMOFLUOROBENZENE	101	74 - 121
D8-TOLUENE	101	81 - 117

BDL - BELOW DETECTION LIMIT

J - Estimated concentration of analyte which is present but at a concentration less than the stated detection limit.

AR303841

COMPUCHEM LABS

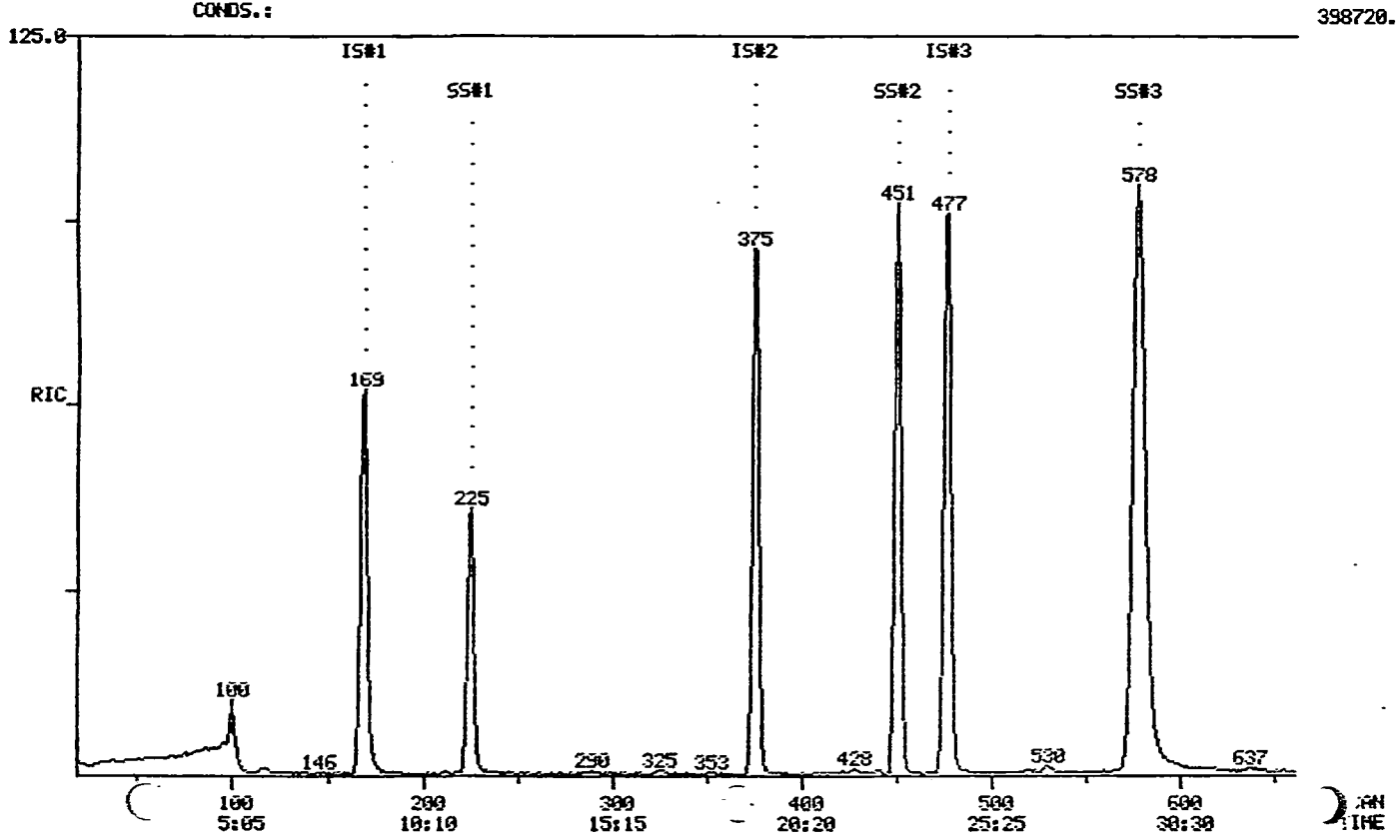
RIC

COMPUCHEM DATA: GH035592C10 SCANS 18 TO 660

12/16/88 3:50:00

SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10

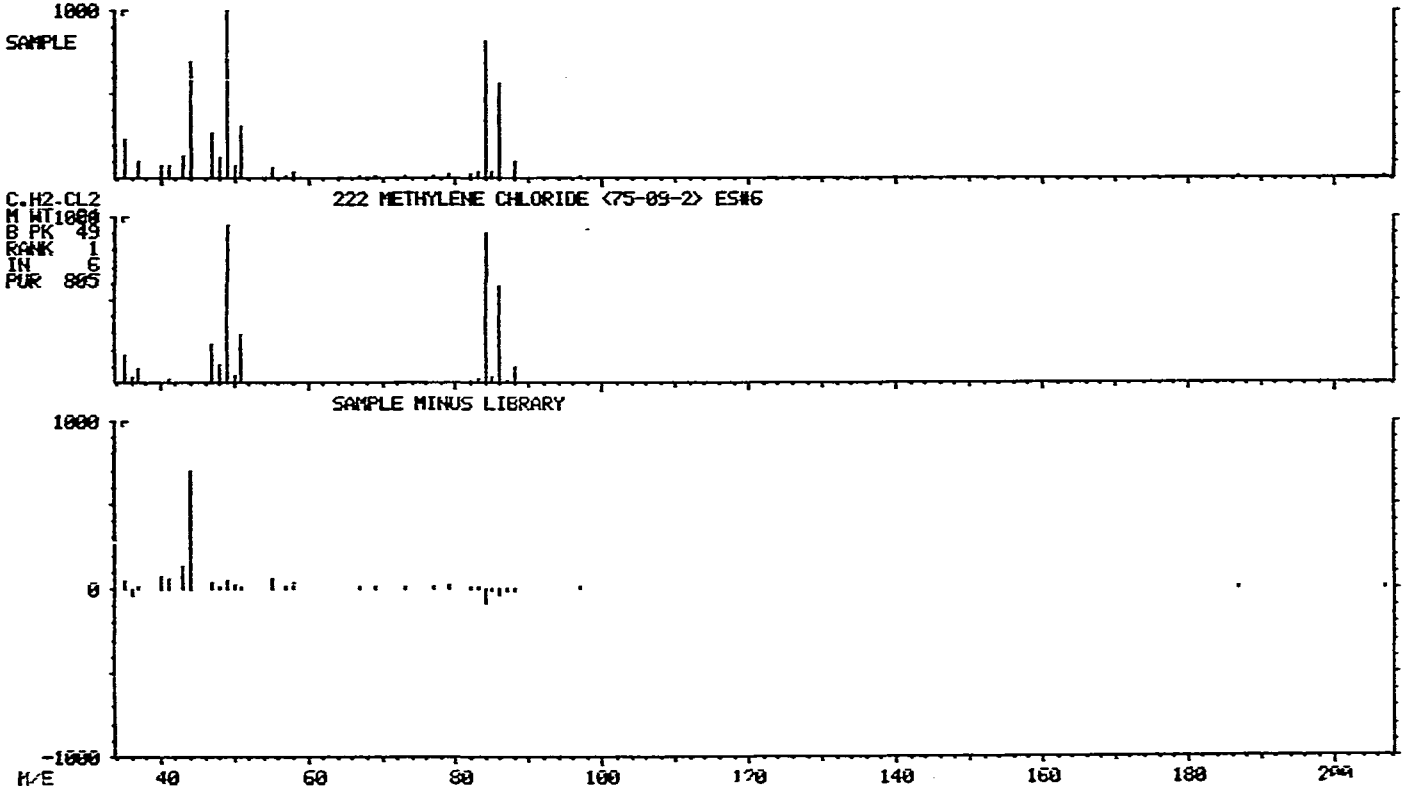
CONDS.:



AR303842

COMPUCHEM LABS

LIBRARY SEARCH
12/16/88 3:50:00 + 5:05
DATA: GH035592C10 # 100
BASE M/E: 49
RIC: 24479.
SAMPLE: 10ML CASE# 14699 CC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N 0T)



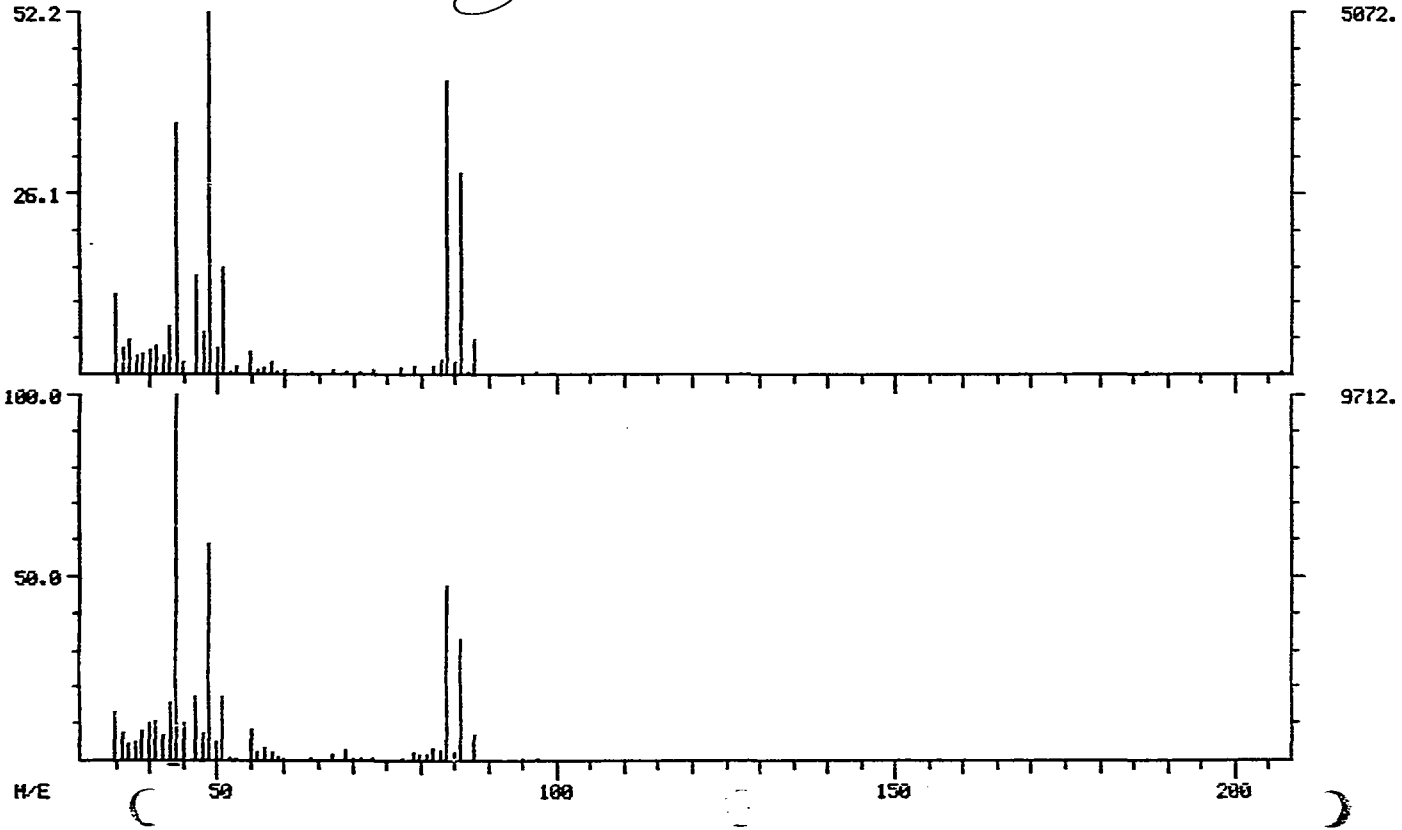
AR303843

COMPUCHEM LABS

DUAL MASS SPECTRUM
12/16/88 3:50:00 + 5:05
SAMPLE: 10ML CASE# 14699 GC# 235592 EPA SAMPLE NO. VBLKB3 ON 10
ENHANCED (S 15B 2N)

DATA: GH035592C10 #100 BASE M/E: 49/ 44
RIC: 26239./ 41343.

222 METHYLENE CHLORIDE <75-09-2> ES#6



AR303844

VOLATILES

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 234221
MATRIX SPIKE: 234225
MATRIX SPIKE DUPLICATE: 234226

A.	B.	C.	D.	E.	F.	G.	H.		
								QC LIMITS*	
COMPOUNDS	CONC. SPIKE ADDED (ug/kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	RPD	RECOVERY
1,1-DICHLOROETHENE	52.5	0	57.2	109	69.3	132	-18	22	59-172
TRICHLOROETHENE	52.5	0	53	101	57.4	109	-7.9	24	62-137
BENZENE	52.5	0	48.8	93	52.4	100	-7	21	66-142
TOLUNE	52.5	0	51	97	56.3	107	-9.8	21	59-139
CHLORBENZENE	52.5	0	51.1	97	55.4	106	-8	21	60-133

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

SPECTRUM: BH881216C10 # 184 TOTAL ION: 48448.
SAMPLE: 2UL BFB# 7008 (27713) ANALYST: 1171
TIME OF INJECTION: 2:12 12/16/88
ENHANCEMENT:

SPECTRUM FIT TO BFB CRITERIA

M/E	INTEN.	LIMITS	ROUND RA	
50	1902.	15-40% OF 95	21.73	OK
75	4736.	30-60% OF 95	54.11	OK
95	8752.	100% (BASE PK)	100.00	OK
96	592.	5-9% OF 95	6.76	OK
173	0.	< 1% OF 95	0.00	OK
174	8544.	> 50% OF 95	97.62	OK
175	653.	5-9% OF 174	7.64	OK
176	8240.	95-101% OF 174	96.44	OK
177	503.	5-9% OF 176	6.10	OK

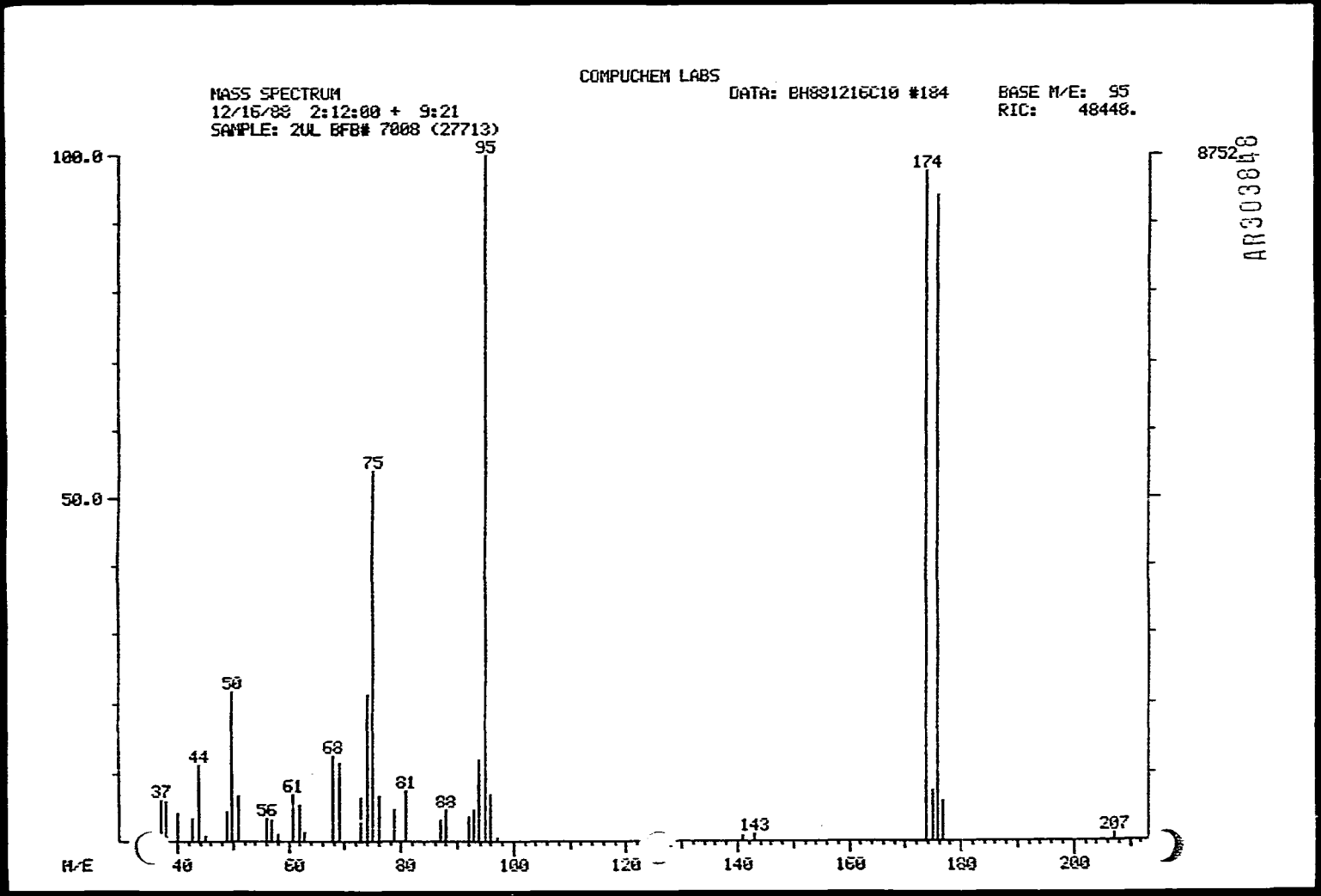
COMPUCHEM LABS

MASS LIST DATA: BH881216C10 # 184 BASE M/E: 95
12/16/88 2:12:00 + 9:21 RIC: 48448.
SAMPLE: 2UL BFB# 7008 (27713)

37 0.00 MINIMA MIN INTEN: 0. MAX INTEN: 8752.
97 # 0 MAXIMA

MASS	% RA
37	6.18
38	5.82
40	4.17
43	3.40
44	11.31
45	0.81
49	4.25
50	21.73
51	6.60
56	3.31
57	3.18
58	0.90
61	6.83
62	5.31
63	1.38
68	12.43
69	11.56
73	6.49
74	21.18
75	54.11
76	6.59
79	4.62
81	7.31
87	2.97
88	4.68
92	3.64
93	4.71
94	12.09
95	100.00
96	6.76
97	0.61
141	0.77
143	0.96
174	97.62
175	7.46
176	94.15
177	5.75
207	0.91

AR303847


COMPUCHEM LABS
MASS SPECTRUM
12/16/88 2:12:00 + 9:21
SAMPLE: 2UL BFB# 7008 (27713)
DATA: BH881216C10 #184
BASE M/E: 95
RIC: 48448.
100.0
50.0
M/E
95
174
75
50
44
68
37
61
81
56
88
143
207
40
60
80
100
120
140
160
180
200
8752
AR303848

COMPUCHEM LABS

RIC
12/16/88 2:35:00
SAMPLE: EPA SAMPLE NO. VSTD050
CONDS.:

COMPUCHEM DATA: GS881216C10 SCANS 13 TO 660

924160.

125.0

RIC

IS#1 IS#2 IS#3

SS#1 SS#2 SS#3

36 59 85 135 180 221 257 327 344 383 427 450 476 519 576 613 636

100 5:05 200 10:10 300 15:15 400 20:20 500 25:25 600 30:30

SCAN TIME

AR303649

COMPUCHEM
LABORATORIES

December 19, 1988

Mr. Dave Kindig
Environmental Strategies
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
		455	14699	Volatiles (GC) Method 601 (Style 5)
FB-2	234245			
LAB WATER	234248			

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

D. Boyd

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
Environmental Strategies
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Mary Mitchell
Technical Reviewer

Dorothia Boyd
Deliverables Coordinator

AR303853

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM LABORATORIES

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	FB-2	234245	12/08/88	12/09/88
2.	LAB WATER	234248	12/08/88	12/09/88

(BLANK)	P17232
(SPIKE)	234246/234247
(STANDARD)	P17230-P17231

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

№ 014283

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalafian

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8010 VOC (601)	REMARKS
SBV7	7/12		X		SBV7-1A	1	X	234237
SBV8	7/12		X		SBV8-2	1	X	234242
SBV5	7/12		X		SBV8-5	1	X	234243 Samples packed
FB2	7/12			X	Field blank	2	X	234245 with ice and
SBV7	7/12		X		SBV7-4	1	X	234238 shipped on ice
SBV7	7/12		X		SBV7-6	1	X	234239

Samples received in good condition 12-8-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Theresa Kalafa	7/12 1830	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Joan Purdie	12-8-88 0800

Remarks: Shipped Fed. Ex. Airbill # 897794233 0

Distribution: Original Accompanies Shipment; Copy to Field Files

AR300857

№ 013186

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
801925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kaleyhan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	624/625	VOC 601			REMARKS
SBV1	6/12		X		SBV1-3	1	X		234222		
SBV1	6/12		X		SBV1-5	1	X		234222		Samples packed
SBV2	6/12		X		SBV2-2	1	X		234223		with ice and
SBV2	6/12		X		SBV2-3	1	X		234224		shipped on ice
SBV3	6/12		X		SBV3-2	1	X		234229		
SBV3	6/12		X		SBV3-3	1	X		234229		All vocs are taken
SBV5	6/12		X		SBV5-2	1	X		234232		from bottle and station
SBV5	6/12		X		SBV5-5	1	X		234233		location except for
FB1	6/12		X	X	Field blank	2		X	234244		FB-2, FB-1, are taken
TB	—		X		Trip blank	1		X	234248		from bottle. They are the
SBV4	7/12		X		SBV4-3	1	X		234230		only two not taken
SBV4	7/12		X		SBV4-5	1	X		234231		from station location 12-8-88
SBV6	7/12		X		SBV6-1	1	X		234234		Trip Blank is taken from bottle 12-8-88
SBV6	7/12		X		SBV6-3	1	X		234235		Samples received in good
SBV7	7/12		X		SBV7-1	1	X		234236		condition 12-8-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Teresa Kaleyhan	7/12 0830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Purdie	12-8-88 0800	Shipped Fed Exp. Air bill #897794233D	

Distribution: Original Accompanies Shipment; Copy to Field Files

AH3B3B58

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

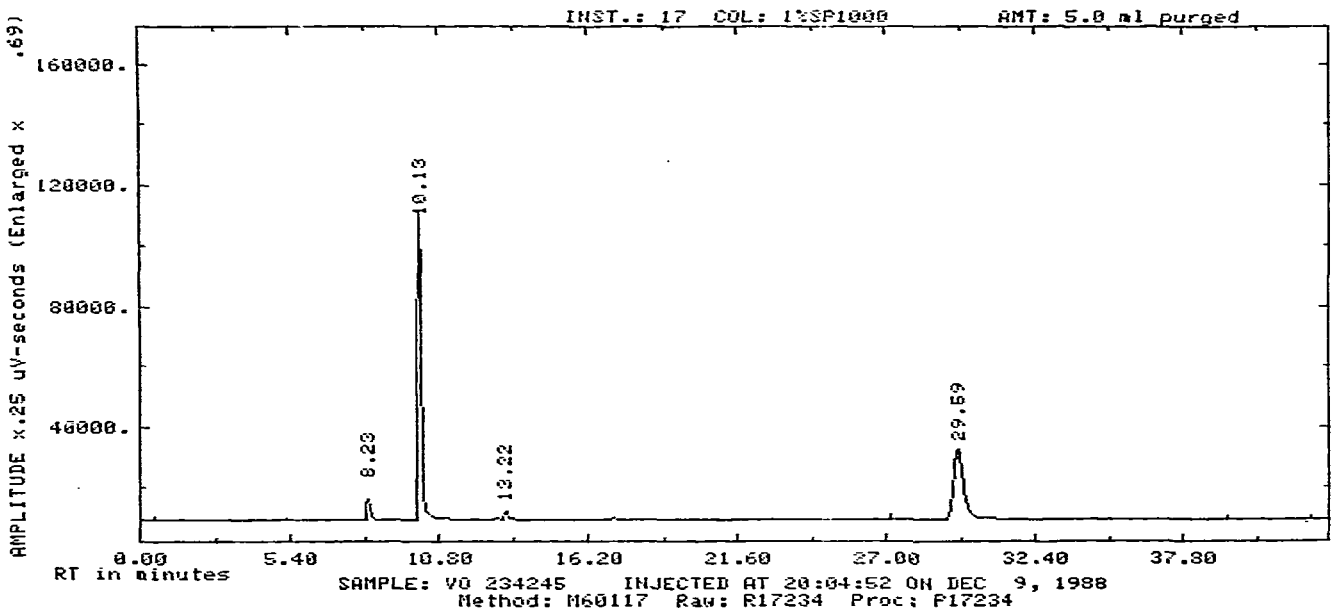
SAMPLE IDENTIFIER: FB-2
COMPUCHEM® SAMPLE NUMBER: 234245

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	121	(76-135)
Bromofluorobenzene	85	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .69)
160000.
120000.
80000.
40000.
8.23
10.13
13.22
29.69
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 234245 INJECTED AT 20:04:52 ON DEC 9, 1988
Method: M60117 Raw: R17234 Proc: P17234

AR303860

Report: 2041.00 Channel: 17

Sample: VO 234245 Injected at 20:04:52 ON DEC 9, 1988

STD Method: M60117 Seq: SEQ172 Subsq/Samp: 1/34 Btl: 34

el-width	MV/Min	Delay	Min-Ar	Bunch
.500	1.000	0.00	5000	Auto

Sup-Unk	DvT	ID-Lvl	Ref-RTW	%RTW	%Dil-f	Iso
NO	0.00	0	.30	5.0	100.00	NO

Actual run time: 43.025 minutes

No reference peak found

RT	ITM	Factor	Area	AREA %	Name
8.23	0.00	.10000E+01	33033. BB	3.852	
10.13	0.00	.10000E+01	494756. BB	57.694	
13.22	0.00	.10000E+01	12776. BB	1.490	
29.59	0.00	.10000E+01	316987. BB	36.964	

Total Area = 857553. Total AREA % = 316987.250

Processed data file: P17234 Raw data file: R17234

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

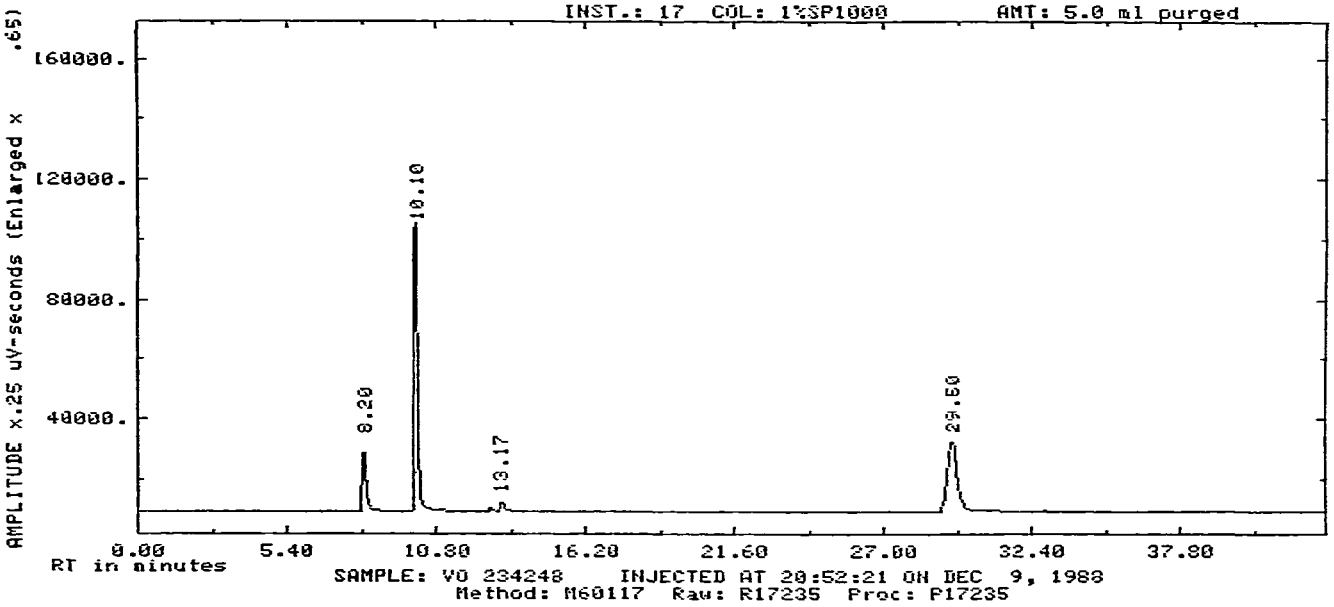
SAMPLE IDENTIFIER: LAB WATER
COMPUCHEM® SAMPLE NUMBER: 234248

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	1.9	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	118	(76-135)
Bromofluorobenzene	84	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .65)
160000.
120000.
80000.
40000.
8.20
10.10
13.17
29.50
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: V0 234248 INJECTED AT 20:52:21 ON DEC 9, 1988
Method: M60117 Raw: R17235 Proc: P17235

AR303863

Report: 2042.00 Channel: 17

Sample: VO 234248 Injected at 20:52:21 ON DEC 9, 1988

STD Method: M60117 Seq: SEQ172 Subsq/Samp: 1/35 Btl: 35

Pl-width	MV/Min	Delay	Min-Ar	Bunch
.500	1.000	0.00	5000	Auto

Sup-Unk	DvT	ID-Lvl	Ref-RTW	%RTW	%Dil-f	Iso
NO	0.00	0	.30	5.0	100.00	NO

Actual run time: 43.017 minutes

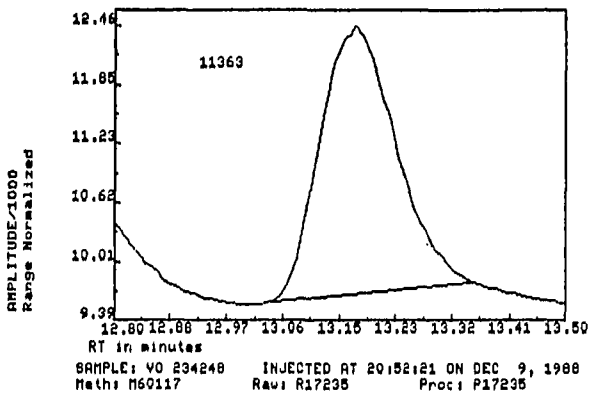
No reference peak found

RT	ITM	Factor	Area	AREA %	Name
8.20	0.00	.10000E+01	98551. BB	11.102	
10.10	0.00	.10000E+01	468106. BB	52.733	
13.17	0.00	.10000E+01	13942. BB	1.571	
29.50	0.00	.10000E+01	307100. BB	34.595	

Total Area = 887699. Total AREA % = 307100.500

Processed data file: P17235 Raw data file: R17235

AR303864



SAMPLE: VO 234248 INJECTED AT 20:52:21 ON DEC 9, 1988
Meth: M60117 Raw: R17235 Proc: P17235

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

Blank ID: P17232

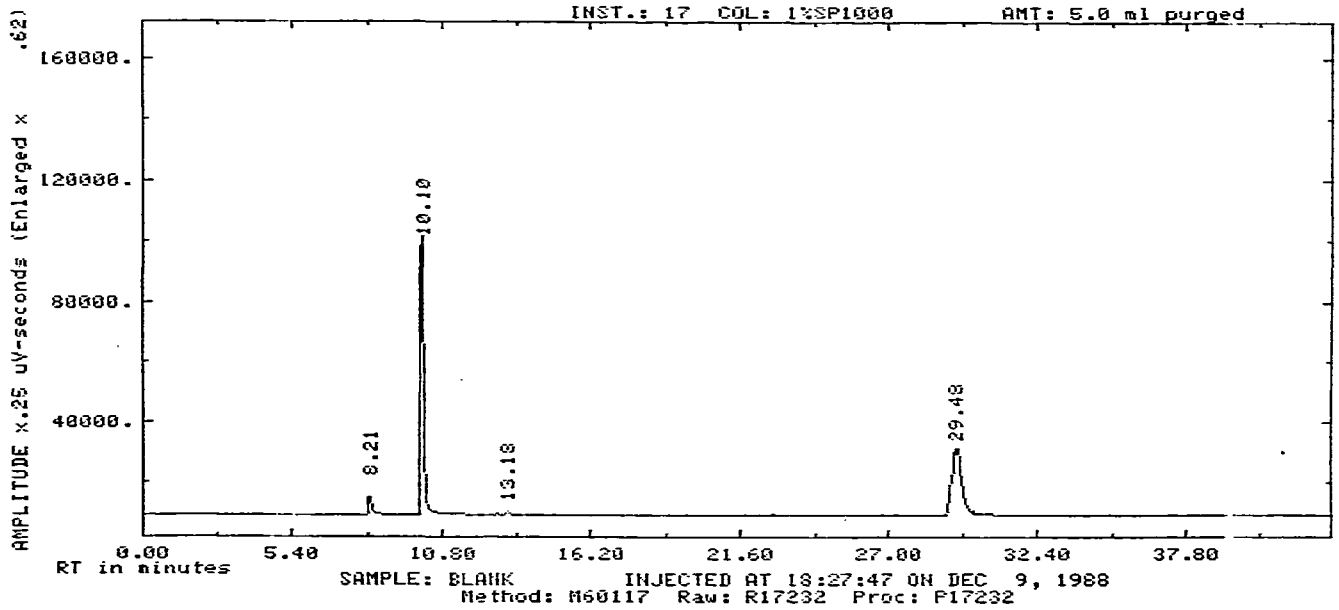
SAMPLE IDENTIFIER: FB-2, LAB WATER
COMPUCHEM® SAMPLE NUMBER: 234245, 234248

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	120	(76-135)
Bromofluorobenzene	83	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .62)
160000.
120000.
80000.
40000.
8.21
10.10
13.18
29.48
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 18:27:47 ON DEC 9, 1988
Method: M60117 Raw: R17232 Proc: P17232

AR303867

Report: 2039.00 Channel: 17

Sample: BLANK Injected at 18:27:47 ON DEC 9, 1988

FSTD Method: M60117 Seq: SEQ172 Subsq/Samp: 1/32 Btl: 32

I-width	MV/Min	Delay	Min-Ar	Bunch
.500	1.000	0.00	5000	Auto

Sup-Unk	DvT	ID-Lvl	Ref-RTW	%RTW	%Dil-f	Iso
NO	0.00	0	.30	5.0	100.00	NO

Actual run time: 43.017 minutes

No reference peak found

RT	ITM	Factor	Area	AREA %	Name
8.21	0.00	.10000E+01	30934. BB	4.043	
10.10	0.00	.10000E+01	443030. BB	57.908	
13.18	0.00	.10000E+01	5142. BB	.672	
29.48	0.00	.10000E+01	285940. BB	37.376	

Total Area = 765055. Total AREA % = 285947.750

Processed data file: P17232 Raw data file: R17232

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 234429
MATRIX SPIKE: 234246
MATRIX SPIKE DUPLICATE: 234247

	A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	5.90	118.00	6.00	120.00	0.84	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	5.10	102.00	4.00	80.00	12.09	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	5.20	104.00	5.30	106.00	0.95	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	4.70	94.00	5.00	100.00	3.09	2.10 - 8.60
C-1,3-DICHLOROPROPENE	8.0	0.00	5.40	90.00	5.70	95.00	2.70	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	3.50	87.50	3.80	95.00	4.11	0.88 - 7.12
BROMOFORM	5.0	0.00	4.40	88.00	4.60	92.00	2.22	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	5.60	102.38	5.90	107.00	2.61	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

CHECK STANDARD WORKSHEET

INST: 17 ver: 0013

CHECK STD: 12/09/88 16:53
MULTIPOINT: 11/29/88 19:13

Compound	Area in Ck Std.	Response Factor	Quantitation	Conc. of Std.	%D	Allowable Range	Out of Range
Chloromethane	112.5	9.86	11	10.0	10.00	0.00 - 19.30	
Bromomethane	140.0	13.47	10	10.0	0.00	0.00 - 14.40	
VinylChloride	232.4	21.89	11	10.0	10.00	2.60 - 16.30	
Chloroethene	141.9	16.40	8.7	10.0	13.00	4.60 - 13.70	
Methylene Chloride	178.6	38.26	4.7	5.0	6.00	1.25 - 8.10	
1,1-Dichloroethene	154.5	27.01	5.7	5.0	14.00	1.40 - 8.35	
1,1-Dichloroethane	164.3	28.70	5.7	5.0	14.00	2.35 - 6.60	
t-1,2-Dichloroethene	131.2	26.47	5.0	5.0	0.00	1.90 - 7.75	
Chloroform	207.7	35.99	5.8	5.0	16.00	2.45 - 6.65	
1,2-Dichloroethane	184.0	33.58	5.5	5.0	10.00	2.55 - 7.35	
1,1,1-Trichloroethane	176.7	33.60	5.3	5.0	6.00	2.05 - 6.90	
Carbon Tetrachloride	209.2	35.23	5.9	5.0	18.00	2.15 - 7.15	
Bromodichloromethane	137.6	28.53	4.8	5.0	4.00	2.10 - 8.60	
1,2-Dichloropropane	147.8	26.23	5.6	5.0	12.00	2.20 - 7.80	
c-1,3-Dichloropropene	59.2	10.29	5.8	6.0	3.33	1.32 - 10.68	
chloroethene	178.0	32.32	5.5	5.0	10.00	1.75 - 7.30	
Dibromochloromethane	67.4	25.63	2.6	5.0	48.00	1.20 - 9.55	
1,1,2-Trichloroethane	67.4	25.63	2.6	5.0	48.00	1.95 - 6.80	
t-1,3-Dichloropropene	56.3	14.69	3.8	4.0	5.00	0.88 - 7.12	
2-Chloroethyl Vinyl Ether	20.0	4.83	4.1	5.0	18.00	0.70 - 9.30	
Bromoform	45.1	11.51	3.9	5.0	22.00	0.65 - 7.95	
1,1,2,2-Tetrachloroethane	102.8	24.26	4.2	5.0	16.00	0.40 - 9.20	
Tetrachloroethene	196.9	37.27	5.3	5.0	6.00	1.30 - 8.10	
Chlorobenzene	80.1	14.35	5.6	5.0	12.00	1.90 - 7.50	
1,3-Dichlorobenzene	127.7	20.57	6.2	5.0	24.00	0.35 - 9.35	
1,2-Dichlorobenzene	132.3	22.82	5.8	5.0	16.00	0.00 - 10.40	
1,4-Dichlorobenzene	132.3	22.58	5.9	5.0	18.00	2.10 - 7.15	

Surrogates:

Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Trichlorofluoromethane	14.69	15.00	97.96	11.40 - 20.25	10.06	10.06	0.00	9.86 - 10.26
Bromofluorobenzene	10.21	10.00	102.09	6.90 - 12.30	29.40	29.40	0.00	28.81 - 29.99

U not detected
J estimated concentration

GC CALCULATION WORKSHEET

C[illegible]: CASE:
[illegible]PLE: SD A+D INST: 17 ver: 0013 SAMPLE RUN DATE: 12/09/88 17:40
[illegible]C FILE: P17231 DILUTION: 1 CHECK STD: 12/09/88 16:
MULTIPOINT: 11/29/88 19:

Compound	Area in Sample	Response Factor	Quantitation	RT Sample	RT OF STD	%D	RT Range
Chloromethane		12.74	0.50u		2.02		1.98 - 2.06
Bromomethane		17.41	0.50u		3.55		3.48 - 3.62
VinylChloride		28.31	0.50u		4.63		4.53 - 4.72
Chloroethane		21.20	0.50u		6.01		5.89 - 6.13
Methylene Chloride	178.6	51.14	3.5	8.18	8.18	0.00	8.02 - 8.35
1,1-Dichloroethene	154.5	36.10	4.3	10.66	10.66	0.00	10.45 - 10.88
1,1-Dichloroethane	164.3	38.35	4.3	11.72	11.72	0.00	11.48 - 11.95
t-1,2-Dichloroethene		34.22	0.20u		12.31		12.07 - 12.56
Chloroform	207.7	48.10	4.3	12.72	12.72	0.00	12.46 - 12.97
1,2-Dichloroethane	6.2	43.41	0.14J	13.15	13.33	1.40	13.07 - 13.60
1,1,1-Trichloroethane		43.44	0.30u		14.45		14.16 - 14.74
Carbon Tetrachloride	209.2	47.09	4.4	14.80	14.80	0.00	14.51 - 15.10
Bromodichloromethane		36.88	0.40u		15.08		14.78 - 15.39
1 2-Dichloropropane	147.8	35.06	4.2	16.30	16.30	0.00	15.97 - 16.62
,3-Dichloropropene		13.30	0.30u		16.45		16.12 - 16.7
Trichloroethene	178.0	43.19	4.1	16.91	16.91	0.00	16.57 - 17.25
Dibromochloromethane	134.9	34.25	3.9	17.44	17.44	0.02	17.09 - 17.79
1,1,2-Trichloroethane		34.25	0.20u		17.44		17.09 - 17.79
t-1,3-Dichloropropene		19.00	0.20u		17.48		17.13 - 17.83
2-Chloroethyl Vinyl Ether	20.0	6.46	3.1	18.37	18.37	0.00	18.01 - 18.74
Bromoform		14.88	0.50u		19.54		19.15 - 19.93
1,1,2,2-Tetrachloroethane		31.37	0.40u		21.34		20.92 - 21.77
Tetrachloroethene	196.9	49.81	4.0	21.45	21.45	0.00	21.02 - 21.88
Chlorobenzene	80.1	19.18	4.2	23.82	23.82	0.00	23.34 - 24.30
1,3-Dichlorobenzene	127.7	24.83	5.1	38.18	38.18	0.00	37.42 - 38.94
1,2-Dichlorobenzene	132.3	27.55	4.8	39.46	39.46	0.00	38.67 - 40.25
1,4-Dichlorobenzene	132.3	27.25	4.9	40.72	40.72	0.00	39.91 - 41.53

Surrogates:

Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Trichlorofluoromethane	11.07	10.00	110.73	7.60 - 13.50	10.09	10.06	0.30	9.86 - 10.26
ofluorobenzene	9.03	10.00	90.31	6.90 - 12.30	29.45	29.40	0.17	28.81 - 29.5

u - not detected
J - estimated concentration

AR303871

G C C A L C U L A T I O N W O R K S H E E T

CASE:
FILE: SD B+C INST: 17 ver: 0013 SAMPLE RUN DATE: 12/09/88 16:53
PROC FILE: P17230 DILUTION: 1 CHECK STD: 12/09/88 16:53
MULTIPOINT: 11/29/88 19:13

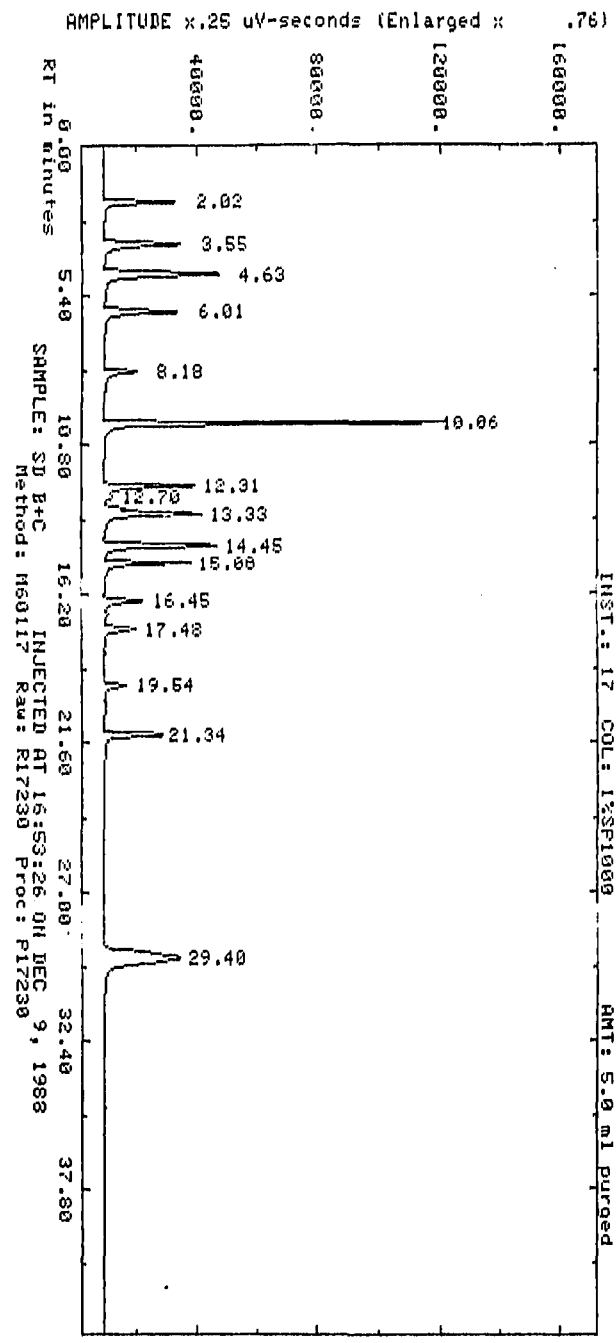
Compound	Area in Sample	Response Factor	Quantitation	RT Sample	RT Of STD	%D	RT Range
Chloromethane	112.5	9.91	11	2.02	2.02	0.00	1.98 - 2.06
Bromomethane	140.0	13.54	10	3.55	3.55	0.00	3.48 - 3.62
VinylChloride	232.4	22.00	11	4.63	4.63	0.00	4.53 - 4.72
Chloroethane	141.9	16.48	8.6	6.01	6.01	0.00	5.89 - 6.13
Methylene Chloride	59.4	39.76	1.5	8.18	8.18	0.11	8.02 - 8.35
1,1-Dichloroethene		28.07	0.30u		10.66		10.45 - 10.88
1,1-Dichloroethene		29.82	0.40u		11.72		11.48 - 11.95
t-1,2-Dichloroethene	131.2	26.60	4.9	12.31	12.31	0.00	12.07 - 12.56
Chloroform	5.0	37.39	0.13j	12.70	12.72	0.17	12.46 - 12.97
1,2-Dichloroethane	184.0	33.74	5.5	13.33	13.33	0.00	13.07 - 13.60
1,1,1-Trichloroethane	176.7	33.77	5.2	14.45	14.45	0.00	14.16 - 14.74
Carbon Tetrachloride		36.60	0.30u		14.80		14.51 - 15.10
Bromodichloromethane	137.6	28.67	4.8	15.08	15.08	0.00	14.78 - 15.39
Dichloropropene		27.26	0.20u		16.30		15.97 - 16.62
t,3-Dichloropropene	59.2	10.34	5.7	16.45	16.45	0.00	16.12 - 16.78
Trichloroethene		33.58	0.20u		16.91		16.57 - 17.25
Dibromochloromethane		26.62	0.20u		17.44		17.09 - 17.79
1,1,2-Trichloroethane		26.63	0.20u		17.44		17.09 - 17.79
t-1,3-Dichloropropene	56.3	14.77	3.8	17.48	17.48	0.00	17.13 - 17.83
2-Chloroethyl Vinyl Ether		5.02	0.40u		18.37		18.01 - 18.74
Bromoform	45.1	11.57	3.9	19.54	19.54	0.00	19.15 - 19.93
1,1,2,2-Tetrachloroethane	102.8	24.38	4.2	21.34	21.34	0.00	20.92 - 21.77
Tetrachloroethene		38.72	0.20u		21.45		21.02 - 21.88
Chlorobenzene		14.91	0.40u		23.82		23.34 - 24.30
1,3-Dichlorobenzene		21.71	0.20u		38.18		37.42 - 38.94
1,2-Dichlorobenzene		24.09	0.20u		39.46		38.67 - 40.25
1,4-Dichlorobenzene		23.83	0.20u		40.72		39.91 - 41.53

Surrogates:

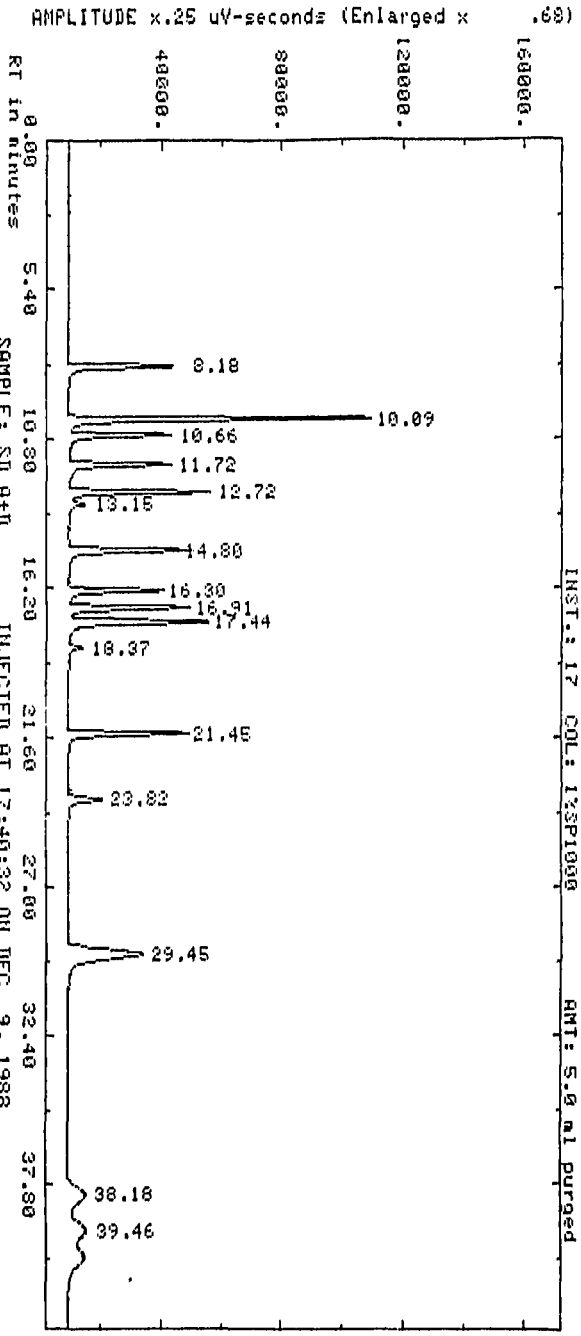
Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Chlorofluoromethane	9.84	10.00	98.45	7.60 - 13.50	10.06	10.06	0.00	9.86 - 10.26
Bromofluorobenzene	10.16	10.00	101.58	6.90 - 12.30	29.40	29.40	0.00	28.81 - 29.99

u - not detected
j - estimated concentration

AR303872


AMPLITUDE x.25 uV-seconds (Enlarged x .76)
40000.
80000.
120000.
160000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
2.02
3.55
4.63
6.01
8.18
10.06
12.31
12.70
13.33
14.45
15.08
16.45
17.48
19.64
21.34
29.40
SAMPLE: SD B+C
Method: M60117 Raw: R17230 Proc: P17230
INJECTED AT 16:53:26 ON DEC 9, 1988
INST.: 17 COL: 1%SP1000
AMT: 5.0 ml purged

AR303873


AMPLITUDE x.25 uV-seconds (Enlarged x .68)
.000004
.000003
.000002
.000001
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
8.18
10.09
10.66
11.72
12.72
13.15
14.80
16.30
16.91
17.44
18.37
21.45
23.82
29.45
38.18
39.46
SAMPLE: SD A+D
Method: M60117 Raw: R17231 Proc: P17231
INJECTED AT 17:40:32 ON DEC 9, 1988
INST.: 17 COL: I%SP1000
AMT: 5.0 ml purged

AR303874

COMPUCHEM LABORATORIES

December 17, 1988

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Dear Mr. Kindig:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
FB-1	234244	455	14699	Volatiles (GC) Method 601 (Style 5)

In this report we have included the analytical results, the method reference, and the quality control summary. If any anomalies were encountered in this analysis, they would be referenced in an attached Quality Assurance Notice(s). Instrument documentation is provided with reports purchased in our Gold Report format.

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

A. Byrd

for Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting
(Cover letter only)

COMPUCHEM
LABORATORIES

- TABLE OF CONTENTS -

*When the original chain of custody is submitted with the sample(s), a copy of it is included with the report.

**These notices are included where appropriate for data qualification.

COMPUCHEM
LABORATORIES

ANALYTICAL DATA REPORT

Mr. Dave Kindig
ENVIRONMENTAL STRATEGIES
8521 Leesburg Pike
Suite 650
Vienna, VA 22180

Mary A. Stutt
Technical Reviewer

Aerethia Byrd
Deliverables Coordinator

AR303879

COMPUCHEM
LABORATORIES

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE VOLATILE FRACTION ANALYZED
1.	FB-1	234244	12/08/88	12/09/88

(BLANK)	P17232
(SPIKE)	230398/230399
(STANDARD)	P17230-P17231

AR303880

METHOD REFERENCE

As sited in the October 26, 1984; Volume 49 of the Federal Register, CompuChem® employs Method 601 for the determination of purgeable halocarbons.

Method Summary

This is a purge and trap gas chromatographic (GC) method. An inert gas is bubbled through a 5 ml water sample contained in a specially designed purging chamber at ambient temperature. The halocarbons are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the halocarbons which are then detected with an electrolytic conductivity detector.

The referenced method is no longer appropriated for two of the compounds listed in the method, dichlorodifluoromethane and trichlorofluoromethane. This is due to either the deletion from the toxic pollutant list (40CFR Part 401) by EPA or the determination by EPA that the referenced method may not be optimized for certain compounds (EPA-600/4-82-057) originally incorporated by the method. Those compounds are listed below with the Federal Register deletion reference.

Compound Name	GC/MS Fraction	Federal Register	Date
Dichlorodifluoromethane	Volatile	46FR2264	1/8/81
Trichlorofluoromethane	Volatile	46FR2264	1/8/81

№ 013186

CHAIN OF CUSTODY RECORD

COMPUCHEM LABORATORIES

PROJ. NO.	PROJECT NAME
80925	NCR, Millsboro, DE

SAMPLERS: (Signature) Kalaghan

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8010	VOC 601			REMARKS
SBV1	6/12		X		SBV1-3	1	X			234222	
SBV1	6/12		X		SBV1-5	1	X			234222	Samples packed
SBV2	6/12		X		SBV2-2	1	X			234223	with ice and
SBV2	6/12		X		SBV2-3	1	X			234224	shipped on ice
SBV3	6/12		X		SBV3-2	1	X			234228	
SBV3	6/12		X		SBV3-3	1	X			234229	Id's used are taken
SBV5	6/12		X		SBV5-2	1	X			234232	from bottle and station
SBV5	6/12		X		SBV5-5	1	X			234233	location except for
FB1	6/12		X	X	Field blank	2		X		234244	FB-2, FB-1, are taken
TB	—		X		Trip blank	1		X		234248	from bottle. They are the
SBV4	7/12		X		SBV4-3	1	X			234230	only two not taken
SBV4	7/12		X		SBV4-5	1	X			234231	from station location 12-8-88
SBV6	7/12		X		SBV6-1	1	X			234234	Trip Blank id taken from bottle 12-8-88
SBV6	7/12		X		SBV6-3	1	X			234235	Samples received in good
SBV7	7/12		X		SBV7-1	1	X			234236	condition 12-8-88

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Alenja Kalaja	7/12 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Joan Purdie	12-8-88 0800	Shipped Fed Exp. Air bill #8977941232	

Distribution: Original Accompanies Shipment; Copy to Field Files

AR302222

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

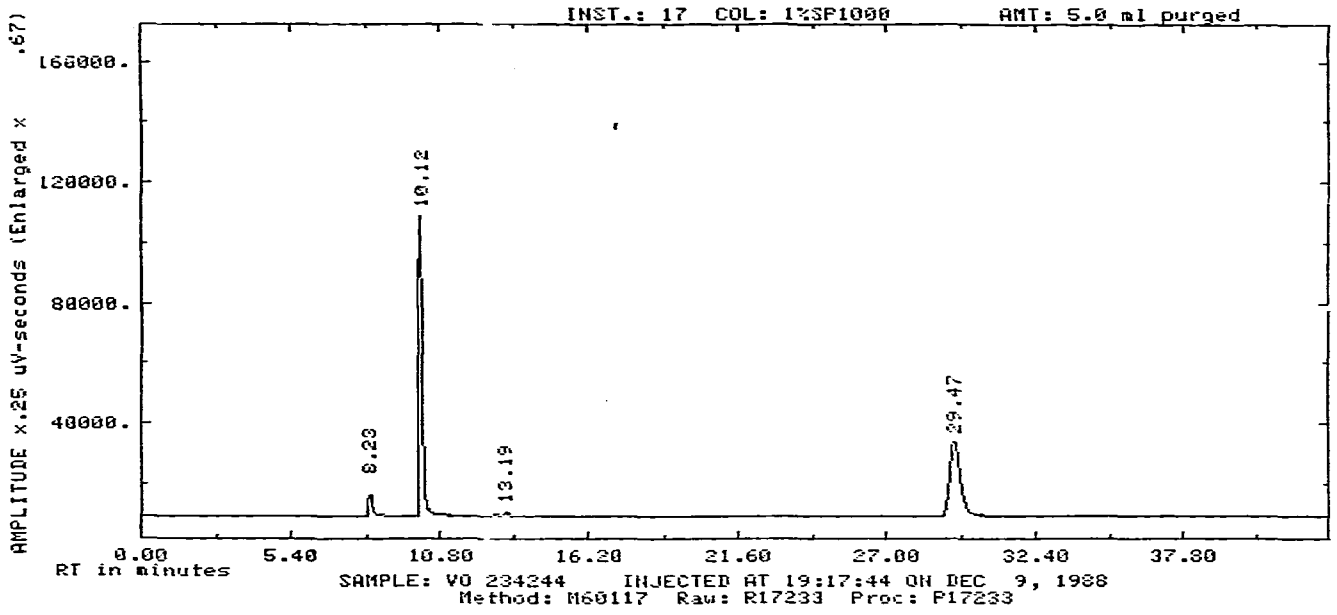
SAMPLE IDENTIFIER: FB-1
COMPUCHEM® SAMPLE NUMBER: 234244

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	116	(76-135)
Bromofluorobenzene	86	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .67)
160000.
120000.
80000.
40000.
8.23
10.12
13.19
29.47
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: VO 234244 INJECTED AT 19:17:44 ON DEC 9, 1988
Method: M60117 Raw: R17233 Proc: P17233

AR303884

Report: 2040.00 Channel: 17

Sample: VO 234244 Injected at 19:17:44 ON DEC 9, 1988

'STD Method: M60117 Seq: SEQ172 Subsq/Samp: 1/33 Btl: 33

Sl-width	MV/Min	Delay	Min-Ar	Bunch
.500	1.000	0.00	5000	Auto

Sup-Unk	DvT	ID-Lvl	Ref-RTW	%RTW	%Dil-f	Iso
NO	0.00	0	.30	5.0	100.00	NO

Actual run time: 43.017 minutes

No reference peak found

RT	ITM	Factor	Area		AREA %	Name
8.23	0.00	.10000E+01	37473.	BB	4.457	
10.12	0.00	.10000E+01	477627.	BB	56.803	
13.19	0.00	.10000E+01	5605.	BB	.667	
29.47	0.00	.10000E+01	320146.	BB	38.074	

Total Area = 840851. Total AREA % = 320146.250

Processed data file: P17233 Raw data file: R17233

COMPOUND LIST - VOLATILE PURGEABLE HALOCARBONS

BLANK ID: P17232

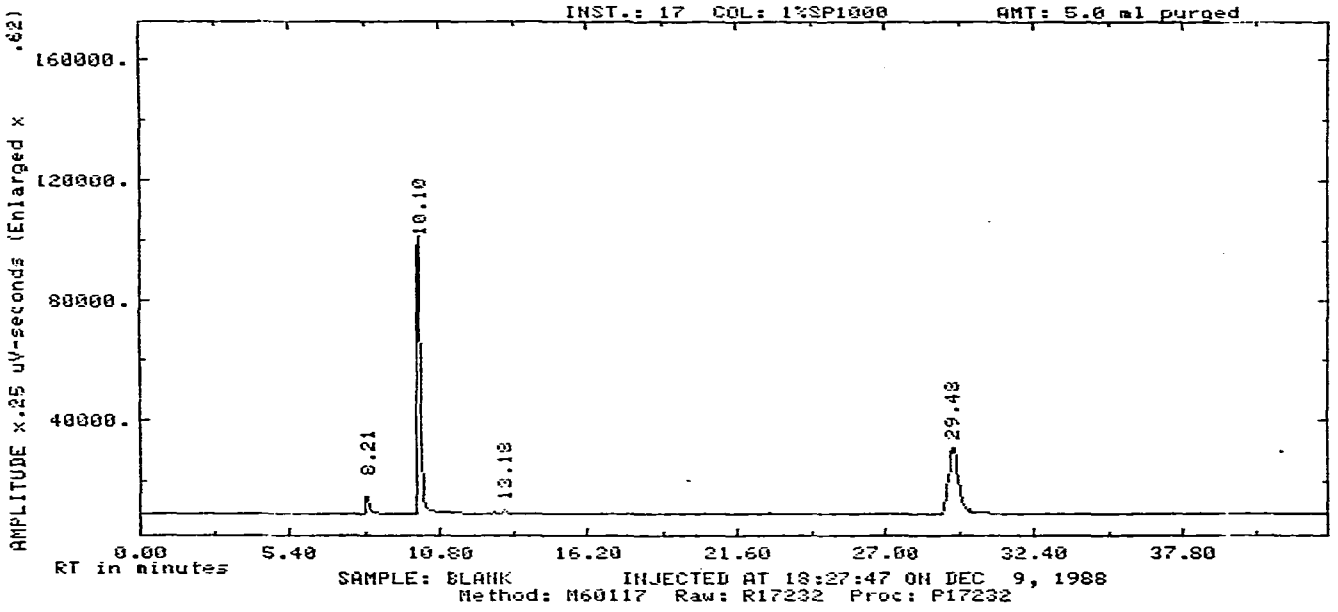
SAMPLE IDENTIFIER: FB-1
COMPUCHEM® SAMPLE NUMBER: 234244

		CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
1V.	CHLOROMETHANE	BDL	0.50
2V.	BROMOMETHANE	BDL	0.50
3V.	VINYL CHLORIDE	BDL	0.50
4V.	CHLOROETHANE	BDL	0.50
5V.	METHYLENE CHLORIDE	BDL	1.0
6V.	1,1-DICHLOROETHENE	BDL	0.30
7V.	1,1-DICHLOROETHANE	BDL	0.40
8V.	T-1,2-DICHLOROETHENE	BDL	0.20
9V.	CHLOROFORM	BDL	0.20
10V.	1,2-DICHLOROETHANE	BDL	0.30
11V.	1,1,1-TRICHLOROETHANE	BDL	0.30
12V.	CARBON TETRACHLORIDE	BDL	0.30
13V.	BROMODICHLOROMETHANE	BDL	0.40
14V.	1,2-DICHLOROPROPANE	BDL	0.20
15V.	CIS-1,3-DICHLOROPROPENE	BDL	0.30
16V.	TRICHLOROETHENE	BDL	0.20
17V.	DIBROMOCHLOROMETHANE	BDL	0.20
18V.	1,1,2-TRICHLOROETHANE	BDL	0.20
19V.	TRANS-1,3-DICHLOROPROPENE	BDL	0.20
20V.	2-CHLOROETHYL VINYL ETHER	BDL	0.40
21V.	BROMOFORM	BDL	0.50
22V.	1,1,2,2-TETRACHLOROETHANE	BDL	0.40
23V.	TETRACHLOROETHENE	BDL	0.20
24V.	CHLOROBENZENE	BDL	0.40
25V.	1,3-DICHLOROBENZENE	BDL	0.20
26V.	1,2-DICHLOROBENZENE	BDL	0.20
27V.	1,4-DICHLOROBENZENE	BDL	0.20

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

	% Recovery	Control Range %
Trichlorofluoromethane	120	(76-135)
Bromofluorobenzene	83	(69-123)

BDL=BELOW DETECTION LIMIT


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .62)
160000.
120000.
80000.
40000.
8.21
10.10
13.18
29.48
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: BLANK INJECTED AT 18:27:47 ON DEC 9, 1988
Method: M60117 Raw: R17232 Proc: P17232

AR303887

VOLATILES

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ORIGINAL: 230396
MATRIX SPIKE: 230398
MATRIX SPIKE DUPLICATE: 230399

A.	B.	C.	D.	E.	F.	G.		
COMPOUNDS	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RECOVERY
T-1,2-DICHLOROETHENE	5.0	0.00	6.90	138.00	6.10	122.00	6.15	1.90 - 7.75
1,2-DICHLOROETHENE	5.0	0.00	6.50	130.00	6.00	120.00	4.00	2.55 - 7.35
1,1,1-TRICHLOROETHANE	5.0	0.00	6.70	134.00	6.50	130.00	1.52	2.05 - 6.90
BROMODICHLOROMETHANE	5.0	0.00	5.90	118.00	6.00	120.00	0.84	2.10 - 8.60
C-1,3-DICHLOROPROPENE	6.0	0.00	6.40	106.67	6.90	115.00	3.76	1.32 - 10.68
T-1,3-DICHLOROPROPENE	4.0	0.00	3.90	97.50	4.00	100.00	1.27	0.88 - 7.12
BROMOFORM	5.0	0.00	5.40	108.00	5.10	102.00	2.86	0.65 - 7.95
1,1,2,2-TETRACHLOROETHANE	5.0	0.00	7.70	154.00	6.50	130.00	8.45	0.40 - 9.20

CALCULATIONS:

$$\frac{D - C}{B} \times 100 = \% \text{ Rec MS}$$

$$\frac{F - C}{B} \times 100 = \% \text{ Rec MSD}$$

$$\frac{F - D}{F + D} \div 2 \times 100 = \text{RPD}$$

RPD = RELATIVE PERCENT DIFFERENCE
% REC = PERCENT RECOVERY
CONC = CONCENTRATION

*Advisory

GC CALCULATION WORKSHEET

CASE:
PLE: SD B+C INST: 17 ver: 0013 SAMPLE RUN DATE: 12/09/88 16
PROC FILE: P17230 DILUTION: 1 CHECK STD: 12/09/88 16
MULTIPOINT: 11/29/88 19:13

Compound	Area in Sample	Response Factor	Quantitation	RT Sample	RT Of STD	%D	RT Range
Chloromethane	112.5	9.91	11	2.02	2.02	0.00	1.98 - 2.06
Bromomethane	140.0	13.54	10	3.55	3.55	0.00	3.48 - 3.62
VinylChloride	232.4	22.00	11	4.63	4.63	0.00	4.53 - 4.72
Chloroethane	141.9	16.48	8.6	6.01	6.01	0.00	5.89 - 6.13
Methylene Chloride	59.4	39.76	1.5	8.18	8.18	0.11	8.02 - 8.35
1,1-Dichloroethene		28.07	0.30u		10.66		10.45 - 10.88
1,1-Dichloroethane		29.82	0.40u		11.72		11.48 - 11.95
t-1,2-Dichloroethene	131.2	26.60	4.9	12.31	12.31	0.00	12.07 - 12.56
Chloroform	5.0	37.39	0.13j	12.70	12.72	0.17	12.46 - 12.97
1,2-Dichloroethane	184.0	33.74	5.5	13.33	13.33	0.00	13.07 - 13.60
1,1,1-Trichloroethane	176.7	33.77	5.2	14.45	14.45	0.00	14.16 - 14.74
Carbon Tetrachloride		36.60	0.30u		14.80		14.51 - 15.10
Bromodichloromethane	137.6	28.67	4.8	15.08	15.08	0.00	14.78 - 15.39
1,2-Dichloropropane		27.26	0.20u		16.30		15.97 - 16
t-1,3-Dichloropropene	59.2	10.34	5.7	16.45	16.45	0.00	16.12 - 16.78
Trichloroethene		33.58	0.20u		16.91		16.57 - 17.25
Dibromochloromethane		26.62	0.20u		17.44		17.09 - 17.79
1,1,2-Trichloroethane		26.63	0.20u		17.44		17.09 - 17.79
t-1,3-Dichloropropene	56.3	14.77	3.8	17.48	17.48	0.00	17.13 - 17.83
2-Chloroethyl Vinyl Ether		5.02	0.40u		18.37		18.01 - 18.74
Bromoform	45.1	11.57	3.9	19.54	19.54	0.00	19.15 - 19.93
1,1,2,2-Tetrachloroethane	102.8	24.38	4.2	21.34	21.34	0.00	20.92 - 21.77
Tetrachloroethene		38.72	0.20u		21.45		21.02 - 21.88
Chlorobenzene		14.91	0.40u		23.82		23.34 - 24.30
1,3-Dichlorobenzene		21.71	0.20u		38.18		37.42 - 38.94
1,2-Dichlorobenzene		24.09	0.20u		39.46		38.67 - 40.25
1,4-Dichlorobenzene		23.83	0.20u		40.72		39.91 - 41.53

Surrogates:

Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Trichlorofluoromethane	9.84	10.00	98.45	7.60 - 13.50	10.06	10.06	0.00	9.86 - 10
Bromofluorobenzene	10.16	10.00	101.58	6.90 - 12.30	29.40	29.40	0.00	28.81 - 29.99

u - not detected
j - estimated concentration

CHECK STANDARD WORKSHEET

INST: 17 ver: 0013

CHECK STD: 12/09/88 16:53
MULTIPOINT: 11/29/88 19:13

Compound	Area in Ck Std.	Response Factor	Quantitation	Conc. of Std.	%D	Allowable Range	Out of Range
Chloromethane	112.5	9.86	11	10.0	10.00	0.00 - 19.30	
Bromomethane	140.0	13.47	10	10.0	0.00	0.00 - 14.40	
VinylChloride	232.4	21.89	11	10.0	10.00	2.60 - 16.30	
Chloroethane	141.9	16.40	8.7	10.0	13.00	4.60 - 13.70	
Methylene Chloride	178.6	38.26	4.7	5.0	6.00	1.25 - 8.10	
1,1-Dichloroethene	154.5	27.01	5.7	5.0	14.00	1.40 - 8.35	
1,1-Dichloroethane	164.3	28.70	5.7	5.0	14.00	2.35 - 6.60	
t-1,2-Dichloroethene	131.2	26.47	5.0	5.0	0.00	1.90 - 7.75	
Chloroform	207.7	35.99	5.8	5.0	16.00	2.45 - 6.65	
1,2-Dichloroethane	184.0	33.58	5.5	5.0	10.00	2.55 - 7.35	
1,1,1-Trichloroethane	176.7	33.60	5.3	5.0	6.00	2.05 - 6.90	
Carbon Tetrachloride	209.2	35.23	5.9	5.0	18.00	2.15 - 7.15	
Bromodichloromethane	137.6	28.53	4.8	5.0	4.00	2.10 - 8.60	
1,2-Dichloropropane	147.8	26.23	5.6	5.0	12.00	2.20 - 7.80	
c-1,3-Dichloropropene	59.2	10.29	5.8	6.0	3.33	1.32 - 10.68	
chloroethene	178.0	32.32	5.5	5.0	10.00	1.75 - 7.30	
Dibromochloromethane	67.4	25.63	2.6	5.0	48.00	1.20 - 9.55	
1,1,2-Trichloroethane	67.4	25.63	2.6	5.0	48.00	1.95 - 6.80	
t-1,3-Dichloropropene	56.3	14.69	3.8	4.0	5.00	0.88 - 7.12	
2-Chloroethyl Vinyl Ether	20.0	4.83	4.1	5.0	18.00	0.70 - 9.30	
Bromoform	45.1	11.51	3.9	5.0	22.00	0.65 - 7.95	
1,1,2,2-Tetrachloroethane	102.8	24.26	4.2	5.0	16.00	0.40 - 9.20	
Tetrachloroethene	196.9	37.27	5.3	5.0	6.00	1.30 - 8.10	
Chlorobenzene	80.1	14.35	5.6	5.0	12.00	1.90 - 7.50	
1,3-Dichlorobenzene	127.7	20.57	6.2	5.0	24.00	0.35 - 9.35	
1,2-Dichlorobenzene	132.3	22.82	5.8	5.0	16.00	0.00 - 10.40	
1,4-Dichlorobenzene	132.3	22.58	5.9	5.0	18.00	2.10 - 7.15	

Surrogates:

Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Trichlorofluoromethane	14.69	15.00	97.96	11.40 - 20.25	10.06	10.06	0.00	9.86 - 10.26
Bromofluorobenzene	10.21	10.00	102.09	6.90 - 12.30	29.40	29.40	0.00	28.81 - 29.99

not detected
estimated concentration

GC CALCULATION WORKSHEET

CASE:
PLE: SD A+D INST: 17 ver: 0013
PROC FILE: P17231 DILUTION: 1

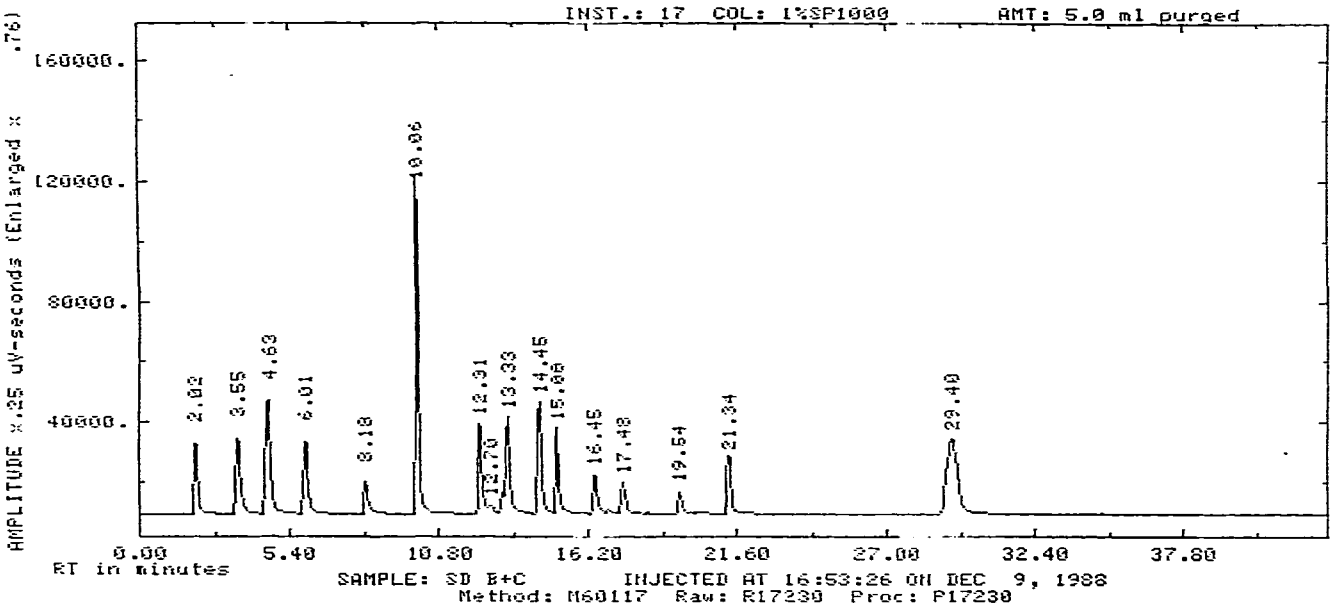
SAMPLE RUN DATE: 12/09/88 17[illegible]
CHECK STD: 12/09/88 16[illegible]
MULTIPOINT: 11/29/88 19:13

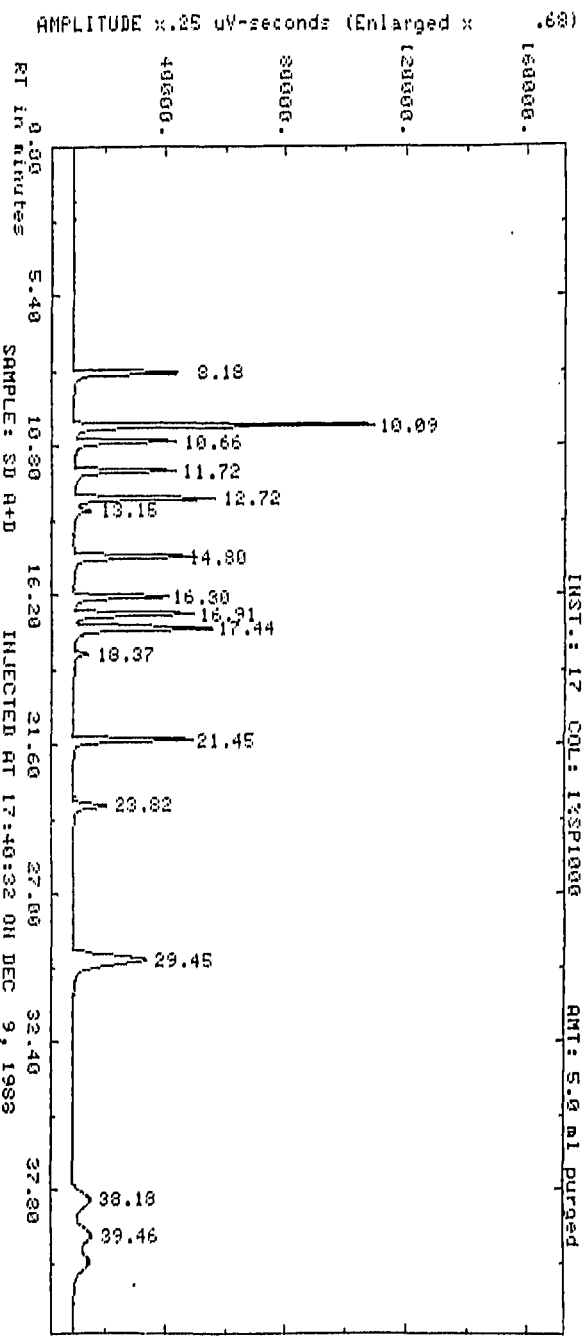
Compound	Area in Sample	Response Factor	Quantitation	RT Sample	RT OF STD	%D	RT Range
Chloromethane		12.74	0.50u		2.02		1.98 - 2.06
Bromomethane		17.41	0.50u		3.55		3.48 - 3.62
VinylChloride		28.31	0.50u		4.63		4.53 - 4.72
Chloroethane		21.20	0.50u		6.01		5.89 - 6.13
Methylene Chloride	178.6	51.14	3.5	8.18	8.18	0.00	8.02 - 8.35
1,1-Dichloroethene	154.5	36.10	4.3	10.66	10.66	0.00	10.45 - 10.88
1,1-Dichloroethane	164.3	38.35	4.3	11.72	11.72	0.00	11.48 - 11.95
t-1,2-Dichloroethene		34.22	0.20u		12.31		12.07 - 12.56
Chloroform	207.7	48.10	4.3	12.72	12.72	0.00	12.46 - 12.97
1,2-Dichloroethane	6.2	43.41	0.14j	13.15	13.33	1.40	13.07 - 13.60
1,1,1-Trichloroethane		43.44	0.30u		14.45		14.16 - 14.74
Carbon Tetrachloride	209.2	47.09	4.4	14.80	14.80	0.00	14.51 - 15.10
Bromodichloromethane		36.88	0.40u		15.08		14.78 - 15.39
2-Dichloropropane	147.8	35.06	4.2	16.30	16.30	0.00	15.97 - 16[illegible]
1,3-Dichloropropene		13.30	0.30u		16.45		16.12 - 16.78
Trichloroethene	178.0	43.19	4.1	16.91	16.91	0.00	16.57 - 17.25
Dibromochloromethane	134.9	34.25	3.9	17.44	17.44	0.02	17.09 - 17.79
1,1,2-Trichloroethane		34.25	0.20u		17.44		17.09 - 17.79
t-1,3-Dichloropropene		19.00	0.20u		17.48		17.13 - 17.83
2-Chloroethyl Vinyl Ether	20.0	6.46	3.1	18.37	18.37	0.00	18.01 - 18.74
Bromoform		14.88	0.50u		19.54		19.15 - 19.93
1,1,2,2-Tetrachloroethane		31.37	0.40u		21.34		20.92 - 21.77
Tetrachloroethene	196.9	49.81	4.0	21.45	21.45	0.00	21.02 - 21.88
Chlorobenzene	80.1	19.18	4.2	23.82	23.82	0.00	23.34 - 24.30
1,3-Dichlorobenzene	127.7	24.83	5.1	38.18	38.18	0.00	37.42 - 38.94
1,2-Dichlorobenzene	132.3	27.55	4.8	39.46	39.46	0.00	38.67 - 40.25
1,4-Dichlorobenzene	132.3	27.25	4.9	40.72	40.72	0.00	39.91 - 41.53

Surrogates:

Compound	Sample Conc.	CK STD Conc.	Percent REC.	Acceptance Range	RT Sample	RT CK STD	%D	RT Range
Trichlorofluoromethane	11.07	10.00	110.73	7.60 - 13.50	10.09	10.06	0.30	9.86 - 10[illegible]
Bromofluorobenzene	9.03	10.00	90.31	6.90 - 12.30	29.45	29.40	0.17	28.81 - 29.99

u - not detected
j - estimated concentration


INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
AMPLITUDE x.25 uV-seconds (Enlarged x .76)
160000.
120000.
80000.
40000.
2.02
3.55
4.63
6.01
8.18
10.06
12.31
12.70
13.33
14.45
15.06
16.45
17.48
19.54
21.34
29.40
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
RT in minutes
SAMPLE: SD B+C INJECTED AT 16:53:26 ON DEC 9, 1988
Method: M60117 Raw: R17230 Proc: P17230


AMPLITUDE x.25 uV-seconds (Enlarged x .68)
40000.
80000.
120000.
160000.
RT in minutes
0.00
5.40
10.80
16.20
21.60
27.00
32.40
37.80
SAMPLE: SD A+D
Method: M6017 Raw: R12231 Proc: P12231
INJECTED AT 17:40:32 ON DEC 9, 1988
INST.: 17 COL: 1%SP1000 AMT: 5.0 ml purged
0.18
10.09
10.66
11.72
12.72
13.15
14.80
16.30
16.91
17.44
18.37
21.45
23.82
29.45
38.18
39.46