N00158.AR.000021
NAS WILLOW GROVE
5090.3a

EA Laboratories

RESULTS OF ANALYSIS OF
ONE SOIL SAMPLE, TWO SOURCE WATER SAMPLES
AND ONE RINSATE BLANK COLLECTED AT
WILLOW GROVE BETWEEN 4 AND 7 APRIL 1989

Prepared for:

Northern Division
Naval Facilities Enginering Command

Prepared by:

EA Laboratories

June 1989
Rept. #890203

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1. ANALYTICAL SUMMARY

ANALYTICAL SUMMARY

Between 4 and 7 April 1989, EA Engineering, Science, and Technology, Inc. personnel collected one soil sample, two source water samples and one rinsate blank at the Naval Air Station at Willow Grove. The samples was taken to EA Laboratories in Sparks, Maryland for analysis. Upon receipt at the laboratory the samples were inspected, compared with the chain-of-custody records, logged, assigned laboratory accession numbers and distributed for analysis.

Results are summarized in the appended data package. Analytical concerns are discussed in the Quality Assurance Summary included in the end of each section.

In accepting analytical work, EA Laboratories, a division of EA Engineering, Science, and Technology, Inc., warrants the test results to be of precision normal for the sample type and methodology employed for each sample as submitted. the methods indicated were employed as stated to the extent permitted by sample and/or matrix limitation, if any. EA disclaims any other warranties, express or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Also, EA accepts no legal responsibility for the purpose for which the client uses test results. EA cannot accept any terms and conditions or purchase orders, work orders, or requests, and any analytical work performed by EA must be governed by the terms and conditions set forth herein.

2. CHAIN OF CUSTODY

252

Chain of Custody Record

EA Laboratories
15 Loveton Circle
Sparks, MD 21152
301-771-4950

Company Name: EA

Project Manager or Contact: Chuck Houlik

Project No.: 10388.03

Project Name: Willow Grove

Special QA Protocols (Circle)
EPA-CLP | TIER I (NJ) | OTHER (SPECIFY)
USATHAMA | TIER II (NJ) | Navy Level C

Parameters for Analysis

Date	Time	Grab	Comp	Sample Identification (I.D. and Matrix)	No. of Containers	Volatile Org. VTC,	[illegible]	[illegible]	[illegible]	pH	TOC	Base Neutrals				EA Labs Accession Number	Remarks
4/4/89	0857	X		NFFB, S-2, Soil	2	X				X	X	X				1430	
4/4/89	1230	X		Rinsate Blank #1	6	X				X	X	X				1431	
4/5/89	1426	X		Source Water NFFW-1, Water	1	X										1432	
4/5/89	—	X		Trip Blank	1	X										1433	

Sampled by: (Signature)	Title:	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Gregg T. Campbell	Geologist II	4/5/89 1652	Gregg T. Campbell	4/5/89 2211	

Relinquished by: (Signature)	Date/Time	Recieved by: (Signature)	Relinquished by: (Signature)	Date/Time	Rec'd. by Lab: (Signature)
				4/6/89 1045	Mary Cooper

Sample Custody Notes: 890203

Sample Shipped by: (Circle)
Fed. Ex. Puro. UPS
Other (Specify)

Air Bill Number:

2001

EA 0306, 6/3/88 White - EA Sample Custody Yellow - EA Lab Manager Pink - Project Manager

Chain of Custody Record

EA Laboratories
15 Loveton Circle
Sparks, MD 21152
301-771-4950

Company Name: EA

Project Manager or Contact: Chuck Houlik

Project No.: 10388.03

Project Name: Willow Grove

Special QA Protocols (Circle): EPA-CLP | TIER I (NJ) | OTHER (SPECIFY) Navy Level C | USATHAMA | TIER II (NJ)

Date	Time	Grab	Comp	Sample Identification (I.D. and Matrix)	No. of Containers	Parameters for Analysis: Volatile OS									EA Labs Accession Number	Remarks
4/6/89	1056	X		Source Water MFFW-2, Wat.	1	X									[illegible]	
4/7/89	—	X		Trip Blank	1	X									[illegible]	

Sampled by: (Signature)	Title:	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Gregg T. Campbell	Geologist II	4/7/89 1838	Gregg T. Campbell	4/7/89 1838	[illegible]

Relinquished by: (Signature)	Date/Time	Recieved by: (Signature)	Relinquished by: (Signature)	Date/Time	Rec'd. by Lab. (Signature)
				[illegible]	[illegible]

Sample Custody Notes: 890203 d. 1 May 89

Sample Shipped by: (Circle) Fed. Ex. Puro. UPS Other (Specify) [illegible]

Air Bill Number:

2002

EA 0306 6/2/88 White – EA Sample Custody Yellow – EA Lab Manager Pink – Project Manager

3. VOLATILES DATA

A. QC Summary

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFBS2

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK	100	104	93		0
1431 2	RINSE BL	102	102	93		0
1432 3	NFFW1	103	100	93		0
1433 4	TRIP BL	105	98	92		0
5	VBLK1	103	102	104		0
1505 6	NFFW2	103	108	121 *		1
7	NFFW2MS	100	106	123 *		1
8	NFFW2MSD	101	109	119 *		1
9	TRIP BL	101	107	121 *		1
10						
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	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = 1,2-Dichloroethane-d4	(76-114)
S3 (DCE) = Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1 1/87 Rev.

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFBS2

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1430 1	NFFBS2	102	98	95		0
1430 2	NFFBSMS	99	100	96		0
1430 3	NFFBSMSD	106	103	121		0
4						
5						
6						
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		QC LIMITS
S1 (TOL) =	Toluene-d8	(81-117)
S2 (~~BFB~~ DCE) =	1,2-Dichloroethane-d4	(70-121)
S3 (~~DCE~~ BFB) =	Bromofluorobenzene	(74-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ERENG Contract: 68-01-7428

Lab Code: ERENG Case No.: WILLOW SAS No.: SDG No.: NFFBS2

Matrix Spike - EPA Sample No.: NFFW2

COMPOUND	SPIKE ADDED (UG/L)	SAMPLE CONCENTRATION (UG/L)	MS CONCENTRATION (UG/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.	0.	61.	121.	61-145
Trichloroethene	50.	0.	53.	107.	71-120
Benzene	50.	0.	49.	98.	76-127
Toluene	50.	0.	46.	92.	76-125
Chlorobenzene	50.	0.	55.	111.	75-130

COMPOUND	SPIKE ADDED (UG/L)	MSD CONCENTRATION (UG/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50.	59.	117.	4.	14	61-145
Trichloroethene	50.	51.	102.	4.	14	71-120
Benzene	50.	47.	93.	5.	11	76-127
Toluene	50.	47.	93.	1.	13	76-125
Chlorobenzene	50.	55.	111.	0.	13	75-130

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

* Values outside of QC limits

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

COMMENTS:

FORM III VOA-1 1/87 Rev.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EAENG Contract: 68-01-7138

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF652

Matrix Spike - EPA Sample No.: NFF652 Level: low/med: LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	61.	0.	49.	79.	59-172
Trichloroethene	61.	0.	62.	101.	62-137
Benzene	61	0.	57.	93.	66-142
Toluene	61.	0.	61.	99.	59-139
Chlorobenzene	61.	0.	75.	123.	60-133

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	61.	70.	114.	38. *	22	59-172
Trichloroethene	61.	64.	105.	4.	24	62-137
Benzene	61.	55.	98.	4.	21	66-142
Toluene	61.	59.	96.	3.	21	59-139
Chlorobenzene	61.	66.	108.	13.	21	60-133

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

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

42

VOLATILE METHOD BLANK SUMMARY

Lab Name: EAENG Contract: EC-01-7408

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB32

Lab File ID: EF275 Lab Sample ID: METHOD BLANK

Date Analyzed: 4/ 7/89 Time Analyzed: 10:48

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 7002E5

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	NFFB32	EA# 1430	EF282	15:52
2	RINSE BL	EA# 1431	EF283	16:32
3	NFFW1	EA# 1432	EF284	17:13
4	TRIP BL	EA# 1433	EF285	17:54
5	NFFB3MS	EA# 1430MS	EF287	19:20
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COMMENTS:

4n

VOLATILE METHOD BLANK SUMMARY

Lab Name: EAENG Contract: 68-01-7408

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFE3I

Lab File ID: EF297 Lab Sample ID: METHOD BLANK

Date Analyzed: 4/10/89 Time Analyzed: 9:51

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: 700CES

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	NFFW2	EA # 1508	EF300	14:10
2	NFFW2MS	EA # 1508	EF301	14:50
3	NFFW2MSD	EA # 1508	EF302	15:30
4	TRIP BL	EA # 1509	EF303	16:11
5	NFFB5MSD	EA # 1430 (MSD)	EF304	18:51
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COMMENTS:

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

Lab Name: EAENG Contract: 68-01-7438

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: WFFE52

Lab File ID: EE687 BFB Injection Date: 1/24/89

Instrument ID.: 7002E5 BFB Injection Time: 6:53

Matrix:(soil/water) SOIL Level:(low/med): LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.0
75	30.0 - 60.0% of mass 95	45.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	.0 .0
174	Greater than 50.0% of mass 95	88.2
175	5.0 - 9.0% of mass 174	8.0 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.8 (97.4)1
177	5.0 - 9.0% of mass 176	6.2 (7.3)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD200	200 PPB	EE673	1/24/89	12:11
2	VSTD150	150 PPB	EE674	1/24/89	12:59
3	VSTD100	100 PPB	EE675	1/24/89	13:46
4	VSTD50	50 PPB	EE676	1/24/89	14:32
5	VSTD20	20PPB	EE677	1/24/89	15:18
6					
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22					

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

Lab Name: EAENG Contract: 68-01-7405

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFBS2

Lab File ID: EF273 BFB Injection Date: 4/ 7 89

Instrument ID.: 700IES BFB Injection Time: 9:09

Matrix:(soil/water) SOIL Level:(low/med): LOW Column:(pack.cap) FACP

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.6
75	30.0 - 60.0% of mass 95	55.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	.0 / .0)1
174	Greater than 50.0% of mass 95	83.4
175	5.0 - 9.0% of mass 174	5.8 3.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.1 (100.8)1
177	5.0 - 9.0% of mass 176	5.9 (7.0)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD50	50 PPB	EF274	4/ 7/89	9:38
2	VBLK	METHOD BLANK	EF275	4/ 7/89	10:48
3	NFFBS2	EA # 1430	EF282	4/ 7/89	15:52
4	RINSE BL	EA # 1431	EF283	4/ 7/89	16:32
5	NFFW1	EA # 1432	EF284	4/ 7/89	17:13
6	TRIP BL	EA # 1433	EF285	4/ 7/89	17:54
7	NFFBSMS	EA # 1430	EF287	4/ 7/89	19:20
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22					

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

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB02

Lab File ID: EF291 BFB Injection Date: 4/10/89

Instrument ID.: 7002E5 BFB Injection Time: 7:17

Matrix:(soil/water) SOIL Level:(low/med): LOW Column:(pack/cap) PACK

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.6
75	30.0 - 60.0% of mass 95	53.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	.0 (1) .0
174	Greater than 50.0% of mass 95	52.9
175	5.0 - 9.0% of mass 174	8.9 8.4 (1)
176	Greater than 95.0%, but less than 101.0% of mass 174	79.2 (2) 95.7
177	5.0 - 9.0% of mass 176	5.2 6.8 (2)

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD50	50 PPB	EF292	4/10/89	7:51
2	VSLP1	METHOD BLANK	EF293	4/10/89	9:51
3	NFFW2	EA #1508	EF300	4/10/89	14:10
4	NFFW2MS	EA #1508	EF301	4/10/89	14:50
5	NFFW2MSD	EA #1508	EF302	4/10/89	15:30
6	TRIP BL	EA #1509	EF303	4/10/89	16:11
7	NFFBSMSD	EA #1430	EF304	4/10/89	16:51
8					
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22					

B. Sample Data

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFFB3I

Lab Name: EAENG Contract: 68-01-7425

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: MFFB3I

Matrix: (soil/water) SOIL Lab Sample ID: EA # 1430

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EF28I

Level: low/med/ LOW Date Received: 4/ 6 89

% Moisture: not dec. 19. Date Analyzed: 4/ 7 89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	42.	
75-15-0	Carbon Disulfide	6.	U
75-35-4	1,1-Dichloroethene	6.	U
75-34-3	1,1-Dichloroethane	6.	U
540-59-0	1,2-Dichloroethene (total)	6.	U
67-66-3	Chloroform	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	12.	U
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	6.	U
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	6.	U
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	6.	U
108-88-3	Toluene	6.	U
108-90-7	Chlorobenzene	6.	U
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	6.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

NFF83I

Lab Name: EAENG Contract: 68-01-7435

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF83I

Matrix: (soil/water) SOIL Lab Sample ID: EA # 1430

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EF383

Level: (low/med) LOW Date Received: 4/ 6/89

% Moisture: not dec. 18. Date Analyzed: 4/ 7/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN HYDROCARBON	21.70	40.	J
2. - -	UNKNOWN HYDROCARBON	26.05	7.	J
3.				
4.				
5.				
6.				
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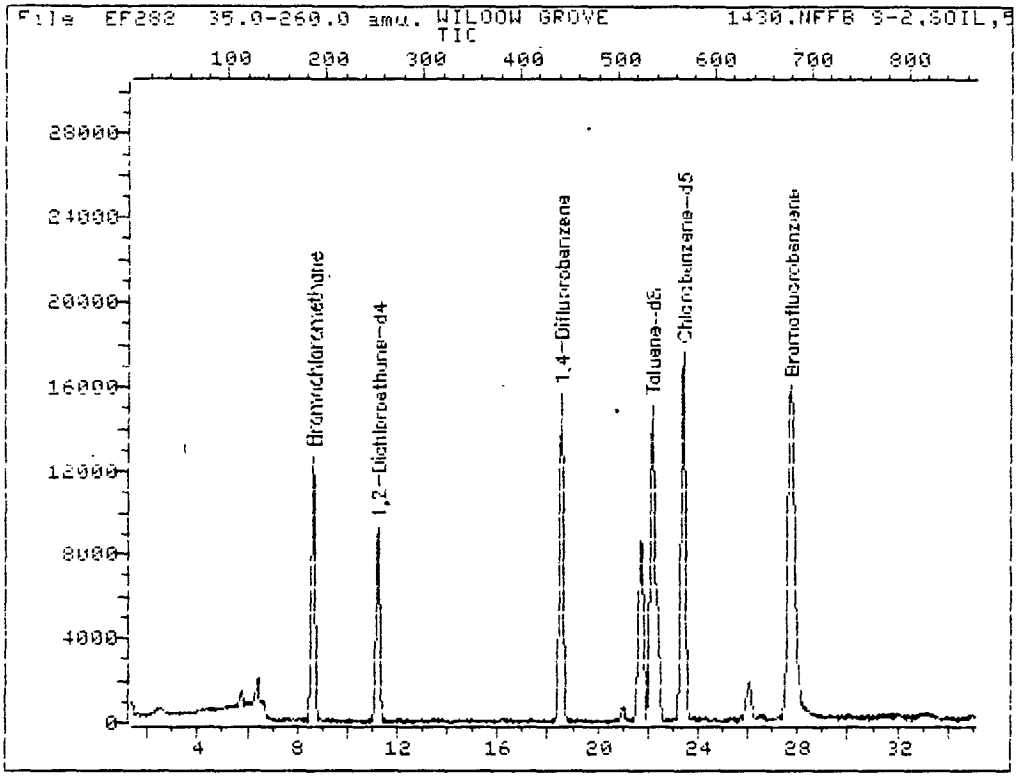
TOTAL ION CHROMATOGRAM



Data File: >EF282::D2 Quant Output File: ^EF282::QT
Name: WILOOW GROVE
Misc: 1430,NFFB S-2,SOIL,5,GC/MS E5=CVG

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890407 16:28
Injected at: 890407 15:52

QUANT REPORT

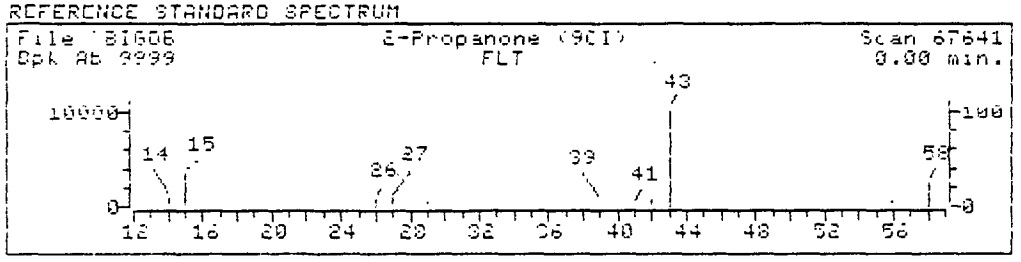
Operator ID: CARL Quant Re.: 8 Quant Time: 890407 18:28
Output File: EF2IC1.QT Injected at: 890407 18:52
Data File: EF2IC1.CC Dilution Factor: 1.00000
Name: WILCOX GROVE
Misc: 1420,NFPS 5-2,SOIL.5,60 M5 ES=0.6

ID File: E00A.ID
Title: CLP protocol-5pt calibration, 700285
Last Calibration: 890407 10:35

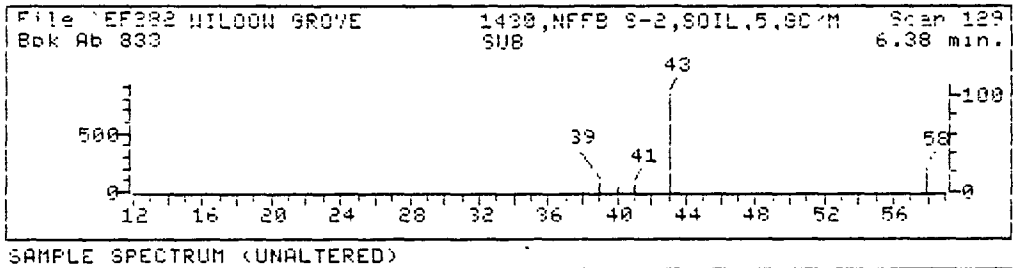
	Compound	R.T.	Q ion	Area	Conc	Units	Q
1	*Bromochloromethane	9.83	128.0	17020	50.00	UG/L	98
7	Acetone	8.33	43.0	5071	34.54	UG/L	87
13	1,1-Dichloroethane-d4	11.23	65.0	40244	47.41	UG/L	80
15	*1,4-Difluorobenzene	13.52	114.0	62573	50.00	UG/L	81
19	*Chlorobenzene-d5	23.41	117.0	97407	50.00	UG/L	84
35	Toluene-d8	22.17	98.0	59502	51.05	UG/L	87
40	Bromofluorobenzene	27.72	95.0	33926	49.08	UG/L	81

* Compound is ISTD

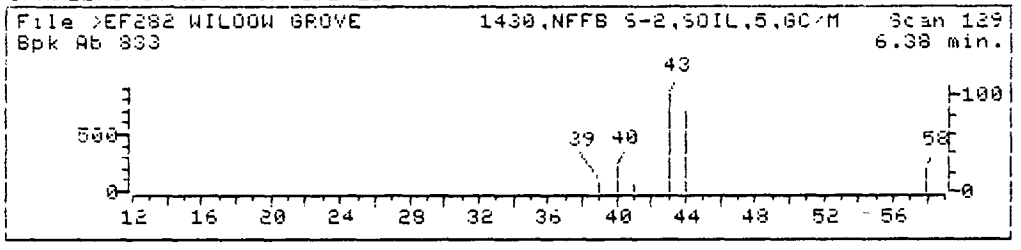
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

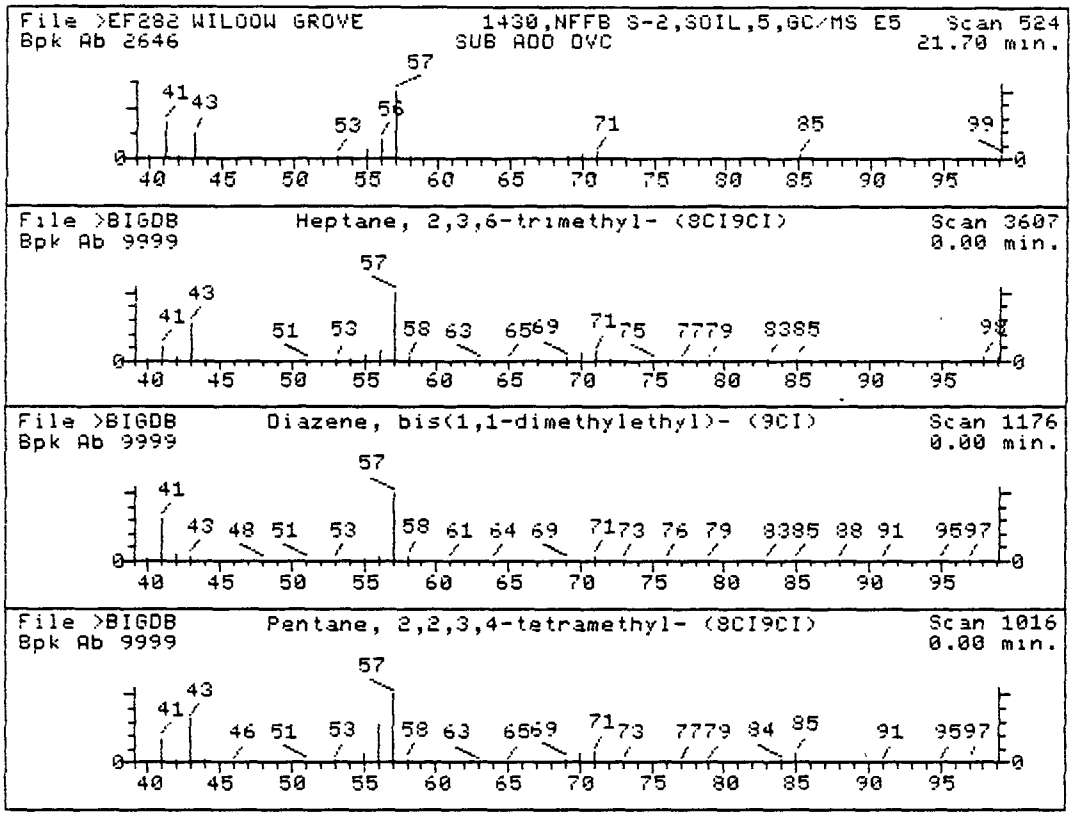


SAMPLE SPECTRUM (UNALTERED)



Data File: >EF282::D2 Quant Output File: `EF282::QT
Name: WILOOW GROVE
Misc: 1430,NFFB S-2,SOIL,5,GC/MS E5=CVG
Quant Time: 890407 16:28 Quant ID File: EVOA::BD
Injected at: 890407 15:52 Last Calibration: 890407 10:35

Compound No: 7
Compound Name: Acetone
Scan Number: 129
Retention Time: 6.38 min.
Quant Ion: 43.0
Area: 8371
Concentration: 34.54 UG/L
q-value: 97



Retention time = 21.70

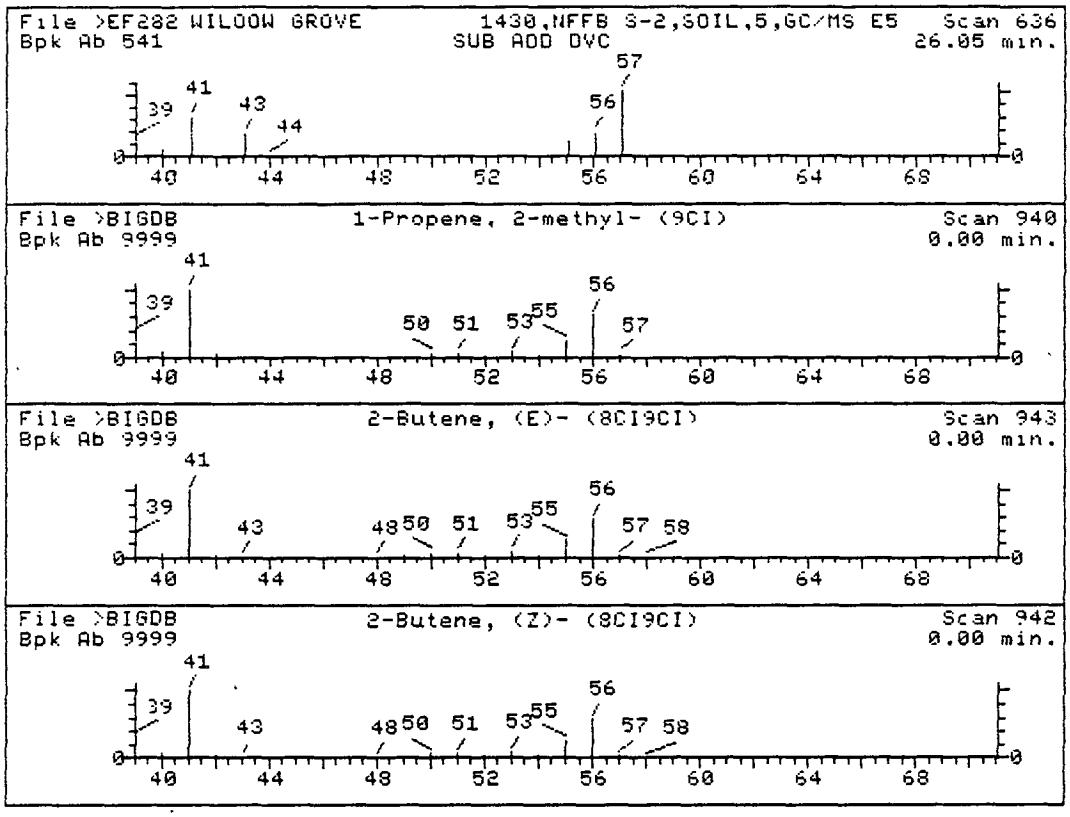
UNKNOWN HYDROCARBON

Area = 123153.0 Tentative Concentration is 31.00

1. Heptane, 2,3,6-trimethyl- (8CI9CI) 142 C10H22
2. Diazene, bis(1,1-dimethylethyl)- (9CI) 142 C8H18N2
3. Pentane, 2,2,3,4-tetramethyl- (8CI9CI) 128 C9H20

Sample file: >EF282 Spectrum #: 524
Search speed: 2 Tilting option: S No. of ion ranges searched: 48

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	52	4032933	3607	"BIGDB	38	44	2	0	67	16	20	13
2.	44	'927833	1176	"BIGDB	29	42	0	0	70	23	17	15
3.	28	1186534	1016	"BIGDB	41	45	2	0	51	39	10	14



Retention time = 26.05

UNKNOWN HYDROCARBON

Area = 23545.00 Tentative Concentration is 6.00

1. 1-Propene, 2-methyl- (9CI) 56 C4H8
2. 2-Butene, (E)- (8CI9CI) 56 C4H8
3. 2-Butene, (Z)- (8CI9CI) 56 C4H8
4. 2-Butene (8CI9CI) 56 C4H8

Sample file: >EF282 Spectrum #: 636
Search speed: 2 Tilting option: S No. of ion ranges searched: 47

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	20*	115117	940	"BIGDB	27	46	2	0	60	52	5	14
2.	20*	624646	943	"BIGDB	24	55	2	0	60	54	5	14
3.	20*	590181	942	"BIGDB	24	55	2	0	60	54	5	14
4.	15*	107017	939	"BIGDB	21	60	2	0	60	59	3	13

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NFFW1

Lab Name: EAENG Contract: 68-01-7438

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFS32

Matrix: (soil/water) WATER Lab Sample ID: EA # 1432

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF134

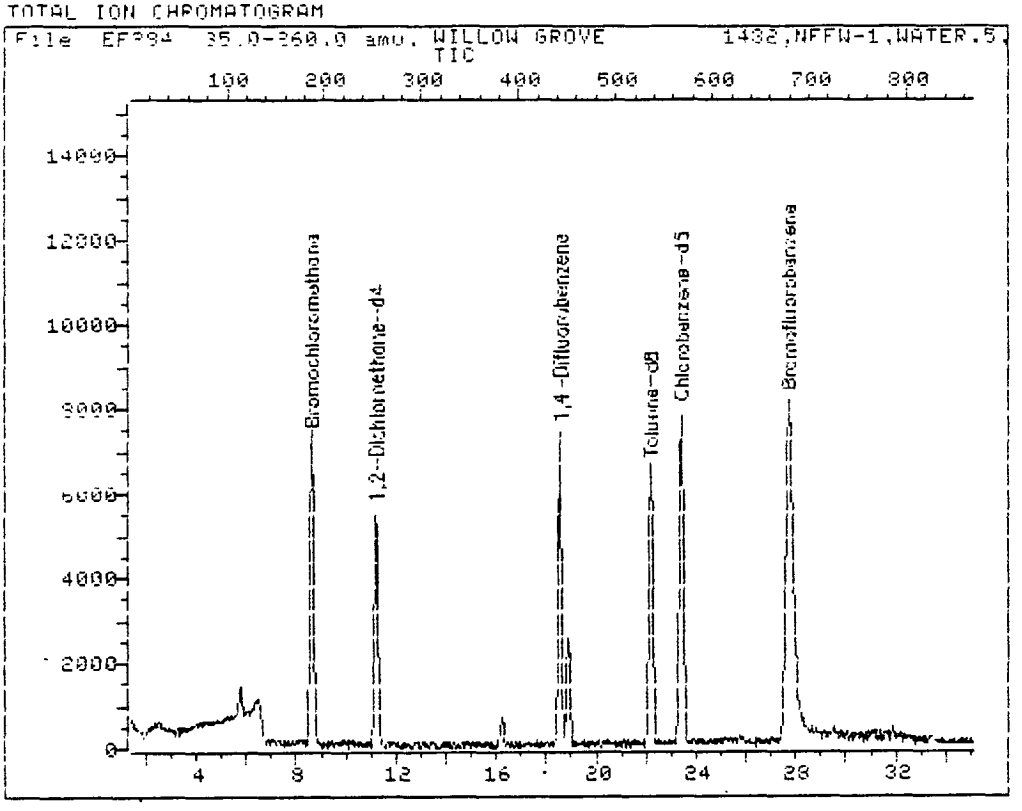
Level: (low med) LOW Date Received: 4/ 5/89

% Moisture: not dec. 100. Date Analyzed: 4/ 7/89

Column: (packed/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	4.	J
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	11.	
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

TOTAL ION CHROMATOGRAM



Data File: >EF284::D2 Quant Output File: ^EF284::QT
Name: WILLOW GROVE
Misc: 1432,NFFW-1,WATER,5,GC/MS E5=CVG

Id File: EVOH::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890407 17:49
Injected at: 890407 17:13

QUANT REPORT

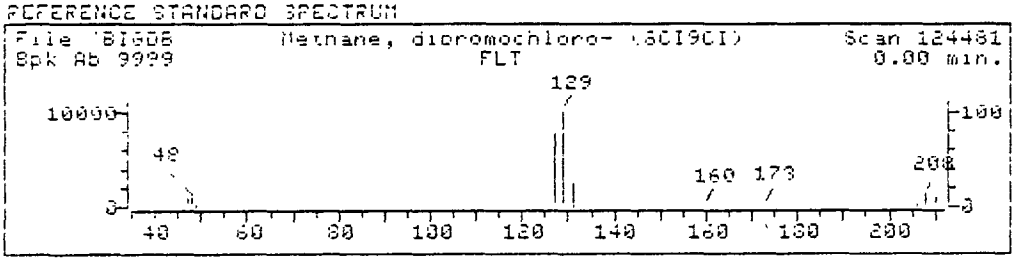
Operator ID: CAFL Quant Rev: 6 Quant Time: 890407 17:45
Corpo File: EF0B4::UT Injected at: 890407 17:13
Data File: EF0B4::DI Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: 1432 NFRW-1,WATER 5,80.MB ES=0%

ID File: E:0A::BD
Title: CLP protocol-5pt calibration, 700CES
Last Calibration: 890407 10:35

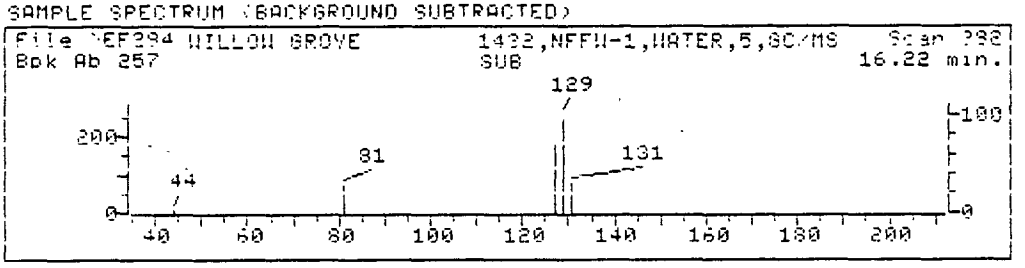
	Compound	R.T.	Q ion	Area	Conc	Units	q
1	*Bromochloromethane	9.82	128.0	10435	50.00	UG/L	87
12	1,2-Dichloroethane-d4	11.22	65.0	24193	46.47	UG/L	92
15	*1,4-Difluorobenzene	13.65	114.0	31692	50.00	UG/L	90
24	Dibromochloromethane	16.22	129.0	2569	4.24	UG/L	88
28	Bromoform	18.36	173.0	7495	11.07	UG/L	85
29	*Chlorobenzene-d5	23.40	117.0	28526	50.00	UG/L	87
35	Toluene-d8	22.15	98.0	27776	51.62	UG/L	85
40	Bromofluorobenzene	27.71	95.0	27844	50.21	UG/L	87

* Compound is ISTD

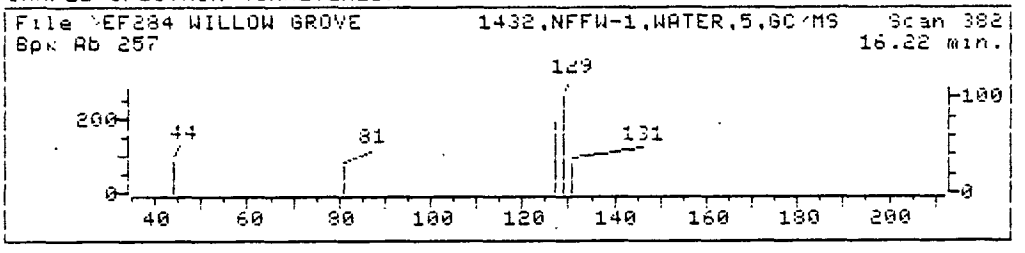
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



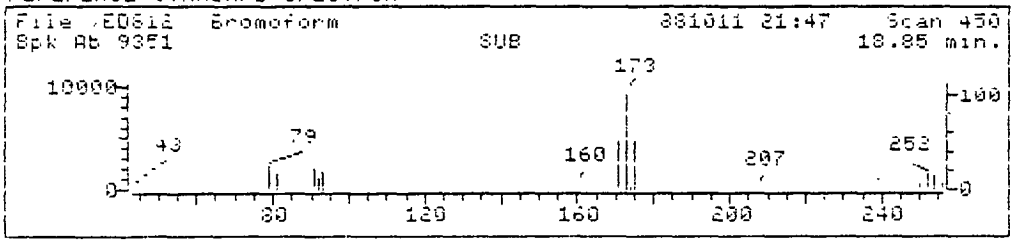
SAMPLE SPECTRUM (UNALTERED)



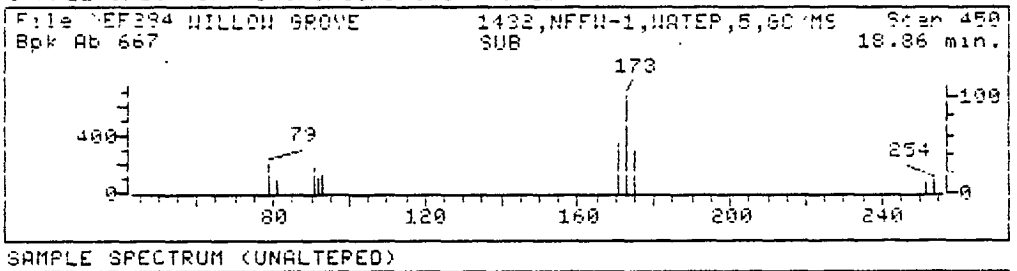
Data File: >EF284::D2 Quant Output File: ^EF284::QT
Name: WILLOW GROVE
Misc: 1432,NFFW-1,WATER,5,GC/MS E5=CVG
Quant Time: 890407 17:49 Quant ID File: EVDA::BD
Injected at: 890407 17:13 Last Calibration: 890407 10:35

Compound No: 24
Compound Name: Dibromochloromethane
Scan Number: 382
Retention Time: 16.22 min.
Quant Ion: 129.0
Area: 2589
Concentration: 4.24 UG/L
q-value: 96

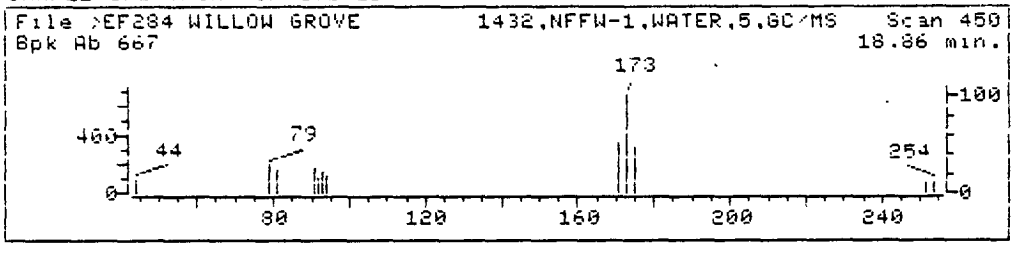
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



Data File: >EF284::D2 Quant Output File: ^EF284::QT
Name: WILLOW GROVE
Misc: 1432,NFFW-1,WATER,5,GC/MS E5=CVG
Quant Time: 890407 17:49 Quant ID File: EVOA::BD
Injected at: 890407 17:13 Last Calibration: 890407 10:35

Compound No: 28
Compound Name: Bromoform
Scan Number: 450
Retention Time: 18.86 min.
Quant Ion: 173.0
Area: 7465
Concentration: 11.07 UG/L
q-value: 96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFFW2

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: MFFES2

Matrix: (soil/water) WATER Lab Sample ID: EA# 1508

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: SF300

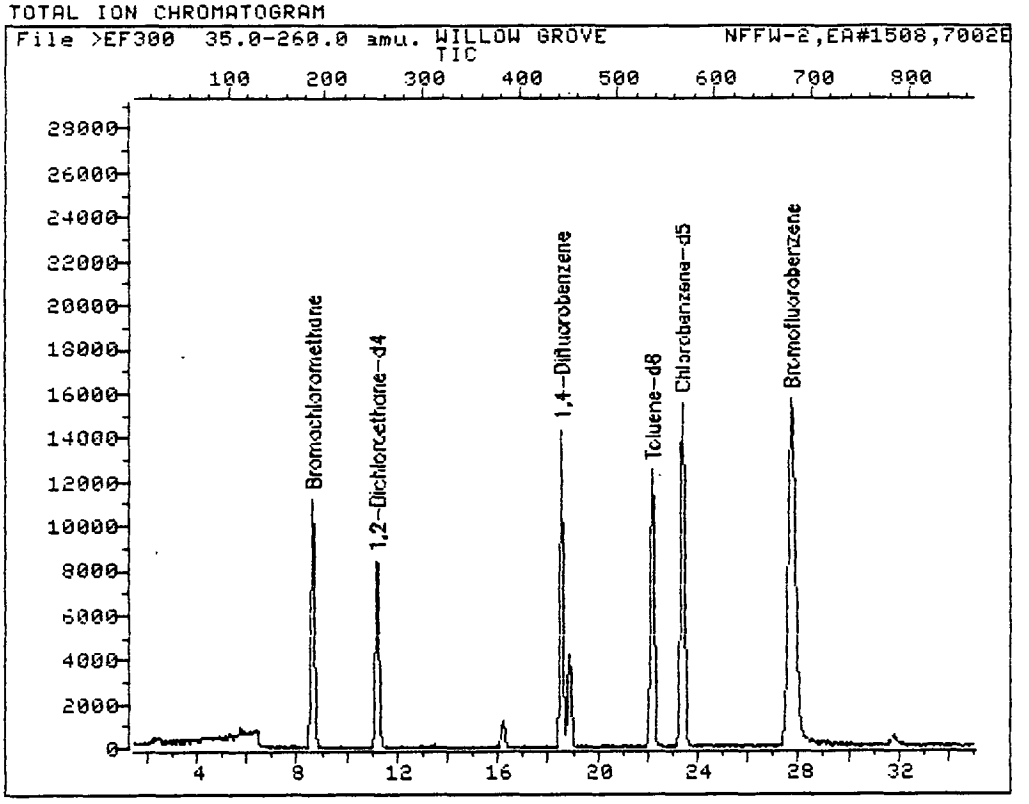
Level: (low/med) LOW Date Received: 4/ 8/88

% Moisture: not dec. 100. Date Analyzed: 4/10/88

Column: (packed/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	J
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	12.	
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

TOTAL ION CHROMATOGRAM



Data File: >EF300::D2 Quant Output File: ^EF300::QT
Name: WILLOW GROVE
Misc: NFFW-2,EA#1508,7002E5,WATER,5.0ML

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CARL
Quant Time: 890410 14:46
Injected at: 890410 14:10

QUANT REPORT

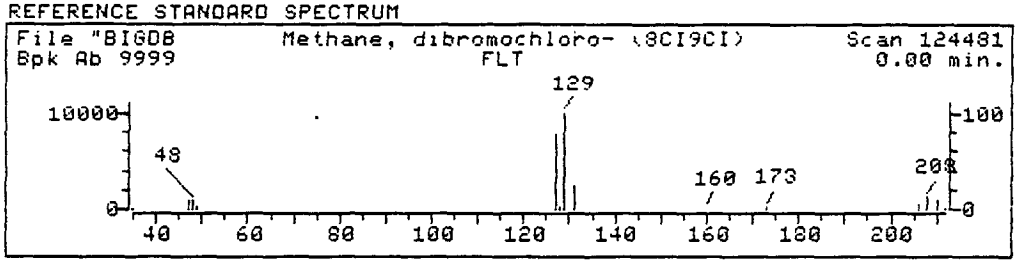
Operator ID: CAFL Quant Rev: 6 Quant Time: 890410 14:46
Output File: 5F200::07 Injected at: 890410 14:10
Data File: 5F200::02 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: MFFW-2,Em#:50S,700255,WATER,5.0ML

ID File: SYSA::8D
Title: CLP protocol-5pt calibration, 700255
Last Calibration: 890410 08:05

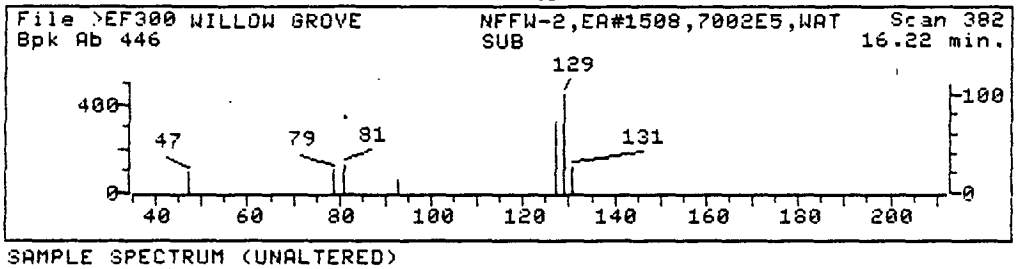
	Compound	R.T.	Q ion	Area	Conc	Units	Q
1)	Bromochloromethane	8.35	128.0	14050	50.00	UG/L	99
13)	1,2-Dichloroethane-d4	11.21	65.0	35352	50.67	UG/L	70
15)	*1,4-Difluorobenzene	15.54	114.0	52265	50.00	UG/L	81
24)	Dibromochloromethane	16.22	129.0	4527	4.86	UG/L	95
28)	Bromoform	19.39	173.0	11951	11.74	UG/L	96
29)	*Chlorobenzene-d5	20.39	117.0	47792	50.00	UG/L	85
35)	Toluene-d8	22.19	98.0	49604	51.72	UG/L	98
40)	Bromofluorobenzene	27.74	95.0	52529	51.67	UG/L	94

* Compound is ISTD

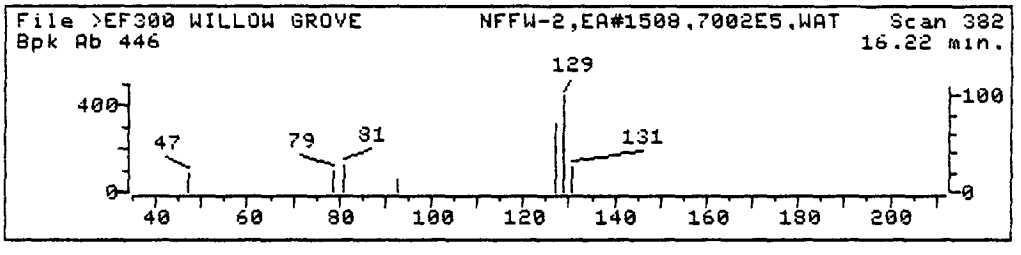
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



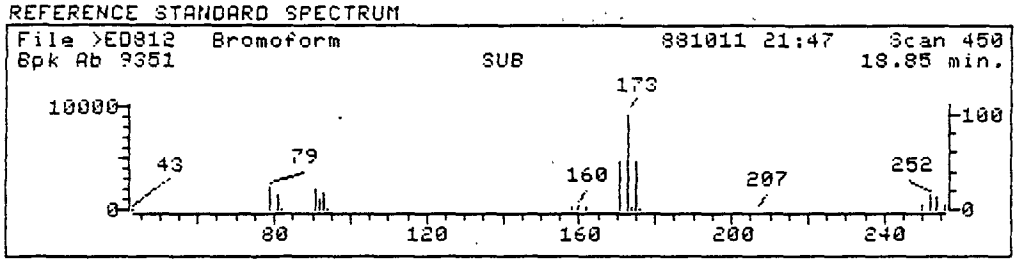
SAMPLE SPECTRUM (UNALTERED)



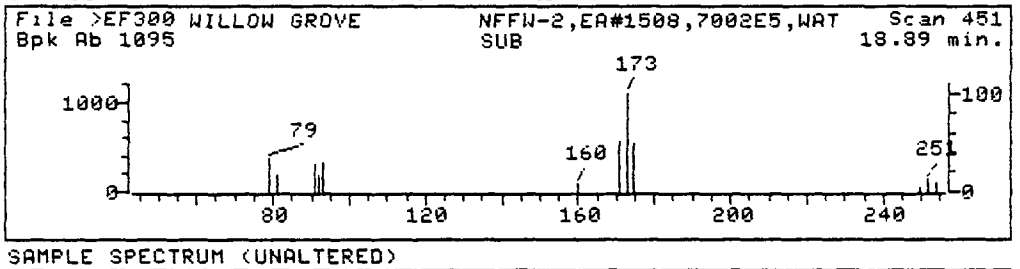
Data File: >EF300::D2 Quant Output File: ^EF300::QT
Name: WILLOW GROVE
Misc: NFFW-2,EA#1508,7002E5,WATER,5.0ML
Quant Time: 890410 14:46 Quant ID File: EVOA::BD
Injected at: 890410 14:10 Last Calibration: 890410 08:35

Compound No: 24
Compound Name: Dibromochloromethane
Scan Number: 382
Retention Time: 16.22 min.
Quant Ion: 129.0
Area: 4527
Concentration: 4.86 UG/L
q-value: 95

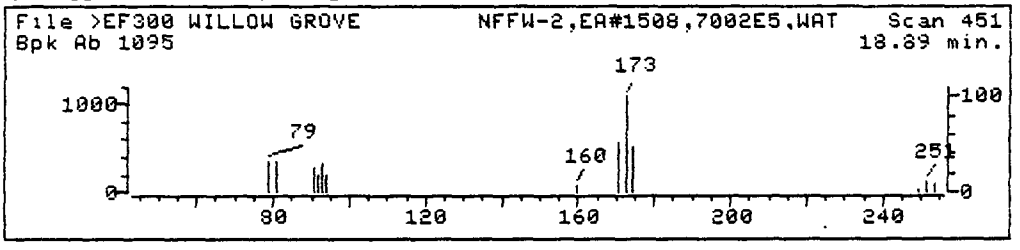
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



Data File: >EF300::D2 Quant Output File: ^EF300::QT
Name: WILLOW GROVE
Misc: NFFW-2,EA#1508,7002E5,WATER,5.0ML
Quant Time: 890410 14:46 Quant ID File: EVOA::BD
Injected at: 890410 14:10 Last Calibration: 890410 08:35

Compound No: 28
Compound Name: Bromoform
Scan Number: 451
Retention Time: 18.89 min.
Quant Ion: 173.0
Area: 11961
Concentration: 11.74 UG/L
q-value: 96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSE BL

Lab Name: SAENG Contract: 68-01-7418

Lab Code: SAENG Case No.: WILLOW SAS No.: SDG No.: WFFB52

Matrix: (soil/water) WATER Lab Sample ID: EA # 1431

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF080

Level: (low/med) LOW Date Received: 4/ 8/89

% Moisture: not dec. 100. Date Analyzed: 4/ 7/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FINSE BL

Lab Name: EAEMS Contract: EP-W-7103

Lab Code: EAEMS Case No.: HILLOW SAS No.: SDG No.: NFTB32

Matrix: (soil/water) WATER Lab Sample ID: EA# 1431

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF133

Level: (low/med) LOW Date Received: 4/ 6/88

% Moisture: not dec. 100. Date Analyzed: 4/ 7/88

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
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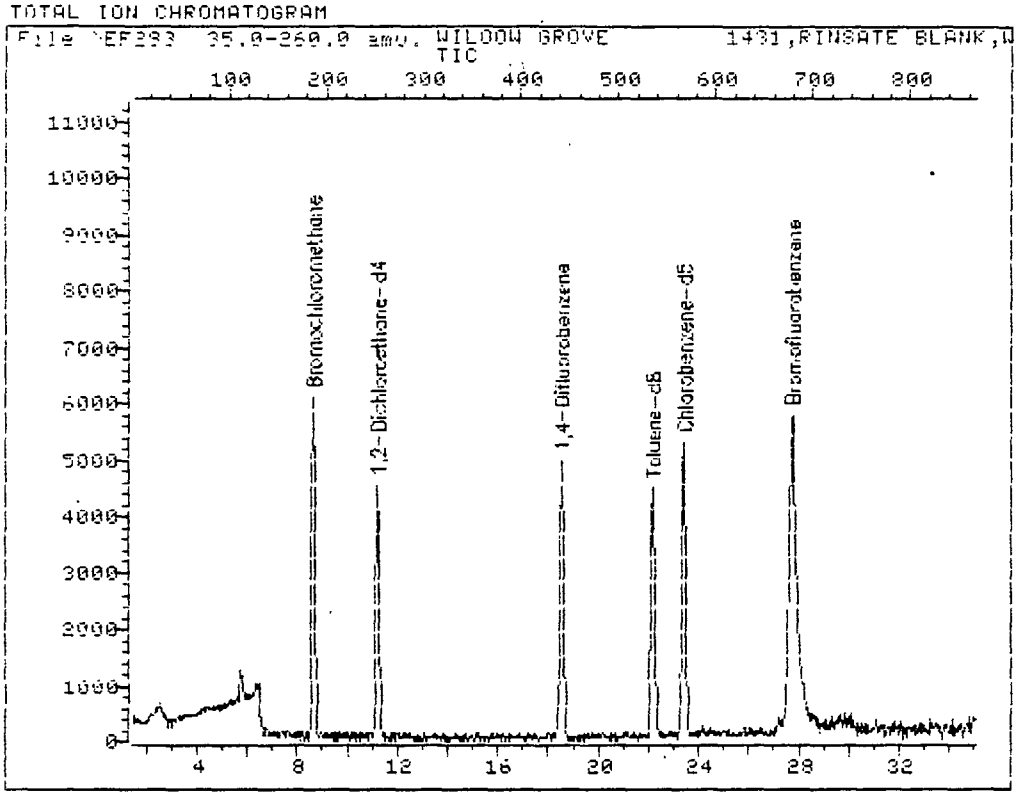
24.				
25.				
26.				
27.				
28.				
29.				
30.				

TOTAL ION CHROMATOGRAM



Data File: >EF283::D2 Quant Output File: EF283::QT
Name: WILOOW GROVE
Misc: 1431,RINSATE BLANK,WATER,5,GC/MS E5=CVG

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890407 17:08
Injected at: 890407 16:32

QUANT REPORT

Operator ID: CMFL Quant Par: 8 Quant Time: 890407 17:09
Output File: 'EF2S2::OT Injected at: 890407 16:30
Data File: EF2S2::.DI Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: 1431,RINSATE BLANK,WATER,5,60/MS ES=CVG

ID File: EVOA::BD
Title: CLP protocol-5pt calibration, 700255
Last Calibration: 890407 10:35

	Compound	R.T.	Q ion	Area	Conc	Units	q
1	*Bromochloromethane	3.83	128.0	8755	50.00	UG/L	97
10)	1,2-Dichloroethane-d4	11.22	65.0	20237	46.27	UG/L	79
19	*1,4-Difluorobenzene	13.52	114.0	21710	50.00	UG/L	92
29)	*Chlorobenzene-d5	22.41	117.0	17916	50.00	UG/L	99
35)	Toluene-d8	22.16	99.0	19531	51.17	UG/L	99
40)	Bromofluorobenzene	27.75	95.0	18116	51.25	UG/L	91

* Compound is ISTD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BL

Lab Name: EAENG Contract: 82-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB32

Matrix: (soil/water) WATER Lab Sample ID: EA # 1433

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF285

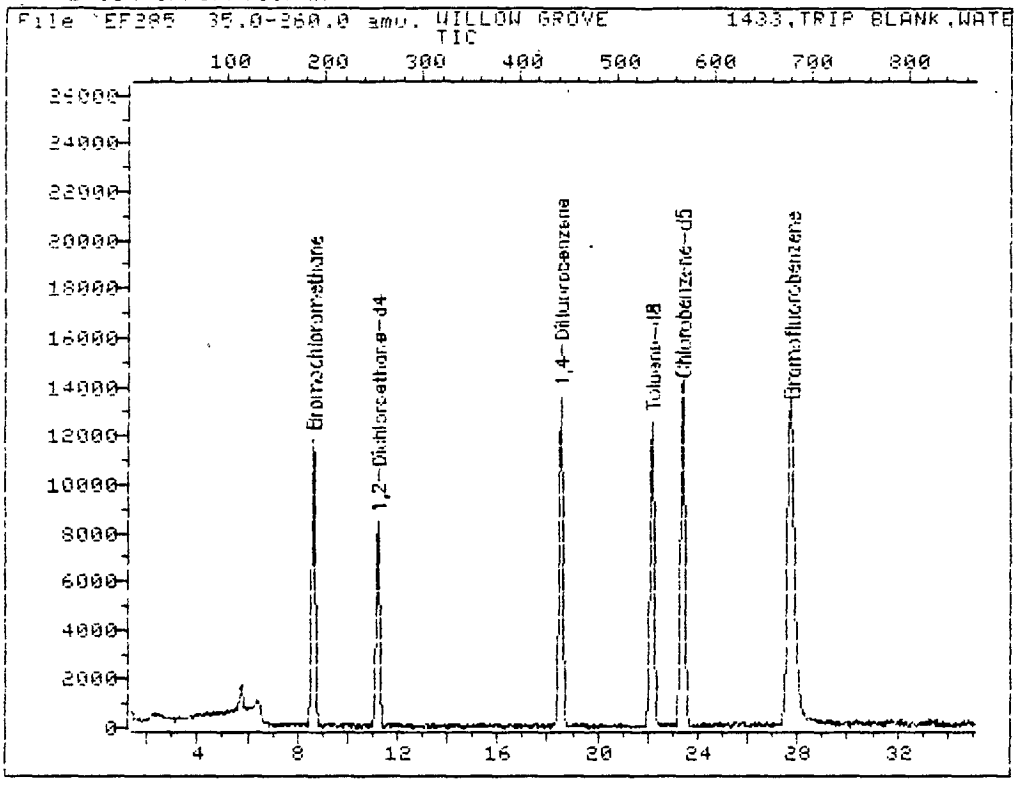
Level: (low/med) LOW Date Received: 4/ 6 89

% Moisture: not dec. 100. Date Analyzed: 4/ 7/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

TOTAL ION CHROMATOGRAM



Data File: >EF285::D2 Quant Output`File: `EF285::DT
Name: WILLOW GROVE
Misc: 1433,TRIP BLANK,WATER,5,GC/MS E5=CVG

Id File: EVDA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890408 13:33
Injected at: 890407 17:54

QUANT REPORT

Operator ID: CARL Quant Re.: 6 Quant Time: 890408 13:33
Output File: BF135::OT Injected at: 862407 17.54
Data File: BF135::D2 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: 1433,TRIP BLANK,WATER.5,GC/MS E5=0'0

ID File: EVOA::BD .
Title: CLP protocol-Spt calibration, 700255
Last Calibration: 890407 10:35

	Compound	R.T.	Q ion	Area	Conc	Units	Q
1	*Bromochloromethane	8.53	128.0	15370	50.00	UG/L	83
12	1,2-Dichloroethane-d4	11.23	65.0	36431	46.03	UG/L	90
19	*1,4-Difluorobenzene	16.32	114.0	53979	50.00	UG/L	89
25	*Chlorobenzene-d5	23.37	117.0	47211	50.00	UG/L	87
35	Toluene-d8	25.17	98.0	50137	51.47	UG/L	63
42	Bromofluorobenzene	27.75	95.0	49186	45.93	UG/L	94

* Compound is ISTD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BL

Lab Name: EMENG Contract: 68-01-7436

Lab Code: EMENG Case No.: WILLOW SAS No.: SDG No.: NFFB1C

Matrix: (soil/water) WATER Lab Sample ID: EA # 1509

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF393

Level: (low/med) LOW Date Received: 4/ 3 89

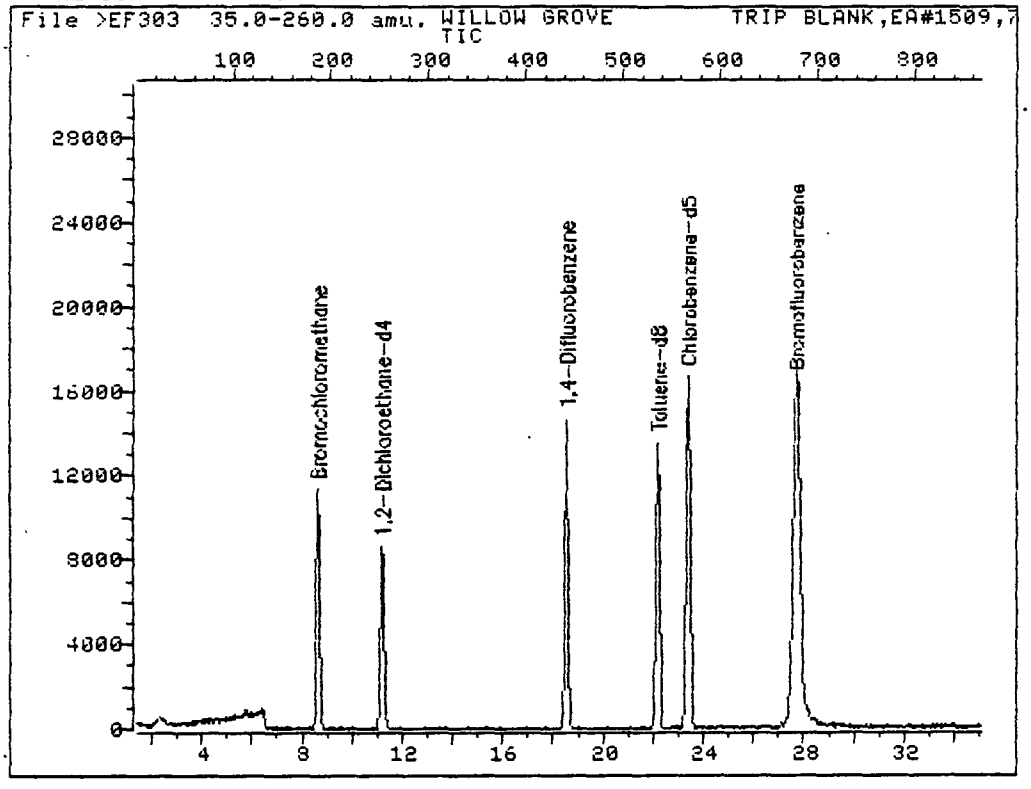
% Moisture: not dec. 100. Date Analyzed: 4 10/89

Column: (packed/cap) PACK Dilution Factor: 1.20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

FORM I VOA 1/87 Rev.

TOTAL ION CHROMATOGRAM



Data File: >EF303::D2 Quant Output File: ^EF303::QT
Name: WILLOW GROVE
Misc: TRIP BLANK,EA#1509,7002E5,WATER,5.0ML

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CARL
Quant Time: 890410 16:47
Injected at: 890410 16:11

QUANT REPORT

Operator ID: CARL Quant Re.: 6 Quant Time: 980410 16:47
Output File: EF303::07 (reprocessed at: 980410 16:11
Data File: EF303::02 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: TRIP BLANK,EA#1503 700285 WATER,5.0ML

ID File: EVOA::8D
Title: CLP protocol-5pt calibration, 700285
Last Calibration: 980410 09:35

	Compound	R.T	Q ion	Area	Conc	Units	Q
1.	*Bromochloromethane	9.65	128.0	14483	50.00	UG/L	99
13.	1,2-Dichloroethane-d4	11.21	65.0	40528	50.59	UG/L	77
19.	*1,4-Difluorobenzene	13.54	114.0	54639	50.00	UG/L	99
29.	*Chlorobenzene-d5	23.39	117.0	51354	50.00	UG/L	99
35.	Toluene-d8	25.19	98.0	51904	50.37	UG/L	99
40.	Bromofluorobenzene	27.70	95.0	58060	51.50	UG/L	90

* Compound is ISTD

C. Standards Data

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EAENG Contract: 86-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFE32

Instrument ID: 700IE6 Calibration Date(s): 1/24/88 1/24/88

Matrix:(soil/water) SOIL Level:(low/med): LOW Column:(pack/cap) PACK

Min RRF for SPCC(#) = .300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = EE677 RRF50 = EE678
RRF100= EE675 RRF150= EE674 RRF200= EE673

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	RRF	% RSD
Chloromethane #	.727	.772	.750	.771	.715	.747	3.4#
Bromomethane	.819	.806	.487	.633	.464	.639	22.0
Vinyl Chloride *	1.051	1.042	1.014	1.023	.983	1.025	2.5*
Chloroethane	.601	.581	.589	.602	.582	.593	1.9
Methylene Chloride	.681	.795	.709	.783	.734	.734	6.1
Acetone	.473	.283	.232	.215	.134	.273	41.4
Carbon Disulfide	2.915	3.040	3.082	3.156	3.099	3.058	3.3
1,1-Dichloroethene *	1.056	1.120	1.113	1.130	1.079	1.099	2.8*
1,1-Dichloroethane #	2.026	2.069	2.074	2.081	1.971	2.044	2.3#
1,2-Dichloroethene (total)	1.065	1.161	1.170	1.180	1.127	1.145	3.4
Chloroform *	2.578	2.545	2.614	2.645	2.402	2.577	2.7*
1,2-Dichloroethane	1.767	1.767	1.754	1.776	1.645	1.742	3.2
2-Butanone	.036	.034	.034	.033	.027	.033	10.1
1,1,1-Trichloroethane	.586	.620	.610	.598	.547	.594	4.7
Carbon Tetrachloride	.564	.603	.592	.578	.536	.581	4.6
Vinyl Acetate	.427	.535	.571	.605	.557	.551	8.3
Bromodichloromethane	.303	.809	.787	.796	.709	.791	5.3
1,2-Dichloropropane *	.391	.396	.403	.392	.352	.327	5.2*
cis-1,3-Dichloropropene	.674	.739	.744	.741	.669	.713	5.4
Trichloroethene	.507	.518	.513	.489	.442	.484	8.3
Dibromochloromethane	.825	.814	.807	.777	.691	.783	7.0
1,1,2-Trichloroethane	.424	.417	.414	.397	.346	.399	7.9
Benzene	.867	.894	.898	.830	.904	.868	4.4
trans-1,3-Dichloropropene	.312	.342	.349	.344	.301	.329	6.5
Bromoform #	.779	.777	.794	.754	.675	.755	6.2#
4-Methyl-2-Pentanone	.362	.390	.388	.403	.337	.378	7.5
2-Hexanone	.240	.253	.274	.273	.227	.254	8.1
Tetrachloroethene	.525	.537	.523	.510	.470	.513	5.1
1,1,2,2-Tetrachloroethane #	.755	.775	.762	.769	.665	.745	6.1#
Toluene	.664	.695	.684	.680	.620	.683	4.4
Chlorobenzene	.974	.983	.975	.987	.879	.956	4.5
Ethylbenzene *	.414	.424	.423	.420	.365	.413	3.9*
Styrene	.912	.936	.949	.967	.855	.926	4.2
Xylene (total)	.525	.531	.527	.534	.438	.521	3.9
Toluene-d8	1.090	1.090	1.072	1.079	1.067	1.076	.8
1,2-Dichloroethane-d4	1.426	1.460	1.510	1.603	1.537	1.527	5.9
Bromofluorobenzene	.835	.818	.824	.820	.810	.821	1.1

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB3I

Instrument ID: 700IEE Calibration Date: 4/ 7/89 Time: 9:36

Lab File ID: EF274 Init. Calib. Dates: 1/24/89 1/24/89

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

Min RRF50 for SPCC(#) = .300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND	RRF	RRF50	%D
Chloromethane #	.747	.606	18.9 #
Bromomethane	.638	.887	31.8
Vinyl Chloride *	1.025	.969	5.5 *
Chloroethane	.593	.636	7.2
Methylene Chloride	.734	1.202	53.2
Acetone	.276	.712	56.5
Carbon Disulfide	3.058	2.671	12.7
1,1-Dichloroethene *	1.099	.961	12.5 *
1,1-Dichloroethane #	2.044	2.068	1.2 #
1,2-Dichloroethene (total)	1.145	1.161	1.4
Chloroform *	2.517	3.174	26.1 *
1,2-Dichloroethane	1.742	2.107	78.4
2-Butanone	.633	.027	10.9
1,1,1-Trichloroethane	.584	.918	54.5
Carbon Tetrachloride	.633	.307	56.2
Vinyl Acetate	.951	.837	15.7
Bromodichloromethane	.731	1.067	26.5
1,2-Dichloropropane *	.387	.338	12.6 *
cis-1,3-Dichloropropene	.713	.816	14.4
Trichloroethene	.494	.496	.3
Dibromochloromethane	.763	.958	22.4
1,1,2-Trichloroethane	.399	.398	.5
Benzene	.868	.793	8.7
trans-1,3-Dichloropropene	.329	.444	34.9
Bromoform #	.758	1.057	39.5 #
4-Methyl-2-Pentanone	.373	.425	12.4
2-Hexanone	.254	.288	17.5
Tetrachloroethene	.513	.509	.9
1,1,2,2-Tetrachloroethane #	.745	.731	1.8 #
Toluene	.683	.623	8.8
Chlorobenzene	.956	.857	10.3
Ethylbenzene *	.413	.406	1.7 *
Styrene	.926	.934	.8
Xylene (total)	.521	.519	.3
Toluene-d8	1.076	1.014	5.7
1,2-Dichloroethane-d4	1.527	2.494	63.3
Bromofluorobenzene	.821	1.045	27.3

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: E-ENG Contract: 68-01-7438

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF83C

Instrument ID: 700285 Calibration Date: 4/10/88 Time: 7:5

Lab File ID: EF292 Init. Calib. Date(s): 1/24/88 1/24/88

Matrix (soil/water) WATER Level (low/med.) LOW Column (pack/cap) PACK

Min RRF50 for SPCC(#) = .300 (0.250 for Bromoform) Max %D for CCC (+) = 25.0%

COMPOUND	RRF	RRF50	%D
Chloromethane #	.747	.647	13.4 #
Bromomethane	.638	.982	50.9
Vinyl Chloride +	1.023	1.044	1.8 +
Chloroethane	.583	.583	.1
Methylene Chloride	.734	1.083	38.1
Acetone	.278	.776	179.4
Carbon Disulfide	3.056	2.948	3.6
1,1-Dichloroethene +	1.089	1.027	5.8 +
1,1-Dichloroethane #	2.044	2.133	4.4 #
1,2-Dichloroethene (total)	1.145	1.219	6.5
Chloroform +	2.517	3.078	22.2 +
1,2-Dichloroethane	1.742	2.895	66.2
2-Butanone	.233	.021	6.0
1,1,1-Trichloroethane	.554	.934	57.3
Carbon Tetrachloride	.538	.836	51.2
Vinyl Acetate	.551	.572	3.7
Bromodichloromethane	.781	.989	27.9
1,2-Dichloropropane +	.387	.309	20.1 +
cis-1,3-Dichloropropene	.713	.756	6.0
Trichloroethene	.484	.476	3.2
Dibromochloromethane	.783	.874	11.6
1,1,2-Trichloroethane	.399	.369	7.6
Benzene	.868	.776	10.6
trans-1,3-Dichloropropene	.329	.419	27.2
Bromoform #	.756	.958	26.2 #
4-Methyl-2-Pentanone	.378	.424	12.1
2-Hexanone	.254	.304	19.8
Tetrachloroethene	.513	.523	1.8
1,1,2,2-Tetrachloroethane #	.745	.699	6.2 #
Toluene	.669	.643	3.9
Chlorobenzene	.356	.865	9.5
Ethylbenzene +	.413	.408	1.1 +
Styrene	.526	.908	1.9
Xylene (total)	.521	.525	.9
Toluene-d8	1.076	1.003	6.7
1,2-Dichloroethane-d4	1.527	2.313	51.5
Bromofluorobenzene	.821	1.020	24.2

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EAENG Contract: 68-01-7435

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB52

Lab File ID (Standard): EF274 Date Analyzed: 4/27/89

Instrument ID: 7002E5 Time Analyzed: 8:38

Matrix:(soil/water) SOIL Level:(low/med): LOW Column:(pack/cap) PACK

	IS1 (BCM) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT
12 HOUR STD	18652.	8.62	67387.	18.51	62209.	22.36
UPPER LIMIT	37304.	9.12	134774.	19.01	124418.	22.86
LOWER LIMIT	9326.	8.12	33694.	18.01	31104.	21.86
EPA SAMPLE NO.						
1 WBLK	19607.	8.64	63483.	18.54	58140.	22.38
2 NFFB52	17020.	8.63	62870.	18.52	57437.	22.41
3 RINSE BL	6789.*	8.63	21710.*	18.52	17815.*	22.41
4 NFFW1	10435.	8.62	31892.*	18.55	26526.*	22.40
5 TRIP BL	15370.	8.63	52378.	18.52	47211.	22.37
6 NFFB3MS	14750.	8.62	55646.	18.51	52714.	22.40
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

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

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

Column used to flag internal standard area values with an asterisk

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EAENG Contract: 68-01-7128

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF382

Lab File ID (Standard): EF292 Date Analyzed: 4/12/89

Instrument ID: 7002E5 Time Analyzed: 7:5

Matrix: (soil/water) WATER Level: (low/med): LOW Column: (pack/cap) PACK

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA #	RT	AREA #	RT	AREA #	RT
12 HOUR STD	18707.	8.84	67955.	18.53	62587.	23.38
UPPER LIMIT	37414.	9.14	135910.	19.03	121174.	23.96
LOWER LIMIT	9354.	8.14	33978.	18.03	30234.	22.86
EPA SAMPLE NO.						
1 VBLK1	16976.	8.84	61927.	18.53	58625.	23.42
2 NFFW2	14050.	8.85	53286.	18.54	47792.	23.39
3 NFFW2MS	14007.	8.86	54008.	18.55	49648.	23.40
4 NFFW2MSD	16274.	8.85	56576.	18.55	51956.	23.38
5 TRIP BL	14463.	8.85	54633.	18.54	51254.	23.39
6 NFF8MSD	13397.	8.84	48858.	18.52	46730.	23.38
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

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

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

Column used to flag internal standard area values with an asterisk

D. Raw QC Data

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

Lab Name: EAENS Contract: 68-01-7438

Lab Code: EAENS Case No.: WILLOW SAS No.: SDG No.: NFFE32

Matrix: (soil/water) WATER Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF275

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 4/ 7/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB52

Matrix: (soil/water) WATER Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF275

Level: (low/med) LOW Date Received: 0 0 0

% Moisture: not dec. 100. Date Analyzed: 4 7 86

Column: (pack/cap) PACK Dilution Factor: 1.00

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

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN	8.43	10.	J
2.				
3.				
4.				
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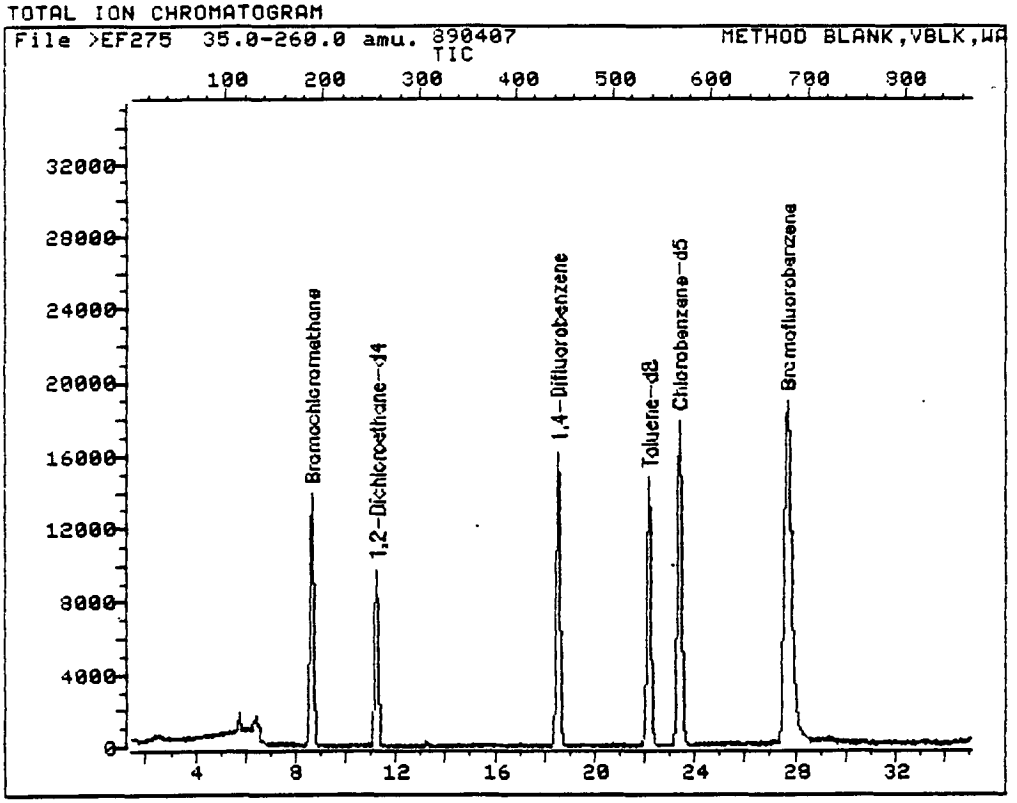
24.				
25.				
26.				
27.				
28.				
29.				
30.				

TOTAL ION CHROMATOGRAM



Data File: >EF275::D2 Quant Output File: ^EF275::QT
Name: 890407
Misc: METHOD BLANK,VBLK,WATER,5,7002E5

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890407 11:24
Injected at: 890407 10:48

QUANT REPORT

Operator ID: CARL Quant Rev: 6 Quant Time: 890412 12:10
Output File: EF275::QT Injected at: 890407 10:42
Data File: EF275::D2 Dilution Factor: 1.00000
Name: 890407
Misc: VBL*[redacted],METHOD BLANK,7002E5

ID File: EV0A::BD
Title: OLP protocol-5pt calibration, 7002E5
Last Calibration: 890412 12:09

	Compound	R.T.	Q ion	Area	Conc	Units	Q
1)	*Bromochloromethane	6.64	128.0	19607	50.00	UG/L	95
12)	1,2-Dichloroethane-d4	11.24	65.0	43070	46.41	UG/L	91
15)	*1,4-Difluorobenzene	13.54	114.0	87483	50.00	UG/L	92
29)	*Chlorobenzene-d5	23.39	117.0	58140	50.00	UG/L	97
35)	Toluene-d8	22.13	98.0	58627	49.69	UG/L	95
40)	Bromofluorobenzene	27.89	95.0	82914	51.78	UG/L	81

* Compound is ISTD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name: EPENG Contract: 68-01-7436

Lab Code: EPENG Case No.: WILLOW SAS No.: SDG No.: NFFB33

Matrix: (soil/water) WATER Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF2S3

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 4/10/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10..	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1

Lab Name: EAENG Contract: 68-01-7036

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFB32

Matrix: (soil/water) WATER Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: BF033

Level: (low/med) LOW Date Received: 0/ 2/ 0

% Moisture: not dec. 100. Date Analyzed: + 10/35

Column: (packed/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
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23.				
24.				
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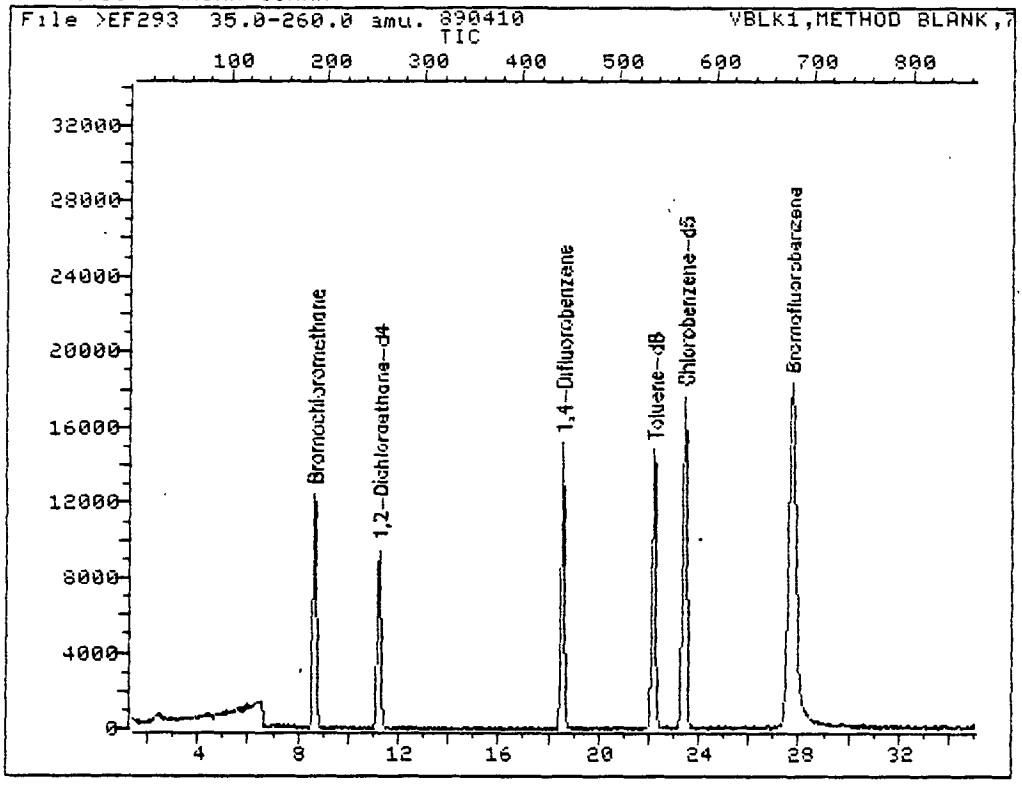
26.				
27.				
28.				
29.				
30.				

TOTAL ION CHROMATOGRAM



Data File: >EF293::D2 Quant Output File: ^EF293::QT
Name: 890410
Misc: VBLK1,METHOD BLANK,7002E5

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CRAIG
Quant Time: 890410 09:27
Injected at: 890410 08:51

QUANT REPORT

Operator ID: CRAIG Quant Rev: 6 Quant Time: 890410 09:27
Output File: ^EF293::QT Injected at: 890410 08:51
Data File: >EF293::D2 Dilution Factor: 1.00000
Name: 890410
Misc: VBLK1,METHOD BLANK,7002E5

ID File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.64	128.0	16976	50.00	UG/L	98
13)	1,2-Dichloroethane-d4	11.24	65.0	40758	51.91	UG/L	84
15)	*1,4-Difluorobenzene	18.53	114.0	61927	50.00	UG/L	89
29)	*Chlorobenzene-d5	23.42	117.0	56625	50.00	UG/L	96
35)	Toluene-d8	22.18	98.0	58393	51.39	UG/L	98
40)	Bromofluorobenzene	27.69	95.0	59084	51.14	UG/L	86

* Compound is ISTD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NFF58M9

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF582

Matrix: (soil/water) SOIL Lab Sample ID: EA # 1430

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EF237

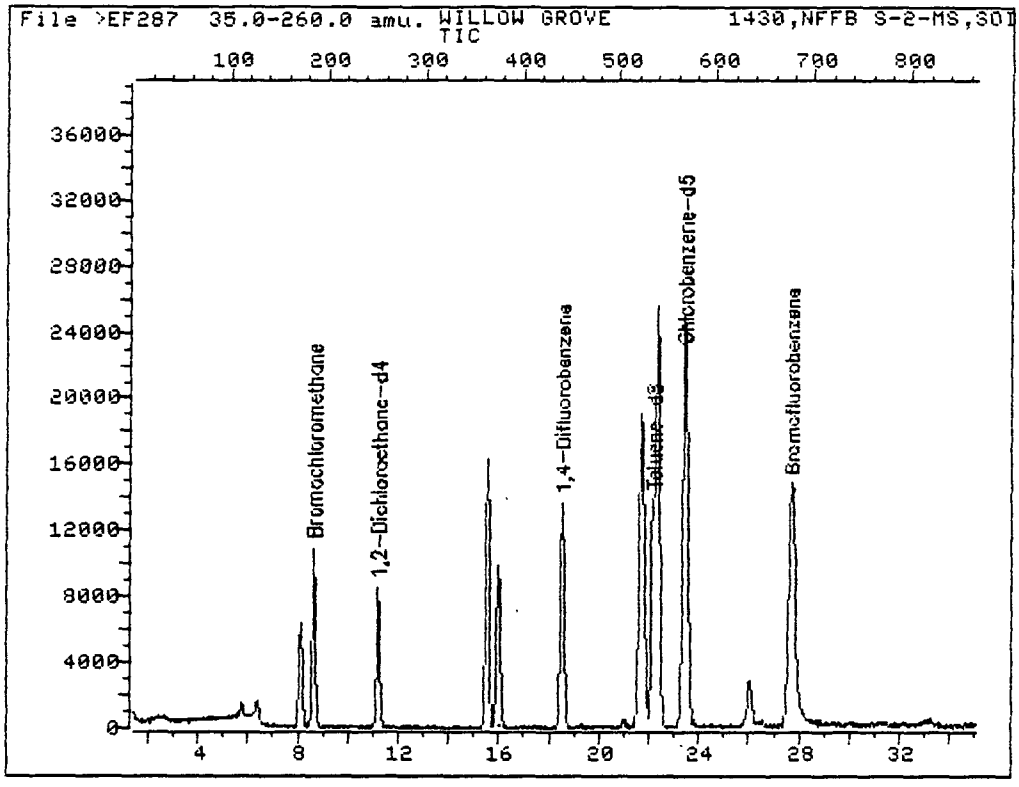
Level: (low/med) LOW Date Received: 4/ 6/89

% Moisture: not dec. 18. Date Analyzed: 4/ 7/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	6.	U
75-35-4	1,1-Dichloroethene	46.	
75-34-3	1,1-Dichloroethane	6.	U
540-59-0	1,2-Dichloroethene (total)	6.	U
67-66-3	Chloroform	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	12.	U
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	62.	
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	57.	
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	6.	U
108-88-3	Toluene	61.	
108-90-7	Chlorobenzene	75.	
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	5.	U

TOTAL ION CHROMATOGRAM



Data File: >EF287::D2 Quant Output File: ^EF287::QT
Name: WILLOW GROVE
Misc: 1430,NFFB S-2-MS,SOIL,5,GC/MS E5-CVG

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890407 10:35

Operator ID: CARL
Quant Time: 890408 09:01
Injected at: 890407 19:20

QUANT REPORT

Operator ID: CARL Quant Rev: 8 Quant Time: 890405 09:01
Output File: EF287:07 Injected at: 890407 13:20
Data File: EF287:02 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: 1430,NFPE S-2-MS,SOIL.5,60.MS SE-0/G

ID File: EVOA:BD
Title: CLP protocol-5pt calibration, 700IES
Last Calibration: 890407 10:35

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.62	128.0	14750	50.00	UG/L	94
3)	1,1-Dichloroethene	8.11	96.0	11044	38.96	UG/L	82
10)	1,2-Dichloroethane-d4	11.22	65.0	35493	48.25	UG/L	81
15)	*1,4-Difluorobenzene	18.51	114.0	55646	50.00	UG/L	90
23)	Trichloroethene	15.66	130.0	27332	50.33	UG/L	92
28)	Benzene	15.99	78.0	40941	48.41	UG/L	92
29)	*Chlorobenzene-d5	23.40	117.0	50714	50.00	UG/L	84
34)	Toluene	22.35	92.0	31304	49.51	UG/L	94
35)	Toluene-d8	22.16	98.0	50914	49.50	UG/L	95
36)	Chlorobenzene	23.52	112.0	53330	51.35	UG/L	93
40)	Bromofluorobenzene	27.87	95.0	53138	50.12	UG/L	84

* Compound is ISTD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NFFW2M8

Lab Name: EAENG Contract: 68-01-7428

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFFE8I

Matrix: (soil/water) WATER Lab Sample ID: EAM 1508

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF331

Level: (low/med) LOW Date Received: 4/ 8/88

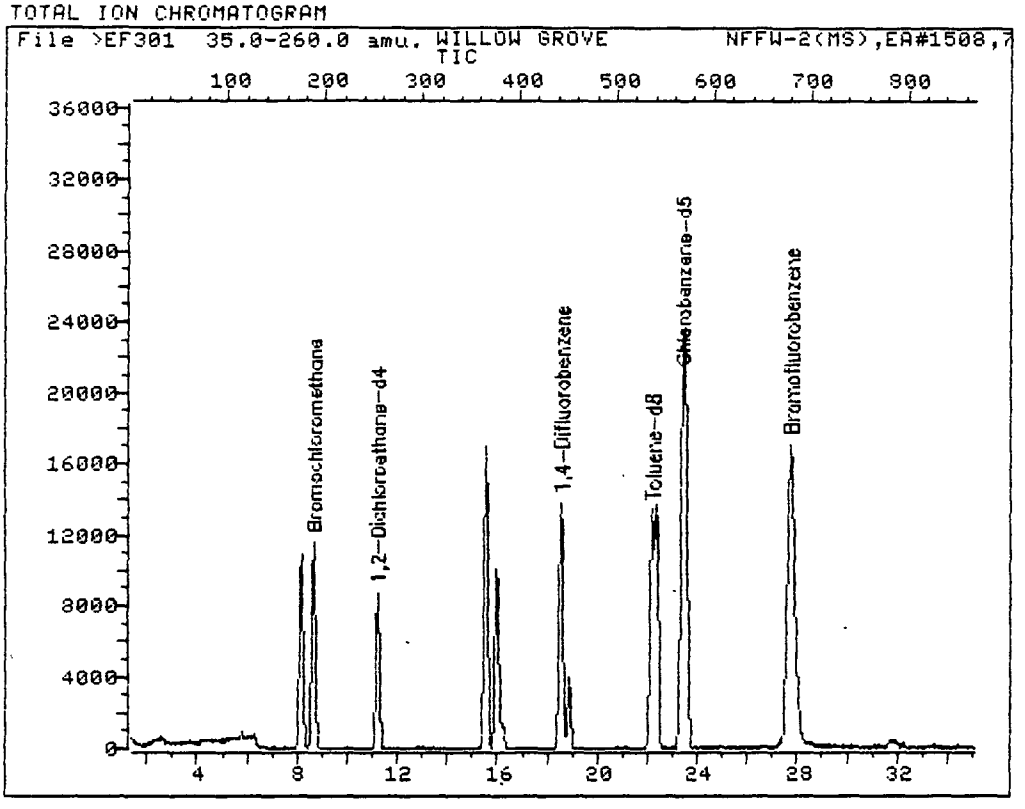
% Moisture: not dec. 100. Date Analyzed: 4/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	51.	
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	53.	
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	44.	
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	11.	
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	46.	
108-90-7	Chlorobenzene	55.	
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

3 057

TOTAL ION CHROMATOGRAM



Data File: >EF301::D2 Quant Output File: ^EF301::QT
Name: WILLOW GROVE
Misc: NFFW-2(MS),EA#1508,7002E5,WATER,5.0ML

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CARL
Quant Time: 890410 15:26
Injected at: 890410 14:50

QUANT REPORT

Operator ID: CARL Quant Rev: 6 Quant Time: 890410 15:26
Output File: ^EF301::QT Injected at: 890410 14:50
Data File: >EF301::D2 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: NFFW-2(MS),EA#1508,7002E5,WATER,5.0ML

ID File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.66	128.0	14007	50.00	UG/L	96
9)	1,1-Dichloroethene	8.15	96.0	17443	60.64	UG/L	86
13)	1,2-Dichloroethane-d4	11.22	65.0	39953	61.67	UG/L	77
15)	*1,4-Difluorobenzene	18.55	114.0	54008	50.00	UG/L	92
23)	Trichloroethene	15.56	130.0	27519	53.31	UG/L	89
24)	Dibromochloromethane	16.22	129.0	4350	4.61	UG/L	97
26)	Benzene	15.99	78.0	40938	48.83	UG/L	93
28)	Bromoform	18.86	173.0	11188	10.84	UG/L	98
29)	*Chlorobenzene-d5	23.40	117.0	49848	50.00	UG/L	98
34)	Toluene	22.35	92.0	29530	46.09	UG/L	96
35)	Toluene-d8	22.19	98.0	49915	49.90	UG/L	98
36)	Chlorobenzene	23.51	112.0	47732	55.38	UG/L	90
40)	Bromofluorobenzene	27.74	95.0	54118	53.21	UG/L	88

* Compound is ISTD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NFF83M3D

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF832

Matrix: (soil/water) SOIL Lab Sample ID: EA # 1430

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EF304

Level: (low/med) LOW Date Received: 4/ 8/89

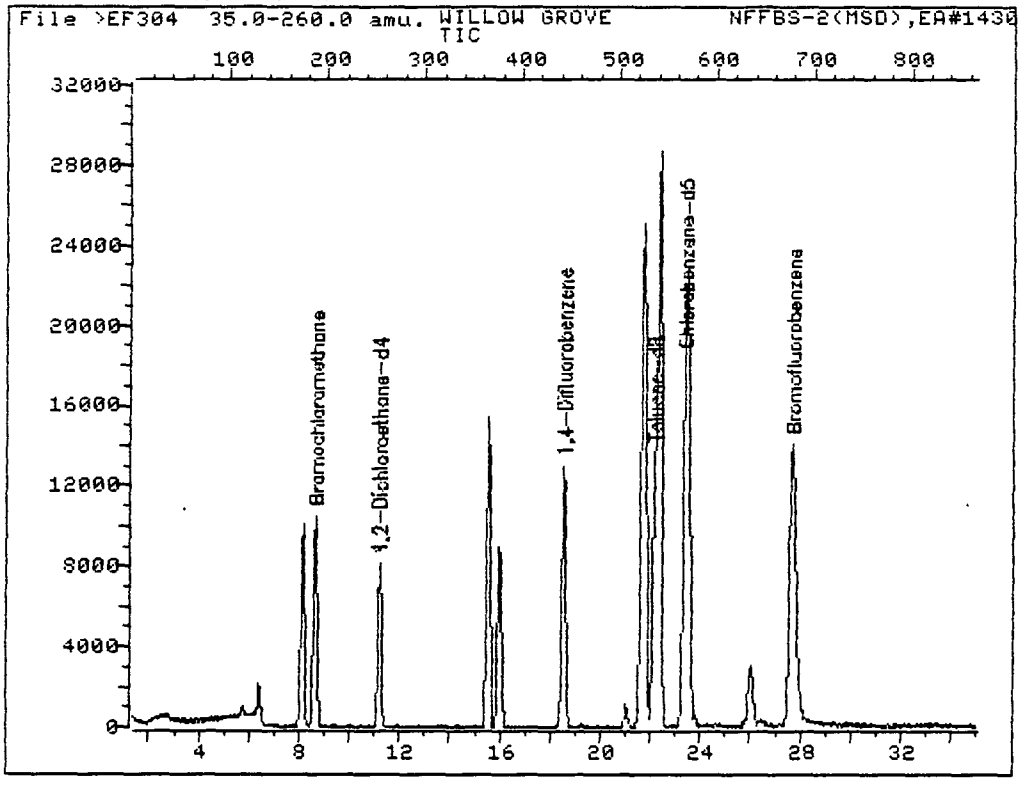
% Moisture: not dec. 10. Date Analyzed: 4/10/89

Column: (pack/cap) PaCa Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	50.	
75-15-0	Carbon Disulfide	6.	U
75-35-4	1,1-Dichloroethene	70.	
75-34-3	1,1-Dichloroethane	6.	U
540-59-0	1,2-Dichloroethene (total)	6.	U
67-66-3	Chloroform	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	12.	U
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	64.	
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	59.	
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	6.	U
108-88-3	Toluene	59.	
108-90-7	Chlorobenzene	68.	
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	6.	U

3 060

TOTAL ION CHROMATOGRAM



Data File: >EF304::D2 Quant Output File: ^EF304::QT
Name: WILLOW GROVE
Misc: NFFBS-2(MSD),EA#1430,7002E5,SOIL,5.0GM

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CARL
Quant Time: 890410 17:27
Injected at: 890410 16:51

QUANT REPORT

Operator ID: CARL Quant Rev: 6 Quant Time: 890410 17:27
Output File: ^EF304::QT Injected at: 890410 16:51
Data File: >EF304::D2 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: NFFBS-2(MSD),EA#1430,7002E5,SOIL,5.0GM

ID File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.64	128.0	13397	50.00	UG/L	98
7)	Acetone	6.39	43.0	10175	48.96	UG/L	97
9)	1,1-Dichloroethene	8.14	96.0	15687	57.02	UG/L	84
13)	1,2-Dichloroethane-d4	11.20	65.0	37486	60.50	UG/L	78
15)	*1,4-Difluorobenzene	18.53	114.0	48858	50.00	UG/L	91
23)	Trichloroethene	15.55	130.0	24442	52.34	UG/L	89
26)	Benzene	15.97	78.0	36552	48.19	UG/L	89
29)	*Chlorobenzene-d5	23.38	117.0	46730	50.00	UG/L	94
34)	Toluene	22.37	92.0	28858	48.04	UG/L	95
35)	Toluene-d8	22.18	98.0	49732	53.04	UG/L	99
36)	Chlorobenzene	23.50	112.0	43459	53.79	UG/L	88
40)	Bromofluorobenzene	27.69	95.0	48981	51.37	UG/L	92

* Compound is ISTD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NFFW2MSD

Lab Name: EAENG Contract: 68-01-7436

Lab Code: EAENG Case No.: WILLOW SAS No.: SDG No.: NFF532

Matrix: (soil/water) WATER Lab Sample ID: EA #1508

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: EF302

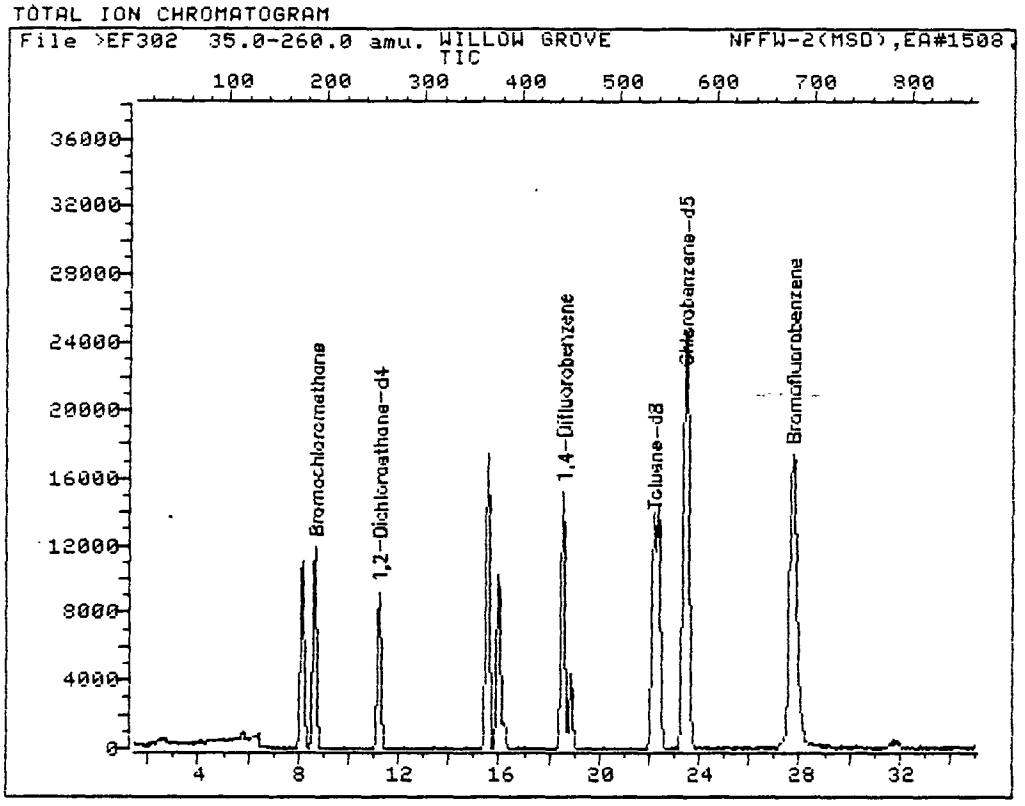
Level: (low/med) LOW Date Received: 4/ 8/89

% Moisture: not dec. 103. Date Analyzed: 4/10/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	59.	
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	51.	
124-48-1	Dibromochloromethane	5.	J
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	47.	
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	12.	
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	47.	
108-90-7	Chlorobenzene	55.	
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

TOTAL ION CHROMATOGRAM



Data File: >EF302::D2 Quant Output File: ^EF302::QT
Name: WILLOW GROVE
Misc: NFFW-2(MSD),EA#1508,7002E5,WATER,5.0ML

Id File: EVOA::BD
Title: CLP protocol-5pt calibration, 7002E5
Last Calibration: 890410 08:35

Operator ID: CARL
Quant Time: 890410 16:06
Injected at: 890410 15:30

E. Quality Assurance Summary

EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove

Analysis: TCL volatiles

EA Laboratories Report No. 1430-33 15-08, 09

Method: U.S. EPA-CLP

Reviewed by: [signature]

Date: 6-2-89

1. The 10-day holding time requirement from sample collection to analysis was met for all samples.

   ✓ Yes ____ No

2. The 12-hour tuning period for BFB was met for all samples.

   ✓ Yes ____ No

3. Initial calibration criteria were met for all samples: the RSD is ≤30% for all CCC compounds, and the RRF for SPCC compounds is >0.300 (0.250 for bromoform).

   ✓ Yes ____ No

4. Continuing calibration criteria were met for all samples: the response factor percent deviation from the mean initial calibration response factor for all CCC compounds was ≤25%, and the RRF for SPCC compounds is >0.300 (0.250 for bromoform).

   ✓ Yes ____ No

5. Surrogate recovery limits were met for all samples.

   ____ Yes ✓ No

6. MS and MSD criteria were met for all samples.

   ✓ Yes ____ No

7. Method blank criteria were met for all samples: common laboratory contaminants are ≤5X CRQL, all other compounds are <CRQL.

   ✓ Yes ____ No

(Revised 8 May 1989)

EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Chillum Grove Analysis: TCL volatiles

EA Laboratories Report No. 1430-33 1508, 09 Method: U.S. EPA-CLP

Reviewed by: [illegible] Date: 6-2-89

8. Laboratory control sample criteria were met for all samples.

✓ Yes ____ No

9. Field and equipment blanks: no target compounds were detected the samples at concentrations <5X the concentration found in the highest associated blank.

✓ Yes ____ No

Comments: #5) 1508 MS+MSD DCE OUT

1509 Trip blank DCE OUT

(Revised 8 May 1989)

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EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: [illegible] Analysis: TCL volatiles

EA Laboratories Report No. [illegible] Method: U.S. EPA-CLP

Reviewed by: [illegible] Date: [illegible]

---

1. The 10-day holding time requirement from sample receipt to analysis was met for all samples.

   X Yes _____ N

2. The 12-hour tuning period for BFB was met for all samples.

   X Yes _____ No

3. Initial calibration criteria were met for all samples: the RSD is ≤30% for all CCC compounds, and the RRF for SPCC compounds is >0.300 (0.250 for bromoform).

   X Yes _____ No

4. Continuing calibration criteria were met for all samples: the response factor percent deviation from the mean initial calibration response factor for all CCC compounds was ≤25%, and the RRF for SPCC compounds is >0.300 (0.250 for bromoform).

   X Yes _____ No

5. Surrogate recovery limits were met for all samples.

   _____ Yes X N

6. MS and MSD criteria were met for all samples.

   GRS ~~X~~ Yes X No
   15 Jun 89

7. Method blank criteria were met for all samples: common laboratory contaminants are ≤5X CRQL, all other compounds are <CRQL.

   X Yes _____ No

(Revised 2 June 1989)

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EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Wheeler Grove Analysis: TCL volatiles

EA Laboratories Report No. 94213 Method: U.S. EPA-CLP

Reviewed by: Gary R. Smith Date: 15 Jun 89

8. Laboratory control sample criteria were met for all samples.

____ Yes X No

9. Field and equipment blanks: no target compounds were detected the samples at concentrations <5X the concentration found in the highest associated blank.

X Yes ____ No

Comments: (3) DCE surrogate recoveries for accession numbers 1502, 1509 and for MS and MSD are high.

(3) Relative difference of MS and MSD recoveries of 1,1-dichloroethene ~~for~~ performed on accession number 1430 is high.

(3) & The analysis of LCSs was implemented on 12 Apr 89, after the analysis of these samples.

(Revised 2 June 1989)

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4. SEMIVOLATILE DATA

A. QC Summary

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. Willow Grove Contract Laboratory EA Laboratories Contract No. 10398.03

SWD TRAFFIC NO.	VOLATILE: TOLUENE-D8 (88-110)	VOLATILE: BFB (90-103)	VOLATILE: 1,2 DICHLOROETHANE-D4 (70-121)	SEMI-VOLATILE: NITROBENZENE-D5 (35-114)	SEMI-VOLATILE: 2-FLUOROBIPHENYL (43-116)	SEMI-VOLATILE: TERPHENYL-D14 (33-141)			SEMI-VOLATILE: PHENOL-D5 (10-94)	SEMI-VOLATILE: 2-FLUOROPHENOL (21-100)	SEMI-VOLATILE: 2,4,6 TRIBROMOPHENOL (10-123)	PESTICIDE: DIBUTYLCHLORENDATE ** (24-154)
Blank (# 573)				87	79	109						
Rinsate Blk		EA #	1431	86	84	116						
Rinsate Blk (MS)		EA #	1431 (MS)	73	70	107						
Rinsate Blk (MSD)		EA #	1431 (MSD)	76	79	109						
MSTD	# 188			86	77	91						

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

Volatiles: _____ out of _____ ; outside of QC limits

Semi-Volatiles: 0 out of 15 ; outside of QC limits

Pesticides: _____ out of _____ ; outside of QC limits

Comments: B/N only

002

FORM II

7/85

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. Willow Grove Contract Laboratory EA Laboratories. Contract No. 10-88-03

Low low. Medium

SMO TRAFFIC NO.	VOLATILE: ~~TOLUENE-D8~~ (81-117)	VOLATILE: ~~BFB~~ (74-121)	VOLATILE: ~~1,2 DICHLORO-ETHANE-D4~~ (70-121)	SEMI-VOLATILE: NITRO-BENZENE-D5 (23-120)	SEMI-VOLATILE: 2-FLUORO-BIPHENYL (30-116)	SEMI-VOLATILE: TERPHENYL-D14 (18-137)	SEMI-VOLATILE:	SEMI-VOLATILE:	SEMI-VOLATILE: PHENOL-D5 (24-113)	SEMI-VOLATILE: 2-FLUORO-PHENOL (25-121)	SEMI-VOLATILE: 2,4,6 TRIBROMO PHENOL (19-122)	PESTICIDE: ~~DIBUTYL-CHLORENDATE~~ (20-150) **
Blank # 580				58	72	91						
NFFB.S-2 EA# 1430.				63	72	90						
NFFB.S-2ms EA# 1430(ms)				64	69	84						
NFFB.S-2(MSD) EA# 1430(msD)				57	63	79						
MSTD #191				62	76	97						

** VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

* ADVISORY LIMITS ONLY

Volatiles: _____ out of _____ ; outside of QC limits

Semi-Volatiles: 0 out of 15 ; outside of QC limits

Pesticides: _____ out of _____ ; outside of QC limits

7/85

003

Comments: B/N only

FORM II

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. Willow Grove **Contractor** EA Laboratories **Contract No.** [illegible]

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD %	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO.	1,1-Dichloroethene								14	61-145
	Trichloroethene								14	71-120
	Chlorobenzene								13	75-130
	Toluene								13	76-125
	Benzene								11	76-127
B/N SMO SAMPLE NO. Rinsate blk EA # 1431	1,2,4-Trichlorobenzene	100	0	74	74	80	80	8	28	39-98
	Acenaphthene	100	0	89	89	96	96	8	31	46-118
	2,4 Dinitrotoluene	100	0	92	92	98	98*	6	38	24-96
	Pyrene	100	0	130	130*	137	137*	5	31	26-127
	N-Nitroso-Di-n-Propylamine	100	0	98	98	103	103	5	38	41-116
	1,4-Dichlorobenzene	100	0	68	68	75	75	10	28	36-97
ACID SMO SAMPLE NO.	Pentachlorophenol								50	9-103
	Phenol								42	12-89
	2-Chlorophenol								40	27-123
	4-Chloro-3-Methylphenol								42	23-97
	4-Nitrophenol								50	10-80
PEST SMO SAMPLE NO.	Lindane								15	56-123
	Heptachlor								20	40-131
	Aldrin								22	40-120
	Dieldrin								18	52-126
	Endrin								21	56-121
	4,4'-DDT								27	38-127

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs ____ out of ____; outside QC limits
B/N 0 out of 6; outside QC limits
ACID ____ out of ____; outside QC limits
PEST ____ out of ____; outside QC limits

RECOVERY: VOAs ____ out of ____; outside QC limits
B/N 3 out of 12; outside QC limits
ACID ____ out of ____; outside QC limits
PEST ____ out of ____; outside QC limits

Comments: B/N only

4 004

7/85

FORM III

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. Willow Grove Contractor EA Laboratories C ntract No. 10-3706-03

L w Level low Medium Level —

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO.	1,1-Dicholorethene								22	59-172
	Trichloroethene								24	62-137
	Chlorobenzene								21	60-133
	Toluene								21	59-139
	Benzene								21	66-142
B/N SMO SAMPLE NO. NFF B.S-2 EA #1430.	1,2,4-Trichlorobenzene	100	0	73	73	64	64	13	23	38-107
	Acenaphthene	100	0	89	89	77	77	14	19	31-137
	2,4 Dinitrotoluene	100	0	98	98*	91	91*	7	47	28-89
	Pyrene	100	0	100	100	92	92	8	36	35-142
	N-Nitrosodi-n-Propylamine	100	0	91	91	78	78	15	38	41-126
	1,4-Dichlorobenzene	100	0	62	62	60	60	3	27	28-104
ACID SMO SAMPLE NO.	Pentachlorophenol								47	17-109
	Phenol								35	26-90
	2-Chlorophenol								50	25-102
	4-Chloro-3-Methylphenol								33	26-103
	4-Nitrophenol								50	11-114
PEST SMO SAMPLE NO.	Lindane								50	46-127
	Heptachlor								31	35-130
	Aldrin								43	34-132
	Dieldrin								38	31-134
	Endrin								45	42-139
	4,4'-DDT								50	23-134

ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs ____ out of ____; outside QC limits
B/N 0 out of 6; outside QC limits
ACID ____ out of ____; outside QC limits
PEST ____ out of ____; outside QC limits

RECOVERY: VOAs ____ out of ____; outside QC limits
B/N 2 out of 12; outside QC limits
ACID ____ out of ____; outside QC limits
PEST ____ out of ____; outside QC limits

Comments: B/N only

4 005

7/85

FORM III

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: EA Laboratories Contract: 10333.03

Lab Code: EA ENG Case No.: Willow Grove SAS No.: N/A SDG No.: _____

Lab File ID: >DD428 Lab Sample ID: Blank #580

Date Extracted: 4/8/89 Extraction: (~~Sepf~~/Cont/~~Sonc~~) cont.

Date Analyzed: 5/8/89 Time Analyzed: 14:50

Matrix: (soil/~~water~~) soil Level: (low/~~med~~) low.

Instrument ID: #4 (D)

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	NFFB.S-2	EA # 1430	>DD429	5/8/89
02	NFFB.S-2(MS)	EA # 1430 (MS)	>DD430	5/8/89
03	NFFB.S-2(MSD)	EA # 1430 (MSD)	>DD431	5/8/89
04	MSTD#191	~~EA #~~	>DD432	5/8/89
05				
06				
07				
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COMMENTS: _____

page __ of __

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: EA Laboratories. Contract: 10385 CR

Lab Code: EA ENG Case No.: Willow Grove SAS No.: N/A SDG No.: _____

Lab File ID: >DD 433 Lab Sample ID: Blank # 573

Date Extracted: 4/8/89 Extraction: (~~Sepf~~/Cont/~~Sonc~~) Cont.

Date Analyzed: 5/8/89 Time Analyzed: 18:53

Matrix: (~~soil~~/water) water Level: (low/~~med~~) low

Instrument ID: GC/MS #4

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	Rinsate Blk	EA # 1431	>DD 434	5/8/89
02	Rinsate Blk (ms)	EA # 1431 (ms)	>DD 435	5/8/89
03	Rinsate Blk (msD)	EA # 1431 (msD)	>DD 436	5/8/89
04	MSTD # 188	MSTD # 188	>DD 444	5/9/89
05				
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29				
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COMMENTS: _____

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphospine (DFTPP)

Case No.: Willow Grove Contractor: EA Laboratories Contract No.: 1C3383

Instrument ID: #4 (D) Date: 05/03/89 Time: 13:45

Lab ID: >DD400-248 Data Release Authorized By :

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
51	30-60% of mass 198	44.78	44.78	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	58.63	58.63	Ok
70	Less than 2% of mass 69	.14	.23	Ok
127	40-60% of mass 198	47.15	47.15	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.69	6.69	Ok
275	10-30% of mass 198	20.47	20.47	Ok
365	Greater than 1% of mass 198	2.57	2.57	Ok
441	0-100% of mass 443	9.06	75.59	Ok
442	Greater than 40% of mass 198	65.58	65.58	Ok
443	17-23% of mass 442	11.99	18.27	Ok

This performance tune applies to the following samples, blanks and standards:

Sample ID	Lab ID	Date of Analysis	Time of Analysis
BNA 50 PPm std.	Std #1356 >DD402	5/3/89	15:38
BNA 160 PPm Std	Std # 1353 >DD403		16:39
BNA 120 PPm std	Std # 1354 >DD404		17:28
BNA 80 PPm std.	Std # 1355 >DD405		18:17
BNA 20 PPm Std.	Std # 1357 >DD406	✓	19:07

FORM V

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphospine (DFTPP)

Case No.: Willow Grove Contractor: EA Laboratories Contract No.: 10359.03

Instrument ID: #4 (D) Date: 05/08/89 Time: 12:59

Lab ID: DD426-239 Data Release Authorized By :

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	48.67	48.67	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	64.63	64.63	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	49.97	49.97	Ok
197	Less than 1% of mass 198	.33	.33	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.79	6.79	Ok
275	10-30% of mass 198	20.10	20.10	Ok
365	Greater than 1% of mass 198	2.25	2.25	Ok
441	0-100% of mass 443	7.84	74.11	Ok
442	Greater than 40% of mass 198	56.61	56.61	Ok
443	17-23% of mass 442	10.58	18.69	Ok

This performance tune applies to the following samples, blanks and standards:

Sample ID	Lab ID	Date of Analysis	Time of Analysis
BNA 50 PPm Std.	Std #1363. >DD427	5/8/89	13:29
Blank (# 580)	Blank (#580) >DD428		14:50
NFFB.S-2	EA # 1430 >DD429		15:38
NFFB.S-2 (MS)	EA # 1430 (MS) >DD430		16:26
NFFB.S-2 (MSD)	EA # 1430 (MSD) >DD431		17:15
MSTD #191	MSTD #191 >DD432		18:04
Blank (# 573)	Blank #573 >DD433		18:53
Rinsate Blk	EA # 1431 >DD434		19:42
Rinsate Blk (MS)	EA # 1431 (MS) >DD435		20:30
Rinsate Blk (MSD)	EA # 1431 (MSD) >DD436.		21:20

FORM V

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphospine (DFTPP)

Case No.: Willow Grove Contractor: EA Laboratories Contract No.: 1035503

Instrument ID: #4 (D) Date: 05/09/89 Time: 10:58

Lab ID: >DD438-236 Data Release Authorized By :

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
51	30-60% of mass 198	56.02	56.02	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	75.17	75.17	Ok
70	Less than 2% of mass 69	.28	.37	Ok
127	40-60% of mass 198	55.04	55.04	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.46	6.46	Ok
275	10-30% of mass 198	20.18	20.18	Ok
365	Greater than 1% of mass 198	2.16	2.16	Ok
441	0-100% of mass 443	7.51	69.39	Ok
442	Greater than 40% of mass 198	51.75	51.75	Ok
443	17-23% of mass 442	10.83	20.92	Ok

This performance tune applies to the following samples, blanks and standards:

Sample ID	Lab ID	Date of Analysis	Time of Analysis
BNA 50 PPm Std	Std # 1363 >DD439	5/9/89	11:29
BNA 160 PPm Std.	Std # 1360 >DD440	↓	12:51
BNA 120 PPm Std.	Std # 1361 >DD441	↓	13:40
BNA 80 PPm Std.	Std # 1362 >DD442	↓	14:28
BNA 20 PPm Std.	Std # 1364 >DD443	↓	15:17
MSTD(# 188)	MSTD(# 188)	5/9/89	16:38

FORM V

B. Sample Data

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430
SAMPLE: NFFB.S-2
GC/MS FILE: >DD429::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 15:38
SAMPLE--->EXTRACT:	10.15G--> 1ml

CAS #		CONC UG/L	OR UG/KG
62-75-9	N-Nitrosodimethylamine	1200.	ND
111-44-4	bis(2-Chloroethyl)ether	1200.	ND
541-73-1	1,3-Dichlorobenzene	1200.	ND
106-46-7	1,4-Dichlorobenzene	1200.	ND
95-50-1	1,2-Dichlorobenzene	1200.	ND
39638-32-9	bis(2-chloroisopropyl)ether	1200.	ND
621-64-7	N-Nitroso-Di-n-propylamine	1200.	ND
67-72-1	Hexachloroethane	1200.	ND
98-95-3	Nitrobenzene	1200.	ND
78-59-1	Isophorone	1200.	ND
111-91-1	bis(2-Chloroethoxy)methane	1200.	ND
120-82-1	1,2,4-Trichlorobenzene	1200.	ND
91-20-3	Naphthalene	1200.	ND
87-68-3	Hexachlorobutadiene	1200.	ND
77-47-4	Hexachlorocyclopentadiene	1200.	ND
91-58-7	2-Chloronaphthalene	1200.	ND
131-11-3	Dimethylphthalate	1200.	ND
208-96-8	Acenaphthylene	1200.	ND
83-32-9	Acenaphthene	1200.	ND
121-14-2	2,4-Dinitrotoluene	1200.	ND
606-20-2	2,6-Dinitrotoluene	1200.	ND
84-66-2	Diethylphthalate	1200.	ND
7005-72-3	4-Chlorophenyl-phenylether	1200.	ND
86-73-7	Fluorene	1200.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430
SAMPLE: NFFB.S-2
GC/MS FILE: >DD429::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 15:38
SAMPLE--->EXTRACT:	10.15G--> 1ml

CAS #		CONC UG/L OR UG/KG	
86-30-6	N-Nitrosodiphenylamine	1200.	ND
101-55-3	4-Bromophenyl-phenylether	1200.	ND
118-74-1	Hexachlorobenzene	1200.	ND
85-01-8	Phenanthrene	1200.	ND
120-12-7	Anthracene	1200.	ND
84-74-2	Di-n-Butyl phthalate	1200.	ND
206-44-0	Fluoranthene	1200.	ND
92-87-5	Benzidine	6000.	ND
129-00-0	Pyrene	1200.	ND
85-68-7	Butylbenzylphthalate	1200.	ND
91-94-1	3,3'-Dichlorobenzidine	2400.	ND
56-55-3	Benzo(a)Anthracene	1200.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	1200.	ND
218-01-9	Chrysene	1200.	ND
117-84-0	Di-n-Octyl phthalate	1200.	ND
205-99-2	Benzo(b)Fluoranthene	1200.	ND
205-99-2	Benzo(k)Fluoranthene	1200.	ND
50-32-8	Benzo(a)Pyrene	1200.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	1200.	ND
53-70-3	Dibenzo(a,h)Anthracene	1200.	ND
191-24-2	Benzo(g,h,i)Perylene	1200.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow Grove

Sampl Number
NFFB.S-2
EA # 1430

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Unknown	B/N	22.18	~~3500.00~~ 700 WMA
2. —	Unknown	B/N	34.06	~~12000.00~~ 2800 WMA
3. —	Unknown	B/N	36.29	~~2500.00~~ 650 WMA
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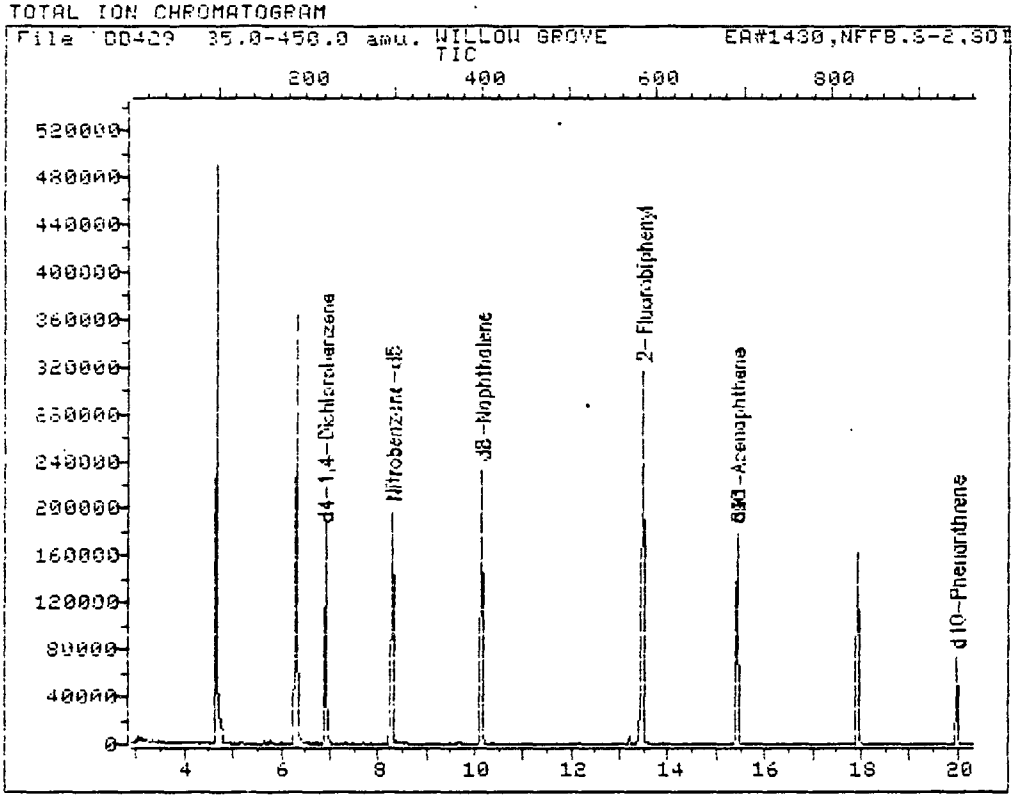
TOTAL ION CHROMATOGRAM



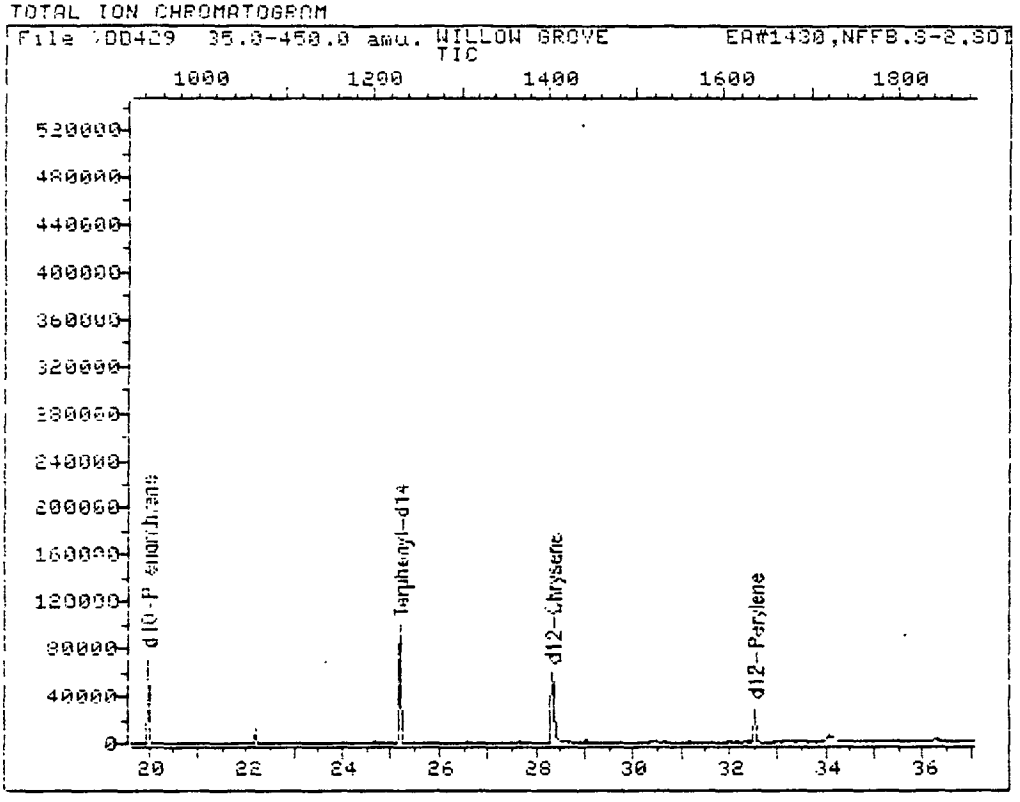
Data File: >DD429::D1 Quant Output File: ^DD429::QT
Name: WILLOW GROVE
Misc: EA#1430,NFFB.S-2,SOIL,10.15G,1, WILLOW GROVE (98.52) BTL# 1

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 16:18
Injected at: 890508 15:38

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD429::D1 Quant Output File: ^DD429::QT
Name: WILLOW GROVE
Misc: EA#1430,NFFB.S-2,SOIL,10.15G,1, WILLOW GROVE (98.52) BTL# 1

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 16:18
Injected at: 890508 15:38

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADRA Quant Rev: 6 Quant Time: 890508 16:18
Output File: >DD429::QT Injected at: 890508 15:38
Data File: >DD429::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EA#1430,NFFB.S-2,SOIL,10.15G,1, WILLOW GROVE (98.52) BTL# 1

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

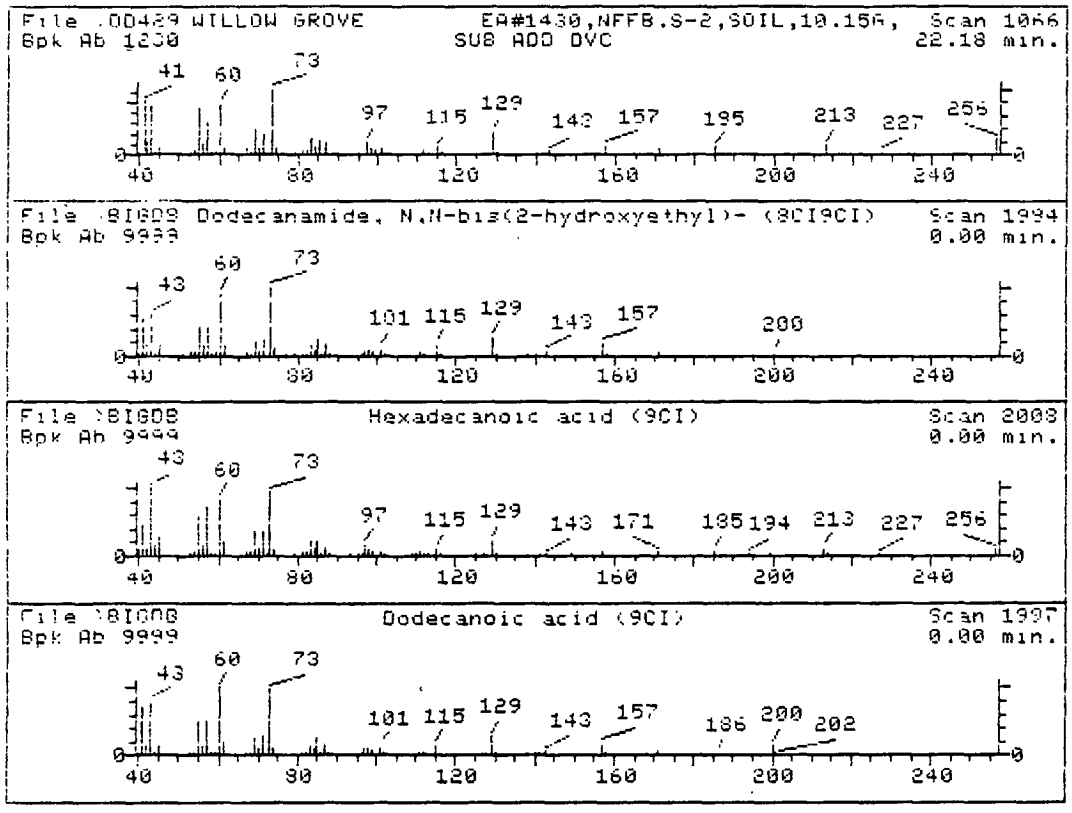
	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.90	152.0	84933	40.00	NG	95
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	0.00	146.0	0	0.00	NG	
5)	1,4-Dichlorobenzene	0.00	146.0	0	0.00	NG	
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	0.00	70.0	0	0.00	NG	
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.14	136.0	271189	40.00	NG	88
11)	Nitrobenzene-d5	8.29	82.0	163568	63.21	NG 63%	91
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	0.00	180.0	0	0.00	NG	
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.43	164.0	98868	40.00	NG	96
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.47	172.0	271766	71.56	NG 72%	93
22)	Dimethylphthalate	15.43	163.0	32732	~~9.29 NG~~		53
23)	Acenaphthylene	0.00	152.0	0	0.00	NG	
24)	Acenaphthene	0.00	153.0	0	0.00	NG	
25)	2,4-Dinitrotoluene	0.00	165.0	0	0.00	NG	
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.97	188.0	85948	40.00	NG	98
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	0.00	202.0	0	0.00	NG	
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.33	240.0	35123	40.00	NG	98
40)	Pyrene	0.00	202.0	0	0.00	NG	
41)	Terphenyl-d14	25.18	244.0	97198	90.30	NG 90%	89
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:>DD429:: Data File:>DD429::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	0.00	149.0	0	0.00	NG	
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.52	264.0	32661	40.00	NG	9
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD



unknown

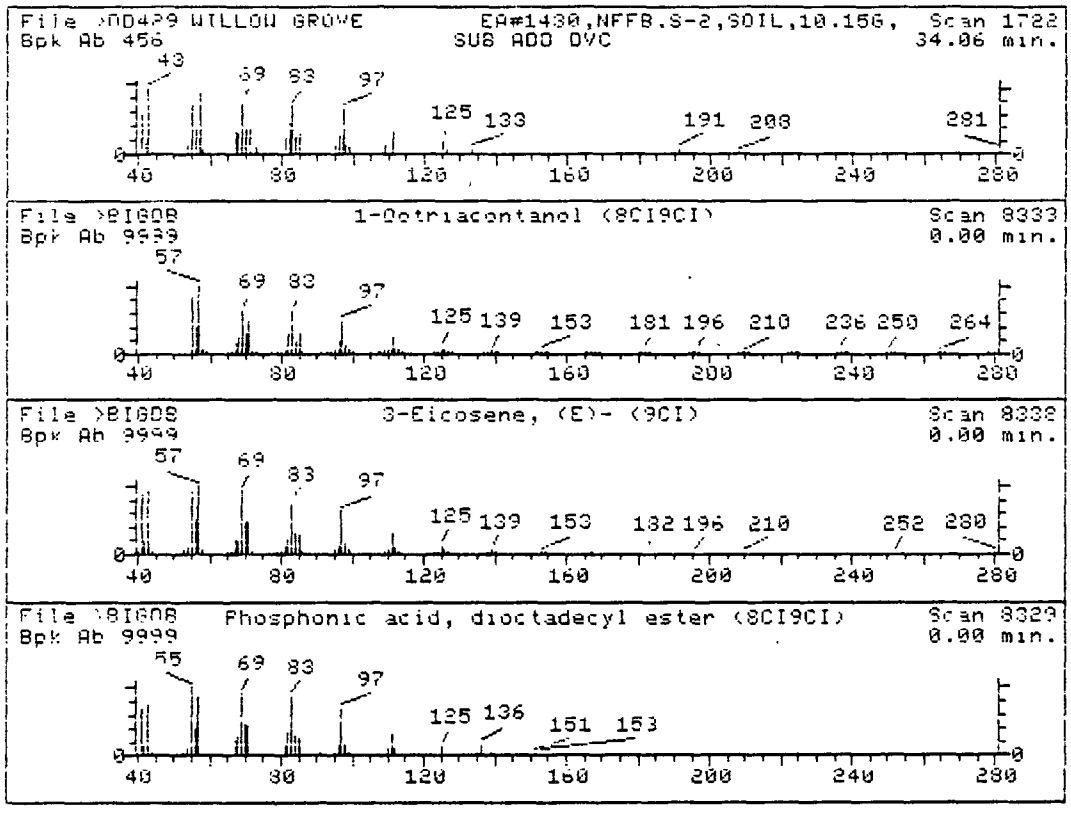
Retention time = 22.18

Area = 37980.00 Tentative Concentration is ~~3500.00~~ 790.00

1.	Dodecanamide, N,N-bis(2-hydroxyethyl)- (8CI9CI)	287	C16H33NO3
2.	Hexadecanoic acid (9CI)	256	C16H32O2
3.	Dodecanoic acid (9CI)	200	C12H24O2
4.	Glycine, N-methyl-N-(1-oxododecyl)- (9CI)	271	C15H29NO3
5.	Tetradecanoic acid (9CI)	228	C14H28O2
6.	Heptanoic acid (8CI9CI)	130	C7H14O2
7.	Dodecanoic acid, silver(1+) salt (9CI)	0	

Sample file: >DD429 Spectrum #: 1066
Search speed: 2 Tilting option: S No. of ion ranges searched: 48

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_I
1.	71	120401	1984	"BIGDB	94	59	0	0	77	30	29	67
2.	70*	57103	2008	"BIGDB	71	80	1	0	79	33	32	71
3.	62	143077	1997	"BIGDB	71	67	0	0	76	30	25	48
4.	44	97789	1972	"BIGDB	65	85	0	0	87	37	17	33
5.	41	544638	2005	"BIGDB	84	62	1	0	79	41	14	38
6.	40*	111148	1881	"BIGDB	43	54	0	0	68	50	12	48
7.	36	18268456	1998	"BIGDB	73	102	3	0	89	27	14	13



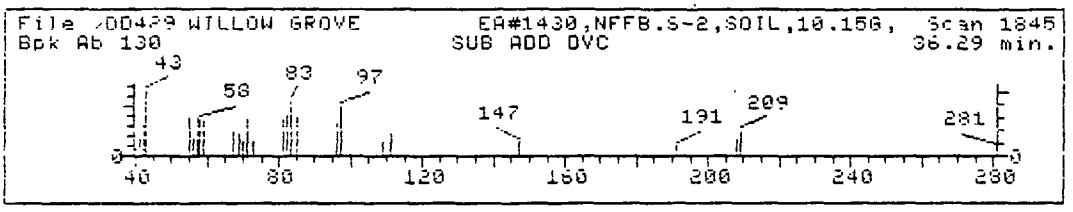
Retention time = 34.06 Unknown

Area = 55456.00 Tentative Concentration is 12000.00

1. 1-Dotriacontanol (8CI9CI)	466	C32H66O
2. 3-Eicosene, (E)- (9CI)	280	C20H40
3. Phosphonic acid, dioctadecyl ester (8CI9CI)	586	C36H75O3P
4. 1-Hentetracontanol (9CI)	592	C41H84O
5. Octadecanol (8CI9CI)	270	C18H38O
6. 1-Octadecanol (8CI9CI)	270	C18H38O
7. 1-Octadecene (8CI9CI)	252	C18H36

Sample file: >DD429 Spectrum #: 1722
Search speed: 2 Tilting option: S No. of ion ranges searched: 61

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_I
1.	83	6624799	8333	"BIGDB	127	54	2	-3	70	7	54	53
2.	71	74685339	8338	"BIGDB	109	57	2	-2	63	15	38	37
3.	71	19047859	8329	"BIGDB	118	82	3	-2	64	11	38	31
4.	70	40710427	8384	"BIGDB	74	121	3	0	92	7	42	13
5.	60	26762447	8444	"BIGDB	74	100	3	0	73	15	30	13
6.	49	112925	8461	"BIGDB	96	74	3	0	72	23	22	21
7.	46	112889	8460	"BIGDB	88	84	3	0	68	23	17	17



Retention time = 36.29

Area = 12782.00 Tentative Concentration is 2800.00

Sample file: >DD429 Spectrum #: 1845

No data base entries were retrieved.

LIBRARY SEARCH SUMMARY

MS Data File:>DD429::D1 Analyst:BHADRA MS

Name:WILLOW GROVE Date/Time: 5/08/89 15:38
Misc:EA#1430,NFFB.S-2,SOIL,10.15G,1, WILLOW GROVE ?98.52? BTL# 1

The following hits are >10% of the nearest ISTD.

Peak # in PBM file	Retention Time	Peak Area	10% of Nearest ISTD Area	
~~1~~	~~4.65~~	1196887	~~53077~~	2Fluorophenol
~~2~~	~~6.32~~	~~1142847~~	~~53077~~	Phenol-d5
~~3~~	~~17.95~~	~~483202~~	~~23076~~	2,4,6 Tribromophen
4	22.18	37980	23076	
5	34.06	55456	9510	
6	36.29	12782	9510	

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431
SAMPLE: RINSATE BLANK
GC/MS FILE: >DD434::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 19:42
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L	OR UG/KG
62-75-9	N-Nitrosodimethylamine	10.	ND
111-44-4	bis(2-Chloroethyl)ether	10.	ND
541-73-1	1,3-Dichlorobenzene	10.	ND
106-46-7	1,4-Dichlorobenzene	10.	ND
95-50-1	1,2-Dichlorobenzene	10.	ND
39638-32-9	bis(2-chloroisopropyl)ether	10.	ND
621-64-7	N-Nitroso-Di-n-propylamine	10.	ND
67-72-1	Hexachloroethane	10.	ND
98-95-3	Nitrobenzene	10.	ND
78-59-1	Isophorone	10.	ND
111-91-1	bis(2-Chloroethoxy)methane	10.	ND
120-82-1	1,2,4-Trichlorobenzene	10.	ND
91-20-3	Naphthalene	10.	ND
87-68-3	Hexachlorobutadiene	10.	ND
77-47-4	Hexachlorocyclopentadiene	10.	ND
91-58-7	2-Chloronaphthalene	10.	ND
131-11-3	Dimethylphthalate	10.	ND
208-96-8	Acenaphthylene	10.	ND
83-32-9	Acenaphthene	10.	ND
121-14-2	2,4-Dinitrotoluene	10.	ND
606-20-2	2,6-Dinitrotoluene	10.	ND
84-66-2	Diethylphthalate	10.	ND
7005-72-3	4-Chlorophenyl-phenylether	10.	ND
86-73-7	Fluorene	10.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431
SAMPLE: RINSATE BLANK
GC/MS FILE: >DD434::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 19:42
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L OR UG/KG	
86-30-6	N-Nitrosodiphenylamine	10.	ND
101-55-3	4-Bromophenyl-phenylether	10.	ND
118-74-1	Hexachlorobenzene	10.	ND
85-01-8	Phenanthrene	10.	ND
120-12-7	Anthracene	10.	ND
84-74-2	Di-n-Butyl phthalate	10.	ND
206-44-0	Fluoranthene	10.	ND
92-87-5	Benzidine	50.	ND
129-00-0	Pyrene	10.	ND
85-68-7	Butylbenzylphthalate	10.	ND
91-94-1	3,3'-Dichlorobenzidine	20.	ND
56-55-3	Benzo(a)Anthracene	10.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	2.	TR
218-01-9	Chrysene	10.	ND
117-84-0	Di-n-Octyl phthalate	10.	ND
205-99-2	Benzo(b)Fluoranthene	10.	ND
205-99-2	Benzo(k)Fluoranthene	10.	ND
50-32-8	Benzo(a)Pyrene	10.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	10.	ND
53-70-3	Dibenzo(a,h)Anthracene	10.	ND
191-24-2	Benzo(g,h,i)Perylene	10.	ND

Qualifier descriptions: ND - Compound analyzed for but not det cted
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow Grove

Sample Number: Rinsate Blk

EA # 1431

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	No Semivol. Comp. found	B/N	—	—
2.				
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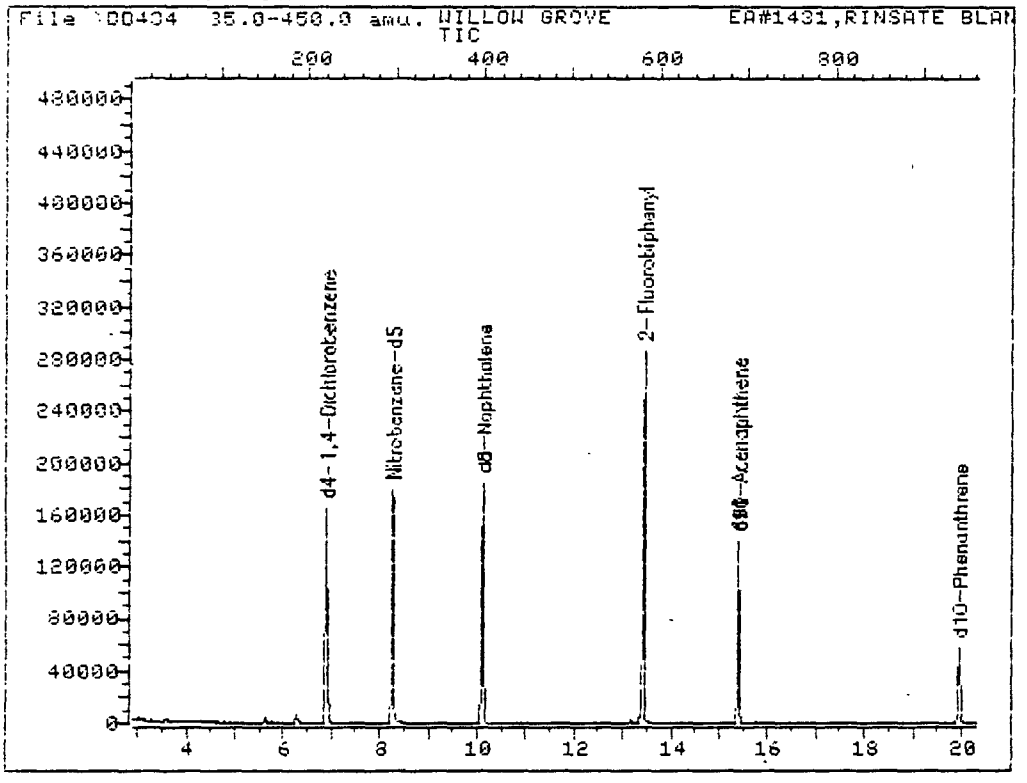
30.				

TOTAL ION CHROMATOGRAM



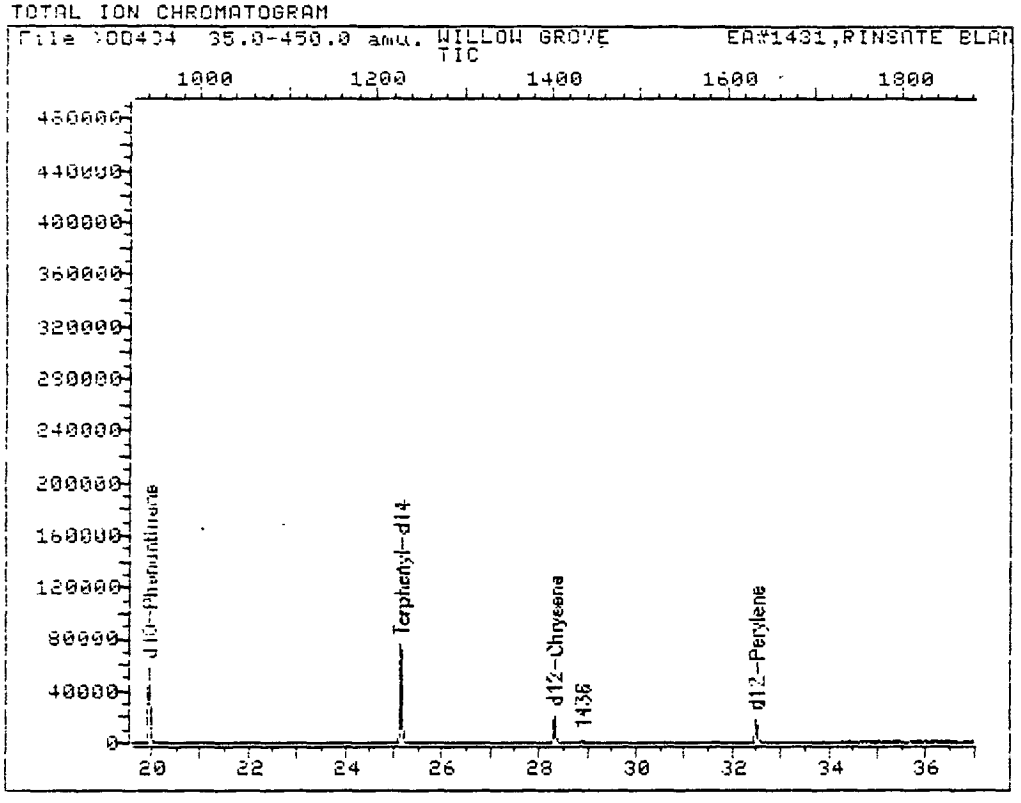
Data File: >DD434::D1 Quant Output File: ^DD434::QT
Name: WILLOW GROVE
Misc: EA#1431,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (1) BTL# 6

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time; 890508 20:22
Injected at: 890508 19:42

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD434::D1 Quant Output File: >DD434::QT
Name: WILLOW GROVE
Misc: EA#1431,RINSATE BLANK,WATER,1000ml,1.WILLOW GROVE <1> BTL# 6

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 20:22
Injected at: 890508 19:42

TIC page 2 of 2

QUANT REPORT

Operator ID: SHADRA Quant Rev: 6 Quant Time: 890508 20:22
Output File: DD434::QT Injected at: 890508 19:42
Data File: >DD434::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EA#1431,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (1) BTL# 6

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.89	152.0	66227	40.00	NG	98
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	0.00	146.0	0	0.00	NG	
5)	1,4-Dichlorobenzene	0.00	146.0	0	0.00	NG	
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	0.00	70.0	0	0.00	NG	
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.12	136.0	201955	40.00	NG	89
11)	Nitrobenzene-d5	8.27	82.0	165375	85.82	NG 86%	89
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	0.00	180.0	0	0.00	NG	
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.40	164.0	70896	40.00	NG	95
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.45	172.0	229218	84.17	NG 84%	91
22)	Dimethylphthalate	15.40	163.0	22961	~~9.08 NG~~		54
23)	Acenaphthylene	0.00	152.0	0	0.00	NG	
24)	Acenaphthene	0.00	153.0	0	0.00	NG	
25)	2,4-Dinitrotoluene	0.00	165.0	0	0.00	NG	
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.95	188.0	62998	40.00	NG	99
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	0.00	202.0	0	0.00	NG	
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.32	240.0	21835	40.00	NG	97
40)	Pyrene	0.00	202.0	0	0.00	NG	
41)	Terphenyl-d14	25.15	244.0	77628	116.01	NG 116%	89
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

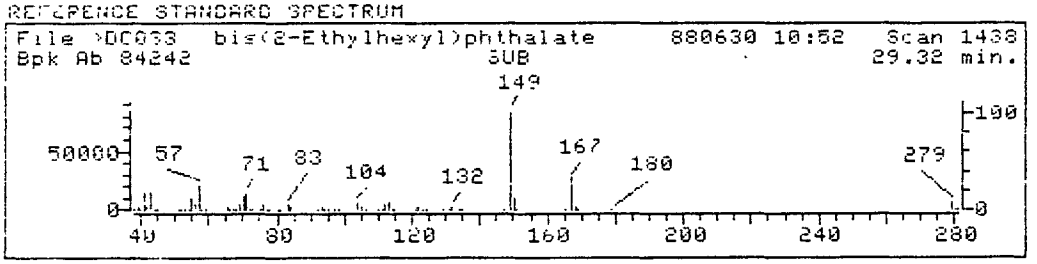
QUANT REPORT
page 2

Output File:^00434:: Data File:>00434::01

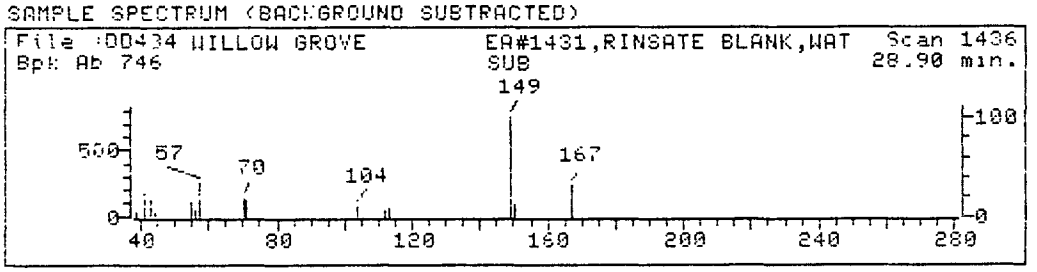
	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	28.90	149.0	1816	2.15	NG	94
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.48	264.0	24184	40.00	NG	95
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

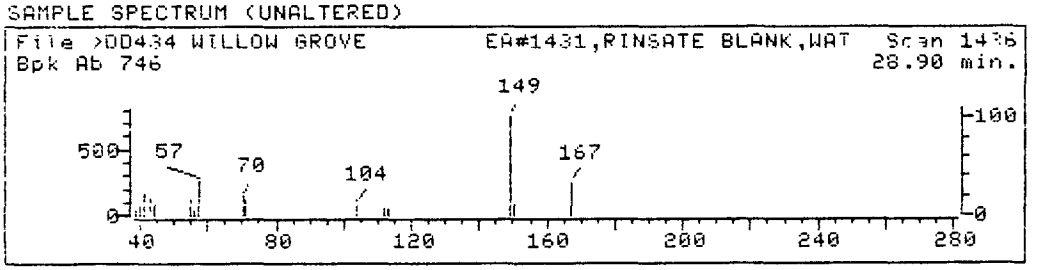
REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



Data File: >DD434::D1 Quant Output File: ^DD434::QT
Name: WILLOW GROVE
Misc: EA#1431,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (1) BTL# 6
Quant Time: 890508 20:22 Quant ID File: IDDBNO::BD
Injected at: 890508 19:42 Last Calibration: 890508 15:13

Compound No: 45
Compound Name: bis(2-Ethylhexyl)phthalate
Scan Number: 1436
Retention Time: 28.90 min.
Quant Ion: 149.0
Area: 1816
Concentration: 2.15 NG
q-value: 94

C. Standards Data

Initial Calibration Data
HSL Compounds

Case No: Willow Grove

Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES

Calibration Date: ~~05/04/89~~ 05/03/89

Contract No: 10333.03

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>00406	>00402	>00405	>00404	>00403					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
N-Nitrosodimethylamine	1.03459	.94525	.80493	.96003	.80616	.462	.91019	11.135		
2-Fluorophenol	1.35418	1.34622	1.21187	1.32094	1.15605	.679	1.27785	6.950		
Phenol-d5	1.61642	1.55893	1.49412	1.40884	1.35891	.918	1.48745	7.090		
Phenol	1.74412	1.61909	1.60771	1.41315	1.35658	.922	1.54813	10.310	*	
bis(2-Chloroethyl)ether	1.66189	1.62449	1.57045	1.56817	1.03628	.936	1.49226	17.283		
2-Chlorophenol	1.40198	1.27350	1.30842	1.23291	1.20143	.949	1.28365	6.041		
1,3-Dichlorobenzene	1.59117	1.44667	1.43378	1.33257	1.26039	.988	1.41292	8.887		
1,4-Dichlorobenzene	1.60267	1.44095	1.36537	1.27904	1.17032	1.005	1.37167	11.942	*	
1,2-Dichlorobenzene	1.52019	1.36186	1.31089	1.14447	1.04212	1.064	1.27591	14.674		
bis(2-Chloroisopropyl)ether	1.86070	1.51514	1.73139	1.66350	1.41047	1.116	1.63624	10.839		
N-Nitroso-Di-n-propylamine	.60236	.42505	.51471	.47202	.90963	1.166	.58475	33.003		**
Hexachloroethane	.66236	.63278	.54041	.49563	.50450	1.168	.56713	13.408		
Nitrobenzene-d5	.74725	.69270	.40881	.41228	.39517	.820	.53124	32.656		
Nitrobenzene	.77270	.65220	.39365	.38327	.35757	.824	.51188	36.814		
Isophorone	.82909	.90687	.82039	.82378	.76630	.889	.82929	6.058		
2-Nitrophenol	.26890	.35387	.22797	.22016	.21961	.906	.25810	22.187	*	
2,4-Dimethylphenol	.66441	.45378	.34426	.34076	.31340	.931	.42332	34.273		
bis(2-Chloroethoxy)methane	.50840	.52266	.49474	.48810	.45714	.954	.49421	4.979		
2,4-Dichlorophenol	.40977	.37920	.29731	.28667	.26175	.972	.32694	19.549	*	
1,2,4-Trichlorobenzene	.38586	.31478	.35101	.33931	.31966	.991	.34212	8.334		
Naphthalene	1.87371	.99652	.97192	.97369	.87696	1.006	1.13856	36.320		
Hexachlorobutadiene	.21715	.21435	.21481	.21665	.19009	1.062	.21061	5.476	*	
4-Chloro-3-methylphenol	.38195	.33415	.24241	.24221	.24146	1.183	.28844	22.798	*	
Hexachlorocyclopentadiene	.40121	.36417	.58749	.48392	.47201	.839	.46176	18.627		**
2,4,6-Trichlorophenol	.51402	.49404	.48972	.41180	.42444	.858	.46681	9.767	*	
2-Chloronaphthalene	1.18514	1.28567	1.22297	1.03728	1.07410	.887	1.16103	8.912		
2-Fluorobiphenyl	1.51985	1.57743	1.49639	1.36222	1.37456	.874	1.46609	6.414		
Dimethylphthalate	1.63458	1.57509	1.46038	1.21701	1.20787	.968	1.41899	14.003		
Acenaphthylene	1.88693	1.85404	1.81705	1.46490	1.48173	.969	1.70093	12.307		
Acenaphthene	1.23829	1.25830	1.22705	1.04411	1.01657	1.007	1.15686	10.066	*	

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Initial Calibration Data
HSL Compounds

Case No: Willow Grove Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES Calibration Date: ~~05/04/89~~ 05/03/89

Contract No: 10389.03

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>DD406	>DD402	>DD405	>DD404	>DD403					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2,4-Dinitrophenol	-	.08457	.11443	.09035	.13144	1.022	.10520	20.682		**
4-Nitrophenol	-	.08077	.08510	.06039	.09598	1.047	.08056	18.484		**
2,4-Dinitrotoluene	.39025	.35735	.37659	.30331	.34188	1.054	.35388	9.534		
2,6-Dinitrotoluene	.37116	.33518	.35391	.31238	.32233	.978	.33899	7.008		
Diethylphthalate	1.72911	1.52755	1.50121	1.26603	1.12747	1.112	1.43028	16.488		
4-Chlorophenyl-phenylether	.68685	.58849	.62696	.58577	.51153	1.114	.59992	10.684		
Fluorene	1.14948	1.13030	1.13148	.96435	1.02148	1.108	1.07942	7.584		
4,6-Dinitro-2-methylphenol	.12646	.11913	.15939	.15355	.17653	.878	.14701	16.193		
N-Nitrosodiphenylamine	.67365	.59207	.64106	.66890	.63463	.883	.64206	5.091	*	
2,4,6-Tribromophenol	.13400	.12860	.14018	.15188	.14288	.897	.13951	6.353		
4-Bromophenyl-phenylether	.29853	.25111	.28192	.29443	.25882	.936	.27696	7.643		
Hexachlorobenzene	.34427	.28711	.33595	.35707	.27616	.955	.32011	11.287		
Pentachlorophenol	-	.11827	.13976	.12989	.14963	.985	.13438	9.995	*	
Phenanthrene	1.25183	1.10330	1.09826	1.12073	1.04944	1.004	1.12471	6.742		
Anthracene	1.09971	1.02622	1.03849	1.01679	1.02692	1.011	1.04163	3.204		
Di-n-Butyl phthalate	1.80881	1.64817	1.55299	1.59383	1.51347	1.114	1.62346	7.084		
Fluoranthene	.95686	.75939	.83559	.73133	.87865	1.190	.83236	10.943	*	
Benzidine	-	.05525	.10461	.07588	.18332	1.217	.10476	53.593		(Conc=40.0,100.0,1
Pyrene	2.13653	1.66362	1.82386	2.15292	1.54703	.864	1.86479	14.685		
Terphenyl-d14	1.41857	1.17442	1.28026	1.66613	1.15676	.888	1.33923	15.711		
Butylbenzylphthalate	1.16384	.94970	.98240	1.09030	.86906	.950	1.01106	11.531		
3,3'-Dichlorobenzidine	.24276	.28236	.30943	.33320	.34100	1.001	.30175	13.302		
Benzo(a)Anthracene	1.36964	1.25061	1.32445	1.31749	1.25207	.998	1.30285	3.923		
bis(2-Ethylhexyl)phthalate	1.63280	1.40828	1.43280	1.57282	1.26261	1.019	1.46186	9.969		
Chrysene	1.22210	1.13205	1.14998	1.15755	1.11251	1.003	1.15484	3.588		
Di-n-Octyl phthalate	1.99641	2.22115	1.97980	1.95495	1.96181	.945	2.02282	5.539	*	
Benzo(b+k)Fluoranthene	1.17184	1.18159	1.11402	1.14246	1.11224	.971	1.14443	2.797		(Conc=40.0,100.0,1c
Benzo(a)Pyrene	1.08342	1.03982	1.05881	1.08680	1.03722	.995	1.06121	2.203	*	
Indeno(1,2,3-cd)Pyrene	.91990	.99588	1.06630	1.03080	1.03807	1.092	1.01019	5.579		
Dibenzo(a,h)Anthracene	.66313	.77059	.81405	.78176	.79269	1.094	.76444	7.700		

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Initial Calibration Data
HSL Compounds

Case No: Willow Grove

Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES

Calibration Date: ~~05/04/89~~ 05/03/89

Contract No: 10388.03

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>00406	>00402	>00405	>00404	>00403					
	RF	RF	RF	RF	RF					
Compound	20.00	50.00	80.00	120.00	160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Benzo(g,h,i)Perylene	.76616	.79723	.83808	.82920	.87473	1.117	.82108	5.028		

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Initial Calibration Data
HSL Compounds

Case No: Willow Grove

Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES

Calibration Date: ~~05/09/89~~ ~~05/08/89~~ Stele rcn 05/09/89

Contract No: 10383C3

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>DD443	>DD439	>DD442	>DD441	>DD440					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
N-Nitrosodimethylamine	.97363	.72287	.77073	.80672	.73894	.443	.80258	12.567		
2-Fluorophenol	1.36724	1.40904	1.37603	1.29015	1.22137	.670	1.33277	5.702		
Phenol-d5	1.76134	1.64003	1.67427	1.62284	1.61490	.916	1.66268	3.590		
Phenol	1.74252	1.51856	1.66814	1.59604	1.60645	.920	1.62634	5.160	*	
bis(2-Chloroethyl)ether	1.52814	1.33891	1.52549	1.48645	1.53891	.938	1.48358	5.613		
2-Chlorophenol	1.36229	1.28388	1.33657	1.30739	1.27738	.946	1.31350	2.727		
1,3-Dichlorobenzene	1.52681	1.45014	1.41449	1.38955	1.36639	.988	1.42948	4.383		
1,4-Dichlorobenzene	1.49155	1.43491	1.41583	1.31978	1.27914	1.006	1.38824	6.259	*	
1,2-Dichlorobenzene	1.41744	1.34100	1.35001	1.20146	1.21561	1.066	1.30511	7.134		
bis(2-Chloroisopropyl)ether	1.28805	1.06466	1.34940	1.28301	1.15123	1.117	1.22727	9.462		
N-Nitroso-Di-n-propylamine	1.02399	.90995	.68605	.86757	.94885	1.177	.88728	14.242		**
Hexachloroethane	.67927	.65743	.61941	.57155	.60053	1.171	.62564	6.912		
Nitrobenzene-d5	.40011	.38366	.39759	.40395	.38501	.818	.39406	2.329		
Nitrobenzene	.38224	.36645	.38373	.38734	.35423	.824	.37480	3.738		
Isophorone	.79917	.74828	.78039	.79285	.74910	.888	.77396	3.106		
2-Nitrophenol	.18253	.19224	.20039	.20172	.20304	.905	.19598	4.397	*	
2,4-Dimethylphenol	.29835	.32545	.31393	.32637	.33115	.931	.31905	4.134		
bis(2-Chloroethoxy)methane	.44351	.41932	.44744	.43997	.41950	.955	.43395	3.119		
2,4-Dichlorophenol	.24199	.24965	.26079	.23047	.25227	.972	.24703	4.630	*	
1,2,4-Trichlorobenzene	.29145	.29603	.28818	.27144	.28210	.991	.28584	3.328		
Naphthalene	.95507	.92499	.92633	.92868	.82679	1.006	.91237	5.416		
Hexachlorobutadiene	.17121	.17416	.16210	.14941	.15336	1.063	.16205	6.660	*	
4-Chloro-3-methylphenol	.22001	.22784	.24082	.23995	.23166	1.186	.23206	3.745	*	
Hexachlorocyclopentadiene	.35940	.42024	.39464	.33282	.37925	.838	.37727	8.838		**
2,4,6-Trichlorophenol	.36767	.41497	.41603	.36325	.42482	.856	.39735	7.399	*	
2-Chloronaphthalene	1.22108	1.27216	1.28233	1.15645	1.22981	.885	1.23237	4.053		
2-Fluorobiphenyl	1.58254	1.61453	1.60050	1.44815	1.55221	.872	1.55959	4.264		
Dimethylphthalate	1.48694	1.46749	1.49801	1.35868	1.39460	.968	1.44114	4.248		
Acenaphthylene	1.85292	1.85474	1.88865	1.69476	1.74570	.968	1.80735	4.580		
Acenaphthene	1.23259	1.22275	1.22991	1.21034	1.20961	1.007	1.22104	.878	*	

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Initial Calibration Data
HSL Compounds

Case No: Willow Grove

Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES

Calibration Date: ~~05/09/89~~ 05/08/89 ~~05/09/89~~ 05/09/89

Contract No: 10355.03

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>DD443	>DD439	>DD442	>DD441	>DD440					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2,4-Dinitrophenol	-	.04607	.06285	.07070	.10009	1.022	.06993	32.292		**
4-Nitrophenol	-	.07894	.08119	.07291	.08339	1.049	.07911	5.706		**
2,4-Dinitrotoluene	.26722	.29234	.31605	.30660	.30149	1.055	.29674	6.267		
2,6-Dinitrotoluene	.29163	.31559	.32597	.33352	.32348	.979	.31804	5.060		
Diethylphthalate	1.46686	1.43704	1.44626	1.39084	1.36950	1.114	1.42210	2.847		
4-Chlorophenyl-phenylether	.46580	.45839	.48705	.46195	.47279	1.116	.46920	2.412		
Fluorene	1.00122	.97584	1.02113	.98303	1.04803	1.109	1.00585	2.922		
4,6-Dinitro-2-methylphenol	.10909	.14725	.15605	.15882	.16441	.877	.14712	15.053		
N-Nitrosodiphenylamine	.73617	.69266	.69855	.70072	.66044	.882	.69771	3.861	*	
2,4,6-Tribromophenol	.12152	.13672	.12976	.12602	.12045	.896	.12689	5.226		
4-Bromophenyl-phenylether	.24629	.25120	.24698	.25032	.24914	.936	.24878	.847		
Hexachlorobenzene	.31884	.29883	.28514	.28605	.28549	.955	.29487	4.945		
Pentachlorophenol	-	.11001	.10671	.11310	.11590	.985	.11143	3.554	*	
Phenanthrene	1.08462	1.06183	1.07879	1.03808	1.06396	1.004	1.06546	1.698		
Anthracene	1.01114	.99657	1.03649	.98583	1.00654	1.011	1.00731	1.886		
Di-n-Butyl phthalate	1.98458	1.85577	1.89934	1.76263	1.73033	1.117	1.84653	5.581		
Fluoranthene	.64314	.64716	.71208	.59003	.65355	1.192	.64919	6.677	*	
Benzidine	-	.02126	.09847	.07596	.09401	1.221	.07242	48.977		(Conc=40.0,100.0,1
Pyrene	2.68501	2.65419	2.36456	2.43499	2.42327	.863	2.51240	5.826		
Terphenyl-d14	1.73102	1.71942	1.60856	1.52545	1.62250	.888	1.64139	5.187		
Butylbenzylphthalate	1.64289	1.51909	1.46106	1.50611	1.47661	.951	1.52115	4.723		
3,3'-Dichlorobenzidine	.19625	.25995	.35669	.33408	.35531	1.002	.30046	23.418		
Benzo(a)Anthracene	1.20934	1.21909	1.25819	1.15255	1.25021	.998	1.21788	3.438		
bis(2-Ethylhexyl)phthalate	2.73651	2.30450	2.10656	2.35835	2.18650	1.021	2.33848	10.406		
Chrysene	1.20634	1.10965	1.13750	1.09727	1.13857	1.003	1.13786	3.711		
Di-n-Octyl phthalate	3.24331	3.22440	3.18156	3.04659	3.30722	.946	3.20061	3.039	*	
Benzo(b+k)Fluoranthene	1.23881	1.17560	1.21633	1.10607	1.16160	.971	1.17968	4.364		(Conc=40.0,100.0,16
Benzo(a)Pyrene	1.02311	1.01050	1.11249	1.02484	1.05488	.995	1.04516	3.924	*	
Indeno(1,2,3-cd)Pyrene	.90219	.98907	1.12339	.96681	1.04728	1.090	1.00575	8.331		
Dibenzo(a,h)Anthracene	.61849	.73309	.84505	.73621	.79336	1.092	.74524	11.341		

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Initial Calibration Data
HSL Compounds

Case No: Willow Grove

Instrument ID: GC/MS#4(D)

Contractor: EA LABORATORIES

Calibration Date: ~~05/09/89~~ 05-/09-/89 05/09/89

Contract No: 10388.03

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % RSD for CCC is 30%

Laboratory ID:	>00443	>00439	>00442	>00441	>00440					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Benzo(g,h,i)Perylene	.78297	.85411	.85861	.73326	.88506	1.113	.82280	7.625		

RF - Response Factor (Subscript is amount in NG)

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

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

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

Continuing Calibration Check
HSL Compounds

Case No: Willow Grove

Calibration Date: 05/08/89

Contractor: EA LABORATORIES

Time: 13:29

Contract No: 10388.03

Laboratory ID: >DD427

Instrument ID: GC/MS#4(D)

Initial Calibration Date: ~~05/04/89~~ 05/03/89

JEN 6-12-89

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
N-Nitrosodimethylamine	.91019	.68563	24.67		
2-Fluorophenol	1.27785	1.27149	.50		
Phenol-d5	1.48745	1.54669	3.98		
Phenol	1.54813	1.45592	5.96	*	
bis(2-Chloroethyl)ether	1.49226	1.33835	10.31		
2-Chlorophenol	1.28365	1.26244	1.65		
1,3-Dichlorobenzene	1.41292	1.41018	.19		
1,4-Dichlorobenzene	1.37167	1.43527	4.64	*	
1,2-Dichlorobenzene	1.27591	1.32499	3.85		
bis(2-Chloroisopropyl)ether	1.63624	1.14340	30.12		
N-Nitroso-Di-n-propylamine	.58475	.85879	46.86		**
Hexachloroethane	.56713	.62677	10.51		
Nitrobenzene-d5	.53124	.38168	28.15		
Nitrobenzene	.51188	.35843	29.98		
Isophorone	.82929	.75796	8.60		
2-Nitrophenol	.25810	.19690	23.71	*	
2,4-Dimethylphenol	.42332	.33271	21.41		
bis(2-Chloroethoxy)methane	.49421	.43218	12.55		
2,4-Dichlorophenol	.32694	.26170	19.95	*	
1,2,4-Trichlorobenzene	.34212	.31190	8.83		
Naphthalene	1.13856	.91633	19.52		
Hexachlorobutadiene	.21061	.17404	17.36	*	
4-Chloro-3-methylphenol	.28844	.22291	22.72	*	
Hexachlorocyclopentadiene	.46176	.42746	7.43		**
2,4,6-Trichlorophenol	.46681	.40621	12.98	*	
2-Chloronaphthalene	1.16103	1.18488	2.05		
2-Fluorobiphenyl	1.46609	1.53655	4.81		
Dimethylphthalate	1.41899	1.42597	.49		
Acenaphthylene	1.70093	1.77688	4.47		
Acenaphthene	1.15686	1.19669	3.44	*	
2,4-Dinitrophenol	.10520	.10635	1.10		**
4-Nitrophenol	.08056	.08336	3.48		**

RF - Response Factor from daily standard file at 50.00 NG

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

%Diff - % Difference from original average or curve

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

Continuing Calibration Check
HSL Compounds

Case No: Willow Grove

Calibration Date: 05/08/89

Contractor: EA LABORATORIES

Time: 13:29

Contract No: 10355.03

Laboratory ID: >DD427

Instrument ID: GC/MS#4(D)

Initial Calibration Date: ~~05/04/89~~ 05/03/89

SCH 6-12-89

Minimum $\overline{RF}$ for SPCC is 0.05 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
2,4-Dinitrotoluene	.35388	.31986	9.61			
2,6-Dinitrotoluene	.33899	.32090	5.34			
Diethylphthalate	1.43028	1.44411	.97			
4-Chlorophenyl-phenylether	.59992	.51048	14.91			
Fluorene	1.07942	1.05950	1.85			
4,6-Dinitro-2-methylphenol	.14701	.15498	5.42			
N-Nitrosodiphenylamine	.64206	.60745	5.39	*		
2,4,6-Tribromophenol	.13951	.13889	.44			
4-Bromophenyl-phenylether	.27696	.24073	13.08			
Hexachlorobenzene	.32011	.29387	8.20			
Pentachlorophenol	.13438	.12363	8.00	*		
Phenanthrene	1.12471	1.01512	9.74			
Anthracene	1.04163	.98982	4.97			
Di-n-Butyl phthalate	1.62346	1.60211	1.31			
Fluoranthene	.83236	.72759	12.59	*		
Benzidine	.10476	.09666	7.73			(Conc=100.00)
Pyrene	1.86479	1.69245	9.24			
Terphenyl-d14	1.33923	1.22579	8.47			
Butylbenzylphthalate	1.01106	1.04362	3.22			
3,3'-Dichlorobenzidine	.30175	.36025	19.39			
Benzo(a)Anthracene	1.30285	1.21743	6.56			
bis(2-Ethylhexyl)phthalate	1.46186	1.55023	6.04			
Chrysene	1.15484	1.10554	4.27			
Di-n-Octyl phthalate	2.02282	2.10903	4.26	*		
Benzo(b+k)Fluoranthene	1.14443	1.07259	6.28			(Conc=100.00)
Benzo(a)Pyrene	1.06121	.97529	8.10	*		
Indeno(1,2,3-cd)Pyrene	1.01019	.97077	3.90			
Dibenzo(a,h)Anthracene	.76444	.71966	5.86			
Benzo(g,h,i)Perylene	.82108	.80267	2.24			

RF - Response Factor from daily standard file at 50.00 NG

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

%Diff - % Difference from original average or curve

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EA LABORATORIES Contract: 103 3603

Lab Code: EAENG Case No.: Willow Grove SAS No.: . SDG No.: .

Lab File ID (Standard): DD427 Date Analyzed: 5/8/89

Instrument ID: GC/MS #4 Time Analyzed: 1329

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	77763	6.90	243927	10.13	88130	15.42
	UPPER LIMIT	155526	7.40	487854	10.63	176276	15.92
	LOWER LIMIT	38881	6.40	121963	9.63	44069	14.92
	EPA SAMPLE NO.						
01	BLANK #580	84453	6.89	269157	10.11	94299	15.42
02	NFFB.S-2	84933	6.90	271189	10.14	98868	15.43
03	NFFB.S-2	85726	6.90	266511	10.13	100756	15.42
04	NFFB.S-2	87041	6.91	279695	10.14	103440	15.42
05	MSTD	72586	6.91	242845	10.13	86829	15.42
06	BLANK #573	68772	6.90	221531	10.12	80275	15.43
07	RINSATE BLANK	66227	6.89	201955	10.12	70896	15.40
08	RINSATE BLANK	73921	6.88	246777	10.12	88931	15.41
09	RINSATE BLANK	62925	6.88	204764	10.12	72984	15.41
10	MSTD	80891	6.82	238728	10.04	76459	15.33
11							
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16							
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20							
21							
22							

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

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

Column used to flag internal standard area values with an asterisk

FORM VIII SV-1 1/87 Rev.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EA LABORATORIES Contract: 10358.03

Lab Code: EAENG Case No.: Willow Grove SAS No.: . SDG No.

Lab File ID (Standard): DD427 Date Analyzed: 5/8/89

Instrument ID: GC/MS #4 Time Analyzed: 13:29

	IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
12 HOUR STD	86871	19.97	33981	28.34	35987	32.50
UPPER LIMIT	173742	20.47	67962	28.84	71974	33.00
LOWER LIMIT	43435	19.47	16990	27.84	17993	32.00
EPA SAMPLE NO.						
01 BLANK #580	87849	19.96	31607	28.33	33195	32.51
02 NFFB.S-2	85948	19.97	35123	28.33	32661	32.52
03 NFFB.S-2	89985	19.98	34959	28.33	35852	32.49
04 NFFB.S-2	100911	19.97	37474	28.32	41266	32.50
05 MSTD	79208	19.97	24834	28.32	24089	32.50
06 BLANK #573	71086	19.98	25382	28.32	25259	32.51
07 RINSATE BLANK	62998	19.95	21835	28.32	24184	32.48
08 RINSATE BLANK	84115	19.95	25566	28.30	24202	32.48
09 RINSATE BLANK	66344	19.95	20954	28.30	18841	32.48
10 MSTD	63369	19.87	13078 *	28.22	11124 *	32.39
11						
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19						
20						
21						
22						

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

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

Column used to flag internal standard area values with an asterisk

FORM VIII SV-2 1/87 R v.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EA LABORATORIES Contract: 10358.03

Lab Code: EAENG Case No.: Willow Grove SAS No.: . SDG No.: .

Lab File ID (Standard): >DD439 50 ppm std. Date Analyzed: 5/9/89

Instrument ID: GC/MS #4 Time Analyzed: 11:29

	IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
12 HOUR STD	67509	6.81	224378	10.04	74476	15.33
UPPER LIMIT	135018	7.31	448756	10.54	148952	15.83
LOWER LIMIT	33754	6.31	112189	9.54	37238	14.83
EPA SAMPLE NO.						
01 MSTD#188	80891	6.82	238728	10.04	76459	15.33
02						
03						
04						
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07						
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20						
21						
22						

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

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

Column used to flag internal standard area values with an asterisk

FORM VIII SV-1 1/87 Rev.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: EA LABORATORIES Contract: 10355.C3

Lab Code: EAENG Case No.: Willowgrove SAS No.: . SDG No.

Lab File ID (Standard): >DD439 50ppm std Date Analyzed: 5/9/89

Instrument ID: GC/MS #4 Time Analyzed: 11:29

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	56730.	19.86	12507.	28.21	9182	32.37
	UPPER LIMIT	113460	20.36	25014	28.71	18364	32.87
	LOWER LIMIT	28365	19.36	6253	27.71	4591	31.87
	EPA SAMPLE NO.						
01	MSTD #188	63369	19.87	13078	28.22	11124	32.39
02							
03							
04							
05							
06							
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20							
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22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

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

Column used to flag internal standard area values with an asterisk

FORM VIII SV-2 1/87 Rev.

D. Raw QC Data

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: BLANK(#573)
SAMPLE: -----
GC/MS FILE: >DD433::D1
DATE REC'D: N/A
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 18:53
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L OR UG/KG	
62-75-9	N-Nitrosodimethylamine	10.	ND
111-44-4	bis(2-Chloroethyl)ether	10.	ND
541-73-1	1,3-Dichlorobenzene	10.	ND
106-46-7	1,4-Dichlorobenzene	10.	ND
95-50-1	1,2-Dichlorobenzene	10.	ND
39638-32-9	bis(2-chloroisopropyl)ether	10.	ND
621-64-7	N-Nitroso-Di-n-propylamine	10.	ND
67-72-1	Hexachloroethane	10.	ND
98-95-3	Nitrobenzene	10.	ND
78-59-1	Isophorone	10.	ND
111-91-1	bis(2-Chloroethoxy)methane	10.	ND
120-82-1	1,2,4-Trichlorobenzene	10.	ND
91-20-3	Naphthalene	10.	ND
87-68-3	Hexachlorobutadiene	10.	ND
77-47-4	Hexachlorocyclopentadiene	10.	ND
91-58-7	2-Chloronaphthalene	10.	ND
131-11-3	Dimethylphthalate	10.	ND
208-96-8	Acenaphthylene	10.	ND
83-32-9	Acenaphthene	10.	ND
121-14-2	2,4-Dinitrotoluene	10.	ND
606-20-2	2,6-Dinitrotoluene	10.	ND
84-66-2	Diethylphthalate	10.	ND
7005-72-3	4-Chlorophenyl-phenylether	10.	ND
86-73-7	Fluorene	10.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: BLANK(#573)
SAMPLE: -----
GC/MS FILE: >DD433::D1
DATE REC'D: N/A
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 18:53
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L	OR UG/KG
86-30-6	N-Nitrosodiphenylamine	10.	ND
101-55-3	4-Bromophenyl-phenylether	10.	ND
118-74-1	Hexachlorobenzene	10.	ND
85-01-8	Phenanthrene	10.	ND
120-12-7	Anthracene	10.	ND
84-74-2	Di-n-Butyl phthalate	10.	ND
206-44-0	Fluoranthene	10.	ND
92-87-5	Benzidine	50.	ND
129-00-0	Pyrene	10.	ND
85-68-7	Butylbenzylphthalate	10.	ND
91-94-1	3,3'-Dichlorobenzidine	20.	ND
56-55-3	Benzo(a)Anthracene	10.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	10.	ND
218-01-9	Chrysene	10.	ND
117-84-0	Di-n-Octyl phthalate	10.	ND
205-99-2	Benzo(b)Fluoranthene	10.	ND
205-99-2	Benzo(k)Fluoranthene	10.	ND
50-32-8	Benzo(a)Pyrene	10.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	10.	ND
53-70-3	Dibenzo(a,h)Anthracene	10.	ND
191-24-2	Benzo(g,h,i)Perylene	10.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow grove

Sample Number
Blank # 573

EA # 1431

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	No Semivol. Comp. found	B/N	—	—
2.				
3.				
4.				
5.				
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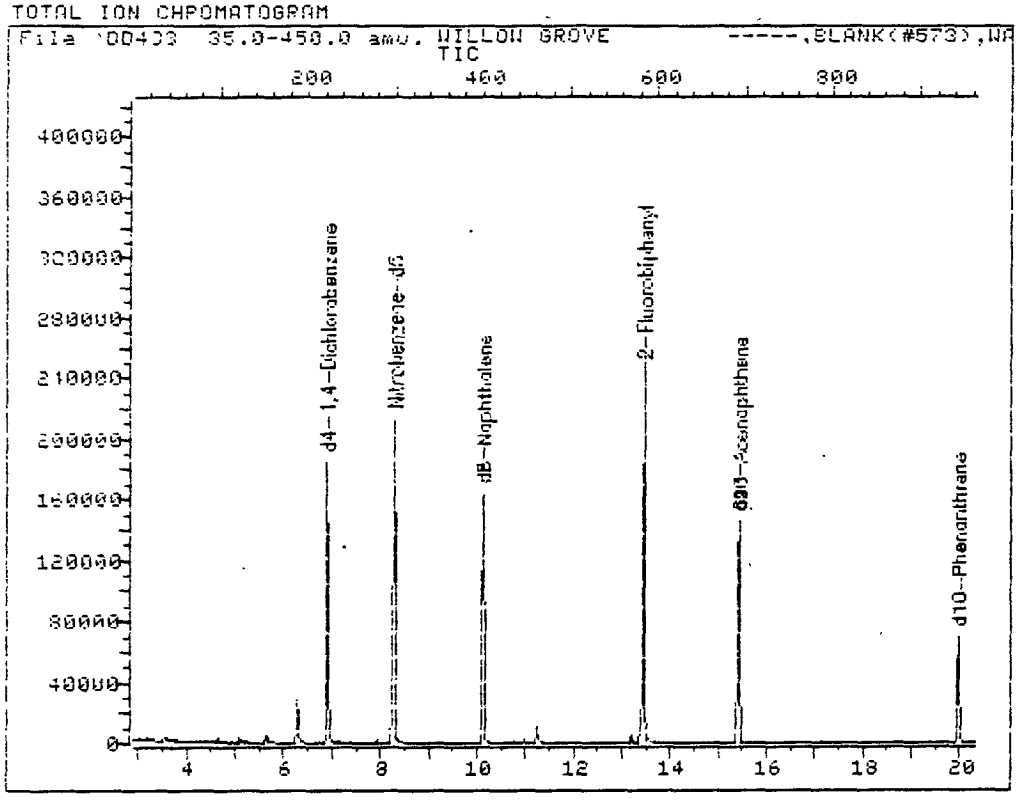
29.				
30.				

TOTAL ION CHROMATOGRAM



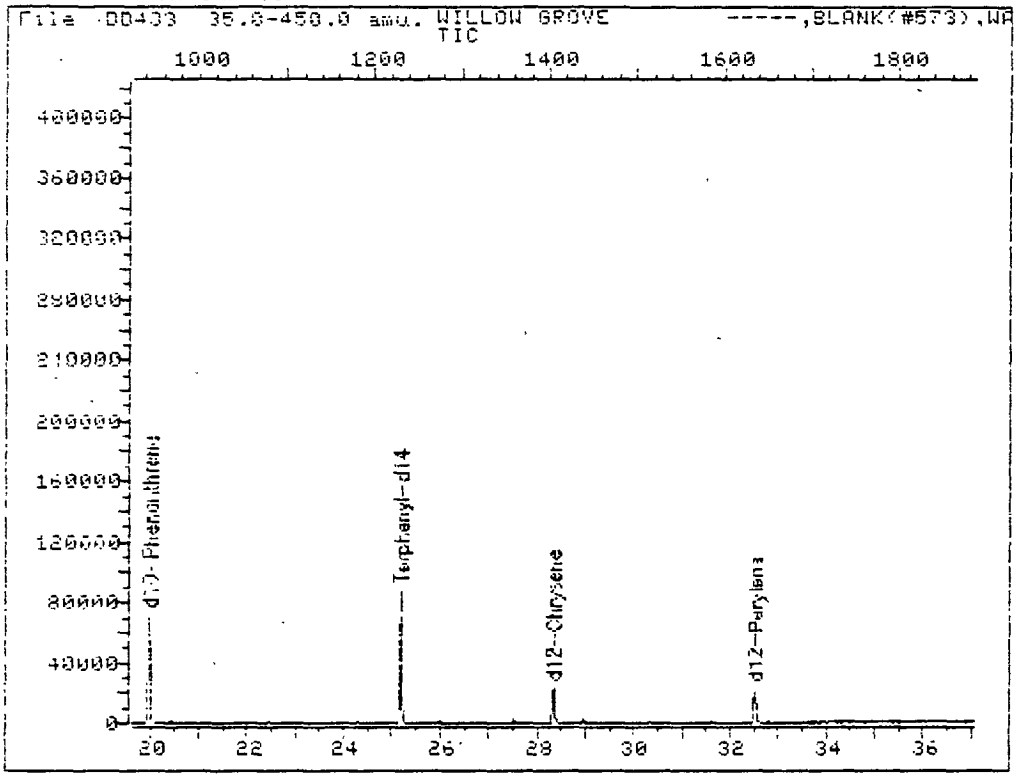
Data File: >DD433::D1 Quant Output File: ^DD433::QT
Name: WILLOW GROVE
Misc: -----,BLANK(#573),WATER,1000ml,1,EA#1431 <1> BTL# 5

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 19:33
Injected at: 890508 18:53

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD433::D1 Quant Output File: ^DD433::QT
Name: WILLOW GROVE
Misc: -----,BLANK(#573),WATER,1000ml,1,EA#1431 (1) BTL# 5

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 19:33
Injected at: 890508 18:53

TIC page 2 of 2

QUANT REPORT

Operator ID: BHHORH Quant Rev: 6 Quant Time: 890508 19:33
Output File: ^DD433::QT Injected at: 890508 18:53
Data File: >DD433::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: -----,BLANK(#573),WATER,1000ml,1,EA#1431 (1) BTL# 5

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.90	152.0	68772	40.00	NG	98
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	0.00	146.0	0	0.00	NG	
5)	1,4-Dichlorobenzene	0.00	146.0	0	0.00	NG	
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	0.00	70.0	0	0.00	NG	
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.12	136.0	221531	40.00	NG	87
11)	Nitrobenzene-d5	8.29	82.0	182923	86.54	NG 87%	92
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	0.00	180.0	0	0.00	NG	
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.43	164.0	80275	40.00	NG	97
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.46	172.0	244410	79.26	NG 79%	93
22)	Dimethylphthalate	15.47	163.0	26036	~~9.10~~	~~NG~~	54
23)	Acenaphthylene	0.00	152.0	0	0.00	NG	
24)	Acenaphthene	0.00	153.0	0	0.00	NG	
25)	2,4-Dinitrotoluene	0.00	165.0	0	0.00	NG	
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.98	188.0	71086	40.00	NG	98
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	0.00	202.0	0	0.00	NG	
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.32	240.0	25382	40.00	NG	98
40)	Pyrene	0.00	202.0	0	0.00	NG	
41)	Terphenyl-d14	25.17	244.0	84503	108.64	NG 109%	91
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:^DD433:: Data File:>DD433::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	0.00	149.0	0	0.00	NG	
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.51	264.0	25259	40.00	NG	96
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: BLANK(#580)
SAMPLE: -----
GC/MS FILE: >DD428::D1
DATE REC'D: N/A
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 14:50
SAMPLE--->EXTRACT:	10.01G--> 1ml.

CAS #		CONC UG/L OR UG/KG	
62-75-9	N-Nitrosodimethylamine	1000.	ND
111-44-4	bis(2-Chloroethyl)ether	1000.	ND
541-73-1	1,3-Dichlorobenzene	1000.	ND
106-46-7	1,4-Dichlorobenzene	1000.	ND
95-50-1	1,2-Dichlorobenzene	1000.	ND
39638-32-9	bis(2-chloroisopropyl)ether	1000.	ND
621-64-7	N-Nitroso-Di-n-propylamine	1000.	ND
67-72-1	Hexachloroethane	1000.	ND
98-95-3	Nitrobenzene	1000.	ND
78-59-1	Isophorone	1000.	ND
111-91-1	bis(2-Chloroethoxy)methane	1000.	ND
120-82-1	1,2,4-Trichlorobenzene	1000.	ND
91-20-3	Naphthalene	1000.	ND
87-68-3	Hexachlorobutadiene	1000.	ND
77-47-4	Hexachlorocyclopentadiene	1000.	ND
91-58-7	2-Chloronaphthalene	1000.	ND
131-11-3	Dimethylphthalate	1000.	ND
208-96-8	Acenaphthylene	1000.	ND
83-32-9	Acenaphthene	1000.	ND
121-14-2	2,4-Dinitrotoluene	1000.	ND
606-20-2	2,6-Dinitrotoluene	1000.	ND
84-66-2	Diethylphthalate	1000.	ND
7005-72-3	4-Chlorophenyl-phenylether	1000.	ND
86-73-7	Fluorene	1000.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: BLANK(#580)
SAMPLE: -----
GC/MS FILE: >DD428::D1
DATE REC'D: N/A
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 14:50
SAMPLE--->EXTRACT:	10.01G--> 1ml

CAS #		CONC UG/L OR UG/KG	
86-30-6	N-Nitrosodiphenylamine	1000.	ND
101-55-3	4-Bromophenyl-phenylether	1000.	ND
118-74-1	Hexachlorobenzene	1000.	ND
85-01-8	Phenanthrene	1000.	ND
120-12-7	Anthracene	1000.	ND
84-74-2	Di-n-Butyl phthalate	1000.	ND
206-44-0	Fluoranthene	1000.	ND
92-87-5	Benzidine	5000.	ND
129-00-0	Pyrene	1000.	ND
85-68-7	Butylbenzylphthalate	1000.	ND
91-94-1	3,3'-Dichlorobenzidine	2000.	ND
56-55-3	Benzo(a)Anthracene	1000.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	1000.	ND
218-01-9	Chrysene	1000.	ND
117-84-0	Di-n-Octyl phthalate	1000.	ND
205-99-2	Benzo(b)Fluoranthene	1000.	ND
205-99-2	Benzo(k)Fluoranthene	1000.	ND
50-32-8	Benzo(a)Pyrene	1000.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	1000.	ND
53-70-3	Dibenzo(a,h)Anthracene	1000.	ND
191-24-2	Benzo(g,h,i)Perylene	1000.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow Grove

Sample Number: Blank # 580

EA # 1430

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Unknown	B/N	34.12	1000.00
2.				
3.				
4.				
5.				
6.				
7.				
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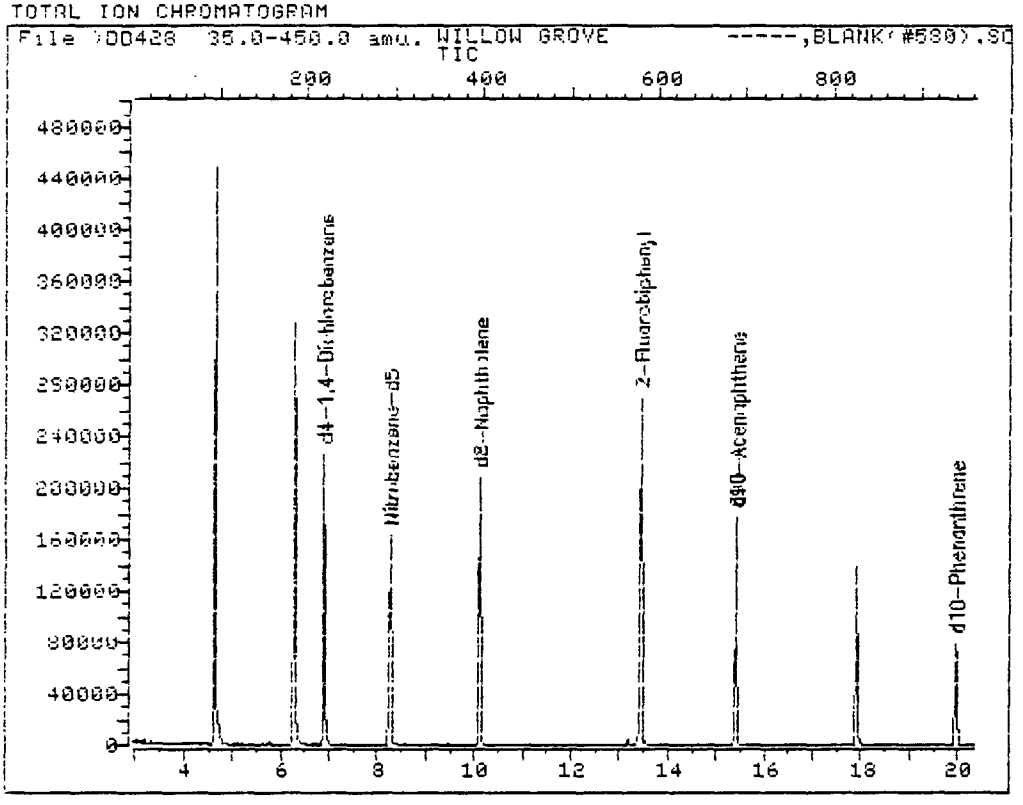
27.				
28.				
29.				
30.				

TOTAL ION CHROMATOGRAM



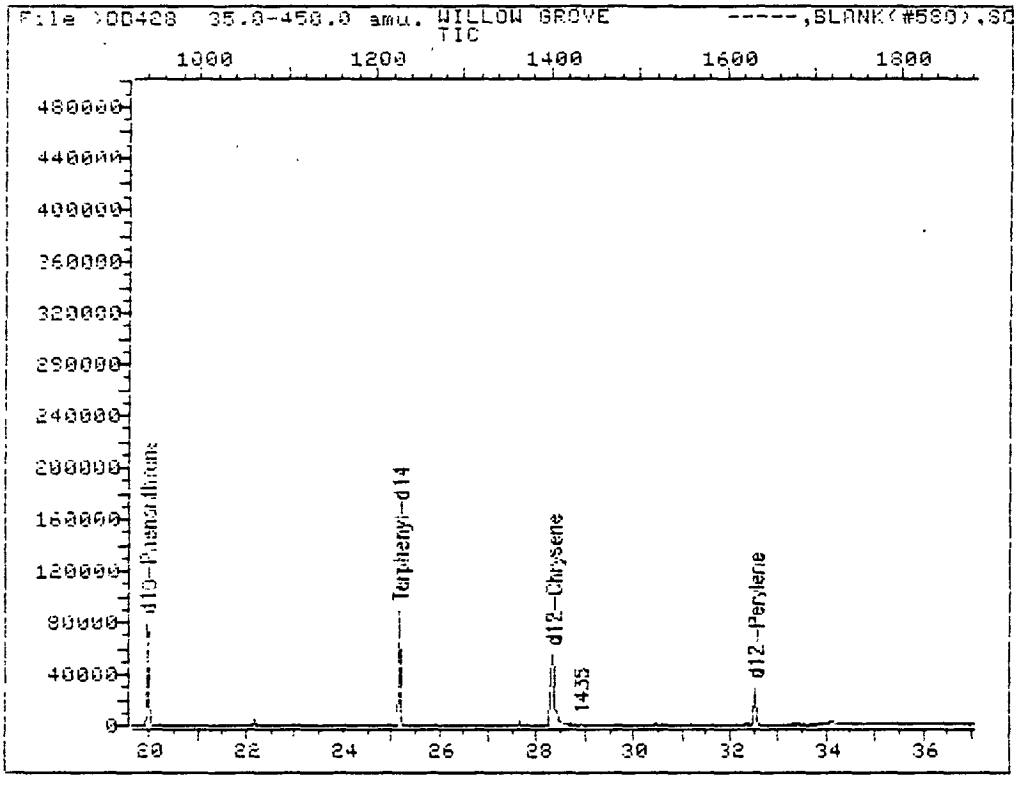
Data File: >DD428::D1 Quant Output File: ^DD428::QT
Name: WILLOW GROVE
Misc: -----,BLANK(#580),SOIL,10.01G,1, EA#1430 (99.90) BTL#99

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 15:30
Injected at: 890508 14:50

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD428::D1 Quant Output File: ^DD428::QT
Name: WILLOW GROVE
Misc: -----,BLANK(#580),SOIL,10.01G,1, EA#1430 (99.90) BTL#99

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 15:30
Injected at: 890508 14:50

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADRA Quant Rev: 6 Quant Time: 890508 15:30
Output File: DD428::QT Injected at: 890508 14:50
Data File: DD428::01 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: -----,BLANK(#580),SOIL,10.01G,1, EH#1430 (99.90) BTL#99

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

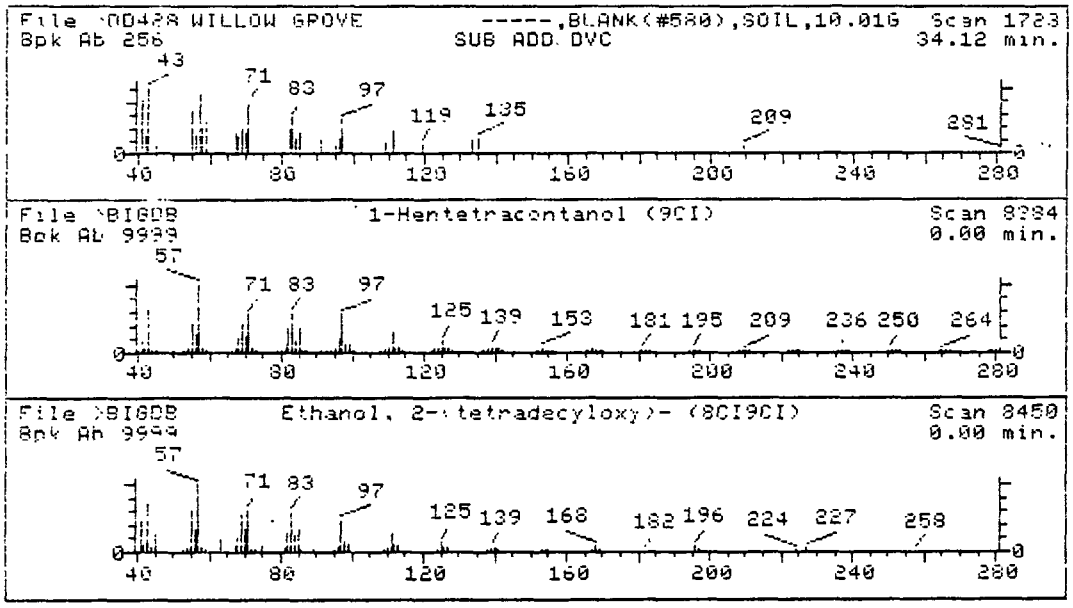
	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.89	152.0	84453	40.00	NG	96
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	0.00	146.0	0	0.00	NG	
5)	1,4-Dichlorobenzene	0.00	146.0	0	0.00	NG	
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	0.00	70.0	0	0.00	NG	
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.11	136.0	269157	40.00	NG	87
11)	Nitrobenzene-d5	8.27	82.0	149868	58.35	NG ✓58 %	88
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	0.00	180.0	0	0.00	NG	
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.42	164.0	94299	40.00	NG	9-
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.45	172.0	260400	71.89	NG ✓72 %	93
22)	Dimethylphthalate	15.42	163.0	30608	~~9.10~~	~~NG~~	54
23)	Acenaphthylene	0.00	152.0	0	0.00	NG	
24)	Acenaphthene	0.00	153.0	0	0.00	NG	
25)	2,4-Dinitrotoluene	0.00	165.0	0	0.00	NG	
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.96	188.0	87849	40.00	NG	98
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	0.00	202.0	0	0.00	NG	
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.33	240.0	31607	40.00	NG	96
40)	Pyrene	0.00	202.0	0	0.00	NG	
41)	Terphenyl-d14	25.18	244.0	88503	91.37	NG ✓91 %	89
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:^DD428:: Data File:>DD428::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	28.91	149.0	858	~~.70~~	~~NG~~	95
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.51	264.0	33195	40.00	NG	96
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD



unknown

Retention time = 34.12

Area = 24792.00 Tentative Concentration is 1000.00

1. 1-Hentetracontanol (9CI) 592 C41H84O
2. Ethanol, 2-(tetradecyloxy)- (8CI9CI) 258 C16H34O2

Sample file: >DD428 Spectrum #: 1723
Search speed: 2 Tilting option: S No. of ion ranges searched: 60

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	31	40710427	8384	"BIGDB	98	97	3	0	91	45	12	22
2.	25	2136701	8450	"BIGDB	75	82	3	0	91	50	7	13

LIBRARY SEARCH SUMMARY

MS Data File:>00428::01 Analyst:BHADRA MS

Name:WILLOW GROVE Date/Time: 5/08/89 14:50
Misc:-----,BLANK(#580),SOIL,10.01G,1, EH#1430 ?99.90? BTL#99

The following hits are >10% of the nearest ISTD.

Peak # in PBM file	Retention Time	Peak Area	10% of Nearest ISTD Area	
~~1~~	~~4.63~~	~~876407~~	~~52972~~	2 Fluorophenol
~~2~~	~~6.29~~	~~1021010~~	52972	Phenol-d5
~~3~~	~~17.90~~	~~443105~~	~~23447~~	2,4,6 Tribromophenol
4	34.12	24792	9500	

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430 (MS)
SAMPLE: NFFB.S-2(MS)
GC/MS FILE: >DD430::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 16:26
SAMPLE--->EXTRACT:	10.12G--> 1ml

CAS #		CONC UG/L OR UG/KG	
62-75-9	N-Nitrosodimethylamine	1200.	ND
111-44-4	bis(2-Chloroethyl)ether	1200.	ND
541-73-1	1,3-Dichlorobenzene	1200.	ND
106-46-7	1,4-Dichlorobenzene	7500.	
95-50-1	1,2-Dichlorobenzene	1200.	ND
39638-32-9	bis(2-chloroisopropyl)ether	1200.	ND
621-64-7	N-Nitroso-Di-n-propylamine	11000.	
67-72-1	Hexachloroethane	1200.	ND
98-95-3	Nitrobenzene	1200.	ND
78-59-1	Isophorone	1200.	ND
111-91-1	bis(2-Chloroethoxy)methane	1200.	ND
120-82-1	1,2,4-Trichlorobenzene	9000.	
91-20-3	Naphthalene	1200.	ND
87-68-3	Hexachlorobutadiene	1200.	ND
77-47-4	Hexachlorocyclopentadiene	1200.	ND
91-58-7	2-Chloronaphthalene	1200.	ND
131-11-3	Dimethylphthalate	1200.	ND
208-96-8	Acenaphthylene	1200.	ND
83-32-9	Acenaphthene	11000.	
121-14-2	2,4-Dinitrotoluene	12000.	
606-20-2	2,6-Dinitrotoluene	1200.	ND
84-66-2	Diethylphthalate	1200.	ND
7005-72-3	4-Chlorophenyl-phenylether	1200.	ND
86-73-7	Fluorene	1200.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430 (MS)
SAMPLE: NFFB.S-2(MS)
GC/MS FILE: >DD430::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 16:26
SAMPLE--->EXTRACT:	10.12G--> 1ml

CAS #		CONC UG/L	OR UG/KG
86-30-6	N-Nitrosodiphenylamine	1200.	ND
101-55-3	4-Bromophenyl-phenylether	1200.	ND
118-74-1	Hexachlorobenzene	1200.	ND
85-01-8	Phenanthrene	1200.	ND
120-12-7	Anthracene	1200.	ND
84-74-2	Di-n-Butyl phthalate	1200.	ND
206-44-0	Fluoranthene	1200.	ND
92-87-5	Benzidine	6000.	ND
129-00-0	Pyrene	12000.	
85-68-7	Butylbenzylphthalate	1200.	ND
91-94-1	3,3'-Dichlorobenzidine	2400.	ND
56-55-3	Benzo(a)Anthracene	1200.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	1200.	ND
218-01-9	Chrysene	1200.	ND
117-84-0	Di-n-Octyl phthalate	1200.	ND
205-99-2	Benzo(b)Fluoranthene	1200.	ND
205-99-2	Benzo(k)Fluoranthene	1200.	ND
50-32-8	Benzo(a)Pyrene	1200.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	1200.	ND
53-70-3	Dibenzo(a,h)Anthracene	1200.	ND
191-24-2	Benzo(g,h,i)Perylene	1200.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow Grove

Sample Number
NFFB\5-2
EA# 1430 ms

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Not required.	B/N	—	—
2.				
3.				
4				
5.				
6.				
7.				
8.				
9.				
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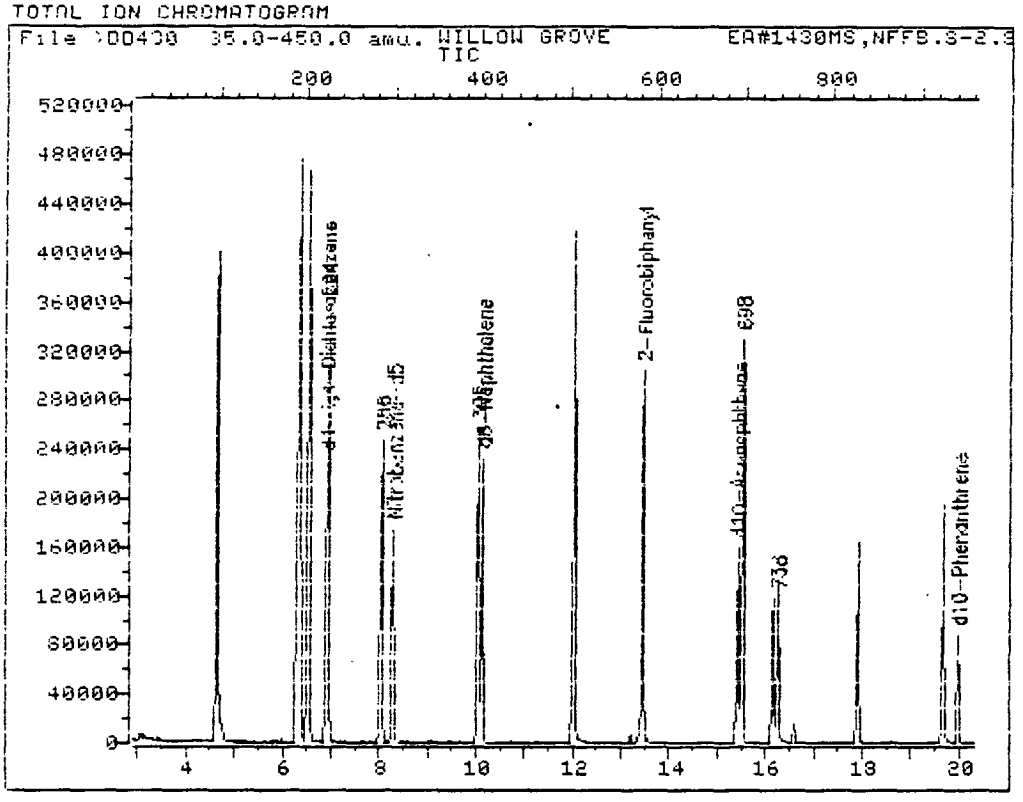
30.				

TOTAL ION CHROMATOGRAM



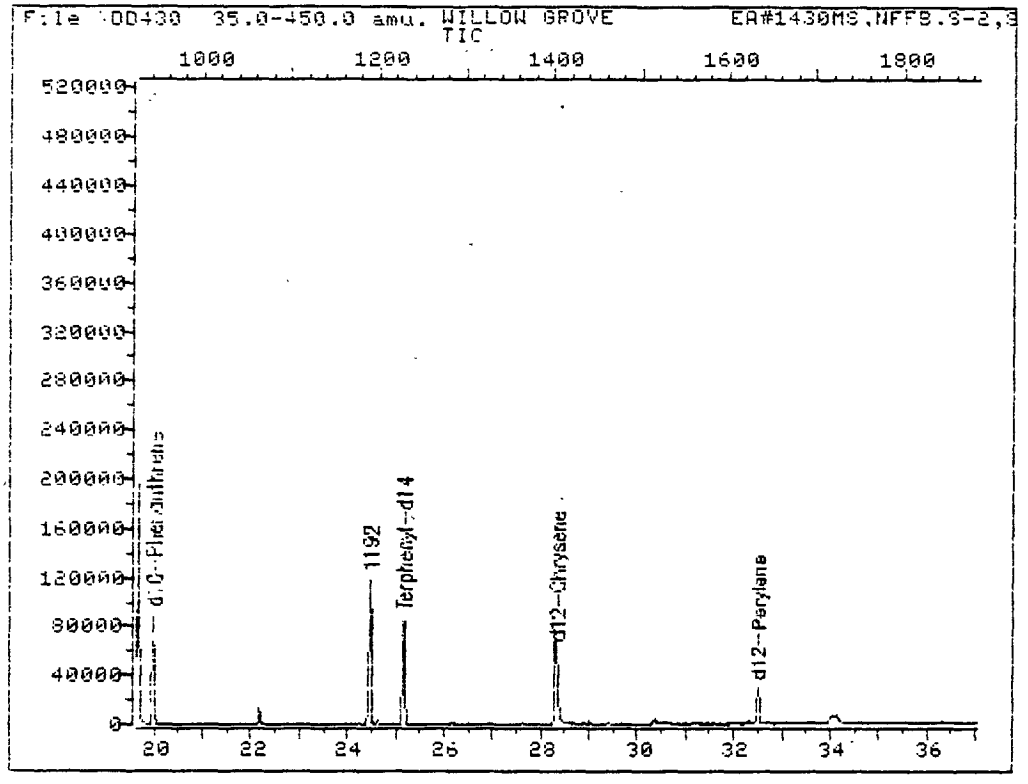
Data File: >DD430::D1 Quant Output File: ^DD430::QT
Name: WILLOW GROVE
Misc: EA#1430MS,NFFB.S-2,SOIL,10.12G,1, WILLOW GROVE (98.81)BTL# 2

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 17:07
Injected at: 890508 16:26

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD430::D1 Quant Output File: ^DD430::QT
Name: WILLOW GROVE
Misc: EA#1430MS,NFFB.S-2,SOIL,10.12G,1, WILLOW GROVE (98.81)BTL# 2

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 17:07
Injected at: 890508 16:26

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADPH Quant Rev: 6 Quant Time: 890508 17:07
Output File: >DD430::QT Injected at: 890508 16:26
Data File: >DD430::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EM#1430MS,NFFB.S-2,SOIL,10.12G,1. WILLOW GROVE (98.81)BTL# 2

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units	Q
1)	*d4-1,4-Dichlorobenzene	6.90	152.0	85726	40.00	NG	96
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	6.94	146.0	191581	~~63.39~~	~~NG~~	94
5)	1,4-Dichlorobenzene	6.94	146.0	191581	62.28	NG	93
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	8.06	70.0	166622	90.53	NG	95
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.13	136.0	266511	40.00	NG	87
11)	Nitrobenzene-d5	8.30	82.0	162116	63.75	NG	64% 96
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	10.04	180.0	152634	73.45	NG	95
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.42	164.0	100756	40.00	NG	93
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.46	172.0	265278	68.54	NG	69% 94
22)	Dimethylphthalate	0.00	163.0	0	0.00	NG	
23)	Acenaphthylene	15.52	152.0	126641	~~28.29~~	~~NG~~	67
24)	Acenaphthene	15.52	153.0	268252	88.99	NG	94
25)	2,4-Dinitrotoluene	16.25	165.0	79017	98.07	NG	87
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.98	188.0	89985	40.00	NG	99
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	24.47	202.0	147631	~~90.19~~	~~NG~~	96
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.33	240.0	34959	40.00	NG	97
40)	Pyrene	24.47	202.0	147631	99.81	NG	98
41)	Terphenyl-d14	25.16	244.0	89692	83.72	NG	84% 88
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:^DD430:: Data File:>DD430::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	0.00	149.0	0	0.00	NG	
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.49	264.0	35852	40.00	NG	94
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431(MS)
SAMPLE: RINSATE BLANK(MS)
GC/MS FILE: >DD435::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 20:30
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L	OR UG/KG
62-75-9	N-Nitrosodimethylamine	10.	ND
111-44-4	bis(2-Chloroethyl)ether	10.	ND
541-73-1	1,3-Dichlorobenzene	10.	ND
106-46-7	1,4-Dichlorobenzene	68.	
95-50-1	1,2-Dichlorobenzene	10.	ND
39638-32-9	bis(2-chloroisopropyl)ether	10.	ND
621-64-7	N-Nitroso-Di-n-propylamine	98.	
67-72-1	Hexachloroethane	10.	ND
98-95-3	Nitrobenzene	10.	ND
78-59-1	Isophorone	10.	ND
111-91-1	bis(2-Chloroethoxy)methane	10.	ND
120-82-1	1,2,4-Trichlorobenzene	74.	
91-20-3	Naphthalene	10.	ND
87-68-3	Hexachlorobutadiene	10.	ND
77-47-4	Hexachlorocyclopentadiene	10.	ND
91-58-7	2-Chloronaphthalene	10.	ND
131-11-3	Dimethylphthalate	10.	ND
208-96-8	Acenaphthylene	10.	ND
83-32-9	Acenaphthene	89.	
121-14-2	2,4-Dinitrotoluene	92.	
606-20-2	2,6-Dinitrotoluene	10.	ND
84-66-2	Diethylphthalate	10.	ND
7005-72-3	4-Chlorophenyl-phenylether	10.	ND
86-73-7	Fluorene	10.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431(MS)
SAMPLE: RINSATE BLANK(MS)
GC/MS FILE: >DD435::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 20:30
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L	OR UG/KG
86-30-6	N-Nitrosodiphenylamine	10.	ND
101-55-3	4-Bromophenyl-phenylether	10.	ND
118-74-1	Hexachlorobenzene	10.	ND
85-01-8	Phenanthrene	10.	ND
120-12-7	Anthracene	10.	ND
84-74-2	Di-n-Butyl phthalate	10.	ND
206-44-0	Fluoranthene	10.	ND
92-87-5	Benzidine	50.	ND
129-00-0	Pyrene	130.	
85-68-7	Butylbenzylphthalate	10.	ND
91-94-1	3,3'-Dichlorobenzidine	20.	ND
56-55-3	Benzo(a)Anthracene	10.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	1.	TR
218-01-9	Chrysene	10.	ND
117-84-0	Di-n-Octyl phthalate	10.	ND
205-99-2	Benzo(b)Fluoranthene	10.	ND
205-99-2	Benzo(k)Fluoranthene	10.	ND
50-32-8	Benzo(a)Pyrene	10.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	10.	ND
53-70-3	Dibenzo(a,h)Anthracene	10.	ND
191-24-2	Benzo(g,h,i)Perylene	10.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow grove

Sample Number: Rinsate Blk(MS)

EA# 1431 (MS)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Not required	B/N	—	—
2.				
3.				
4.				
5.				
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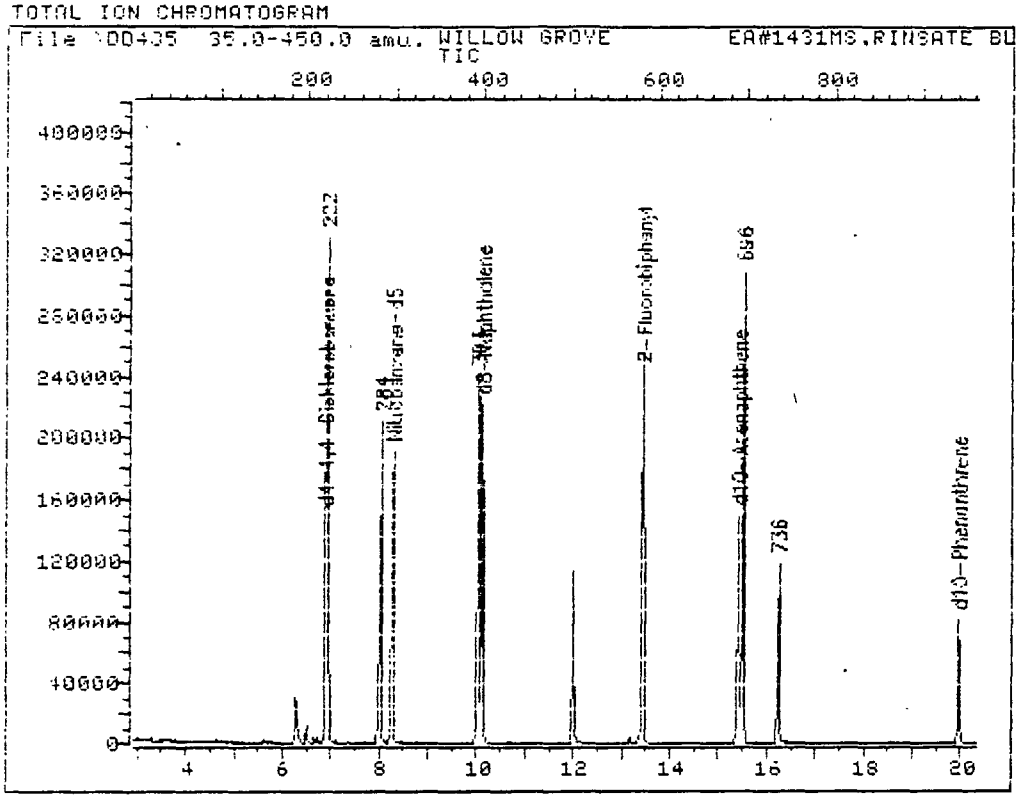
29.				
30.				

TOTAL ION CHROMATOGRAM



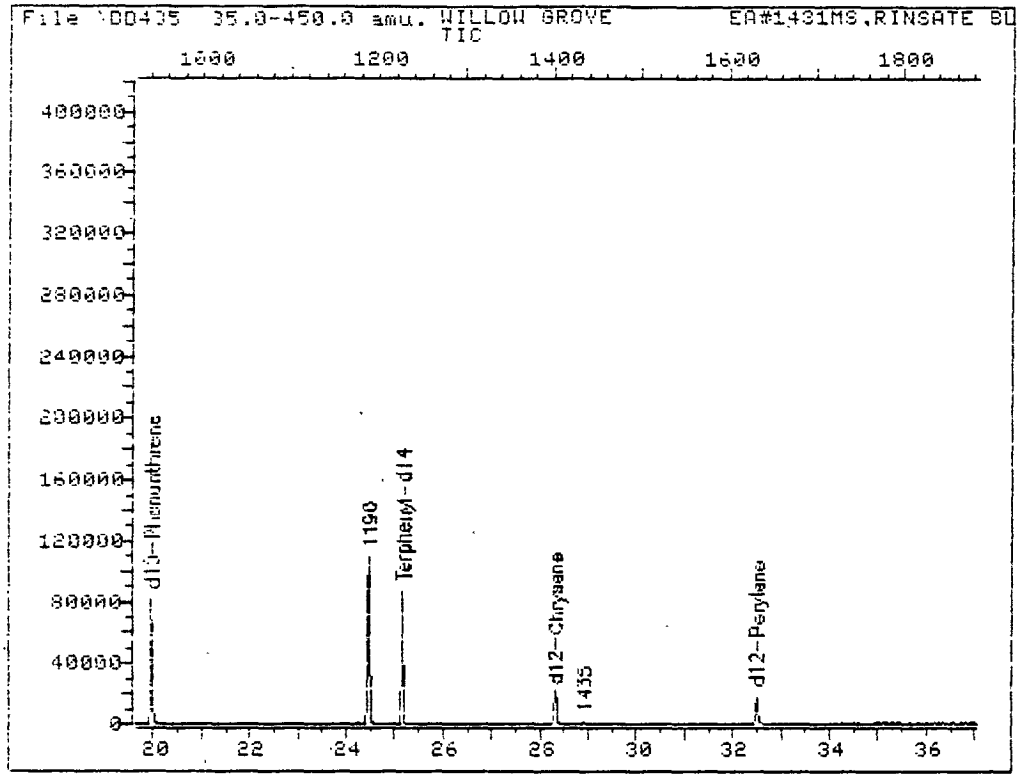
Data File: >DD435::D1 Quant Output File: ^DD435::QT
Name: WILLOW GROVE
Misc: EA#1431MS,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE <1BTL# 7

Id File: IDDBND::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 21:11
Injected at: 890508 20:30

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD435::D1 Quant Output File: ^DD435::QT
Name: WILLOW GROVE
Misc: EA#1431MS,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (18TL# 7

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 21:11
Injected at: 890508 20:30

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADRA Quant Rev: 6 Quant Time: 890508 21:11
Output File: >DD435::QT Injected at: 890508 20:30
Data File: >DD435::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EH#1431MS,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE <1BTL# 7

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.88	152.0	73921	40.00	NG	95
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	6.93	146.0	181666	~~69.71 NG~~		96
5)	1,4-Dichlorobenzene	6.93	146.0	181666	68.49 NG		97
6)	1,2-Dichlorobenzene	6.93	146.0	181666	~~74.19 NG~~		96
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	8.06	70.0	155895	98.23	NG	96
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.12	136.0	246777	40.00	NG	88
11)	Nitrobenzene-d5	8.29	82.0	171418	72.80	NG	73% 94
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	10.03	180.0	142004	73.80	NG	97
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.41	164.0	88931	40.00	NG	92
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.44	172.0	237625	69.56	NG	70% 94
22)	Dimethylphthalate	0.00	163.0	0	0.00	NG	
23)	Acenaphthylene	15.52	152.0	112238	~~28.41 NG~~		66
24)	Acenaphthene	15.52	153.0	236686	88.96	NG	97
25)	2,4-Dinitrotoluene	16.24	165.0	65767	92.48	NG	85
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.95	188.0	84115	40.00	NG	98
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	24.46	202.0	140872	~~92.07 NG~~		97
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.30	240.0	25566	40.00	NG	98
40)	Pyrene	24.46	202.0	140872	130.23	NG	95
41)	Terphenyl-d14	25.15	244.0	83513	106.59	NG	107% 86
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:^DD435:: Data File:>DD435::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	28.90	149.0	1464	1.48	NG	92
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.48	264.0	24203	40.00	NG	97
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430 (MSD)
SAMPLE: NFFB.S-2(MSD)
GC/MS FILE: >DD431::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 17:15
SAMPLE--->EXTRACT:	10.26G--> 1ml

CAS #		CONC UG/L OR UG/KG	
62-75-9	N-Nitrosodimethylamine	1200.	ND
111-44-4	bis(2-Chloroethyl)ether	1200.	ND
541-73-1	1,3-Dichlorobenzene	1200.	ND
106-46-7	1,4-Dichlorobenzene	7200.	
95-50-1	1,2-Dichlorobenzene	1200.	ND
39638-32-9	bis(2-chloroisopropyl)ether	1200.	ND
621-64-7	N-Nitroso-Di-n-propylamine	9300.	
67-72-1	Hexachloroethane	1200.	ND
98-95-3	Nitrobenzene	1200.	ND
78-59-1	Isophorone	1200.	ND
111-91-1	bis(2-Chloroethoxy)methane	1200.	ND
120-82-1	1,2,4-Trichlorobenzene	7600.	
91-20-3	Naphthalene	1200.	ND
87-68-3	Hexachlorobutadiene	1200.	ND
77-47-4	Hexachlorocyclopentadiene	1200.	ND
91-58-7	2-Chloronaphthalene	1200.	ND
131-11-3	Dimethylphthalate	1200.	ND
208-96-8	Acenaphthylene	1200.	ND
83-32-9	Acenaphthene	9200.	
121-14-2	2,4-Dinitrotoluene	11000.	
606-20-2	2,6-Dinitrotoluene	1200.	ND
84-66-2	Diethylphthalate	1200.	ND
7005-72-3	4-Chlorophenyl-phenylether	1200.	ND
86-73-7	Fluorene	1200.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1430 (MSD)
SAMPLE: NFFB.S-2(MSD)
GC/MS FILE: >DD431::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	SOIL
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 17:15
SAMPLE--->EXTRACT:	10.26G--> 1ml

CAS #		CONC UG/L OR UG/KG	
86-30-6	N-Nitrosodiphenylamine	1200.	ND
101-55-3	4-Bromophenyl-phenylether	1200.	ND
118-74-1	Hexachlorobenzene	1200.	ND
85-01-8	Phenanthrene	1200.	ND
120-12-7	Anthracene	1200.	ND
84-74-2	Di-n-Butyl phthalate	1200.	ND
206-44-0	Fluoranthene	1200.	ND
92-87-5	Benzidine	6000.	ND
129-00-0	Pyrene	11000.	
85-68-7	Butylbenzylphthalate	1200.	ND
91-94-1	3,3'-Dichlorobenzidine	2400.	ND
56-55-3	Benzo(a)Anthracene	1200.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	1200.	ND
218-01-9	Chrysene	1200.	ND
117-84-0	Di-n-Octyl phthalate	1200.	ND
205-99-2	Benzo(b)Fluoranthene	1200.	ND
205-99-2	Benzo(k)Fluoranthene	1200.	ND
50-32-8	Benzo(a)Pyrene	1200.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	1200.	ND
53-70-3	Dibenzo(a,h)Anthracene	1200.	ND
191-24-2	Benzo(g,h,i)Perylene	1200.	ND

Qualifier descriptions: ND - Compound analyzed for but not detect d
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow grove

Sample Number
NFFB.S-2
EA #1430 MSD

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Not required	B/N	—	—
2.				
3.				
4.				
5.				
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7.				
8.				
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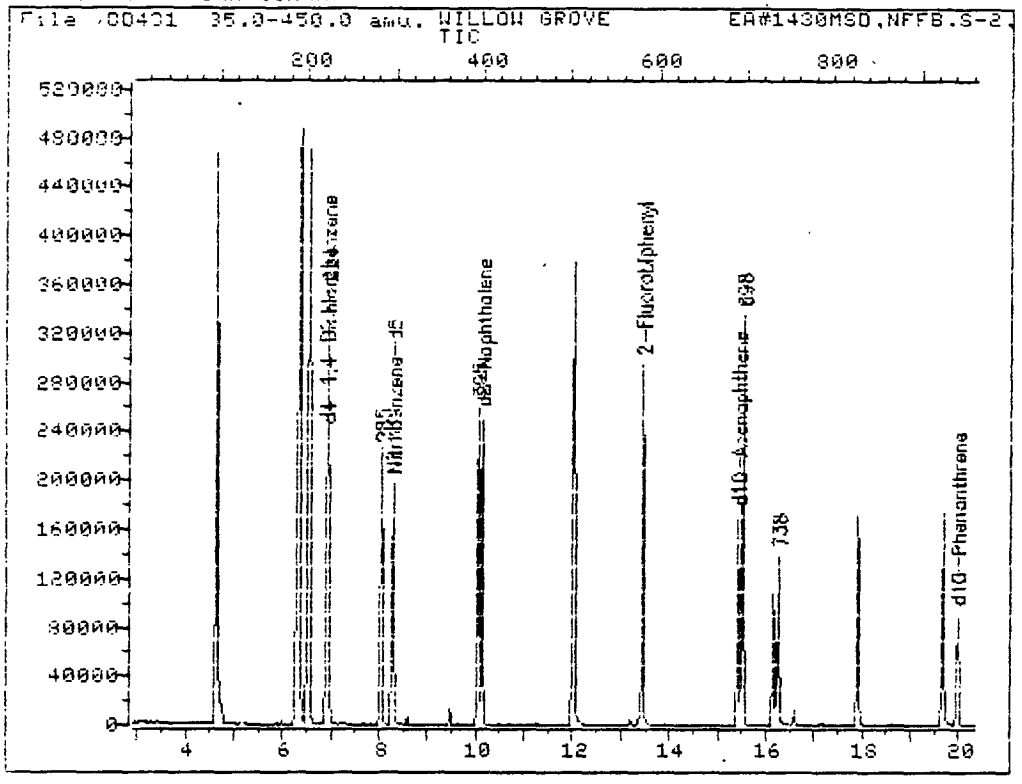
30.				

TOTAL ION CHROMATOGRAM



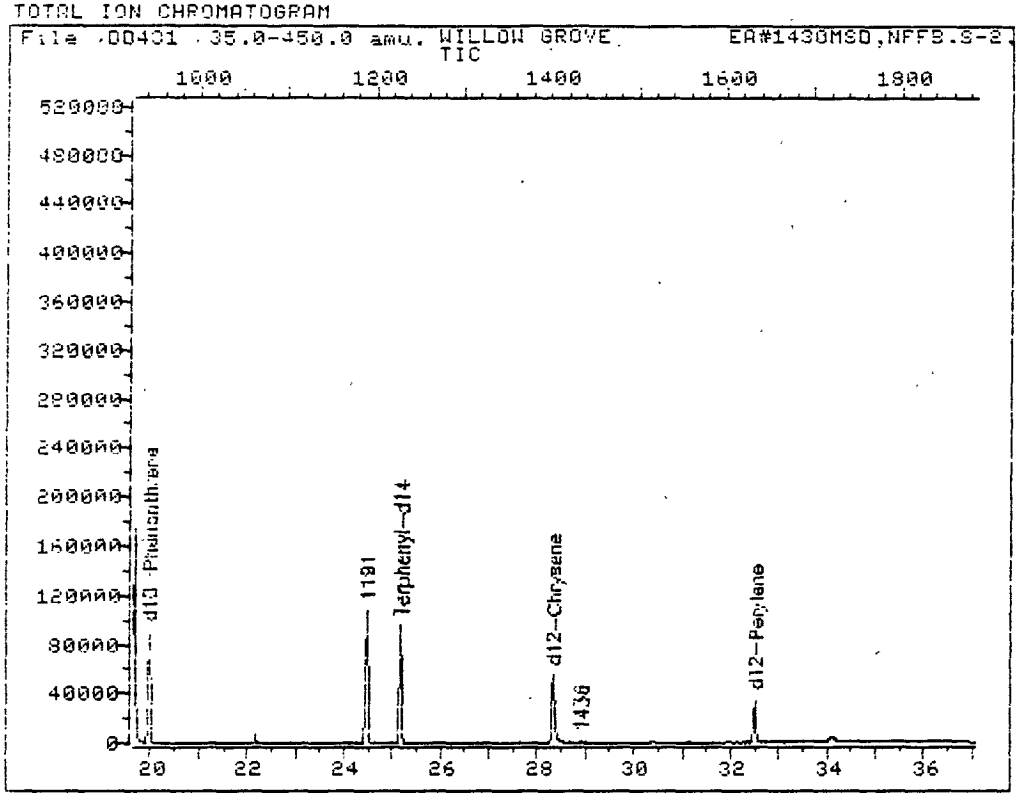
Data File: >DD431::D1 Quant Output File: ^DD431::QT
Name: WILLOW GROVE
Misc: EA#1430MSD,NFFB.S-2,SOIL,10.26G,1, WILLOW GROVE <97.47BTL# 3

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 17:56
Injected at: 890508 17:15

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >DD431::D1 Quant Output File: ^DD431::QT
Name: WILLOW GROVE
Misc: EA#1430MSD,NFFB.S-2,SOIL,10.26G,1, WILLOW GROVE <97.47BTL# 3

Id File: IDOBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 17:56
Injected at: 890508 17:15

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADRA Quant Rev: 6 Quant Time: 890508 17:56
Output File: ^DD431::QT Injected at: 890508 17:15
Data File: >DD431::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EA#1430MSD,NFFB.5-2,SOIL,10.26G,1, WILLOW GROVE <97.47BTL# 3

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*d4-1,4-Dichlorobenzene	6.91	152.0	87041	40.00	NG	96
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG	
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG	
4)	1,3-Dichlorobenzene	6.95	146.0	188867	~~61.55~~	~~NG~~	96
5)	1,4-Dichlorobenzene	6.95	146.0	188867	60.47	NG	97
6)	1,2-Dichlorobenzene	0.00	146.0	0	0.00	NG	
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG	
8)	N-Nitroso-Di-n-propylamine	8.05	70.0	144940	77.56	NG	95
9)	Hexachloroethane	0.00	117.0	0	0.00	NG	
10)	*d8-Naphthalene	10.14	136.0	279695	40.00	NG	86
11)	Nitrobenzene-d5	8.29	82.0	151510	56.77	NG 57%	92
12)	Nitrobenzene	0.00	77.0	0	0.00	NG	
13)	Isophorone	0.00	82.0	0	0.00	NG	
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG	
15)	1,2,4-Trichlorobenzene	10.04	180.0	138837	63.66	NG	95
16)	Naphthalene	0.00	128.0	0	0.00	NG	
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG	
18)	*d10-Acenaphthene	15.42	164.0	103440	40.00	NG	98
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG	
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG	
21)	2-Fluorobiphenyl	13.45	172.0	250146	62.95	NG 63%	97
22)	Dimethylphthalate	0.00	163.0	0	0.00	NG	
23)	Acenaphthylene	15.53	152.0	114090	~~24.83~~	~~NG~~	68
24)	Acenaphthene	15.53	153.0	237699	76.81	NG	93
25)	2,4-Dinitrotoluene	16.26	165.0	75060	90.74	NG	86
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG	
27)	Diethylphthalate	0.00	149.0	0	0.00	NG	
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG	
29)	Fluorene	0.00	166.0	0	0.00	NG	
30)	*d10-Phenanthrene	19.97	188.0	100911	40.00	NG	98
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG	
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG	
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG	
34)	Phenanthrene	0.00	178.0	0	0.00	NG	
35)	Anthracene	0.00	178.0	0	0.00	NG	
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG	
37)	Fluoranthene	24.46	202.0	146101	~~79.60~~	~~NG~~	96
38)	Benzidine	0.00	184.0	0	0.00	NG	
39)	*d12-Chrysene	28.32	240.0	37474	40.00	NG	96
40)	Pyrene	24.46	202.0	146101	92.14	NG	99
41)	Terphenyl-d14	25.17	244.0	90327	78.66	NG 79%	91
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG	

QUANT REPORT
page 2

Output File:`00431:: Data File:/00431::01

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	28.90	149.0	888	~~.01~~	~~NG~~	98
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.50	264.0	41266	40.00	NG	96
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0.00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431(MSD)
SAMPLE: RINSATE BLANK(MSD)
GC/MS FILE: >DD436::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 1

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 21:20
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L OR UG/KG	
62-75-9	N-Nitrosodimethylamine	10.	ND
111-44-4	bis(2-Chloroethyl)ether	10.	ND
541-73-1	1,3-Dichlorobenzene	10.	ND
106-46-7	1,4-Dichlorobenzene	75.	
95-50-1	1,2-Dichlorobenzene	10.	ND
39638-32-9	bis(2-chloroisopropyl)ether	10.	ND
621-64-7	N-Nitroso-Di-n-propylamine	100.	
67-72-1	Hexachloroethane	10.	ND
98-95-3	Nitrobenzene	10.	ND
78-59-1	Isophorone	10.	ND
111-91-1	bis(2-Chloroethoxy)methane	10.	ND
120-82-1	1,2,4-Trichlorobenzene	80.	
91-20-3	Naphthalene	10.	ND
87-68-3	Hexachlorobutadiene	10.	ND
77-47-4	Hexachlorocyclopentadiene	10.	ND
91-58-7	2-Chloronaphthalene	10.	ND
131-11-3	Dimethylphthalate	10.	ND
208-96-8	Acenaphthylene	10.	ND
83-32-9	Acenaphthene	96.	
121-14-2	2,4-Dinitrotoluene	98.	
606-20-2	2,6-Dinitrotoluene	10.	ND
84-66-2	Diethylphthalate	10.	ND
7005-72-3	4-Chlorophenyl-phenylether	10.	ND
86-73-7	Fluorene	10.	ND

EA LABORATORIES

CLIENT: WILLOW GROVE
LAB NO.: EA#1431(MSD)
SAMPLE: RINSATE BLANK(MSD)
GC/MS FILE: >DD436::D1
DATE REC'D: 04/06/89
INSTRUMENT ID: #4

ORGANICS ANALYSIS DATA SHEET
SEMI-VOLATILE COMPOUNDS
PAGE 2

MATRIX:	WATER
DATE EXTRACTED:	04/08/89
DATE ANALYZED:	5/08/89 21:20
SAMPLE--->EXTRACT:	1000ml--> 1ml

CAS #		CONC UG/L	OR UG/KG
86-30-6	N-Nitrosodiphenylamine	10.	ND
101-55-3	4-Bromophenyl-phenylether	10.	ND
118-74-1	Hexachlorobenzene	10.	ND
85-01-8	Phenanthrene	10.	ND
120-12-7	Anthracene	10.	ND
84-74-2	Di-n-Butyl phthalate	10.	ND
206-44-0	Fluoranthene	10.	ND
92-87-5	Benzidine	50.	ND
129-00-0	Pyrene	140.	
85-68-7	Butylbenzylphthalate	10.	ND
91-94-1	3,3'-Dichlorobenzidine	20.	ND
56-55-3	Benzo(a)Anthracene	10.	ND
117-81-7	bis(2-Ethylhexyl)phthalate	2.	TR
218-01-9	Chrysene	10.	ND
117-84-0	Di-n-Octyl phthalate	10.	ND
205-99-2	Benzo(b)Fluoranthene	10.	ND
205-99-2	Benzo(k)Fluoranthene	10.	ND
50-32-8	Benzo(a)Pyrene	10.	ND
193-39-5	Indeno(1,2,3-cd)Pyrene	10.	ND
53-70-3	Dibenzo(a,h)Anthracene	10.	ND
191-24-2	Benzo(g,h,i)Perylene	10.	ND

Qualifier descriptions: ND - Compound analyzed for but not detected
Number reported is method detection limit
TR - Present but less than detection limit

Laboratory Name: EA. Laboratories

Case No: Willow Grove

Sample Number: Rinsate BLK (MSD)

EA# 1431 MSD

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Not recognized	B/N	—	—
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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19.				
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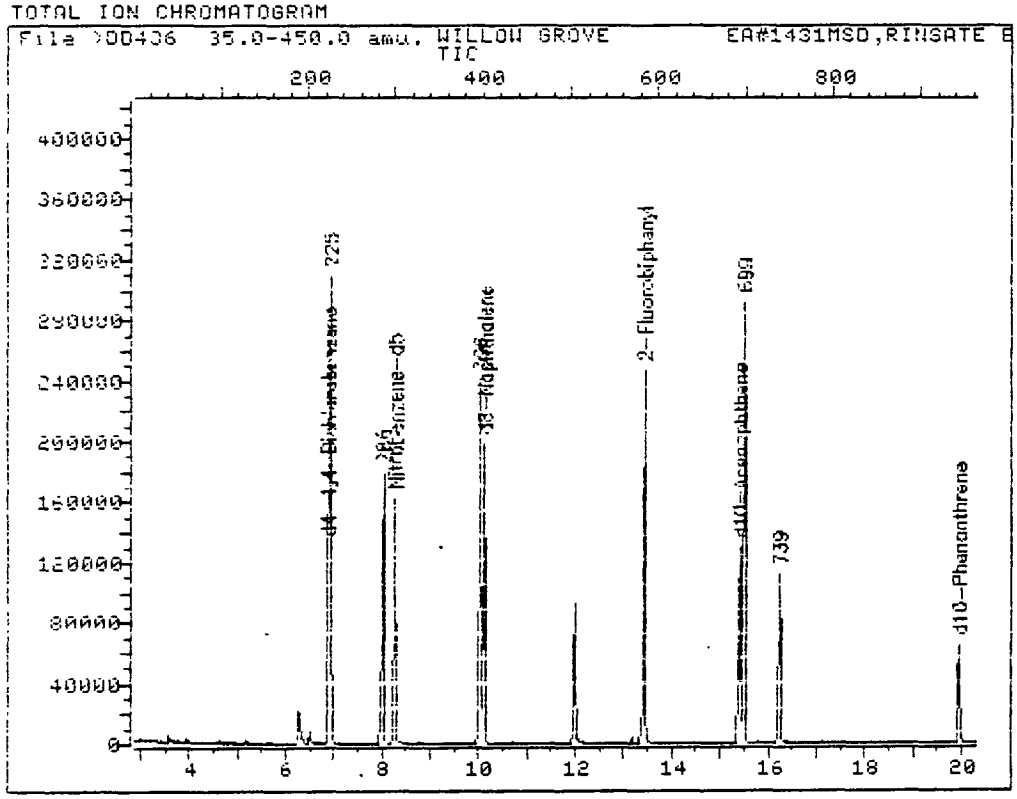
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

TOTAL ION CHROMATOGRAM



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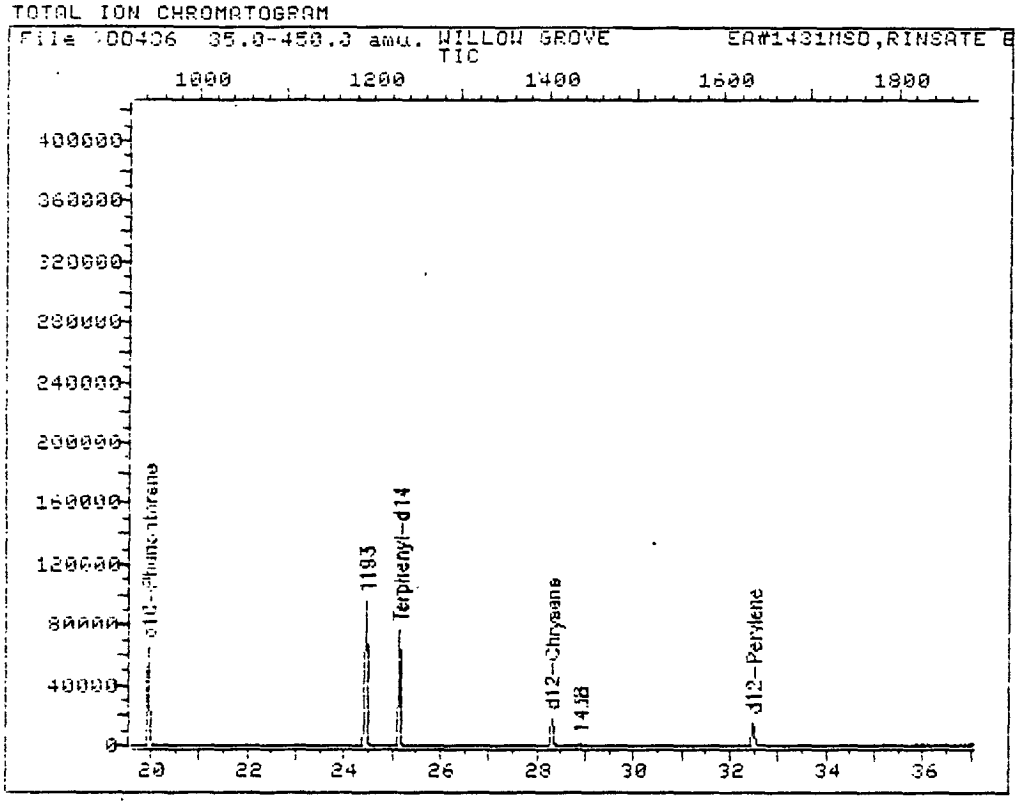
Name: WILLOW GROVE
Misc: EA#1431MSD,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE <BTL# 8

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 22:00
Injected at: 890508 21:20

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >00436::01 Quant Output File: ^00436::QT
Name: WILLOW GROVE
Misc: EA#1431MSD,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (BTL# 8

Id File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

Operator ID: BHADRA
Quant Time: 890508 22:00
Injected at: 890508 21:20

TIC page 2 of 2

QUANT REPORT

Operator ID: BHADRA Quant Rev: 6 Quant Time: 890508 22:00
Output File: >DD436::QT Injected at: 890508 21:20
Data File: >DD436::D1 Dilution Factor: 1.00000
Name: WILLOW GROVE
Misc: EA#1431MSD,RINSATE BLANK,WATER,1000ml,1,WILLOW GROVE (BTL# 8

ID File: IDDBNO::BD
Title: PRIORITY POLLUTANT LIST (B/N ONLY)---INSTRUMENT #4(D)
Last Calibration: 890508 15:13

	Compound	R.T.	Q ion	Area	Conc	Units		q
1)	*d4-1,4-Dichlorobenzene	6.88	152.0	62925	40.00	NG		96
2)	N-Nitrosodimethylamine	0.00	74.0	0	0.00	NG		
3)	bis(2-Chloroethyl)ether	0.00	93.0	0	0.00	NG		
4)	1,3-Dichlorobenzene	6.93	146.0	169931	~~76.60~~	~~NG~~		97
5)	1,4-Dichlorobenzene	6.93	146.0	169931	75.26	NG		96
6)	1,2-Dichlorobenzene	6.93	146.0	169931	~~81.53~~	~~NG~~		95
7)	bis(2-Chloroisopropyl)ether	0.00	45.0	0	0.00	NG		
8)	N-Nitroso-Di-n-propylamine	8.04	70.0	139442	103.21	NG		94
9)	Hexachloroethane	0.00	117.0	0	0.00	NG		
10)	*d8-Naphthalene	10.12	136.0	204764	40.00	NG		87
11)	Nitrobenzene-d5	8.27	82.0	148152	75.83	NG	76%	91
12)	Nitrobenzene	0.00	77.0	0	0.00	NG		
13)	Isophorone	0.00	82.0	0	0.00	NG		
14)	bis(2-Chloroethoxy)methane	0.00	93.0	0	0.00	NG		
15)	1,2,4-Trichlorobenzene	10.03	180.0	127673	79.96	NG		94
16)	Naphthalene	0.00	128.0	0	0.00	NG		
17)	Hexachlorobutadiene	0.00	225.0	0	0.00	NG		
18)	*d10-Acenaphthene	15.41	164.0	72984	40.00	NG		95
19)	Hexachlorocyclopentadiene	0.00	237.0	0	0.00	NG		
20)	2-Chloronaphthalene	0.00	162.0	0	0.00	NG		
21)	2-Fluorobiphenyl	13.43	172.0	221970	79.17	NG	79%	94
22)	Dimethylphthalate	0.00	163.0	0	0.00	NG		
23)	Acenaphthylene	15.52	152.0	100316	~~30.94~~	~~NG~~		67
24)	Acenaphthene	15.52	153.0	210065	96.21	NG		92
25)	2,4-Dinitrotoluene	16.24	165.0	57044	97.74	NG		80
26)	2,6-Dinitrotoluene	0.00	165.0	0	0.00	NG		
27)	Diethylphthalate	0.00	149.0	0	0.00	NG		
28)	4-Chlorophenyl-phenylether	0.00	204.0	0	0.00	NG		
29)	Fluorene	0.00	166.0	0	0.00	NG		
30)	*d10-Phenanthrene	19.95	188.0	66344	40.00	NG		99
31)	N-Nitrosodiphenylamine	0.00	169.0	0	0.00	NG		
32)	4-Bromophenyl-phenylether	0.00	248.0	0	0.00	NG		
33)	Hexachlorobenzene	0.00	284.0	0	0.00	NG		
34)	Phenanthrene	0.00	178.0	0	0.00	NG		
35)	Anthracene	0.00	178.0	0	0.00	NG		
36)	Di-n-Butyl phthalate	0.00	149.0	0	0.00	NG		
37)	Fluoranthene	24.46	202.0	121021	~~100.29~~	~~NG~~		97
38)	Benzidine	0.00	184.0	0	0.00	NG		
39)	*d12-Chrysene	28.30	240.0	20954	40.00	NG		97
40)	Pyrene	24.46	202.0	121021	136.50	NG		97
41)	Terphenyl-d14	25.15	244.0	70055	109.10	NG	109%	90
42)	Butylbenzylphthalate	0.00	149.0	0	0.00	NG		

QUANT REPORT
page 2

Output File:>DD436:: Data File:>DD436::D1

	Compound	R.T.	Q ion	Area	Conc	Units	q
43)	3,3'-Dichlorobenzidine	0.00	252.0	0	0.00	NG	
44)	Benzo(a)Anthracene	0.00	228.0	0	0.00	NG	
45)	bis(2-Ethylhexyl)phthalate	28.90	149.0	1695	2.09	NG	85
46)	Chrysene	0.00	228.0	0	0.00	NG	
47)	*d12-Perylene	32.48	264.0	18841	40.00	NG	98
48)	Di-n-Octyl phthalate	0.00	149.0	0	0.00	NG	
49)	Benzo(b)Fluoranthene	0.00	252.0	0	0.00	NG	
50)	Benzo(k)Fluoranthene	0.00	252.0	0	0.00	NG	
51)	Benzo(a)Pyrene	0.00	252.0	0	0.00	NG	
52)	Indeno(1,2,3-cd)Pyrene	0.00	276.0	0	0:00	NG	
53)	Dibenzo(a,h)Anthracene	0.00	278.0	0	0.00	NG	
54)	Benzo(g,h,i)Perylene	0.00	276.0	0	0.00	NG	

* Compound is ISTD

E. Quality Assurance Summary

EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove (10358.03) Analysis: TCL semivolatiles

EA Laboratories Report No. 890203 Method: U.S. EPA-CLP

Reviewed by: J.E. Hughes Date: 6-12-89

1. Water samples were extracted within 5 days of sample receipt (soils samples within 10 days) and analyzed within 40 days of extraction.

   ✓ Yes ____ No

2. The 12-hour tuning period for ~~DFPP~~ DFTPP was met for all samples. JEH 6-12-89

   ✓ Yes ____ No

3. Initial calibration criteria were met for all samples: a five-point calibration curve was run, the RSD is <30% for all CCC compounds, and the mean RRF for SPCC compounds is >0.050.

   ✓ Yes ____ No

4. Continuing calibration criteria were met for all samples: the response factor percent difference from the mean initial calibration response factor for all CCC compounds was ≤25%, and the RRF for SPCC compounds is >0.050.

   ✓ Yes ____ No

5. Surrogate recovery limits were met for all samples.

   ✓ Yes ____ No

6. MS and MSD criteria were met for all samples.

   See Note 6. ✓ Yes ____ No

7. Method blank criteria were met for all samples: phthalates are ≤5X CRQL, all other compounds are <CRQL.

   ✓ Yes ____ No

(Revised 2 June 1989)

EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove (10356.03) Analysis: TCL semivolatiles

EA Laboratories Report No. 890203 Method: U.S. EPA-CLP

Reviewed by: J.E. Huffleger Date: 6-12-89

8. Laboratory control sample criteria were met for all samples. See Note 8.

✓ Yes ____ No

9. Field and equipment blanks: no target compounds were detected in the samples at concentrations <5X the concentration found in the highest associated blank.

✓ Yes ____ No

Comments: Note 6. - Three (3) matrix spike compound recoveries were high for the Water ms/msd, and two (2) matrix spike compound recoveries were high for the soil ms/msd. No further action is required. Note 8. - 2,4-dinitrotoluene was above the matrix spike recovery limits for the soil method standard. No further action is required.

Additional Notes: Internal standard areas for the water method standard are less than (<) -50% of the calibration standard internal standard areas for IS5 and IS6. All surrogates and matrix spike recoveries were within acceptable ranges, and is therefore considered a valid analysis.

(Revised 2 June 1989)

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EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove — Analysis: TCL semivolatiles

EA Laboratories Report No. 89Ø2Ø3 — Method: U.S. EPA-CLP

Reviewed by: Gary R. Smith — Date: 15 Jun 89

1. Water samples were extracted within 5 days of sample receipt (soils samples within 10 days) and analyzed within 40 days of extraction.

   X Yes ____ No

2. The 12-hour tuning period for DFPP was met for all samples.

   X Yes ____ No

3. Initial calibration criteria were met for all samples: a five-point calibration curve was run, the RSD is <30% for all CCC compounds, and the mean RRF for SPCC compounds is >0.050.

   X Yes ____ No

4. Continuing calibration criteria were met for all samples: the response factor percent difference from the mean initial calibration response factor for all CCC compounds was ≤25%, and the RRF for SPCC compounds is >0.050.

   X Yes ____ No

5. Surrogate recovery limits were met for all samples.

   X Yes ____ No

6. MS and MSD criteria were met for all samples.

   ____ Yes X No

7. Method blank criteria were met for all samples: phthalates are ≤5X CRQL, all other compounds are <CRQL.

   X Yes ____ No

(Revised 2 June 1989)

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EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove Analysis: TCL semivolatiles

EA Laboratories Report No. 890203 Method: U.S. EPA-CLP

Reviewed by: Gary R. Smith Date: 15 Jun 89

8. Laboratory control sample criteria were met for all samples.

X Yes ____ N

9. Field and equipment blanks: no target compounds were detected in the samples at concentrations <5X the concentration found in the highest associated blank.

X Yes ____ No

Comments: (6) Three water MS/MSD recoveries are high. Two soil MS/MSD recoveries are high.

(Revised 2 June 1989)

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5. MISCELLANEOUS WET CHEMISTRY DATA

A. Analytical Results

RESULTS FOR THE DETERMINATION OF TOTAL PETROLEUM HYDROCARBONS AND TOTAL ORGANIC CARBON IN ONE SOIL SAMPLE COLLECTED AT WILLOW GROVE ON 4 APRIL 1989

Sample	Total Petroleum Hydrocarbons (mg/kg, dry weight)	Total Organic Carbon (mg/kg, dry weight)	EA Number
NFFB, S-2	49	9,300	1430

EA LABORATORIES QA/QC DATA FOR WET CHEMISTRY DATA

Project name: Willow Grove

Client sample designation NFFB, S-2

EA Number 8901430

Matrix: Liquid _____ (mg/L)

Soil X (mg/kg) (dry)

Parameter	Sample results	Method detection limit	Method blank	QC check std. recovery (%)	Duplicate	Matrix spike recovery (%)
General organics						
Total organic carbon	9,300	10.0	----	98.4/91.0	6,100	----

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B. Quality Assurance Summary

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EA LABORATORIES

QUALITY ASSURANCE SUMMARY

FOR NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY CONTRACTS

Project: Willow Grove Analysis: Petroleum hydrocarbons

EA Laboratories Report No. 890203 Method: EPA 418.1

SW846 9071

Reviewed by: R. Lutz Date: 15 June 1989

1. Holding times from sample receipt were 28 days for water samples.

   X Yes ____ No

2. All samples were properly preserved and refrigerated.

   X Yes ____ N

3. A three- to five-point calibration curve bracketing the sample concentration range was established daily.

   X Yes ____ No

4. Method blanks were run with each batch and were less than the detection limit.

   ____ Yes X No

Comments: _____

(Revised 2 June 1989)

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