

Ouachita River Dioxin Study

Study Year: 2005
 Permit Number: 122920041
 Collectors: A. Thomas/L. Senn

Species	Weight Pounds	Length Inches	Sex	Sample Location	Study Number	Date
Smallmouth Buffalo	8.0	24.5	M	Above Felsenthal	AR030-125-FSSMBA1	5
Flathead Catfish	2.75	19.5	M	Above Felsenthal	AR030-125-FSFHCA2	5
Crappie	0.8	12	F	Above Felsenthal	AR030-125-FSCRAA3	17
Crappie	1.0	12	F	Above Felsenthal	AR030-125-FSCRAA4	17
Blue Catfish	5.5	25	M	Above Felsenthal	AR030-125-FSBCA5	22
Smallmouth Buffalo	9.1	24	M	Above Felsenthal	AR030-125-FSSMBA6	22
Largemouth Buffalo	12.3	27	F	Below Coffee Creek	AR030-125-FSLMBB1	5
Smallmouth Buffalo	6.8	23.25	F	Below Coffee Creek	AR030-125-FSSMBB2	5
Blue Catfish	5.2	25	M	Below Coffee Creek	AR030-125-FSBCB3	5
Blue Catfish	3.8	21.75	M	Below Coffee Creek	AR030-125-FSBCB3	5
Flathead Catfish	7.7	27.5	M	Below Coffee Creek	AR030-125-FSFHCB4	5
Flathead Catfish	5.5	25.5	M	Below Coffee Creek	AR030-123-FSFHCB5	5
Flathead Catfish	3.75	22.75	F	Below Coffee Creek	AR030-125-FSFHCB6	5

Legend: 125: December 2005
 FS: Fish
 CRA: Crappie
 FHC: Flathead Catfish
 BC: Blue Catfish
 SMB: Smallmouth Buffalo
 LMB: Largemouth Buffalo
 B: Below Coffee Creek
 A: Above Lock & Dam
 1-6: Indicates sample number

**Ouachita River
Dioxin Study**

Study Year: 2004
 Permit Number: 122920041
 Collectors: Alan Thomas / L Senn

Species	Weight Pounds	Length Inches	Sex	Sample Location	Study Number	Date
Flathead Catfish	4.8	24.75	F	Above Felsenthal	AR030-124-FSFHCA1	23
Flathead Catfish	4.5	23.5	F	Above Felsenthal	AR030-124-FSFHCA2	23
Flathead Catfish	6.5	25.75	F	Above Felsenthal	AR030-124-FSFHCA3	23
Blue Catfish	4.75	24	M	Above Felsenthal	AR030-124-FSBCA4	23
Blue Catfish	2.75	19.5	F	Above Felsenthal	AR030-124-FSBCA5	30
Blue Catfish	3.75	20.5	F	Above Coffee Creek	AR030-124-FSBCA6	30
Blue Catfish	3.0	19.5	M	Below Coffee Creek	AR030-124-FSBCB1	30
Blue Catfish	6.25	26.25	F	Below Coffee Creek	AR030-124-FSBCB2	30
Blue Catfish	6.75	26.75	M	Below Coffee Creek	AR030-124-FSBCB3	30
White Bass	2.5	16.75	F	Below Coffee Creek	AR030-124-FSWBB4	30
Crappie	1.1	12.75	M	Below Coffee Creek	AR030-124-FSCRAB5	31
Crappie	0.75	10.5	F	Below Coffee Creek	AR030-124-FSCRAB5	31
Crappie	0.5	9.5	M	Below Coffee Creek	AR030-124-FSCRAB5	31
Crappie	0.4	8.0	F	Below Coffee Creek	AR030-124-FSCRAB5	31

- Legend:
- 124: December 2004
 - FS: Fish
 - CRA: Crappie
 - FHC: Flathead Catfish
 - BC: Blue Catfish
 - SMB: Smallmouth Buffalo
 - LMB: Largemouth Buffalo
 - B: Below Coffee Creek
 - A: Above Lock & Dam
 - 1-5: Indicates sample number

Ouachita River Dioxin Study

Study Year: 2004
 Permit Number: 122920041
 Collectors: Alan Thomas / L Senn

Study Number	Weight Pounds	Length Inches	Sex	Type Sample	2,3,7,8 TCDD ppt	2,3,7,8 TCDF ppt
AR030-124-FSFHCA1	4.8	24.75	F	Fillet	0.90	0.05
AR030-124-FSFHCA2	4.5	23.5	F	Fillet	0.79	ND
AR030-124-FSFHCA3	6.5	25.75	F	Fillet	1.49	0.10
AR030-124-FSBCA4	4.75	24	M	Fillet	0.49	0.10
AR030-124-FSBCA5	2.75	19.5	F	Fillet	0.20	ND
AR030-124-FSBCA6	3.75	20.5	F	Fillet	0.60	0.07
AR030-124-FSBCB1	3.0	19.5	M	Fillet	0.76	0.17
AR030-124-FSBCB2	6.25	26.25	F	Fillet	0.70	0.13
AR030-124-FSBCB3	6.75	26.75	M	Fillet	0.86	0.33
AR030-124-FSWBB4	2.5	16.75	F	Fillet	0.67	1.0
AR030-124-FSCRAB5	2.75	*	M,M,F,F	Composite	0.18	0.19

Comments:
 ND = Non detect
 All samples are left side fillets.
 Lengths of composite samples are not totaled (*).
 Weights are total of fish caught, not sample sent.

Ouachita River Dioxin Study

Study Year: 2005
 Permit Number: 108209182003120017
 Collectors: A Thomas/L Senn

Study Number	Weight Pounds	Length Inches	Sex	Type Sample	2,3,7,8 TCDD ppt	2,3,7,8 TCDF ppt
AR030-125-FSSMBA1	8.0	24.5	M	Fillet	0.28	0.90
AR030-125-FSFHCA2	2.75	19.5	M	Fillet	0.75	ND
AR030-125-FSCRAA3	0.8	12	F	Fillet	0.20	0.25
AR030-125-FSCRAA4	1.0	12	F	Fillet	0.13	0.18
AR030-125-FSBCA5	5.5	25	M	Fillet	0.76	ND
AR030-125-FSSMBA6	9.1	24	M	Fillet	0.54	1.8
AR030-125-FSLMBB1	12.3	27	F	Fillet	0.80	2.25
AR030-125-FSSMBB2	6.8	23.25	F	Fillet	0.50	2.15
AR030-125-FSBCB3	9.0	*	M,M	Composite	0.65	0.14
AR030-125-FSFHCB4	7.7	27.5	M	Fillet	0.65	0.11
AR030-123-FSFHCB5	5.5	25.5	M	Fillet	0.37	ND
AR030-125-FSFHCB6	3.75	22.75	F	Fillet	0.45	ND

Comments:
 ND = Non detect
 All samples are left side fillets.
 Lengths of composite samples are not totaled (*).
 Weights are total of fish caught, not sample sent.

ANALYTICAL PERSPECTIVES

16 February 2006

Alan Thomas
Georgia-Pacific Environmental
100 Supply Road
Crossett, AR 71635

SEP 29 2006

Ph.: 870-567-8670

Subject: Certificate of Results

Dear Alan;

Attached to this narrative are the analytical results you requested on the samples submitted for the determination of 2,3,7,8-TCDF and 2,3,7,8-TCDD. The insert below summarizes the relevant information pertaining to your project. In particular, the QC annotations bring to your attention specific analytical observations and assessments made during the sample handling and data interpretation phases. A brief description of the report's components is provided on the next page.

Project Information Summary	When applicable, see QC Annotations for details
Client Project No.	AR030-125 Fish
AP Project No.	P6324
Analytical Protocol	Method 1613B
No. Samples Submitted	12
No. Samples Analyzed	12
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
No. Outstanding Samples	none
Date Received	1-Feb-2006
Condition Received	Good
Temperature upon Receipt (C)	1
Extraction within Holding Time	yes
Analysis within Holding Time	yes
Data meet QA/QC Requirements	yes
Exceptions	none
Analytical Difficulties	none

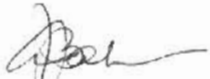
2714 EXCHANGE DRIVE
WILMINGTON
NORTH CAROLINA 28405
TEL: 910-794-1613 FAX 910-794-3919
WWW.ULTRATRACE.COM
1 / 2

QC Annotations:

None.

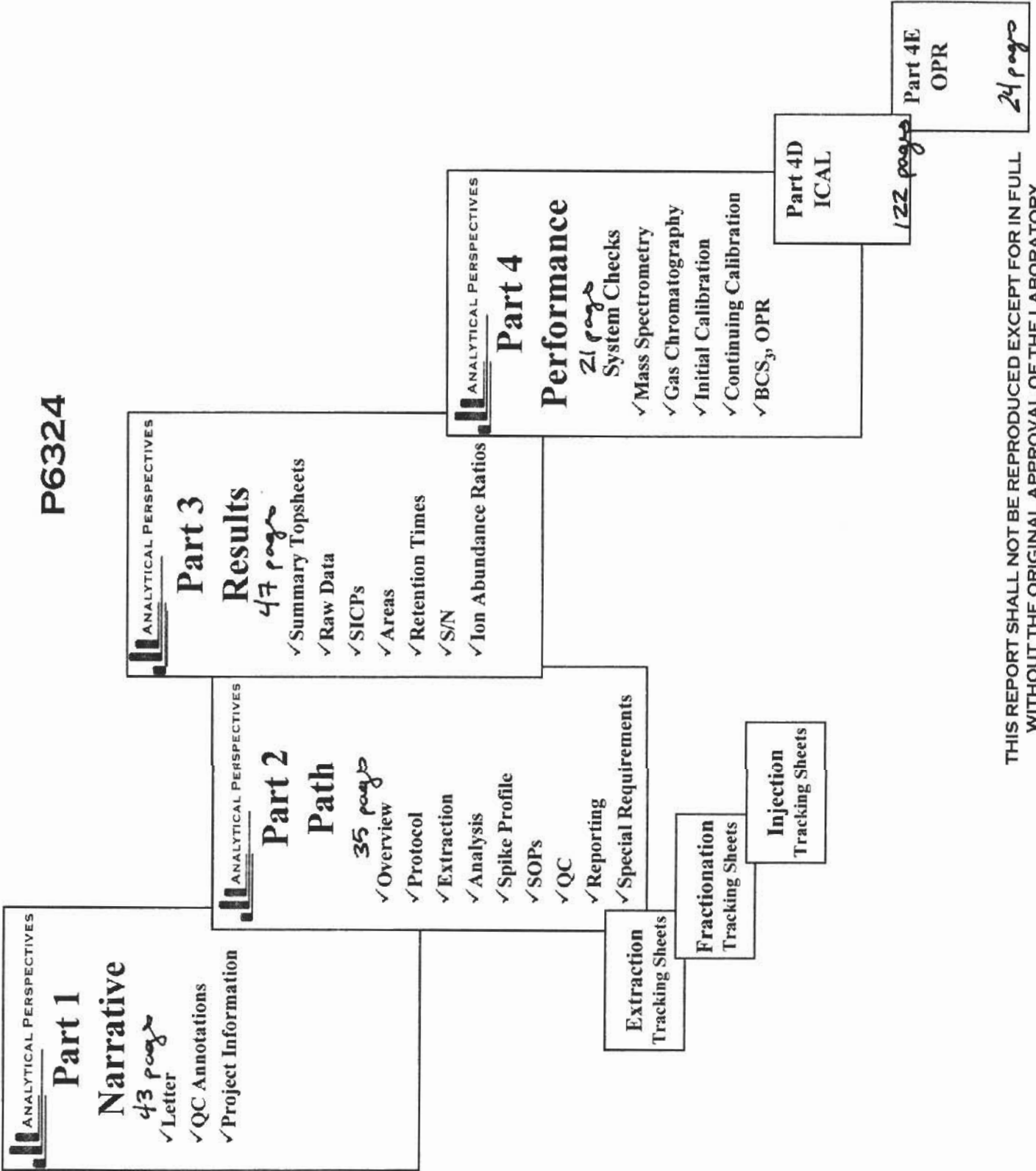
Analytical Perspectives remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please, do not hesitate to contact us. We wanted to thank you for choosing Analytical Perspectives as part of your analytical support team.

Sincerely,



Amy J. Boehm
Project Manager

The electronic version of this report contains 316 pages.



THIS REPORT SHALL NOT BE REPRODUCED EXCEPT FOR IN FULL WITHOUT THE ORIGINAL APPROVAL OF THE LABORATORY

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID	<u>MB1_3829_DF_SDS</u>	Date Sampled	<u>n/a</u>
Lab Project ID	<u>P6324</u>	Analysis File	<u>060208P1S#4</u>
Client Project	<u>AR030-125-FS</u>	Lab Sample ID	<u>0_3829_MB001</u>
Date Received	<u>n/a</u>	Matrix	<u>Tissue</u>
Date Extracted	<u>02 Feb 06</u>	Sample Size	<u>25.00 g</u>
Date Analyzed	<u>08 Feb 06</u>	Dilution Factor	<u>1</u>
Analyst	<u>MC</u>	GC Column	<u>DB5</u>
		Batch ID	<u>3829</u>
		ICAL ID	<u>MM1_010606</u>
		VER File	<u>060208P1S#1</u>
		OPR File	<u>060208P1S#2</u>
		Blank File	<u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.4		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID MB1_3829_DF_SDS Lab Sample ID 0_3829_MB001

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	90.4	90.4	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	92.7	92.7	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	44.6	111	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID	<u>MB1_3829_DF_SDS</u>	Date Sampled	<u>n/a</u>
Lab Project ID	<u>P6324</u>	Analysis File	<u>060215P1S#4</u>
Client Project	<u>AR030-125-FS</u>	Lab Sample ID	<u>0_3829_MB001RJ</u>
Date Received	<u>n/a</u>	Matrix	<u>Tissue</u>
Date Extracted	<u>02 Feb 06</u>	Sample Size	<u>25.00 g</u>
Date Analyzed	<u>15 Feb 06</u>	Dilution Factor	<u>1</u>
Analyst	<u>MC</u>	GC Column	<u>DB5</u>
		Batch ID	<u>3829</u>
		ICAL ID	<u>MM1_010606</u>
		VER File	<u>060215P1S#1</u>
		OPR File	<u>060215P1S#2</u>
		Blank File	<u>060215P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.4		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID MB1_3829_DF_SDS Lab Sample ID 0_3829_MB001RJ

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	92.1	92.1	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	93.1	93.1	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	44.2	111	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSSMBA1</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P1S#5</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_001</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.04 g</u>	VER File <u>060208P1S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.399		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	0.903	0.399		0.75	0.65-0.89	1.001	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSSMBA1 Lab Sample ID P6324_3829_001

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	76.6	76.6	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	79.1	79.1	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	42.2	105	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSFHCA2</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060215P1S#5</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_002RJ</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.30 g</u>	VER File <u>060215P1S#1</u>
Date Analyzed <u>15 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060215P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060215P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.728	0.395		0.75	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.395		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSFHCA2 Lab Sample ID P6324_3829_002RJ

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	82.3	82.3	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	86.8	86.8	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	43.2	108	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSCRAA3</u>	Date Sampled <u>17 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P1S#7</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_003</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.58 g</u>	VER File <u>060208P1S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.391		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.391		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSCRAA3 Lab Sample ID P6324_3829_003

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	90.2	90.2	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	94.2	94.2	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	44.7	112	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSCRAA4</u>	Date Sampled <u>17 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P1S#8</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324 3829_004</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.43 g</u>	VER File <u>060208P1S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.393		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.393		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSCRAA4 Lab Sample ID P6324_3829_004

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	71	71	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	77.5	77.5	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45.3	113	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSBCA5</u>	Date Sampled <u>22 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208PIS#9</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_005</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.53 g</u>	VER File <u>060208PIS#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208PIS#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208PIS#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.74	0.392		0.73	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.392		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSBCA5 Lab Sample ID P6324_3829_005

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	83.7	83.7	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	88.7	88.7	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45.2	113	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSSMBA6</u>	Date Sampled <u>22 Dec 05</u>
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#4</u>
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_006</u>
Date Received <u>01 Feb 06</u>	Batch ID <u>3829</u>
Date Extracted <u>02 Feb 06</u>	Matrix <u>Tissue</u>
Date Analyzed <u>08 Feb 06</u>	Sample Size <u>25.44 g</u>
Analyst <u>MC</u>	Dilution Factor <u>1</u>
	GC Column <u>DB5</u>
	ICAL ID <u>MM1_010606</u>
	VER File <u>060208P2S#1</u>
	OPR File <u>060208P2S#2</u>
	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.521	0.393		0.71	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	1.81	0.393		0.8	0.65-0.89	1.001	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSSMBA6 Lab Sample ID P6324_3829_006

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	78.6	78.6	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	82.1	82.1	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	42.7	107	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSLMBB1</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#5</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_007</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.59 g</u>	VER File <u>060208P2S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.777	0.391		0.81	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	2.25	0.391		0.75	0.65-0.89	1.001	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSLMBB1 Lab Sample ID P6324_3829_007

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	90.4	90.4	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	94.1	94.1	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	46	115	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSSMBB2</u>	Date Sampled <u>05 Dec 05</u>
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#6</u>
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_008</u>
Date Received <u>01 Feb 06</u>	Batch ID <u>3829</u>
Date Extracted <u>02 Feb 06</u>	Matrix <u>Tissue</u>
Date Analyzed <u>08 Feb 06</u>	Sample Size <u>25.37 g</u>
Analyst <u>MC</u>	Dilution Factor <u>1</u>
	GC Column <u>DB5</u>
	ICAL ID <u>MM1_010606</u>
	VER File <u>060208P2S#1</u>
	OPR File <u>060208P2S#2</u>
	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.466	0.394		0.61	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	2.15	0.394		0.75	0.65-0.89	1.001	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSSMBB2 Lab Sample ID P6324_3829_008

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	86.5	86.5	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	91.4	91.4	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45.2	113	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSBCB3</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#7</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_009</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.21 g</u>	VER File <u>060208P2S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.633	0.397		0.71	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.397		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSBCB3 Lab Sample ID P6324_3829_009

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	90.1	90.1	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	96.5	96.5	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	44.4	111	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSFHCB4</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#8</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_010</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.21 g</u>	VER File <u>060208P2S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.632	0.397		0.8	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.397		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSFHCB4 Lab Sample ID P6324_3829_010

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	85.2	85.2	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	88.8	88.8	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45.8	114	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID	<u>AR030-125-FSFHCB5</u>	Date Sampled	<u>05 Dec 05</u>
Lab Project ID	<u>P6324</u>	Analysis File	<u>060208P2S#9</u>
Client Project	<u>AR030-125-FS</u>	Lab Sample ID	<u>P6324_3829_011</u>
Date Received	<u>01 Feb 06</u>	Matrix	<u>Tissue</u>
Date Extracted	<u>02 Feb 06</u>	Sample Size	<u>25.13 g</u>
Date Analyzed	<u>08 Feb 06</u>	Dilution Factor	<u>1</u>
Analyst	<u>MC</u>	GC Column	<u>DB5</u>
		Batch ID	<u>3829</u>
		ICAL ID	<u>MM1_010606</u>
		VER File	<u>060208P2S#1</u>
		OPR File	<u>060208P2S#2</u>
		Blank File	<u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.398		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.398		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSFHCB5 Lab Sample ID P6324 3829_011

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	70.1	70.1	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	73.9	73.9	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45.3	113	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSFHCB6</u>	Date Sampled <u>05 Dec 05</u>	
Lab Project ID <u>P6324</u>	Analysis File <u>060208P2S#10</u>	
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_012</u>	Batch ID <u>3829</u>
Date Received <u>01 Feb 06</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_010606</u>
Date Extracted <u>02 Feb 06</u>	Sample Size <u>25.23 g</u>	VER File <u>060208P2S#1</u>
Date Analyzed <u>08 Feb 06</u>	Dilution Factor <u>1</u>	OPR File <u>060208P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.431	0.396		0.7	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.396		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSFHCB6 Lab Sample ID P6324_3829_012

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	91.4	91.4	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	97.7	97.7	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	46.8	117	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Ical: MM1_010606
Tetra CDD/Fs by Method 1613B

Form 3: Initial Calibration Relative Responses

Tetras Only

Instrument ID MM1

ICAL Date(s) 25 Jan 06

ICAL ID MM1_010606

CS0 Data Filename 060125P3 S: #1 CS3 Data Filename 060125P3 S: #4 CS6 Data Filename 060125P4 S: #1

CS1 Data Filename 060125P3 S: #2 CS4 Data Filename 060125P3 S: #5

CS2 Data Filename 060125P3 S: #3 CS5 Data Filename 060125P3 S: #6

Compound	Relative Response (RR) for Labeled or Response Factor (RF) for Internal Standard Calibration							Mean	%RSD ¹
	CS0	CS1	CS2	CS3	CS4	CS5	CS6		
2,3,7,8-TCDD	1	1.01	0.96	0.95	1.01	1	1.02	1.00	2.24
2,3,7,8-TCDF	0.84	0.82	0.86	0.84	0.88	0.89	0.90	0.86	3.67

¹ RSD QC Limit is < 20 % for relative responses of isotopic dilution calibrations

¹ RSD QC Limit is < 35 % for response factors of compounds without labeled analogs

Ical: MM1_010606
Tetra CDD/Fs by Method 1613B

Form 3: Initial Calibration Relative Responses, cont'd

Instrument ID MM1

ICAL Date(s) 25 Jan 06

ICAL ID MM1_010606

Compound	Relative Response (RR) for Labeled or Response Factor (RF) for Internal Standard Calibration							Mean	%RSD ¹
	CS0	CS1	CS2	CS3	CS4	CS5	CS6		
¹³ C ₁₂ -2,3,7,8-TCDD	0.99	1.02	1.02	1.04	1.01	1.04	1.12	1.03	4.00
¹³ C ₁₂ -2,3,7,8-TCDF	0.9	0.95	0.89	0.98	0.92	0.95	0.98	0.94	3.80
Recovery Standards									
¹³ C ₁₂ -1,2,3,4-TCDD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
¹³ C ₁₂ -1,2,3,4-TCDF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Cleanup Standard									
³⁷ Cl ₄ -2,3,7,8-TCDD	-	0.86	0.86	0.87	0.90	0.95	-	0.89	4.46

¹ RSD QC Limit is < 20 % for relative responses of isotopic dilution calibrations

¹ RSD QC Limit is < 35 % for response factors of compounds without labeled analogs

PCDD/Fs by Method 1613B

Form 4: Initial Precision & Recovery (IPR)

Analyst Name Jerry Hart
 IPR1 Data Filename 000731P2 S: #10
 IPR2 Data Filename 010329P2 S: #3
 IPR3 Data Filename 010501R3 S: #3
 IPR4 Data Filename 010622R1 S: #2

Analysis Date/Time 1-AUG-00/03:52:34
 Analysis Date/Time 29-MAR-01/12:01:19
 Analysis Date/Time 1-MAY-01/21:58:45
 Analysis Date/Time 22-JUN-01/18:17:31

Extraction Method 1613
 Extraction Matrix Solid

Extraction Date n/a

Compound	Spiked	Concentrations in the extract (ng/ml)					Std Dev	Mean QC Limit ¹	Std Dev QC Limit ¹
		IPR1 Found	IPR2 Found	IPR3 Found	IPR4 Found	Mean			
2,3,7,8-TCDD	10	9.07	11.3	10.8	11.8	10.7	1.2	8.7-12.4	2.7
2,3,7,8-TCDF	10	8.87	11.3	10.8	12.4	10.8	1.5	9.1-13.1	2.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Spiked	Concentrations in the extract (ng/ml)					Std Dev	Mean QC Limit ¹	Std Dev QC Limit ¹
		IPR1 Found	IPR2 Found	IPR3 Found	IPR4 Found	Mean			
¹³ C ₁₂ -2,3,7,8-TCDD	100	121	94.3	109	91.5	104	14	32-115	35
³⁷ Cl ₄ -2,3,7,8-TCDD	40	36.2	39.7	42.1	38.3	39.1	2.5	18.0-53.6	3.4
¹³ C ₁₂ -2,3,7,8-TCDF	100	121	91.1	112	95.7	105	14	35-99	34

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5: Calibration Verification

VER Filename 060208P1S#1

Instrument ID MM1

ICAL ID MM1_010606

Analysis Date/Time 8-FEB-06 06:15:07

ICAL Date 25 Jan 06

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
2,3,7,8-TCDD	10	10.1	7.8-12.9
2,3,7,8-TCDF	10	10.0	8.4-12.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
¹³ C ₁₂ -2,3,7,8-TCDD	100	97.8	82-121
³⁷ Cl ₄ -2,3,7,8-TCDD	10	10.4	7.9-12.7
¹³ C ₁₂ -2,3,7,8-TCDF	100	101	71-140

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5a: Continuing Calibration Verification

Instrument ID MM1

Analysis Date/Time 8-FEB-06 06:15:07

GC Column ID DB5

CCS Data Filename 060208PIS#1

ICAL ID MM1 010606

Native Analyte	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89

Labeled Compound	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
¹³ C ₁₂ -2,3,7,8-TCDD	M/M+2	0.8	0.65-0.89
¹³ C ₁₂ -2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89

¹ See Table 8 in Method 1613B for m/z specifications and ion abundance ratio limits.

² See Table 9 in Method 1613B for ion abundance ratio control limits.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5: Calibration Verification

VER Filename 060208P2S#1 Instrument ID MM1
 Analysis Date/Time 8-FEB-06 13:55:24 ICAL ID MM1_010606
 ICAL Date 25 Jan 06

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
2,3,7,8-TCDD	10	10.0	7.8-12.9
2,3,7,8-TCDF	10	9.9	8.4-12.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
¹³ C ₁₂ -2,3,7,8-TCDD	100	101	82-121
³⁷ Cl ₄ -2,3,7,8-TCDD	10	10.6	7.9-12.7
¹³ C ₁₂ -2,3,7,8-TCDF	100	102	71-140

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5a: Continuing Calibration Verification

Instrument ID MM1

Analysis Date/Time 8-FEB-06 13:55:24

GC Column ID DB5

CCS Data Filename 060208P2S#1

ICAL ID MM1_010606

Native Analyte	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89

Labeled Compound	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
¹³ C ₁₂ -2,3,7,8-TCDD	M/M+2	0.8	0.65-0.89
¹³ C ₁₂ -2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89

¹ See Table 8 in Method 1613B for m/z specifications and ion abundance ratio limits.

² See Table 9 in Method 1613B for ion abundance ratio control limits.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5: Calibration Verification

VER Filename 060215P1S#1

Instrument ID MM1

ICAL ID MM1_010606

Analysis Date/Time 15-FEB-06 11:56:42

ICAL Date 25 Jan 06

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
2,3,7,8-TCDD	10	9.6	7.8-12.9
2,3,7,8-TCDF	10	9.7	8.4-12.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
¹³ C ₁₂ -2,3,7,8-TCDD	100	98.1	82-121
³⁷ Cl ₄ -2,3,7,8-TCDD	10	9.5	7.9-12.7
¹³ C ₁₂ -2,3,7,8-TCDF	100	99.7	71-140

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 5a: Continuing Calibration Verification

Instrument ID MM1

Analysis Date/Time 15-FEB-06 11:56:42

GC Column ID DB5

CCS Data Filename 060215P1S#1

ICAL ID MM1_010606

Native Analyte	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89

Labeled Compound	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
¹³ C ₁₂ -2,3,7,8-TCDD	M/M+2	0.8	0.65-0.89
¹³ C ₁₂ -2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89

¹ See Table 8 in Method 1613B for m/z specifications and ion abundance ratio limits.

² See Table 9 in Method 1613B for ion abundance ratio control limits.

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 6: Ongoing Precision and Recovery

Matrix <u>Tissue</u>	Instrument ID <u>MM1</u>
ICAL Date <u>25 Jan 06</u>	OPR Filename <u>060208P1S#2</u>
Analysis Date/Time <u>8-FEB-06 07:05:24</u>	Batch ID <u>3829</u>

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
2,3,7,8-TCDD	10	9.87	7.3-14.6
2,3,7,8-TCDF	10	12	8.0-14.7

⁽¹⁾ QC limits are from Method Table 6

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
¹³ C ₁₂ -2,3,7,8-TCDD	100	89.6	25-141
³⁷ Cl ₄ -2,3,7,8-TCDD	40	43.3	14.8-63.2
¹³ C ₁₂ -2,3,7,8-TCDF	100	96	26-126

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 6: Ongoing Precision and Recovery

Matrix <u>Tissue</u>	Instrument ID <u>MM1</u>
ICAL Date <u>25 Jan 06</u>	OPR Filename <u>060208P2S#2</u>
Analysis Date/Time <u>8-FEB-06 14:45:35</u>	Batch ID <u>3829</u>

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
2,3,7,8-TCDD	10	10.5	7.3-14.6
2,3,7,8-TCDF	10	11.6	8.0-14.7

⁽¹⁾ QC limits are from Method Table 6

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
¹³ C ₁₂ -2,3,7,8-TCDD	100	91.5	25-141
³⁷ Cl ₄ -2,3,7,8-TCDD	40	45	14.8-63.2
¹³ C ₁₂ -2,3,7,8-TCDF	100	99.7	26-126

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 6: Ongoing Precision and Recovery

Matrix <u>Tissue</u>	Instrument ID <u>MM1</u>
ICAL Date <u>25 Jan 06</u>	OPR Filename <u>060215P1S#2</u>
Analysis Date/Time <u>15-FEB-06 12:46:49</u>	Batch ID <u>3829</u>

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
2,3,7,8-TCDD	10	10.1	7.3-14.6
2,3,7,8-TCDF	10	11.4	8.0-14.7

⁽¹⁾ QC limits are from Method Table 6

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
¹³ C ₁₂ -2,3,7,8-TCDD	100	94.9	25-141
³⁷ Cl ₄ -2,3,7,8-TCDD	40	43	14.8-63.2
¹³ C ₁₂ -2,3,7,8-TCDF	100	100	26-126

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

P6324



ANALYTICAL PERSPECTIVES

PART 2

SAMPLE PATH

DOCUMENTATION FOR THE ANALYSIS
OF

POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

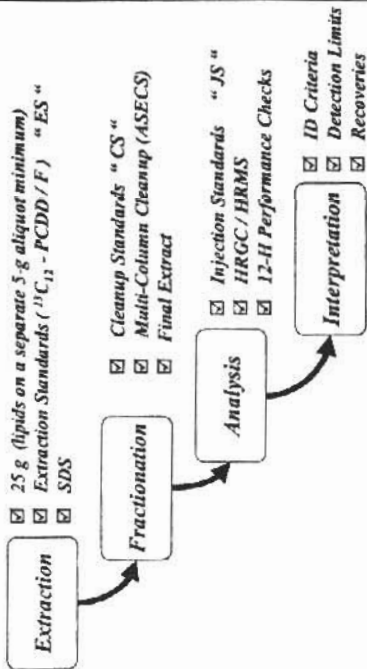


ANALYTICAL PERSPECTIVES

SAMPLE PATH

AP PROJECT NO.: P6324 TISSUE
PROTOCOL: M8290 M1613

SAMPLE PROCESSING



SPIKE PROFILE

AX (8290B): 0.2 NG (20 µL; 0.01 NG/µL)
 ES (8290B): 2 NG (20 µL; 0.1 NG/µL)
 CS (8290B): 0.8 NG (20 µL; 0.04 NG/µL)
 JS (8290B): 2 NG (20 µL; 0.1 NG/µL)

2,3,7,8-TCDD AND
 2,3,7,8-TCDF ONLY

SOPS

EXTRACTION: AP-CME1
 FRACTIONATION: AP-SP-CU
 ANALYSIS: AP-SP-A
 CONCENTRATION: AP-SP-N
 FORTIFICATION: AP-SP-F
 DATA VALIDATION: AP-SP-R

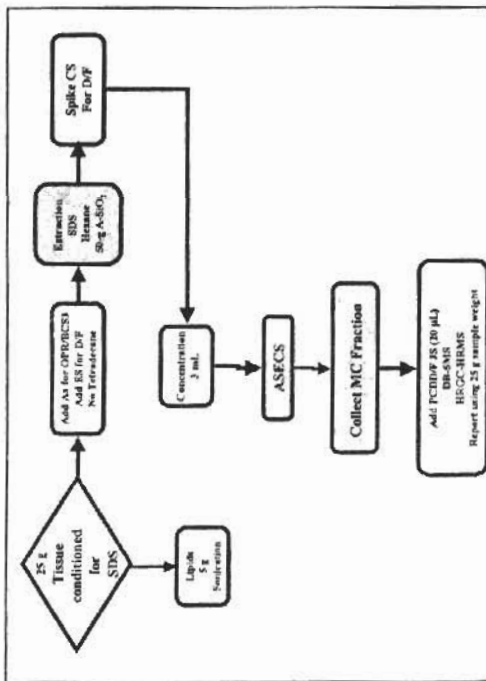
QC PROFILE

LMB: ALWAYS REQUIRED
 OPR: REQUIRED FOR M1613
 BCS₃: M8290

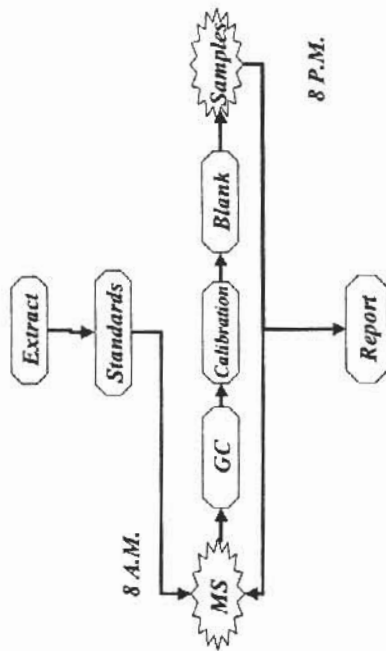
REPORTING PLATFORM

LEVEL: I II III PLATINUM

SAMPLE EXTRACTION



SAMPLE ANALYSIS



SPECIAL REQUIREMENTS

SUPPLIES IDS
 SAND
 H₂SO₄
 ACID SILICA
 BASE SILICA
 SILICA
 FLORISIL
 HEXANE
 CH₂CL₂
 TETRADECANE

08012006A
 12162005B
 01102006
 01202006
 013554
 01105
 10010119

ANALYTICAL PERSPECTIVES

Tissue

PCDD/PCDFs

Project: P6324

Extraction Batch: 3829

Extraction Group: 1613TIS

SDS Number	AP Sample ID	Client Sample ID	Weight g	Observations	ES	ES for AX-B	SDS	DWCS	SPLIT	ACID	Auto ASECS (Td)	WV
15	0_3829_MB001	---	15.58g	Non-SDy	20µl	---	Hex	---	NA	NA	20µl	2/13/06
16	0_3829_OPR001	---	16.28	Non-SDy	---	---	Acid	---	---	---	---	2/13/06
17	P6324_3829_001	AR030-125-FSSMB	25.04	pink/brown paste	---	---	---	---	---	---	---	20µl
18	P6324_3829_002	AR030-125-FSFHCA	25.30	light pink paste	---	---	---	---	---	---	---	20µl
19	P6324_3829_003	AR030-125-FSCRAA	25.58	pale yellow paste	---	---	---	---	---	---	---	20µl
20	P6324_3829_004	AR030-125-FSCRAA	25.43	see 003	---	---	---	---	---	---	---	20µl
21	P6324_3829_005	AR030-125-FSBCAS	25.53	see 002	---	---	---	---	---	---	---	20µl
22	P6324_3829_006	AR030-125-FSSMB	25.44	see 001	---	---	---	---	---	---	---	20µl
23	P6324_3829_007	AR030-125-FSLMB	25.59	solid yellow fluffy	---	---	---	---	---	---	---	20µl
24	P6324_3829_008	AR030-125-FSSMBB	25.39	pale yellow/pink	---	---	---	---	---	---	---	20µl
25	P6324_3829_009	AR030-125-FSBCB3	25.21	see 008	---	---	---	---	---	---	---	20µl
26	P6324_3829_010	AR030-125-FSFHCB	25.21	see 002	---	---	---	---	---	---	---	20µl
27	P6324_3829_011	AR030-125-FSFHCB	25.13	see 002	---	---	---	---	---	---	---	20µl
28	P6324_3829_012	AR030-125-FSFHCB	25.23	see 002	---	---	---	---	---	---	---	20µl

AX-B
100µl
app. 08/30/06
SDS-87-2

Tetra only spikes!

ES ID	ES (conc.)	ES (exp.)	Vial #	JS ID	JS (conc.)	JS (exp.)	Vial #	JS ID	JS (conc.)	JS (exp.)	Vial #	Check Out	Check In
122403A-107-1	200 pg/ul	12/20/06	5125-107-1	122403A-107-1	100 pg/ml	12/20/06	5125-107-2	122403A-107-1	100 pg/ml	12/20/06	5125-107-2	JK 2/12/06	JK 2/12/06
20µl @ 0.1 µg/µl				20µl @ 0.1 µg/µl				20µl @ 0.1 µg/µl					

Spikes levels are based on spot

ANALYTICAL PERSPECTIVES

SAMPLE PATH

AP PROJECT NO.: P6324 TISSUE
 PROTOCOL: M8290_M1613

SPIKE PROFILE PCDD/F

Analyte	Spiked Compounds	Spiked Amount	Spiked Volume	Spiking Solution Conc.	Split Factor	Final Volume	Final Solvent
PCDD/F	ES	2 ng	20 µL	0.1 ng/µL	1	20 µL	Td
	CS	0.8 ng	20 µL	0.04 ng/µL			
	JS	2 ng	20 µL	0.1 ng/µL			
	AX OPR - A+B	0.2 ng	20 µL	0.01 ng/µL			

COMMUNICATIONS

- 001 - removed bones from filet
- 003 - removed bones from filet
- 004 - see extraction documentation
- 005 - see extraction documentation
- 006 - removed bones from filet
- 007 } see extraction documentation
- 008 }
- 009 }
- 010 }
- 011 }
- 012 }

shiny side of aluminum is touching all fish samples when unwrapping 02-06

must do 2nd % lipid for 006, 012; samples were mixed up b/c both had shades of brown as stickers. 02-3-06

stake labels off (colored stickers) before weighing except % lipids! 02-3-06

11/15/06

% LIPIDS

Procedures:

(circle one)


METHOD 1613
~~Modified Method 0290~~ - *ev*
~~(ALTA SOP AP No. 2F)~~
 N/A - *b*
~~Modified Method 1668~~ *ev*
~~(ALTA SOP AP No. 3D)~~ *ev N/A*

Project: P6324

Chemist: JK

Extr Group: 3829

Prep. Date: 2/2/06

ALTA Sample ID	Sample Wt. Equiv.	4oz jar Rnd Bottom Wt.	4oz jar Rnd Bottom & Residue Wt	Residue Wt.	% Lipids	Comments:
001	5.44g	117.58	117.80	0.22	4.04	 <p style="margin-top: 100px;">+ 16 FEB 06</p>
002	5.62g	115.39	115.60	0.21	3.74	
003	5.18g	113.43	113.48	0.05	0.01	
004	5.25g	113.04	113.08	0.04	0.01	
005	6.66g	116.56	116.60	0.04	0.01	
006	5.47	115.42		Redo		
007	6.46	112.82	113.55 ^{EE} 113.48	0.66	10.22	
008	5.98	117.61	118.03	0.42	7.02	
009	5.90	112.77	112.85	0.08	0.01	
010	5.50	116.81	116.78 ^{EE} 116.91	0.10	0.02	
011	5.13	113.27	113.35	0.08	1.56	
012	5.43	112.11		Redo		
			The overlap			
006	5.4a	117.45	117.98	0.53	9.65	
012	5.58	114.46	114.54	0.08	1.43	

NOTES:

ev
2/6/06

Final Benchsheet for Extraction Set 3829

PrepBatch: ~~2,326,460~~ - a
3829

Units: g

Extr Group: 1613TIS

Date Extr: 2/2/2006

Chemist: Jeremy M. Kadylak

Date Final: 2/7/2006

Project: P6324

AP Sample ID	Sample. Wt.
P6324_3829_001	25.04 ✓
P6324_3829_002	25.30 ✓
P6324_3829_003	25.58 ✓
P6324_3829_004	25.43 ✓
P6324_3829_005	25.53 ✓
P6324_3829_006	25.44 ✓
P6324_3829_007	25.59 ✓
P6324_3829_008	25.37 ✓
P6324_3829_009	25.21 ✓
P6324_3829_010	25.21 ✓
P6324_3829_011	25.13 ✓
P6324_3829_012	25.23 ✓

Sample Inventory Report - Extended

Project Name: General Analyteat HRMS AR 030 - 125- FS
 Project No.: P6324

AP Sample ID	Client Sample ID	Client Sample Description	Date Sampled	Date Received
P6324 001	AR030-125-FSSMBA1	Fillet	5-Dec-05	1-Feb-06
P6324 002	AR030-125-FSFHCA2	Fillet	5-Dec-05	1-Feb-06
P6324 003	AR030-125-FSCRAA3	Fillet	17-Dec-05	1-Feb-06
P6324 004	AR030-125-FSCRAA4	Fillet	17-Dec-05	1-Feb-06
P6324 005	AR030-125-FSBCA5	Fillet	22-Dec-05	1-Feb-06
P6324 006	AR030-125-FSSMBA6	Fillet	22-Dec-05	1-Feb-06
P6324 007	AR030-125-FSLMBB1	Fillet	5-Dec-05	1-Feb-06
P6324 008	AR030-125-FSSMBB2	Fillet	5-Dec-05	1-Feb-06
P6324 009	AR030-125-FSBCB3	Composite	5-Dec-05	1-Feb-06
P6324 010	AR030-125-FSFHCB4	Fillet	5-Dec-05	1-Feb-06
P6324 011	AR030-125-FSFHCB5	Fillet	5-Dec-05	1-Feb-06
P6324 012	AR030-125-FSFHCB6	Fillet	5-Dec-05	1-Feb-06



Handwritten signature and date: 01 Feb 06

CHAIN OF CUSTODY FOR GEORGIA-PACIFIC
Dioxin Analysis of Fish Samples

P 6324 %

Company: **Georgia-Pacific** Contact Person: **Alan Thomas (870) 567-8670**
 Address: **100 Mill Supply Road, Crossett AR 71635**
 Sample: **Fish** Preservative: **Ice**
 Analysis: **Dioxin/Furan** Shipped via: **FedEx**

Stream	Sample Identification	Date	Type	Test Method	Analysis	Preservative
Ouachita River	AR030-125-FSSMBA1	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSFHCA2	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSCRAA3	17 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSCRAA4	17 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSBCA5	22 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSSMBA6	22 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSLMBB1	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSSMBB2	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSBCB3	05 Dec 05	Composite	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSFHCB4	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSFHCB5	05 Dec 05	Fillet	1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-125-FSFHCB6	05 Dec 05	Fillet	1613	2,3,7,8, TCDD/F	Ice

Relinquished by:  Date: 31 Jan 06 Time: 1500 Received by:  Date: 2/1/06 Time: 0:30 AM
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

COMMENTS: All samples are foil wrapped and secured in labeled bags.

Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

Picture taken: Wednesday, 1 February 2006 11:56 AM

Picture filename: V:\Reports 2006\GPI\P6324\P6324-01.jpg

File created: Wednesday, 1 Feb 2006 11:13 AM

Analytical Perspectives - Sample Receiving Picture



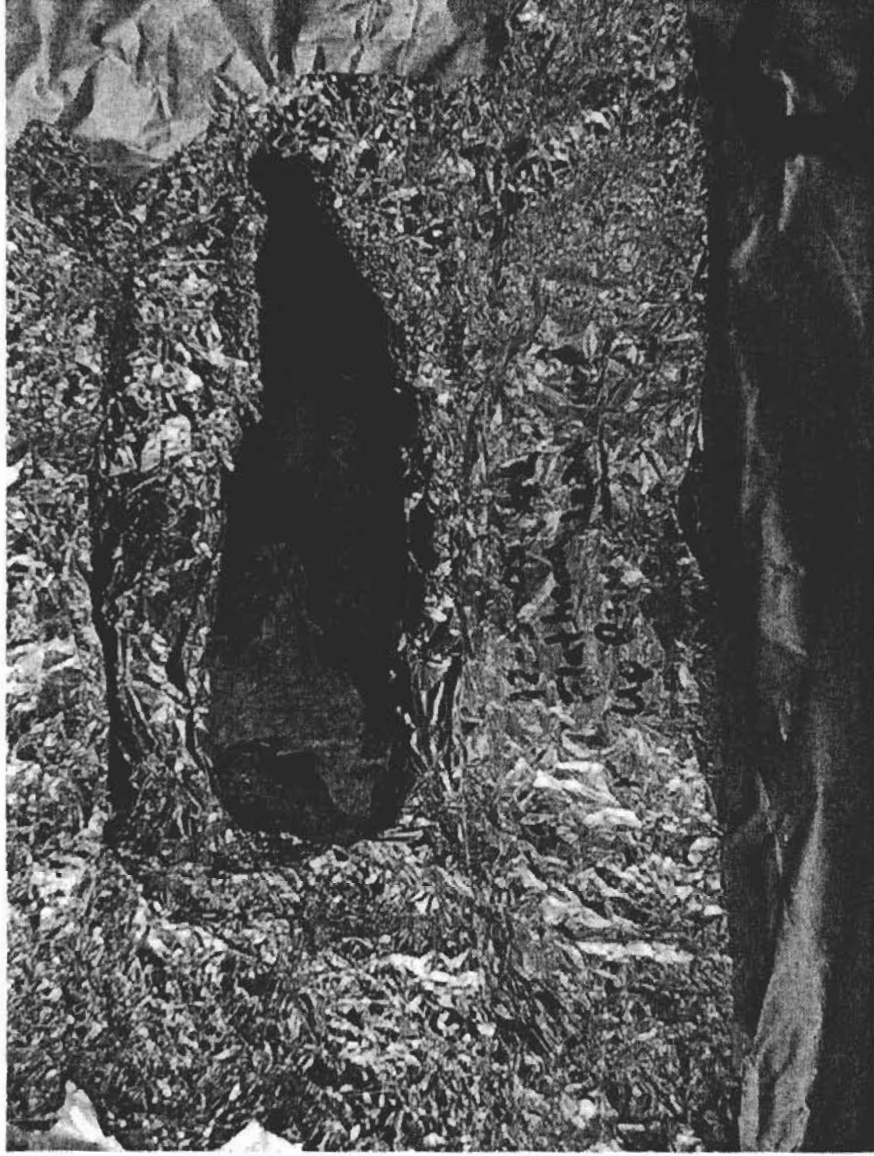
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File created: Thursday, 2 Feb 2006 10:41 AM

Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Picture filename: V:\Reports 2006\GP\P6324\P6324-04.jpg

File created: Thursday, 2 Feb 2006 1:09 PM

Analytical Perspectives - Sample Receiving Picture



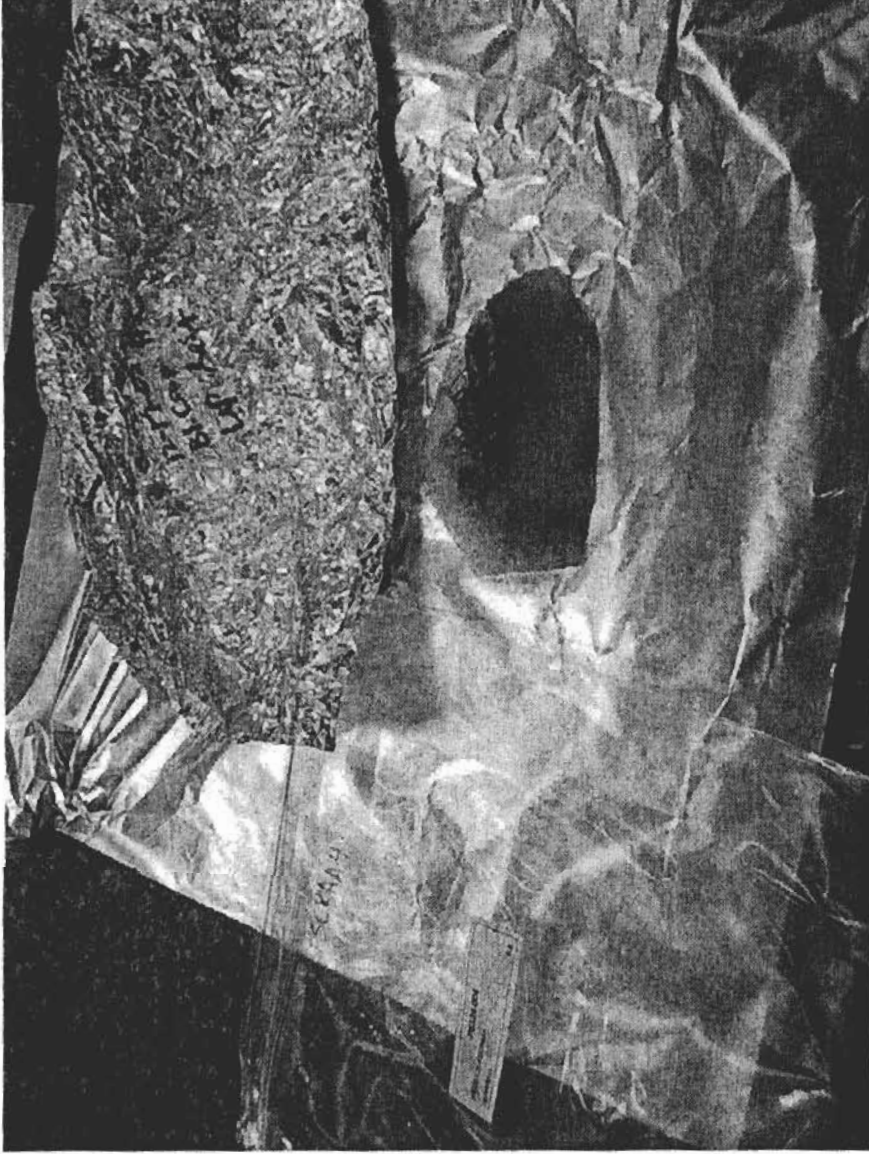
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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Picture filename: V:\Reports 2006\GP\P6324\P6324-06.jpg

File created: Thursday, 2 Feb 2006 1:09 PM

Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Analytical Perspectives - Sample Receiving Picture



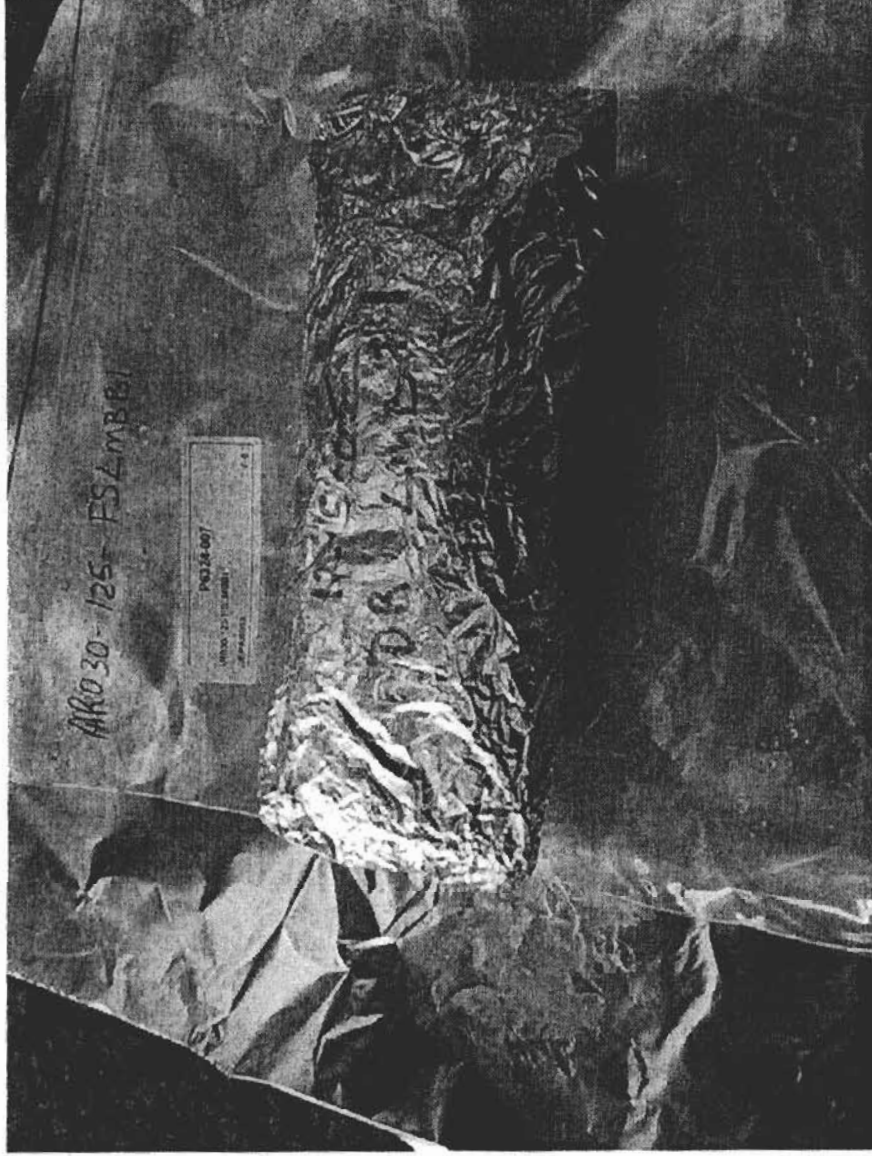
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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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File created: Thursday, 2 Feb 2006 1:09 PM

Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Analytical Perspectives - Sample Receiving Picture



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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Picture filename: V:\Reports 2006\GP\P6324\P6324-14.jpg

File created: Thursday, 2 Feb 2006 1:09 PM

Analytical Perspectives - Sample Receiving Picture



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Analytical Perspectives - Sample Receiving Picture



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Analytical Perspectives - Sample Receiving Picture



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Analytical Perspectives - Sample Receiving Picture



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Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

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Analytical Perspectives - Sample Receiving Picture



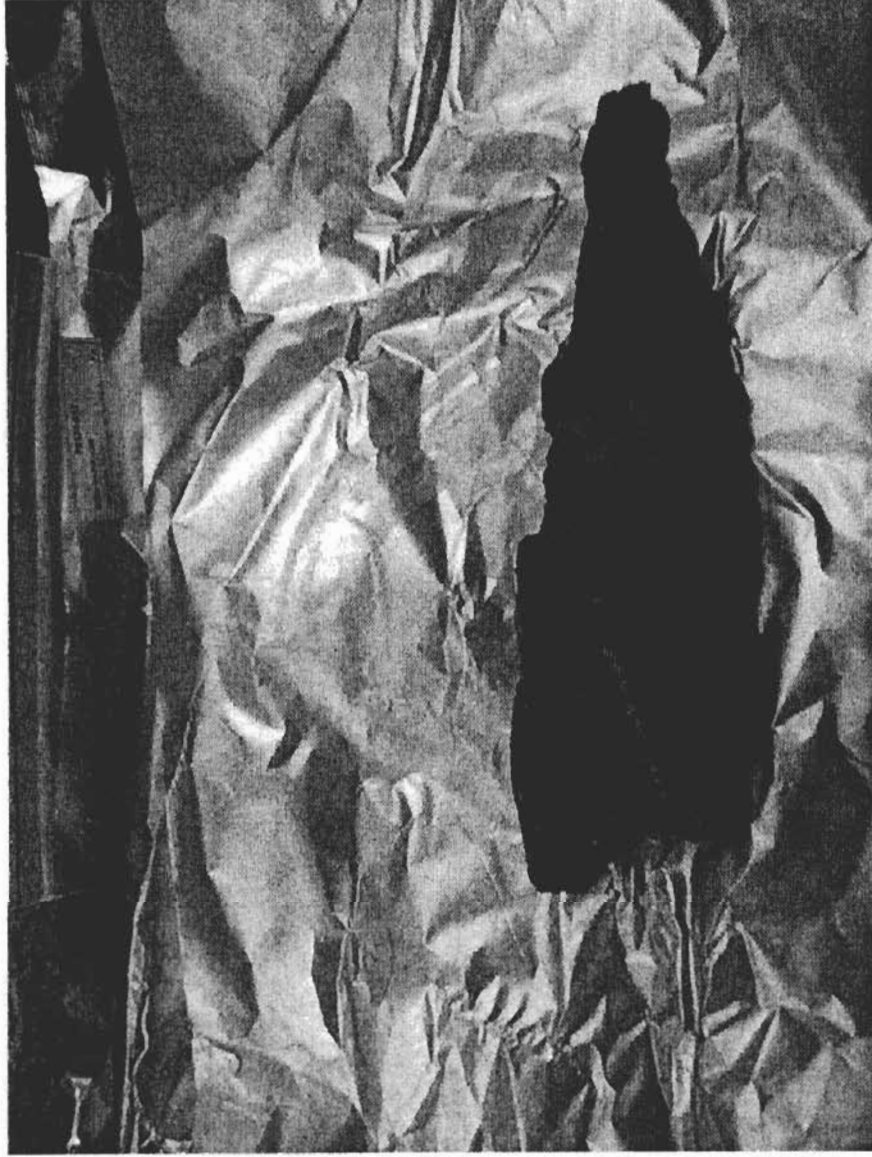
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File created: Thursday, 2 Feb 2006 1:09 PM

Analytical Perspectives - Sample Receiving Picture



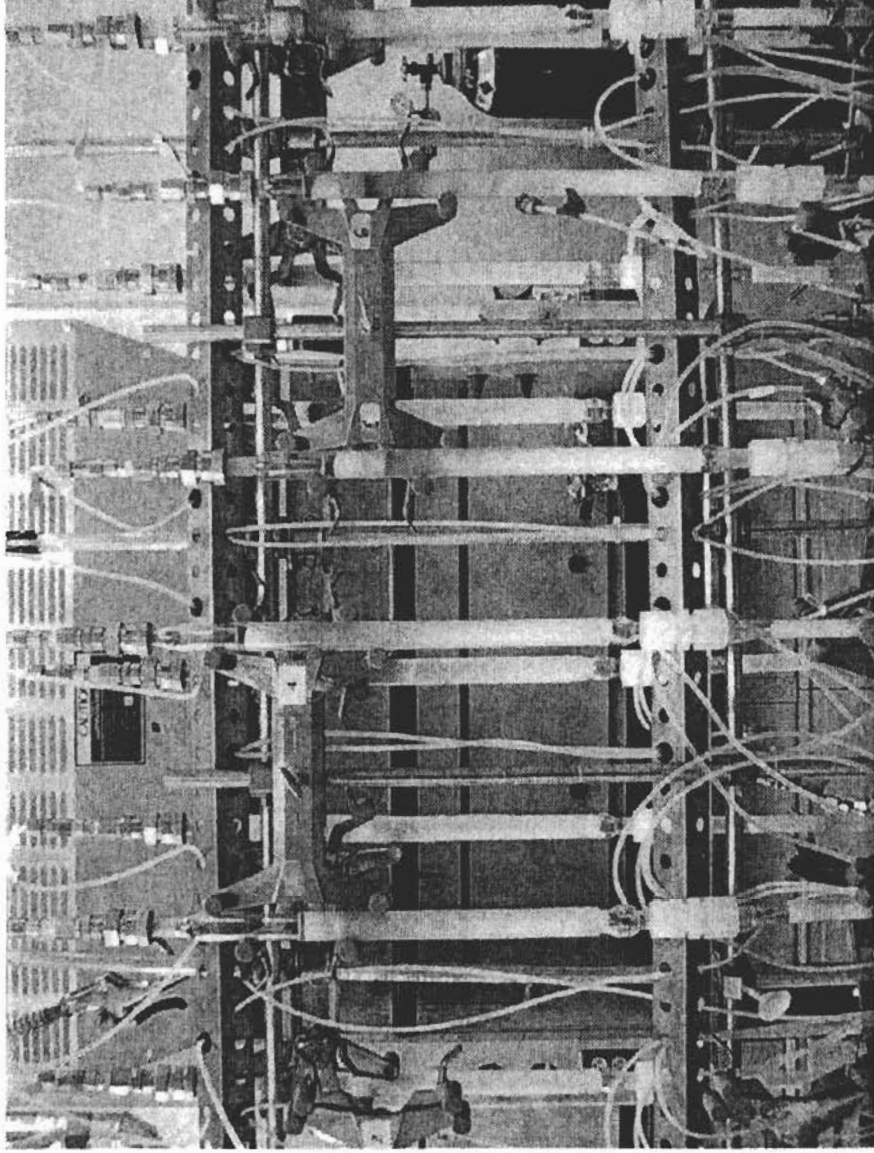
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Analytical Perspectives - Sample Receiving Picture



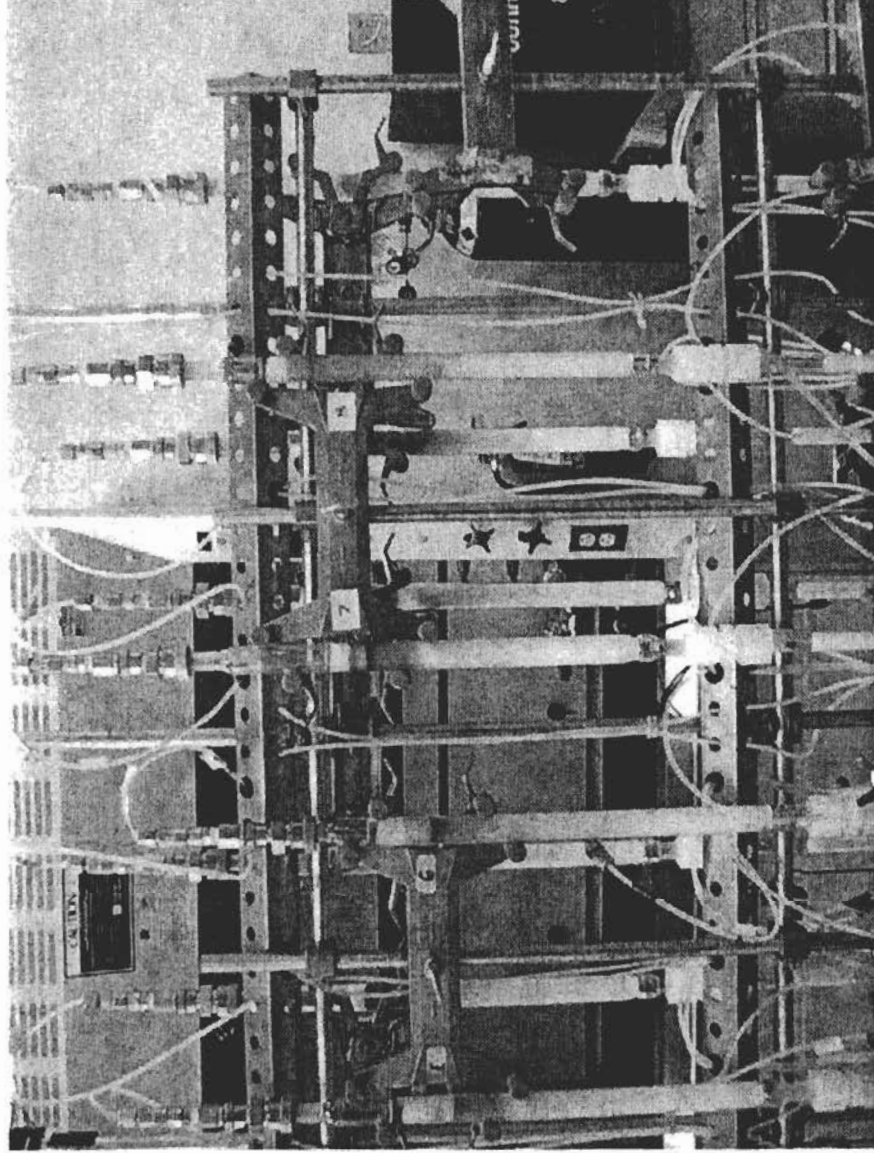
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Picture filename: V:\Reports 2006\GP\P6324\P6324-22.jpg

File created: Friday, 3 Feb 2006 3:06 PM

Analytical Perspectives - Sample Receiving Picture



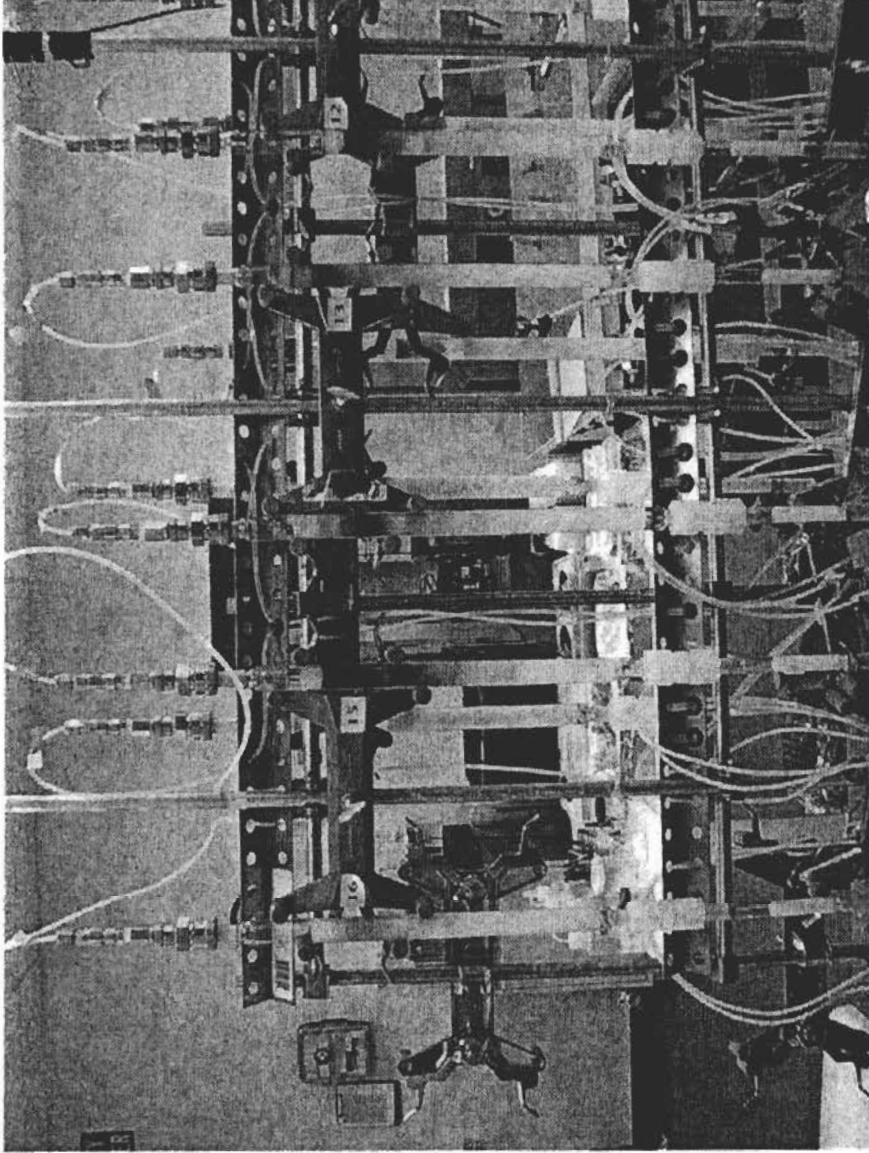
AP Project ID: P6324

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Picture filename: V:\Reports 2006\GP\P6324\P6324-23.jpg

File created: Friday, 3 Feb 2006 3:06 PM

Analytical Perspectives - Sample Receiving Picture



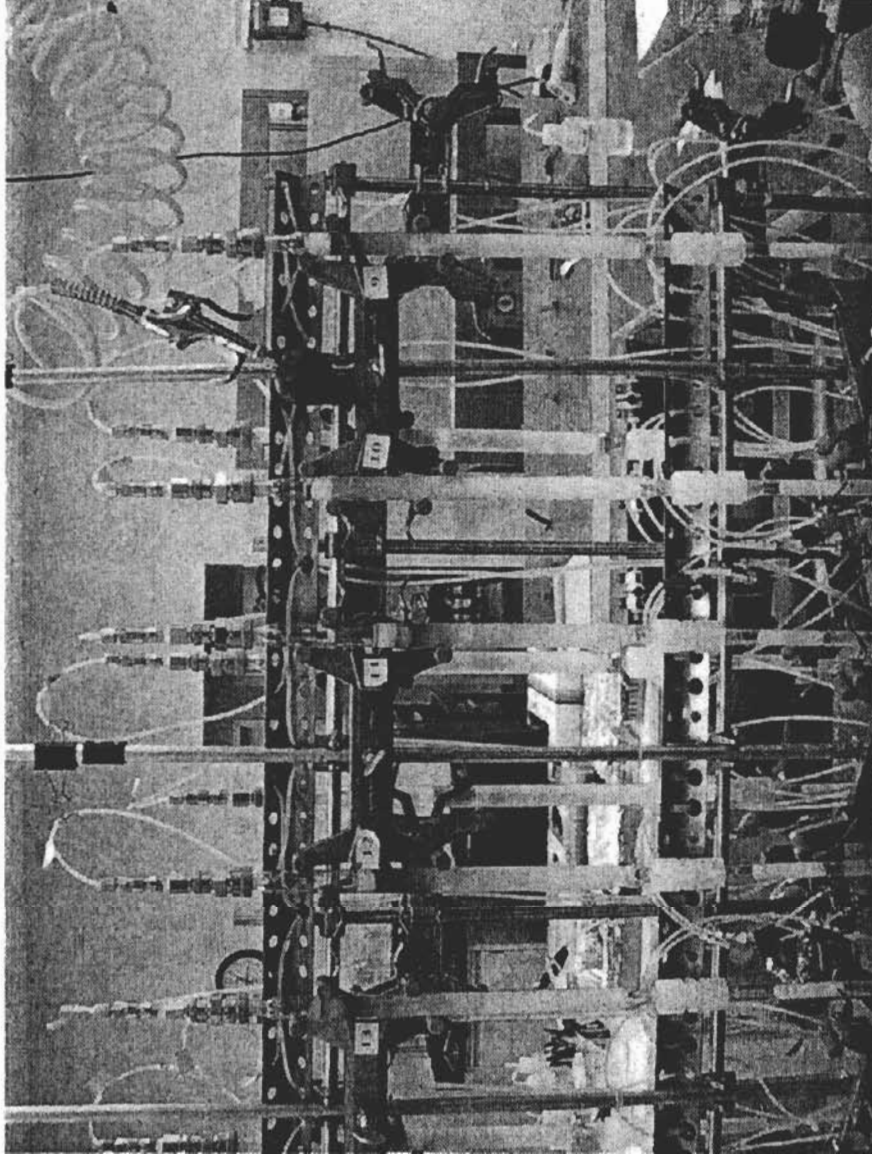
AP Project ID: P6324

Picture taken: Friday, 3 February 2006 4:07 PM

Picture filename: V:\Reports 2006\GP\P6324\P6324-24.jpg

File created: Friday, 3 Feb 2006 3:06 PM

Analytical Perspectives - Sample Receiving Picture



AP Project ID: P6324

Picture taken: Friday, 3 February 2006 4:08 PM

Picture filename: V:\Reports 2006\GP\P6324\P6324-25.jpg

File created: Friday, 3 Feb 2006 3:06 PM

ANALYTICAL PERSPECTIVES **SAMPLE LOG-IN FORM**

Client Project / Job ID:
AR 030-125-FS
PO #:

AP Project ID: P6324
CHAIN OF CUSTODY ANOMALY FORM

The following items were omitted from the COC

Project ID and/or PO#:

Sampler:

Relinquished By:

Date:

Time:

Sample ID:

Sample Date:

Sample Description:

Analysis Requested:

Turn-Around Time:

Container Qty:

Container Type:

Other:

COMMENTS

Date Samples Arrived: 02 Feb 06 Initials: Y M Murrell White NM

Time / Date logged in: 10:30 AM 02 Feb 06 Refrigerator: F6 Initials: NM

Samples Arrived By: (circle one) FedEx UPS Airborne Express DHL Emery
Freezer Truck Company Courier Other

Shipping Preservation: (circle) Ice Blue Ice / Dry Ice / None Temp °C 0

Shipping Documentation Present? (circle one) Shipping Label or Airbill

of boxes: 1 # of coolers: 1 Tracking #: 7918 4764 0450

Shipping Container(s) intact? Yes If no, describe condition:

Container Custody Seals Present & Intact? NA If not intact, describe condition:

Sample Custody Seals Present & Intact? NA If not intact, describe condition:

of Seals: _____ or Seal #: _____

Sample Container Intact? Yes If no, indicate sample condition:

Chain of Custody (COC) / Sample Documentation Present? Yes Acceptable? Yes

If not, complete COC Anomaly Form

Shipping Container: (circle) Client or AP Return Retain Dispose

Container and/or Bottles Requested? NO

Sample Control Log In/Out Completed? Yes

Drinking Water Sample? LD If yes, Acceptable preservation? _____

FILL BELOW IF APPLICABLE

Have all the samples arrived? Yes If no, complete the following.

Shipment #: _____ Date of Arrival: _____ Condition: _____ Temp °C _____

Delivered by: _____ Tracking #s: _____

COC Present? _____ Acceptable? _____ If no, document on COC Anomaly Form additional shipment comments.

Container Intact? _____ Samples Intact? _____ If no, describe: _____

Do we expect another shipment? _____ If yes, start a new log-in sheet. 😊

Analytical Perspectives - Injection Log

Run file: 060208P1
MS Method: DF_CL4-8

GC Column: db-5
GC Method: DB5MS_60M

Data file	S#	Vial#	Lab ID	Sample ID (Chrom. Text)	Analyst	Acq date	Acq time
060208P1	1	8	CS3_S6-4-4	CS3_S6-4-4_060208_DF_PA	MC	8-FEB-06	06:15:07
060208P1	2	47	0_3829_OPR001	0_3829_OPR001_OPR1_3829_DF	MC	8-FEB-06	07:05:24
060208P1	3	15	SBS	SBS_060208_DF_PA	MC	8-FEB-06	07:55:33
060208P1	4	46	0_3829_MB001	0_3829_MB001_MB1_3829_DF_SDS	MC	8-FEB-06	08:45:51
060208P1	5	48	P6324_3829_001	P6324_3829_001_AR030-125-FSSMBA1 25.04g	MC	8-FEB-06	09:36:07
060208P1	6	49	P6324_3829_002	P6324_3829_002_AR030-125-FSFHCA2 25.3g	MC	8-FEB-06	10:26:19
060208P1	7	50	P6324_3829_003	P6324_3829_003_AR030-125-FSCRAA3 25.58g	MC	8-FEB-06	11:16:36
060208P1	8	51	P6324_3829_004	P6324_3829_004_AR030-125-FSCRAA4 25.43g	MC	8-FEB-06	12:06:54
060208P1	9	52	P6324_3829_005	P6324_3829_005_AR030-125-FSCRAA5 25.53g	MC	8-FEB-06	12:57:16

MISS NOT BEING
RESHEET

Analytical Perspectives - Injection Log

Run file: 060208P2
MS Method: DF_CL4-8

GC Column: db-5
GC Method: DB5MS_60M

Data file	S#	Vial#	Lab ID	Sample ID (Chrom. Text)	Analyst	Acq date	Acq time
060208P2	1	8	CS3_S6-4-4	CS3_S6-4-4_060208_DF_PA	MC	8-FEB-06	13:55:24
060208P2	2	47	0_3829_OPR001	0_3829_OPR001_OPR1_3829_DF	MC	8-FEB-06	14:45:35
060208P2	3	15	SBS	SBS_060208_DF_PA	MC	8-FEB-06	15:35:45
060208P2	4	53	P6324_3829_006	P6324_3829_006_AR030-125-FSSMBA6	MC	8-FEB-06	16:26:01
060208P2	5	54	P6324_3829_007	P6324_3829_007_AR030-125-FSLMBB1	MC	8-FEB-06	17:16:17
060208P2	6	55	P6324_3829_008	P6324_3829_008_AR030-125-FSSMBB2	MC	8-FEB-06	18:06:34
060208P2	7	56	P6324_3829_009	P6324_3829_009_AR030-125-FSBCB3	MC	8-FEB-06	18:56:50
060208P2	8	57	P6324_3829_010	P6324_3829_010_AR030-125-FSFHCB4	MC	8-FEB-06	19:47:01
060208P2	9	58	P6324_3829_011	P6324_3829_011_AR030-125-FSFHCB5	MC	8-FEB-06	20:37:22
060208P2	10	59	P6324_3829_012	P6324_3829_012_AR030-125-FSFHCB6	MC	8-FEB-06	21:27:39

Analytical Perspectives - Injection Log

Run file: 060215P1
MS Method: DF_CL4-8

GC Column: db-5
GC Method: DB5MS_60M

Data file S#	Vial#	Lab ID	Sample ID (Chrom. Text)	Analyst	Acq date	Acq time
060215P1	1	8	CS3 060215_DF_PA	MC	15-FEB-06	11:56:48
060215P1	2	47	0_3829_OPR001	MC	15-FEB-06	12:46:49
060215P1	3	15	SBS 060215_DF_PA	MC	15-FEB-06	13:36:50
060215P1	4	46	0_3829_MB001RJ	MC	15-FEB-06	14:26:57
060215P1	5	48	P6324_3829_002RJ	MC	15-FEB-06	15:17:09

P6324_3829_002RJ AR030-125-FSPHCA2 25.3g

P6324



ANALYTICAL PERSPECTIVES

PART 3

ANALYTICAL RESULTS

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

Client ID: MB1_3829_DF_SDS
 Lab ID: 0_3829_MB001
 Sample text: 0_3829_MB001 MB1_3829_DF_SDS

Filename: 060208P1 S: 4
 GC Column ID: db-5

Acq: 8-FEB-06 08:45:51
 ICal: MM1_DF_010606_25JAN** Wt./Vol: 25.000
 Vial: 46

	Name	Resp	RA	<i>I Cal</i> RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	*	* n	1.00	NotF*	*		941	2.5	0.131	-
AX	2,3,7,8-TCDF	*	* n	0.86	NotF*	*		1570	2.5	0.172	-
ES	13C-2,3,7,8-TCDD	1.21e+07	0.80	1.03	26:47	72.3		2740	2.5	0.351	90.4
ES	13C-2,3,7,8-TCDF	1.77e+07	0.76	0.94	25:51	74.2		4086	2.5	0.390	92.7
JS/RT	13C-1,2,3,4-TCDD	1.30e+07	0.81	-	26:04	1.20		2740	2.5	-	-
JS	13C-1,2,3,4-TCDF	2.03e+07	0.77	-	24:20	1.28		4086	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	5.13e+06		0.89	26:48	35.7				0.400	111

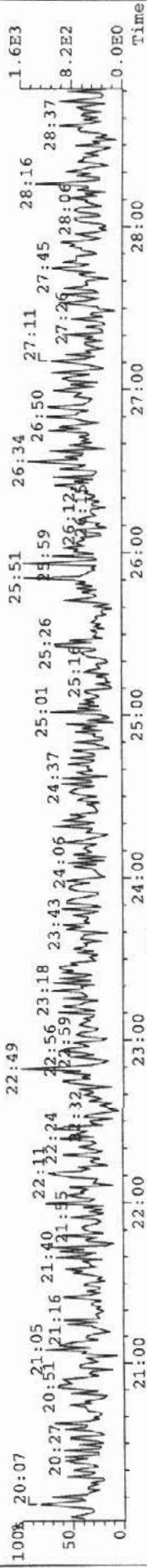
*RL = 0.4 pHg
 H 25g sample*

Analysis
 Date

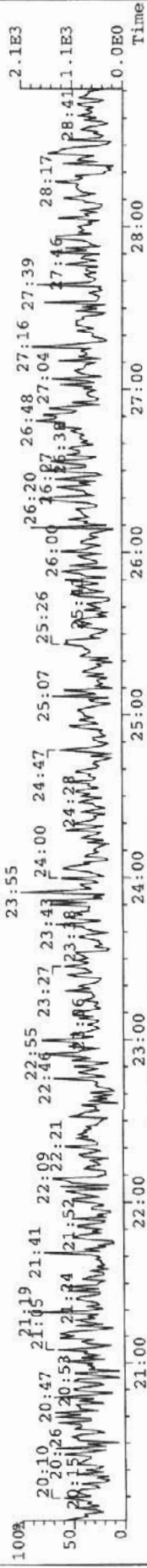
File: 060208F1 Acq: 8-FEB-2006 08:45:51 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 4 Text: 0_3829_MB001_MBI_3829_DF_SDS Vial# 46 File Text: AP DB5

319.8965 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 173



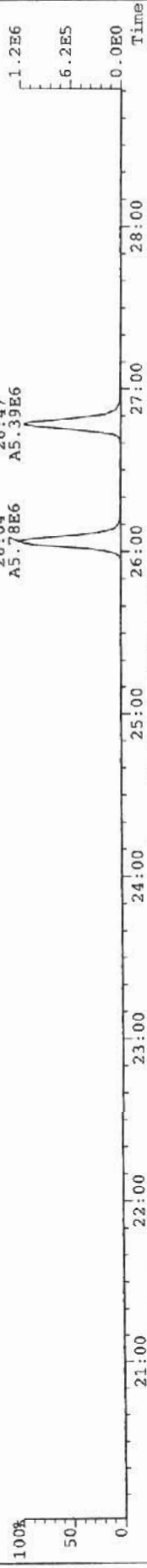
321.8936 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 214



327.8850 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 388



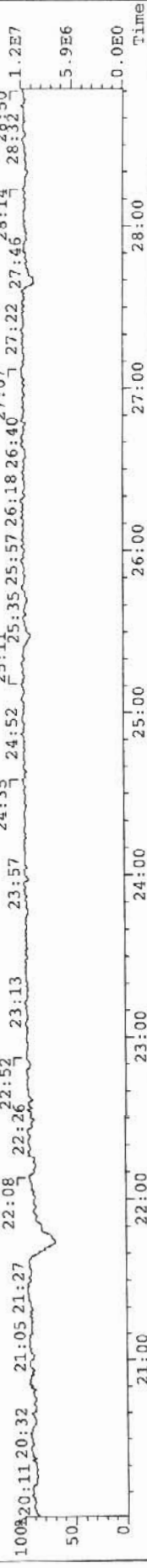
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 873



333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 462



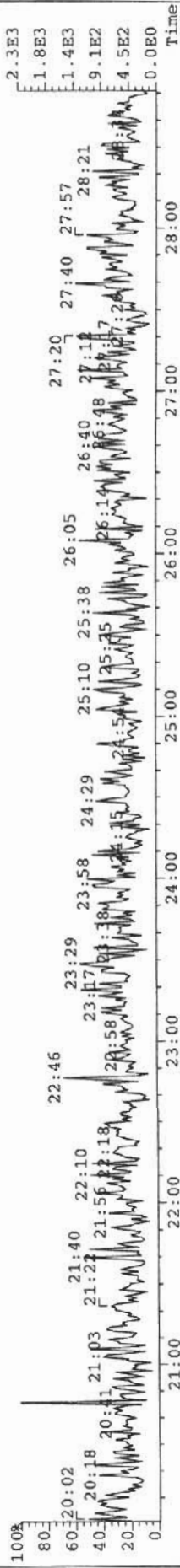
316.9824 S:4 Expt: DF_CL4-8



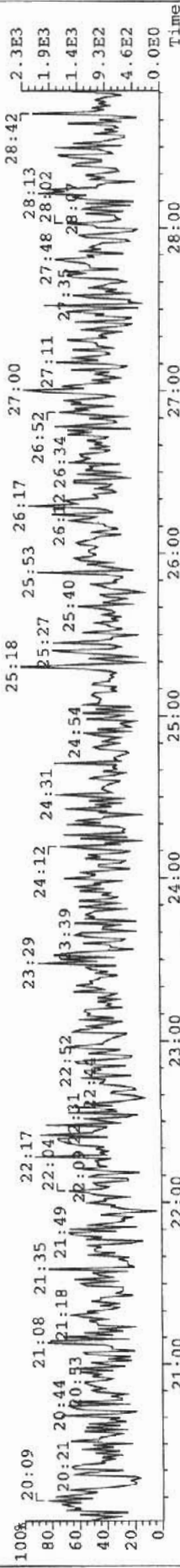
File: 060208PI Acq: 8-FEB-2005 08:45:51 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 4 Text: 0_3829_MB001_MB1_3829_DF_SDS_Vial# 46 File Text: AP DB5

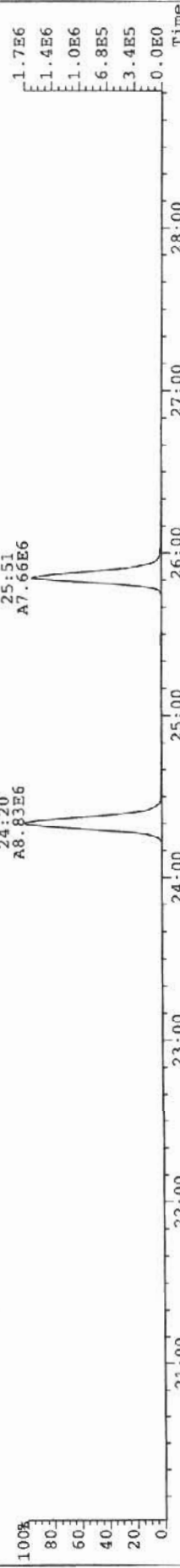
303.9016 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 160



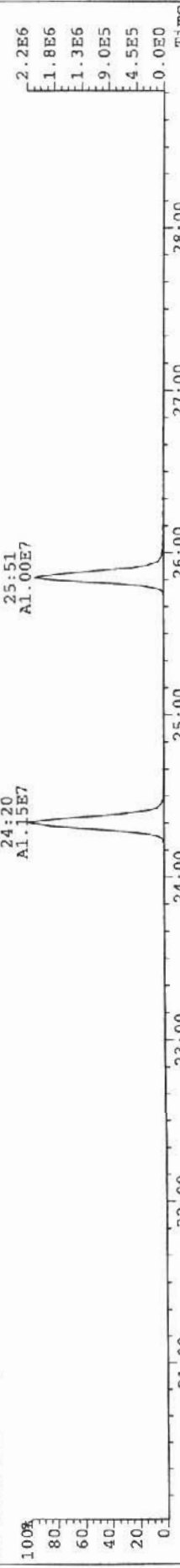
305.8987 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 313



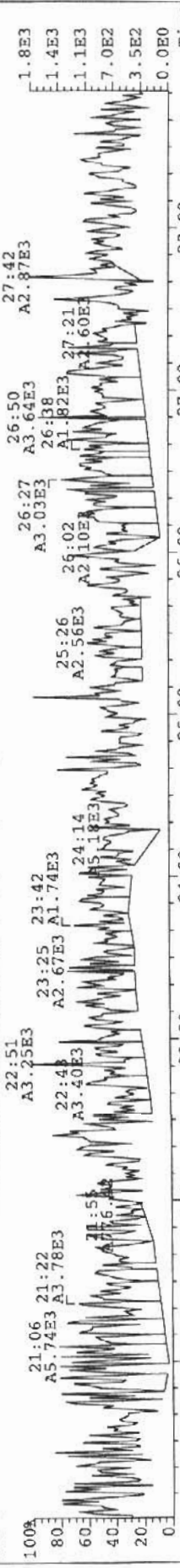
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 510



317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 495



375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 241



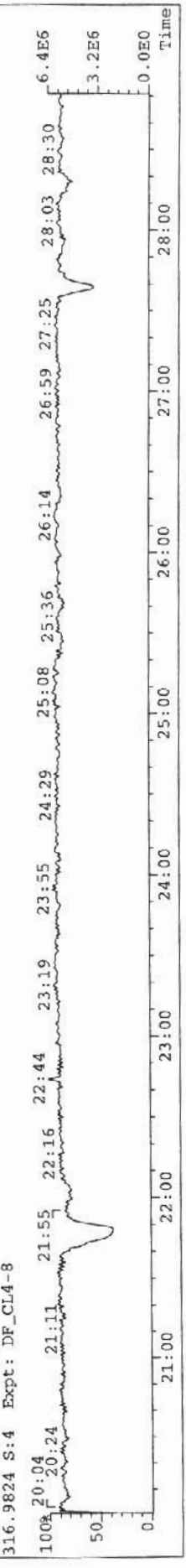
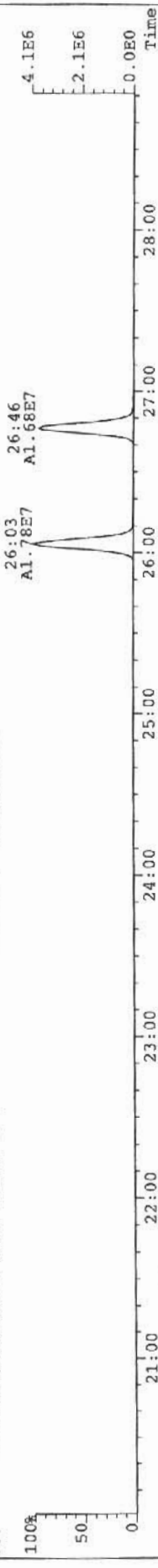
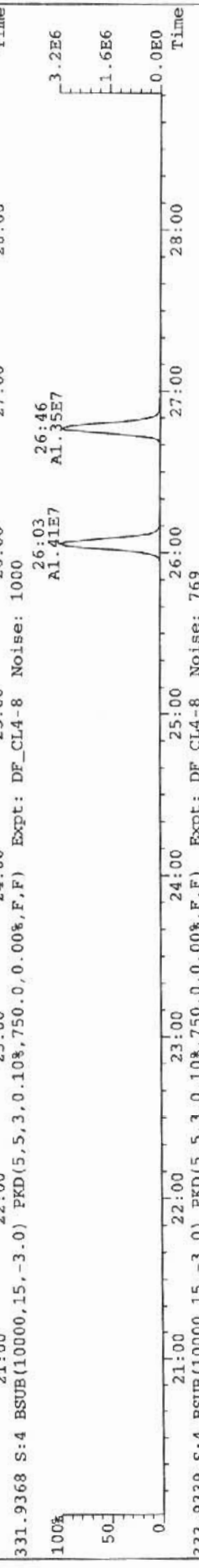
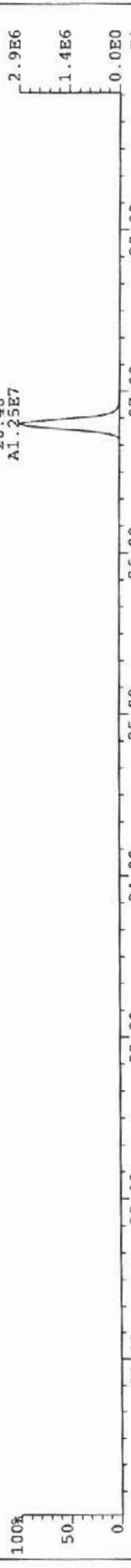
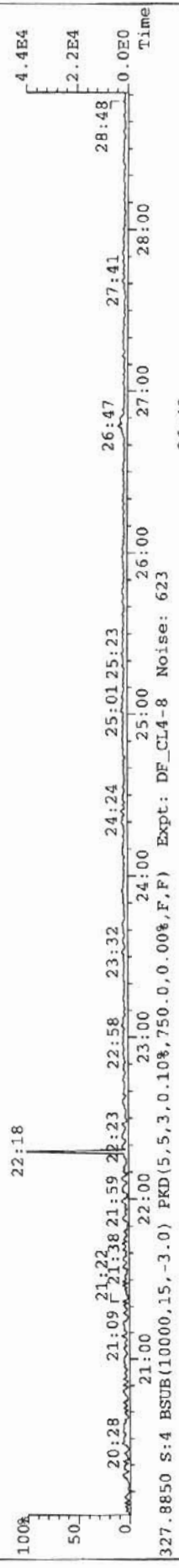
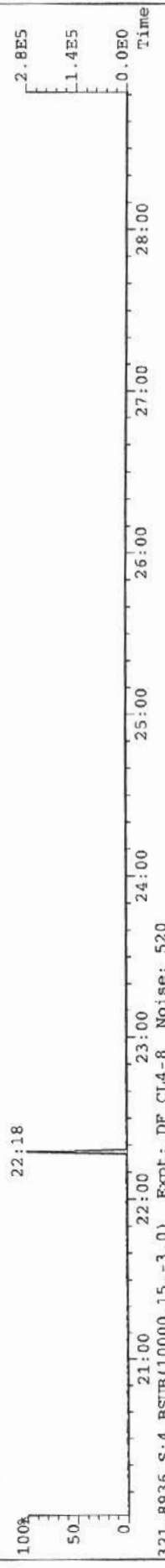
375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 241

Client ID: MB1_3829_DF_SDS
 Lab ID: 0_3829_MB001RJ
 Sample text: 0_3829_MB001RJ MB1_3829_DF_SDS
 Filename: 060215P1 S: 4 Acq: 15-FEB-06 14:26:57
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN WL/Vol: 25.000
 Vial: 46

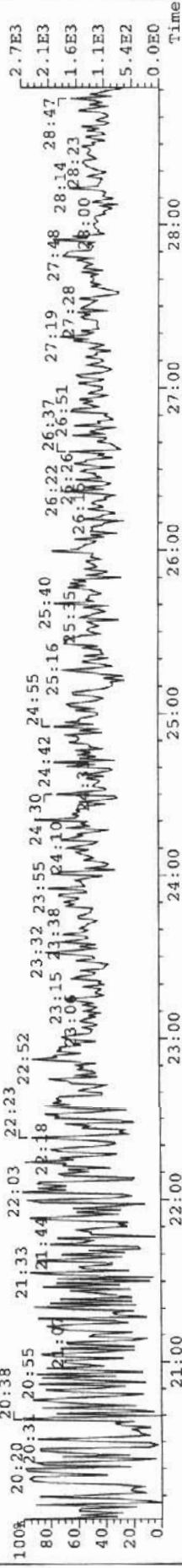
Name	Resp	RA	RRF	RT	Conc	Qual	noise Fac	DL	Rec
AX	*	* n	1.00	NotF*	*		2842 2.5	0.148	-
AX	*	* n	0.86	NotF*	*		2624 2.5	0.116	-
ES	3.03e+07	0.80 Y	1.03	26:46	73.7		4970 2.5	0.237	92.1
ES	4.08e+07	0.75 Y	0.94	25:51	74.4		3994 2.5	0.156	93.1
JS/RT									
JS	3.18e+07	0.79 Y	-	26:03	2.94		4970 2.5	-	-
JS	4.68e+07	0.76 Y	-	24:20	2.95		3994 2.5	-	-
CS	1.25e+07		0.89	26:48	35.4			0.131	111

Analyst: 
 Date: 16/2/06

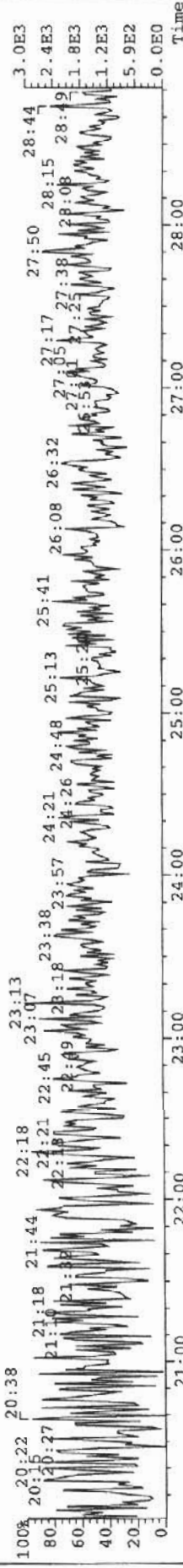
File: 060215P1 Acq: 15-FEB-2006 14:26:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: 0_3829_MB001RJ ME1_3829_DF_SDS Vial# 46 File Text: AP DB5
319.8965 S:4 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 488



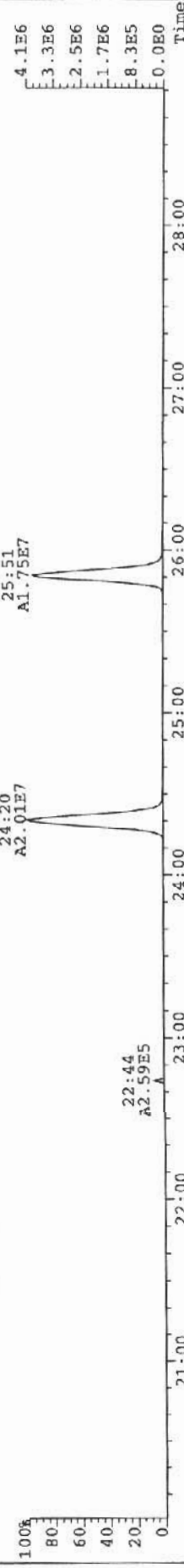
File: 060215PI Acq: 15-FEB-2006 14:26:57 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 4 Text: 0_3829_MB001RJ_MBI_3829_DF_SDS_Vial# 46 File Text: AP DB5
 303.9016 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 428



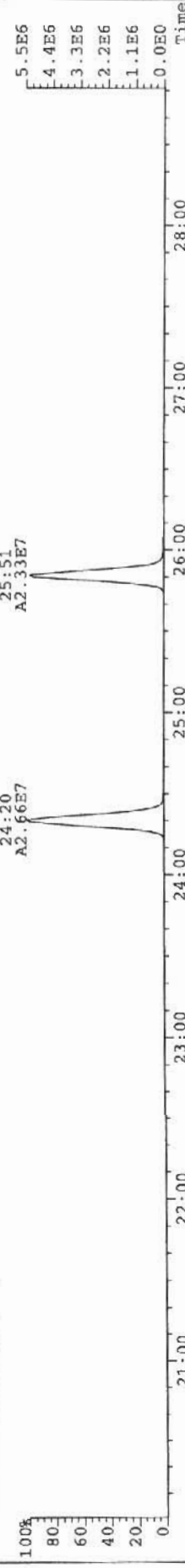
305.9987 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 496



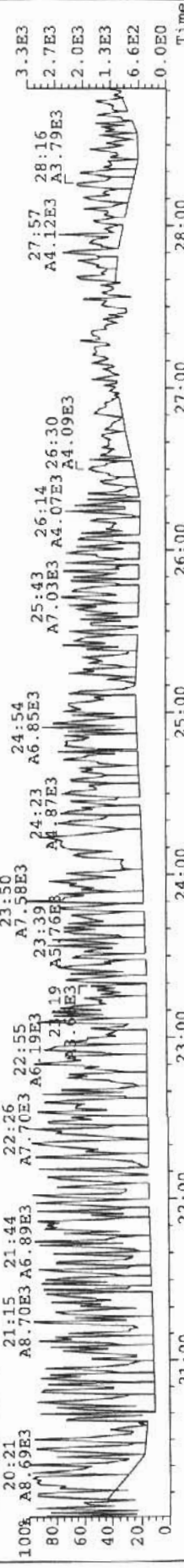
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 780



317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 860



375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 490



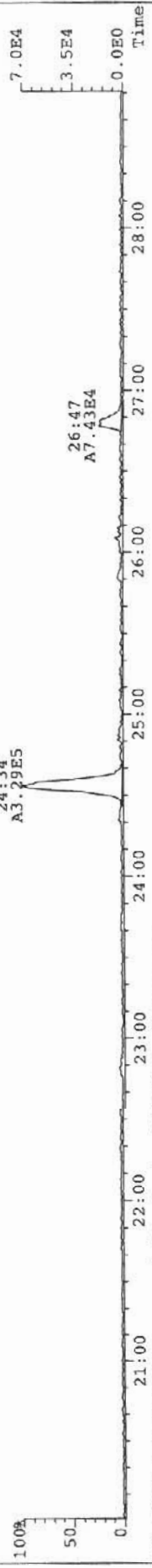
8216 5406

Client ID: AR030-125-FSSMBAL
 Lab ID: P6324_3829_001
 Sample text: P6324_3829_001 AR030-125-FSSMBAL 25.04g
 Filename: 060208P1 S: 5 Acq: 8-FEB-06 09:36:07
 GC Column ID: db-5 ICAL: MM1_DF_010606_25JAN* WT/Vol:25.040
 Vial: 48

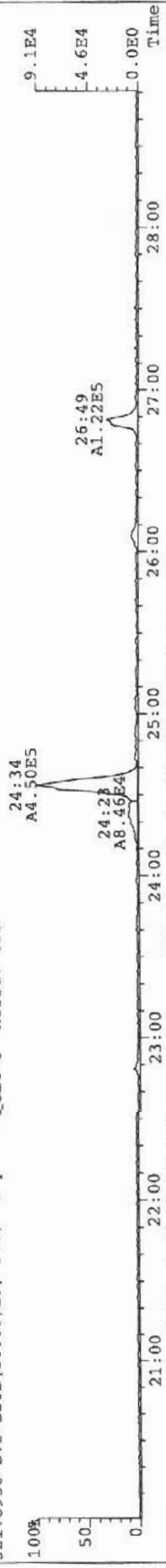
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
2,3,7,8-TCDD	1.71e+05	0.61	1.00	26:49	0.279		1044	2.5	0.0330	-
2,3,7,8-TCDF	7.03e+05	0.75	0.86	25:53	0.903	-ea	2335	2.5	0.0610	-
13C-2,3,7,8-TCDD	4.91e+07	0.81	1.02	25:47	61.1		2517	2.5	0.0612	76.6
13C-2,3,7,8-TCDF	7.21e+07	0.76	0.94	25:52	63.2		4791	2.5	0.0874	79.1
13C-1,2,3,4-TCDD	6.20e+07	0.81	-	26:04	5.72		2517	2.5	-	-
13C-1,2,3,4-TCDF	9.72e+07	0.75	-	24:23	6.13		4791	2.5	-	-
37Cl-2,3,7,8-TCDD	2.32e+07		0.82	26:48	33.7				0.0926	105

Analyst: *[Signature]*
 Date: 15 Feb 06

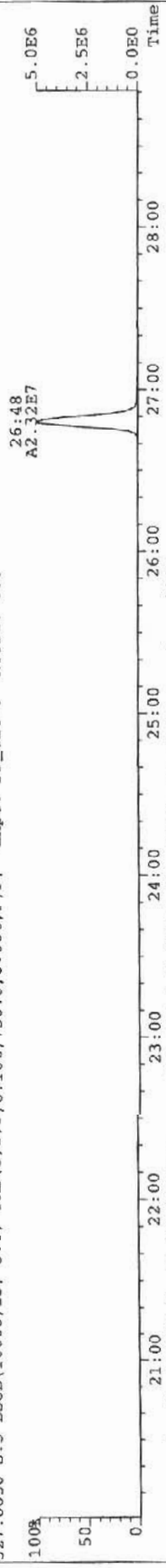
File: 060208PI Acq: 8-FEB-2006 09:36:07 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P6324_3829_001 AR030-125-FSSMBA1 25.04g Vial# 48 File Text: AP DB5
319.8965 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 386



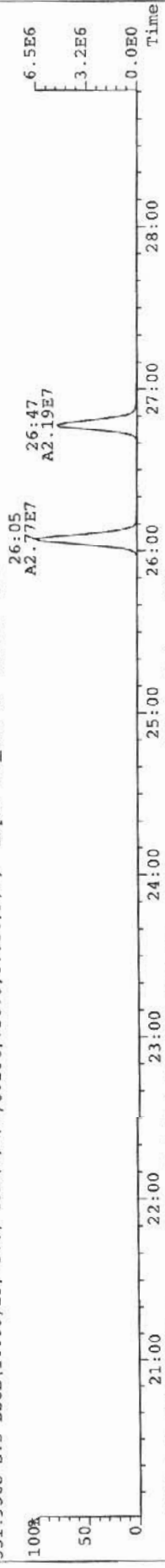
321.8936 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 425



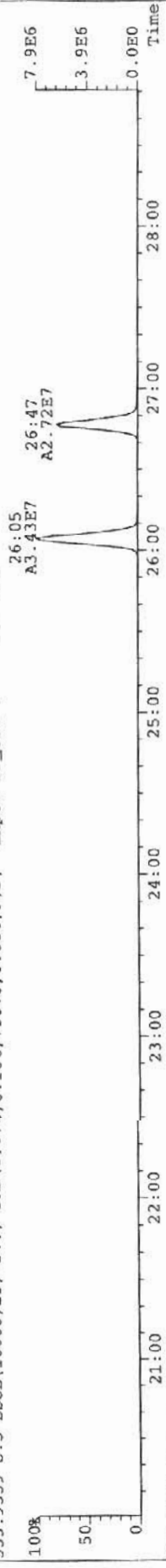
327.8850 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 685



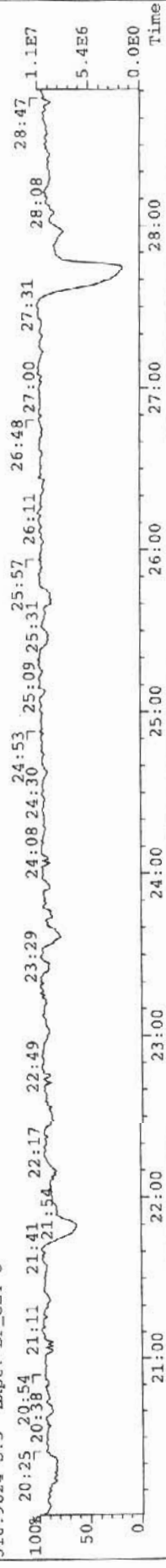
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1147



333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 791



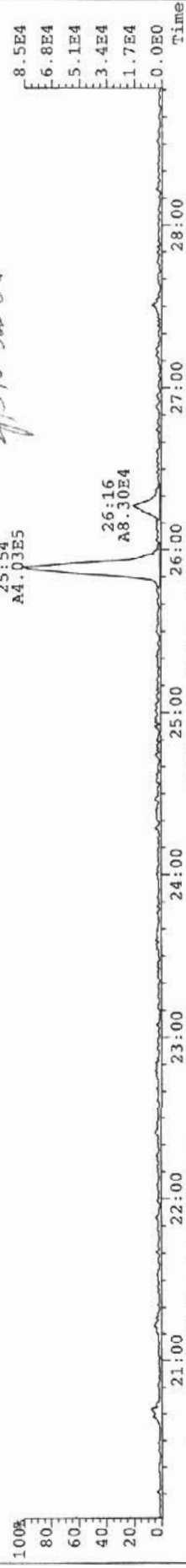
316.9824 S:5 Expt: DF_CL4-8



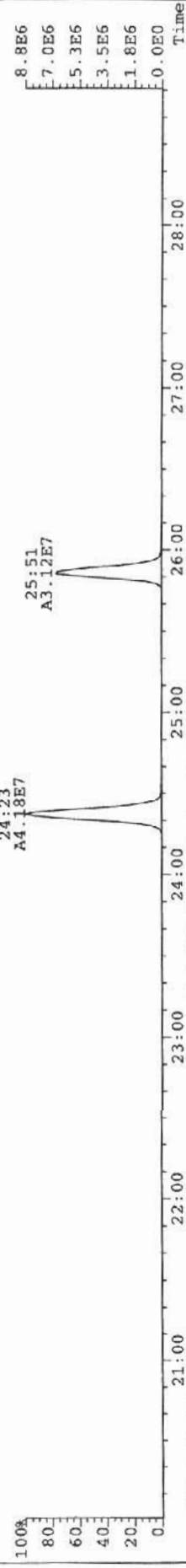
File: 060208PI Acq: 8-FEB-2006 09:36:07 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 5 Text: P6324_3829_001 AR030-125-FSSMB1 25.04g Vial# 48 File Text: AP DB5
 303.9016 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 395



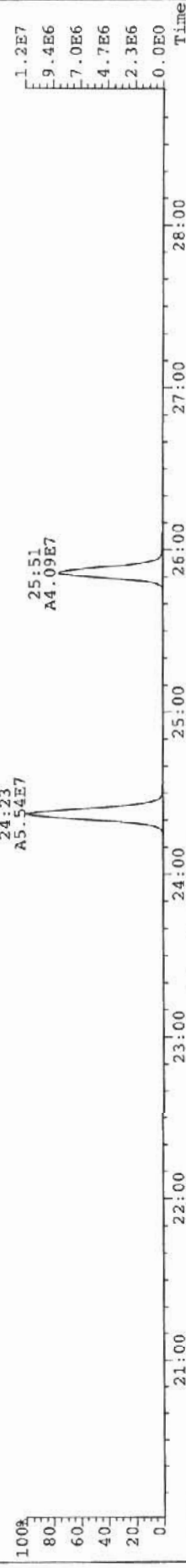
305.8987 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 499



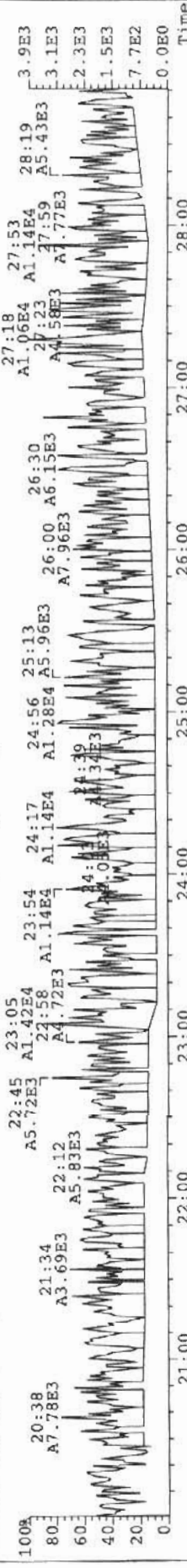
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 871



317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 990



375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 545



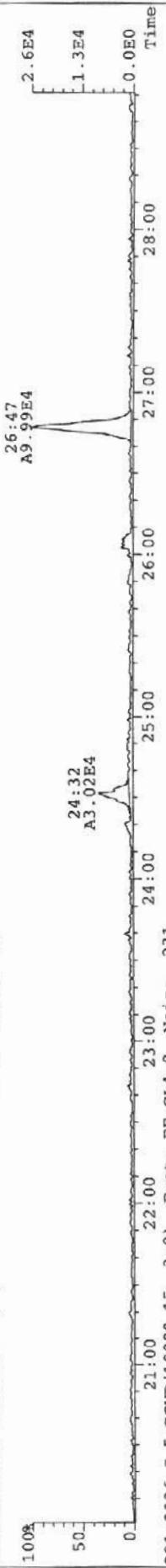
163102

Client ID: AR030-125-FSFHCA2
 Lab ID: P6324_3829_002RJ
 Sample text: P6324_3829_002RJ AR030-125-FSFHCA2 25.3g
 Filename: 060215P1 S: 5 Acq: 15-FEB-06 16:17:09
 GC Column ID: db-5 ICal: MMI_DF_010606_25JAN> Wt/Vol:25.300
 Vial: 48

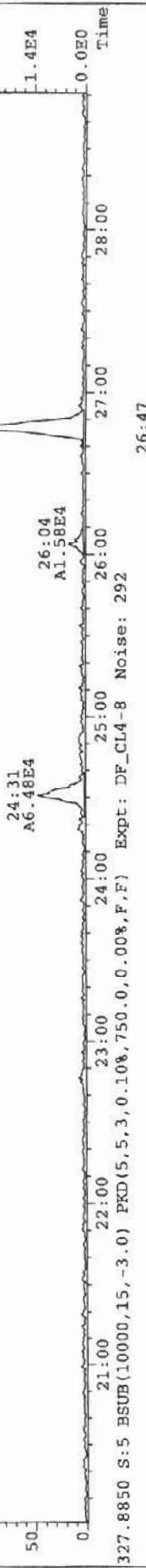
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	0.75	1.00	26:47	0.749		1061	2.5	0.0628	-
AX	2,3,7,8-TCDF	* n	0.86	NotF>	*		792	2.5	0.0424	-
ES	13C-2,3,7,8-TCDD	0.79	1.00	26:46	65.0		2147	2.5	0.113	82.3
ES	13C-2,3,7,8-TCDF	0.75	0.94	25:50	68.6		1797	2.5	0.0784	86.8
JS/RT	13C-1,2,3,4-TCDD	0.82	-	26:03	2.65		2147	2.5	-	-
JS	13C-1,2,3,4-TCDF	0.74	-	24:20	2.65		1797	2.5	-	-
CS	37C1-2,3,7,8-TCDD	1.11e+07	0.80	26:47	34.1				0.128	108

Analyst: 
 Date: 15/02/06

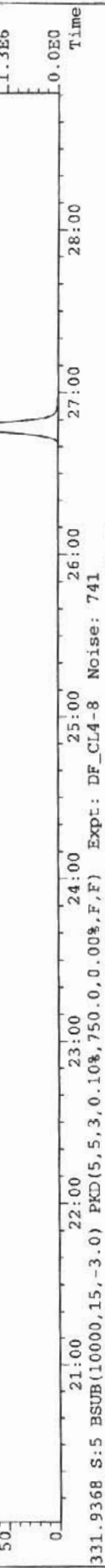
File: 060215PI Acq: 15-FEB-2006 15:17:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P6324_3829_002RJ AR030-125-FSFHCA2 25.3g Vial# 48 File Text: AP DB5
319.8965 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 200



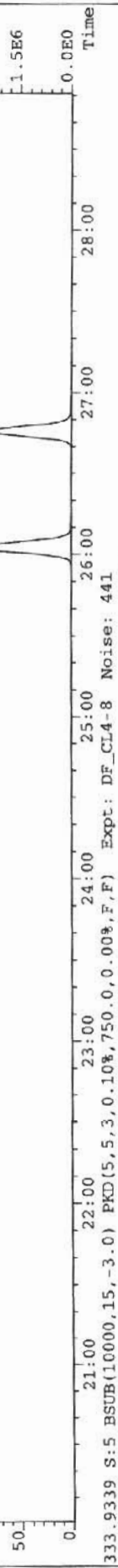
321.8936 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 231



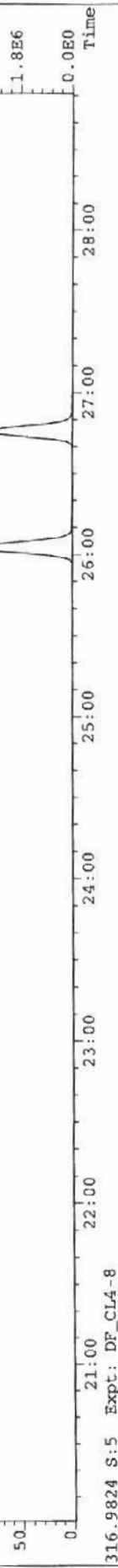
327.8850 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 292



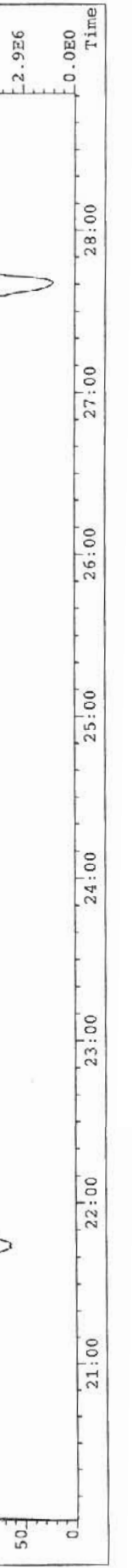
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 741



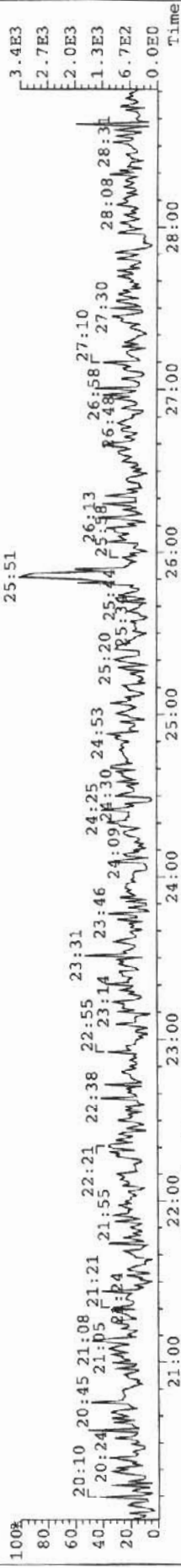
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 441



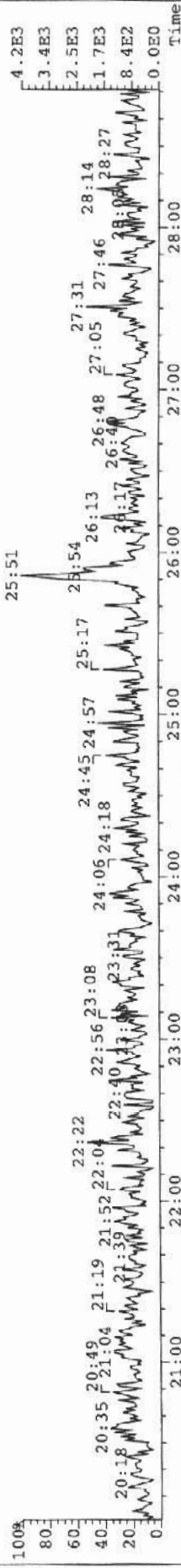
316.9824 S:5 Expt: DF_CL4-8



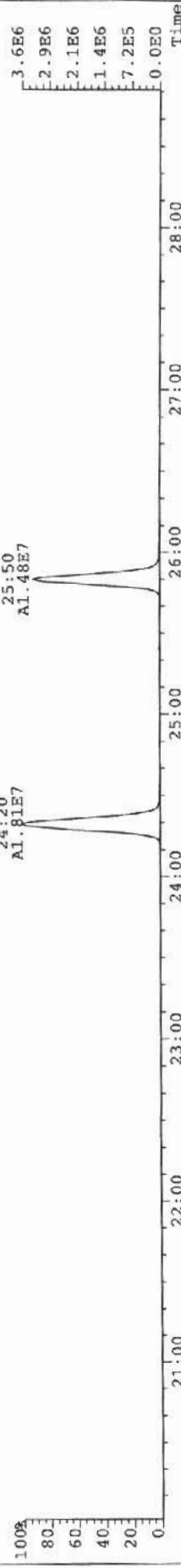
File: 060215P1 Acq: 15-FEB-2006 15:17:09 GC EI+ Voltage SIR Autospec-Ultima2
Sample# 5 Text: P6324_3829_002RJ AR030-125-FSPHCA2 25.3g Vial# 48 File Text: AP DB5
303.9016 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 196



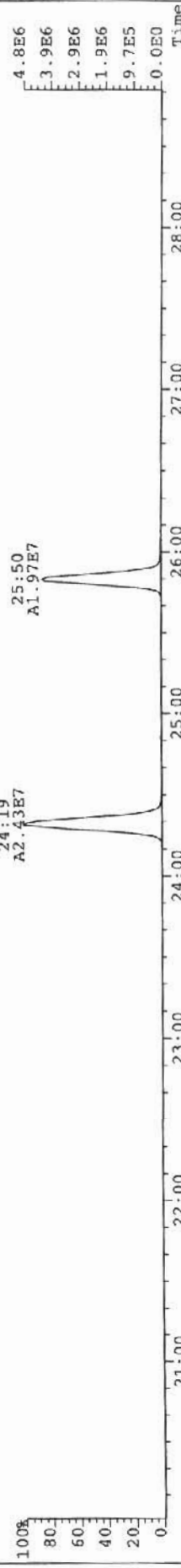
305.8987 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 239



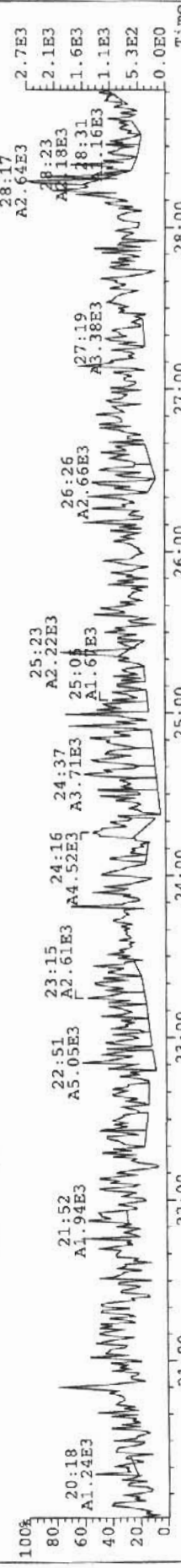
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 446



317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 428



375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 255



Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-125-FSFHCA2</u>	Date Sampled <u>05 Dec 05</u>
Lab Project ID <u>P6324</u>	Analysis File <u>060208P1S#6</u>
Client Project <u>AR030-125-FS</u>	Lab Sample ID <u>P6324_3829_002</u>
Date Received <u>01 Feb 06</u>	Batch ID <u>3829</u>
Date Extracted <u>02 Feb 06</u>	Matrix <u>Tissue</u>
Date Analyzed <u>08 Feb 06</u>	Sample Size <u>25.30 g</u>
Analyst <u>MC</u>	Dilution Factor <u>1</u>
	GC Column <u>DB5</u>
	ICAL ID <u>MM1_010606</u>
	VER File <u>060208P1S#1</u>
	OPR File <u>060208P1S#2</u>
	Blank File <u>060208P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.395		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.395		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

REJECTED
~~MISS INTERPRETATION~~
 Rasb...
 Mo 15 Feb 06

Georgia Pacific
AR030-125-FS P6324
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-125-FSFHCA2 Lab Sample ID P6324_3829_002

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	76.3	76.3	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	85.3	85.3	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	43.6	109	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

REJECTED

Client ID: AR030-125-FSFHCA2
 Lab ID: P6324_3829_002
 Sample text: P6324_3829_002 AR030-125-FSFHCA2 25.3g

Filename: 060208P1 S: 6 Acq: 8-FEB-06 10:26:19
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt./Vol: 25.300
 Vial: 49

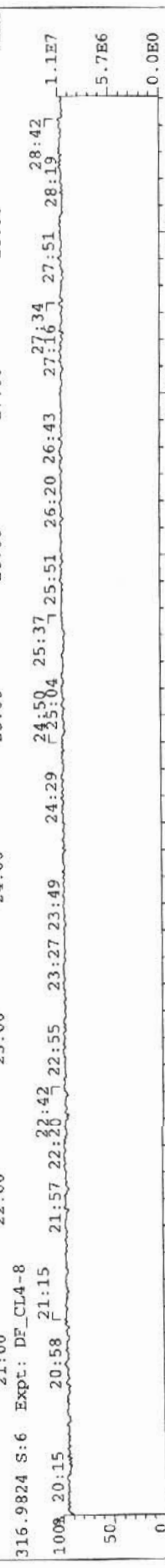
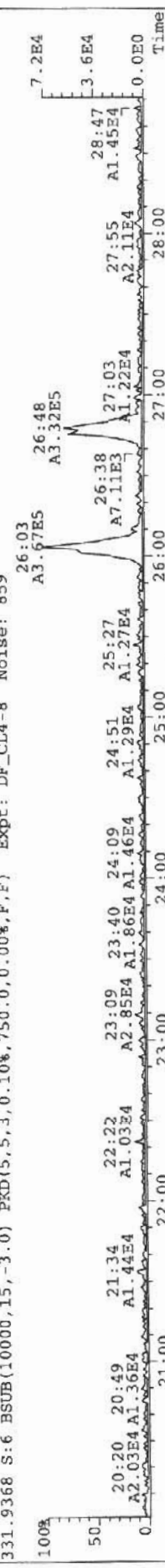
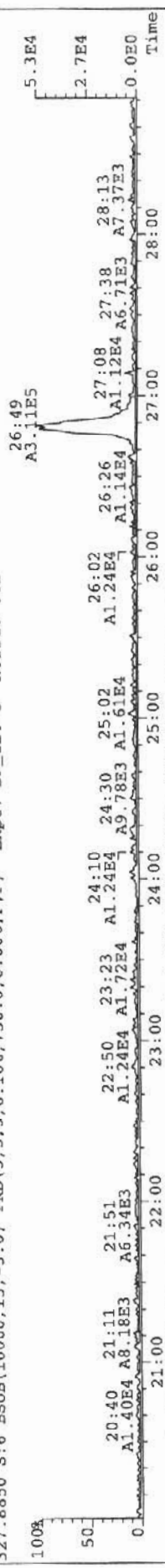
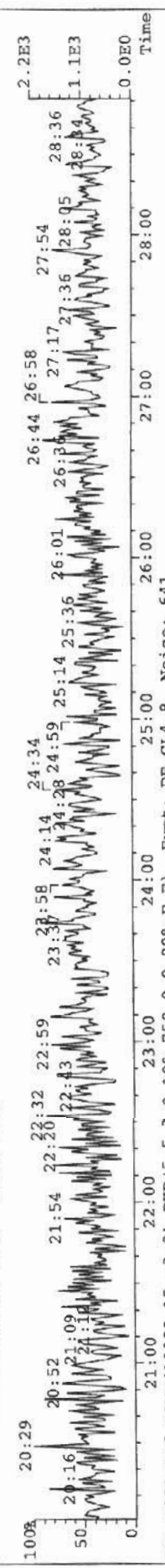
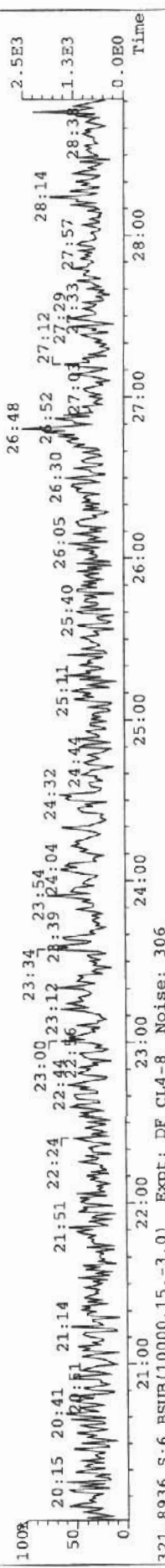
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	*	* n	1.00	NotF»	*		1501	2.5	4.51	-
AX	*	* n	0.86	NotF»	*		1713	2.5	4.09	-
ES	6.36e+05	0.92	1.03	26:48	60.3		3003	2.5	6.90	76.3
ES	9.15e+05	0.73	0.94	25:51	67.4		2771	2.5	5.18	85.3
JS/RT	8.05e+05	0.84	-	26:04	0.0736		3003	2.5	-	-
JS	1.14e+06	0.72	-	24:20	0.0714		2771	2.5	-	-
CS	3.11e+05	0.89	-	26:49	34.5				5.43	109

REJECTED

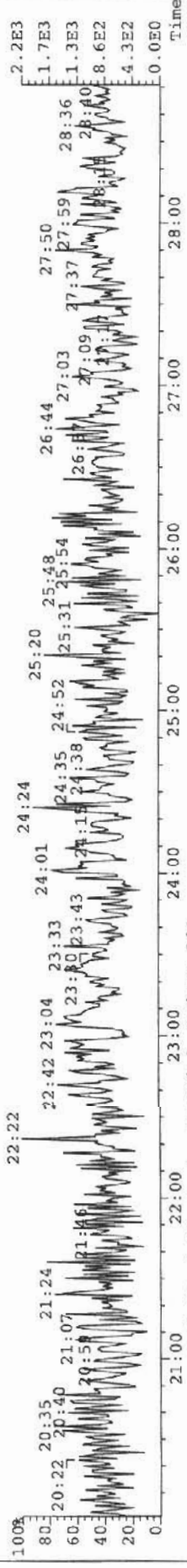
~~RES RETENTION~~
 Reseeed
 ml 15/2/06

Analyst: MM
 Date: 15/2/06

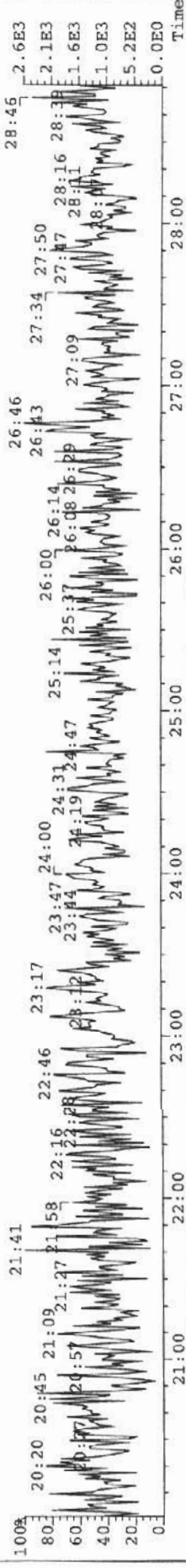
File: 060208P1 Acq: 8-FEB-2006 10:26:19 GC EI+ Voltage STR Autospec-UltimaE
Sample# 6 Text: P6324_3829_002 ARO30-125-FSFCA2 25.3g Vial# 49 File Text: AP DBS
319.8965 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 268



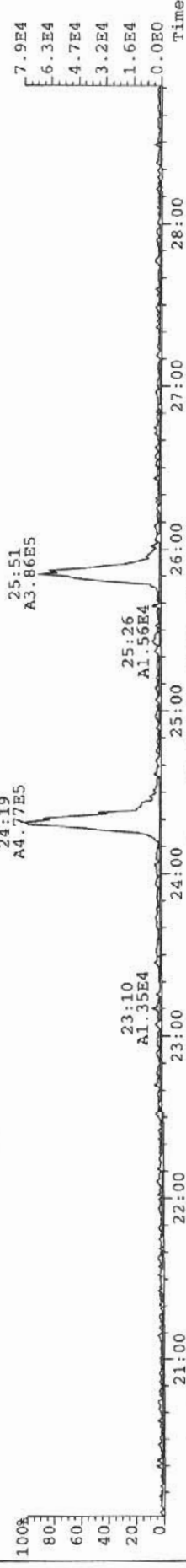
File: 060208P1 Acq: 8-FEB-2006 10:26:19 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: P6324_3829_002 AR030-125-FSPHCA2 25.3g Vial# 49 File Text: AP DB5
303.9016 S:6 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 275



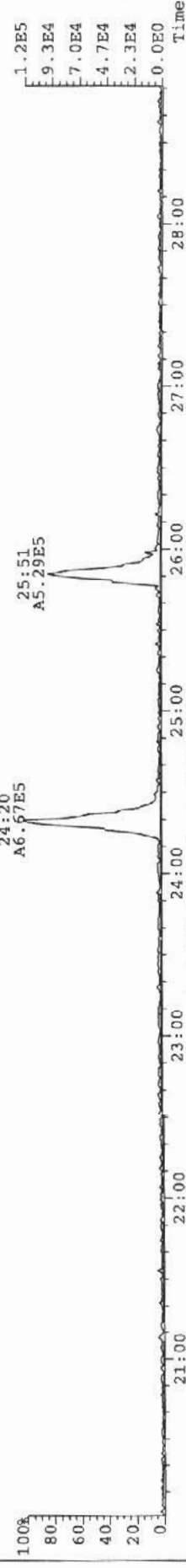
305.8987 S:6 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 364



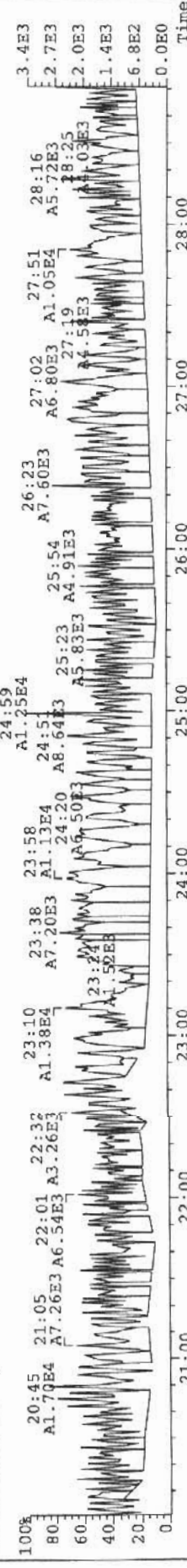
315.9419 S:6 BSub(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 567



317.9389 S:6 BSub(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 647



375.8364 S:6 BSub(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 476



016 5.8 06

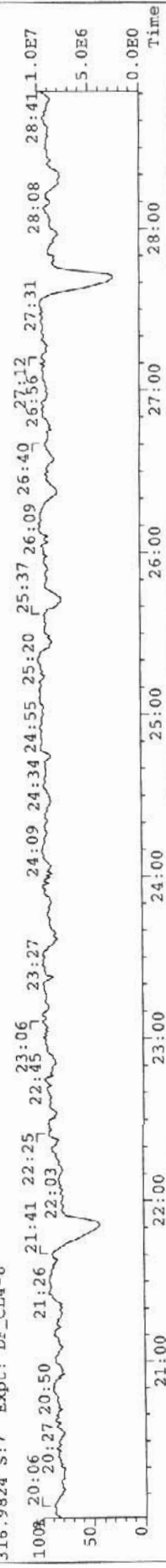
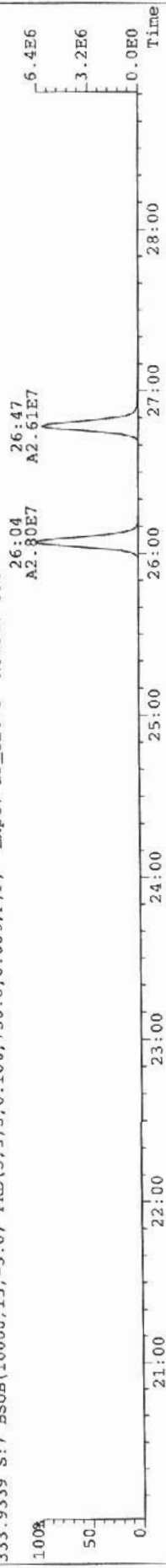
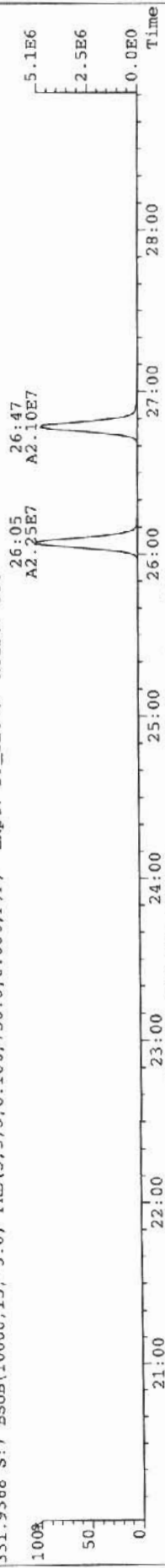
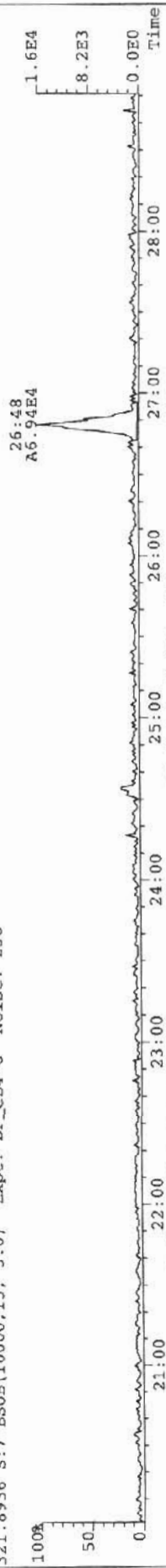
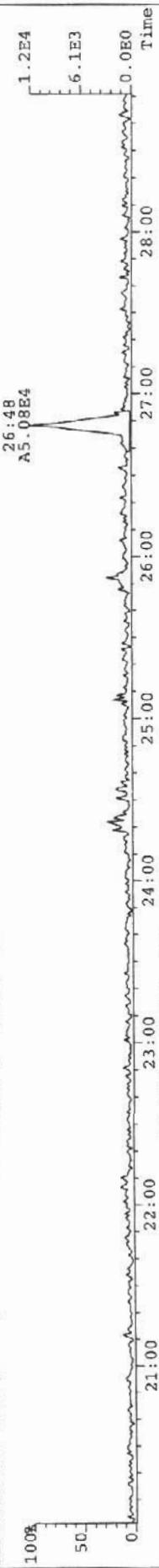
Client ID: AR030-125-FSCRAA3
 Lab ID: P6324_3829_003
 Sample text: P6324_3829_003 AR030-125-FSCRAA3 25.58g

Filename: 060208P1 S: 7 Acq: 8-FEB-06 11:16:36
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN Wt/Vol: 25.580
 Vial: 50

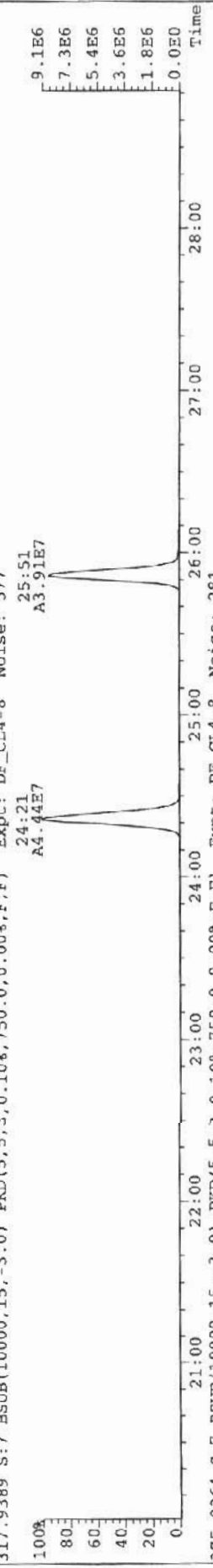
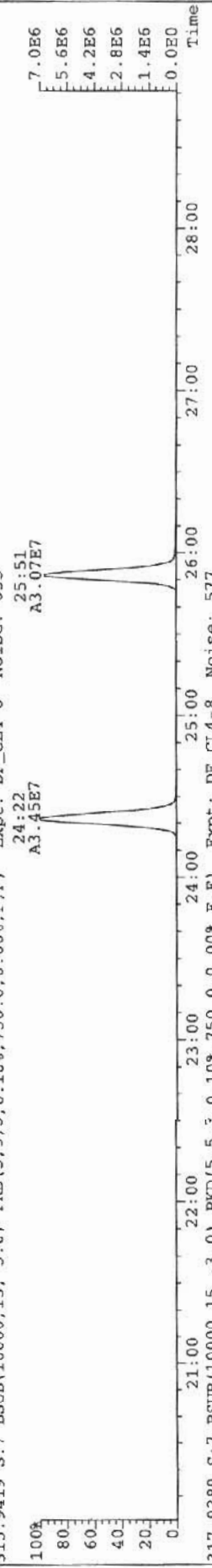
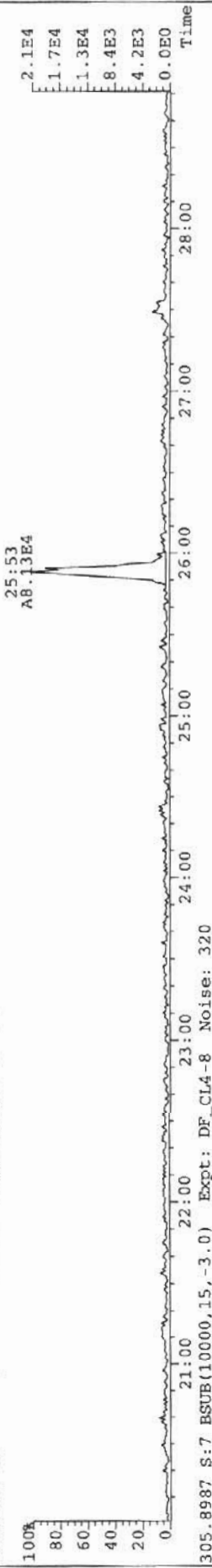
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.20e+05	0.73	1.06	26:48	0.200		922	2.5	0.0299	-
AX	2,3,7,8-TCDF 1.95e+05	0.72	0.86	25:53	0.253		1406	2.5	0.0370	-
ES	13C-2,3,7,8-TCDD 4.71e+07	0.81	1.03	26:47	70.5		1242	2.5	0.0370	90.2
ES	13C-2,3,7,8-TCDF 6.97e+07	0.78	0.94	25:52	73.6		1925	2.5	0.0444	94.2
JS/RT	13C-1,2,3,4-TCDD 5.05e+07	0.80	-	26:04	4.56		1242	2.5	-	-
JS	13C-1,2,3,4-TCDF 7.89e+07	0.78	-	24:22	4.87		1925	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 2.00e+07		0.89	26:48	34.9				0.0545	112

Analyst: *MM*
 Date: *5/16/06*

File: 060208P1 Acq: 8-FEB-2006 11:16:36 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P6324_3829_003 AR030-125-FSCRAA3 25.58g Vial# 50 File Text: AP DB5
319.8965 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 209



File: 060208PI Acq: 8-FEB-2006 11:16:36 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P6324_3829_003 AR030-125-PCRAA3 25.58g Vial# 50 File Text: AP DB5
303.9016 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 202



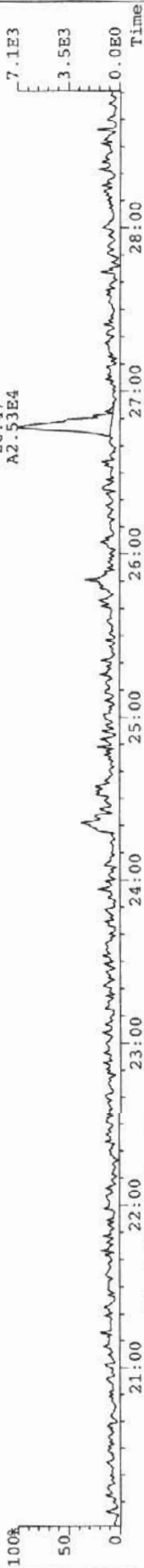
Client ID: AR030-125-FSCRAA4
 Lab ID: P6324_3829_004
 Sample text: P6324_3829_004 AR030-125-FSCRAA4 25.43g

Filename: 060208P1 S: 8 Acq: 8-FEB-06 12:06:54
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN* Wt/Vol:25.430
 Vial: 51

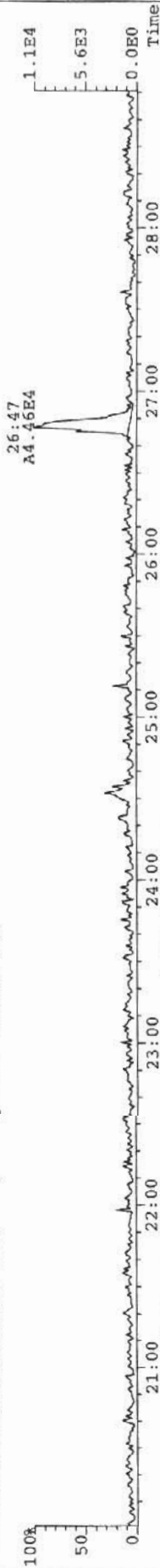
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD 5.83e+04	0.57	1.00	26:48	0.128		965	2.5	0.0420	-
Ax	2,3,7,8-TCDF 1.10e+05	0.68	0.86	25:53	0.180		1196	2.5	0.0386	-
ES	13C-2,3,7,8-TCDD 3.58e+07	0.80	1.03	26:47	55.8		2669	2.5	0.0817	71.0
ES	13C-2,3,7,8-TCDF 5.57e+07	0.78	0.94	25:51	61.0		2283	2.5	0.0536	77.5
JS/RT	13C-1,2,3,4-TCDD 4.88e+07	0.81	-	26:04	4.43		2669	2.5	-	-
JS	13C-1,2,3,4-TCDF 7.65e+07	0.76	-	24:22	4.75		2283	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 1.96e+07	0.89	0.89	26:48	35.6				0.0731	113

Analyst: 
 Date: 15/8/06

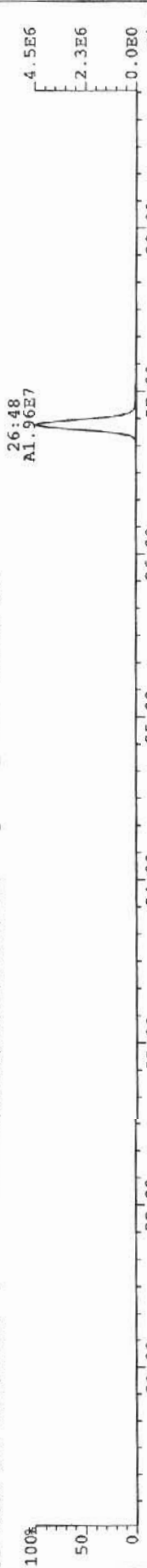
File: 060208P1 Acq: 8-FEB-2006 12:06:54 GC EI+ Voltage SIR Autospec-Ultima
Sample# 8 Text: P6324_3829_004 ARO30-125-FSCRAA4 25.43g Vial# 51 File Text: AP DB5
319.8965 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 196



321.8936 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 238



327.8850 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 294



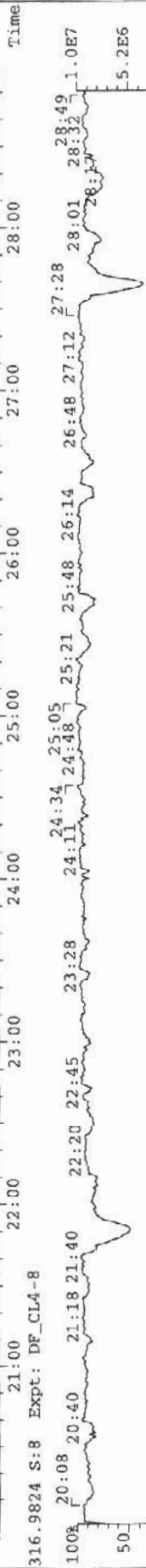
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 899



333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 497



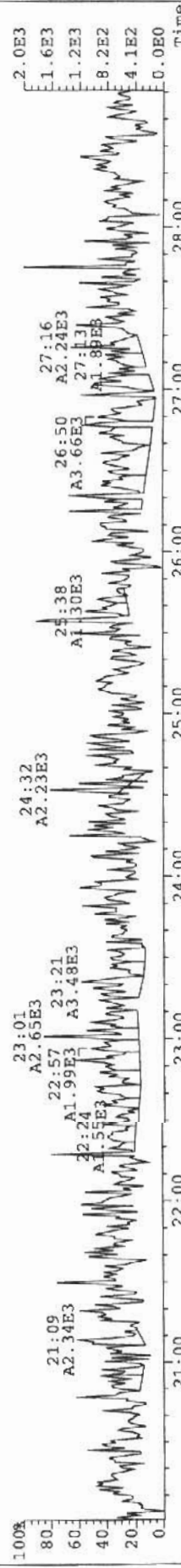
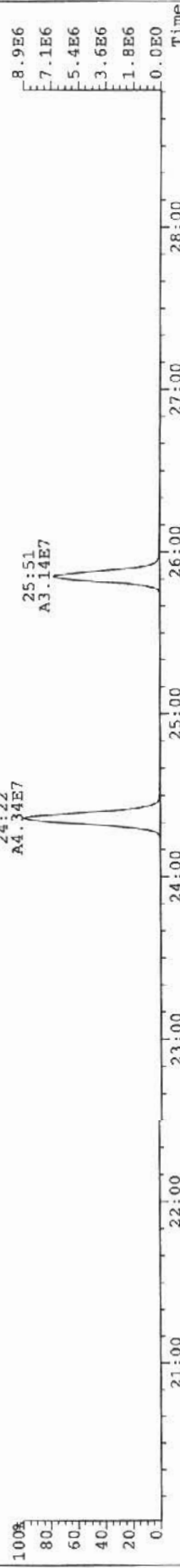
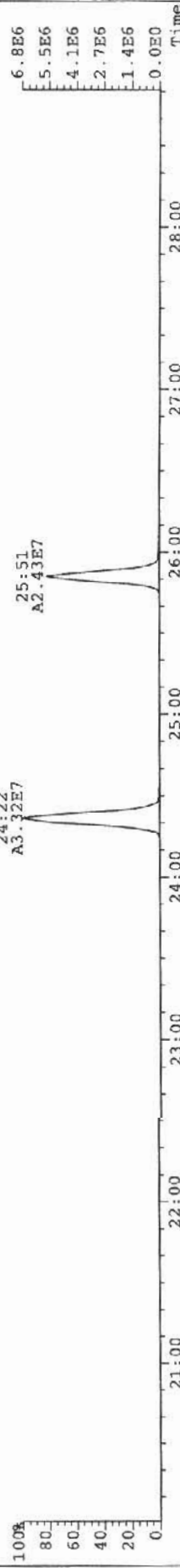
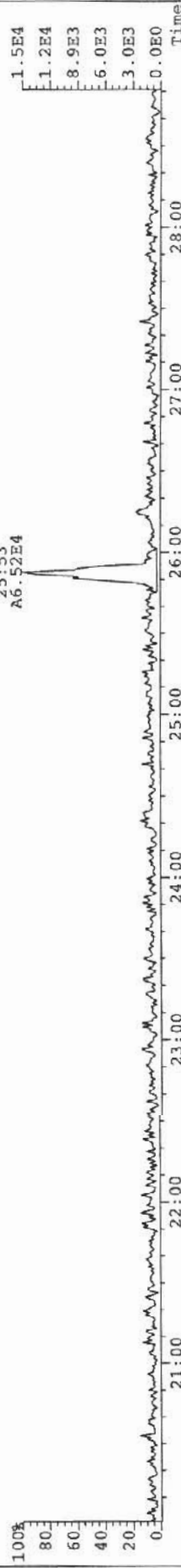
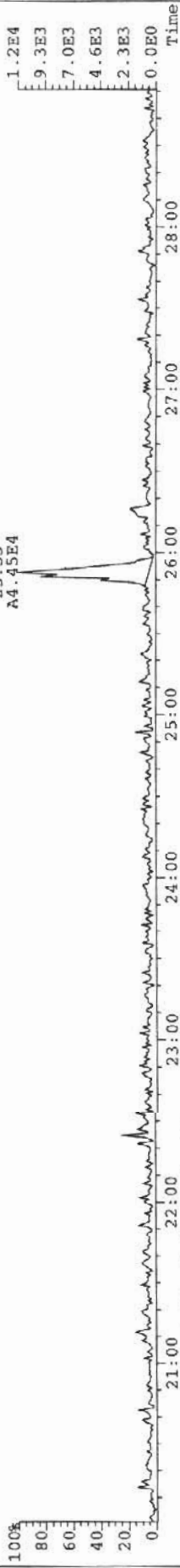
316.9824 S:8 Expt: DF_CL4-8



319.8965 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 196



File: 060203PI Acq: 8-FEB-2006 12:06:54 GC EI+ Voltage SIR Autospec-Utima
Sample# 8 Text: P6324_3829_004 AR030-125-FSCRAA4 25.439 Vial# 51 File Text: AP DB5
303.9016 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 196



16 Feb 06

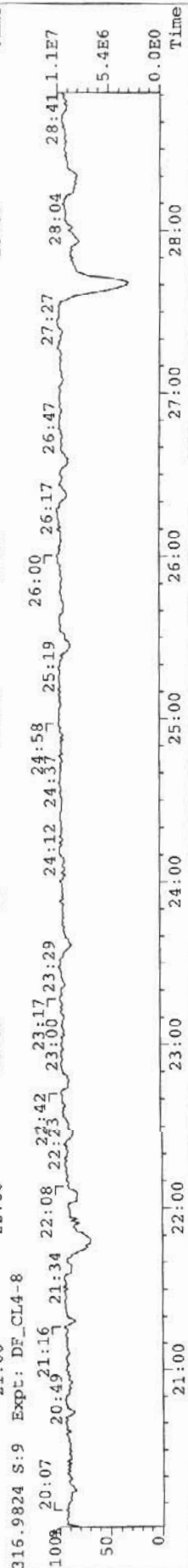
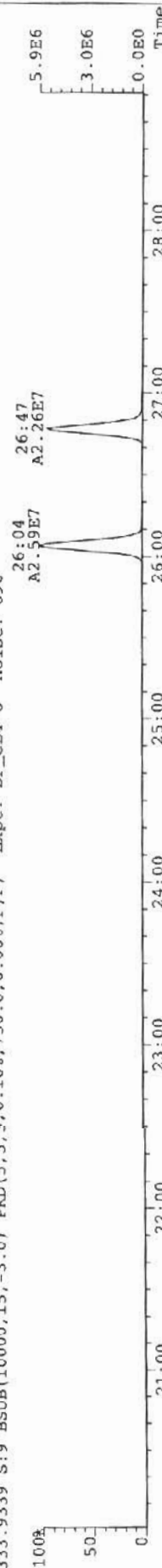
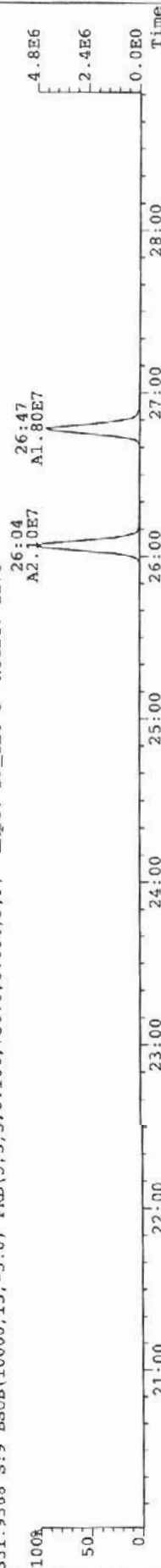
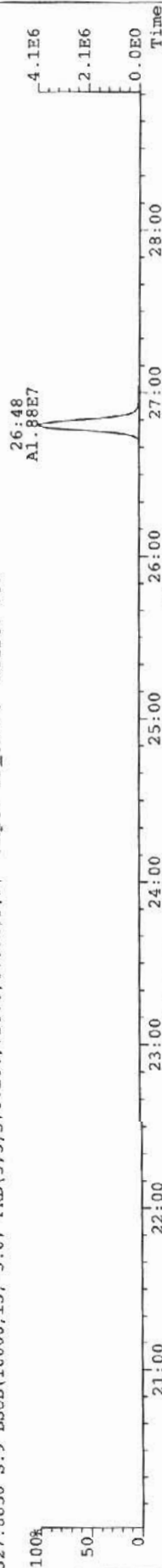
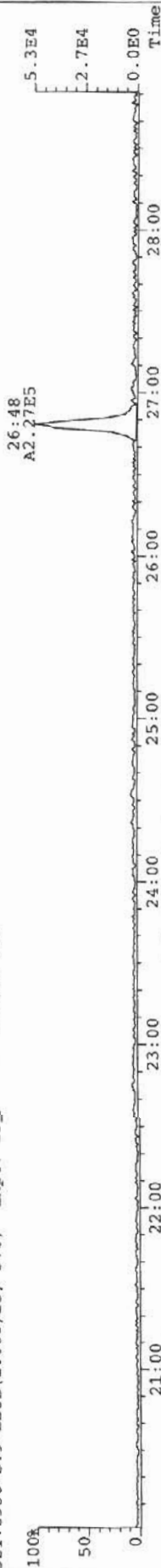
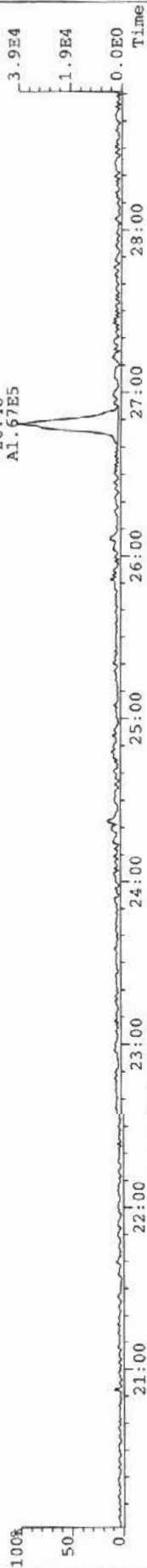
Client ID: ARO30-125-FSBCA5
 Lab ID: P6324_3829_005
 Sample text: P6324_3829_005 ARO30-125-FSBCA5 25.53g

Filename: 060208P1 S: 9 Acq: 8-FEB-06 12:57:10
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN Wt/Vol: 25.530
 Vial: 52

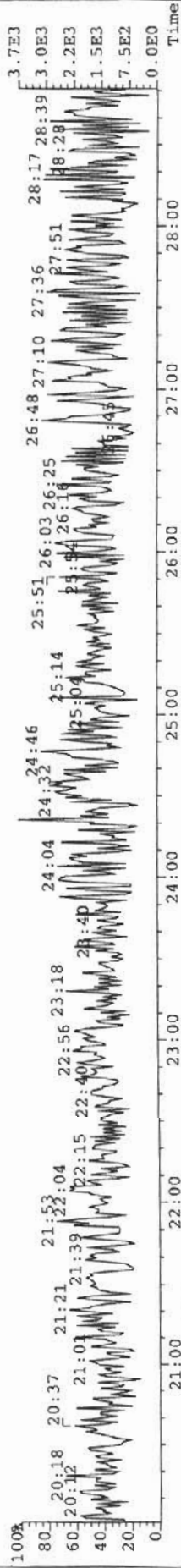
AX	ES	ES	JS/RT	JS	CS
2,3,7,8-TCDD	2,3,7,8-TCDD	2,3,7,8-TCDF	13C-2,3,7,8-TCDD	13C-2,3,7,8-TCDF	37Cl-2,3,7,8-TCDD
3.94e+05	4.06e+07	6.11e+07	4.06e+07	6.11e+07	1.88e+07
0.73	0.80	0.77	0.81	0.76	0.89
1.00	1.03	0.94	-	-	0.89
26:48	26:47	25:51	26:04	24:22	26:48
0.762	65.6	69.5	4.24	4.54	35.4
941 2.5	3275 2.5	3029 2.5	3275 2.5	3029 2.5	0.0954
0.0337	0.106	0.0749	-	-	113
0.0882	83.7	88.7	-	-	

Analyst: *ML*
 Date: 15 Feb 06

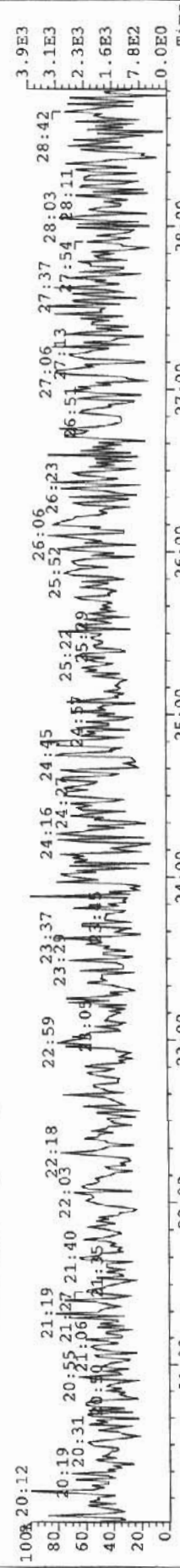
File: 060208P1 Acq: 3-FEB-2006 12:57:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 9 Text: P6324_3829_005 AR030-125-FSBCA5 25.53g Vial# 52 File Text: AP DB5
319.8965 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 499



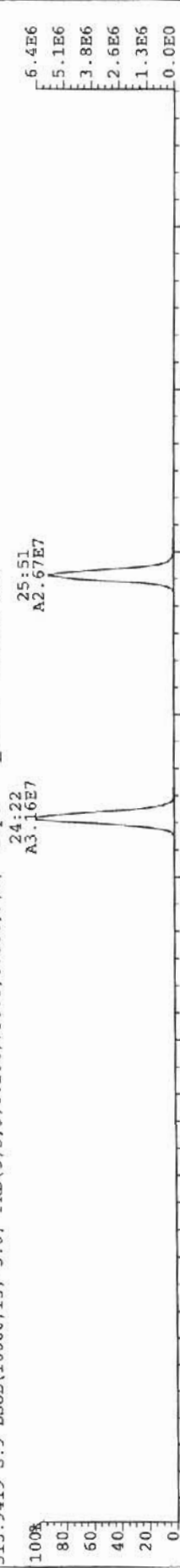
File: 060208PI Acq: 8-FEB-2006 12:57:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 9 Text: F6324_3829_005 AR030-125-F5BCA5 25.53g Vial# 52 File Text: AP DB5
303.9016 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 499



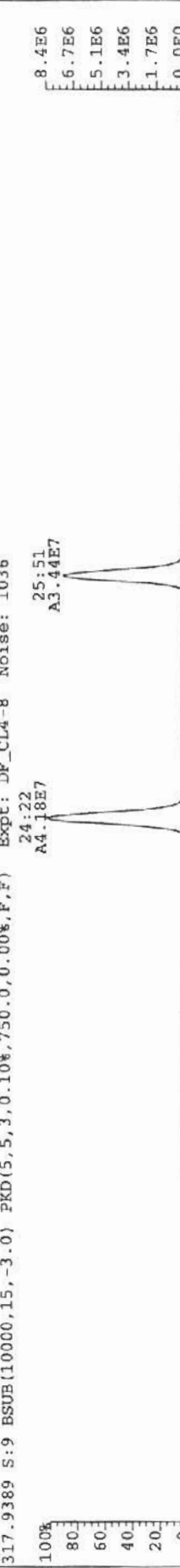
305.8987 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 571



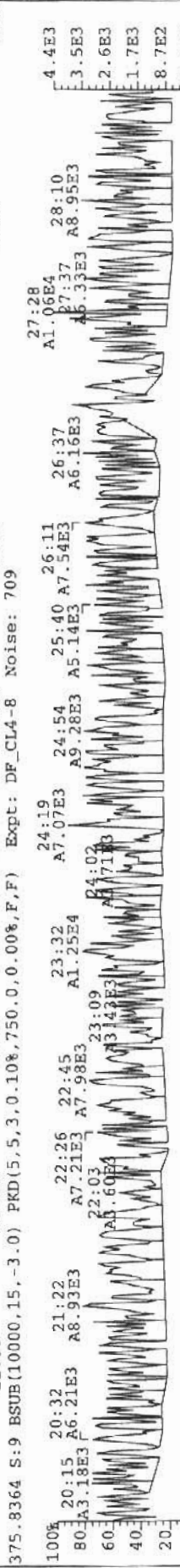
315.9419 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 919



317.9389 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1036



375.8364 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 709



375.8364 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 709

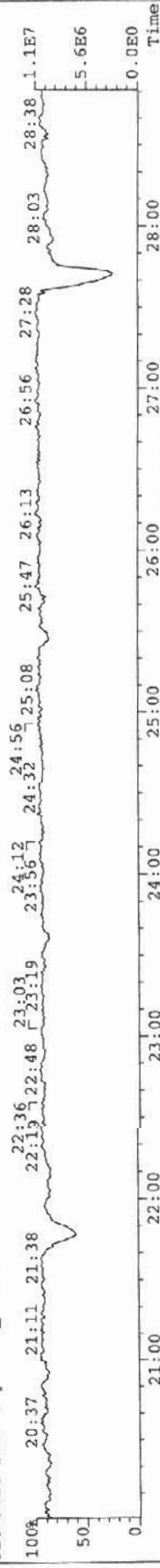
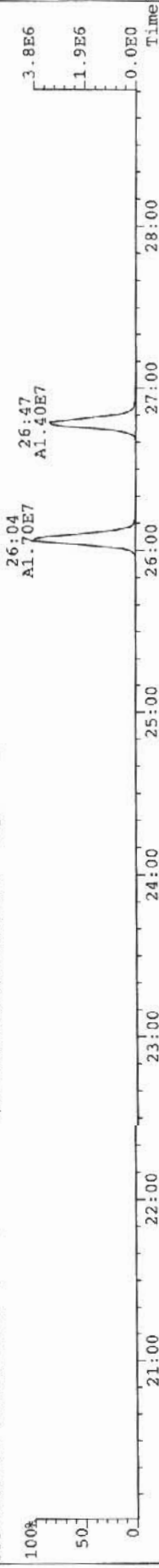
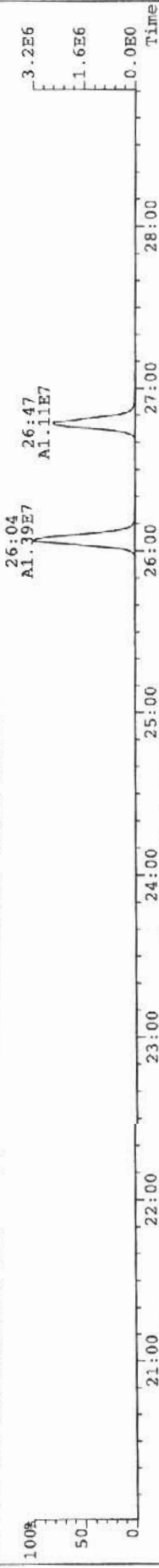
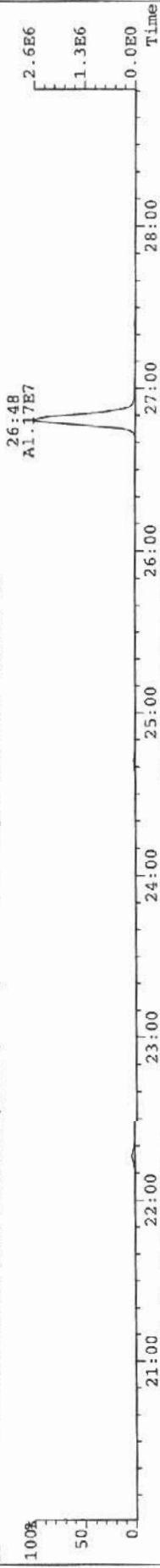
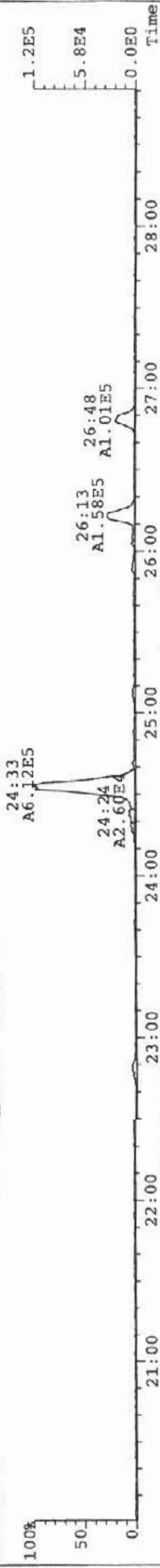
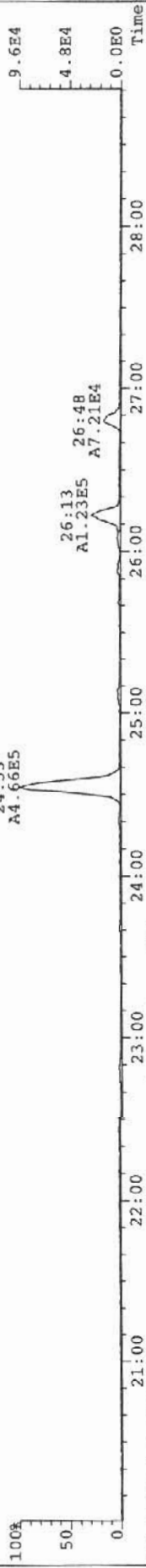
031654-04

Client ID: ARO30-125-FSSMBA6
 Lab ID: P6324_3829_006
 Sample text: P6324_3829_006 ARO30-125-FSSMBA6 25.44g
 Filename: 060208P2 S: 4 Acq: 8-FEB-06 16:26:01
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt/Vol:25.440
 Vial: 53

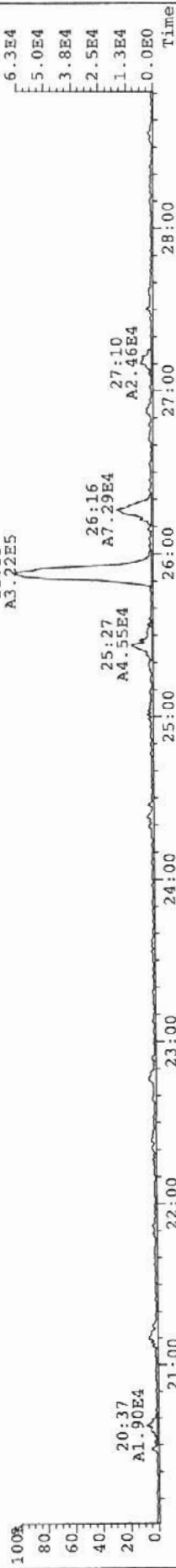
	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	1.73e+05	0.71	1.06	26:49	0.543		1354	2.5	0.0837	-
Ax	2,3,7,8-TCDF	7.24e+05	0.80	0.86	25:53	1.81		1781	2.5	0.0916	-
ES	13C-2,3,7,8-TCDD	2.51e+07	0.80	1.03	26:47	61.8		2100	2.5	0.105	78.6
ES	13C-2,3,7,8-TCDF	3.65e+07	0.78	0.94	25:52	64.6		3571	2.5	0.139	82.1
JS/RT	13C-1,2,3,4-TCDD	3.09e+07	0.82	-	26:04	2.81		2100	2.5	-	-
JS	13C-1,2,3,4-TCDF	4.74e+07	0.77	-	24:22	2.94		3571	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	1.17e+07	0.88	-	26:49	33.5				0.125	107

Analyst: 
 Date: 1/5/06

File: 060208P2 Acq: 8-FEB-2006 16:26:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: P6324_3829_006 AR030-125-FSSMBA6 25.44g Vial# 53 File Text: AP DB5
319.8965 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 216



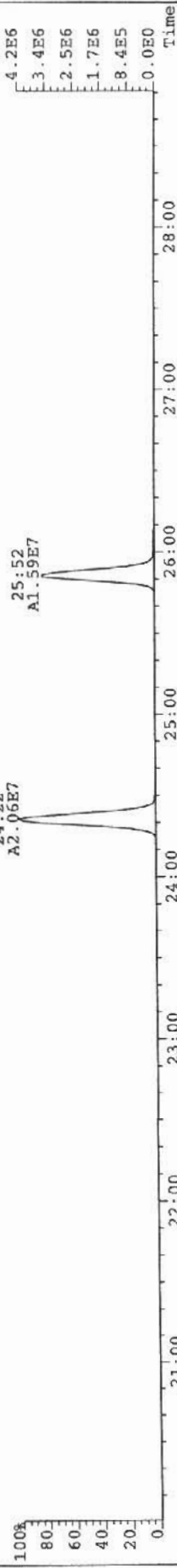
File: 060208P2 Acq: 8-FEB-2006 16:26:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: P6324_3829_006 AR030-125-FSSMBA6 25.44g Vial# 53 File Text: AP DB5
303.9016 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 247



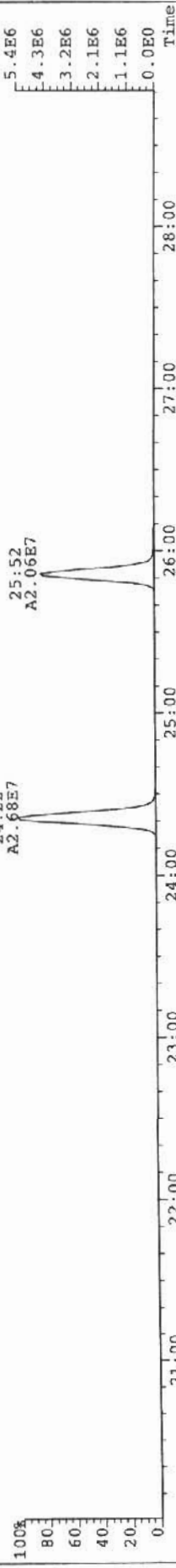
305.8987 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 384



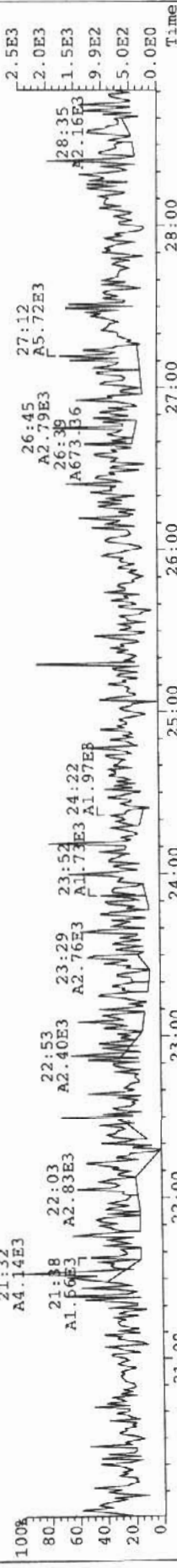
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 541



317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 520



375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 215



15-FEB-2006 09:42

OPUSquan on MMI

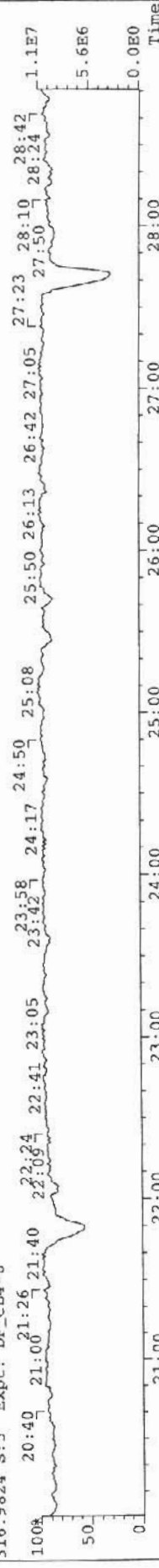
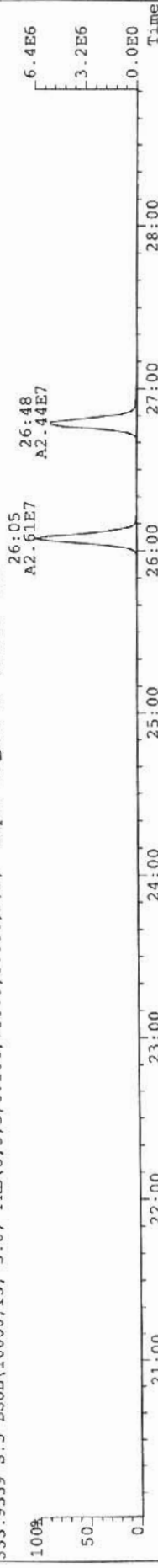
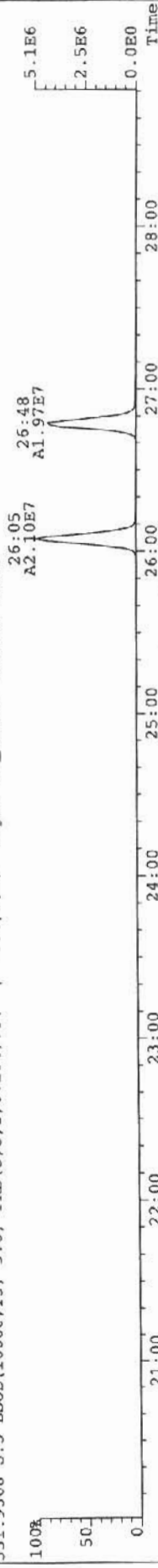
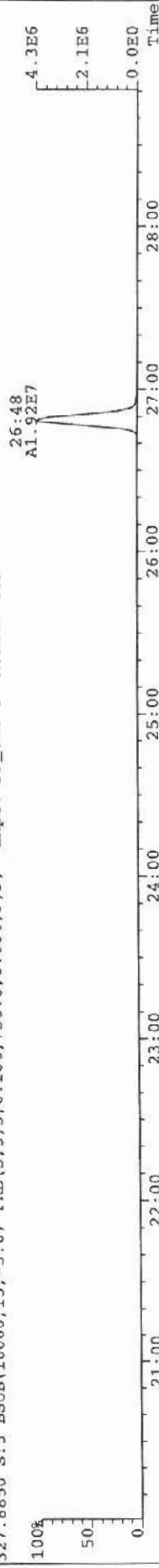
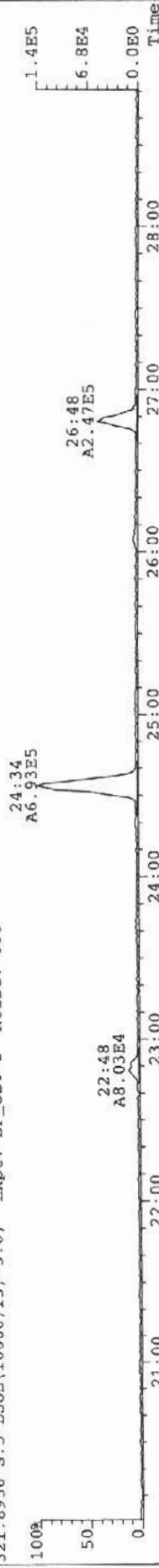
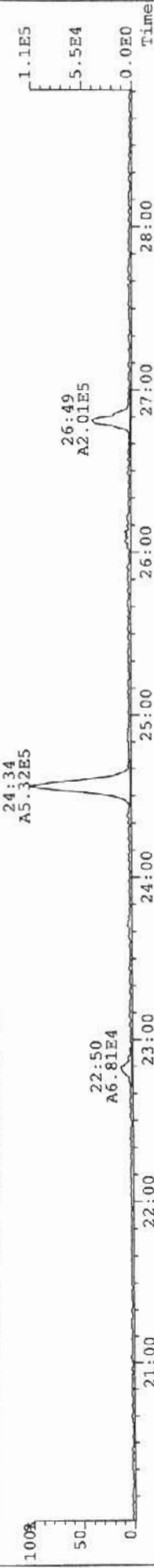
Client ID: ARC030-125-FSLMBB1
 Lab ID: P6324_3829_007
 Sample text: P6324_3829_007 AR030-125-FSLMBB1 25.59g

Filename: 060208P2 S: 5 Acq: 8-FEB-06 17:16:17
 GC Column ID: db-5 ICal: MMI_DF_010606_25JAN* Wt/Vol: 25.590
 Vial: 54

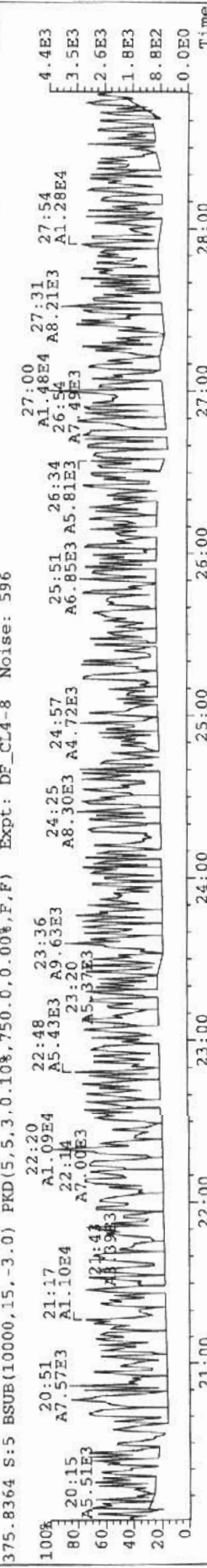
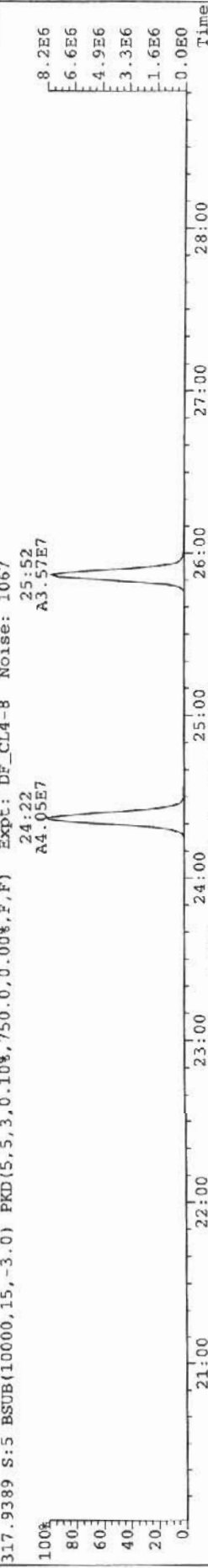
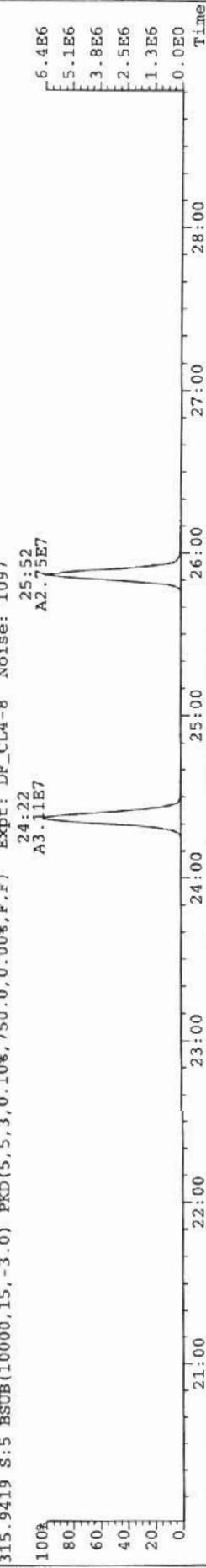
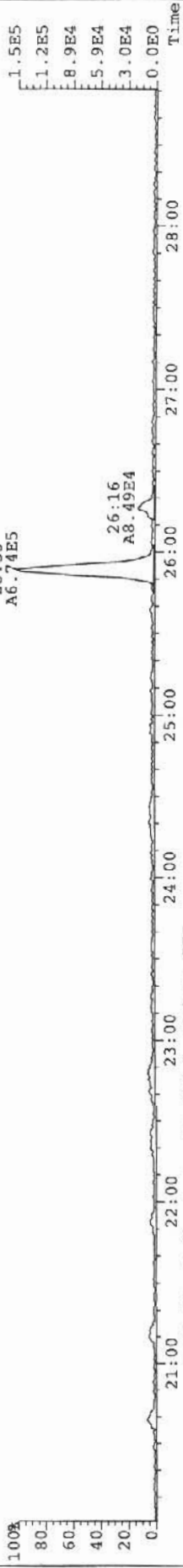
Name	Resp	RA	RRF	RT	Conc	Qual	noise Fac	DL	Rec
AX	4.48e+05	0.81	1.00	26:49	0.797		2371 2.5	0.0850	-
AX	1.57e+06	0.75	0.86	25:53	2.25		2689 2.5	0.0760	-
ES	4.40e+07	0.81	1.04	26:48	70.6		4322 2.5	0.129	90.4
ES	6.32e+07	0.77	0.94	25:52	73.5		4284 2.5	0.108	94.1
JS/RT	4.71e+07	0.80	-	26:05	4.25		4322 2.5	-	-
JS	7.16e+07	0.77	-	24:22	4.42		4284 2.5	-	-
CS	1.92e+07		0.89	26:49	36.0			0.106	115

Analyst: 
 Date: 

File: 060208P2 Acq: 8-FEB-2006 17:16:17 GC EI+ Voltage SIR Autospec-UtimaE
Sample# 5 Text: P6324_3829_007 AR030-125-FSLMBB1 25.59g Vial# 54 File Text: AP DB5
319.8965 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 675



File: 060208F2 Acq: 8-FEB-2006 17:16:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P6324_3829_007 AR030-125-FS1MB1 25.59g Vial# 54 File Text: AP DB5
303.9016 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 729



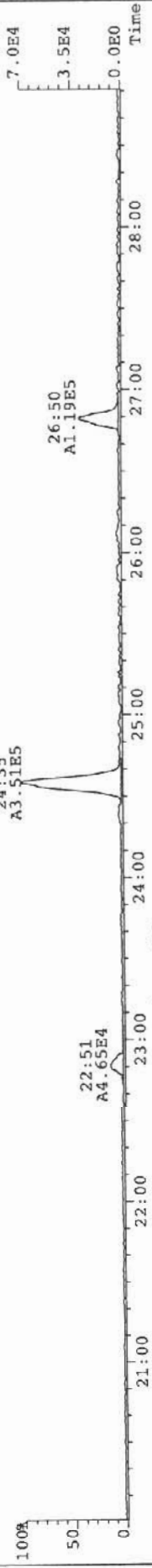
Client ID: ARO30-125-FSSMBB2
 Lab ID: P6324_3829_008
 Sample text: P6324_3829_008 ARO30-125-FSSMBB2 25.37g

Filename: 060208P2 S: 6 Acq: 8-FEB-06 18:06:34
 GC Column ID: db-5 ICAL: MM1_DF_010606_25JAN» Wt/Vol:25.370
 Vial: 55

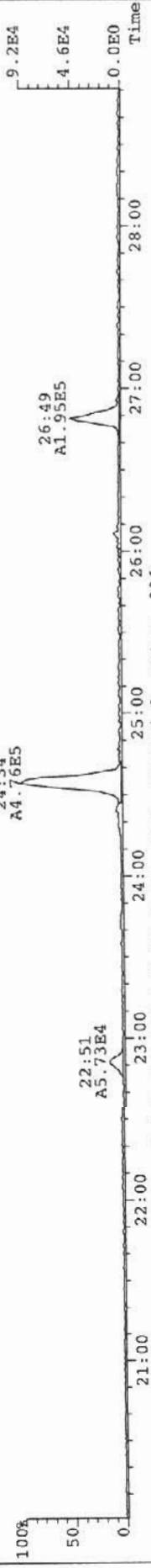
	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	2.74e+05	0.61	1.00	26:49	0.466		1121	2.5	0.0361	-
Ax	2,3,7,8-TCDF	1.58e+06	0.75	0.86	25:54	2.15		1718	2.5	0.0459	-
ES	13C-2,3,7,8-TCDD	4.65e+07	0.79	1.01	26:48	68.2		3370	2.5	0.103	86.5
ES	13C-2,3,7,8-TCDF	6.74e+07	0.78	0.94	25:53	72.0		3253	2.5	0.0755	91.4
JS/RT	13C-1,2,3,4-TCDD	5.20e+07	0.81	-	26:05	4.74		3370	2.5	-	-
JS	13C-1,2,3,4-TCDF	7.87e+07	0.78	-	24:23	4.90		3253	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	2.08e+07		0.89	26:49	35.6				0.0897	113

Analyst: 
 Date: 

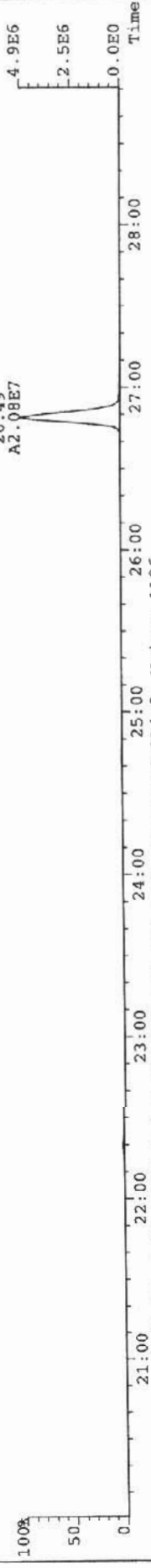
File: 060208P2 Acq: 8-FEB-2006 18:06:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: P6324_3829_008 ARO30-125-FSSMBB2 25.37g Vial# 55 File Text: AP DB5
319.8965 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 450



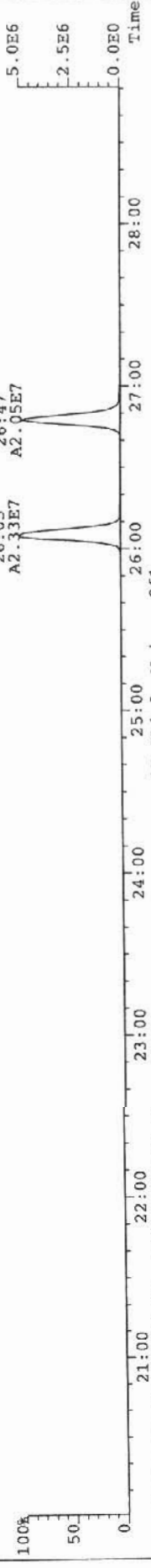
321.8936 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 516



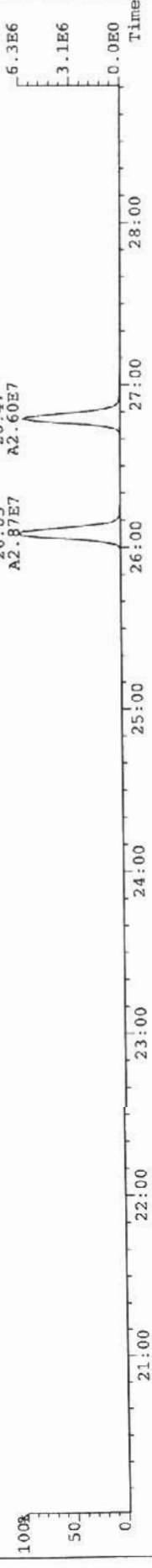
327.8850 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 806



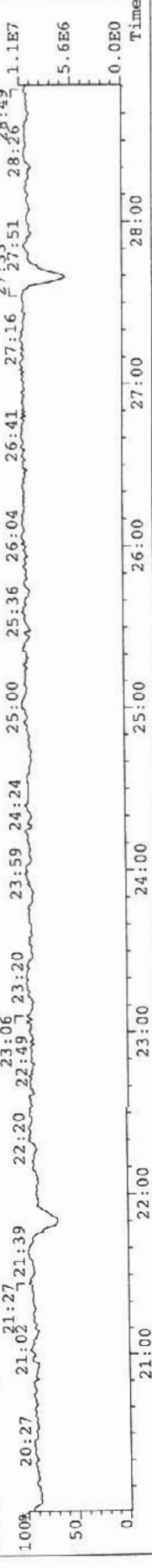
331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1196



333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 861



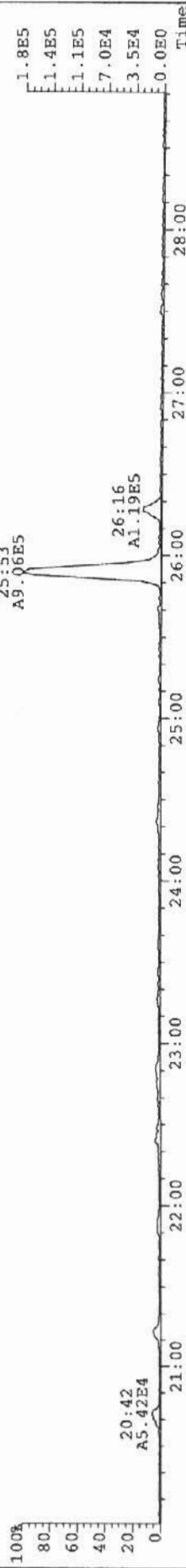
316.9824 S:6 Expt: DF_CL4-8



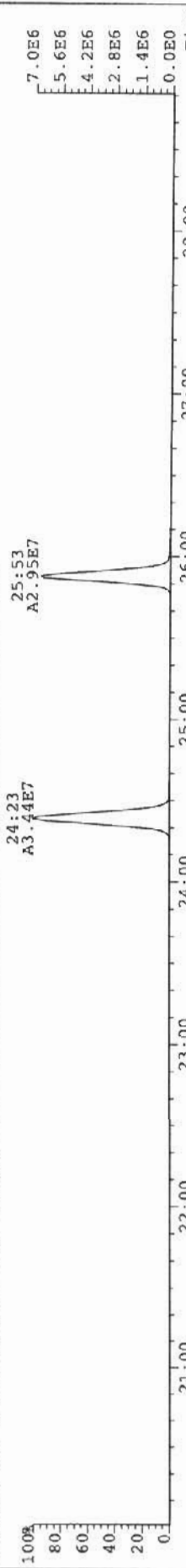
File: 060208P2 Acq: 8-FEB-2006 18:06:34 GC EI+ Voltage SIR Autospec-Ultimate
 Sample# 6 Text: P6324_3829_008 AR030-125-FSSMB2 25.37g Vial# 55 File Text: AP DB5
 303.9016 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 423



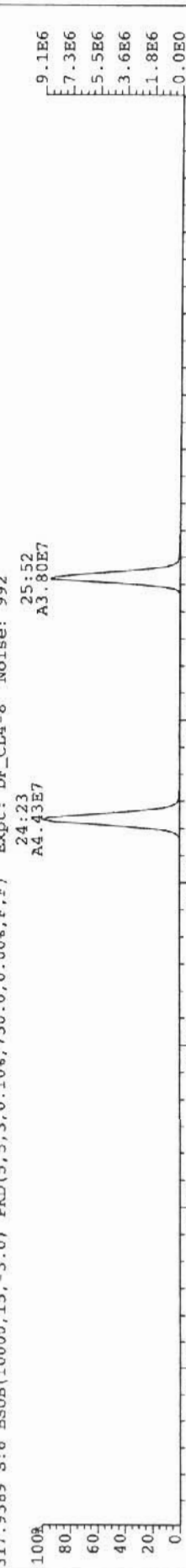
305.8987 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 512



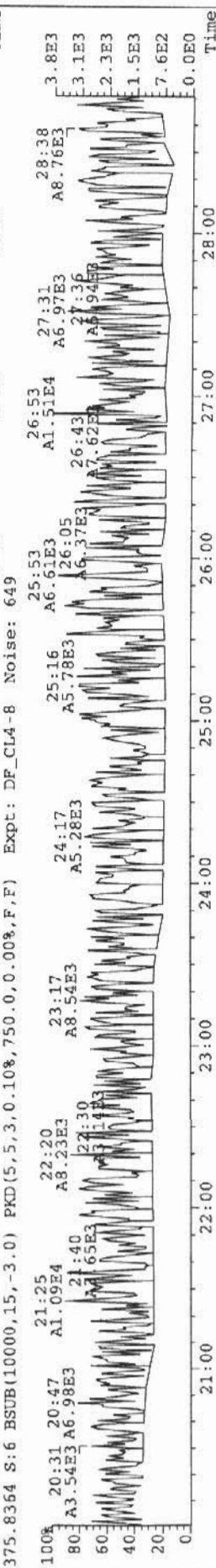
315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1080



317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 992



375.8354 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 649



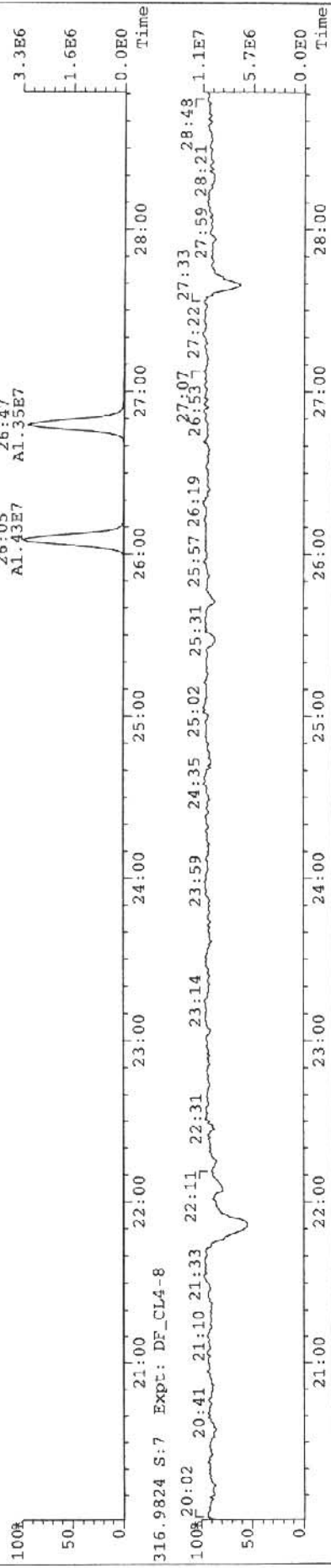
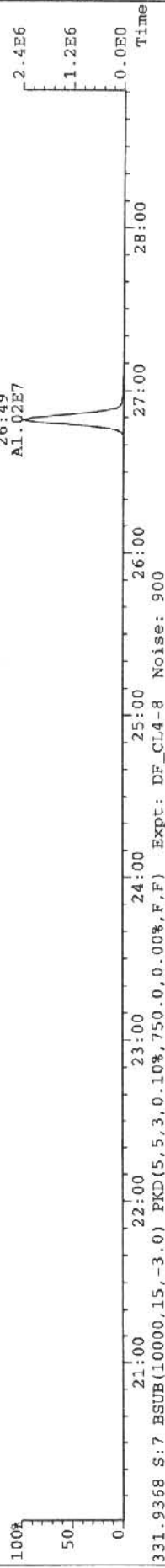
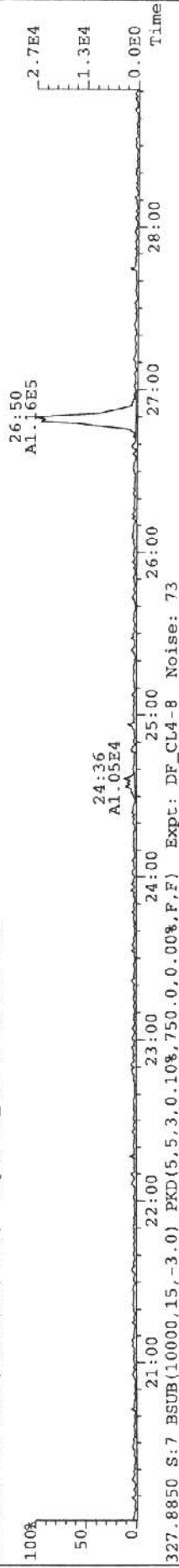
Client ID: AR030-125-FSECB3
 Lab ID: P6324_3829_009
 Sample text: P6324_3829_009 AR030-125-FSECB3 25.21g

Filename: 060208P2 S: 7 Acq: 8-FEB-06 18:56:50
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN* Wt/Vol:25.210
 Vial: 56

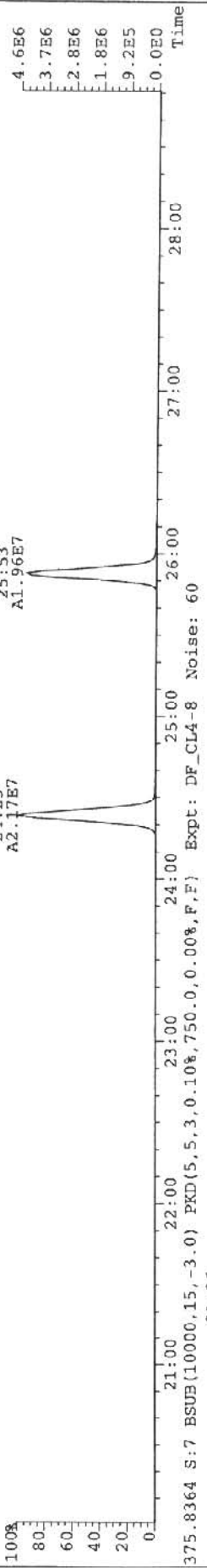
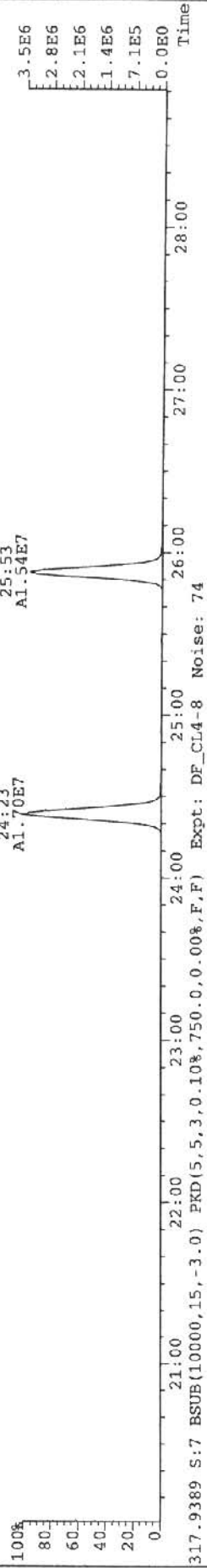
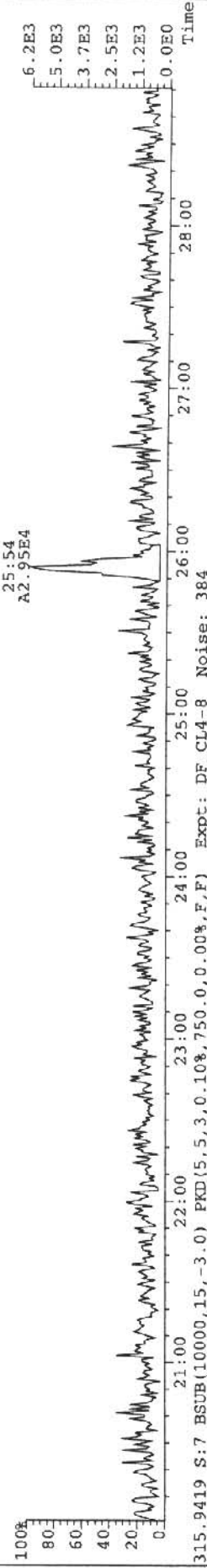
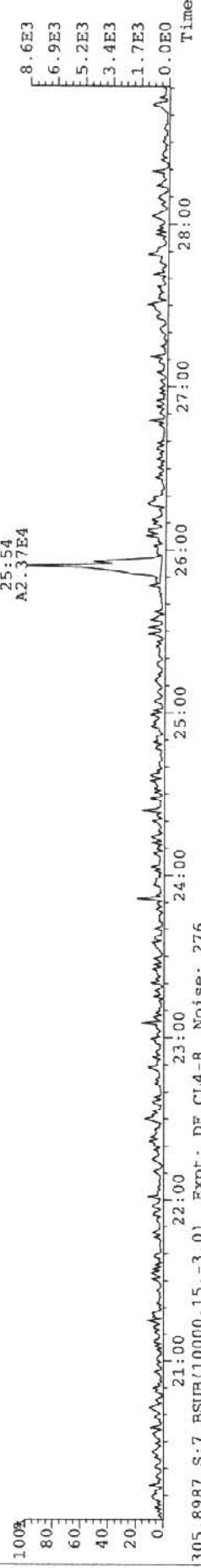
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	1.98e+05	0.71	26:49	0.653		930	2.5	0.0590	-
Ax	2,3,7,8-TCDF	5.32e+04	0.80	25:54	0.140		1603	2.5	0.0851	-
ES	13C-2,3,7,8-TCDD	2.42e+07	0.79	26:48	71.5		2321	2.5	0.136	90.1
ES	13C-2,3,7,8-TCDF	3.50e+07	0.78	25:53	76.5		2255	2.5	0.105	96.5
JS/RT	13C-1,2,3,4-TCDD	2.59e+07	0.81	26:05	2.38		2321	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.87e+07	0.78	24:24	2.43		2255	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	1.02e+07	0.89	26:49	35.2				0.0800	111

Analyst: 
 Date: 15 Feb 06

File: 060208P2 Acq: 8-FEB-2006 18:56:50 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P6324_3829_009 AR030-125-FS9CB3 25.21g Vial# 56 File Text: AP DB5
319.8965 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 120



File: 060208P2 Acq: 8-FEB-2006 18:56:50 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 7 Text: P6324_3829_009 AR030-125-FSBCB3 25.21g Vial# 56 File Text: AP DB5
 303.9016 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 58



12 51 06

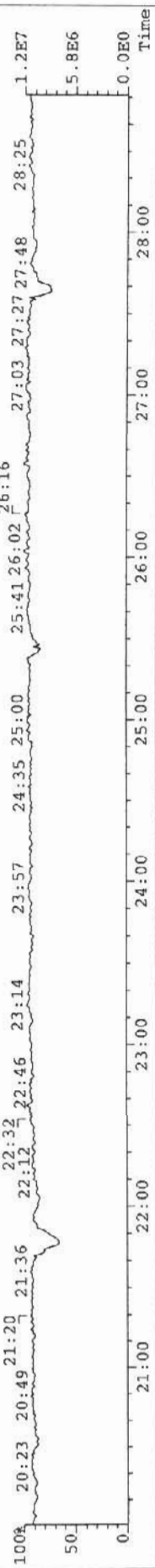
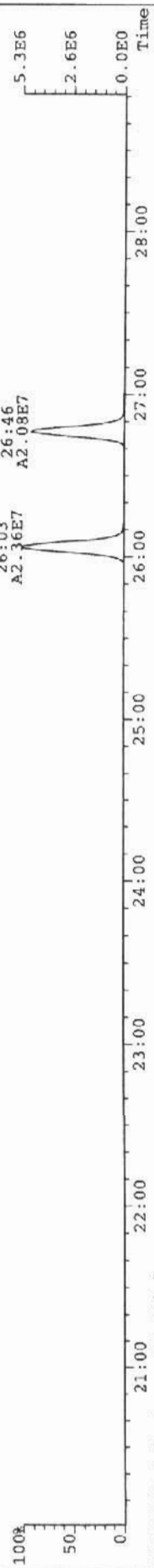
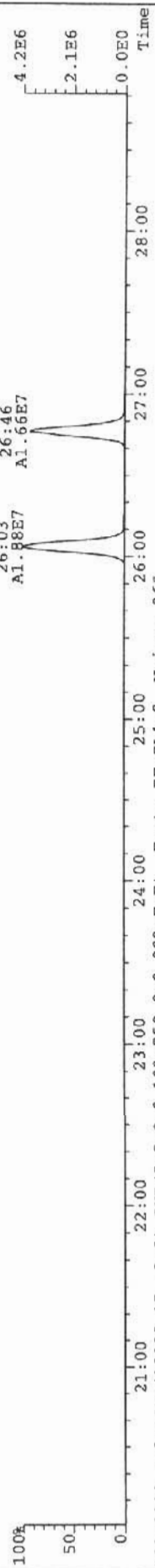
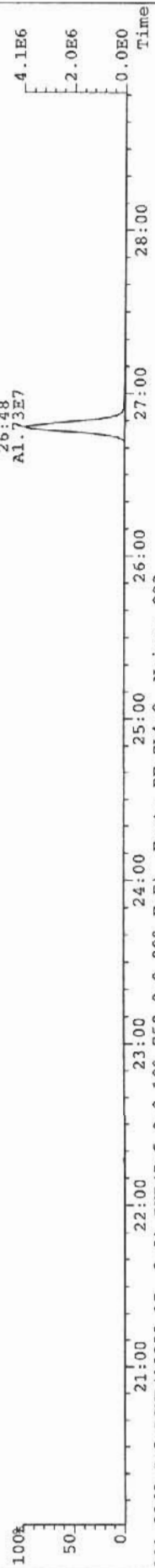
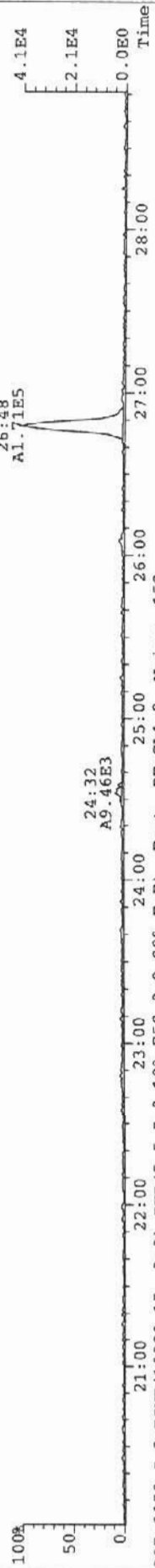
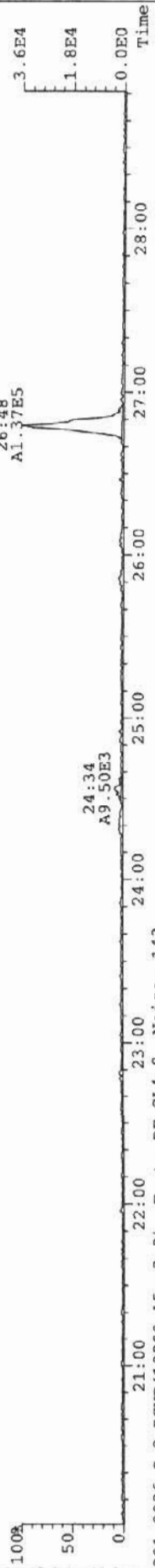
Client ID: AR030-125-FSFHCB4
 Lab ID: P6324_3829_010
 Sample text: P6324_3829_010 AR030-125-FSFHCB4 25.21g

Filename: 060208P2 S: 8 Acq: 8-FEB-06 19:47:01
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN> Wt./Vol:25.210
 Vial: 57

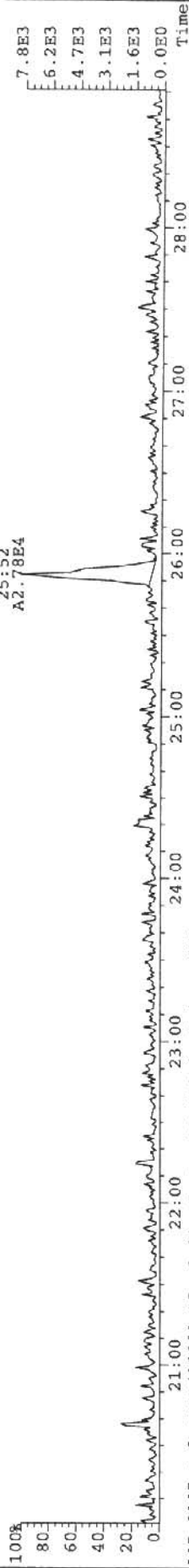
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	3.08e+05	0.80	26:48	0.654		792	2.5	0.0324	-
Ax	2,3,7,8-TCDF	6.39e+04	0.54	25:52	0.109		1261	2.5	0.0427	-
ES	13C-2,3,7,8-TCDD	3.74e+07	0.80	26:46	67.6		2529	2.5	0.0920	85.2
ES	13C-2,3,7,8-TCDF	5.37e+07	0.78	25:51	70.4		1494	2.5	0.0423	88.8
JS/RT	13C-1,2,3,4-TCDD	4.25e+07	0.80	26:03	3.90		2529	2.5	-	-
JS	13C-1,2,3,4-TCDF	6.45e+07	0.77	24:21	4.04		1494	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	1.73e+07	0.89	26:48	36.3				0.0739	114

Analyst: 
 Date: 15/02/06

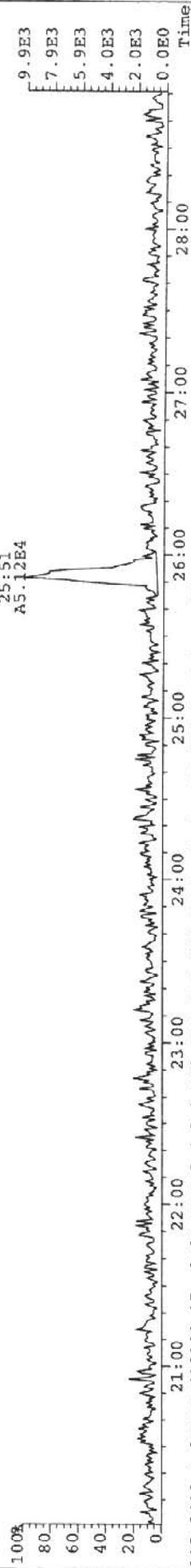
File: 060208P2 Acq: 8-FEB-2006 19:47:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 8 Text: P6324_3829_010 AR030-125-FSFHCB4 25.21g Vial# 57 File Text: AP DB5
319.8965 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 123



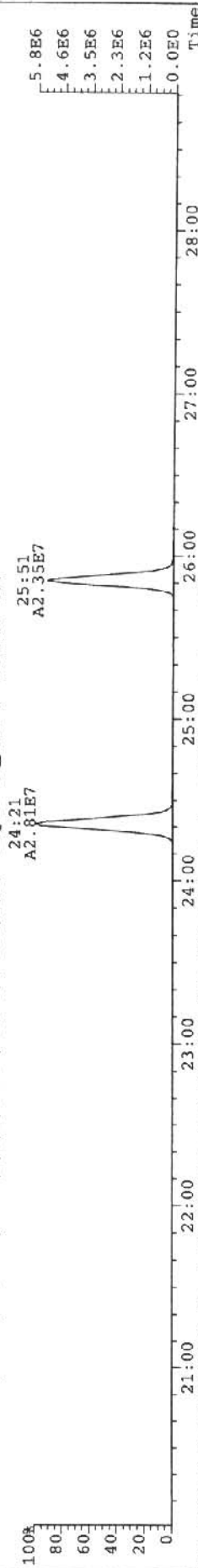
File: 060208P2 Acq: 8-FEB-2006 19:47:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 8 Text: P6324_3829_010 AR030-125-RSFHCB4 25.219 Vial# 57 File Text: AP DB5
303.9016 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 131



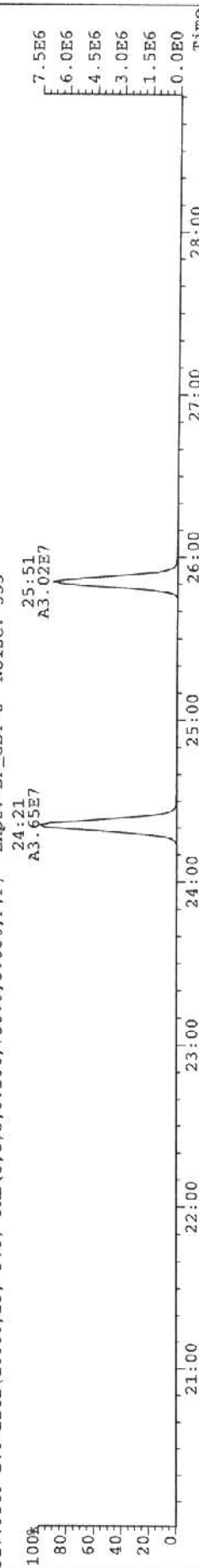
305.8987 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 275



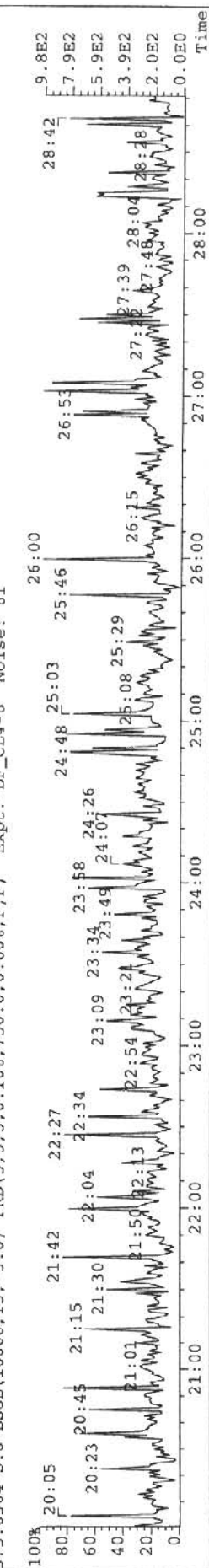
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 277



317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 353



375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 61



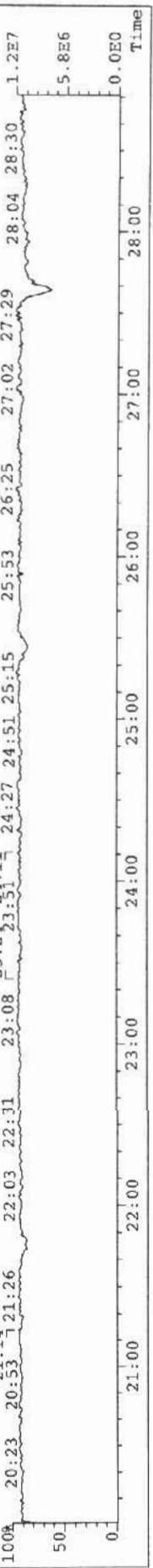
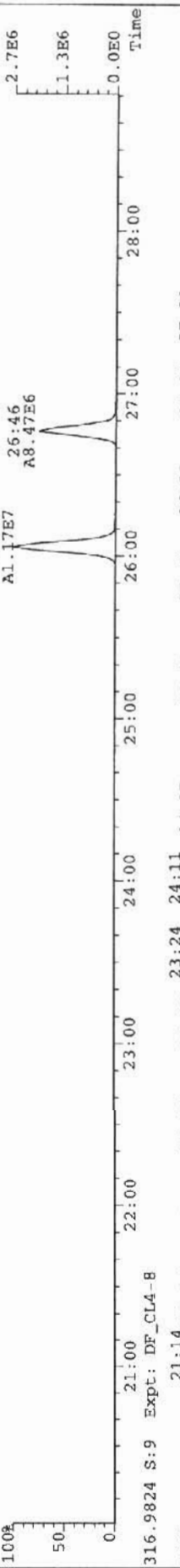
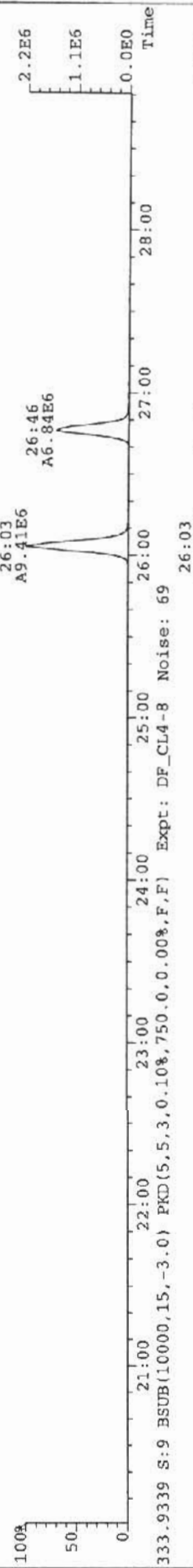
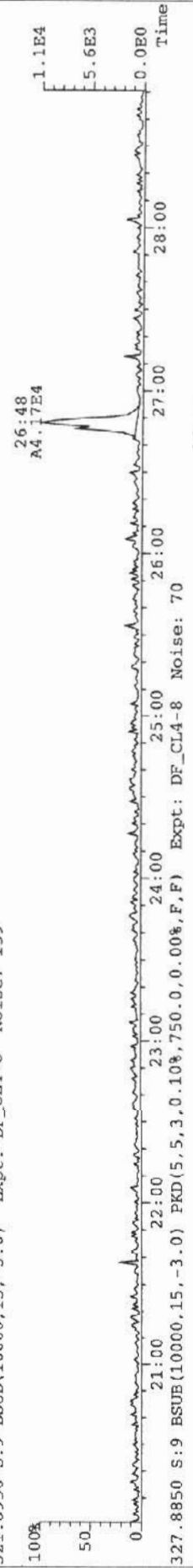
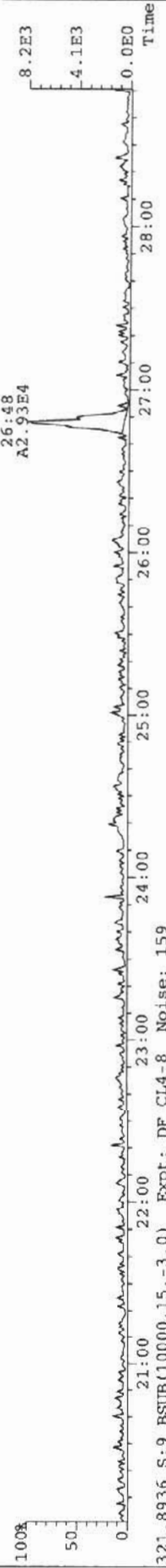
BB No. 106

Client ID: AR030-125-FSFHCB5
 Lab ID: P6324_3829_011
 Sample text: P6324_3829_011 AR030-125-FSFHCB5 25.13g
 Filename: 060208P2 S: 9 Acq: 8-FEB-06 20:37:22
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN>> WT/Vol:25.130
 Vial: 58

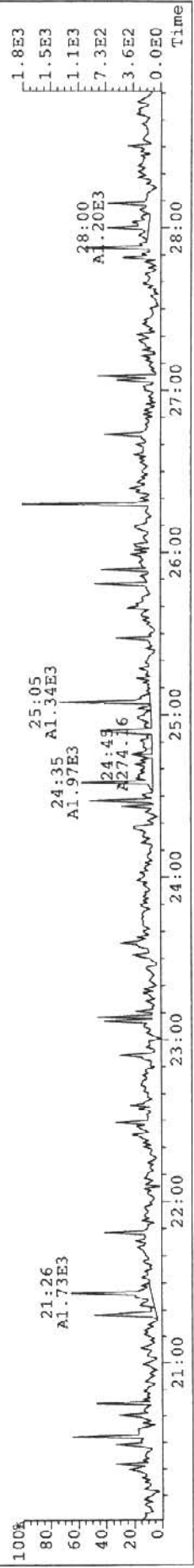
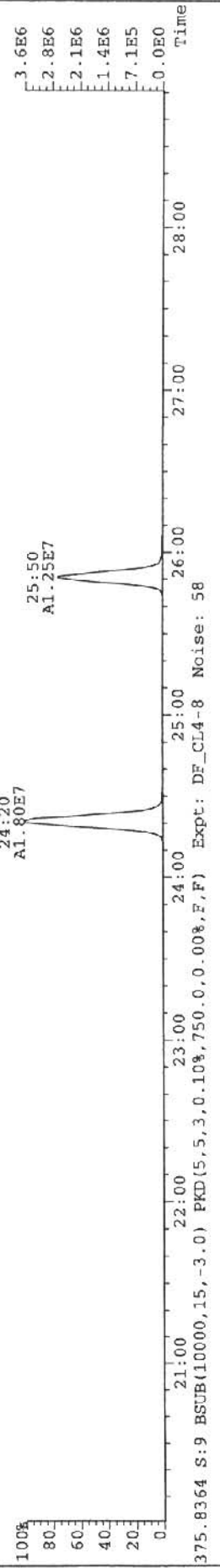
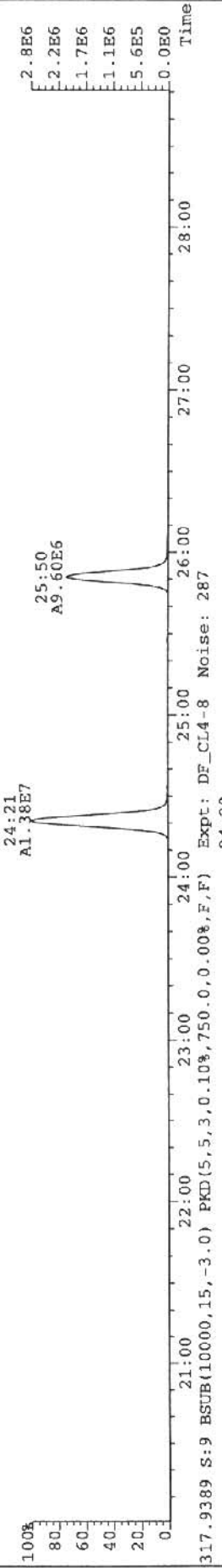
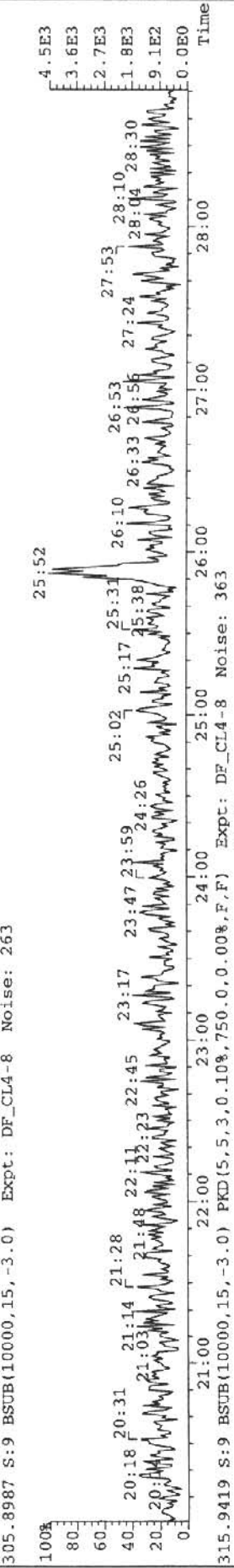
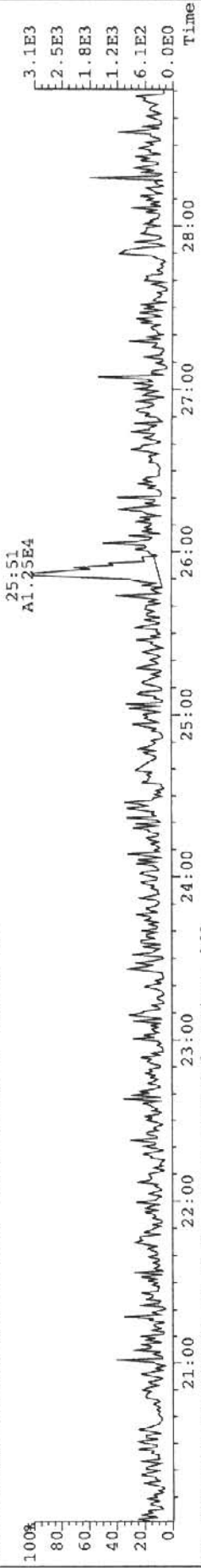
AX	Name	Resp	RA	RRP	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	7.10e+04	0.70	1.00	26:48	0.370		939	2.5	0.0933	-
AX	2,3,7,8-TCDF	*	* n	0.86	NotF>>	*		1378	2.5	0.118	-
ES	13C-2,3,7,8-TCDD	1.53e+07	0.81	1.07	26:47	55.8		1770	2.5	0.125	70.1
ES	13C-2,3,7,8-TCDF	2.21e+07	0.77	0.94	25:51	58.8		2095	2.5	0.124	73.9
JS/RT	13C-1,2,3,4-TCDD	2.11e+07	0.81	-	26:03	1.94		1770	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.18e+07	0.77	-	24:21	2.00		2095	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.47e+06		0.89	26:48	36.0				0.132	113

Analyst: *MM*
 Date: *5/2/06*

File: 060208P2 Acq: 8-FEB-2006 20:37:22 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 9 Text: P6324_3829_011 AR030-125-FSFHCB5 25.13g Vial# 58 File Text: AP DB5
319.8965 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 112




File: 060208P2 Acq: 8-FEB-2006 20:37:22 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 9 Text: P6324_3829_011 AR030-125-FSFHCB5 25.13g Vial# 58 File Text: AP DB5
 303.9016 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 113



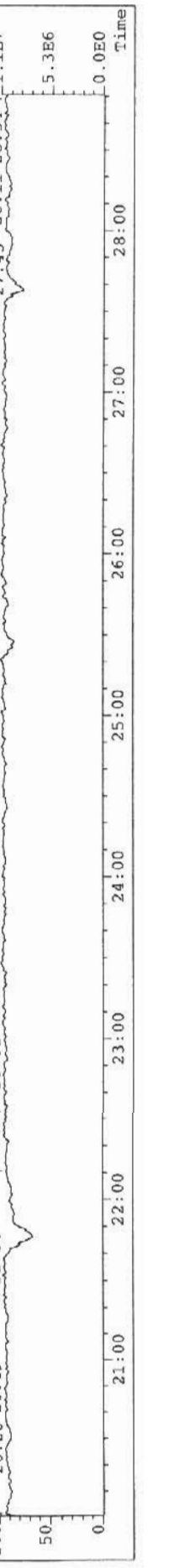
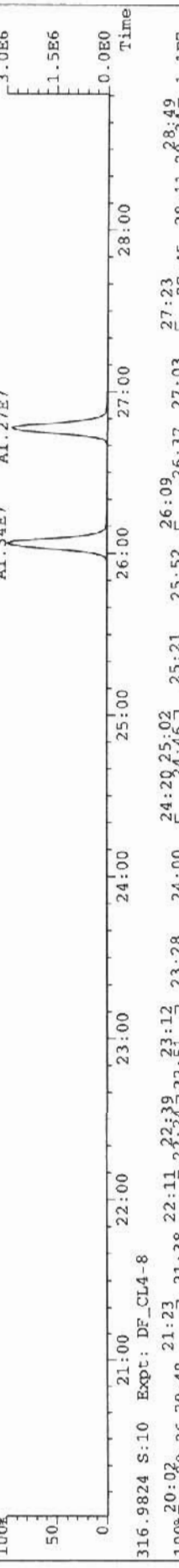
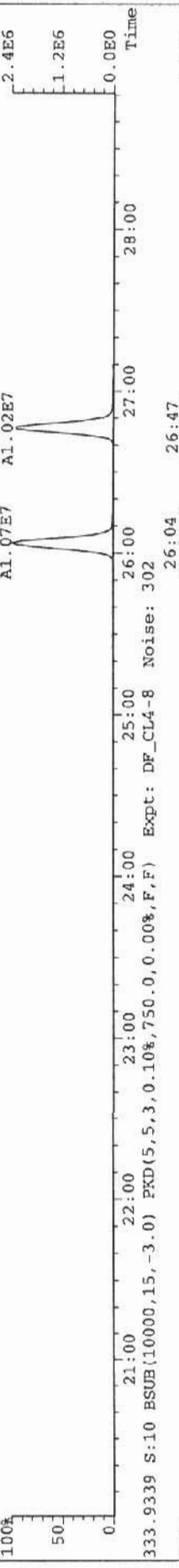
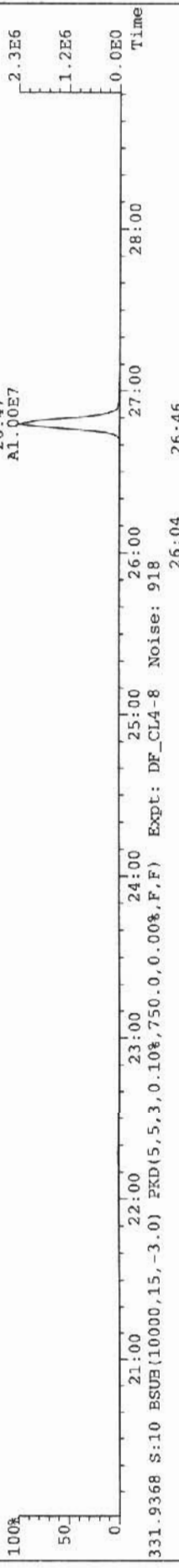
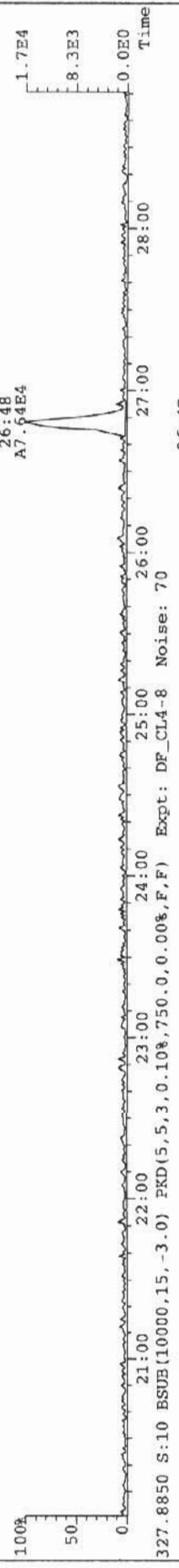
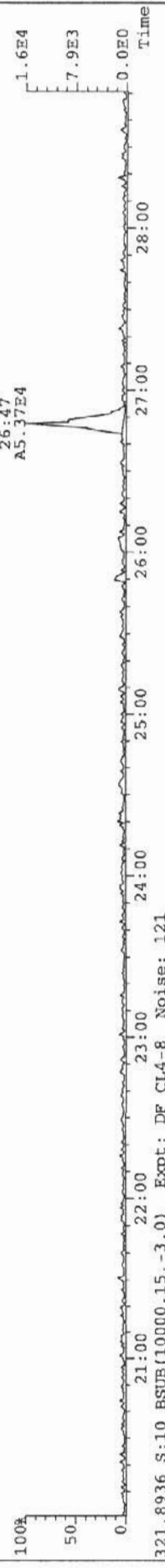
16 Sub 01

Client ID: AR030-125-FSFHCB6
 Lab ID: P6324_3829_012
 Sample text: P6324_3829_012 AR030-125-FSFHCB6 25.23g
 Filename: 060208P2 S: 10 Acq: 8-FEB-06 21:27:39
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt/Vol:25.230
 Vial: 59

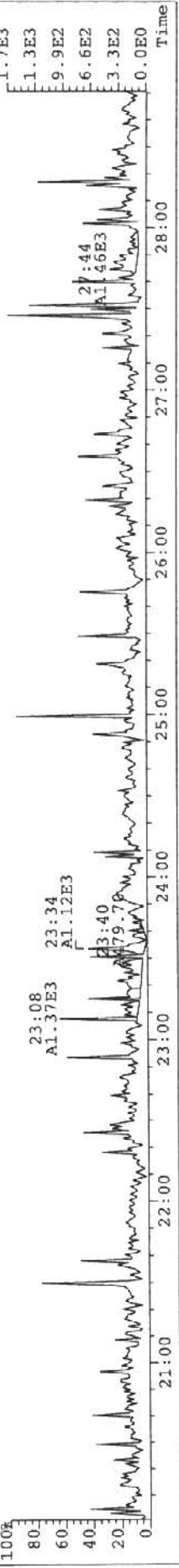
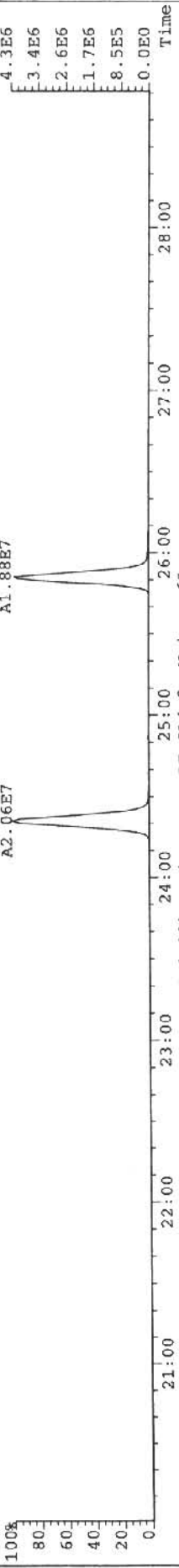
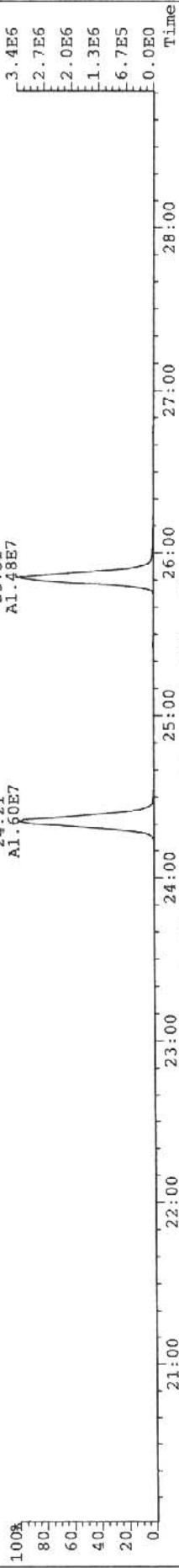
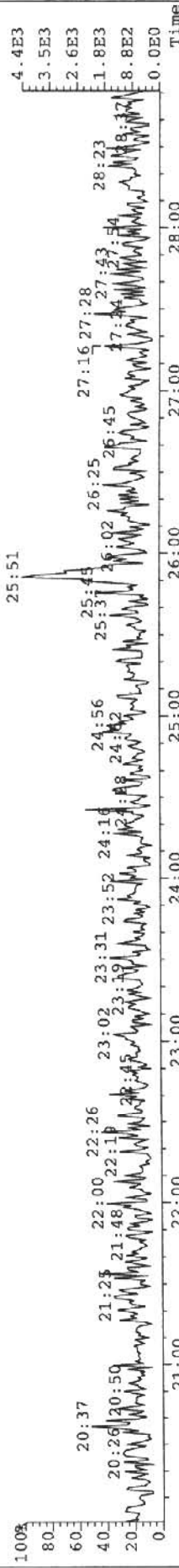
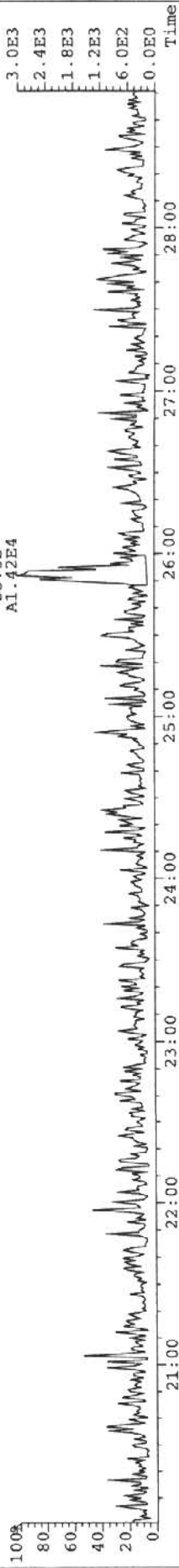
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD 1.30e+05	0.70	1.00	26:48	0.452		765	2.5	0.0528	-
Ax	2,3,7,8-TCDF *	* n	0.86	NotF»	*		1006	2.5	0.0550	-
ES	13C-2,3,7,8-TCDD 2.29e+07	0.80	1.03	26:47	72.4		1723	2.5	0.109	91.4
ES	13C-2,3,7,8-TCDF 3.36e+07	0.79	0.94	25:51	77.5		1841	2.5	0.0913	97.7
JS/RT	13C-1,2,3,4-TCDD 2.42e+07	0.80	-	26:04	2.22		1723	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.66e+07	0.78	-	24:21	2.29		1841	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 1.00e+07		0.89	26:48	37.1				0.172	117

Analyst: 
 Date: 15/2/06

File: 060208P2 Acq: 8-FEB-2006 21:27:39 GC EI+ Voltage SIR Autospec-UptimeE
Sample# 10 Text: P6324_3829_012 AR030-125-FSFHC6 25.23g Vial# 59 File Text: AP DB5
319.8965 S:10 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 94



File: 060208P2 Acq: 8-FEB-2006 21:27:39 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 10 Text: P6324_3829_012 AR030-125-FSFHCB6 25.23g Vial# 59 File Text: AP DB5
 303.9016 S:10 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 108



P6324



ANALYTICAL PERSPECTIVES

PART 4

SYSTEM PERFORMANCE

“MS, GC, CONCAL, BCS₃”

DOCUMENTATION FOR THE ANALYSIS
OF

POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

TCDD/TCDF CALIBRATION VERIFICATION

Analytical Perspectives

Initial Calibration: MM1_DF_010606_25JAN06

GC Column ID: DB-5

VER Data Filename: 060208P2 S#1 Analysis Date: 8-FEB-06 Time: 13:55:24

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	Y	10.6	7.8 - 12.9
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	Y	9.9	8.4 - 12.0
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	Y	101.5	82.0 - 121
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	Y	101.7	71.0 - 140

CLEANUP STANDARD

37C1-2,3,7,8-TCDD (4) 10.6 7.9 - 12.7

Analyst: *WJ*
 Date: *16 Feb 06*

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6a, Method

1613, under VER. 10/94

(4) No ion abundance ratio; report concentration found.

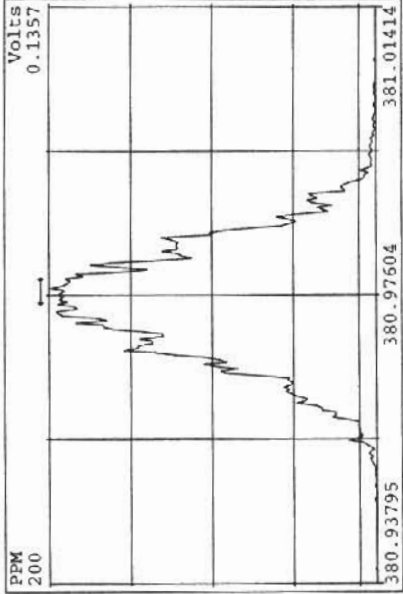
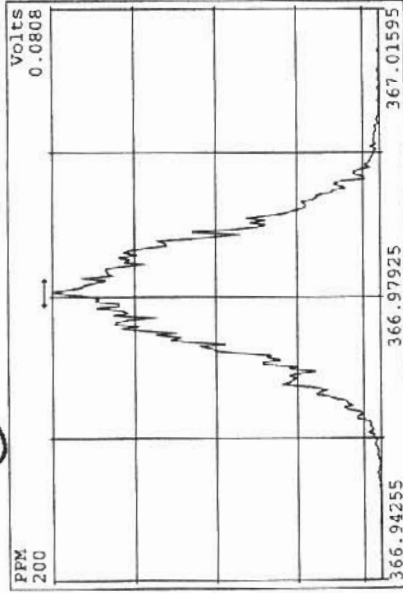
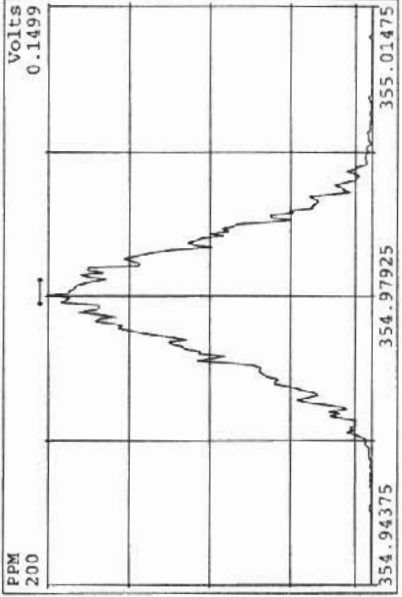
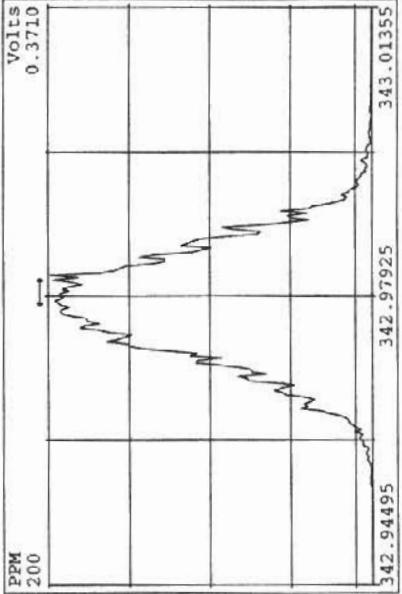
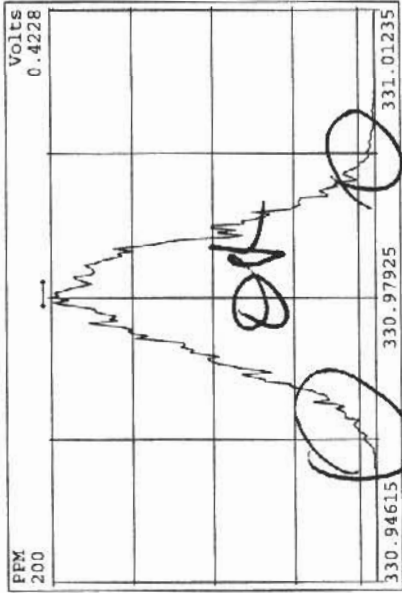
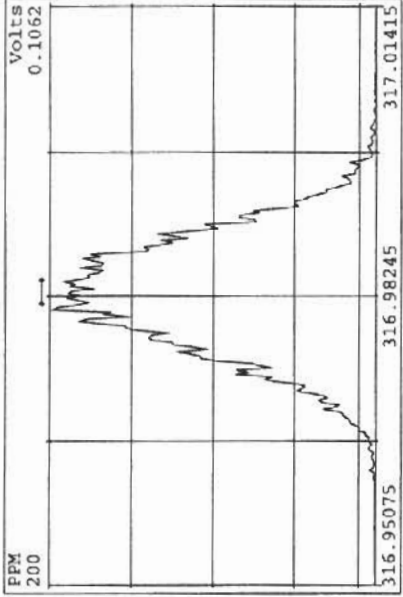
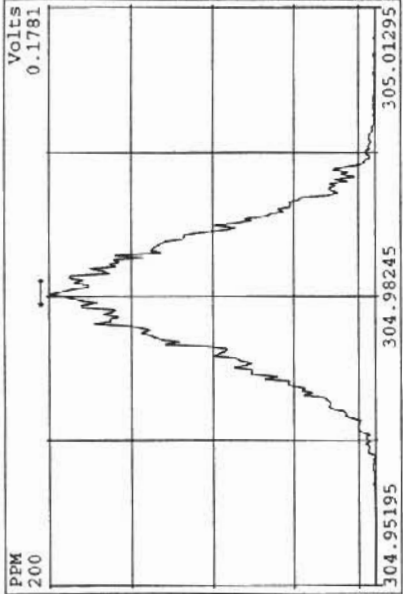
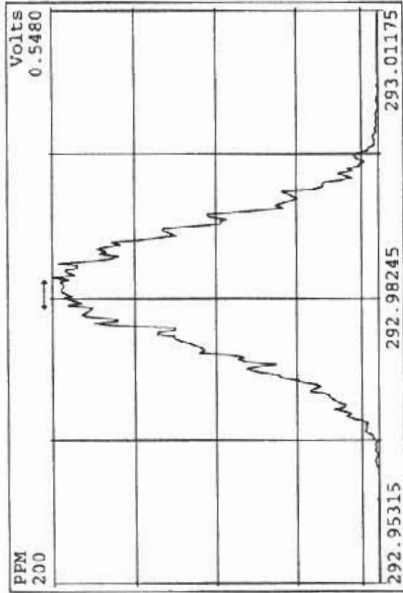
Client ID: 060208_DF_PA
 Lab ID: CS3_S6-4-4
 Sample text: CS3_S6-4-4 060208_DF_PA

Filename: 060208P2 S: 1
 GC Column ID: db-5
 ICal: MMI_DF_010606_25JAN* Wt/Vol: 1.000
 Vial: 8

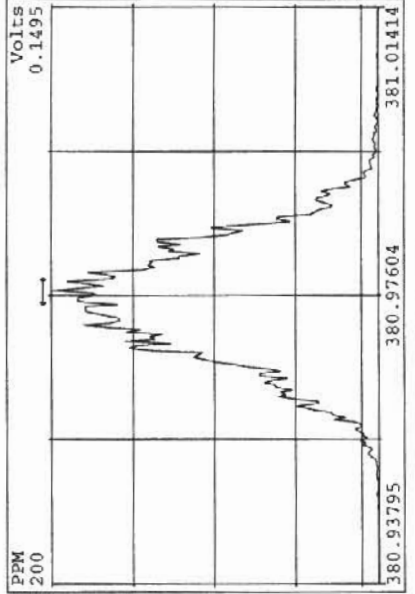
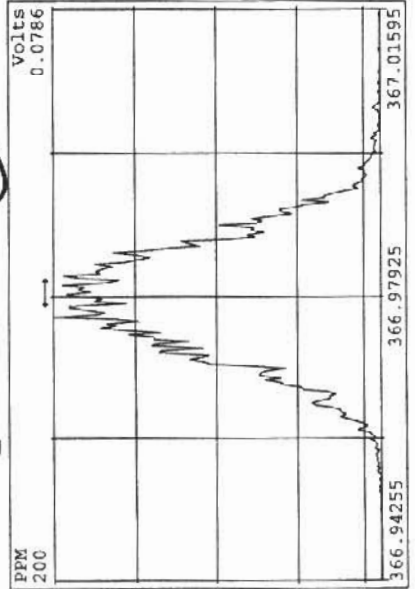
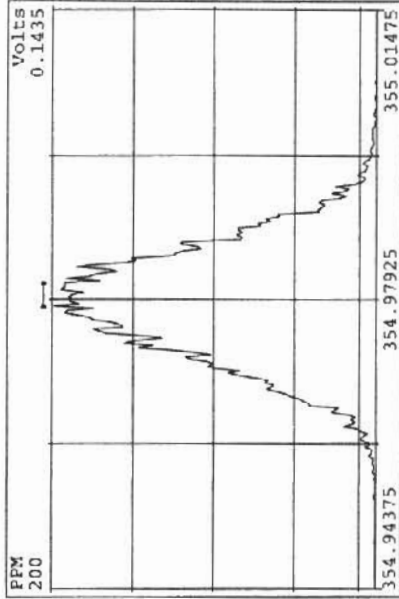
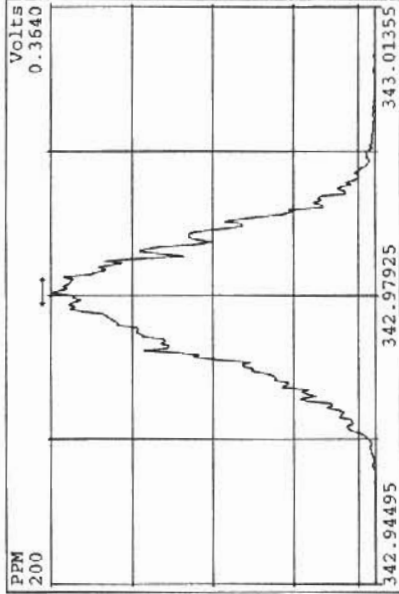
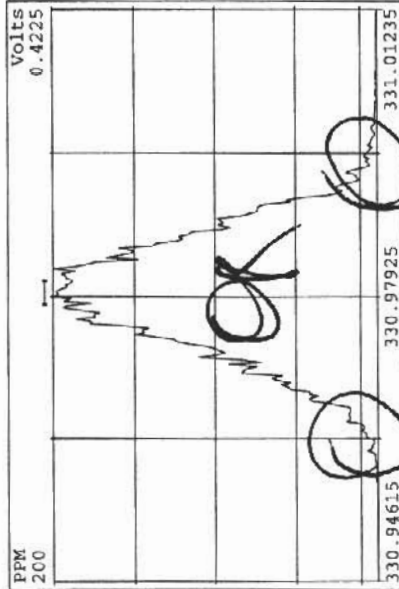
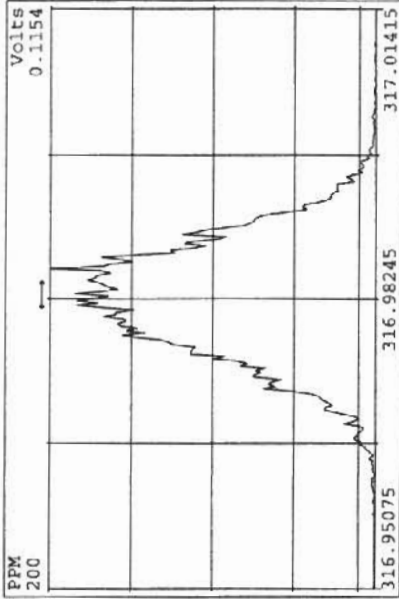
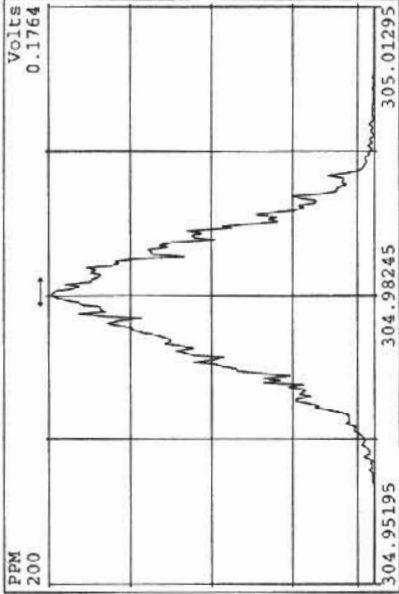
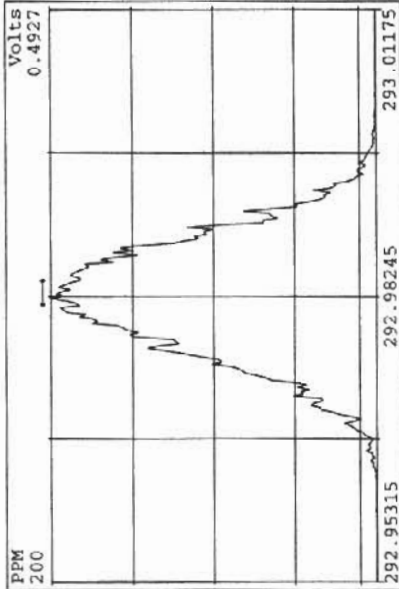
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 4.51e+06	0.77	1.00	26:48	9.96		1054	2.5	0.0441	-
AX	2,3,7,8-TCDF 5.58e+06	0.76	0.86	25:52	9.91		1367	2.5	0.0490	-
ES	13C-2,3,7,8-TCDD 4.54e+07	0.80	1.07	26:46	10.5		3378	2.5	0.153	101
ES	13C-2,3,7,8-TCDF 6.53e+07	0.78	0.94	25:51	10.2		3142	2.5	0.107	102
JS/RT	13C-1,2,3,4-TCDD 4.32e+07	0.80	-	26:03	99.9		3378	2.5	-	-
JS	13C-1,2,3,4-TCDF 6.84e+07	0.77	-	24:21	108		3142	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 4.07e+06		0.89	26:48	10.6				0.153	106

Analyst: 
 Date: 15/2/06

Peak Locate Examination: 8-FEB-2006:13:50 File:MM1_RES_CHECK
Experiment:DF_CL4-8 Function:1 Reference:PPK2



Peak Locate Examination: 8-FEB-2006:22:21 File:MMI_RES_CHECK
Experiment:DF_CL4-8 Function:1 Reference:PFK2



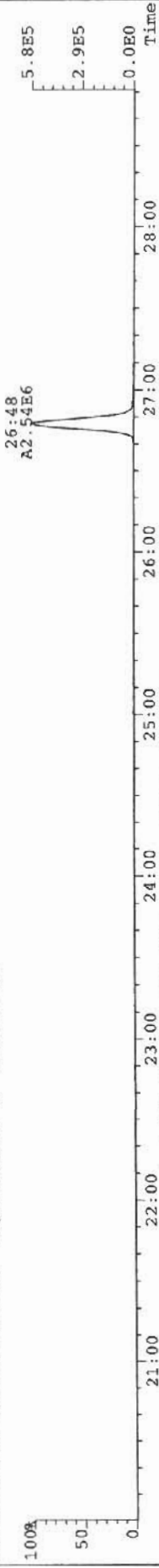
File: 060208P2 Acq: 8-FEB-2006 13:55:24 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 1 Text: CS3_S6-4-4 060208_DF_PA Vial# 8 File Text: AP DB5

319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 223



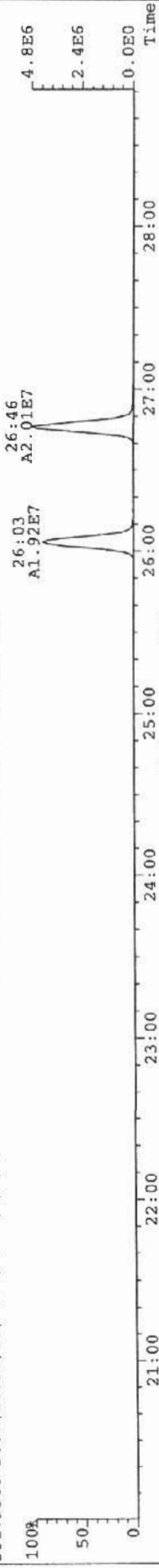
321.8936 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 258



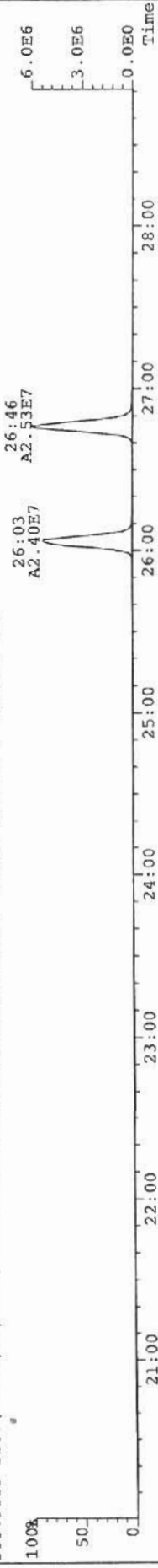
327.8850 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 488



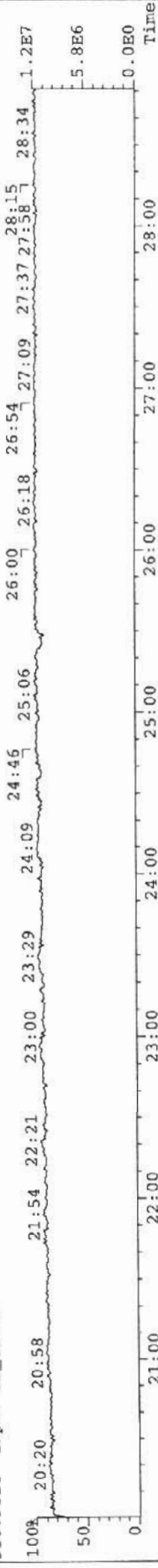
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 997



333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 648



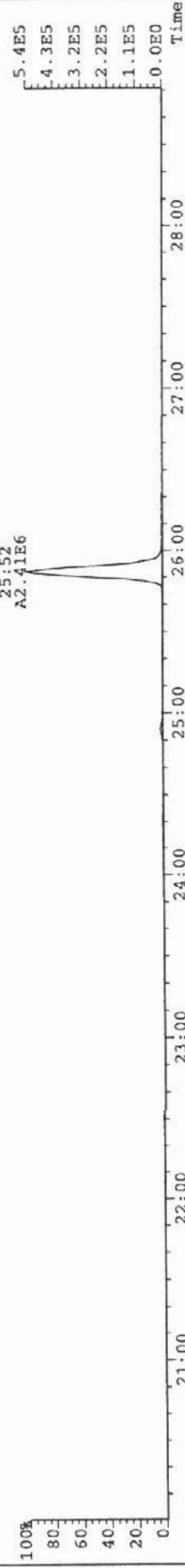
316.9824 Expt: DF_CL4-8



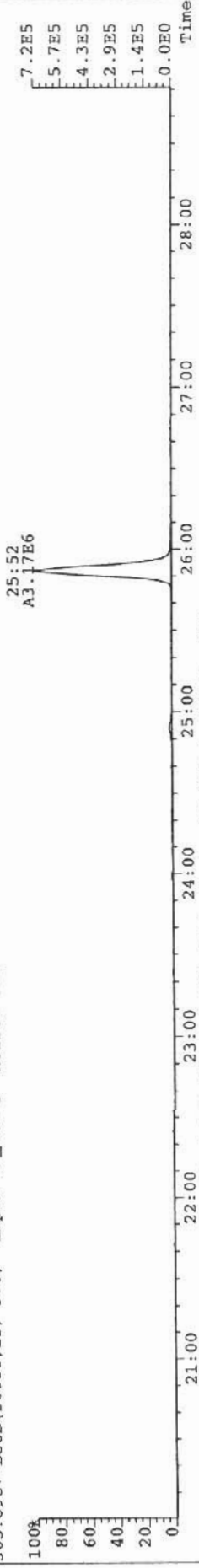
File: 060208P2 Acq: 8-FEB-2006 13:55:24 GC EL+ Voltage SIR Autospec-UtimaE

Sample# 1 Text: CS3_S6-4-4 060208_DF_PA Vial# 8 File Text: AP DB5

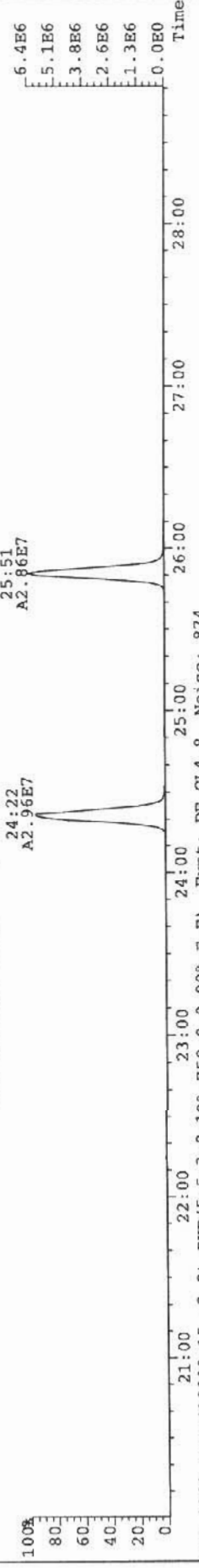
303.9016 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 222



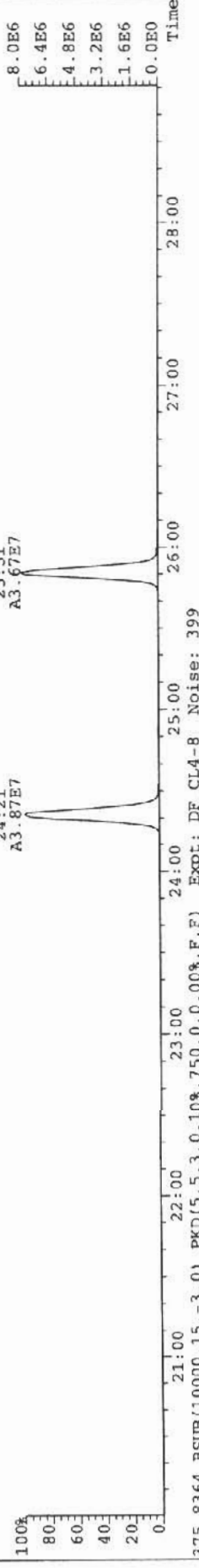
305.8987 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 306



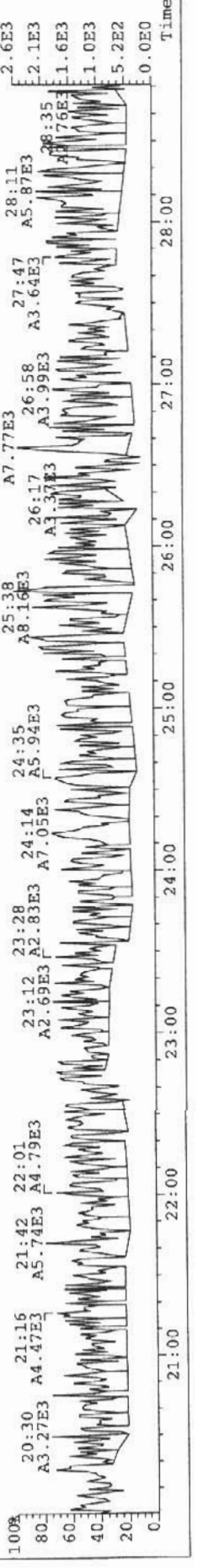
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 706



317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 874



375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 399




FORM 8A
TCDD/TCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Analytical Perspectives Episode No.:
Contract No.: SAS No.:
Matrix (aqueous/solid/leachate): OPR Data Filename:
Ext. Date: Shift: Analysis Date: 8-FEB-06 Time: 14:45:35

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

NATIVE ANALYTES	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
2,3,7,8-TCDD	10	10.5	7.3 - 14.6
2,3,7,8-TCDF	10	11.6	8.0 - 14.7
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	91.5	25.0 - 141.0
13C-2,3,7,8-TCDF	100	99.7	26.0 - 126.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	45.0	14.8 - 63.2

Analyst: 
Date: 10/11/02

(1) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613.

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF

Filename: 060208P2 S: 2 Acq: 8-FEB-06 14:45:35
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt/Vol: 1.000
 Vial: 47

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	6.36e+06	0.77	1.06	26:49	10.6		1606	2.5	0.0512	-
Ax	2,3,7,8-TCDF	8.92e+06	0.78	0.86	25:54	11.6		1230	2.5	0.0318	-
ES	13C-2,3,7,8-TCDD	6.04e+07	0.80	1.03	26:48	91.5		2970	2.5	0.0881	91.5
ES	13C-2,3,7,8-TCDF	8.90e+07	0.77	0.94	25:52	99.7		2962	2.5	0.0705	99.7
JS/RT	13C-1,2,3,4-TCDD	6.38e+07	0.80	-	26:05	148		2970	2.5	-	-
JS	13C-1,2,3,4-TCDF	9.52e+07	0.77	-	24:23	150		2962	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	2.55e+07		0.89	26:49	45.0				0.0592	113

Analyst: MM
 Date: 15/2/06

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF
 Filename: 060208P2 S: 2 Vial: 47
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt./Vol: 1.000
 Acq: 8-FEB-06 14:45:35

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1,3,6,8-TCDD	22:50	1,2,8,9-TCDD	27:51
1,2,4,7,9-PeCDD	29:50	1,2,3,8,9-PeCDD	32:54
1,2,4,6,7,9-HxCDD	34:42	1,2,3,7,8,9-HxCDD	36:51
1,2,3,4,6,7,9-HpCDD	39:12	1,2,3,4,6,7,8-HpCDD	40:04
1,3,6,8-TCDF	20:41	1,2,8,9-TCDF	28:03
1,3,4,6,8-PeCDF	27:57	1,2,3,8,9-PeCDF	33:12
1,2,3,4,6,8-HxCDF	34:01	1,2,3,7,8,9-HxCDF	37:13
1,2,3,4,6,7,8-HpCDF	38:53	1,2,3,4,7,8,9-HpCDF	40:38

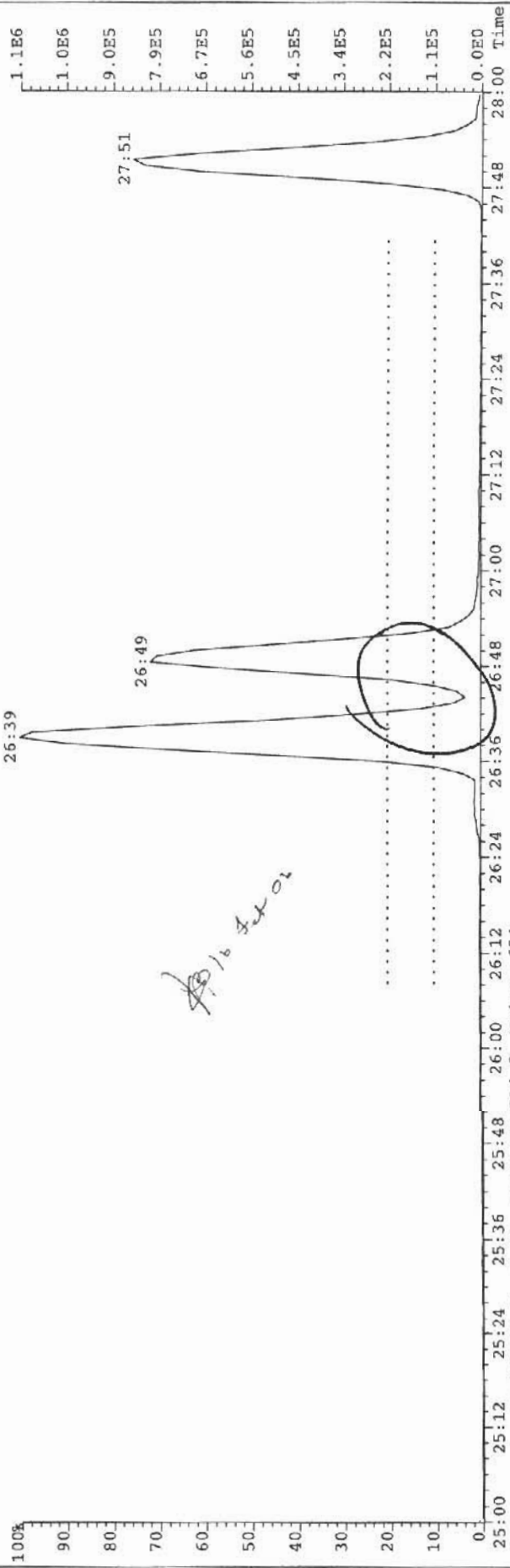
WA

Isomer Specificity Test Standard Results

Isomer	RT	Closest Isomer	RT	% Valley
2,3,7,8-TCDD	26:49	1,2,3,9-TCDD	26:39	<= 10%
2,3,7,8-TCDF	25:54	2,3,4,8-TCDF	25:47	<= 40%

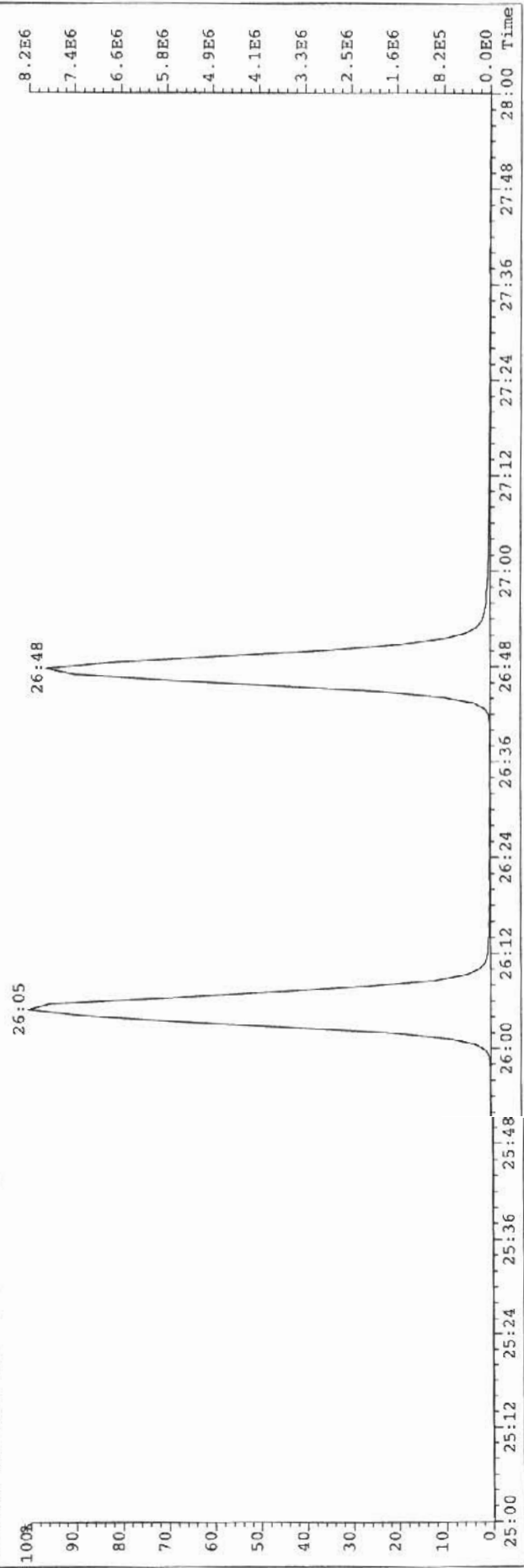
Analyst: *WA*
 Date: 15 Feb 2006

File: 060208P2 Acq: 8-FEB-2006 14:45:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 285

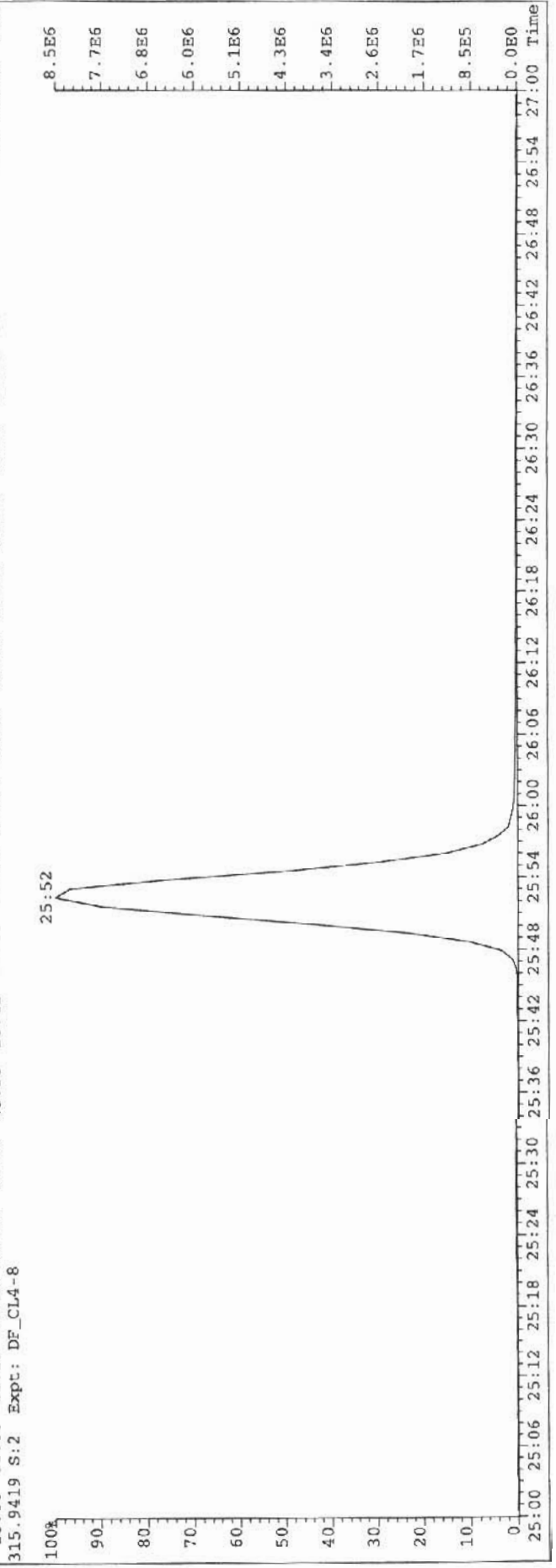
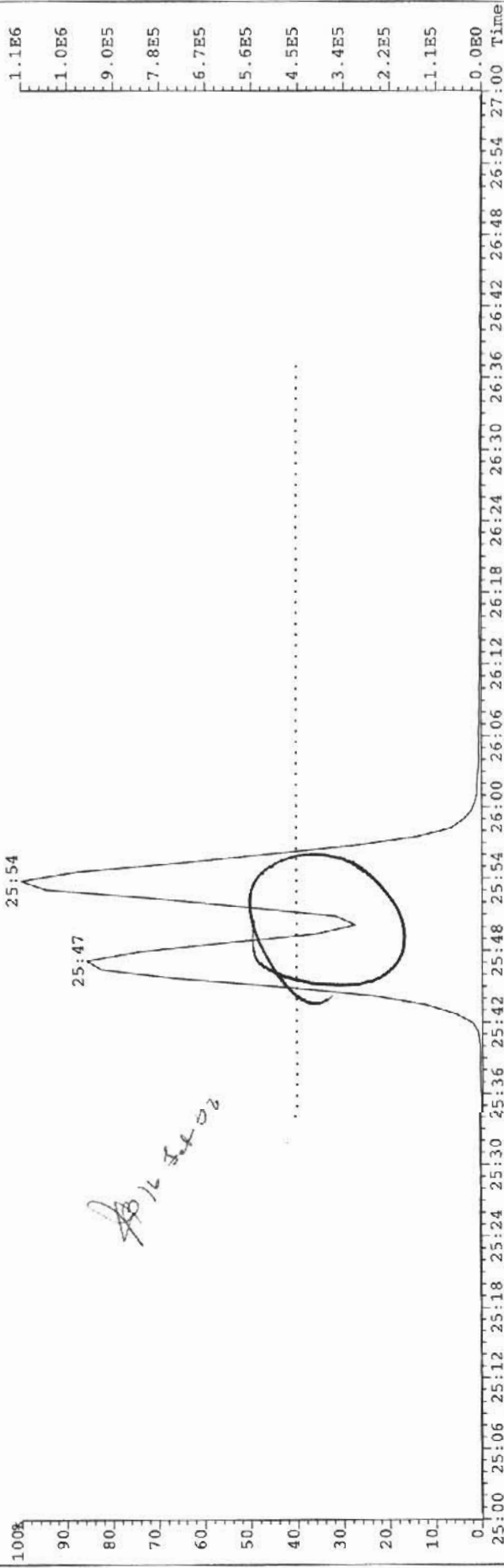


Handwritten note: 26:16 4401

333.9339 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 654



File: 060208P2 Acq: 8-FEB-2006 14:45:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 443



File: 060208P2 Acq: 8-FEB-2006 14:45:35 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5

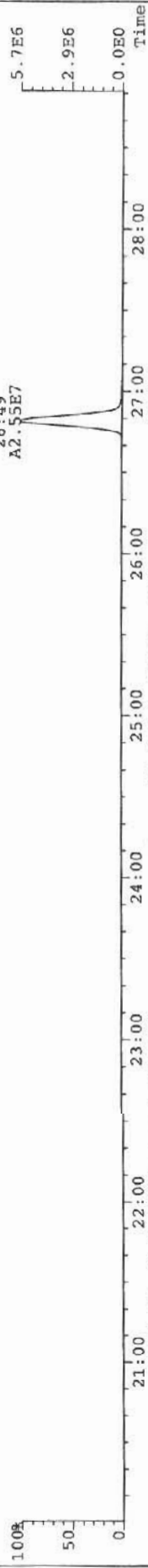
319.8965 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 273



321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 285



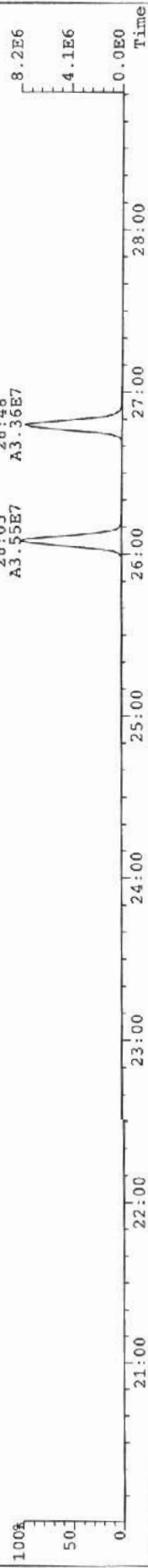
327.8850 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 520



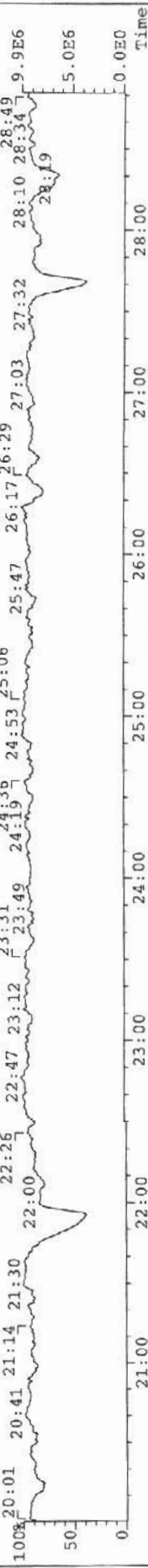
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1175



333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 654



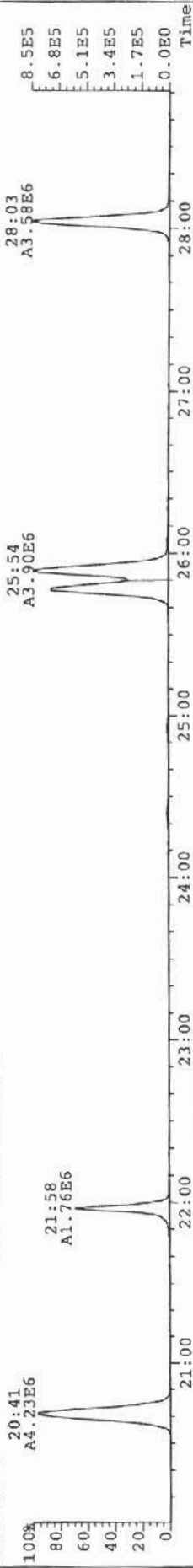
316.9824 S:2 Expt: DF_CL4-8



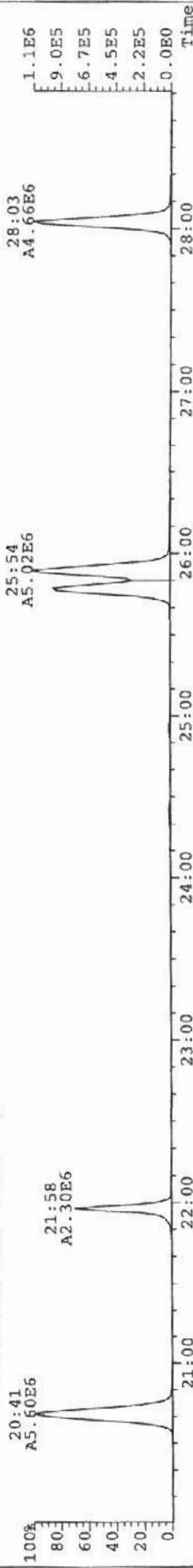
File: 060208P2 Acq: 8-FEB-2006 14:45:35 GC EI+ Voltage SIR Autospec-Ultima6

Sample# 2 Text: 0.3829 OPR01 OPR1.3829_DF Vial# 47 File Text: AP DB5

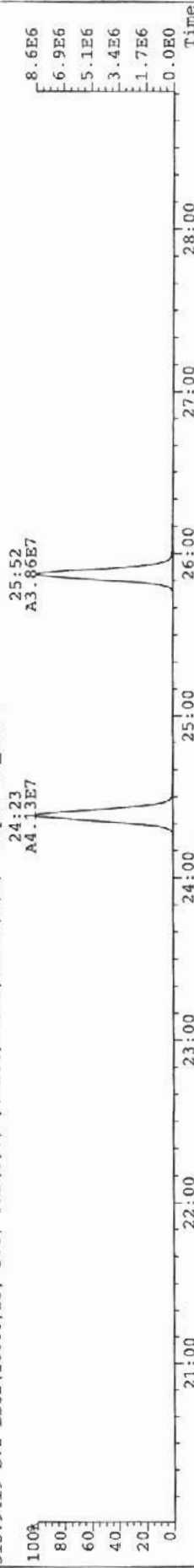
303.9016 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 337



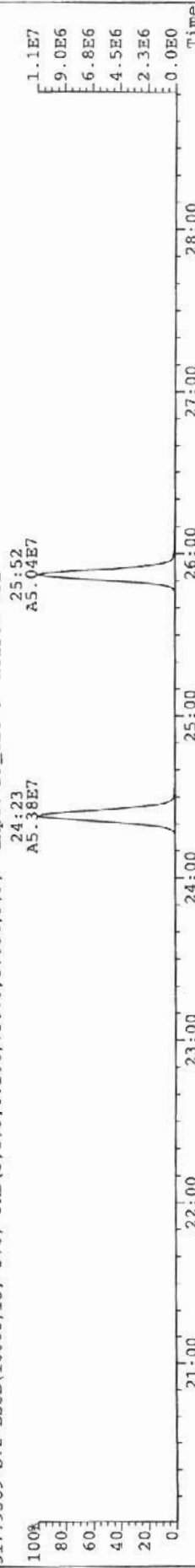
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 443



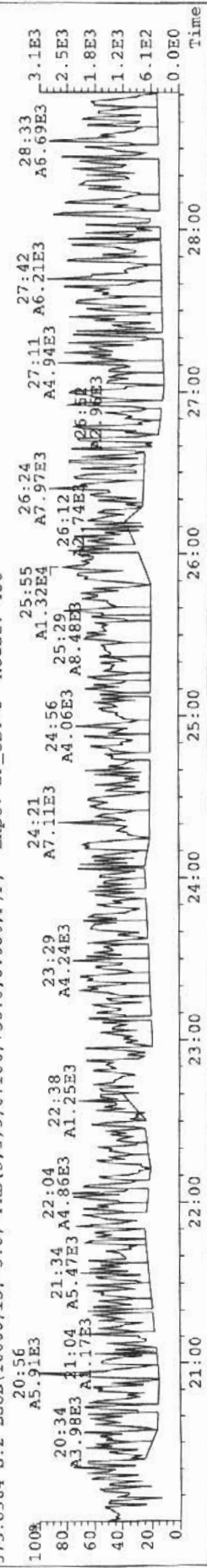
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 831



317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 931



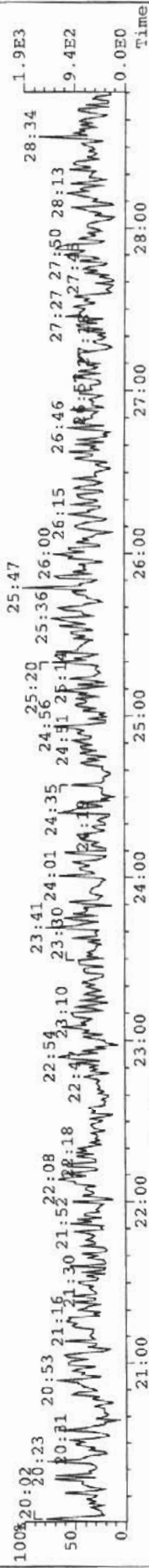
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 458



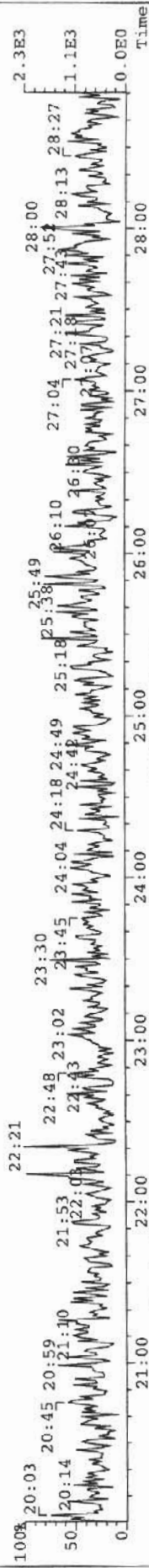
File: 060208P2 Acq: 8-FEB-2006 15:35:45 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS 060208_DF_PA Vial# 15 File Text: AP DB5

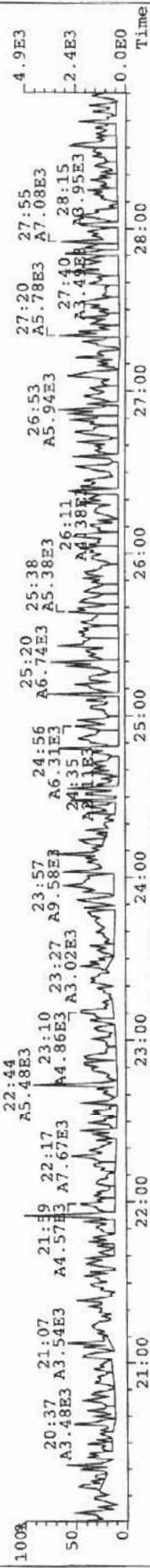
319.8965 S:3 BSUB(10000.15,-3.0) Expt: DF_CL4-8 Noise: 202



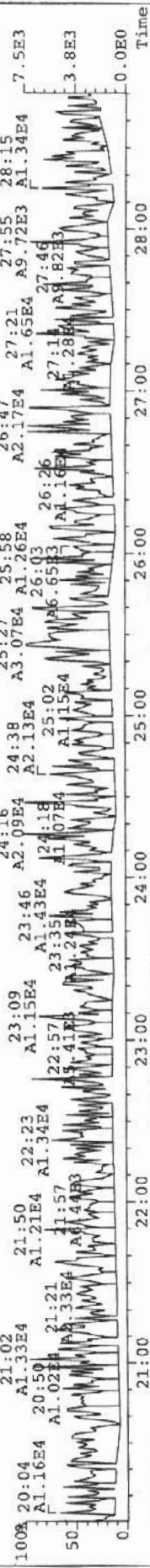
321.8936 S:3 BSUB(10000.15,-3.0) Expt: DF_CL4-8 Noise: 208



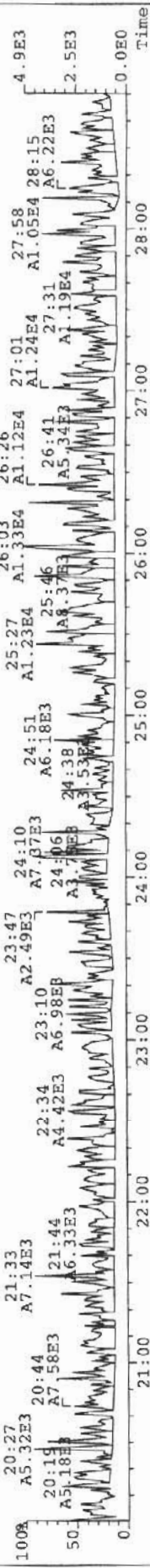
327.8950 S:3 BSUB(10000.15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 381



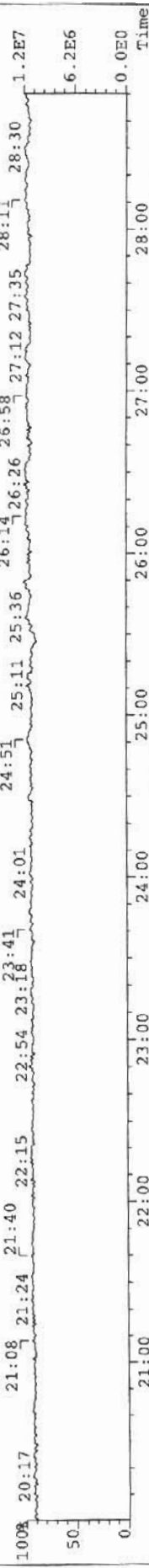
331.9368 S:3 BSUB(10000.15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 868



333.9339 S:3 BSUB(10000.15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 447



316.9824 S:3 Expt: DF_CL4-8



50 6.2E6 0.0E0

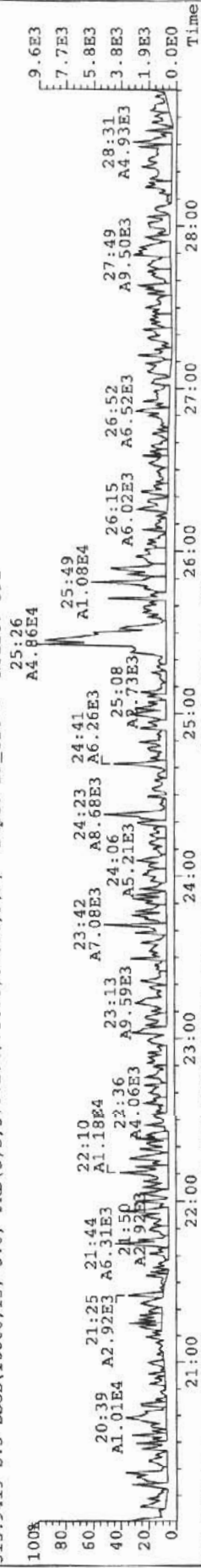
File: 060208P2 Acq: 8-FEB-2006 15:35:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 3 Text: SBS 060208_DF_PA Vial# 15 File Text: AP DB5
303.9016 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 184



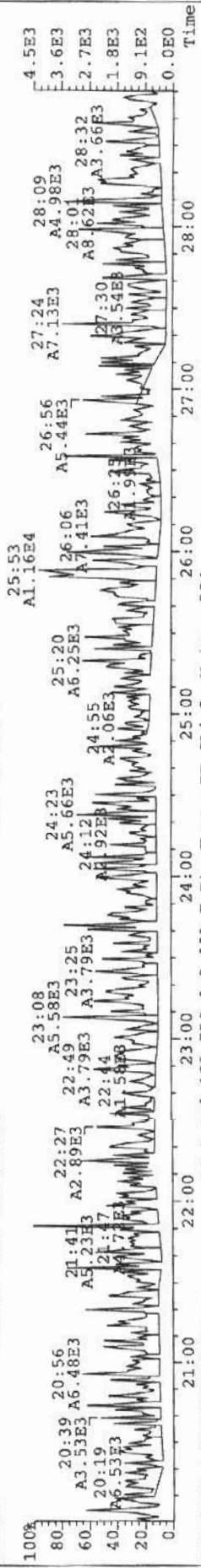
305.8987 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 296



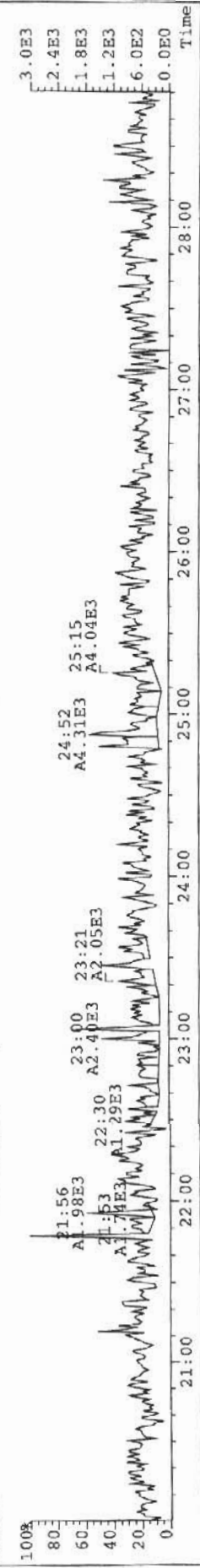
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 391



317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 329



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 204



TCDD/TCDF CALIBRATION VERIFICATION

Analytical Perspectives

Initial Calibration: MM1_DF_010606_25JAN06

GC Column ID: DB-5

VER Data Filename: 060208P1 S#1 Analysis Date: 8-FEB-06 Time: 06:15:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	Y	10.4	7.8 - 12.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	Y	10.0	8.4 - 12.0
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	Y	97.8	82.0 - 121
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	Y	100.8	71.0 - 140

CLEANUP STANDARD

37C1-2,3,7,8-TCDD (4) 10.4 7.9 - 12.7

Analyst: 
 Date: 15 Feb 06

- (1) See Table 8, Method 1613, for m/z specifications.
- (2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.
- (3) Contract-required concentration range as specified in Table 6a, Method 1613, under VER. 10/94
- (4) No ion abundance ratio; report concentration found.

Client ID: 060208_DF_PA
 Lab ID: CS3_S6-4-4
 Sample text: CS3_S6-4-4 060208_DF_PA

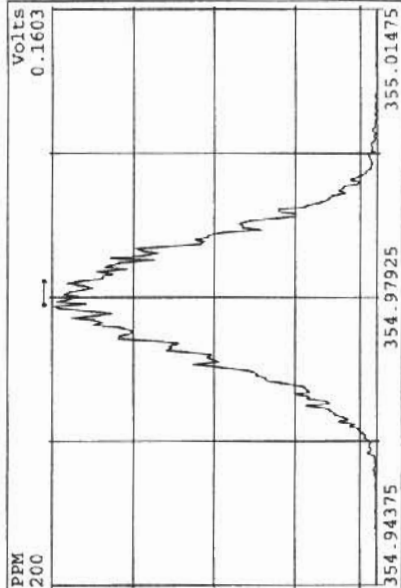
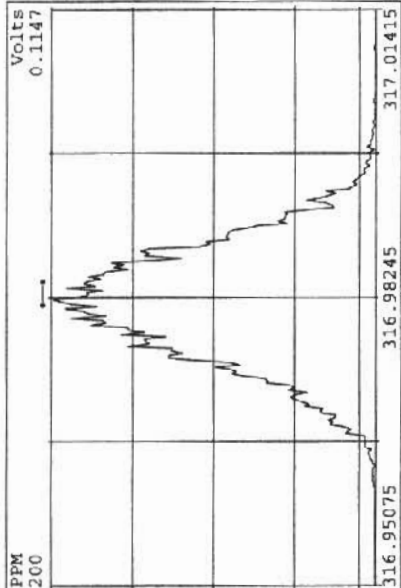
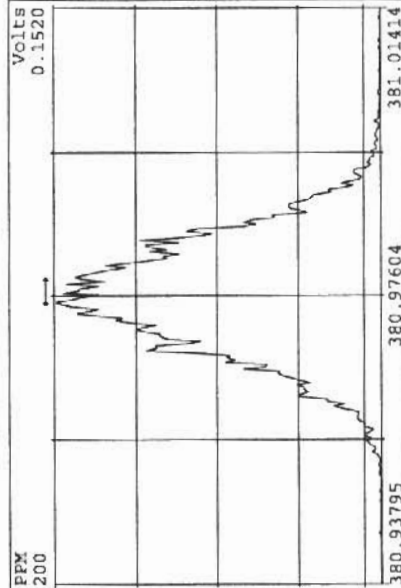
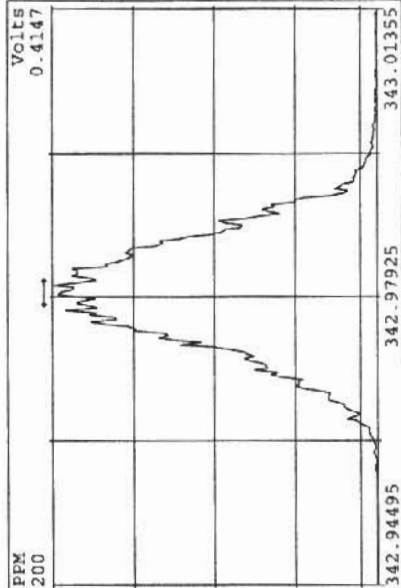
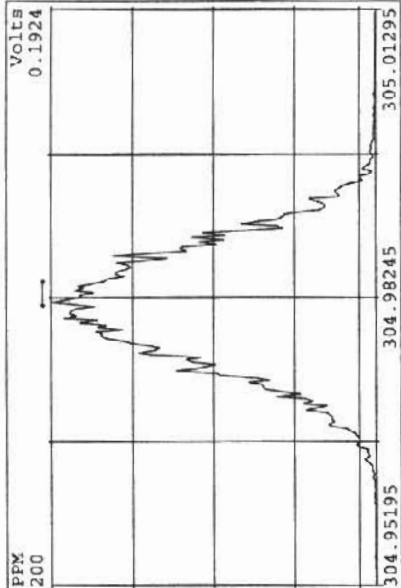
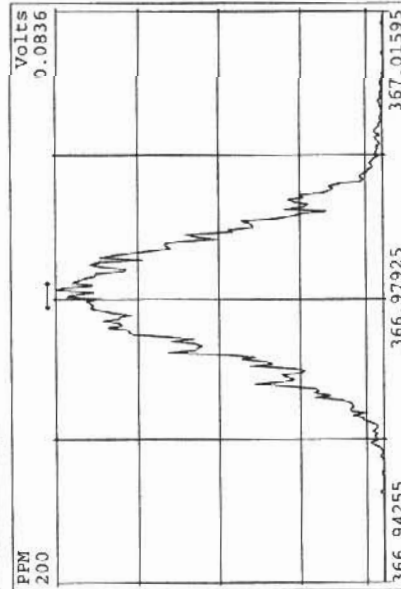
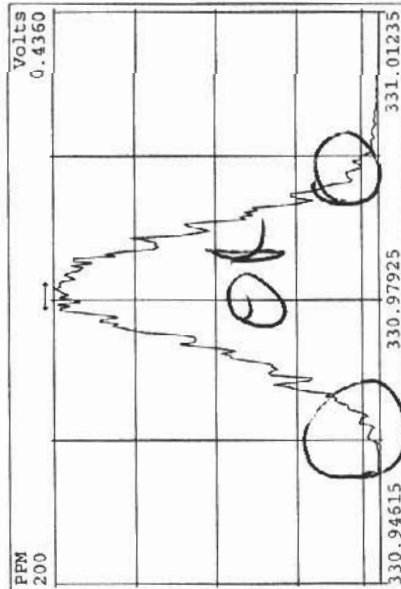
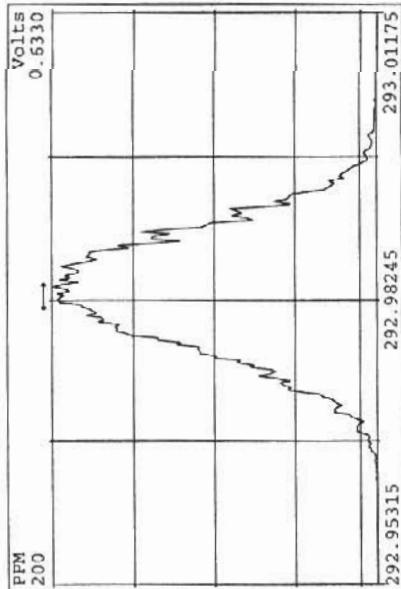
Filename: 060208pl S: 1
 GC Column ID: db-5
 Ical: MM1_DF_010606_25JAN»
 Wt/Vol: 1.000
 Vial: 8

Acq: 8-FEB-06 06:15:07

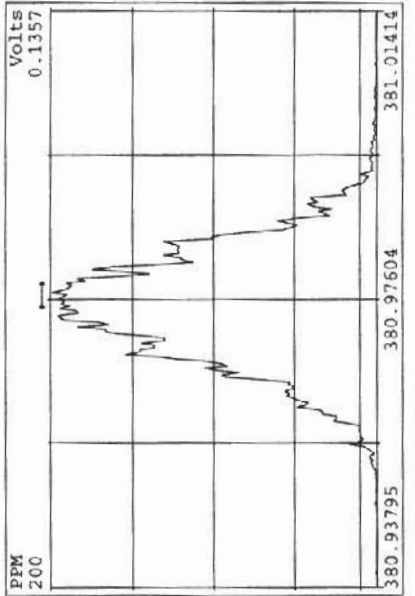
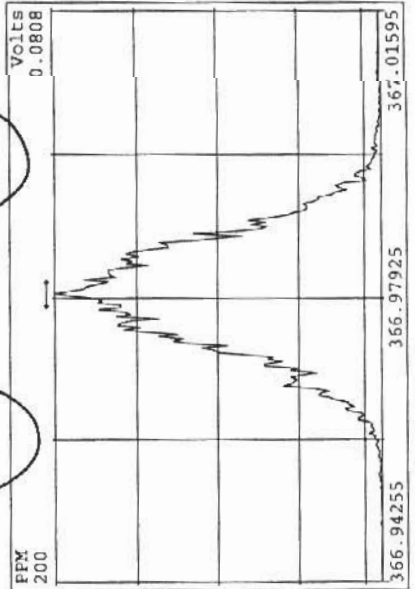
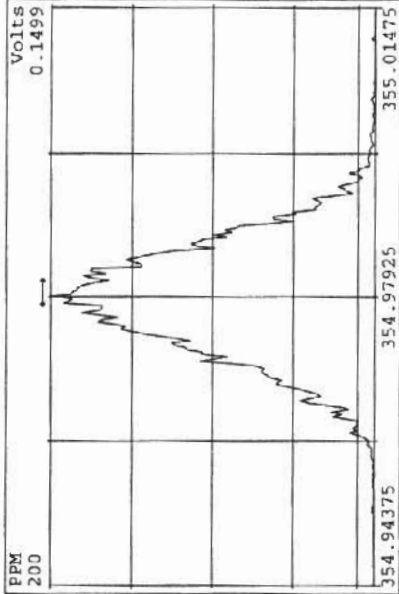
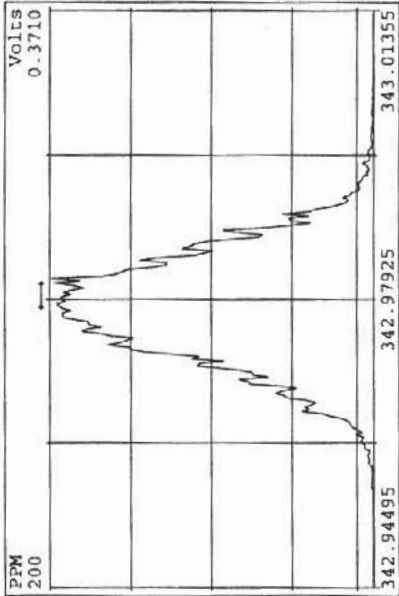
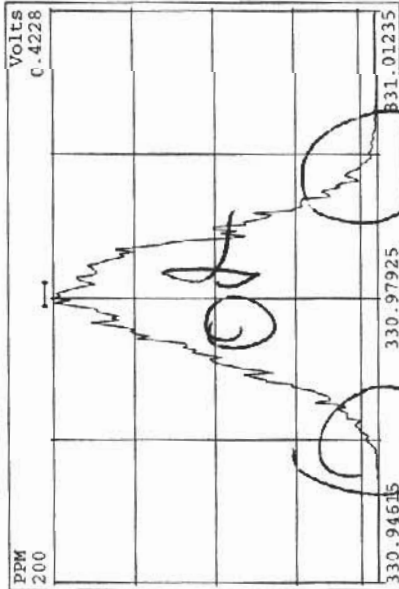
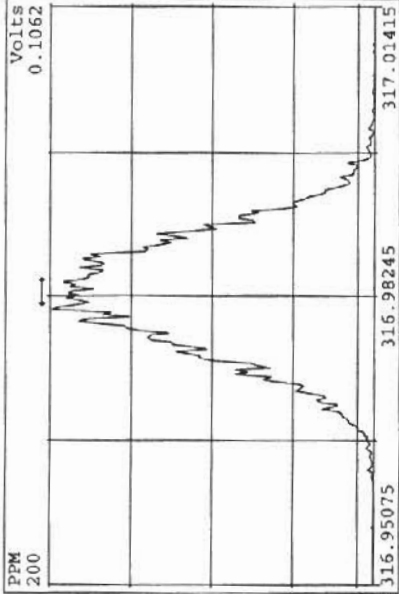
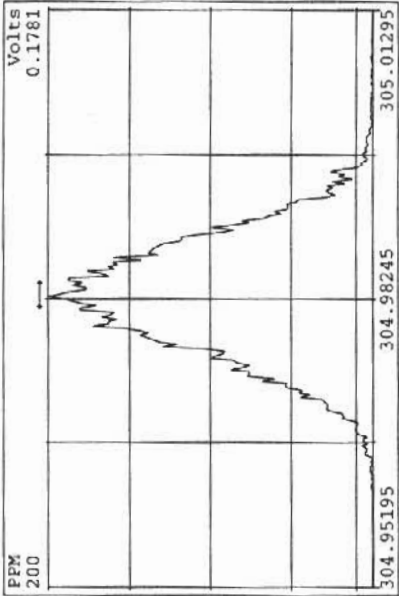
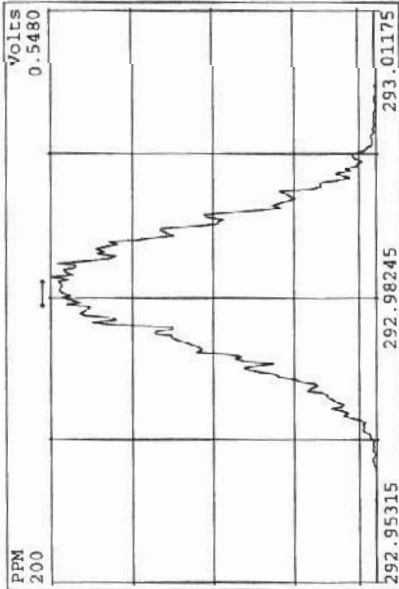
	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	3.78e+06	0.78	1.00	26:49	10.1		1136	2.5	0.0594	-
AX	2,3,7,8-TCDF	4.69e+06	0.77	0.86	25:54	9.96		887	2.5	0.0375	-
ES	13C-2,3,7,8-TCDD	3.76e+07	0.80	1.03	26:47	97.8		1007	2.5	0.0532	97.8
ES	13C-2,3,7,8-TCDF	5.46e+07	0.77	0.94	25:52	10.1		1848	2.5	0.0737	101
JS/RT	13C-1,2,3,4-TCDD	3.72e+07	0.80	-	26:05	85.9		1007	2.5	-	-
JS	13C-1,2,3,4-TCDF	5.77e+07	0.77	-	24:23	91.2		1848	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	3.42e+06		0.89	26:49	10.4				0.0774	104

Analyst: *MM*
 Date: 15/02/06

Peak Locate Examination: 8-FEB-2006:06:10 File:MM1_RES_CHECK
Experiment:DF_CL4-8 Function:1 Reference:PFK2



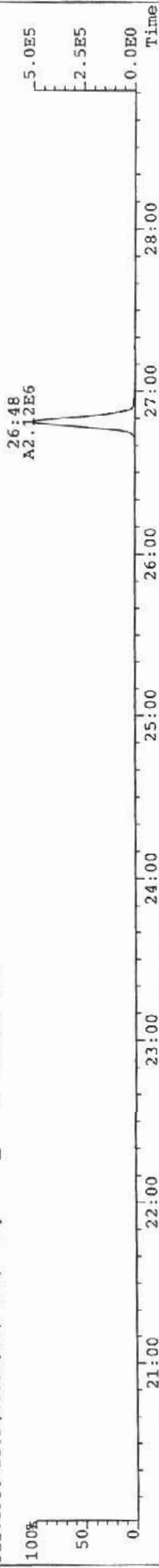
Peak Locate Examination: 8-FEB-2006.13:50 File:MM1_RES_CHECK
Experiment:DF_CL4-8 Function:1 Reference:PFKZ



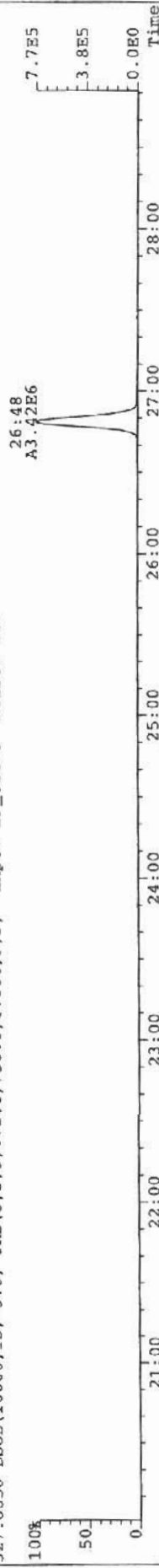
File: 060208P1 Acq: 8-FEB-2006 06:15:07 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 1 Text: CS3_S6-4-4 060208_DF_PA Vial# 8 File Text: AP DB5
319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 134



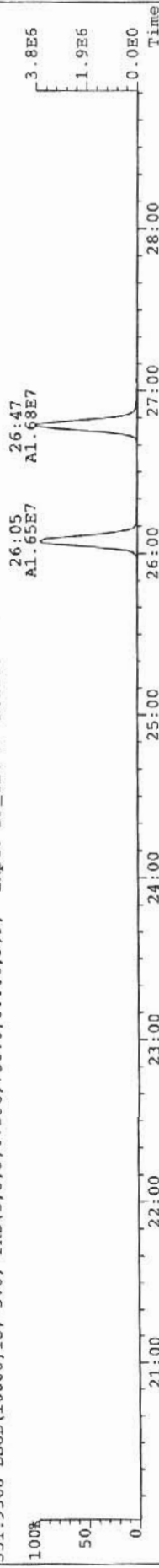
321.8936 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 181



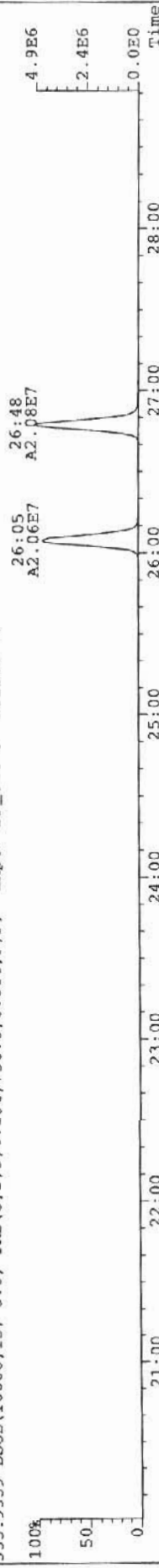
327.8950 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 244



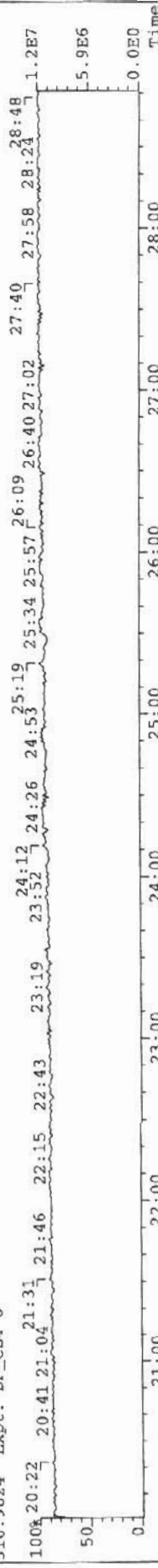
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 748



333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 67

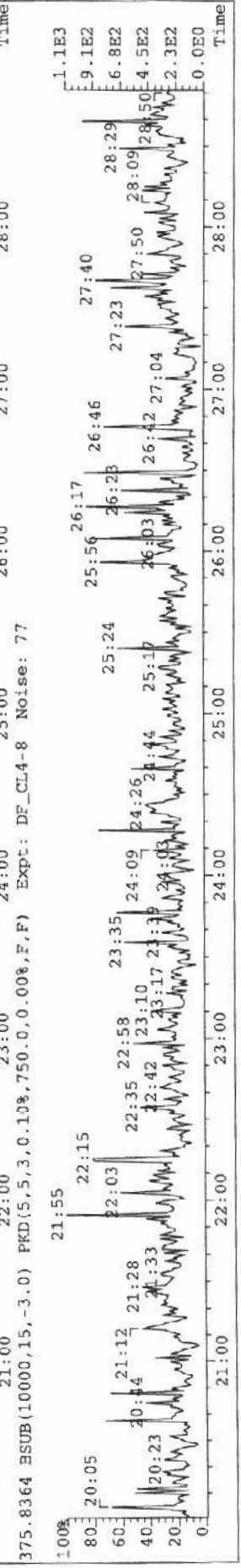
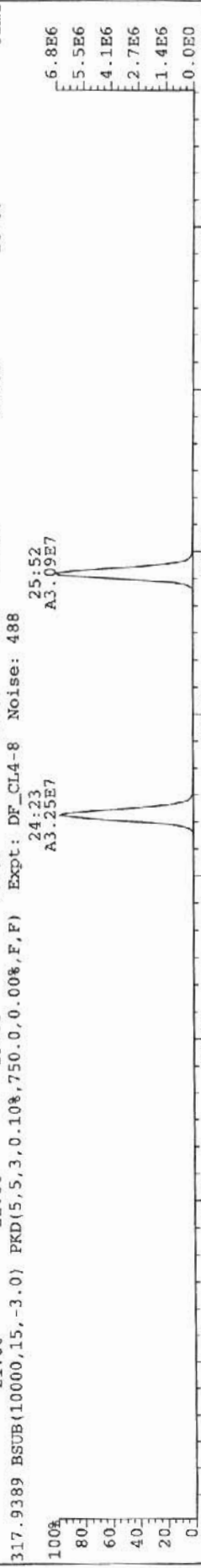
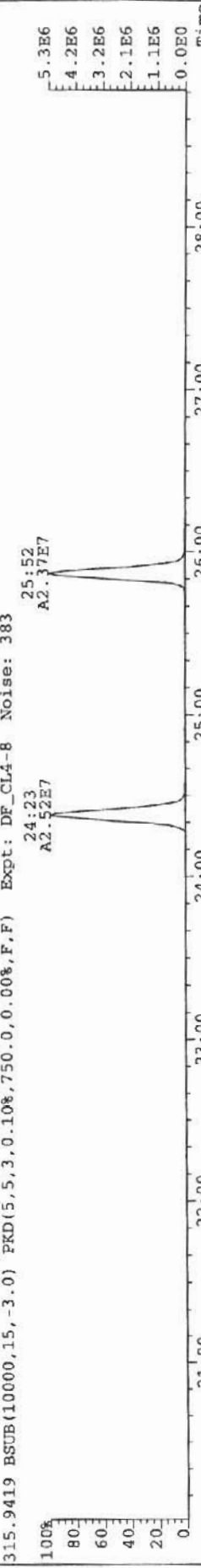
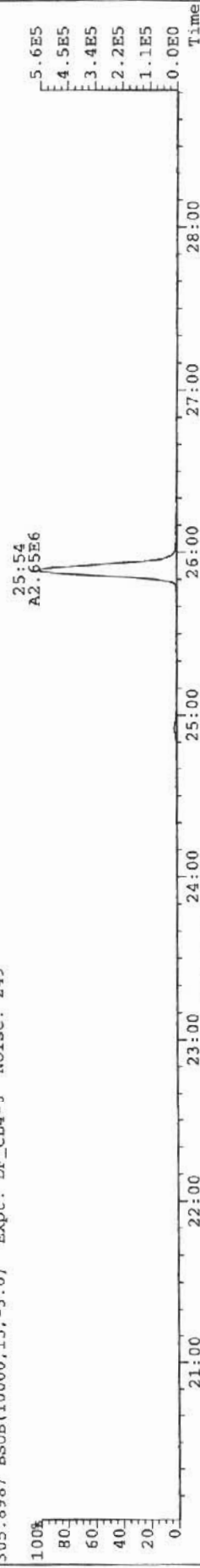
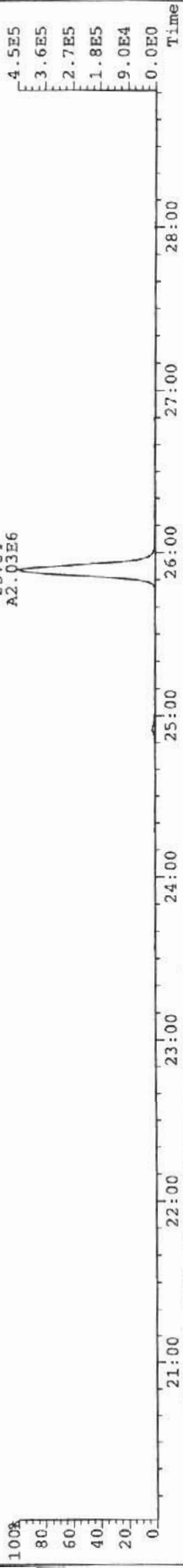


316.9824 Expt: DF_CL4-8



319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 134

File: 060208F1 Acq: 8-FEB-2006 06:15:07 GC EI+ Voltage SIR Autospec-Ultimae
Sample# 1 Text: CS3_S6-4-4 060208_DF_PA Vial# 8 File Text: AP DB5
303.9016 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 138



P6324



ANALYTICAL PERSPECTIVES

PART 4D
SYSTEM PERFORMANCE
“ICAL”

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

Initial Calibration RRF Summary (ICAL)

[Form: RRF7]

Analytical Perspectives

Cal filename: MMI_DF_010606_25JAN06

Cal date: 25-JAN-06

Data filename: 060125P3

26 Jan 06

Samp# 1 0.25 Samp# 2 0.50 Samp# 3 2.0 Samp# 4 10 Samp# 5 40 Samp# 6 200 Samp# 7 500

Type	Name	Mean	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
AX	2,3,7,8-TCDD	1.00	2.24 %	1.00	1.01	0.98	0.95	1.01	1.00	1.02
AX	1,2,3,7,8-PeCDF	0.88	3.49 %	0.88	0.87	0.87	0.87	0.91	0.92	0.90
AX	1,2,3,4,7,8-HxCDD	0.92	3.93 %	0.87	0.93	0.87	0.91	0.95	0.94	0.96
AX	1,2,3,6,7,8-HxCDD	0.93	3.23 %	0.92	0.89	0.92	0.91	0.97	0.96	0.95
AX	1,2,3,7,8,9-HxCDD	0.91	3.03 %	0.94	0.89	0.87	0.87	0.93	0.92	0.92
AX	1,2,3,4,6,7,8-HpCDD	0.83	5.25 %	0.91	0.80	0.78	0.79	0.84	0.84	0.83
AX	OCDD	0.98	2.67 %	0.99	0.96	0.95	0.94	1.01	1.00	0.99
AX2	OCDD-a	0.13	4.74 %	*	*	0.14	0.13	0.12	0.13	0.13
AX	2,3,7,8-TCDF	0.86	3.67 %	0.84	0.82	0.86	0.84	0.88	0.89	0.90
AX	1,2,3,7,8-PeCDF	0.79	5.23 %	0.78	0.73	0.77	0.79	0.81	0.83	0.86
AX	2,3,4,7,8-PeCDF	0.94	5.27 %	1.02	0.92	0.88	0.89	0.93	0.95	0.98
AX	1,2,3,4,7,8-HxCDF	1.02	5.30 %	0.93	0.98	1.00	1.02	1.05	1.06	1.09
AX	1,2,3,6,7,8-HxCDF	0.99	4.23 %	0.96	0.92	0.95	0.99	1.02	1.03	1.05
AX	2,3,4,6,7,8-HxCDF	0.95	3.36 %	0.98	0.91	0.92	0.92	0.95	0.97	0.99
AX	1,2,3,7,8,9-HxCDF	1.03	4.20 %	1.01	0.98	0.99	1.02	1.07	1.07	1.09
AX	1,2,3,4,6,7,8-HpCDF	1.17	3.59 %	1.15	1.14	1.14	1.14	1.21	1.22	1.23
AX	1,2,3,4,7,8,9-HpCDF	1.22	5.95 %	1.33	1.12	1.18	1.18	1.26	1.25	1.25
AX	OCDF	0.86	4.57 %	0.85	0.81	0.83	0.84	0.87	0.89	0.92
AX2	OCDF-a	0.11	3.11 %	*	*	0.12	0.11	0.11	0.11	0.11
ES	13C-2,3,7,8-TCDD	1.03	4.00 %	0.99	1.02	1.02	1.04	1.01	1.04	1.12
ES	13C-1,2,3,7,8-PeCDD	0.77	9.16 %	0.71	0.74	0.73	0.76	0.74	0.82	0.91
ES	13C-1,2,3,4,7,8-HxCDD	1.06	9.32 %	1.00	1.01	0.98	1.01	1.04	1.14	1.25
ES	13C-1,2,3,6,7,8-HxCDD	1.22	9.01 %	1.15	1.21	1.08	1.20	1.20	1.30	1.42
ES	13C-1,2,3,7,8,9-HxCDD	1.26	8.08 %	1.20	1.25	1.14	1.24	1.23	1.32	1.46
ES	13C-1,2,3,4,6,7,8-HpCDD	0.92	9.45 %	0.89	0.91	0.83	0.86	0.91	0.96	1.09
ES	13C-OCDD	0.70	12.54 %	0.68	0.65	0.61	0.64	0.70	0.77	0.87
ES	13C-2,3,7,8-TCDF	0.94	3.80 %	0.90	0.95	0.89	0.98	0.92	0.95	0.98
ES	13C-1,2,3,7,8-PeCDF	0.73	8.83 %	0.67	0.73	0.66	0.71	0.71	0.78	0.85
ES	13C-2,3,4,7,8-HxCDF	0.67	10.34 %	0.60	0.65	0.61	0.66	0.64	0.72	0.80
ES	13C-1,2,3,4,7,8-HxCDF	1.24	8.43 %	1.16	1.21	1.12	1.19	1.25	1.33	1.43
ES	13C-1,2,3,6,7,8-HxCDF	1.43	8.05 %	1.32	1.41	1.33	1.39	1.41	1.52	1.65
ES	13C-2,3,4,6,7,8-HxCDF	1.32	7.47 %	1.23	1.31	1.20	1.29	1.31	1.37	1.50
ES	13C-1,2,3,7,8,9-HxCDF	1.16	9.06 %	1.07	1.15	1.05	1.15	1.13	1.24	1.36
ES	13C-1,2,3,4,6,7,8-HpCDF	0.86	10.41 %	0.81	0.83	0.77	0.82	0.84	0.92	1.04
ES	13C-1,2,3,4,7,8,9-HpCDF	0.70	10.73 %	0.66	0.67	0.63	0.66	0.68	0.75	0.85
ES	13C-OCDF	0.85	13.29 %	0.80	0.78	0.73	0.77	0.87	0.94	1.05
CS	37Cl-2,3,7,8-TCDD	0.89	4.46 %	*	0.86	0.86	0.87	0.90	0.95	*
CS	13C-1,2,3,4,7-PeCDD	0.69	6.00 %	0.66	0.70	0.66	0.67	0.68	0.72	0.77
CS	13C-1,2,3,4,6-PeCDF	0.54	4.24 %	0.62	0.66	0.60	0.64	0.64	0.65	0.69
CS	13C-1,2,3,4,6,9-HxCDF	1.11	3.80 %	1.09	1.16	1.04	1.09	1.14	1.12	1.15
CS	13C-1,2,3,4,6,8,9-HpCDF	0.67	5.07 %	0.66	0.68	0.61	0.65	0.68	0.68	0.72
AS	AS_HxCDF	Div0	*	*	*	*	*	*	*	*
JS/RT	13C-1,2,3,4-TCDD	-	- %	-	-	-	-	-	-	-
JS	13C-1,2,3,4-TCDF	-	- %	-	-	-	-	-	-	-
JS/RT	13C-1,2,3,4,6,7-HxCDD	-	- %	-	-	-	-	-	-	-

Analyst: *WJ*
Date: *26 Jan 06*

SS	37Cl-2,3,7,8-TCDD	0.86	4.14 %	*	0.84	0.84	0.83	0.89	0.92	*
SS	13C-1,2,3,4,7-FeCDD	0.90	3.98 %	0.92	0.95	0.90	0.88	0.93	0.88	0.85
SS	13C-1,2,3,4,6-FeCDF	0.88	4.96 %	0.93	0.91	0.91	0.90	0.90	0.83	0.81
SS	13C-1,2,3,4,6,9-HxCDF	0.78	5.92 %	0.83	0.82	0.78	0.78	0.81	0.73	0.70
SS	13C-1,2,3,4,6,8,9-HpCDF	0.78	5.74 %	0.81	0.81	0.79	0.79	0.81	0.74	0.70
SBS	2,4,5,8-TCDF	0.86	3.67 %	0.84	0.82	0.86	0.84	0.88	0.89	0.90
Ay	1,3,6,8-TCDD	1.00	2.24 %	1.00	1.01	0.98	0.95	1.01	1.00	1.02
Ay	1,2,3,9-TCDD	1.00	2.24 %	1.00	1.01	0.98	0.95	1.01	1.00	1.02
Ay	1,2,8,9-TCDD	1.00	2.24 %	1.00	1.01	0.98	0.95	1.01	1.00	1.02
Ay	1,2,4,7,9-FeCDD	0.88	3.49 %	0.88	0.83	0.87	0.87	0.91	0.92	0.90
Ay	1,2,3,8,9-FeCDD	0.88	3.49 %	0.88	0.83	0.87	0.87	0.91	0.92	0.90
Ay	1,2,4,6,7,9-HxCDD	0.92	2.80 %	0.91	0.90	0.89	0.89	0.95	0.94	0.94
Ay	1,2,3,4,6,7,9-HpCDD	0.83	5.25 %	0.91	0.80	0.78	0.79	0.84	0.84	0.83
Ay	1,3,6,8-TCDF	0.86	3.67 %	0.84	0.82	0.86	0.84	0.88	0.89	0.90
Ay	2,3,4,8-TCDF	0.86	3.67 %	0.84	0.82	0.86	0.84	0.88	0.89	0.90
Ay	1,2,8,9-TCDF	0.86	3.67 %	0.84	0.82	0.86	0.84	0.88	0.89	0.90
Ay	1,3,4,6,8-FeCDF	0.86	4.40 %	0.89	0.82	0.82	0.84	0.87	0.89	0.92
Ay	1,2,3,8,9-FeCDF	0.86	4.40 %	0.89	0.82	0.82	0.84	0.87	0.89	0.92
Ay	1,2,3,4,6,8-HxCDF	1.00	3.90 %	0.97	0.96	0.96	0.99	1.02	1.03	1.05
ES2	13C-OCDD-a	0.34	13.30 %	0.33	0.31	0.29	0.31	0.35	0.37	0.43
ES2	13C-OCDF-a	0.41	13.73 %	0.38	0.38	0.35	0.37	0.41	0.45	0.51

P6324



ANALYTICAL PERSPECTIVES

PART 4E

SYSTEM PERFORMANCE

“ OPR ONLY FOR M1613 ”

DOCUMENTATION FOR THE ANALYSIS
OF

POLYCHLORINATED DIBENZO-*P*-DIOXINS & DIBENZOFURANS

FORM 8A
TCDD/TCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Analytical Perspectives Episode No.:

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): OPR Data Filename:

Ext. Date: Shift: Analysis Date: 8-FEB-06 Time: 07:05:24

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
NATIVE ANALYTES			
2,3,7,8-TCDD	10	9.9	7.3 - 14.6
2,3,7,8-TCDF	10	12.0	8.0 - 14.7
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	89.6	25.0 - 141.0
13C-2,3,7,8-TCDF	100	96.0	26.0 - 126.0
CLEANUP STANDARD			
37C1-2,3,7,8-TCDD	40	43.3	14.8 - 63.2

OPR
OK please -
Beck fingerprint?

Analyst: *WJ*
Date: *15 Feb 06*

(1) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613.

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF
 Filename: 060208P1 S: 2 ACG: 8-FEB-06 07:05:24
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt/Vol: 1.000
 Vial: 47

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	1.69e+05	0.73	1.06	26:49	9.90		744	2.5	1.02	-
AX	2,3,7,8-TCDF	2.58e+05	0.73	0.86	25:52	12.0		2019	2.5	2.34	-
ES	13C-2,3,7,8-TCDD	1.72e+06	0.84	1.02	26:48	89.6		3014	2.5	3.72	89.6
ES	13C-2,3,7,8-TCDF	2.51e+06	0.81	0.94	25:51	96.0		1832	2.5	1.72	96.0
JS/RT	13C-1,2,3,4-TCDD	1.85e+06	0.83	-	26:04	4.28		3014	2.5	-	-
JS	13C-1,2,3,4-TCDF	2.78e+06	0.77	-	24:20	4.39		1832	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	7.12e+05	0.89	0.89	26:49	43.3				1.97	108

Analyst: 
 Date: 15 Feb 06

Analytical Perspectives

PCDD/PCDF RT Window & Isomer Specificity Standards

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF

Filename: 060208P1 S: 2 Vial: 47
 GC Column ID: db-5 ICal: MMI_DF_010606_25JAN Wt/Vol: 1.000
 Acq: 8-FEB-06 07:05:24

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1,3,6,8-TCDD	22:45	1,2,8,9-TCDD	27:52
1,2,4,7,9-PeCDD	29:52	1,2,3,8,9-PeCDD	32:57
1,2,4,6,7,9-HxCDD	34:44	1,2,3,7,8,9-HxCDD	36:53
1,2,3,4,6,7,9-HpCDD	39:15	1,2,3,4,6,7,8-HpCDD	40:05
1,3,6,8-TCDF	20:33	1,2,8,9-TCDF	28:02
1,3,4,6,8-PeCDF	27:57	1,2,3,8,9-PeCDF	33:15
1,2,3,4,6,8-HxCDF	34:04	1,2,3,7,8,9-HxCDF	37:16
1,2,3,4,6,7,8-HpCDF	38:55	1,2,3,4,7,8,9-HpCDF	40:40

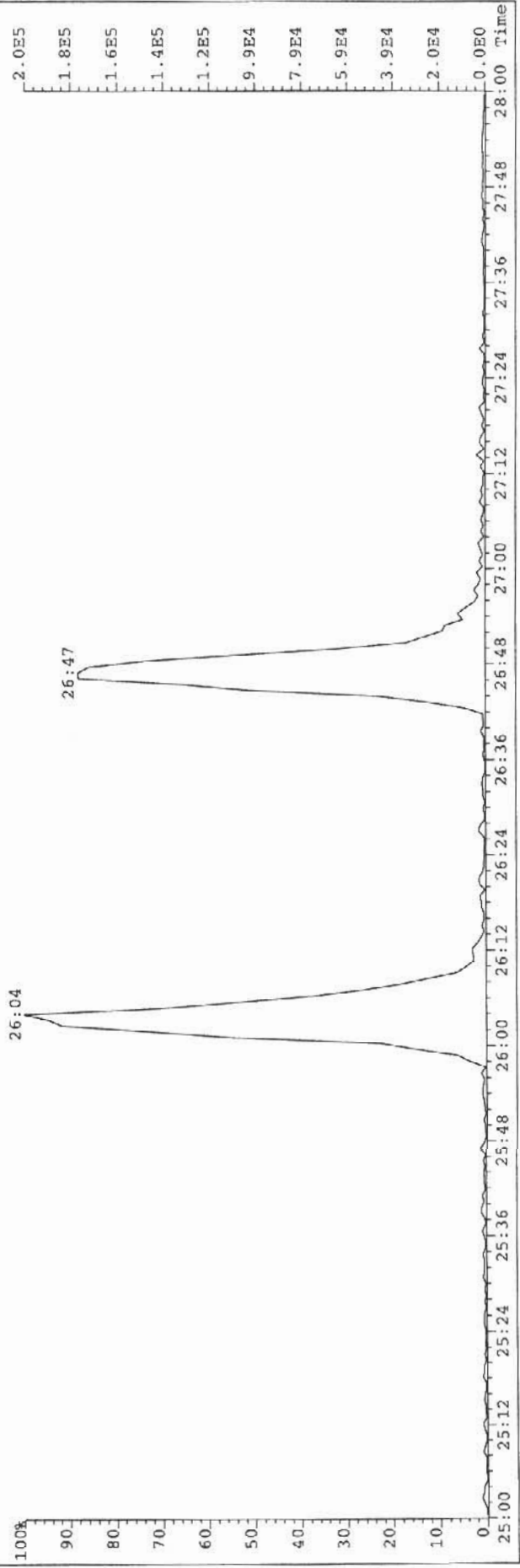
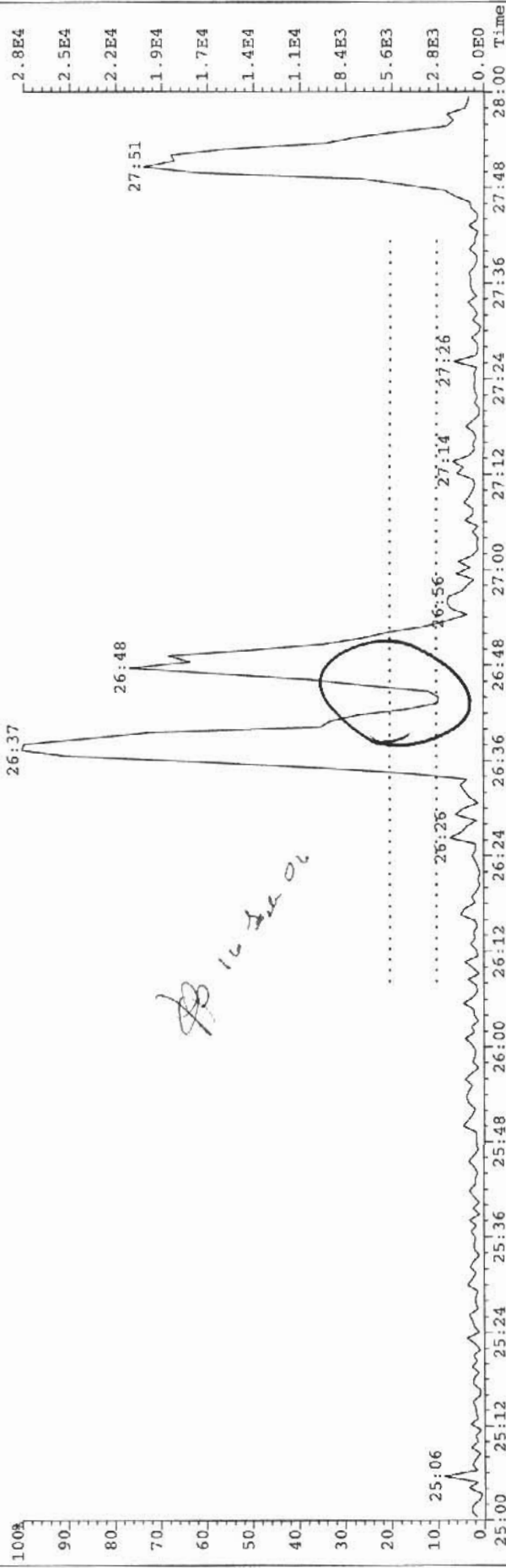
WJ

Isomer Specificity Test Standard Results

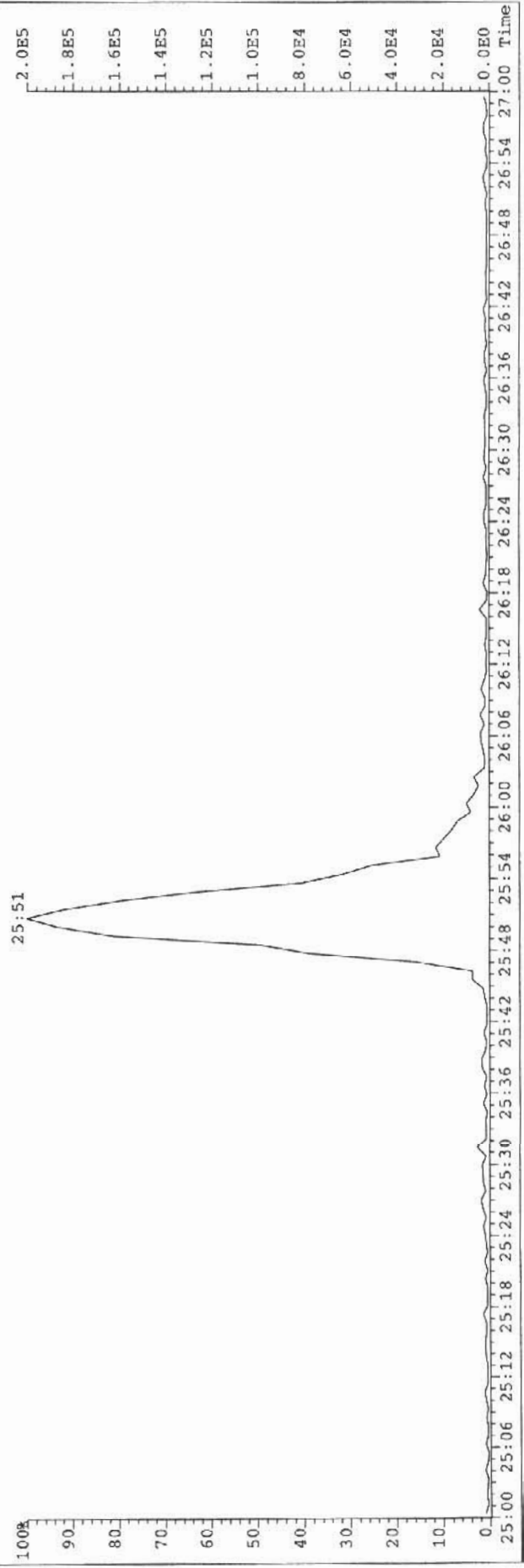
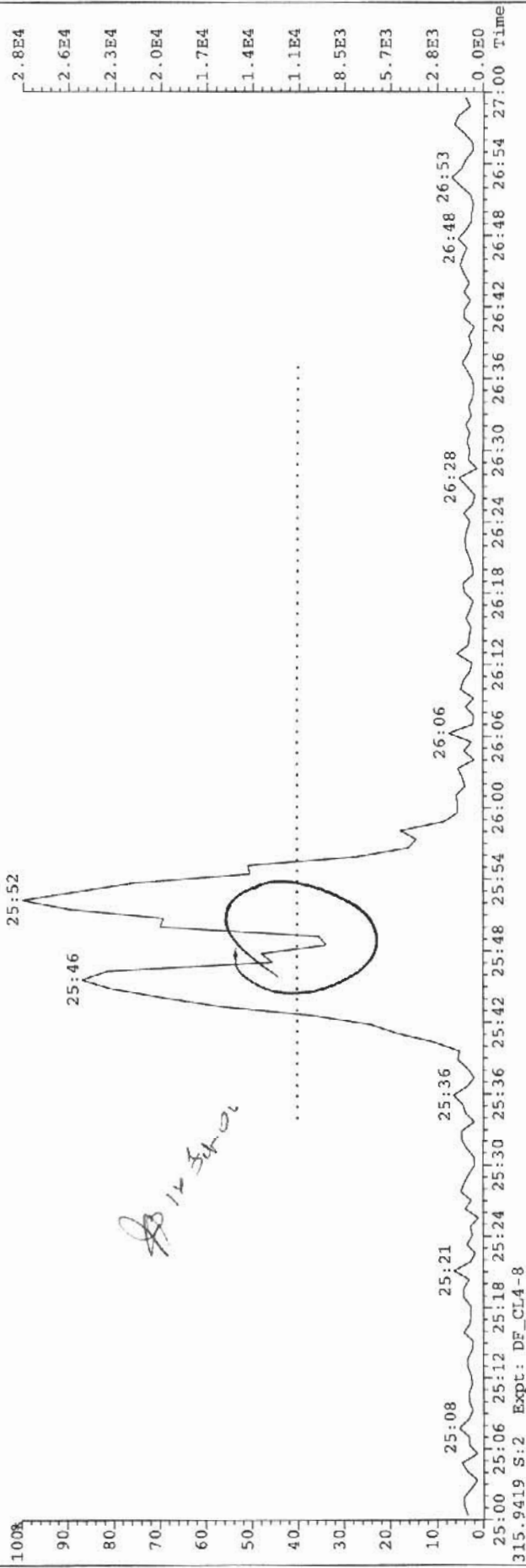
Isomer	RT	Closest Isomer	RT	% Valley
2,3,7,8-TCDD	26:49	1,2,3,9-TCDD	26:38	<= 10%
2,3,7,8-TCDF	25:52	2,3,4,8-TCDF	25:45	<= 40%

Analyst: *[Signature]*
 Date: 15/2/06

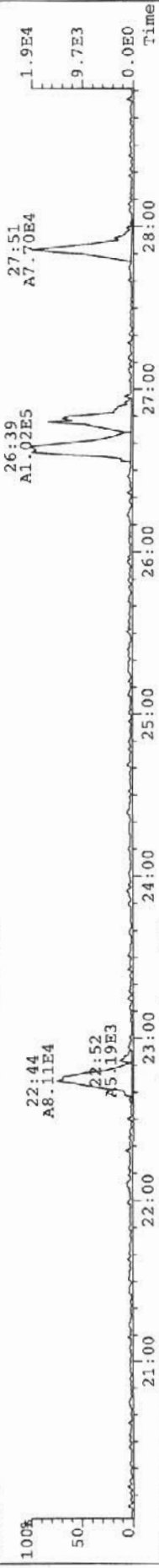
File: 060208P1 Acq: 8-FEB-2006 07:05:24 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 174



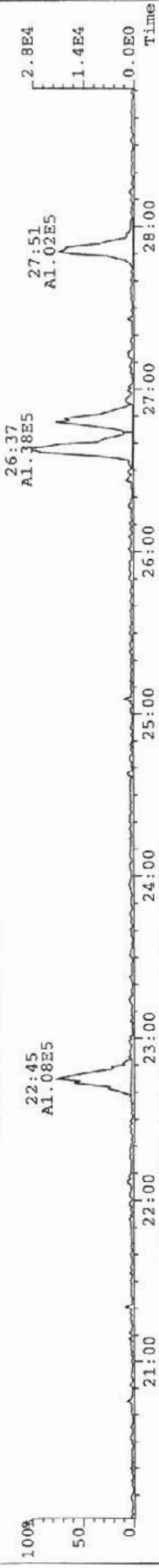
File: 060208PI Acq: 8-FEB-2006 07:05:24 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 299



File: 060208PI Acq: 8-FEB-2006 07:05:24 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001_OPR1_3829_DF_Vial# 47 File Text: AP DB5
319.8965 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 124



321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 174



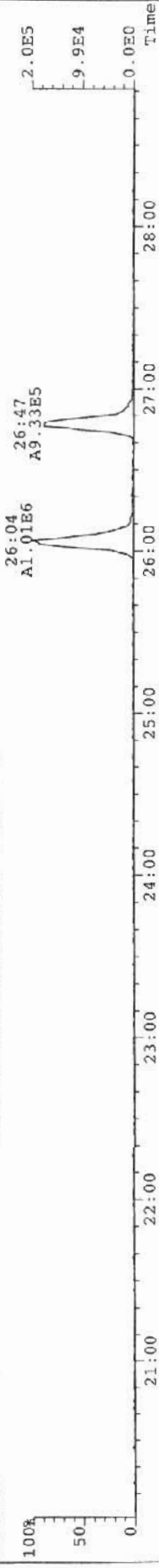
327.8850 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 272



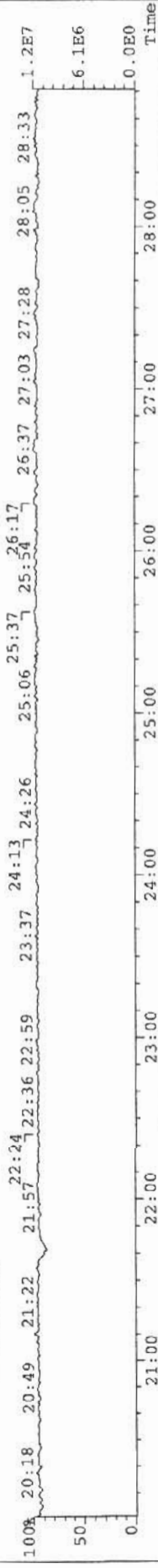
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 764



333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 89

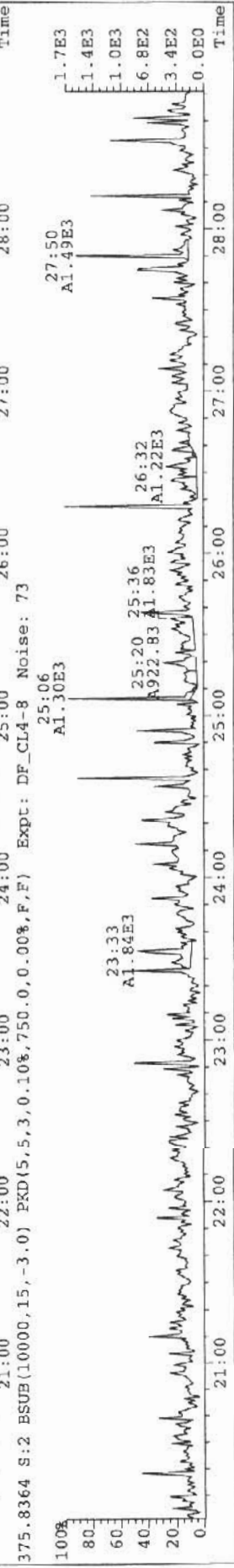
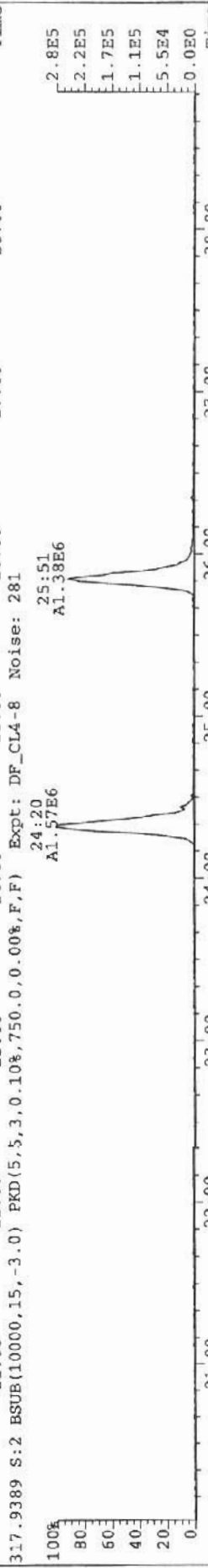
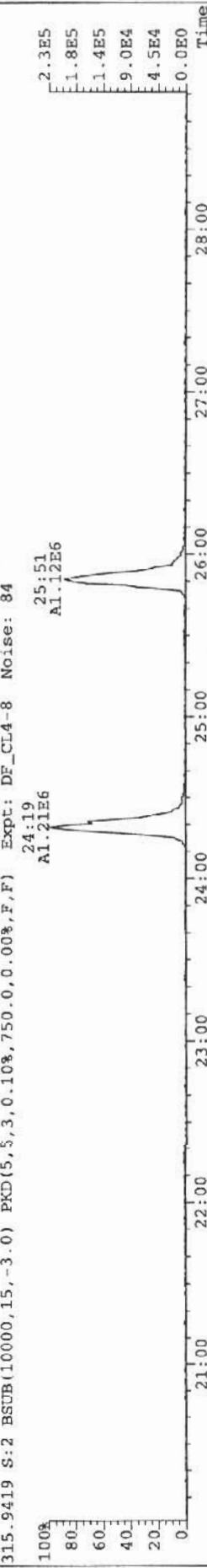
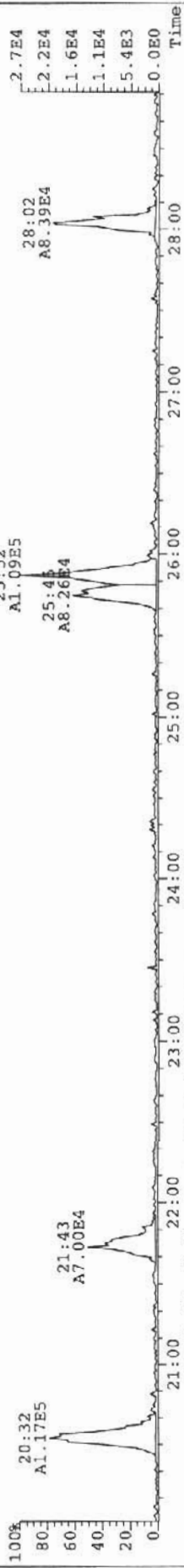


316.9824 S:2 Expt: DF_CL4-8



100% 50% 0 21:00 22:00 23:00 24:00 25:00 26:00 27:00 28:00 Time

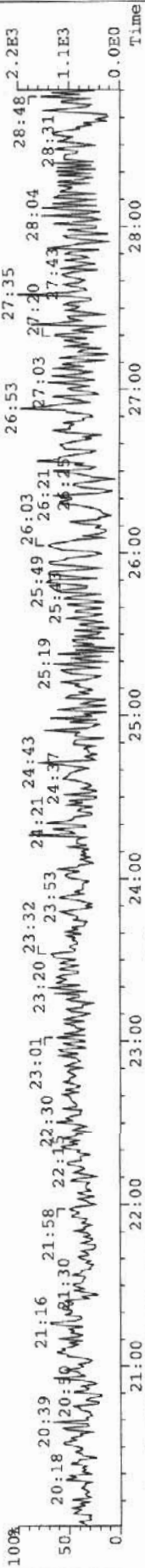
File: 060208PI Acq: 8-FEB-2006 07:05:24 GC EI+ Voltage SIR Autospec-Ultimate
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DBS
303.9016 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 144



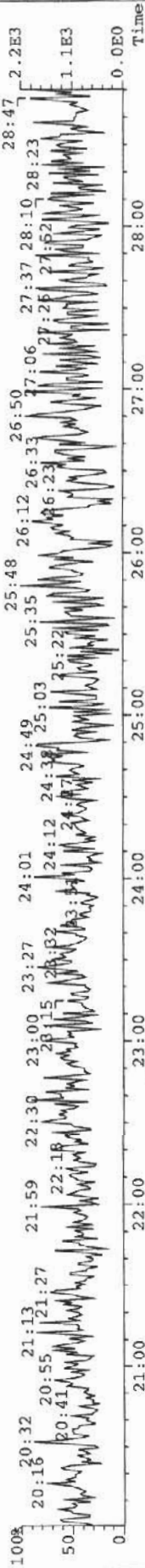
File: 060208PI Acq: 8-FEB-2006 07:55:33 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS 060208_DF_PA Vial# 15 File Text: AP DB5

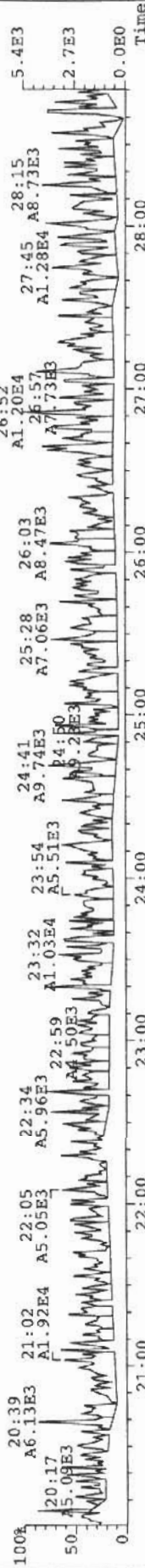
319.8965 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 299



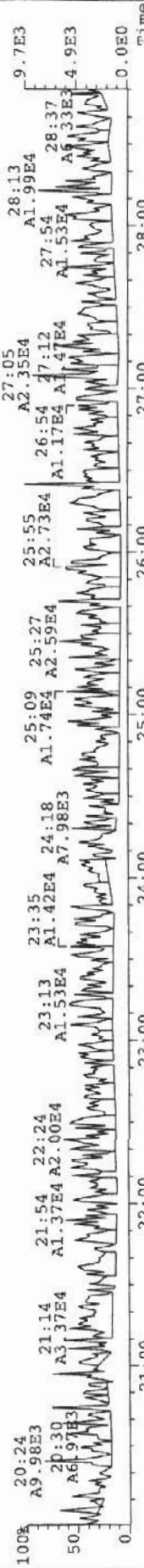
321.8936 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 324



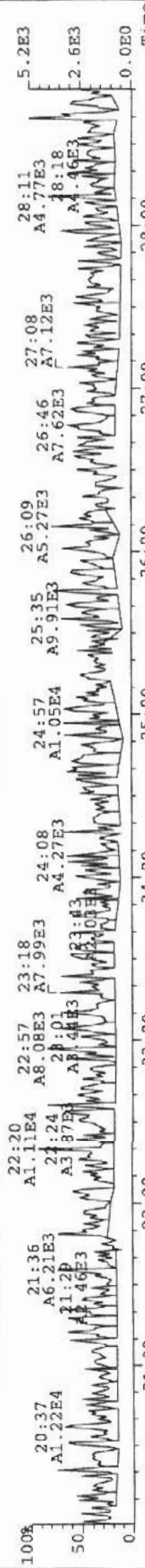
327.8850 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 586



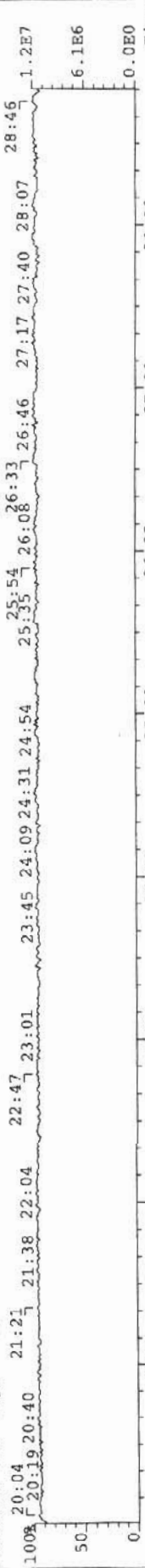
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1042



333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 570



316.9824 S:3 Expt: DF_CL4-8



File: 060208PI Acq: 8-FEB-2006 07:55:33 GC EI+ Voltage SIR Autospec-UltimaE

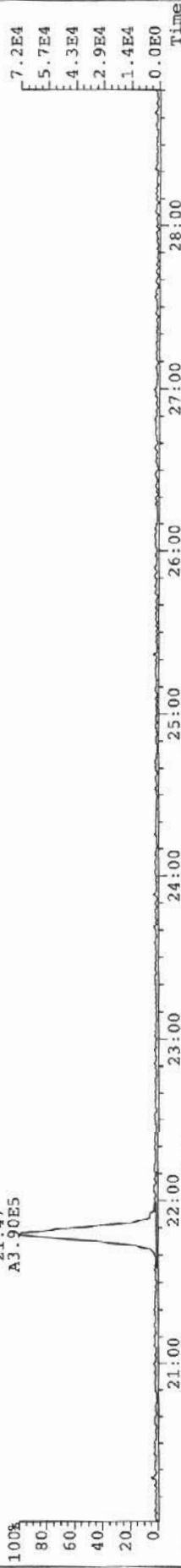
Sample# 3 Text: SBS 060208_DF_PA Vial# 15 File Text: AP DB5
303.9016 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 292

21:48
A2.67E5

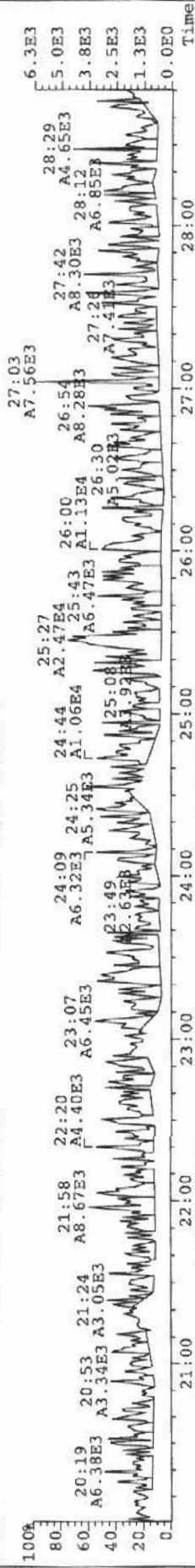


305.8987 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 406

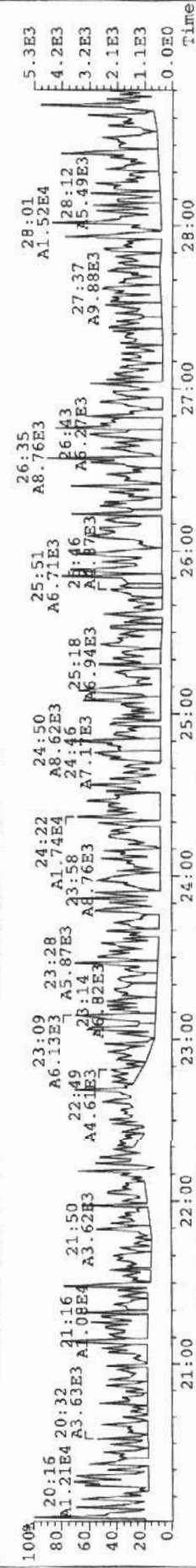
21:47
A3.90E5



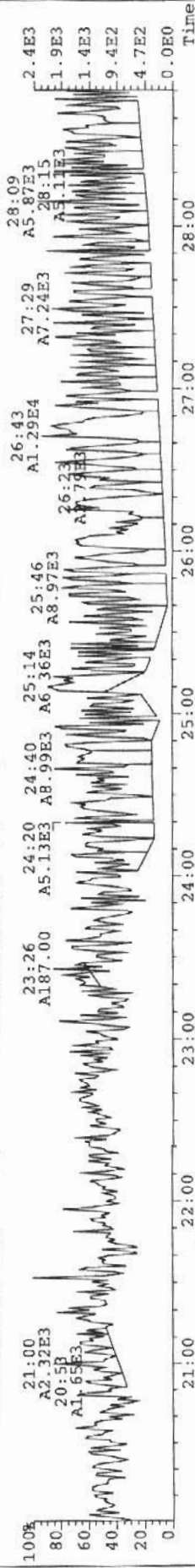
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 490



317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 524



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 389



TCDD/TCDF CALIBRATION VERIFICATION

Analytical Perspectives

Initial Calibration: MM1_DF_010606_25JAN06

GC Column ID: DB-5

VER Data Filename: 060215P1 S#1 Analysis Date: 15-FEB-06 Time: 11:56:42

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	Y	9.6	7.8 - 12.9
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	Y	9.7	8.4 - 12.0
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	Y	98.3	82.0 - 121
13C-2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	Y	99.7	71.0 - 140

CLEANUP STANDARD

37C1-2,3,7,8-TCDD (4) 9.5 7.9 - 12.7

- (1) See Table 8, Method 1613, for m/z specifications.
- (2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.
- (3) Contract-required concentration range as specified in Table 6a, Method 1613, under VER. 10/94
- (4) No ion abundance ratio; report concentration found.

Analyst: 

Date: 15/06/06

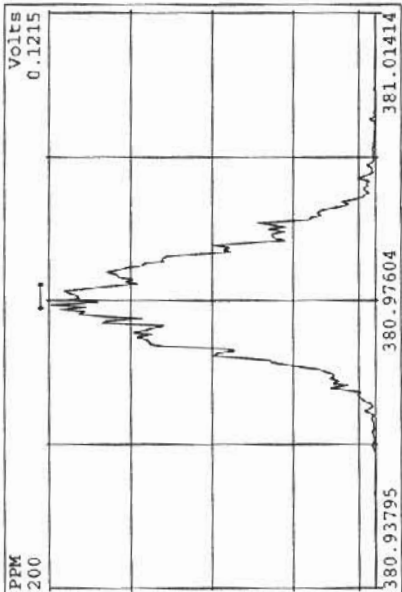
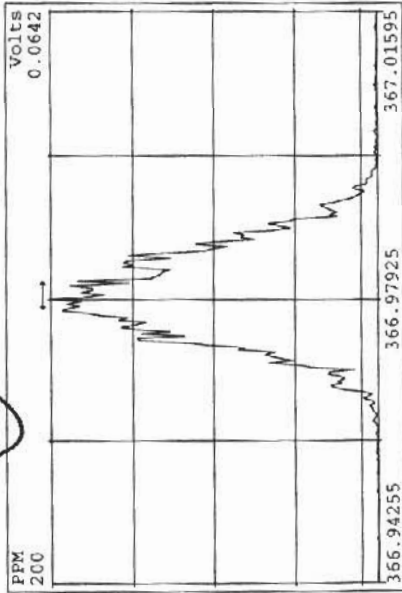
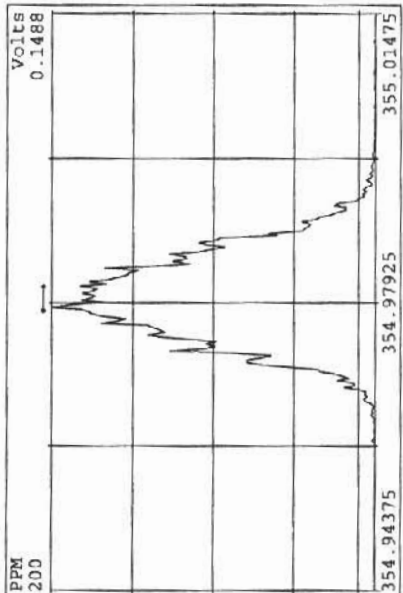
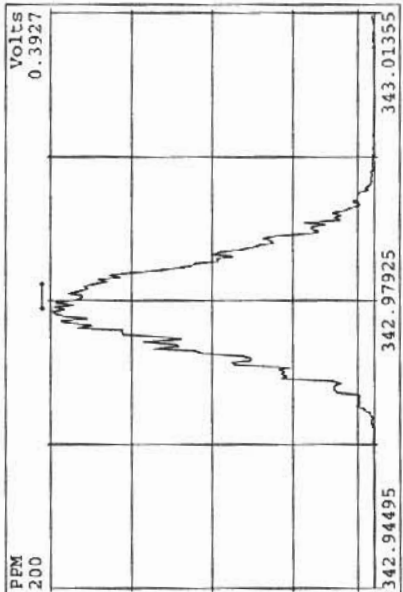
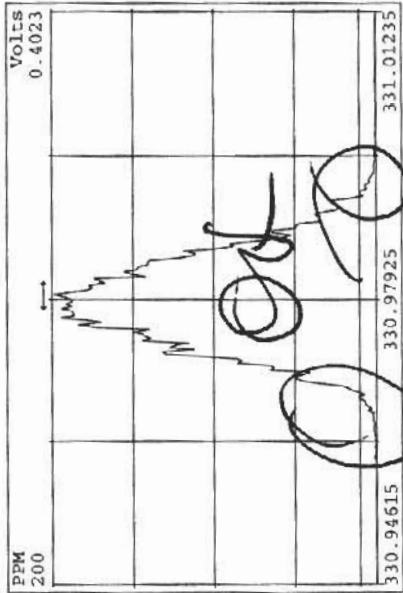
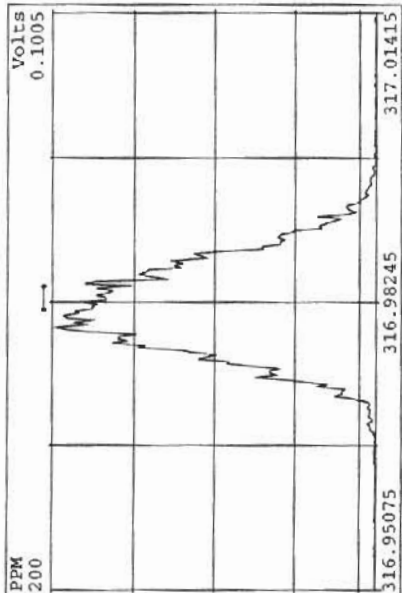
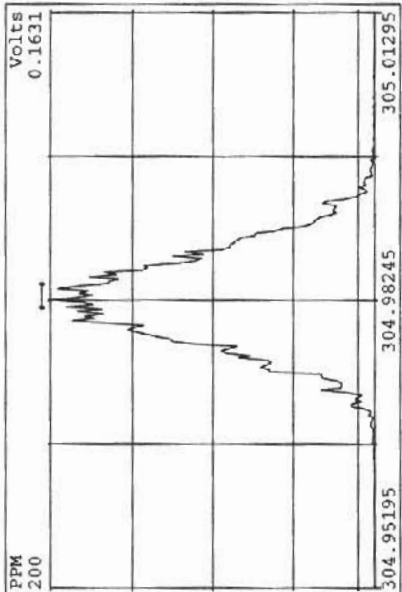
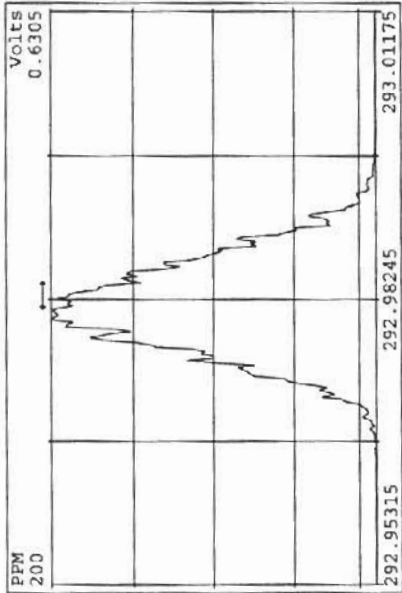
Client ID: 060215_DF_PA
 Lab ID: CS3
 Sample text: CS3 060215_DF_PA

Filename: 060215P1 S: 1 Acq: 15-FEB-06 11:56:42
 GC Column ID: db-5 ICal: MM1_DF_010606_25JAN» Wt/Vol: 1.000
 Vial: 8

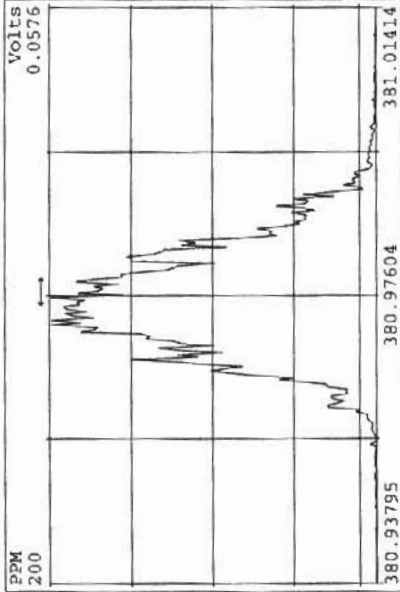
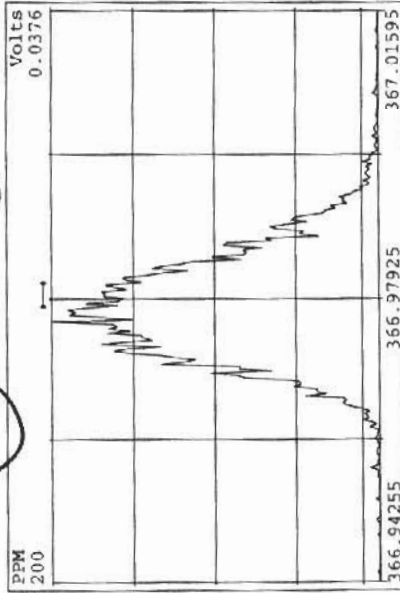
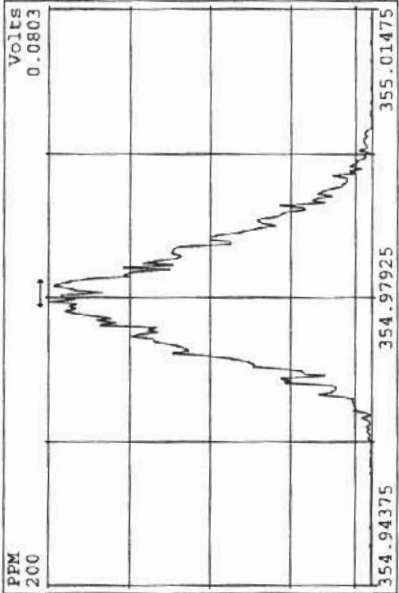
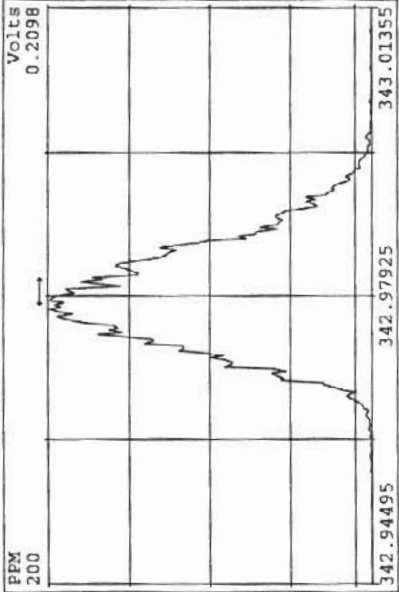
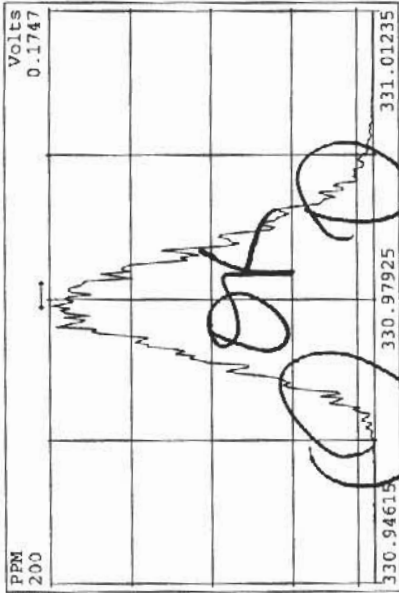
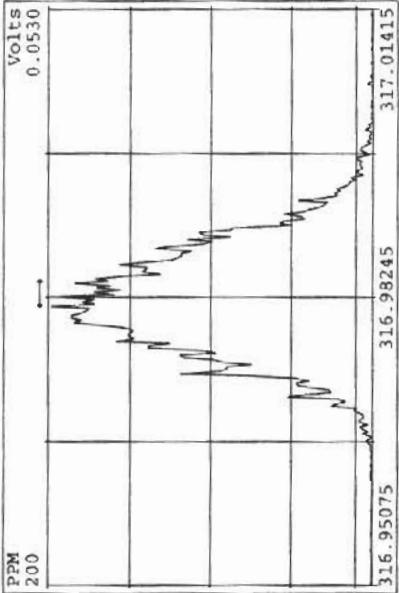
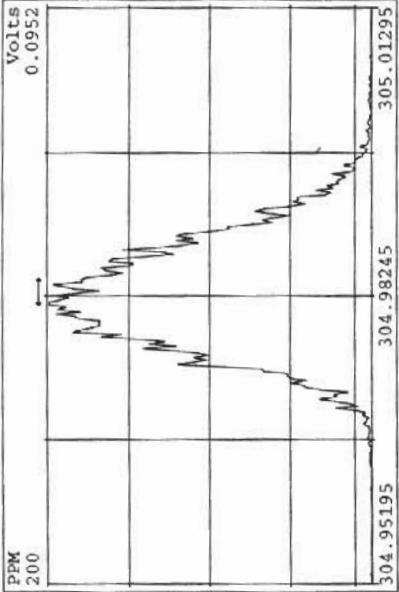
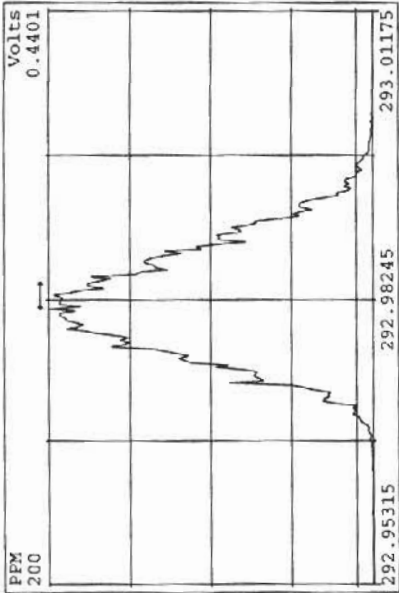
	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	2.91e+06	0.78	1.06	26:47	9.61		1069	2.5	0.0681	-
Ax	2,3,7,8-TCDF	3.43e+06	0.76	0.86	25:52	9.71		1252	2.5	0.0717	-
ES	13C-2,3,7,8-TCDD	3.03e+07	0.80	1.07	26:46	98.1		3409	2.5	0.224	98.1
ES	13C-2,3,7,8-TCDF	4.09e+07	0.75	0.94	25:50	99.7		2425	2.5	0.120	99.7
JS/RT	13C-1,2,3,4-TCDD	2.99e+07	0.81	-	26:03	69.1		3409	2.5	-	-
JS	13C-1,2,3,4-TCDF	4.38e+07	0.72	-	24:20	69.1		2425	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	2.52e+06		0.85	26:47	9.50				0.163	95.0

Analyst: 
 Date: 2/16/06

Peak Locate Examination: 15-FEB-2006: 11:54 File: 060215P1
Experiment: DF_CL4-8 Function: 1 Reference: PRK2



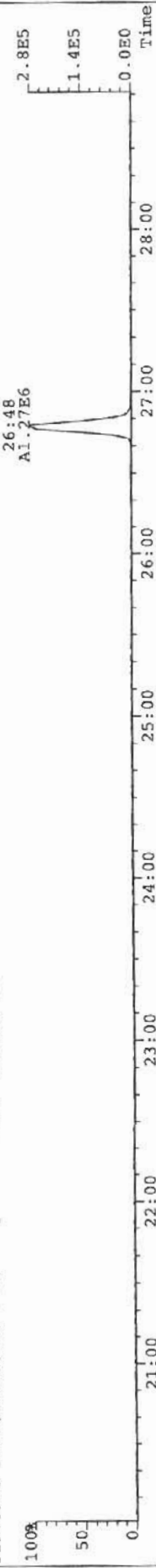
Peak Locate Examination: 15-FEB-2006: 16:10 File: MM1_RES_CHECK
Experiment: DF_CL4-8 Function: 1 Reference: PFK2



File: 060215PI Acq: 15-FEB-2006 11:56:42 GC EI+ Voltage SIR Autospec-Utima.e

Sample# 1 Text: CS3 060215_DF_PA Vial# 8 File Text: AP DB5

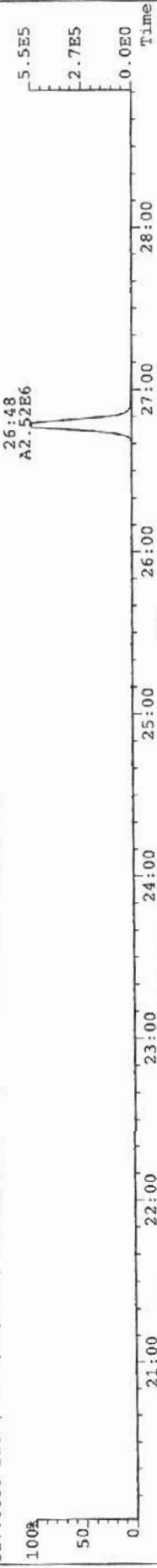
319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 257



321.8936 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 295



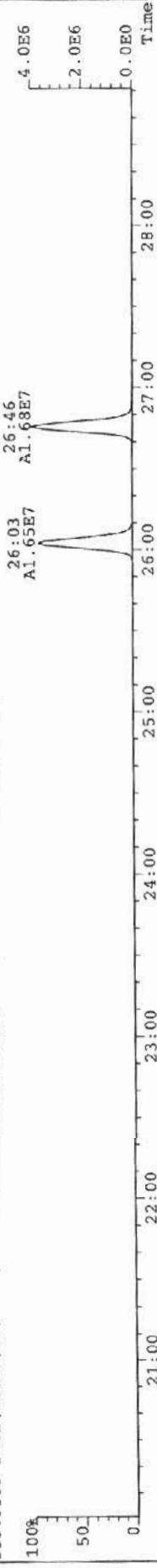
327.8850 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 342



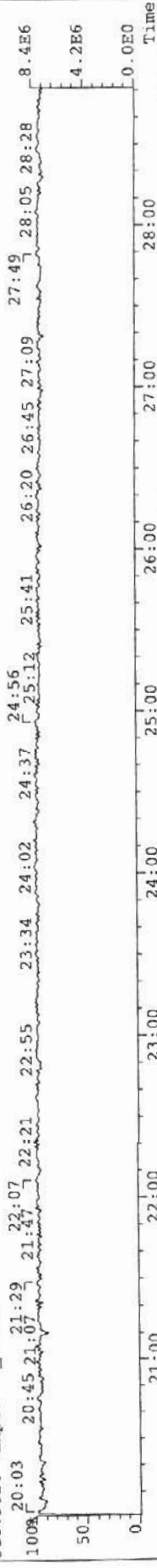
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 980



333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 572

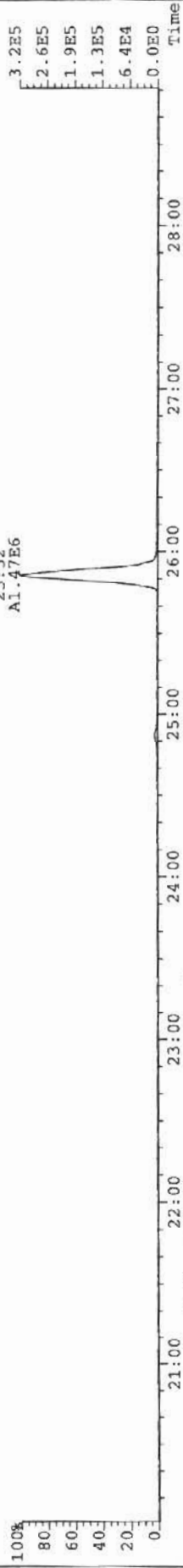


316.9824 Expt: DF_CL4-8

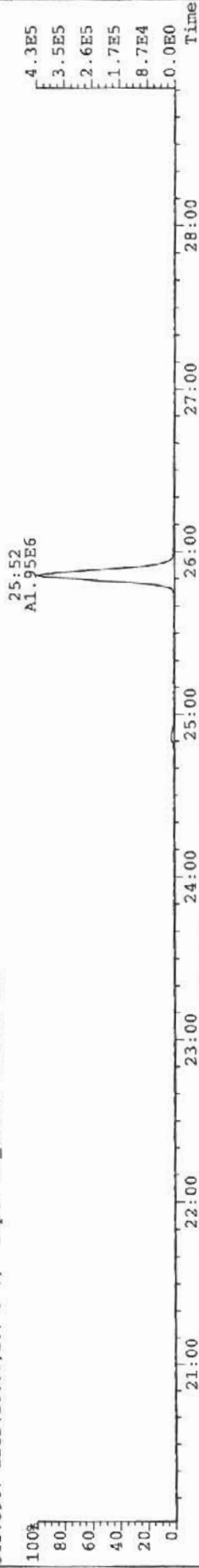


File: 060215PI Acq: 15-FEB-2006 11:56:42 GC EI+ Voltage SIR Autospec-UltimaE

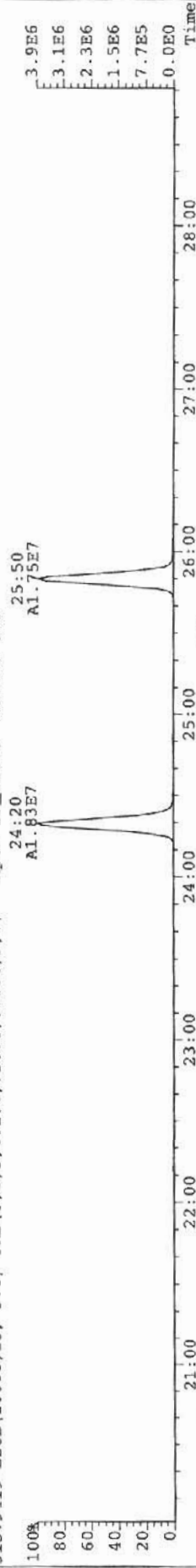
Sample# 1 Text: CS3 060215_DF_PA Vial# 8 File Text: AP DB5
303.9016 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 262



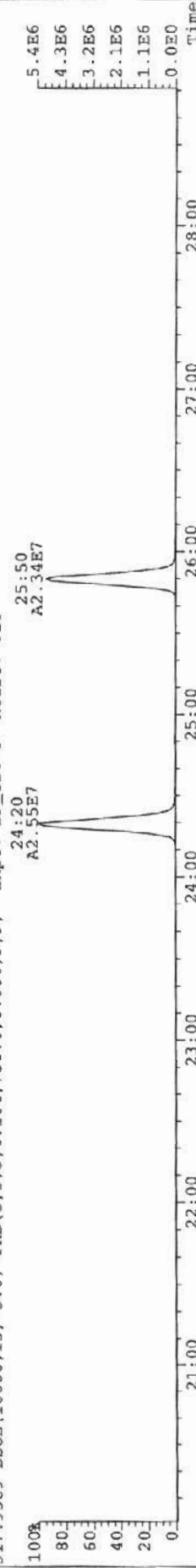
305.8987 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 344



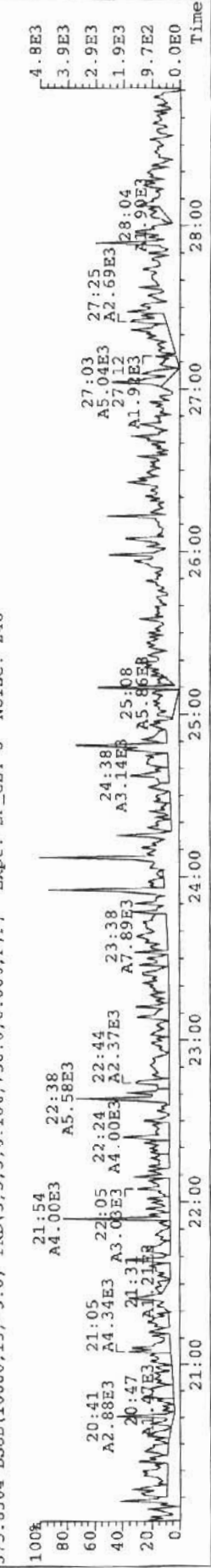
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 666



317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 618



375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 248



FORM 8A
TCDD/TCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Analytical Perspectives Episode No.:

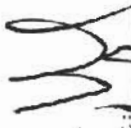
Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): OPR Data Filename:

Ext. Date: Shift: Analysis Date: 15-FEB-06 Time: 12:46:49

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
NATIVE ANALYTES			
2,3,7,8-TCDD	10	10.1	7.3 - 14.6
2,3,7,8-TCDF	10	11.4	8.0 - 14.7
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	94.9	25.0 - 141.0
13C-2,3,7,8-TCDF	100	100.0	26.0 - 126.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	43.0	14.8 - 63.2

Analyst: 
Date: 15 Feb 06

(1) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613.

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF

Filename: 060215P1 S: 2 Acq: 15-FEB-06 12:46:49
 GC Column ID: db-5 ICal: MMI_DF_010606_25JAN* Wt/Vol: 1.000
 Vial: 47

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	4.23e+06	0.75	1.00	26:49	10.1		1409	2.5	0.0639	-
AX	2,3,7,8-TCDF	5.51e+06	0.72	0.86	25:53	11.4		1761	2.5	0.0691	-
ES	13C-2,3,7,8-TCDD	4.18e+07	0.81	1.03	26:47	94.9		4243	2.5	0.186	94.9
ES	13C-2,3,7,8-TCDF	5.60e+07	0.77	0.94	25:52	100.0		2544	2.5	0.101	100.0
JS/RT	13C-1,2,3,4-TCDD	4.26e+07	0.81	-	26:04	98.5		4243	2.5	-	-
JS	13C-1,2,3,4-TCDF	5.97e+07	0.76	-	24:21	94.3		2544	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	1.62e+07		0.89	26:49	43.0				0.0998	107

Analyst: 
 Date: 15/02/06

Client ID: OPR1_3829_DF
 Lab ID: 0_3829_OPR001
 Sample text: 0_3829_OPR001 OPR1_3829_DF
 Filename: 060215P1 S: 2 Vial: 47
 GC Column ID: db-5 ICal: MML_DF_010606_25JAN* Wt/Vol: 1.000
 Acq: 15-FEB-06 12:46:49

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1,3,6,8-TCDD	22:48	1,2,8,9-TCDD	27:51
1,2,4,7,9-PeCDD	29:51	1,2,3,8,9-PeCDD	32:55
1,2,4,6,7,9-HxCDD	34:42	1,2,3,7,8,9-HxCDD	36:51
1,2,3,4,6,7,9-HpCDD	39:13	1,2,3,4,6,7,8-HpCDD	40:04
1,3,6,8-TCDF	20:37	1,2,8,9-TCDF	28:03
1,3,4,6,8-PeCDF	27:58	1,2,3,8,9-PeCDF	33:13
1,2,3,4,6,8-HxCDF	34:02	1,2,3,7,8,9-HxCDF	37:14
1,2,3,4,6,7,8-HpCDF	38:54	1,2,3,4,7,8,9-HpCDF	40:38

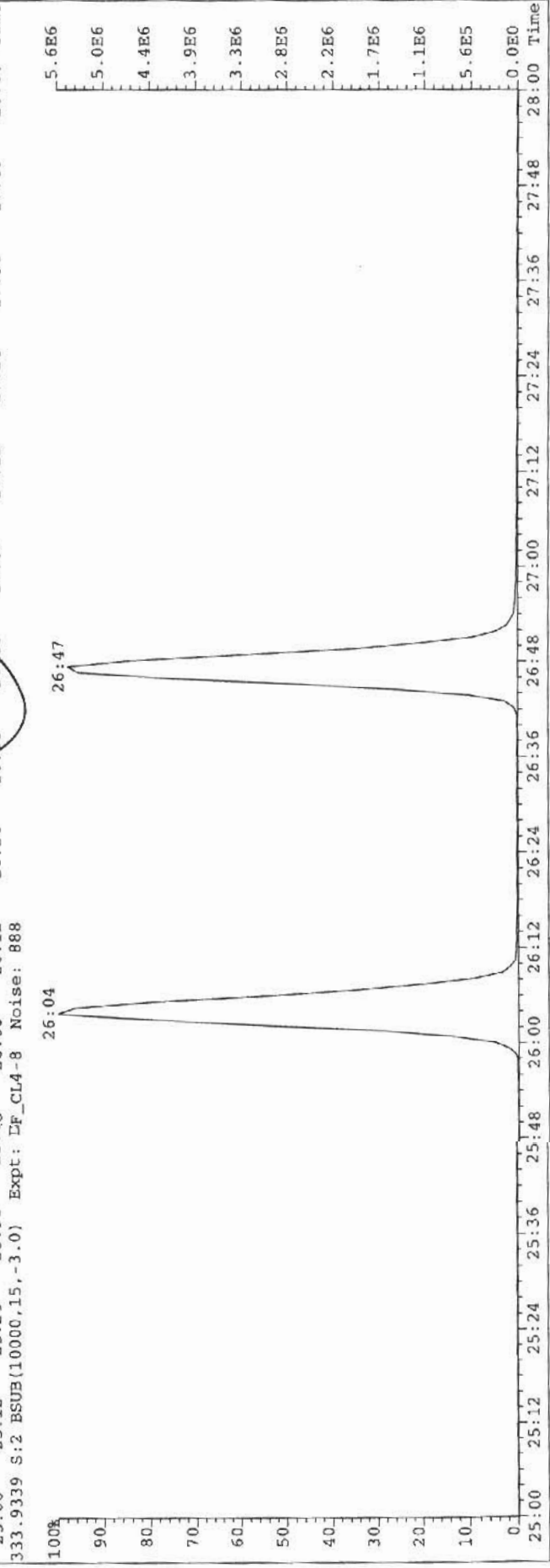
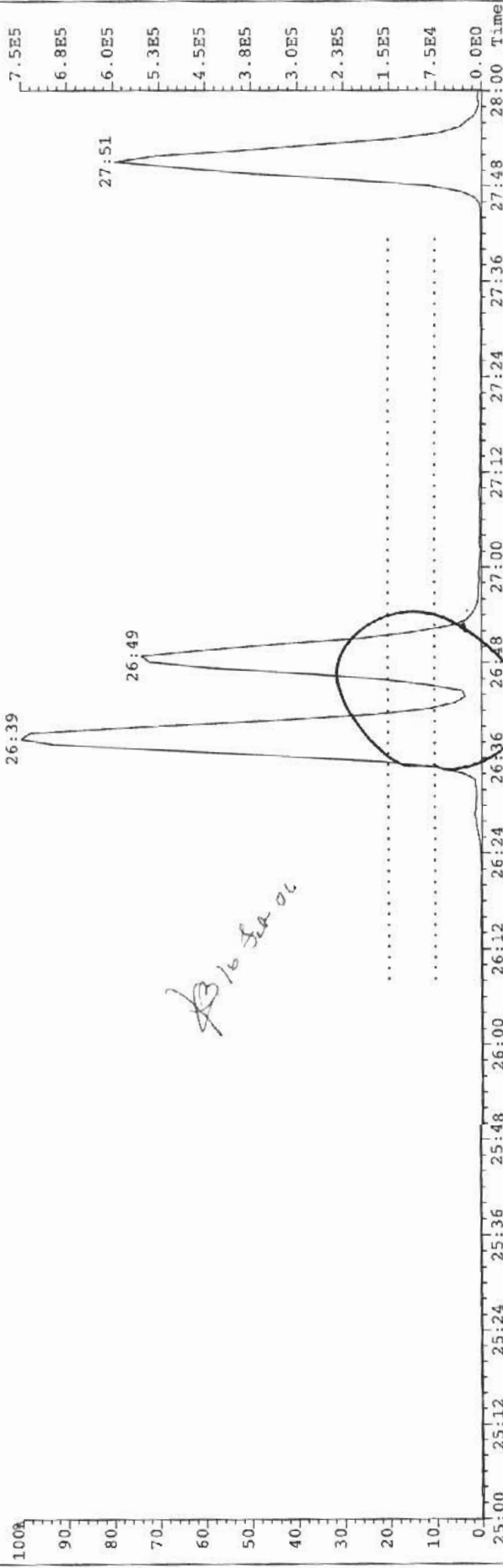
N/A

Isomer Specificity Test Standard Results

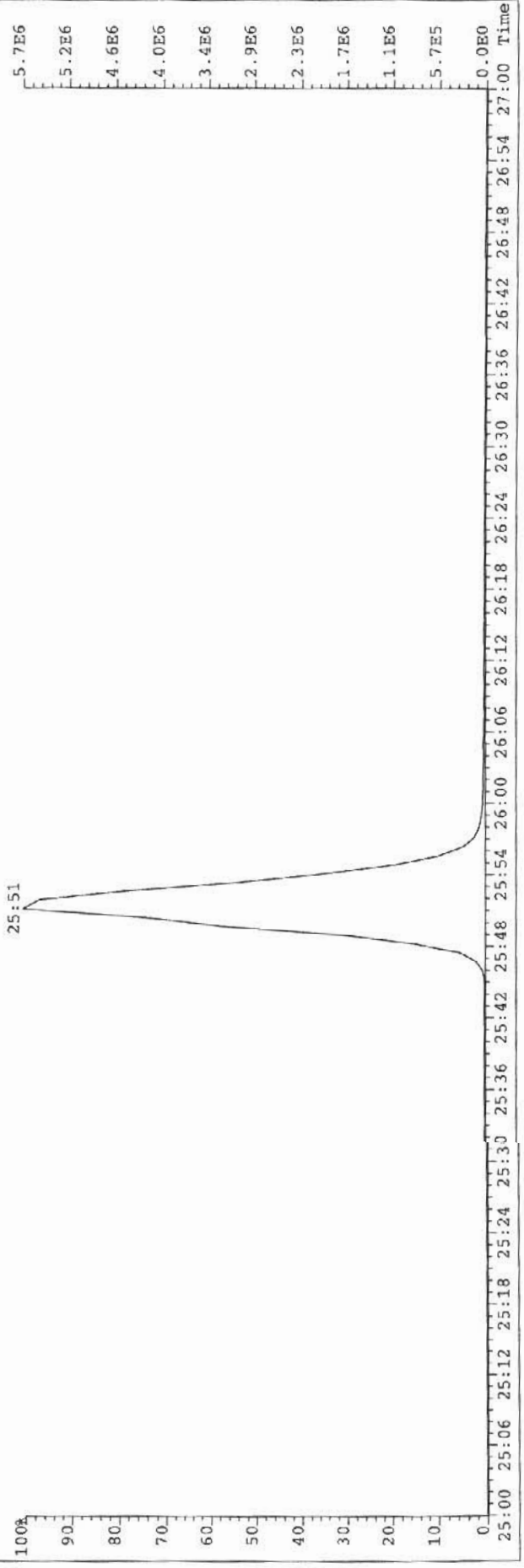
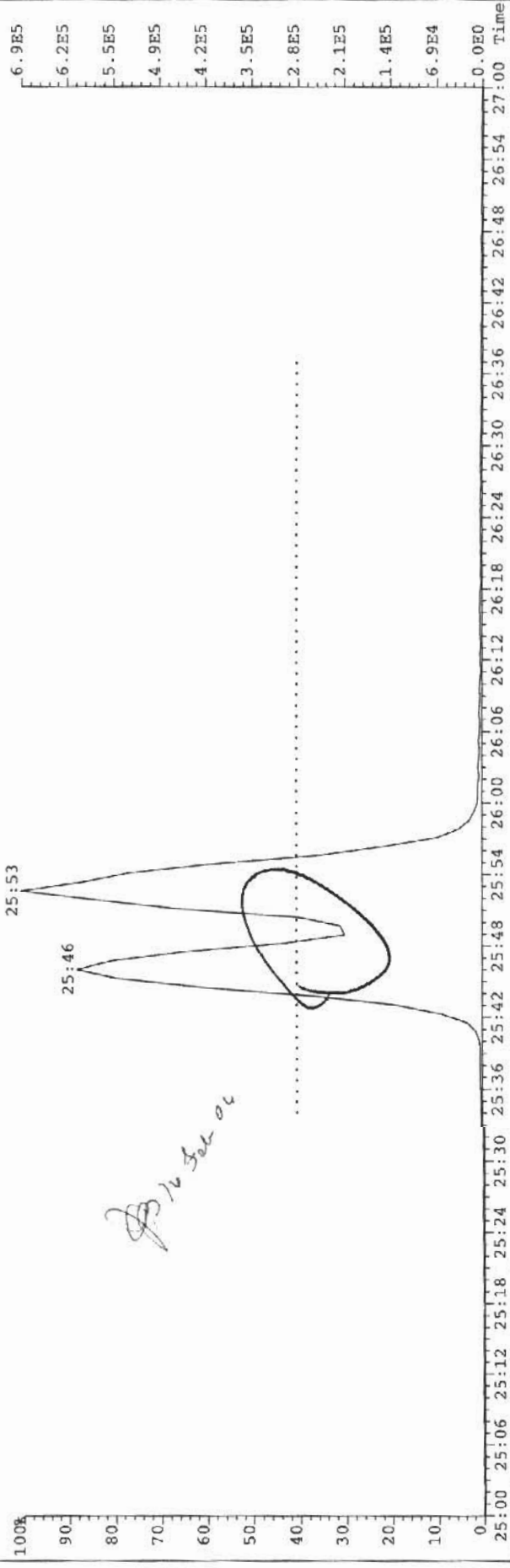
Isomer	RT	Closest Isomer	RT	% Valley
2,3,7,8-TCDD	26:49	1,2,3,9-TCDD	26:39	<= 10%
2,3,7,8-TCDF	25:53	2,3,4,8-TCDF	25:45	<= 40%

Analysis: 
 Date: 15/2/06

File: 060215PI Acq: 15-FEB-2006 12:46:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 303



File: 060215PI Acq: 15-FEB-2005 12:46:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_3829_OPR001 OPR1_3829_DF Vial# 47 File Text: AP DB5
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 371



File: 060215PI Acq: 15-FEB-2006 12:46:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0.3829_OPR001_OPR1_3829_DF Vial# 47 File Text: AP DB5
319.8965 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 247



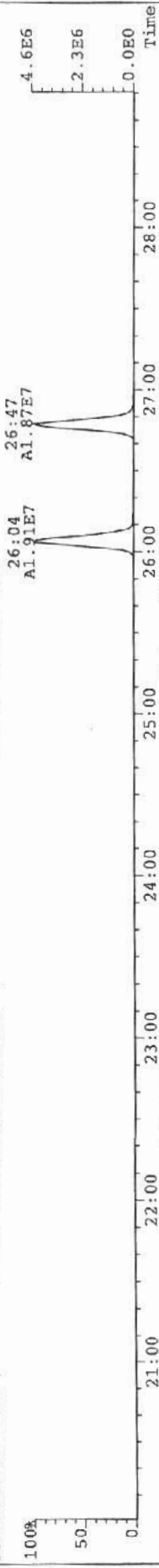
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 303



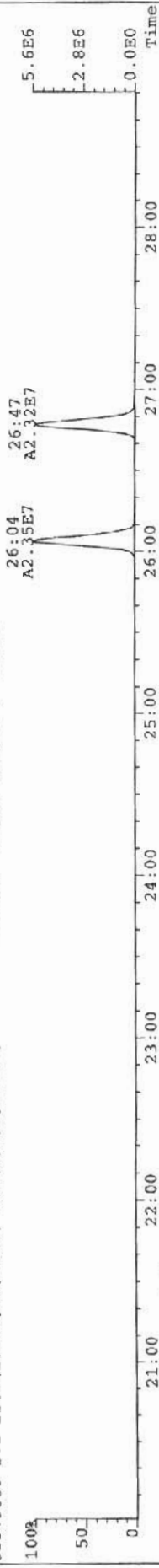
327.8850 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 679



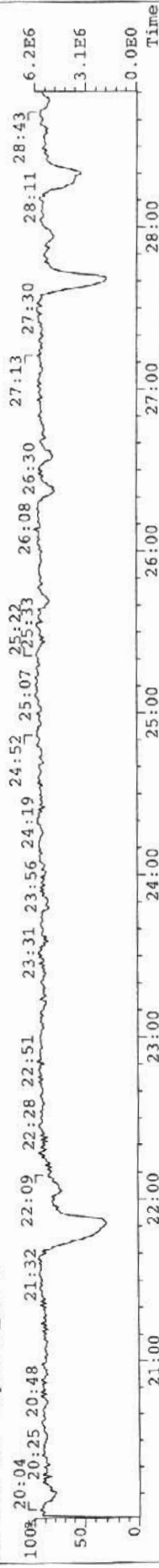
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 1133



333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 888



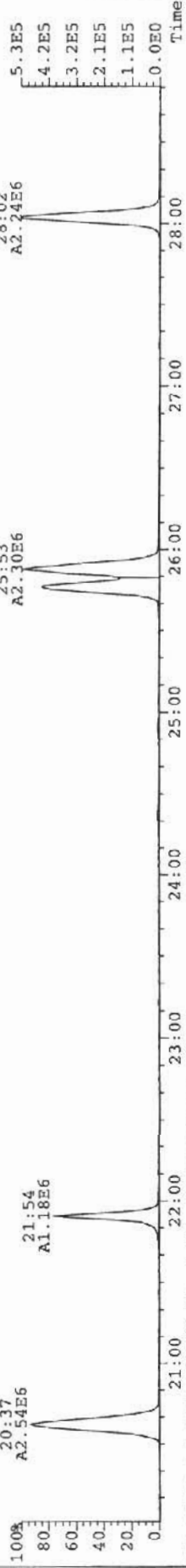
316.9824 S:2 Expt: DF_CL4-8



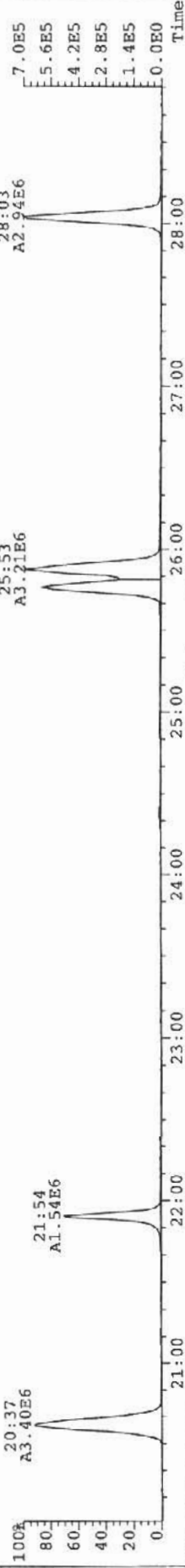
File: 060215PI Acq: 15-FEB-2006 12:46:49 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 2 Text: 0.3829_OPR01 OPR1_3829_DF Vial# 47 File Text: AP DB5

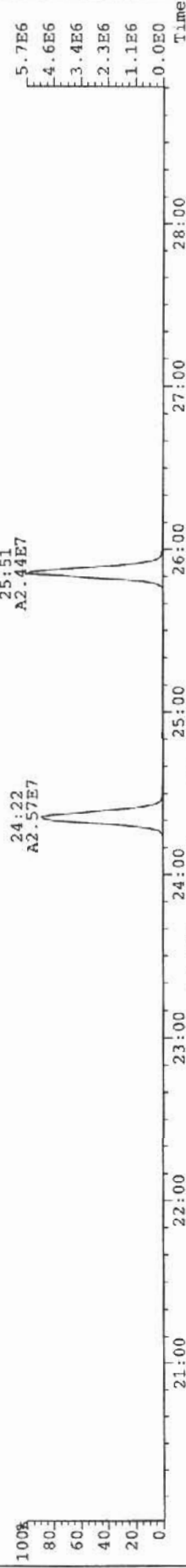
303.9016 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 302



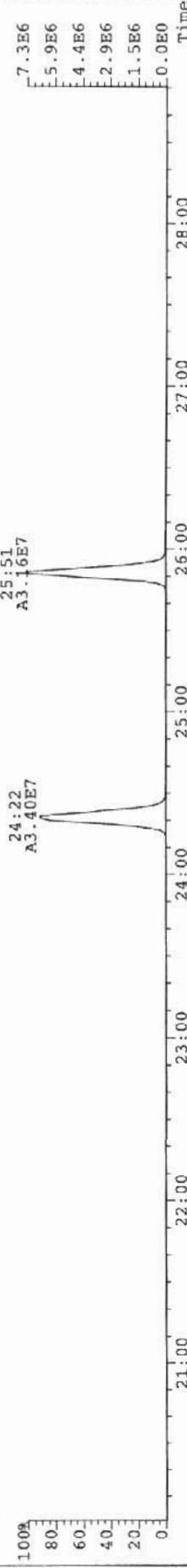
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 371



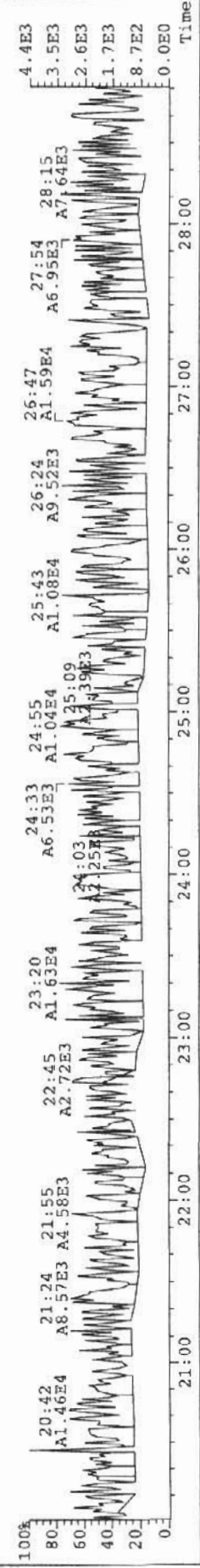
315.9419 S:2 ESUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 910



317.9389 S:2 ESUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 914



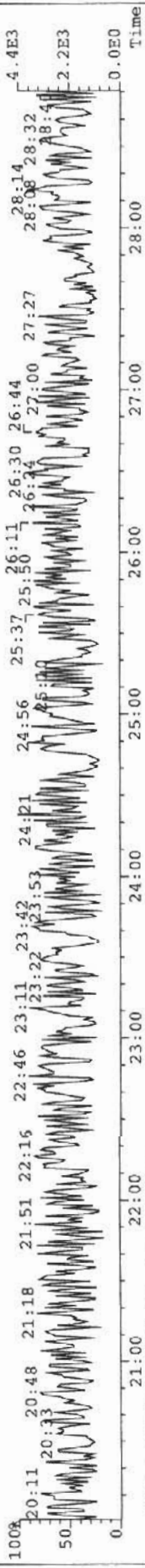
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 649



File: 060215PI Acq: I5-FEB-2006 13:36:50 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS 060215_DF_PA Vial# 15 File Text: AP DB5

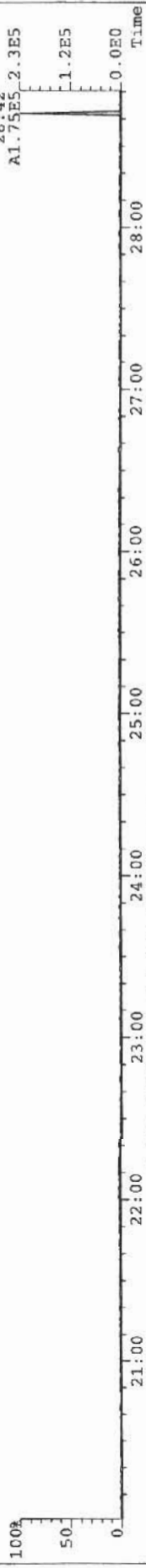
319.8965 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 652



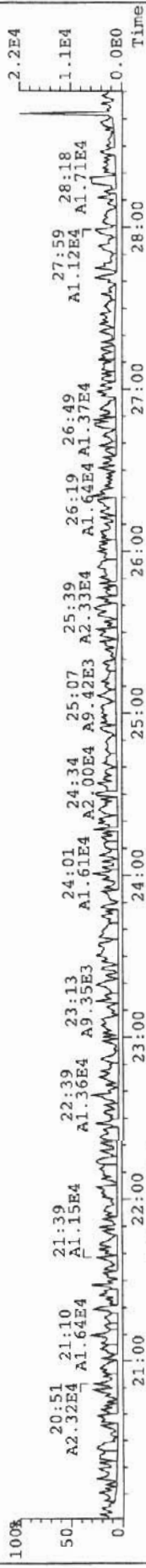
321.8936 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 814



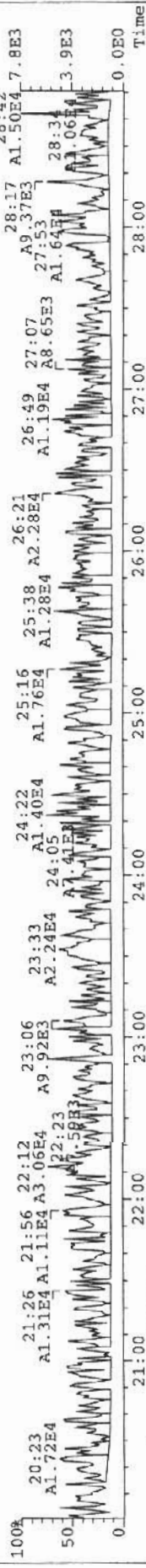
327.8850 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 746



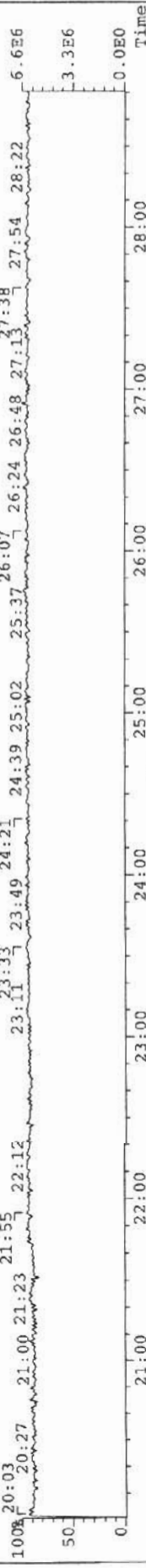
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 971



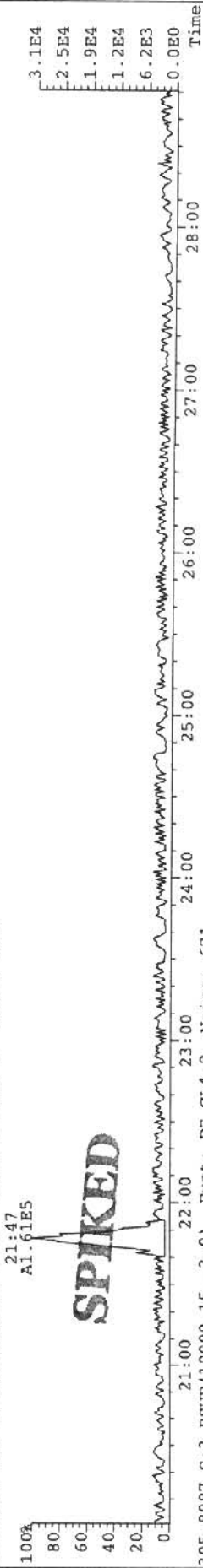
333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 799



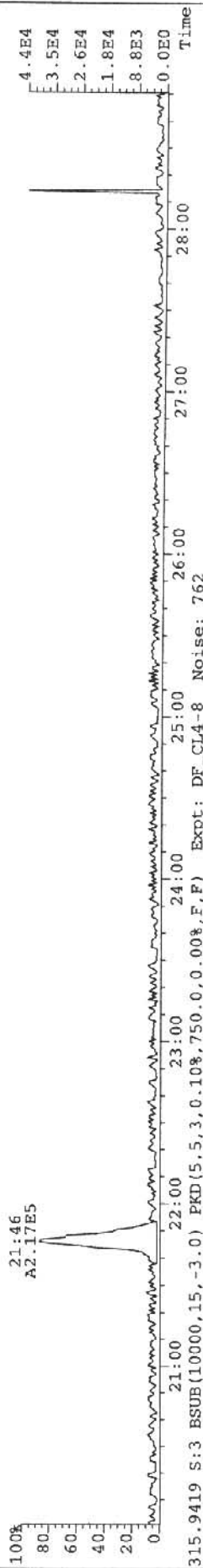
316.9824 S:3 Expt: DF_CL4-8



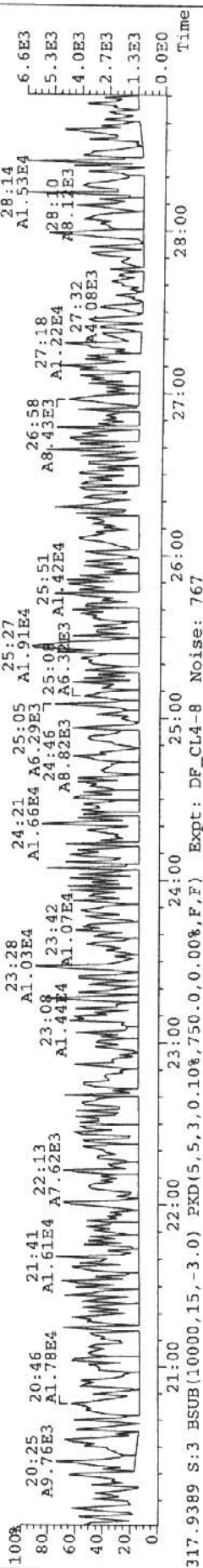
File: 060215PI Acq: 15-FEB-2006 13:36:50 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 3 Text: SBS 050215_DF_PA Vial# 15 File Text: AP DB5
303.9016 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 665



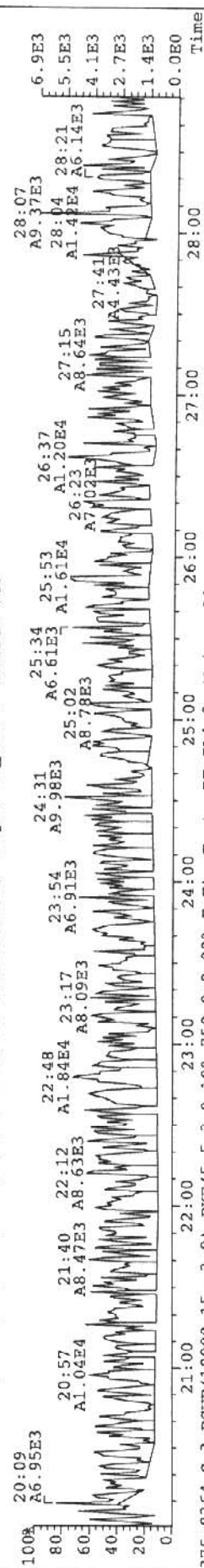
305.8987 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 671



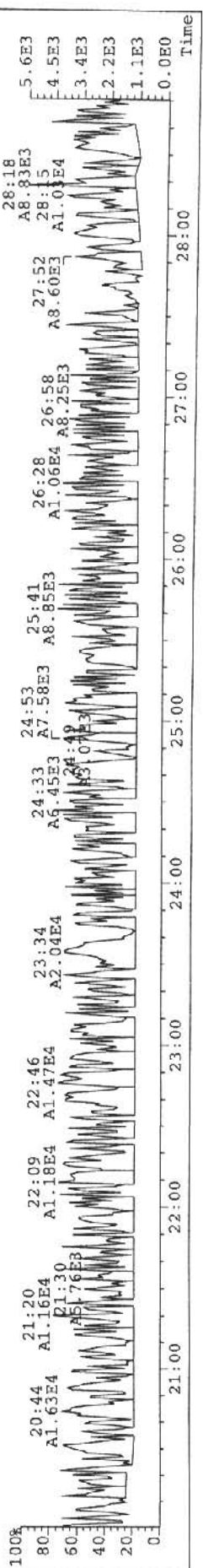
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 762



317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 767



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 725



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 725

ALTA ANALYTICAL PERSPECTIVES

7 February 2005

Alan Thomas
 Georgia-Pacific Environmental
 100 Supply Road
 Crossett, AR 71635

SEP 29 2006
 OCT 12 2006

Ph.: 870-567-8670

Subject: Certificate of Results

Dear Alan;

Attached to this narrative are the analytical results you requested on the samples submitted for the determination of 2,3,7,8-TCDF and 2,3,7,8-TCDD. The insert below summarizes the relevant information pertaining to your project. In particular, the QC annotations bring to your attention specific analytical observations and assessments made during the sample handling and data interpretation phases. A brief description of the report's components is provided on the next page.

Project Information Summary	When applicable, see QC Annotations for details
Client Project No.	AR030-124 Fish
AAP Project No.	P4970
Analytical Protocol	Method 1613B
No. Samples Submitted	11
No. Samples Analyzed	11
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
No. Outstanding Samples	none
Date Received	20-Jan-2005
Condition Received	Good
Temperature upon Receipt (C)	1
Extraction within Holding Time	yes
Analysis within Holding Time	yes
Data meet QA/QC Requirements	yes
Exceptions	none
Analytical Difficulties	none

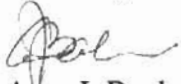
2714 EXCHANGE DRIVE
 WILMINGTON
 NORTH CAROLINA 28405
 TEL: 910-794-1613 FAX 910-794-3919

QC Annotations:

None.

Alta Analytical Perspectives remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please, do not hesitate to contact us. We wanted to thank you for choosing Alta Analytical Perspectives as part of your analytical support team.

Sincerely,



Amy J. Boehm
Project Manager

The electronic version of this report contains 240 pages.

P4970

ALTA ANALYTICAL PERSPECTIVES

Part 1 Narrative

36 pages

- Letter
- QC Annotations
- Project Information

ALTA ANALYTICAL PERSPECTIVES

Part 2 Path

26 pages

- Overview
- Extraction
- Analysis
- Spike Profile
- SOPs
- QC
- Reporting
- Special Requirements

ALTA ANALYTICAL PERSPECTIVES

Part 3 Results

56 pages

- Summary Topsheets
- SICPs
- Ion Ratios
- S/N
- RT
- Areas

ALTA ANALYTICAL PERSPECTIVES

Part 4 System Performance

12 pages

- Continuing Calibration
- BCS₃
- ICal - 126 pages
- GC & MS
- OPR - 18 pages

Extraction
Tracking Sheets

Fractionation
Tracking Sheets

Injection
Tracking Sheets

Picture File: 14 pages

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>0_2905_MB001</u>	Date Sampled <u>n/a</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#4</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>0_2905_MB001</u>	Batch ID <u>2905</u>
Date Received <u>n/a</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.00 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.4		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID 0_2905_MB001 Lab Sample ID 0_2905_MB001

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	59	59	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	65.2	65.2	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37	92.4	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSFHCA1</u>	Date Sampled <u>23 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#5</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_001</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.02 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.873	0.4		0.72	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSFHCA1 Lab Sample ID P4970_2905_001

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	71.4	71.4	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	71.3	71.3	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	39.9	99.8	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSFHCA2</u>	Date Sampled <u>23 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#6</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_002</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.02 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.762	0.4		0.78	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSFHCA2 Lab Sample ID P4970_2905_002

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	62.3	62.3	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	69.4	69.4	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	38.5	96.4	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSFHCA3</u>	Date Sampled <u>23 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#7</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_003</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.08 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	1.47	0.399		0.74	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.399		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSFHCA3 Lab Sample ID P4970_2905_003

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	74.8	74.8	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	77.4	77.4	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	39.7	99.3	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCA4</u>	Date Sampled <u>23 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#8</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_004</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.02 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.46	0.4		0.69	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCA4 Lab Sample ID P4970_2905_004

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	74.5	74.5	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	74.6	74.6	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	41.1	103	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCA5</u>	Date Sampled <u>30 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P1S#9</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_005</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.07 g</u>	VER File <u>050131P1S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P1S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.399		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.399		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCA5 Lab Sample ID P4970_2905_005

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	59.5	59.5	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	63.4	63.4	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	39	97.6	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCA6</u>	Date Sampled <u>30 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131PIS#10</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_006</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.05 g</u>	VER File <u>050131PIS#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131PIS#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131PIS#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.566	0.399		0.78	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.399		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCA6 Lab Sample ID P4970_2905_006

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	68.1	68.1	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	62.5	62.5	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	42.7	107	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCB1</u>	Date Sampled <u>30 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P2S#4</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_007</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.03 g</u>	VER File <u>050131P2S#1</u>
Date Analyzed <u>31 Jan 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131PIS#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.74	0.4		0.79	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCB1 Lab Sample ID P4970_2905_007

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	74.9	74.9	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	77.3	77.3	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37.9	94.8	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCB2</u>	Date Sampled <u>30 Dec 04</u>
Lab Project ID <u>P4970</u>	Analysis File <u>050131P2S#5</u>
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_008</u>
Date Received <u>20 Jan 05</u>	Batch ID <u>2905</u>
Date Extracted <u>21 Jan 05</u>	Matrix <u>Tissue</u>
Date Analyzed <u>31 Jan 05</u>	Sample Size <u>25.02 g</u>
Analyst <u>MC</u>	Dilution Factor <u>1</u>
	GC Column <u>DB5</u>
	ICAL ID <u>MM1_122403</u>
	VER File <u>050131P2S#1</u>
	OPR File <u>050131P2S#2</u>
	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.676	0.4		0.68	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCB2 Lab Sample ID P4970_2905_008

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	71.8	71.8	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	72.7	72.7	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	38.9	97.2	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSBCB3</u>	Date Sampled <u>30 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P2S#6</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_009</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.04 g</u>	VER File <u>050131P2S#1</u>
Date Analyzed <u>01 Feb 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.832	0.399		0.8	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	ND	0.399		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSBCB3 Lab Sample ID P4970_2905_009

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	66.4	66.4	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	68.3	68.3	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37.9	94.8	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSWBB4</u>	Date Sampled <u>30 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P2S#7</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_010</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.04 g</u>	VER File <u>050131P2S#1</u>
Date Analyzed <u>01 Feb 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	0.643	0.399		0.73	0.65-0.89	1.001	0.999-1.002
2,3,7,8-TCDF	1	0.399		0.71	0.65-0.89	1.001	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSWBB4 Lab Sample ID P4970_2905_010

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	71.7	71.7	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	77.3	77.3	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37.6	94.1	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 1: Sample and Laboratory Blank Data

Client Sample ID <u>AR030-124-FSCRAB5</u>	Date Sampled <u>31 Dec 04</u>	
Lab Project ID <u>P4970</u>	Analysis File <u>050131P2S#8</u>	
Client Project <u>AR030-124-FS</u>	Lab Sample ID <u>P4970_2905_011</u>	Batch ID <u>2905</u>
Date Received <u>20 Jan 05</u>	Matrix <u>Tissue</u>	ICAL ID <u>MM1_122403</u>
Date Extracted <u>21 Jan 05</u>	Sample Size <u>25.00 g</u>	VER File <u>050131P2S#1</u>
Date Analyzed <u>01 Feb 05</u>	Dilution Factor <u>1</u>	OPR File <u>050131P2S#2</u>
Analyst <u>MC</u>	GC Column <u>DB5</u>	Blank File <u>050131P1S#4</u>

Compound	Concentration (ppt)		Flags	Ion Abundance Ratios		Acceptable Retention Time	
	Found	Reporting Limit		Found	QC Limit ¹	Found	QC Limit ²
2,3,7,8-TCDD	ND	0.4		-	0.65-0.89	-	0.999-1.002
2,3,7,8-TCDF	ND	0.4		-	0.65-0.89	-	0.999-1.003

⁽¹⁾ QC limits for ratio of areas are from Method Table 9.

⁽²⁾ QC limits for relative retention times are from Method Table 2.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 2: Internal Standard and Cleanup Standard Recoveries

Client Sample ID AR030-124-FSCRAB5 Lab Sample ID P4970_2905_011

Compound	Concentration (ng/ml)		Percent Recovery ¹	
	Spiked	Found	Found	QC Limit
Internal Standards				
¹³ C ₁₂ -2,3,7,8-TCDD	100	61.6	61.6	31-137
¹³ C ₁₂ -2,3,7,8-TCDF	100	64.7	64.7	29-140
Cleanup Standard				
³⁷ Cl ₄ -2,3,7,8-TCDD	40	38.3	95.8	42.0-164

⁽¹⁾ QC limits from Method Table 7A (Revised AAP)

Georgia-Pacific Corporation
Ical: MM1_122403
Tetra CDD/Fs by Method 1613B

Form 3: Initial Calibration Relative Responses

Tetras Only

Instrument ID MM1

ICAL Date(s) 12 Aug 04

ICAL ID MM1_122403

CS0 Data Filename 040812P2 S: #1 CS3 Data Filename 040812P2 S: #4 CS6 Data Filename 040812P2 S: #7

CS1 Data Filename 0400812P2 S: #2 CS4 Data Filename 040812P2 S: #5

CS2 Data Filename 0400812P2 S: #3 CS5 Data Filename 040812P2 S: #6

Compound	Relative Response (RR) for Labeled or Response Factor (RF) for Internal Standard Calibration							Mean	%RSD ¹
	CS0	CS1	CS2	CS3	CS4	CS5	CS6		
2,3,7,8-TCDD	1.02	1.07	1.04	1.12	1.16	1.26	1.18	1.11	6.44
2,3,7,8-TCDF	0.84	0.88	0.92	0.98	1.03	1.1	1.03	0.97	9.71

¹ RSD QC Limit is < 20 % for relative responses of isotopic dilution calibrations

¹ RSD QC Limit is < 35 % for response factors of compounds without labeled analogs

Georgia-Pacific Corporation
Ical: MM1_122403
Tetra CDD/Fs by Method 1613B

Form 3: Initial Calibration Relative Responses, cont'd

Instrument ID MM1

ICAL Date(s) 12 Aug 04

ICAL ID MM1_122403

Compound	Relative Response (RR) for Labeled or Response Factor (RF) for Internal Standard Calibration								Mean	%RSD ¹
	CS0	CS1	CS2	CS3	CS4	CS5	CS6			
¹³ C ₁₂ -2,3,7,8-TCDD	1.15	1.19	1.11	1.15	1.15	1.18	1.20	1.16	2.65	
¹³ C ₁₂ -2,3,7,8-TCDF	1.06	1.06	1.01	1.02	1.04	1.04	1.07	1.04	1.97	
Recovery Standards										
¹³ C ₁₂ -1,2,3,4-TCDD	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
¹³ C ₁₂ -1,2,3,4-TCDF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Cleanup Standard										
³⁷ Cl ₄ -2,3,7,8-TCDD	n/a	1.31	1.28	1.18	1.25	1.27	n/a	1.26	3.79	

¹ RSD QC Limit is < 20 % for relative responses of isotopic dilution calibrations

¹ RSD QC Limit is < 35 % for response factors of compounds without labeled analogs

**Georgia-Pacific Corporation
PCDD/Fs by Method 1613B**

Form 4: Initial Precision & Recovery (IPR)

Analyst Name <u>Jerry Hart</u>	
IPR1 Data Filename <u>000731P2 S: #10</u>	Analysis Date/Time <u>1-AUG-00/03:52:34</u>
IPR2 Data Filename <u>010329P2 S: #3</u>	Analysis Date/Time <u>29-MAR-01/12:01:19</u>
IPR3 Data Filename <u>010501R3 S: #3</u>	Analysis Date/Time <u>1-MAY-01/21:58:45</u>
IPR4 Data Filename <u>010622R1 S: #2</u>	Analysis Date/Time <u>22-JUN-01/18:17:31</u>
Extraction Method <u>1613</u>	Extraction Date <u>n/a</u>
Extraction Matrix <u>Solid</u>	

Compound	Spiked	Concentrations in the extract (ng/ml)					Std Dev	Mean QC Limit ¹	Std Dev QC Limit ¹
		IPR1 Found	IPR2 Found	IPR3 Found	IPR4 Found	Mean			
2,3,7,8-TCDD	10	9.07	11.3	10.8	11.8	10.7	1.2	8.7-12.4	2.7
2,3,7,8-TCDF	10	8.87	11.3	10.8	12.4	10.8	1.5	9.1-13.1	2.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Spiked	Concentrations in the extract (ng/ml)					Std Dev	Mean QC Limit ¹	Std Dev QC Limit ¹
		IPR1 Found	IPR2 Found	IPR3 Found	IPR4 Found	Mean			
¹³ C ₁₂ -2,3,7,8-TCDD	100	121	94.3	109	91.5	104	14	32-115	35
³⁷ Cl ₄ -2,3,7,8-TCDD	40	36.2	39.7	42.1	38.3	39.1	2.5	18.0-53.6	3.4
¹³ C ₁₂ -2,3,7,8-TCDF	100	121	91.1	112	95.7	105	14	35-99	34

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 5: Calibration Verification

VER Filename 050131PIS#1

Instrument ID MMI

ICAL ID MMI_122403

Analysis Date/Time 31-JAN-05 09:53:58

ICAL Date 13 Aug 04

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
2,3,7,8-TCDD	10	9.8	7.8-12.9
2,3,7,8-TCDF	10	8.6	8.4-12.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
¹³ C ₁₂ -2,3,7,8-TCDD	100	96.7	82-121
³⁷ Cl ₄ -2,3,7,8-TCDD	10	9.09	7.9-12.7
¹³ C ₁₂ -2,3,7,8-TCDF	100	94.8	71-140

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 5a: Continuing Calibration Verification

Instrument ID MM1

Analysis Date/Time 31-JAN-05 09:53:58

GC Column ID DB5

CCS Data Filename 050131P1S#1

ICAL ID MM1 122403

Native Analyte	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89

Labeled Compound	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
¹³ C ₁₂ -2,3,7,8-TCDD	M/M+2	0.83	0.65-0.89
¹³ C ₁₂ -2,3,7,8-TCDF	M/M+2	0.8	0.65-0.89

¹ See Table 8 in Method 1613B for m/z specifications and ion abundance ratio limits.

² See Table 9 in Method 1613B for ion abundance ratio control limits.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 5: Calibration Verification

VER Filename 050131P2S#1

Instrument ID MM1

ICAL ID MM1_122403

Analysis Date/Time 31-JAN-05 19:47:55

ICAL Date 13 Aug 04

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
2,3,7,8-TCDD	10	9.5	7.8-12.9
2,3,7,8-TCDF	10	8.9	8.4-12.0

⁽¹⁾ QC limits are from Method Table 6A

Compound	Concentrations in the extract (ng/ml)		QC Limit ¹
	Spiked	Found	
¹³ C ₁₂ -2,3,7,8-TCDD	100	93	82-121
³⁷ Cl ₄ -2,3,7,8-TCDD	10	8.49	7.9-12.7
¹³ C ₁₂ -2,3,7,8-TCDF	100	92.5	71-140

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 5a: Continuing Calibration Verification

Instrument ID MM1

Analysis Date/Time 31-JAN-05 19:47:55

GC Column ID DB5

CCS Data Filename 050131P2S#1

ICAL ID MM1 122403

Native Analyte	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89

Labeled Compound	m/z's Forming Ratio ¹	Ion Abundance Ratio Found	QC Limits ²
¹³ C ₁₂ -2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89
¹³ C ₁₂ -2,3,7,8-TCDF	M/M+2	0.8	0.65-0.89

¹ See Table 8 in Method 1613B for m/z specifications and ion abundance ratio limits.

² See Table 9 in Method 1613B for ion abundance ratio control limits.

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 6: Ongoing Precision and Recovery

Matrix <u>Tissue</u>	Instrument ID <u>MM1</u>
ICAL Date <u>13 Aug 04</u>	OPR Filename <u>050131P1S#2</u>
Analysis Date/Time <u>31-JAN-05 10:47:17</u>	Batch ID <u>2905</u>

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
2,3,7,8-TCDD	10	9.28	7.3-14.6
2,3,7,8-TCDF	10	9.65	8.0-14.7

⁽¹⁾ QC limits are from Method Table 6

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
¹³ C ₁₂ -2,3,7,8-TCDD	100	71.9	25-141
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37.3	14.8-63.2
¹³ C ₁₂ -2,3,7,8-TCDF	100	75.8	26-126

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

Georgia-Pacific_AR
AR030-124-FS P4970
TCDD/F by Method 1613

Form 6: Ongoing Precision and Recovery

Matrix <u>Tissue</u>	Instrument ID <u>MM1</u>
ICAL Date <u>13 Aug 04</u>	OPR Filename <u>050131P2S#2</u>
Analysis Date/Time <u>31-JAN-05 20:41:07</u>	Batch ID <u>2905</u>

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
2,3,7,8-TCDD	10	8.98	7.3-14.6
2,3,7,8-TCDF	10	9.71	8.0-14.7

⁽¹⁾ QC limits are from Method Table 6

Compound	Concentrations in the extract (ng/ml)		
	Spiked	Found	QC Limit ¹
¹³ C ₁₂ -2,3,7,8-TCDD	100	72.3	25-141
³⁷ Cl ₄ -2,3,7,8-TCDD	40	37.5	14.8-63.2
¹³ C ₁₂ -2,3,7,8-TCDF	100	77.6	26-126

⁽¹⁾ QC limits are from Method Table 6A (Revised AAP)

P4970



ALTA ANALYTICAL PERSPECTIVES

PART 2

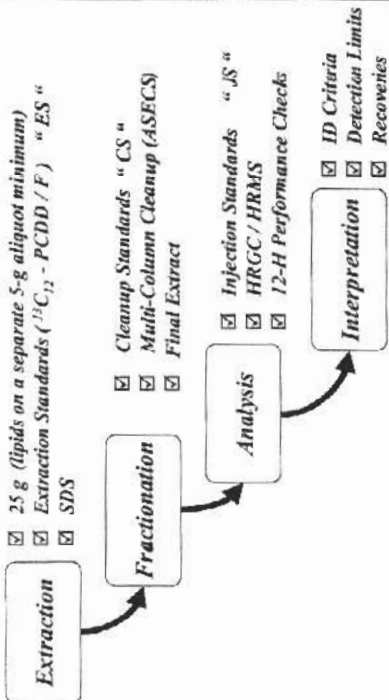
SAMPLE PATH

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

SAMPLE PATH

AAP PROJECT NO.: P4970 TISSUE
PROTOCOL: M8290_M1613

SAMPLE PROCESSING



SPIKE PROFILE

AX(8290B): 0.2 NG (20 μL; 0.01 NG/μL)
 ES (8290B): 2 NG (20 μL; 0.1 NG/μL)
 CS (8290B): 0.8 NG (20 μL; 0.04 NG/μL)
 JS (8290B): 2 NG (20 μL; 0.1 NG/μL)

TCDD IF ONLY

SOPS

EXTRACTION: AP-CME-1
 FRACTIONATION: AP-SP-CU
 ANALYSIS: AP-SP-A
 CONCENTRATION: AP-SP-N
 FORTIFICATION: AP-SP-F
 DATA VALIDATION: AP-SP-R

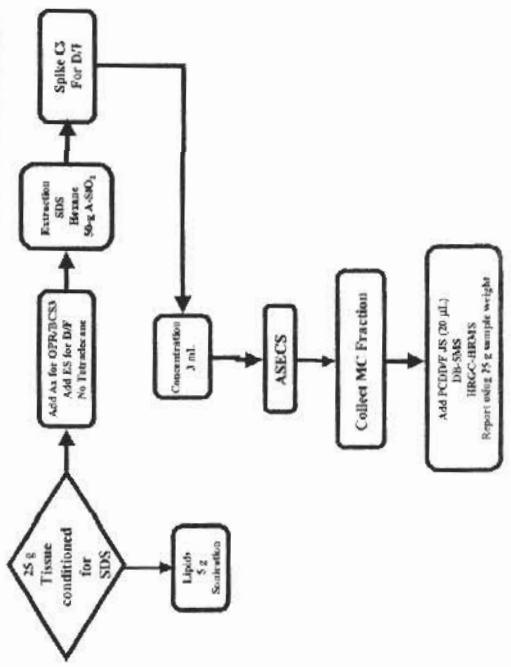
QC PROFILE

LMB: ALWAYS REQUIRED
 OPR: REQUIRED FOR M1613
 BCS₃: M8290

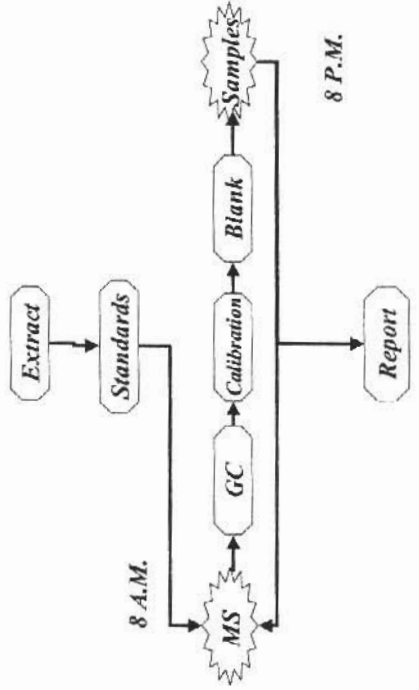
REPORTING PLATFORM

LEVEL: I II III PLATINUM

SAMPLE EXTRACTION



SAMPLE ANALYSIS



SPECIAL REQUIREMENTS

SUPPLIES IDS

NJA
 0152004A
 H00065110
 H0006204
 H0006201
 H0006201
 H0006201
 CM957
 CM957
 CM957
 M8290

Extraction Batch: 2905

PCDD/Fs

Project: P4970

Extraction Group: 2905_M1613B

SDS Position	AAP Sample ID	Client Sample ID	Weight gm	Observations	ES 20ul	A _x -A 20ul	A _x -B 20ul	SDS ACID/HEX	CS 20ul	Mixed ASECS Td 20ul	C/C Td 20ul	JS 20ul
28	0_2905_OPR001	---	30g	Na ₂ SO ₄	✓	✓	✓	✓	BE	Normal	Normal	BE
29	0_2905_MB001	---	30g	Na ₂ SO ₄	✓	✓	✓	✓	BE	Normal	Normal	BE
30	P4970_2905_001	AR030-124-FSFHCA1	25.02g	fluffy white/pink powder	✓	✓	✓	✓	BE	Normal	Normal	BE
31	P4970_2905_002	AR030-124-FSFHCA2	25.02g	see 001	✓	✓	✓	✓	BE	Normal	Normal	BE
32	P4970_2905_003	AR030-124-FSFHCA3	25.06g	see 001	✓	✓	✓	✓	BE	Normal	Normal	BE
33	P4970_2905_004	AR030-124-FSBCA4	25.02g	see 001	✓	✓	✓	✓	BE	Normal	Normal	BE
34	P4970_2905_005	AR030-124-FSBCA5	25.07g	see 001	✓	✓	✓	✓	BE	Normal	Normal	BE
35	P4970_2905_006	AR030-124-FSBCA6	25.05g	see 001	✓	✓	✓	✓	BE	Normal	Normal	BE
A _x B Td - A _x -B SDS Extraction conc - 10 mg/L exp - 01/08/06 Vial - 5125-91-1					✓	✓	✓	✓	BE	Normal	Normal	BE

ES (ID): 1224033-ES	A _x (ID): ANP138-A _x -A	JS (ID): 1224033-JS	SDS Cycle Time:
ES (conc): 0.1 ng/μL	A _x (conc): 0.01 ng/μL	JS (conc): 0.1 ng/μL	Start: 12/10 PM
ES (exp): 12/16/06	A _x (exp): 12/29/09	JS (exp): 12/16/06	Stop: 11:35 AM
Vial #: 5125-31-1	Vial #: 5125-18-3	Vial #: 5125-30-3	*Hexane*
ES M1613 0.1 ng/μL	A _x M1613 0.01 ng/μL	JS M1613 0.1 ng/μL	

Extraction Batch: 2905

PCDD/Fs

Project: P4970

Extraction Group: 2905_M1613B

SDS Position	AAP Sample ID	Client Sample ID	Weight gm	Observations	ES 12/16/06	A _x -A 12/16/06	SDS ACID/HEX 12/16/06	CS 12/16/06	A SECS Td 12/16/06	C/C Td 12/16/06	JS 12/16/06
36	P4970_2905_007	AR030-124-FSBCB1	25.03	see 001	—	—	—	BE	—	—	BE
37	P4970_2905_008	AR030-124-FSBCB2	25.02	see 001	—	—	—	BE	—	—	BE
38	P4970_2905_009	AR030-124-FSBCB3	25.04	pinkish tan paste	—	—	—	BE	—	—	BE
39	P4970_2905_010	AR030-124-FSWBB4	25.04	pinkish tan paste	—	—	—	BE	—	—	BE
40	P4970_2905_011	AR030-124-FSCRAB5	25.00	see 010	—	—	—	BE	—	—	BE
<p>AX-B ID AX-B sub-extract conc 19 ng/mL exp 01/23/06 vial SEL 5.46-1</p>											
ES (ID): 122403T-ES	A _x (ID): AA P13B AX-A		CS (ID): 122403T-ES		JS (ID): 122403T-JS		SDS Cycle Time:				
ES (conc): 0.1 ng/μL	A _x (conc): 0.01 ng/μL		CS (conc): 0.04 ng/μL		JS (conc): 0.10 ng/μL		1/21/05				
ES (exp): 12/16/06	A _x (exp): 12/29/09		CS (exp): 11/02/06		JS (exp): 12/16/06		Start: 7:10 pm				
Vial #: 566 5.31.1	Vial #: 566 4.1.2		Vial #: 515-183		Vial #: 515-303		Stop: 11:35 am				
ES M1613 0.1 ng/μL	A _x M1613 0.01 ng/μL		CS M1613 0.04 ng/μL		JS M1613 0.1 ng/μL		*Hexane*				



ALTA ANALYTICAL PERSPECTIVES

SAMPLE PATH

AAP PROJECT NO.: P4970 TISSUE

PROTOCOL: M8290_M1613

SPIKE PROFILE PCDD/F

Analyte	Spiked Compounds	Spiked Amount	Spiked Volume	Spiking Solution Conc.	Split Factor	Final Volume	Final Solvent
PCDD/F	ES	2 ng	20 μ L	0.1 ng/ μ L	1	20 μ L	Td
	CS	0.8 ng	20 μ L	0.04 ng/ μ L			
	JS	2 ng	20 μ L	0.1 ng/ μ L			
	OPK Ax Bench CS3	0.2 ng	20 μ L	0.01 ng/ μ L	1	20 μ L	Td

COMMUNICATIONS

07 Jun 05

P4970 /

Back of Aliquot's Wts

SAMPLE ID	WHOLE WEIGHT (g) Recovered	LENGTH (mm) COLOR	SEX (M-F) Characteristics	FILLET WEIGHT (g)	DATE (SAMPLING)	TIME (SAMPLING)	MUTATIONS (Y or N)	OBSERVATIONS
P4970 001	602.74 g	pinkish red	whole fillet with pin bones intact				1) 25.14 g 2) 25.03 g	floppy white/pink paste
P4970 002	455.57 g	pinkish red	whole fillet with some skin				1) 25.13 2) 25.12	see 001
P4970 003	614.69	pinkish red w/inter inside	whole fillet thick, somewhat frozen in center				1) 25.01 2) 25.01	see 001
P4970 004	420.20	pinkish red	whole fillet with some skin				1) 25.06 2) 25.11	see 001
P4970 005	229.59	pinkish red	whole fillet with skin				1) 25.05 2) 25.01	see 001
P4970 006	290.77 229.7	see 005	see 005				1) 25.00 g 2) 25.00 g	see 001
P4970 007	256.65 256.65	see 005	see 005				1) 25.06 g 2) 25.12 g	see 001
P4970 008	516.13	see 003	see 003 some skin				1) 25.00 2) 25.00	see 001
P4970 009	565.93	see 003	see 008				1) 25.13 2) 25.04	see 001
P4970 010	157.43	pinkish red streaks of green/brown	whole fillet some skin				1) 25.17 2) 25.03	pinkish/brown paste
P4970 011	182.60	pinkish red streaks of green/brown	whole fillet some skin				1) 25.14 2) 25.12	see 010

AVERAGE WHOLE WEIGHT (g)	
AVERAGE LENGTH (mm)	
AVERAGE FILLET WEIGHT (g)	

% LIPIDS

Procedures:

(circle one)

Modified Method 8290

(ALTA SOP AP No. 2F)

Modified Method 1668

(ALTA SOP AP No. 3D)

Project: P4970

Chemist: JK

Extr Group: 2905

Prep. Date: 1/21/05

ALTA Sample ID	Sample Wt. Equiv.	Rnd Bottom Wt.	Rnd Bottom & Residue Wt	Residue Wt.	% Lipids	Comments:
001	5.46g	111.42g 113.47g	113.70	0.23	4.21%	
002	5.25g	113.04g	113.20	0.16	3.05%	
003	5.10g	112.79	113.18	0.38	7.45%	
004	5.18	116.71	117.01	0.30	5.79%	
005	5.12	115.40	115.45	0.05	0.98%	
006	5.07	112.25	112.40	0.15	2.96%	
007	5.09	116.12	116.52	0.40	7.86%	
008	5.16	115.66	115.89	0.22	4.26%	
009	5.12	115.60	115.73	0.12	2.34%	
010	5.02	113.08	113.26	0.17	3.39%	
011	5.12	112.88	112.43	0.05	0.98%	

NOTES:

Not dug
TM
1/23/05
Final weights
CTW
1-24-05

Final Benchsheet for Extraction Set 2905

PrepBatch:	1,717,148 ^{see} 2905	Units:	g
Extr Group:	1613TIS	Date Extr:	1/21/2005
Chemist:	Jeremy M. Kadylak	Date Final:	1/24/2005

Project:P4970

ALTA Sample ID	Sample. Wt.
P4970_2905_001	25.02 /
P4970_2905_002	25.02 /
P4970_2905_003	25.08 /
P4970_2905_004	25.02 /
P4970_2905_005	25.07 /
P4970_2905_006	25.05 /
P4970_2905_007	25.03 /
P4970_2905_008	25.02 /
P4970_2905_009	25.04 /
P4970_2905_010	25.04 /
P4970_2905_011	25.00 /

Sample Inventory Report - Extended

Project Name: AR030-124-FS ✓

Project No.: P4970 ✓

ALTA Sample ID	Client Sample ID	Client Sample Description	Date	
			Sampled	Received
P4970 001	AR030-124-FSFHCA1 ✓	Filet	23-Dec-04 ✓	20-Jan-05 ✓
P4970 002	AR030-124-FSFHCA2 ✓	Filet	23-Dec-04 ✓	20-Jan-05 ✓
P4970 003	AR030-124-FSFHCA3 ✓	Filet	23-Dec-04 ✓	20-Jan-05 ✓
P4970 004	AR030-124-FSBCA4 ✓	Filet	23-Dec-04 ✓	20-Jan-05 ✓
P4970 005	AR030-124-FSBCA5 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 006	AR030-124-FSBCA6 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 007	AR030-124-FSBCB1 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 008	AR030-124-FSBCB2 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 009	AR030-124-FSBCB3 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 010	AR030-124-FSWBB4 ✓	Filet	30-Dec-04 ✓	20-Jan-05 ✓
P4970 011	AR030-124-FSCRAB5 ✓	Composite	31-Dec-04 ✓	20-Jan-05 ✓

ole
+
20Jan05

PROCESS SHEET
Project No.-AR: P4970-1 of 1

Request Due: 2/7/2005

Project Due: 2/10/2005

Hold Due: 1/22/2005

TAT: 21

Client: Georgia-Pacific AR(GEPAR01B)

Client Manager: Yves Tondeur

Method: EPA Method 1613

Extraction Type: 1613TIS

Matrix: Tissue

Split Type: None

Component: 2,3,7,8-TCDD/F Only

LabID	Client-ID	Description	Date Received	SLoc
001	AR030-124-FSFHCA1	Filet	1/20/2005	F-6
002	AR030-124-FSFHCA2	Filet	1/20/2005	F-6
003	AR030-124-FSFHCA3	Filet	1/20/2005	F-6
004	AR030-124-FSBCA4	Filet	1/20/2005	F-6
005	AR030-124-FSBCA5	Filet	1/20/2005	F-6
006	AR030-124-FSBCA6	Filet	1/20/2005	F-6
007	AR030-124-FSBCB1	Filet	1/20/2005	F-6
008	AR030-124-FSBCB2	Filet	1/20/2005	F-6
009	AR030-124-FSBCB3	Filet	1/20/2005	F-6
010	AR030-124-FSWBB4	Filet	1/20/2005	F-6
011	AR030-124-FSCRAB5	Composite	1/20/2005	F-6

Instructions:

Report Options

Report Level: 1

TEQ Type:

EDD Type:

Date Requested: 2/7/2005

Vial Box ID: _____

74940%

CHAIN OF CUSTODY FOR GEORGIA-PACIFIC
Dioxin Analysis of Fish Samples

Company: Georgia-Pacific Contact Person: Alan Thomas (870) 567-8670

Address: 100 Mill Supply Road, Crossett AR 71635

Sample: Fish Preservative: Ice

Analysis: Dioxin/Furan Shipped via: FedEx

Stream	Sample Identification	Date	Type	Test Method	Analysis	Preservative
Ouachita River	AR030-124-FSFHCA1	23 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSFHCA2	23 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSFHCA3	23 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBICA4	23 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBICA5	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBICA6	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBCB1	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBCB2	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSBCB3	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSWBB4	30 Dec 04	Fillet	8290 1613	2,3,7,8 TCDD/F	Ice
Ouachita River	AR030-124-FSCRAB5	31 Dec 04	Composite	8290 1613	2,3,7,8 TCDD/F	Ice
				ice anytime by		
				M1613 as per Alan Thomas to 203ANOS		

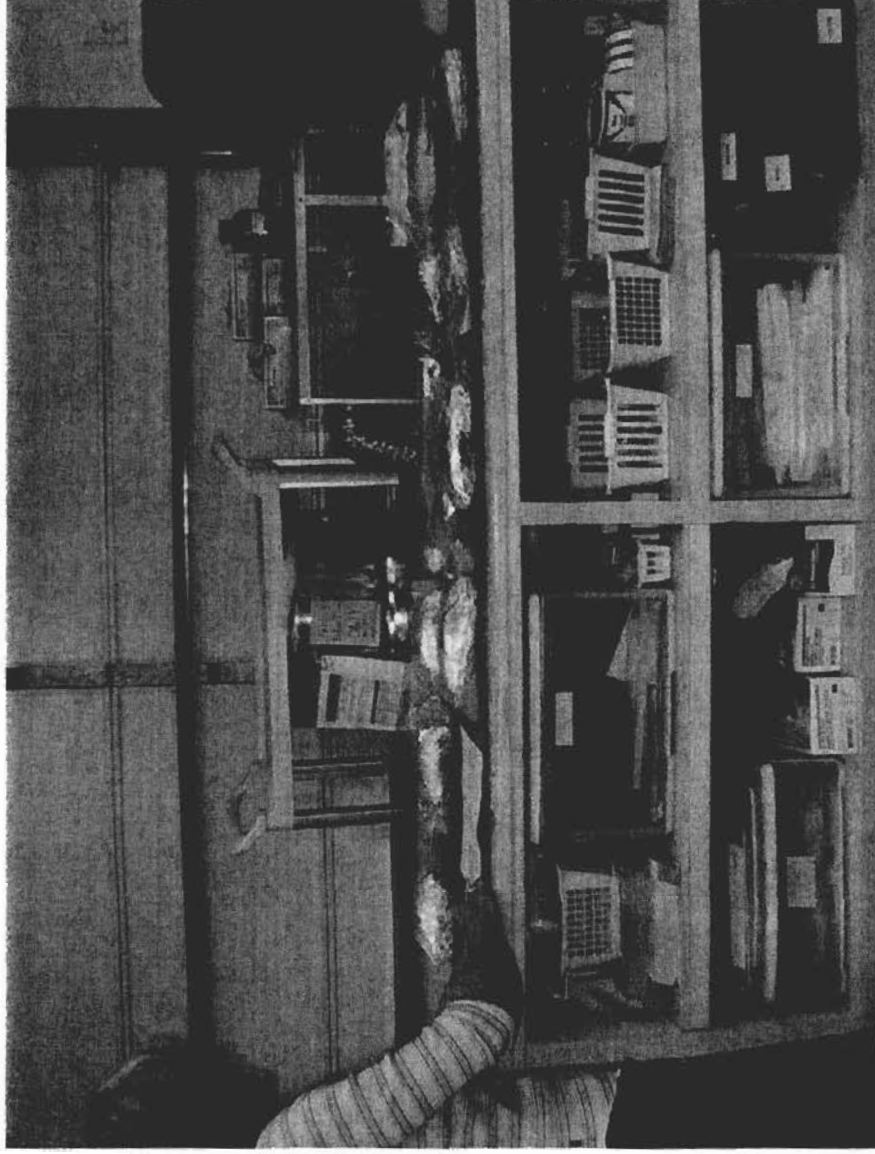
Relinquished by: *F. Alan Thomas* Date: 18 Jan 05 Time: 1500 Received by: *Brian Dunder* Date: 20 JAN 05 Time: 10:10

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

COMMENTS: All samples are foil wrapped and secured in labeled bags.

* Sample are dated 12/24/04 on COC is correct for sample collection dates (13 DEC 04) as per Alan Thomas work

Alta Analytical Perspectives - Sample Receiving Picture



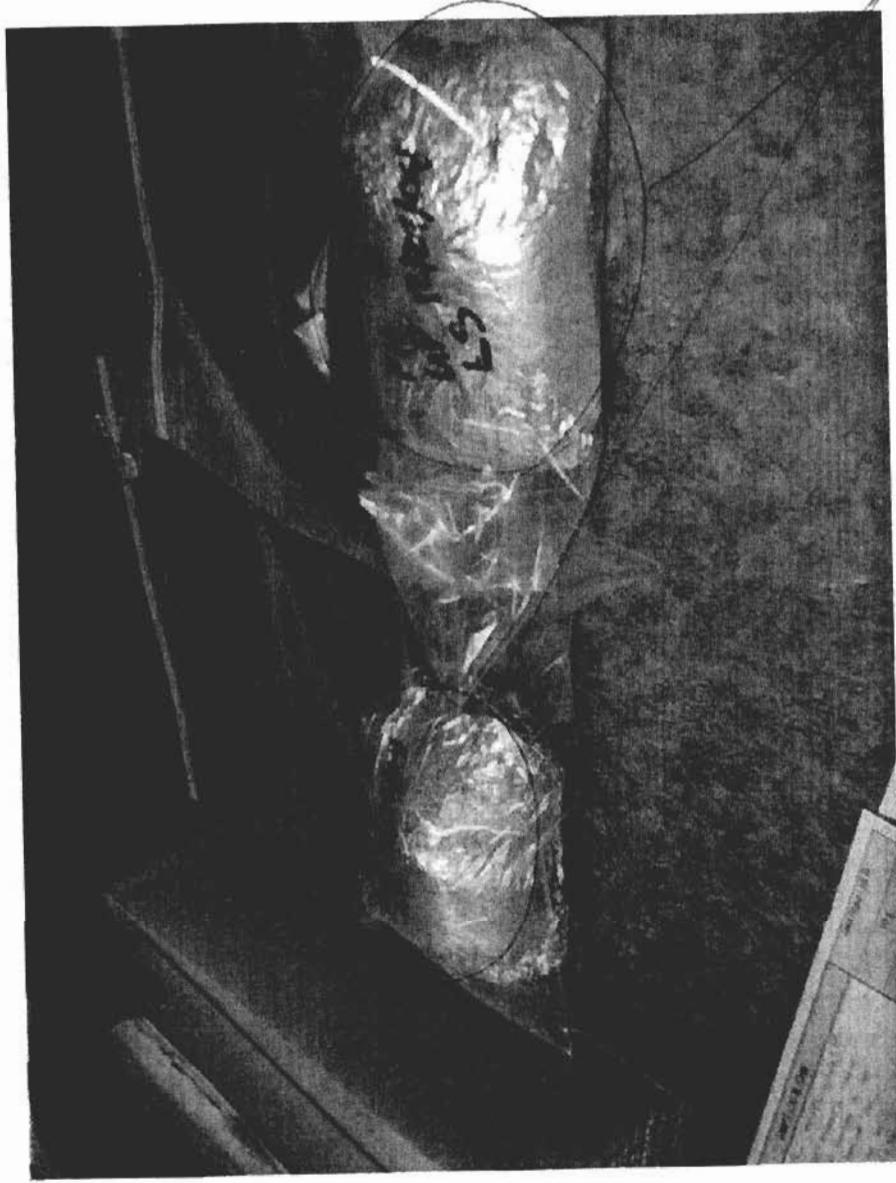
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Picture filename: V:\Reports 2005\GPI\P4970\P4970-01.jpg

File created: Thursday, 20 Jan 2005 10:47 AM

Alta Analytical Perspectives - Sample Receiving Picture



Sample dates
do not match case

AAP Project ID: P4970

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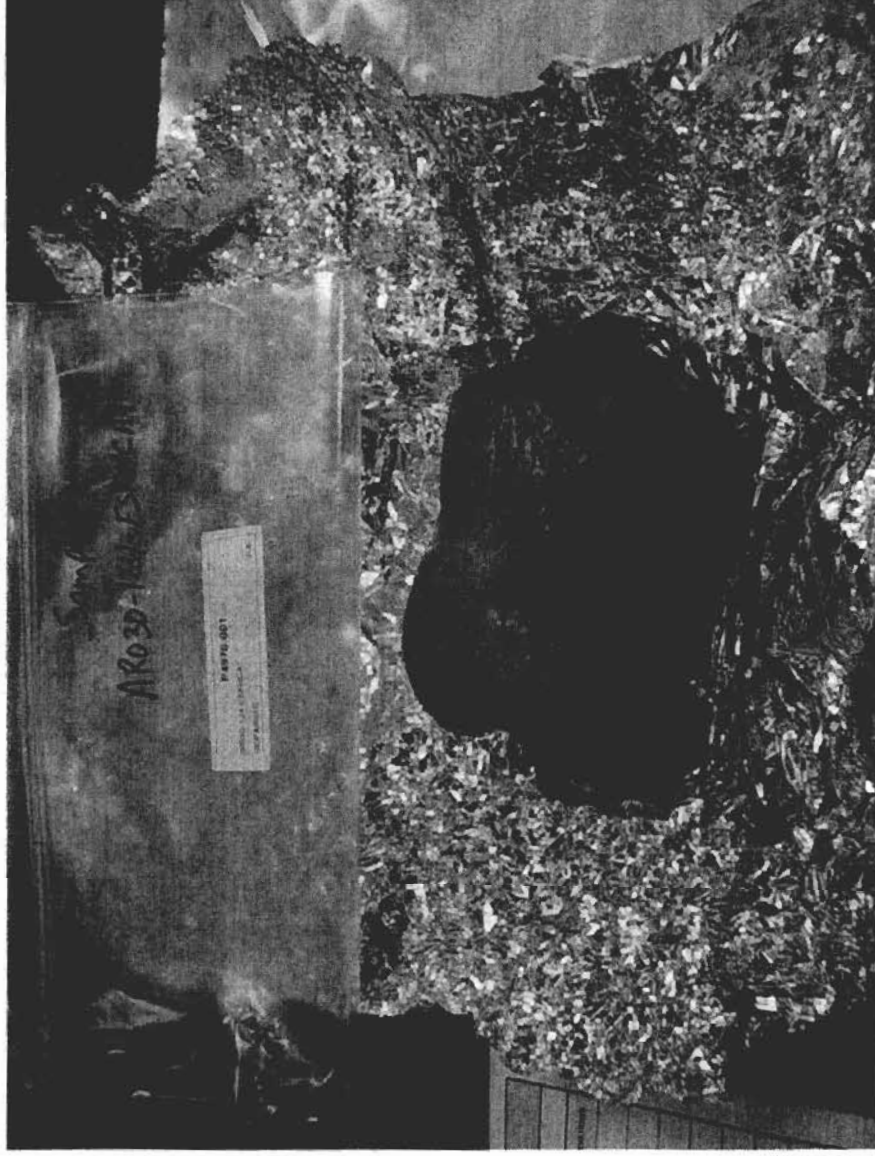
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File created: Thursday, 20 Jan 2005 10:48 AM



PICTURE FILE: D4970-03.jpeg

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 11:36 AM

Picture filename: V:\Reports 2005\GP\P4970\P4970-04.jpg

File created: Friday, 21 Jan 2005 10:47 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 11:51 AM

Picture filename: V:\Reports 2005\GP\P4970\P4970-05.jpg

File created: Friday, 21 Jan 2005 11:36 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 11:55 AM

Picture filename: V:\Reports 2005\GP\IP4970\IP4970-06.jpg

File created: Friday, 21 Jan 2005 11:36 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 12:03 PM

Picture filename: V:\Reports 2005\GPI\P4970\P4970-07.jpg

File created: Friday, 21 Jan 2005 11:36 AM

Alfa Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 12:06 PM

Picture filename: V:\Reports 2005\GPI\P4970\P4970-08.jpg

File created: Friday, 21 Jan 2005 11:36 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

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Alta Analytical Perspectives - Sample Receiving Picture



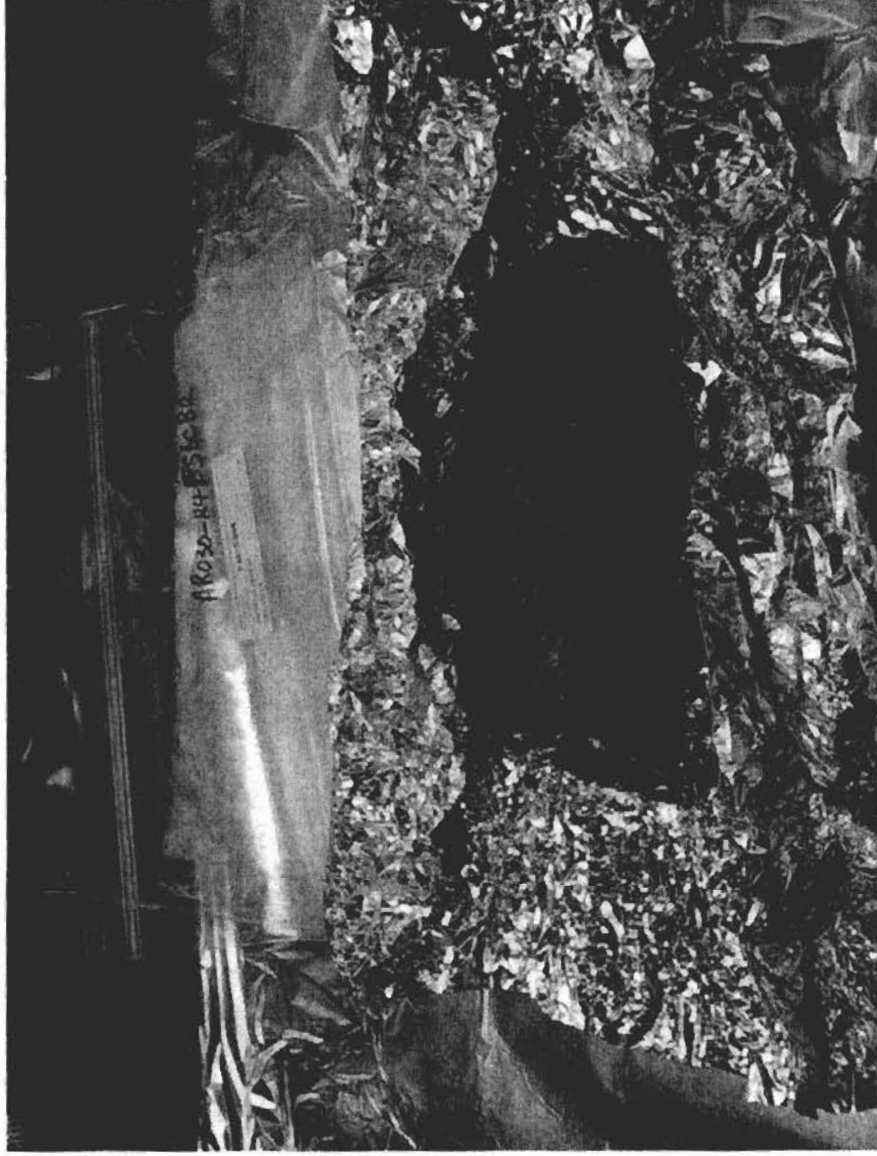
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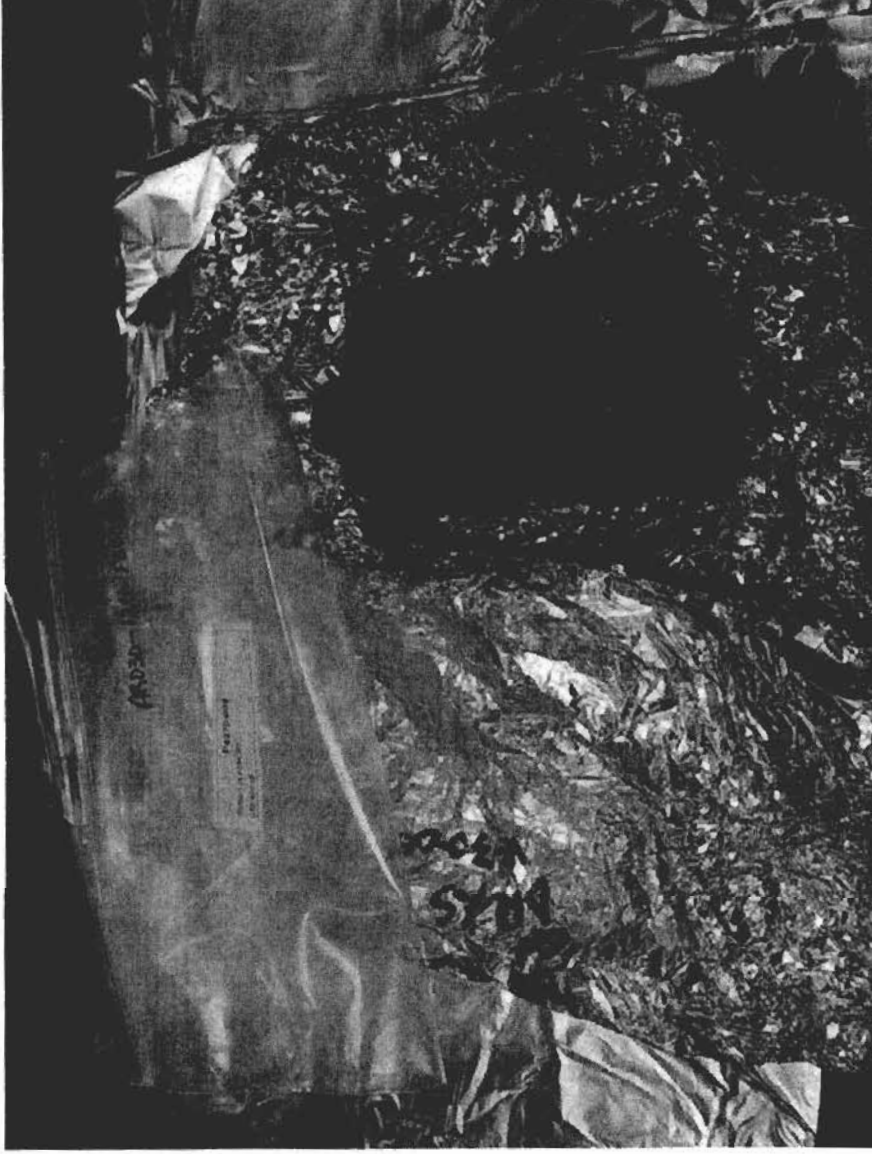
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Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

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File created: Friday, 21 Jan 2005 11:36 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 12:28 PM

Picture filename: V:\Reports 2005\GPIP\4970\P4970-13.jpg

File created: Friday, 21 Jan 2005 11:36 AM

Alta Analytical Perspectives - Sample Receiving Picture



AAP Project ID: P4970

Picture taken: Friday, 21 January 2005 12:31 PM

Picture filename: V:\Reports 2005\GP\P4970\P4970-14.jpg

File created: Friday, 21 Jan 2005 11:36 AM

SAMPLE LOG-IN FORM

Client Project / Job ID:

ARO30-124-FS

PO #:

AAP Project ID: PW970

CHAIN OF CUSTODY ANOMALY FORM

The following items were omitted from the (COC)

- Project ID and/or PO#:
- Sampler:
- Relinquished by:
- Date:
- Time:
- Sample ID:
- Sample Date: on CdC
- Sample Description:
- Analysis(es) Requested:
- Turnaround Time Requested:
- Containers Qty:
- Type:
- Matrix Type:
- Preservative:
- Drinking Water Requirement:
- Other Comments:

See CdC

Additional Shipments Comments:

Initials: P. M. ...

Date Samples Arrived: 20 Jan 05

Time / Date logged in: 10:10 AM 20 Jan 05 Refrigerator: FedEx Initials: NM

Samples Arrived By: (circle one) FedEx UPS Airborne Express DHL Emery
Freezer Truck Company Courier Other

Shipping Preservation: (circle) Ice / Blue Ice / Dry Ice / None Temp °C 10

Shipping Documentation Present? (circle one) Shipping Label or Airbill

of boxes: 1 # of coolers: 1 Tracking #s: 7928 2575 6648

Shipping Container(s) intact? Yes If no, describe condition:

Container Custody Seals Present & Intact? NA If not intact, describe condition:

Sample Custody Seals Present & Intact? NA If not intact, describe condition:

of Seals: or Seal #:

Sample Container Intact? Yes If no, indicate sample condition:

Chain of Custody (COC) / Sample Documentation Present? Yes Acceptable? No

If not, complete COC Anomaly Form

Shipping Container: (circle) Client or AAP ... Return Retain Dispose

Container and/or Bottles Requested? Yes

Sample Control Log In/Out Completed? Yes

Drinking Water Sample? No If yes, Acceptable preservation?

Imported Soil? No If yes, apply appropriate label.

FILL BELOW IF APPLICABLE

Have all the samples arrived? Yes If no, complete the following.

Shipment #: Date of Arrival: Condition: Temp °C

Delivered by: Tracking #s

COC Present? Acceptable? If no, document on COC Anomaly Form additional shipment comments.

Container Intact? Samples Intact? If no, describe:

Do we expect another shipment? If yes, start a new log-in sheet. ☺

Alta Analytical Perspectives - Injection Log

Run file: 050131P2
 MS Method: DF_CL4-8
 GC Column: db-5
 GC Method: DBMS_60M

Data file #	Vial#	Lab ID	Sample ID (Chrom. Text)	Analyt	Acq date	Acq time
050131P1	1	6	CS3 122403	MC	31-JAN-05	09:53:58
050131P1	2	77	0_2905_OPR001	MC	31-JAN-05	10:47:17
050131P1	3	15	SBS SOLVENT BLANK	MC	31-JAN-05	11:40:22
050131P1	4	76	0_2905_MB001	MC	31-JAN-05	12:33:36
050131P1	5	78	P4970_2905_001	MC	31-JAN-05	13:26:50
050131P1	6	79	P4970_2905_002	MC	31-JAN-05	14:20:04
050131P1	7	80	P4970_2905_003	MC	31-JAN-05	15:13:22
050131P1	8	81	P4970_2905_004	MC	31-JAN-05	16:06:34
050131P1	9	82	P4970_2905_005	MC	31-JAN-05	16:59:47
050131P1	10	83	P4970_2905_006	MC	31-JAN-05	17:53:04
050131P1	11	15	SBS SOLVENT BLANK	MC	31-JAN-05	18:46:13
050131P2	1	6	CS3 122403	MC	31-JAN-05	19:47:55
050131P2	2	77	0_2905_OPR001	MC	31-JAN-05	20:41:07
050131P2	3	15	SBS SOLVENT BLANK	MC	31-JAN-05	21:34:17
050131P2	4	84	P4970_2905_007	MC	31-JAN-05	22:27:29
050131P2	5	85	P4970_2905_008	MC	31-JAN-05	23:20:47
050131P2	6	86	P4970_2905_009	MC	1-FEB-05	00:13:58
050131P2	7	87	P4970_2905_010	MC	1-FEB-05	01:07:14
050131P2	8	88	P4970_2905_011	MC	1-FEB-05	02:00:30
			P4970_2905_001			AR030-124-FSFHCA1 25.02g
			P4970_2905_002			AR030-124-FSFHCA2 25.02g
			P4970_2905_003			AR030-124-FSFHCA3 25.08g
			P4970_2905_004			AR030-124-FSBCA4 25.02g
			P4970_2905_005			AR030-124-FSBCA5 25.07g
			P4970_2905_006			AR030-124-FSBCA6 25.05g
			P4970_2905_007			AR030-124-FSBCB1 25.03g
			P4970_2905_008			AR030-124-FSBCB2 25.02g
			P4970_2905_009			AR030-124-FSBCB3 25.04g
			P4970_2905_010			AR030-124-FSWEB4 25.04g
			P4970_2905_011			AR030-124-FSCRAB5 25g

P4970



ALTA ANALYTICAL PERSPECTIVES

PART 3

ANALYTICAL RESULTS

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-*p*-DIOXINS & DIBENZOFURANS

073405

Client ID: 0_2905_MB001
 Lab ID: 0_2905_MB001
 Sample text: 0_2905_MB001
 Filename: 050131P1 S: 4 Acq: 31-JAN-05 12:33:36
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG» WL/VOL:25.000
 Vial: 76

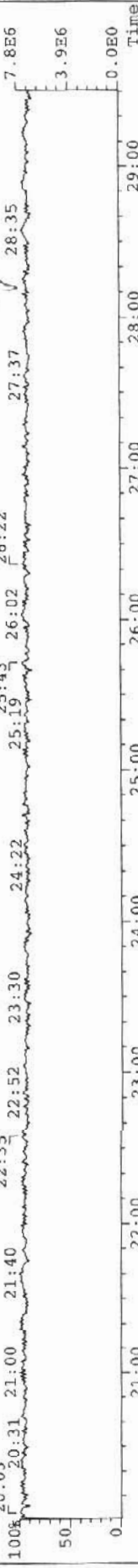
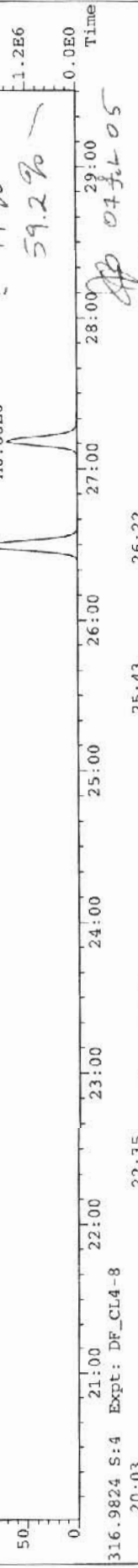
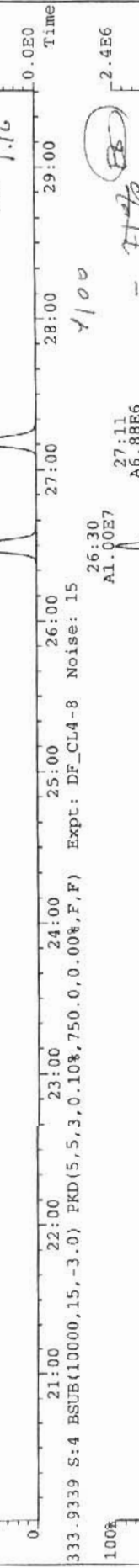
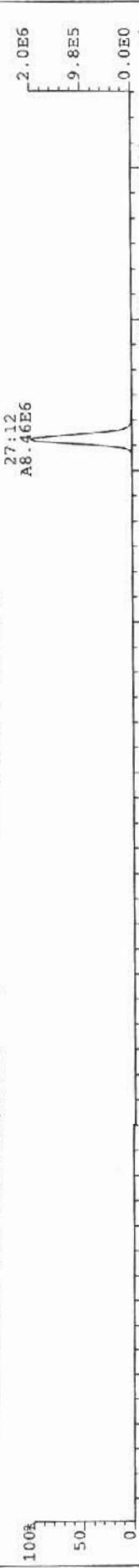
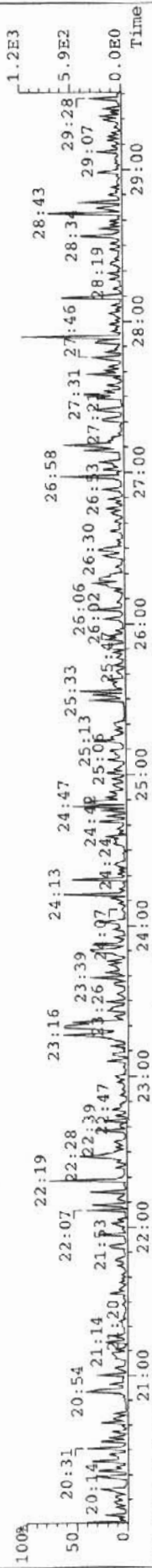
AX	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	*	* n	1.12	NotF»	*		656	2.5	0.0703	-
AX	2,3,7,8-TCDF	*	* n	0.97	NotF»	*		1124	2.5	0.0794	-
ES	13C-2,3,7,8-TCDD	1.25e+07	0.81	1.16	27:11	47.2		818	2.5	0.0588	59.0
ES	13C-2,3,7,8-TCDF	2.29e+07	0.81	1.04	26:16	52.2		1012	2.5	0.0474	65.2
JS/RT	13C-1,2,3,4-TCDD	1.82e+07	0.81	-	26:30	1.64		818	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.37e+07	0.79	-	24:50	1.73		908	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.46e+06		1.26	27:12	29.6				0.0363	92.4

PS/g

Reviewer: ML
 Date: 07/16/05

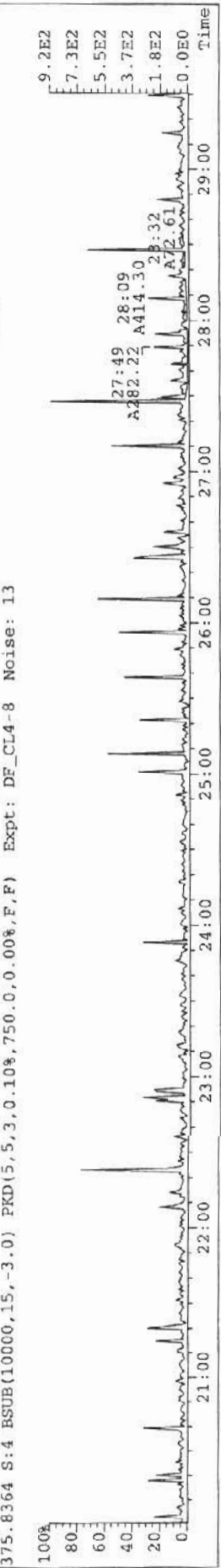
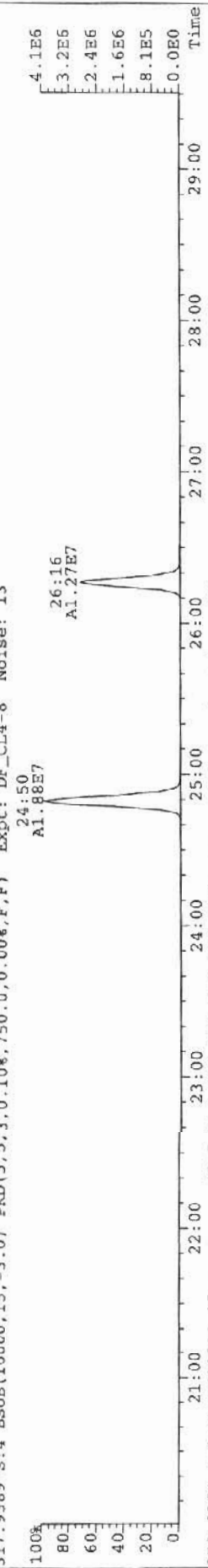
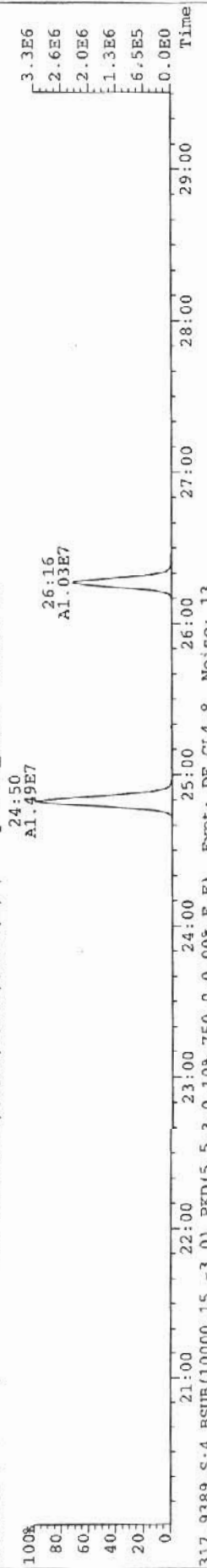
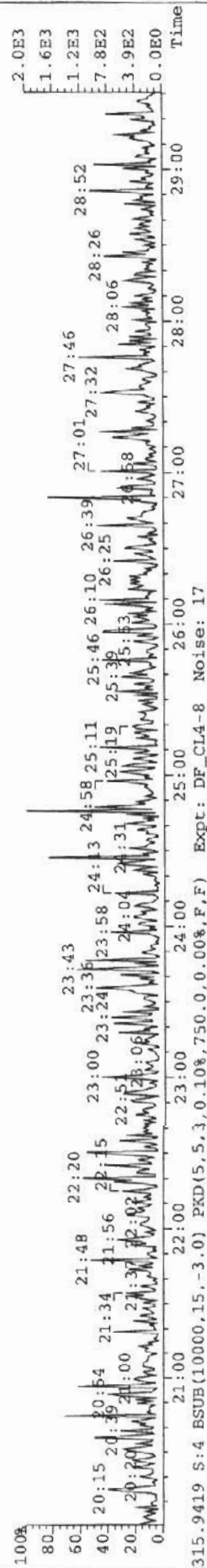
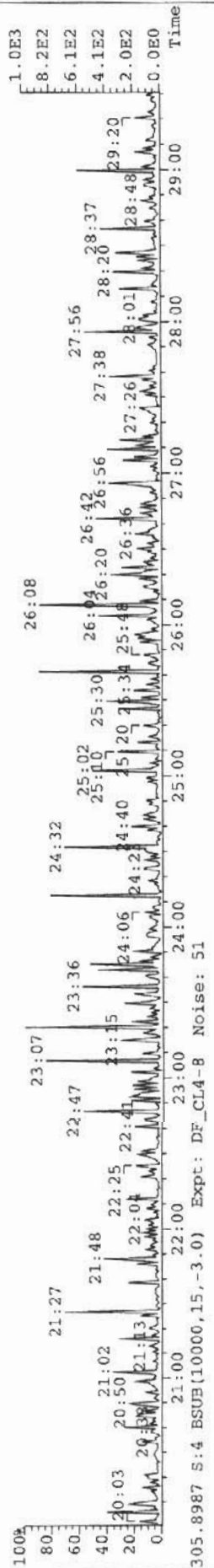
Analyst: ML
 Date: 07/16/05

File: 050131PI Acq: 31-JAN-2005 12:33:36 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: 0.2905 MB001 Vial# 76 File Text: AAP DB5
319.8965 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



Handwritten notes on the chromatogram for sample 331.9368:
1.24 * 51 * 2000 pg
1.51 * 57 * 2000 pg * 77
1.16
4100
= 77%
59.2%
AP 07/105

File: 050131PI Acq: 31-JAN-2005 12:33:36 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 4 Text: 0.2905 MB001 Vial# 76 File Text: AAP DB5
 303.9016 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



B 045d-05

Client ID: AR030-124-FSFHCAL
 Lab ID: P4970_2905_001
 Sample text: P4970_2905_001 AR030-124-FSFHCAL 25.02g
 Filename: 050131P1 S: 5 ACQ: 31-JAN-05 13:28:50
 GC Column ID: cb-5 ICal: MM1_DF_122403_13AUG> Wt/Vol: 25.020
 Via: 78

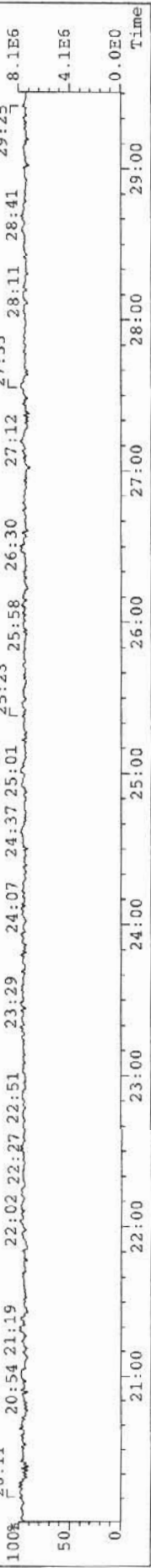
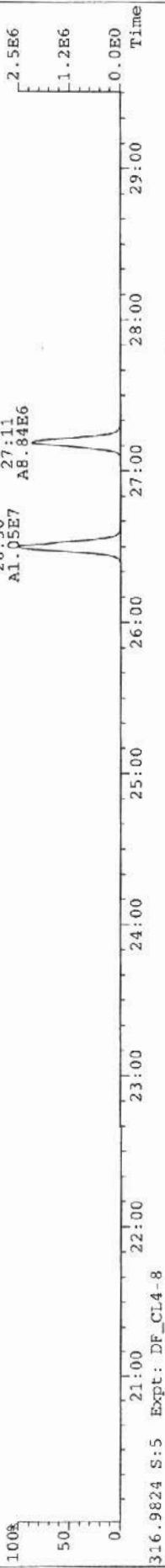
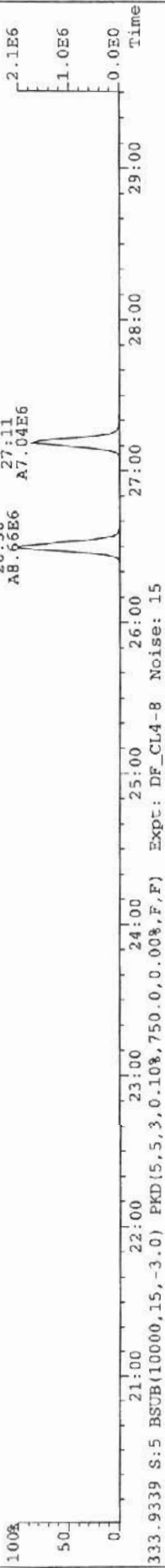
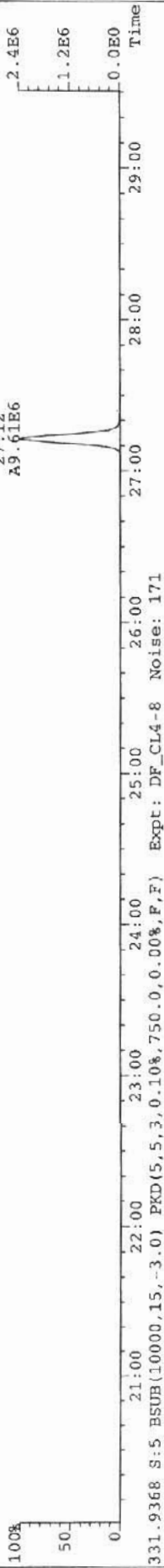
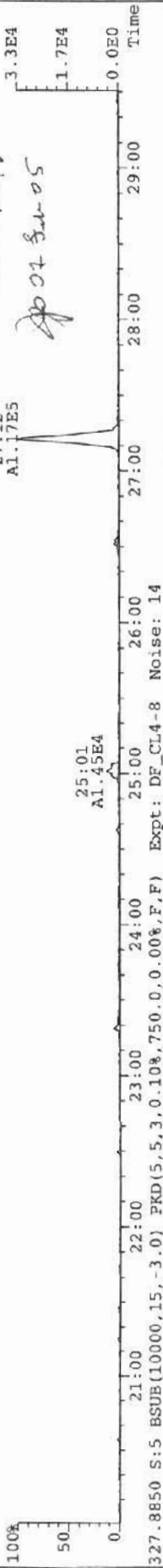
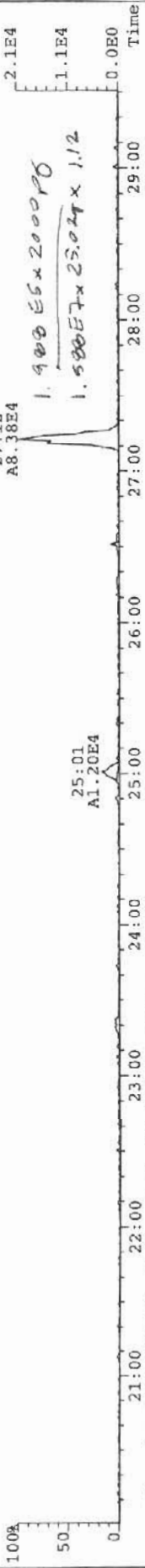
AX	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	2.01e+05	0.72	1.12	27:12	0.898	-	727	2.5	0.0583	-
AX	2,3,7,8-TCDF	1.47e+04	0.70	0.97	26:17	0.0462	-	1225	2.5	0.0762	-
ES	13C-2,3,7,8-TCDD	1.59e+07	0.80	1.16	27:11	57.0	-	1724	2.5	0.119	71.4
ES	13C-2,3,7,8-TCDF	2.63e+07	0.80	1.04	26:17	57.0	-	943	2.5	0.0441	71.3
JS/RT	13C-1,2,3,4-TCDD	1.92e+07	0.82	-	26:30	1.73	-	1724	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.54e+07	0.80	-	24:50	1.81	-	1558	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	9.61e+06	-	1.26	27:12	31.9	-	-	-	0.0940	99.8

RL = .4
 2.0
 4.0

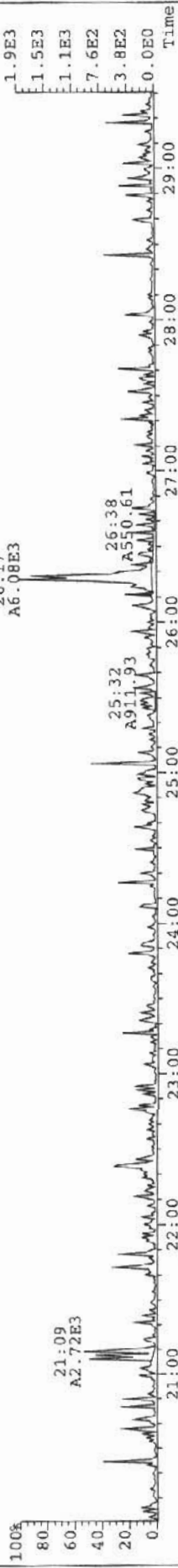
Reviewer: ME
 Date: 07/08

Analyst: ME
 Date: 07/08

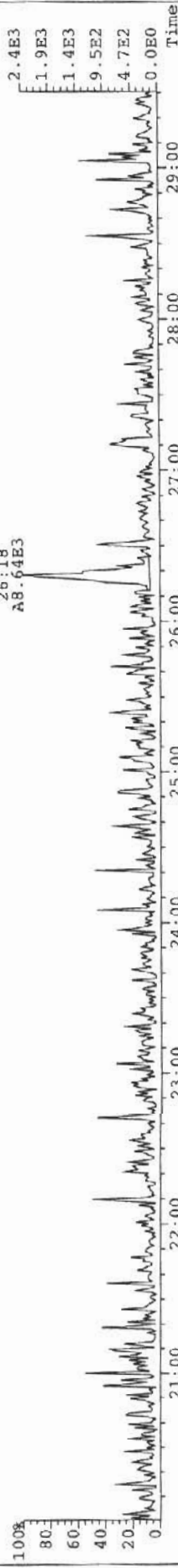
File: 050131P1 Acq: 31-JAN-2005 13:26:50 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P4970_2905_001 AR030-124-FSFCA1 25.02g Vial# 78 File Text: AAP DB5
319.8965 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



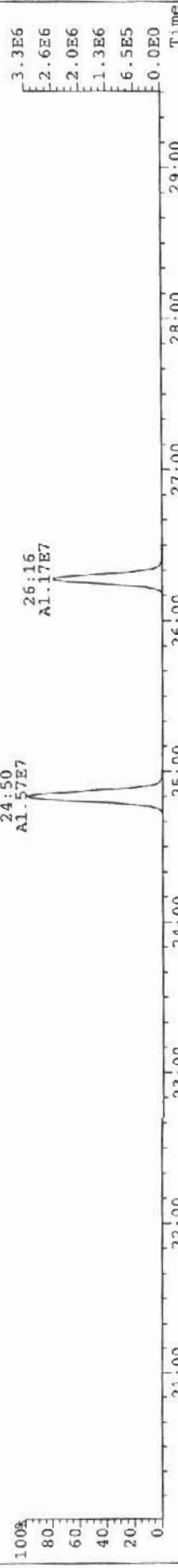
File: 050131P1 Acq: 31-JAN-2005 13:26:50 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P4970_2905_001 AR030-124-FSFHCAI 25.02g Vial# 78 File Text: AAP DBS
303.9016 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



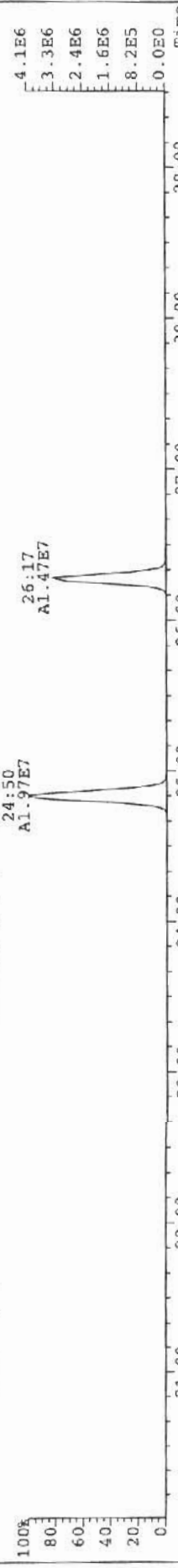
305.8987 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 49



315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



04 Jan 05

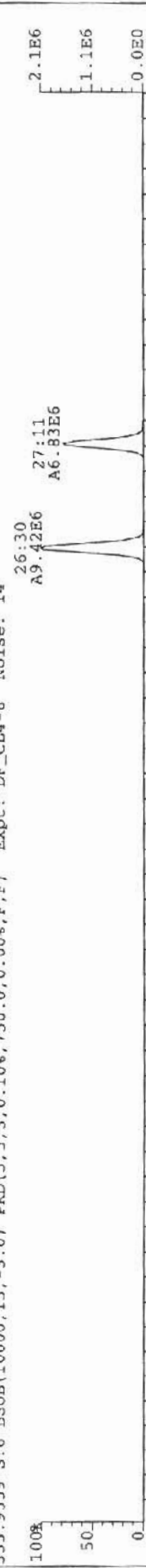
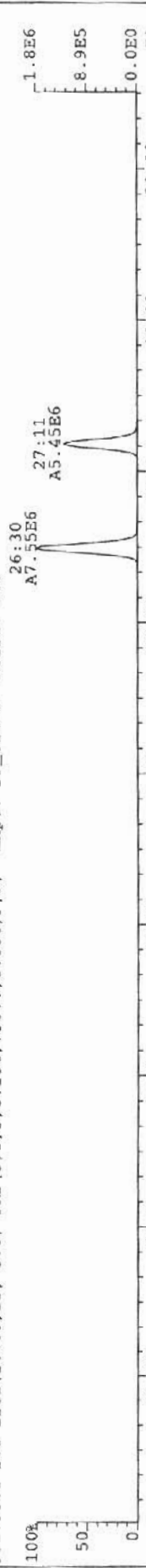
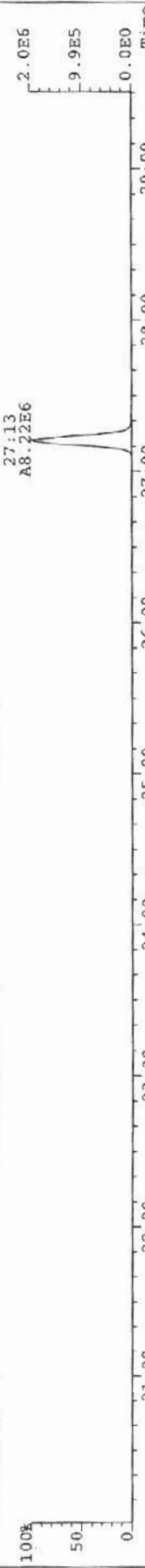
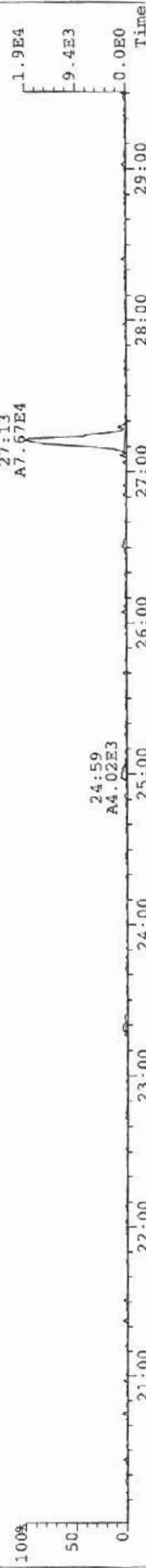
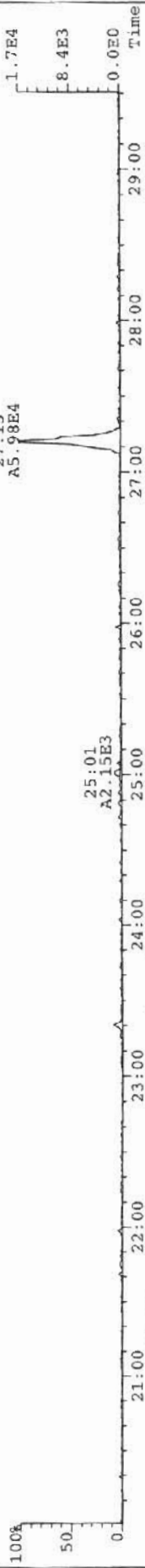
Client ID: ARO30-124-FSFHCA2
 Lab ID: P4970_2905_002
 Sample text: P4970_2905_002 ARO30-124-FSFHCA2 25.02g
 Filename: 050131P1 S: 6 Acq: 31-JAN-05 14:20:04
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG* Wt/Vol: 25.020
 Vial: 79

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	1.36e+05	1.12	27:12	0.791		366	2.5	0.0395	-
Ax	2,3,7,8-TCDF	*	0.97	NOTF*	*		893	2.5	0.0637	-
ES	13C-2,3,7,8-TCDD	1.23e+07	1.16	27:11	49.8		1086	2.5	0.0860	62.3
ES	13C-2,3,7,8-TCDF	2.22e+07	1.04	26:16	55.5		615	2.5	0.0329	69.4
JS/RT	13C-1,2,3,4-TCDD	1.70e+07	-	26:30	1.53		1086	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.07e+07	-	24:50	1.58		1094	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.22e+06	1.26	27:12	30.8				0.0335	96.4

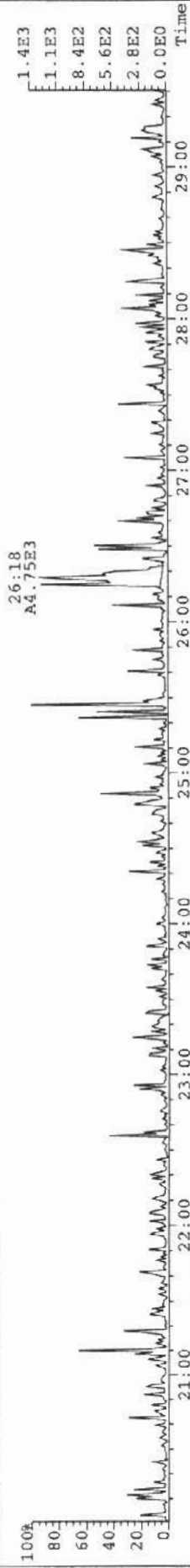
Reviewer: ME
 Date: 01/05

Analyst: ME
 Date: 01/05

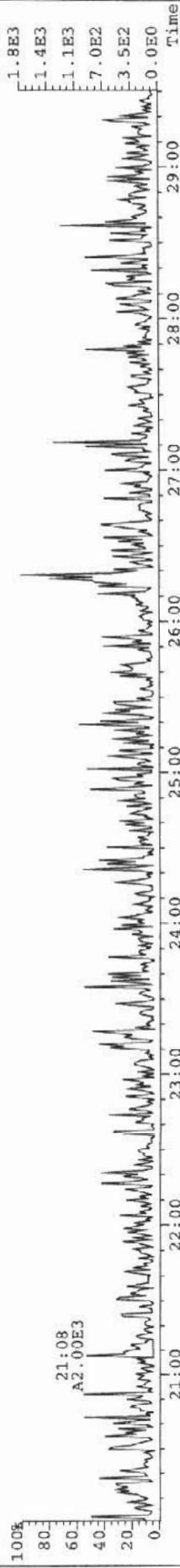
File: 050131PI Acq: 31-JAN-2005 14:20:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: P4970_2905_002 AR030-124-FSFHCA2 25.02g Vial# 79 File Text: AAP DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 10



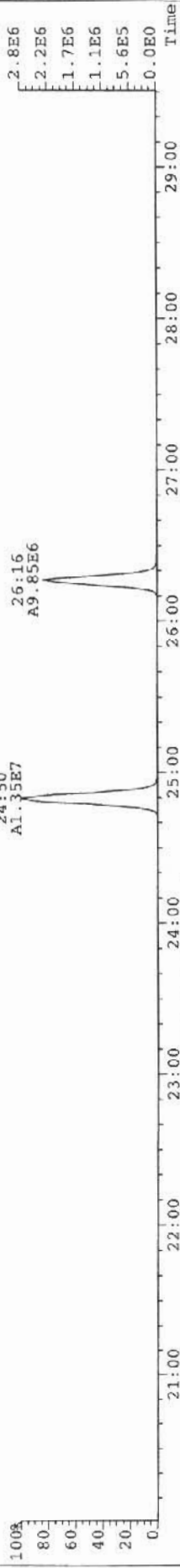
File: 050131PI Acq: 31-JAN-2005 14:20:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: P4970_2905_002 AR030-124-FSPHCA2 25.02g Vial# 79 File Text: AAP DB5
303.9016 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



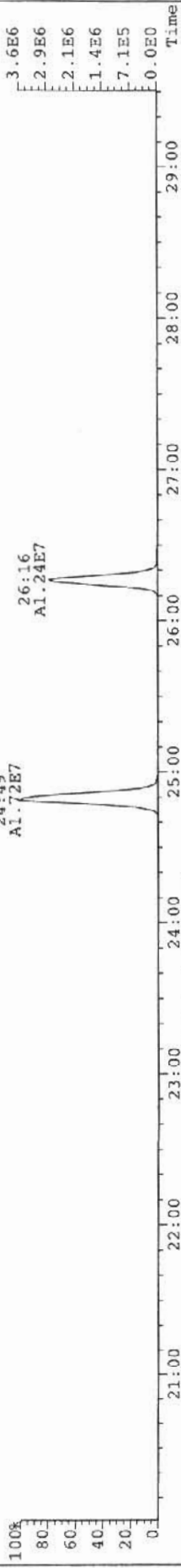
305.8987 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 46



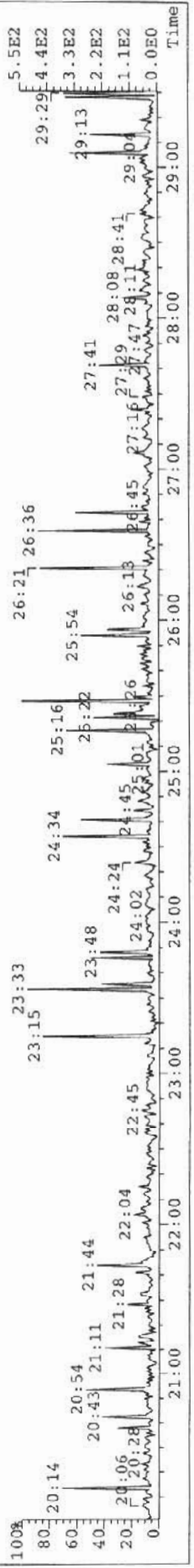
315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 17



375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



Client ID: AR030-124-FSFHCA3
 Lab ID: P4970_2905_003
 Sample text: P4970_2905_003 AR030-124-FSFHCA3 25.08g
 Filename: 050131P1 S: 7 Acq: 31-JAN-05 15:13:22
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG> Wt/Vol: 25.080
 Vial: 80

Name	Resp	RA	RRF	RT	Conc	Qual	noise Fac	DL	Rec
AX	2,3,7,8-TCDD	0.74	1.12	27:12	1.49		415 2.5	0.0284	-
AX	2,3,7,8-TCDF	0.81	0.97	26:18	0.0985		421 2.5	0.0224	-
ES	13C-2,3,7,8-TCDD	0.80	1.16	27:11	59.7		1028 2.5	0.0621	74.8
ES	13C-2,3,7,8-TCDF	0.81	1.04	26:16	61.7		912 2.5	0.0392	77.4
JS/RT	13C-1,2,3,4-TCDD	0.81	-	26:30	1.90		1028 2.5	-	-
JS	13C-1,2,3,4-TCDF	0.80	-	24:50	1.90		1118 2.5	-	-
CS	37C1-2,3,7,8-TCDD	1.06e+07	1.26	27:12	31.7			0.0265	99.3

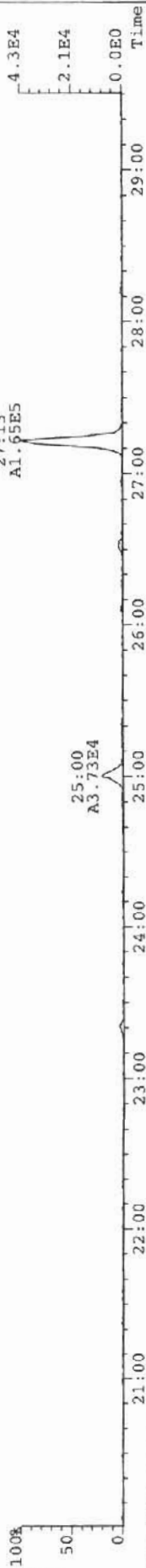
Reviewer: *MP*

Date: *01 Feb 05*

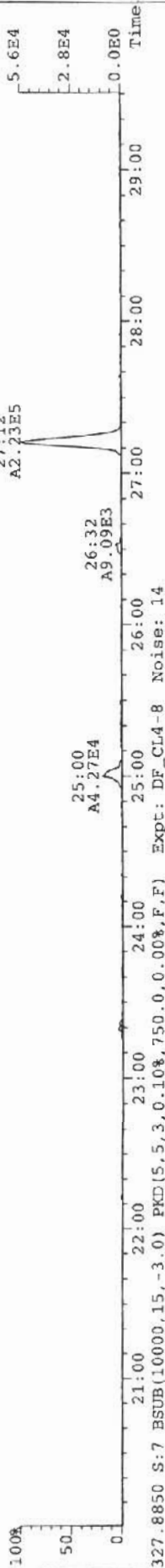
Analyst: *MP*

Date: *01 Feb 05*

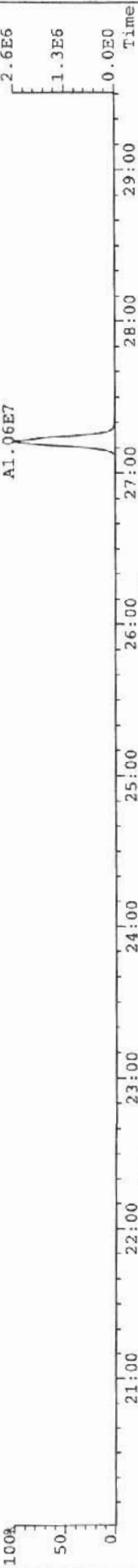
File: 050131P1 Acq: 31-JAN-2005 15:13:22 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P4970_2905_003 AR030-124-FSFHCA3 25.08g Vial# 80 File Text: AAP DB5
319.8965 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



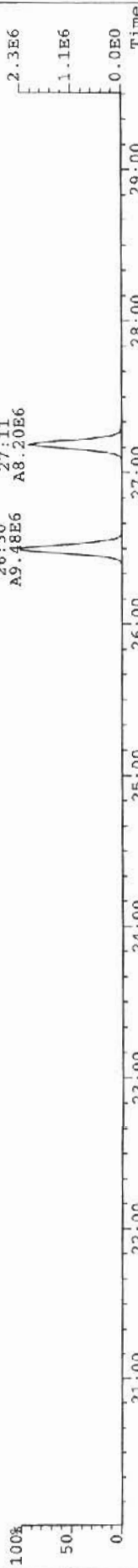
321.8936 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



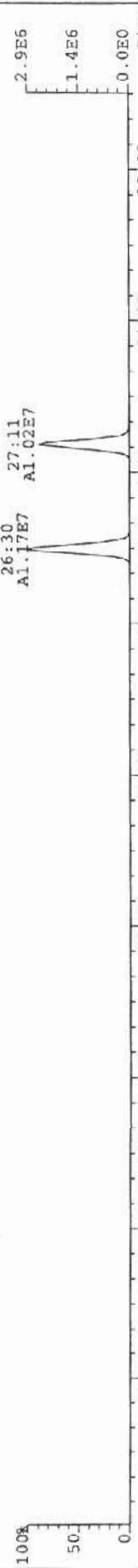
327.8850 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



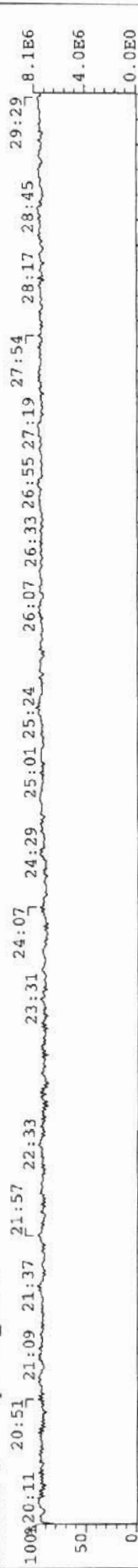
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 309



333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



316.9824 S:7 Expt: DF_CL4-8

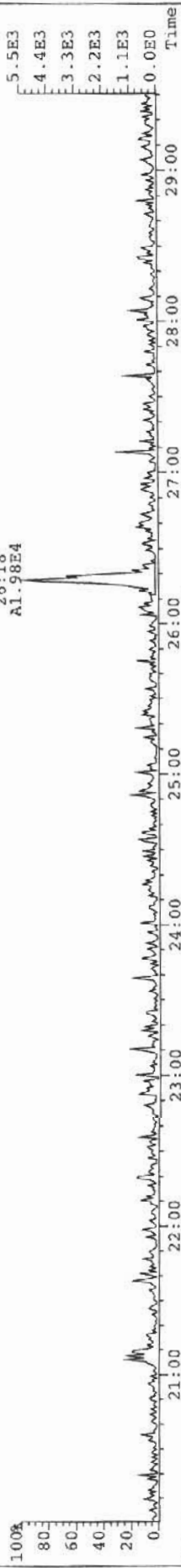


100A 20:11 20:51 21:09 21:37 21:57 22:33 23:31 24:07 24:29 25:01 25:24 26:07 26:33 26:55 27:19 27:54 28:17 28:45 29:29

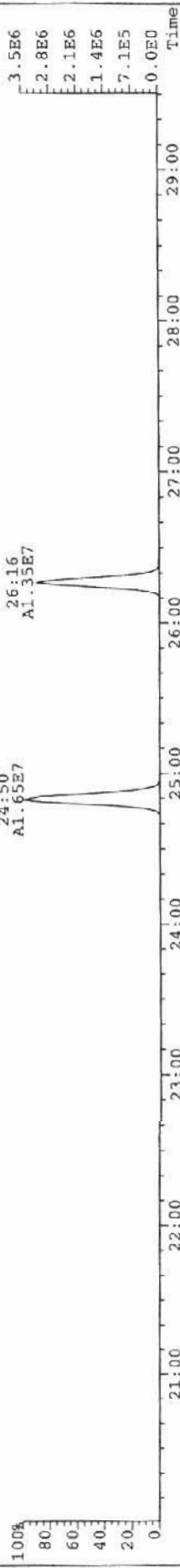
File: 050131PI Acq: 31-JAN-2005 15:13:22 GC EI+ Voltage SIR Autospec-Ultimate
Sample# 7 Text: P4970_2905_003 AR030-124-FSFHCA3 25.08g Vial# 80 File Text: AAP DB5
303.9016 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



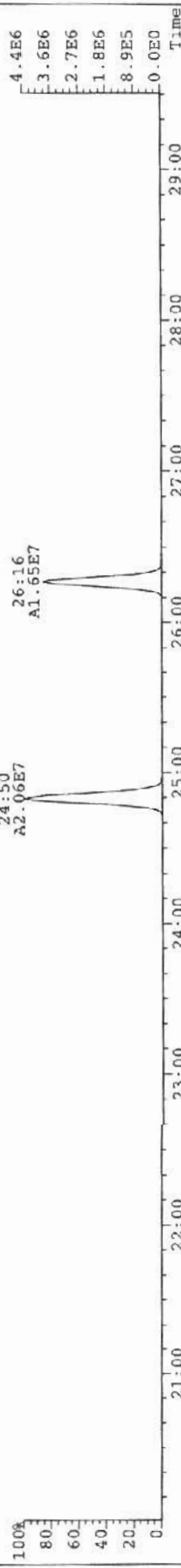
305.8987 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 66



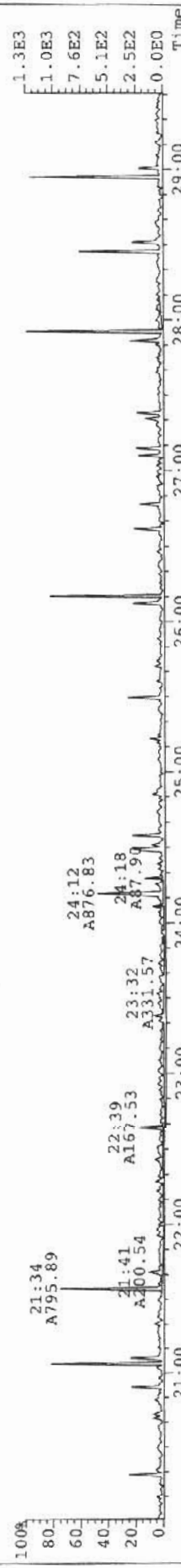
315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0.0.00%,F,F) Expt: DF_CL4-8 Noise: 14



317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0.0.00%,F,F) Expt: DF_CL4-8 Noise: 16



375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0.0.00%,F,F) Expt: DF_CL4-8 Noise: 12



07-26-05

Client ID: AR030-124-FSBCA4
 Lab ID: P4970_2905_004
 Sample text: P4970_2905_004 AR030-124-FSBCA4 25.02g

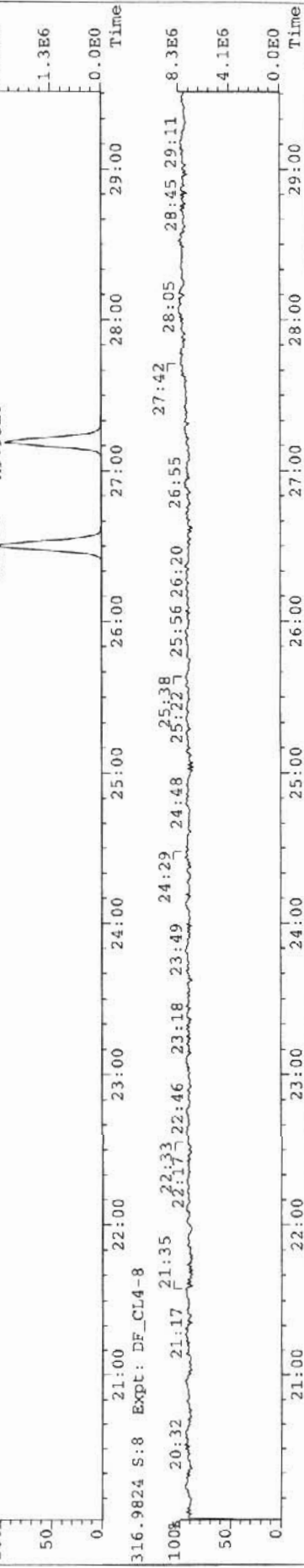
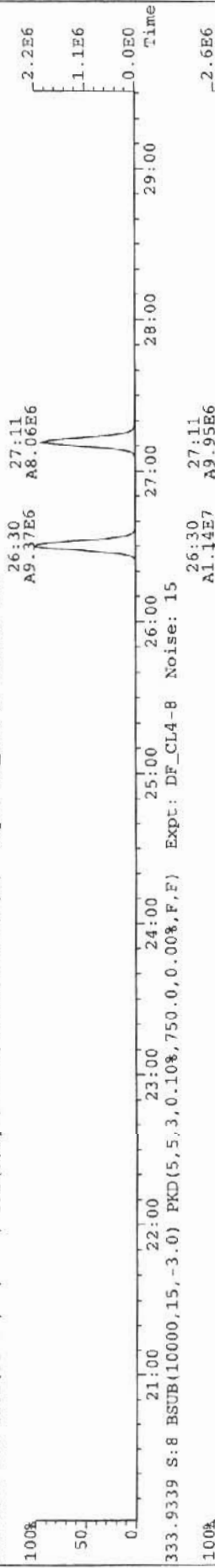
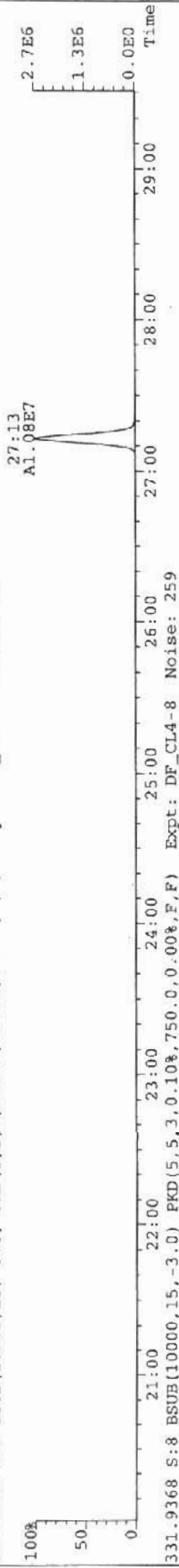
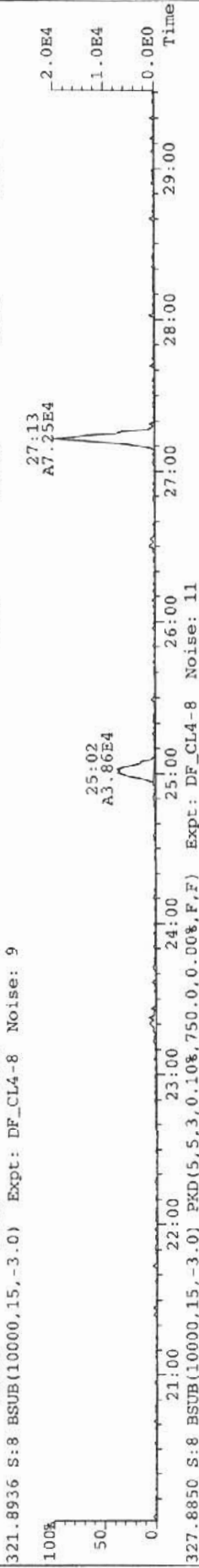
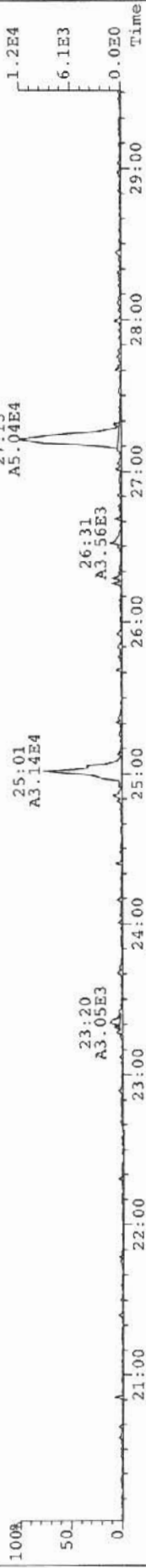
Filename: 050131P1 S: 8
 GC Column ID: db-5
 ICal: MMI_DF_122403_13AUG* WE/Vol:25.020
 Vial: B1

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD 1.23e+05	0.69	1.12	27:13	0.486		322	2.5	0.0230	-
Ax	2,3,7,8-TCDF 3.63e+04	0.85	0.97	26:18	0.102		1114	2.5	0.0611	-
ES	13C-2,3,7,8-TCDD 1.80e+07	0.81	1.16	27:11	59.6		478	2.5	0.0313	74.5
ES	13C-2,3,7,8-TCDF 2.95e+07	0.80	1.04	26:17	59.6		618	2.5	0.0262	74.6
JS/RT	13C-1,2,3,4-TCDD 2.08e+07	0.82	-	26:30	1.87		478	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.78e+07	0.80	-	24:50	1.94		1518	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 1.08e+07		1.26	27:13	32.9				0.0171	103

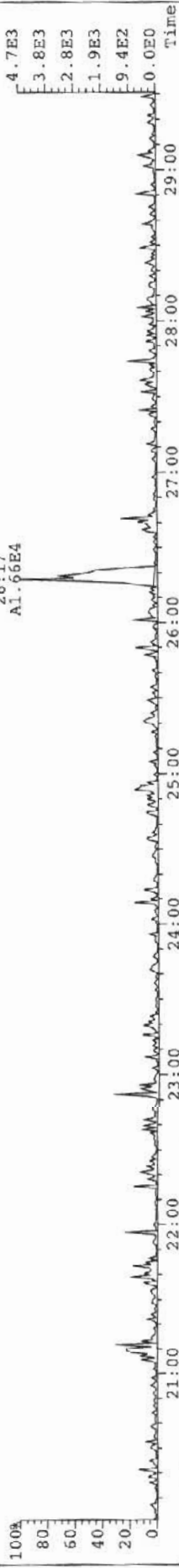
Reviewer: MM
 Date: 07/26/05

Analyst: MM
 Date: 07/26/05

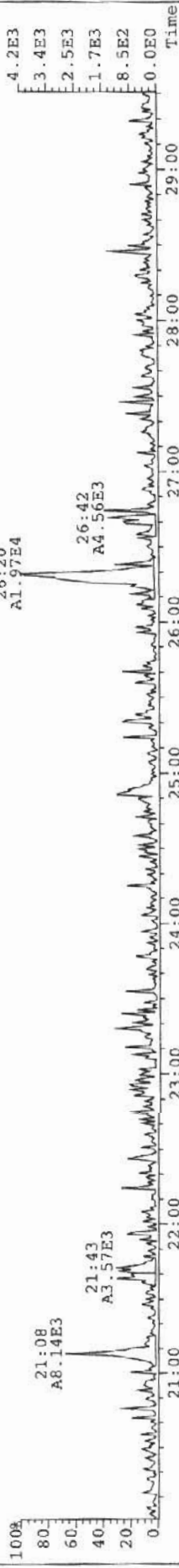
File: 050131P1 Acq: 31-JAN-2005 16:06:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 8 Text: P4970_2905_004 ARO30-124-FSBCA4 25.02g Vial# 81 File Text: AAP DE5
319.8965 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



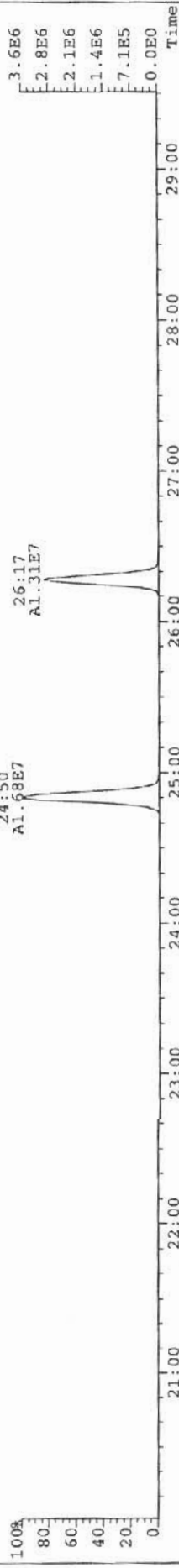
File: 050131PI Acq: 31-JAN-2005 16:06:34 GC EI+ Voltage SIR Autospec-Ultimate
Sample# 8 Text: P4970_2905_004 AR030-124-F8BCA4 25.02g Vial# 81 File Text: AAP DB5
303.9016 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



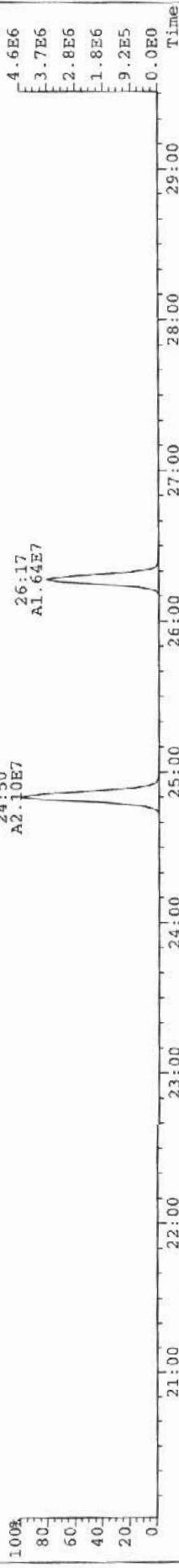
305.8987 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 65



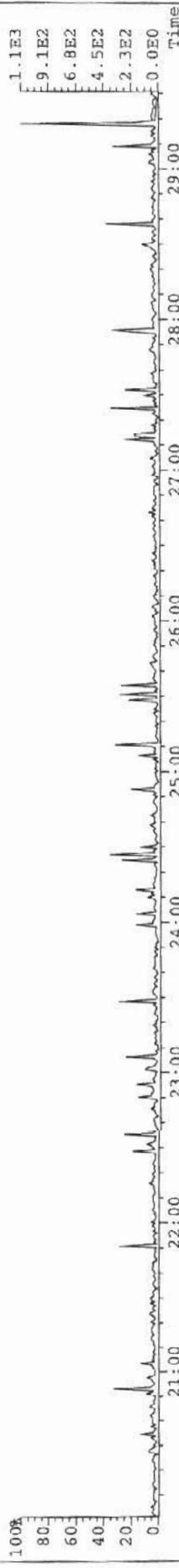
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 12



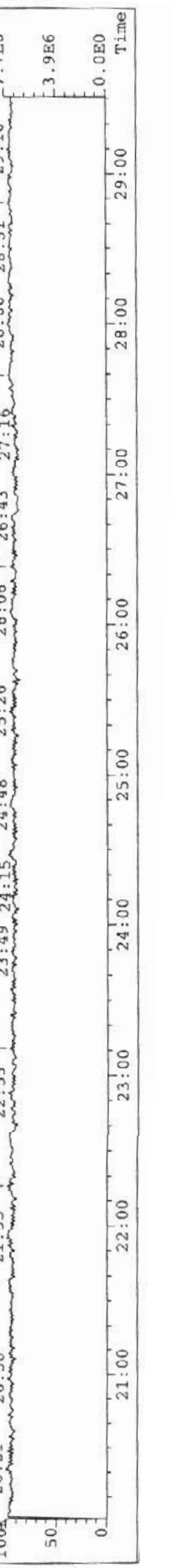
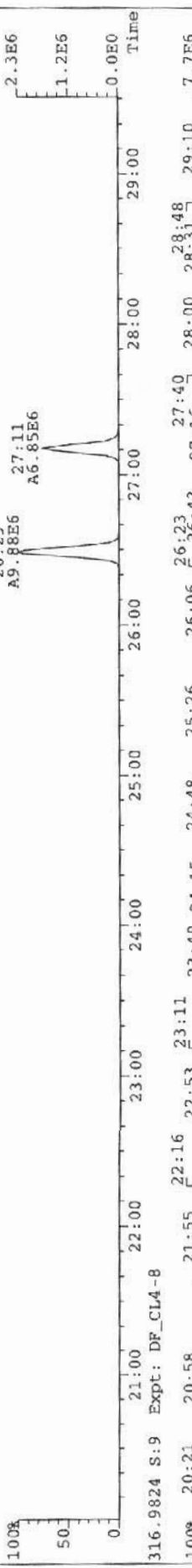
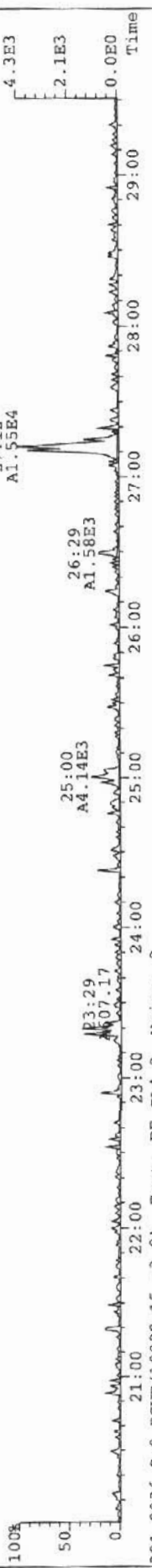
Client ID: AR030-124-FSBCA5
 Lab ID: P4970_2905_005
 Sample text: P4970_2905_005 AR030-124-FSBCA5 25.07g
 Filename: 050131P1 S: 9 Acq: 31-JAN-05 16:59:47
 GC Column ID: db-5 ICal: MMI_DF_122403_13AUG» Wt/Vol: 25.070
 Vial: 82

Name	Resp	RA	RRF	RT	Conc	Qual	noise Fac	DL	Rec
AX	2,3,7,8-TCDD	3.57e+04	1.12	27:11	0.204		926 2.5	0.0919	-
AX	2,3,7,8-TCDF	*	0.92	NotF*	*		520 2.5	0.0370	-
ES	13C-2,3,7,8-TCDD	1.24e+07	1.16	27:11	47.4		1029 2.5	0.0763	59.5
ES	13C-2,3,7,8-TCDF	2.20e+07	1.04	26:16	50.6		2898 2.5	0.134	63.4
JS/RT	13C-1,2,3,4-TCDD	1.80e+07	-	26:29	1.61		1029 2.5	-	-
JS	13C-1,2,3,4-TCDF	3.33e+07	-	24:49	1.70		1156 2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.82e+06	1.25	27:12	31.1			0.0270	97.6

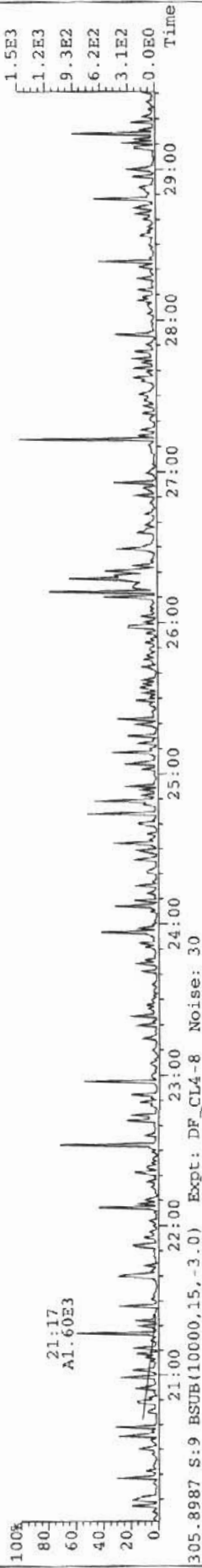
Reviewer: MP
 Date: 07/31/05

Analyst: WJ
 Date: 07/31/05

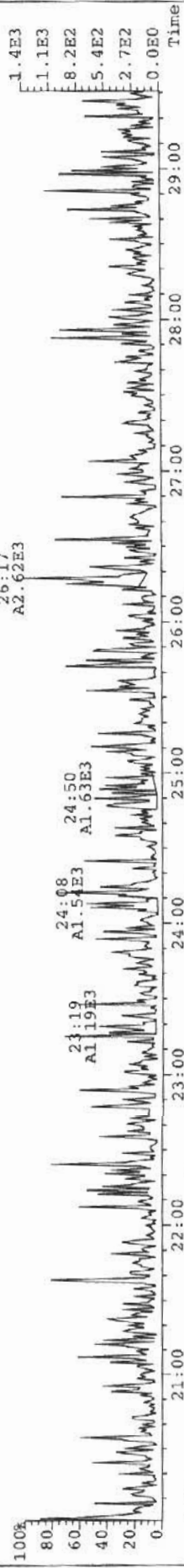
File: 050131P1 Acq: 31-JAN-2005 16:59:47 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 9 Text: P4970_2905_005 ARQ30-124-FSBCA5 25.07g Vial# 82 File Text: AAP DB5
319.8965 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



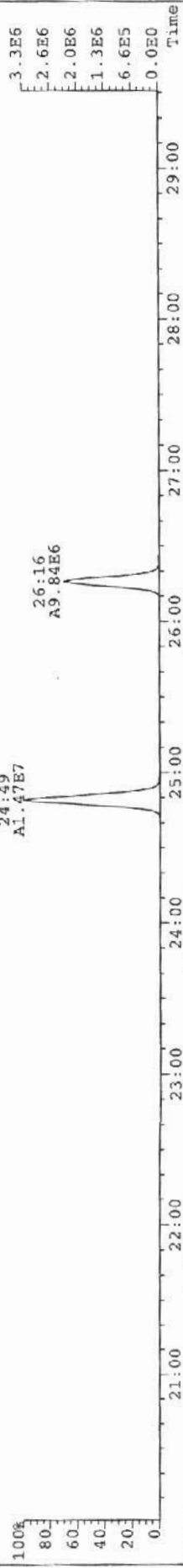
File: 050131PI Acq: 31-JAN-2005 16:59:47 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 9 Text: P4970_2905_005 AR030-124-FSBCA5 25.07g Vial# 82 File Text: AAP DB5
303-9016 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



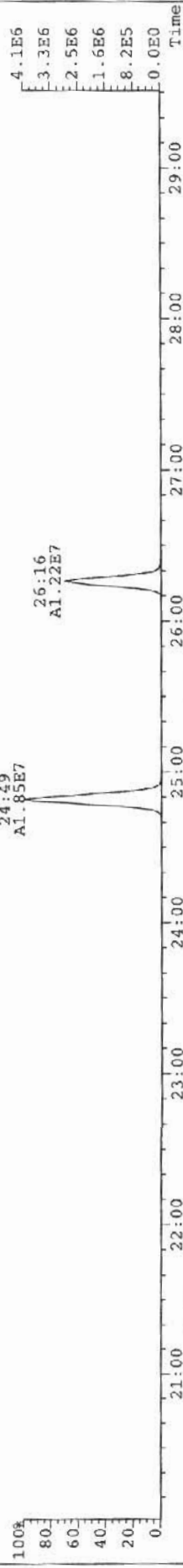
305.8987 S:9 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 30



315.9419 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



317.9389 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



375.8364 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 12



AP 27 Jan 05

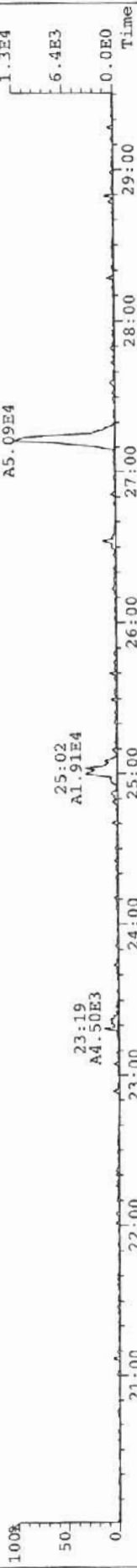
Client ID: AR030-124-FSBCA6
 Lab ID: P4970_2905_006
 Sample text: P4970_2905_006 AR030-124-FSBCA6 25.05g

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.16e+05	0.78	1.12	27:13	0.595		344	2.5	0.0321	-
AX	2,3,7,8-TCDF 2.00e+04	0.82	0.97	26:18	0.0737		1047	2.5	0.0759	-
ES	13C-2,3,7,8-TCDD 1.39e+07	0.81	1.16	27:12	54.4		1650	2.5	0.129	68.1
ES	13C-2,3,7,8-TCDF 2.24e+07	0.80	1.04	26:17	49.9		1761	2.5	0.0818	62.5
JS/RT	13C-1,2,3,4-TCDD 1.76e+07	0.80	-	26:30	1.58		1650	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.44e+07	0.79	-	24:50	1.76		1000	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 9.43e+06		1.25	27:13	34.1				0.0271	107

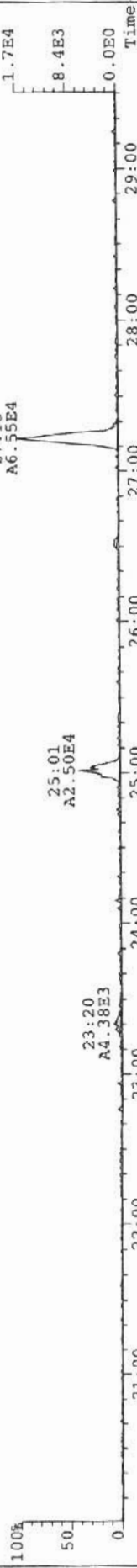
Reviewer: MO
 Date: 07/16/05

Analyst: my
 Date: 07/16/05

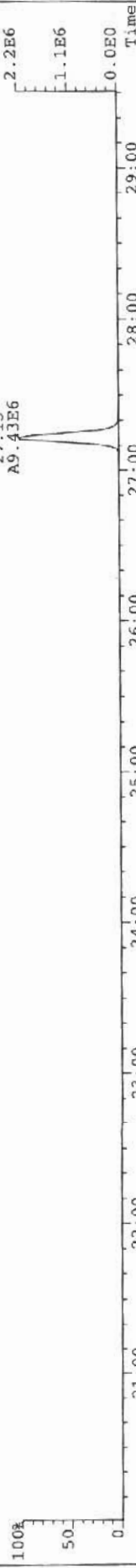
File: 050131PI Acq: 31-JAN-2005 17:53:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 10 Text: P4970_2905_006 AR030-124-FSBCA6 25.05g Vial# 83 File Text: AAP DB5
319.8965 S:10 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



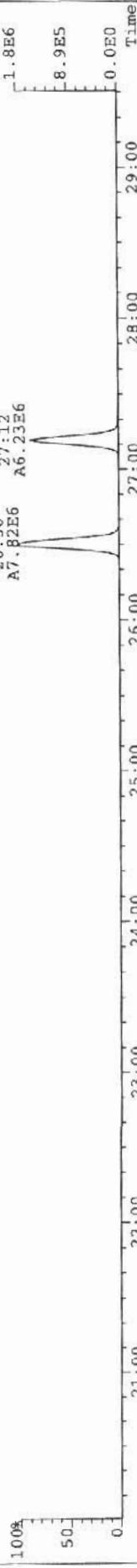
321.8936 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 11



327.8850 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



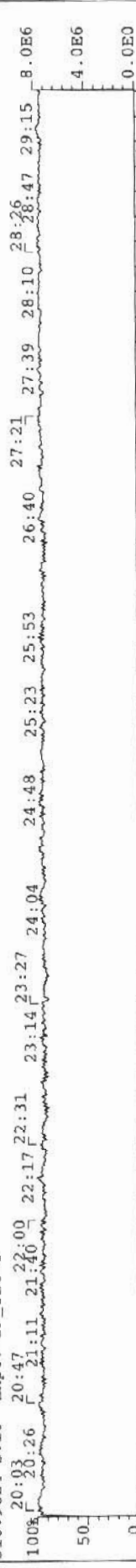
331.9368 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 172



333.9339 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



316.9824 S:10 Expt: DF_CL4-8

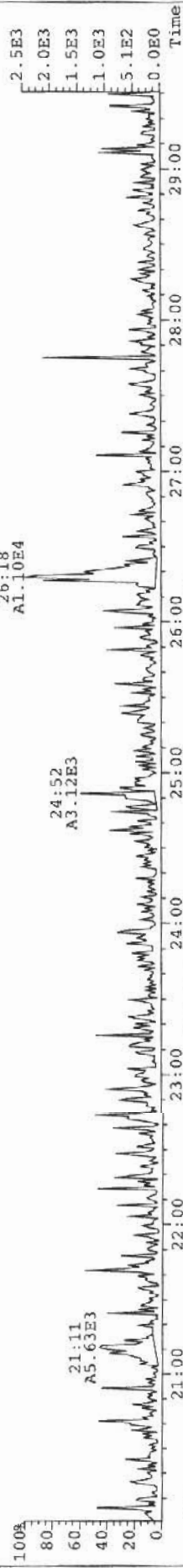


100% 50 0 21:00 22:00 23:00 24:00 25:00 26:00 27:00 28:00 29:00 Time

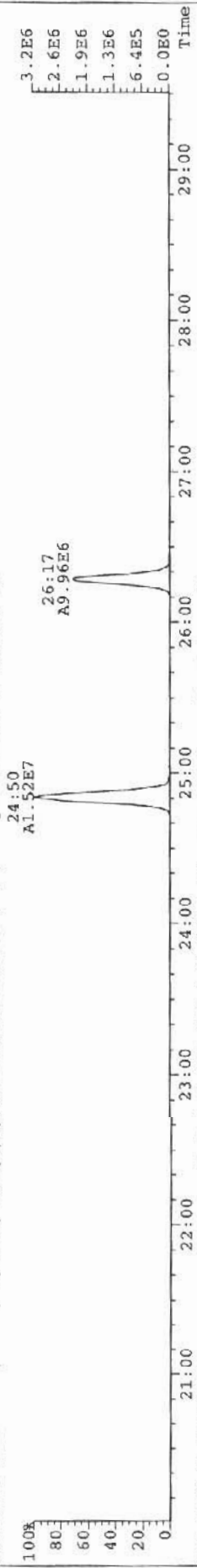
File: 050131PI Acq: 31-JAN-2005 17:53:04 GC E1+ Voltage SIR Autospec-UltimaE
Sample# 10 Text: P4970_2905_006 AR030-124-FSBCA6 25.05g Vial# 83 File Text: AAP DBS
303-9016 S:10 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



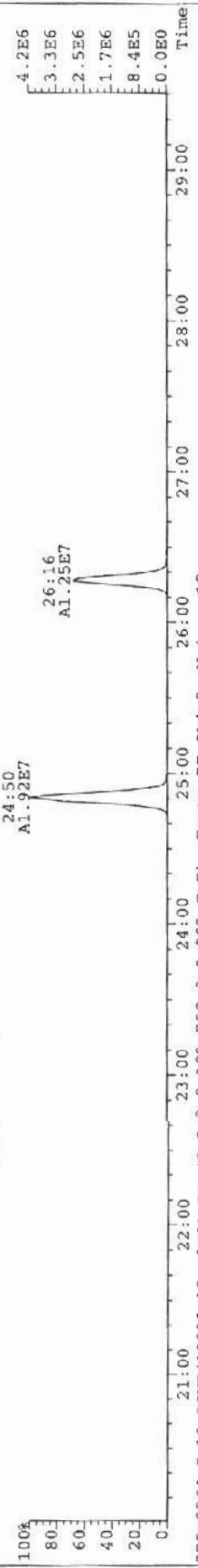
305-8987 S:10 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 52



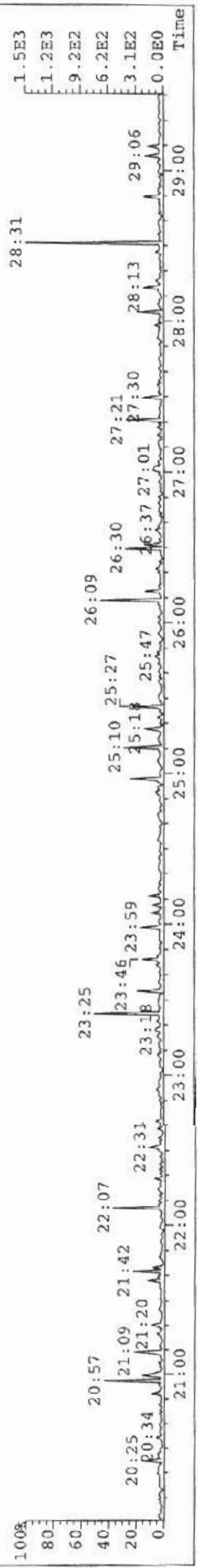
315-9419 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 12



317-9389 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



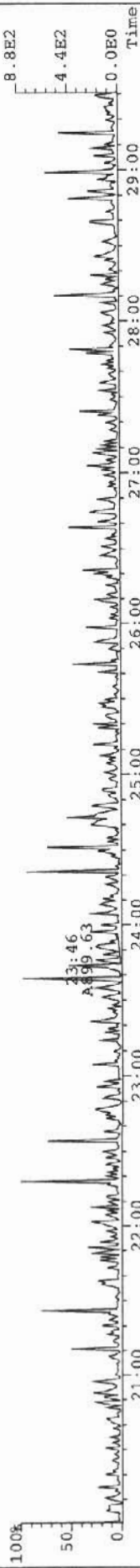
375-8364 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 12



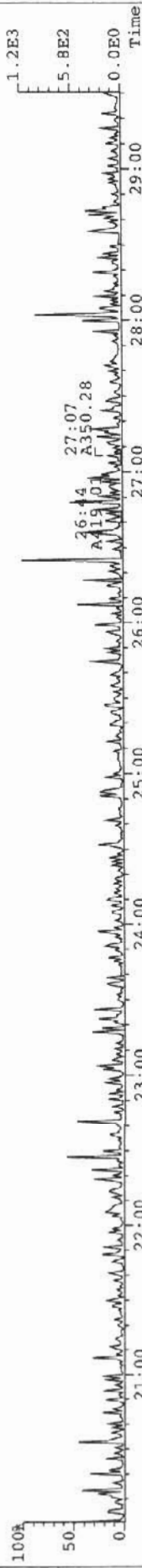
File: 050131PI Acq: 31-JAN-2005 18:46:13 GC EI+ Voltage SIR Autospec-Ultimate

Sample# 11 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DB5

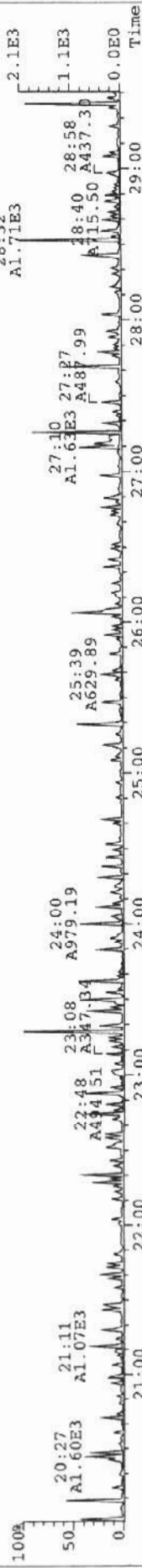
319.8965 S:11 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



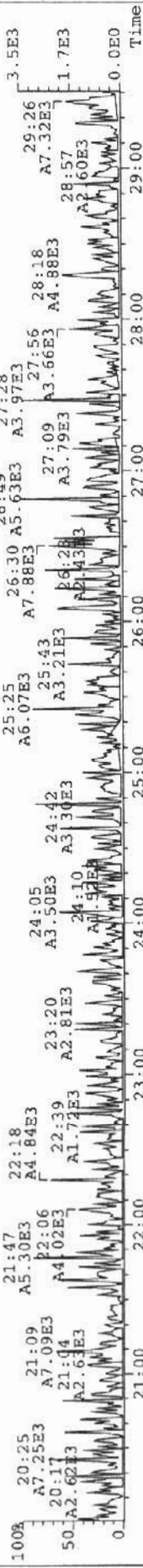
321.8936 S:11 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 8



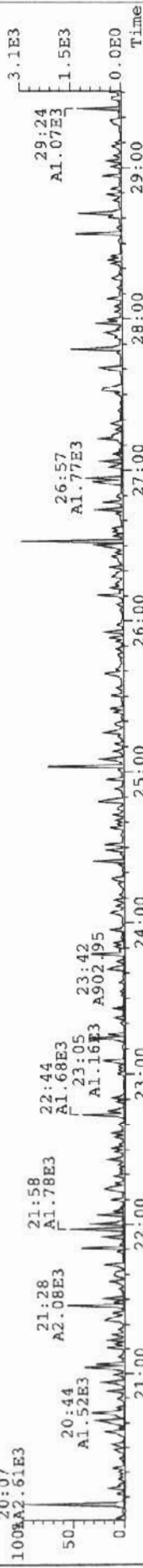
327.8850 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



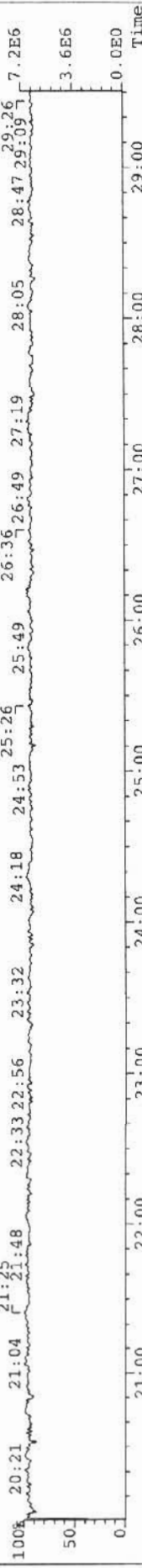
331.9368 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 145



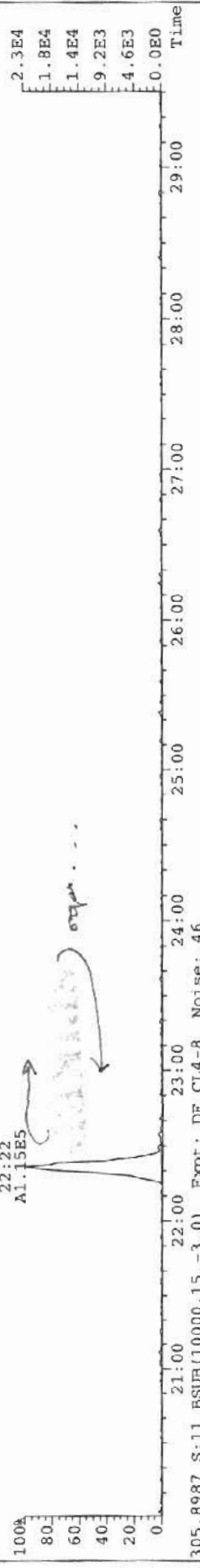
333.9339 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



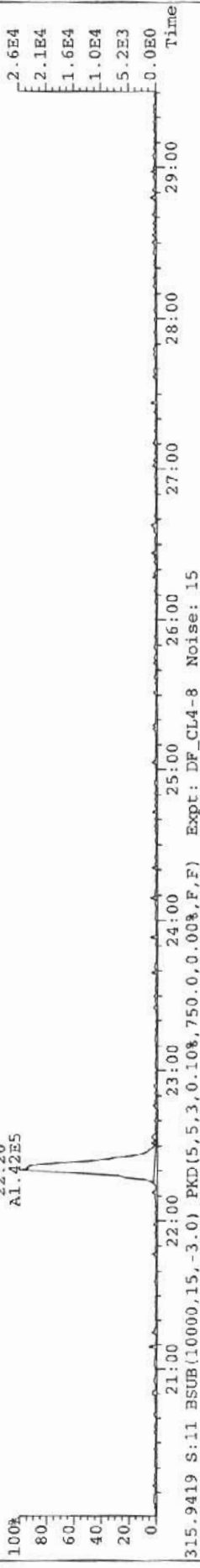
316.9824 S:11 Expt: DF_CL4-8



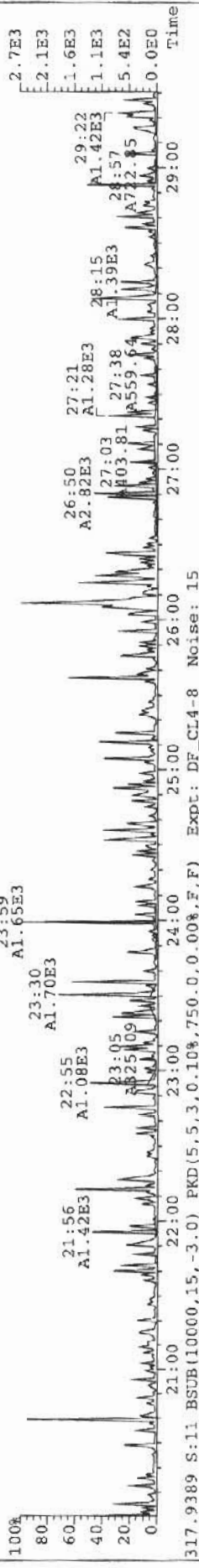
File: 050131P1 Acq: 31-JAN-2005 18:46:13 GC EI+ Voltage SIR Autospec-UltimaE
 Sample# 11 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DB5
 303.9016 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 10



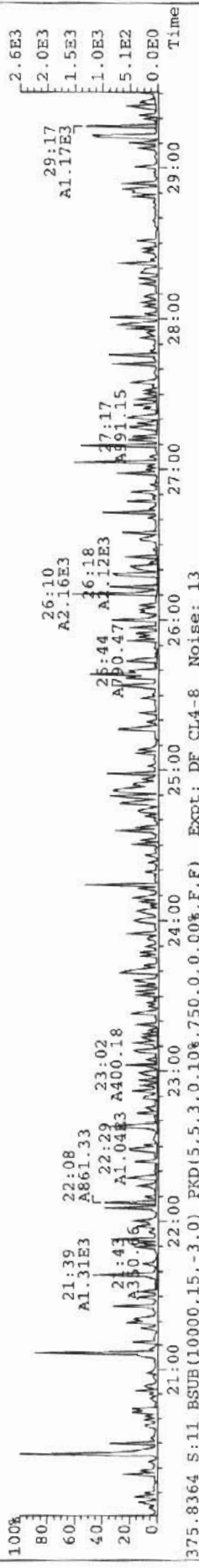
305.8987 S:11 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 46



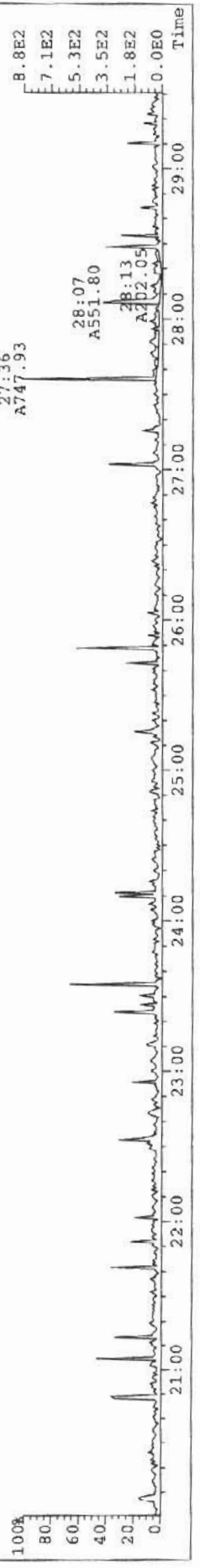
315.9419 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



317.9389 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



375.8364 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



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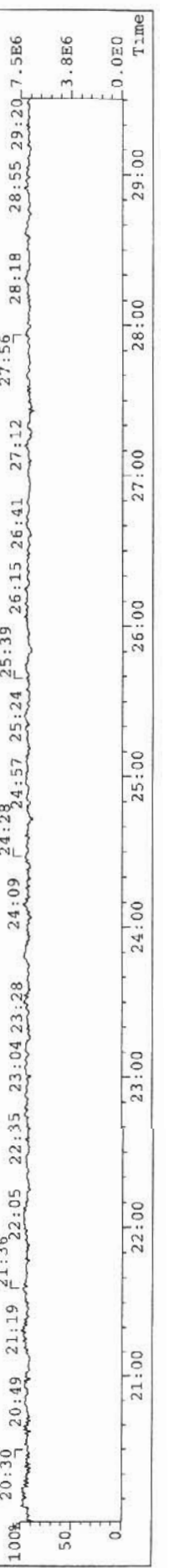
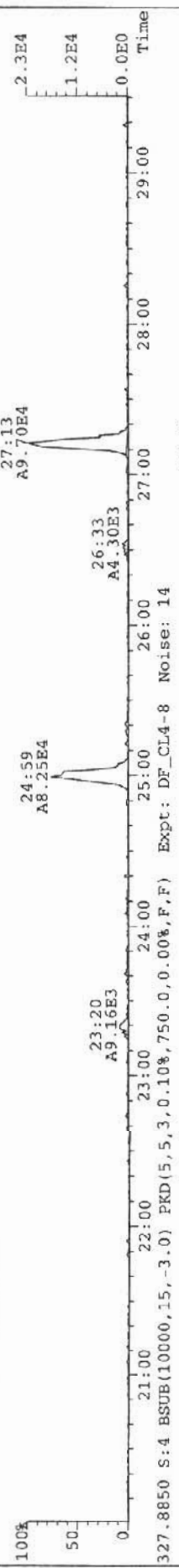
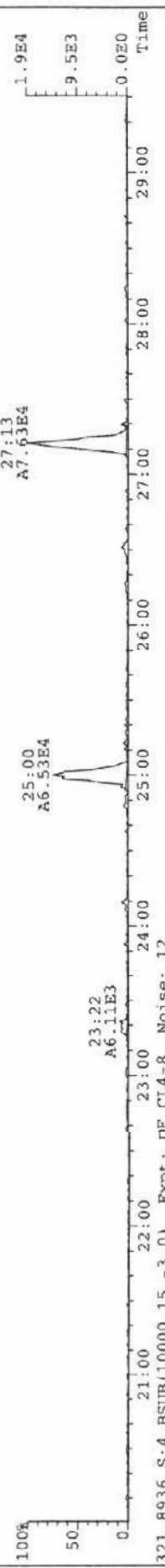
Client ID: ARO30-124-FSBCB1
 Lab ID: P4970_2905_007
 Sample text: P4970_2905_007 ARO30-124-FSBCB1 25.03g
 Filename: 050131P2 S: 4 Acq: 31-JAN-05 22:27:29
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG> Wt/Vol: 25.030
 Vial: 84

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
Ax	2,3,7,8-TCDD	1.73e+05	0.79	27:12	0.763		462	2.5	0.0386	-
Ax	2,3,7,8-TCDF	5.35e+04	0.73	26:17	0.165		953	2.5	0.0576	-
ES	13C-2,3,7,8-TCDD	1.61e+07	0.80	27:11	59.8		1161	2.5	0.0841	74.9
ES	13C-2,3,7,8-TCDF	2.67e+07	0.80	26:16	61.7		389	2.5	0.0194	77.3
JS/RT	13C-1,2,3,4-TCDD	1.86e+07	0.82	26:29	1.67		1161	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.31e+07	0.79	24:49	1.70		1867	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.85e+06	1.26	27:12	30.3				0.0159	94.8

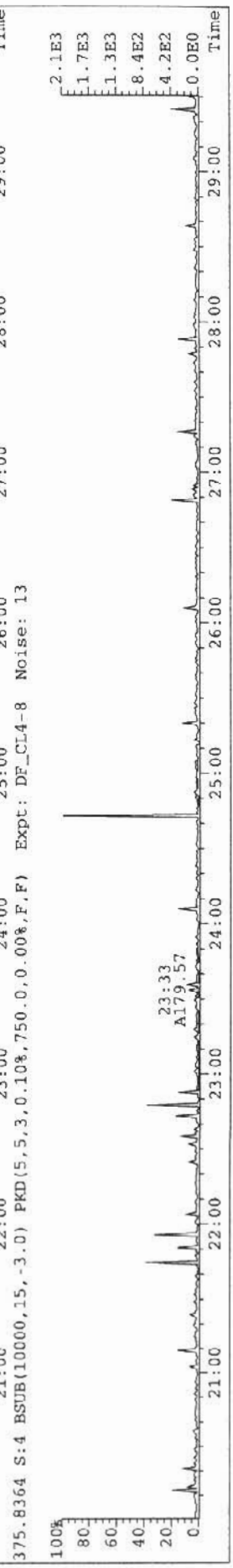
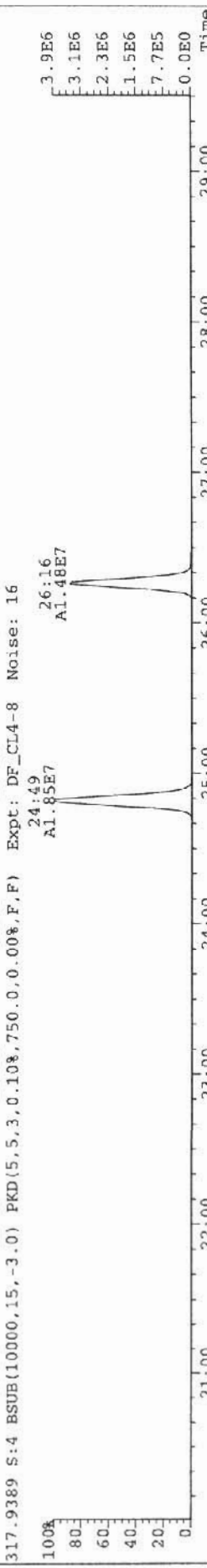
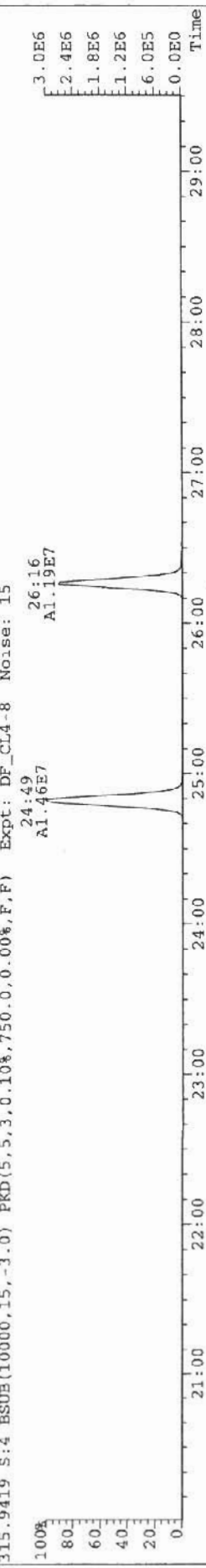
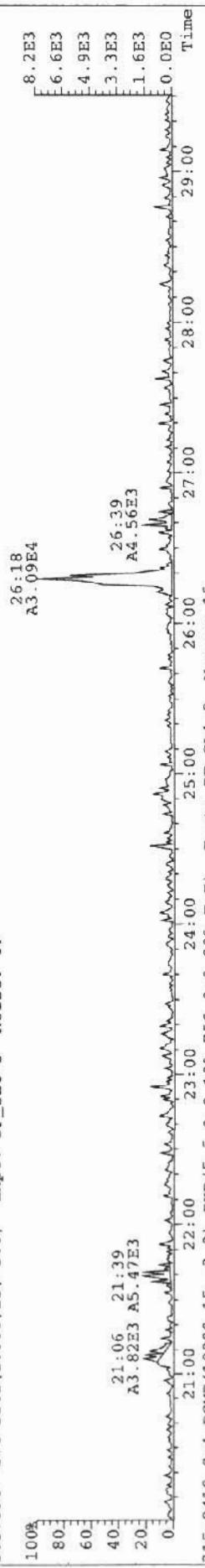
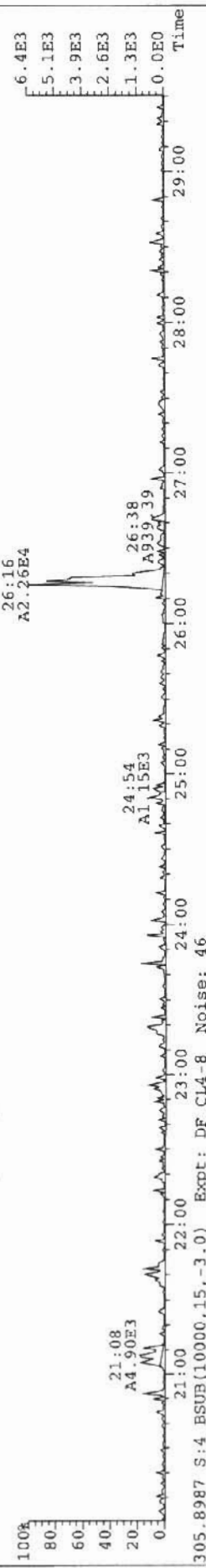
Reviewer: ME
 Date: 07 Feb 05

Analyst: W
 Date: 07 Feb 05

File: 050131P2 Acq: 31-JAN-2005 22:27:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: P4970_2905_007 AR030-124-FSBCB1 25.03g Vial# 84 File Text: AAP DB5
319.8965 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



File: 050131P2 Acq: 31-JAN-2005 22:27:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 4 Text: P4970_2905_007 AR030-124-FSBCB1 25.03g Vial# 84 File Text: AAP DB5
303.9016 S:4 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



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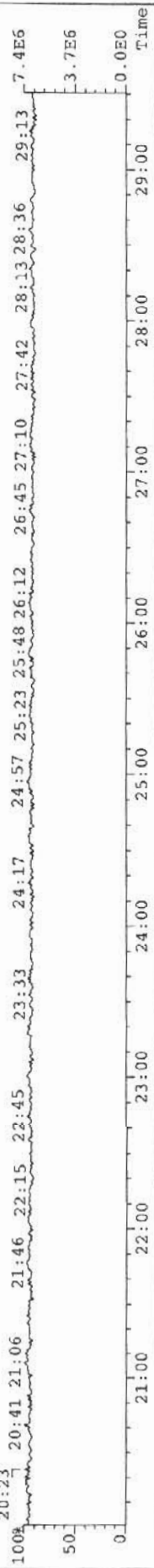
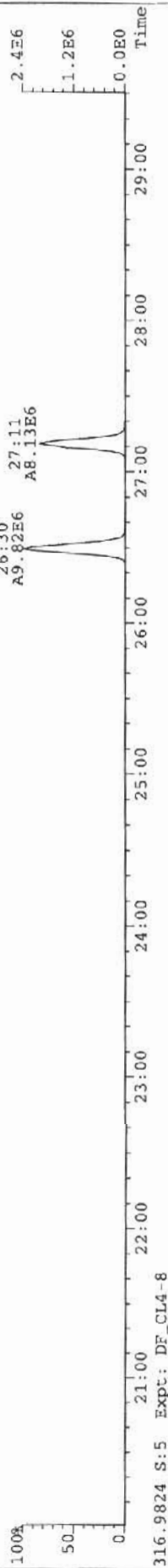
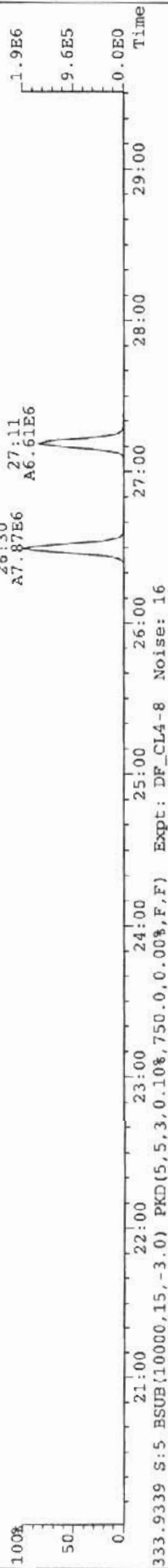
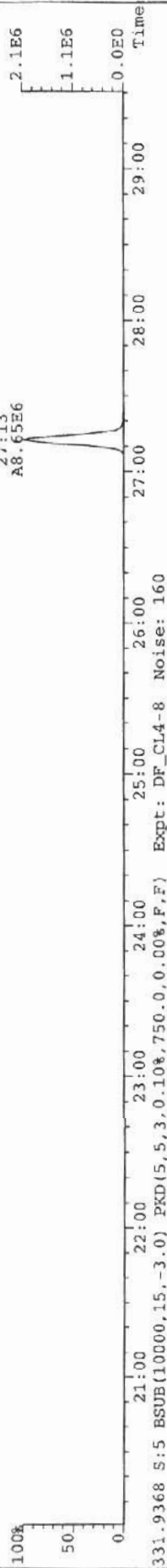
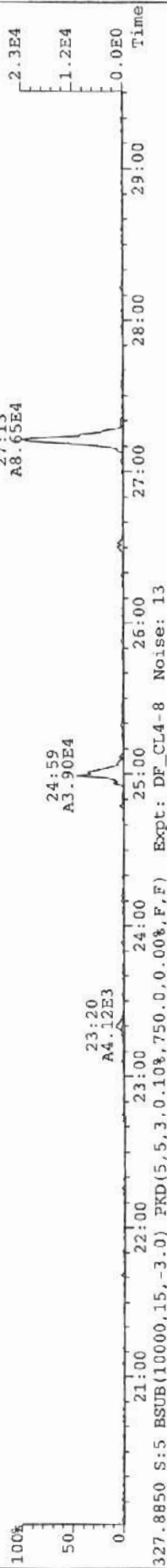
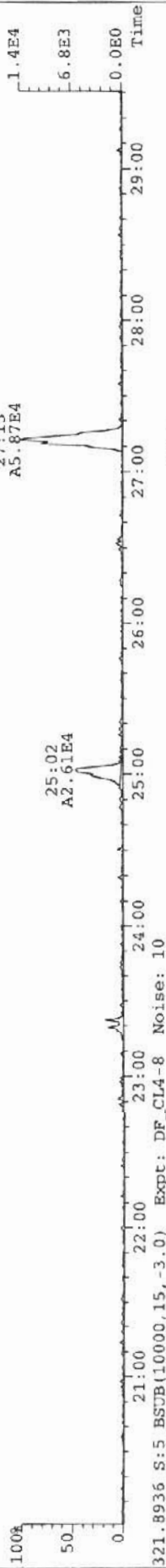
Client ID: AR030-124-FSBCB2
 Lab ID: P4970_2905_008
 Sample text: P4970_2905_008 AR030-124-FSBCB2 25.02g
 Filename: 050131P2 S: 5 Acq: 31-JAN-05 23:20:47
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG* Wt/Vol: 25.020
 Vial: 85

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.45e+05	0.68	1.12	27:13	0.701	-	551	2.5	0.0493	-
AX	2,3,7,8-TCDF 3.61e+04	0.76	0.97	26:18	0.126	-ca	1201	2.5	0.0816	-
ES	13C-2,3,7,8-TCDD 1.47e+07	0.81	1.16	27:11	57.4		1018	2.5	0.0736	71.8
ES	13C-2,3,7,8-TCDF 2.37e+07	0.81	1.04	26:16	58.1		2521	2.5	0.128	72.7
JS/RT	13C-1,2,3,4-TCDD 1.77e+07	0.80	-	26:30	1.59		1018	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.13e+07	0.80	-	24:50	1.60		1206	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 8.65e+05		1.26	27:13	31.1				0.0444	97.2

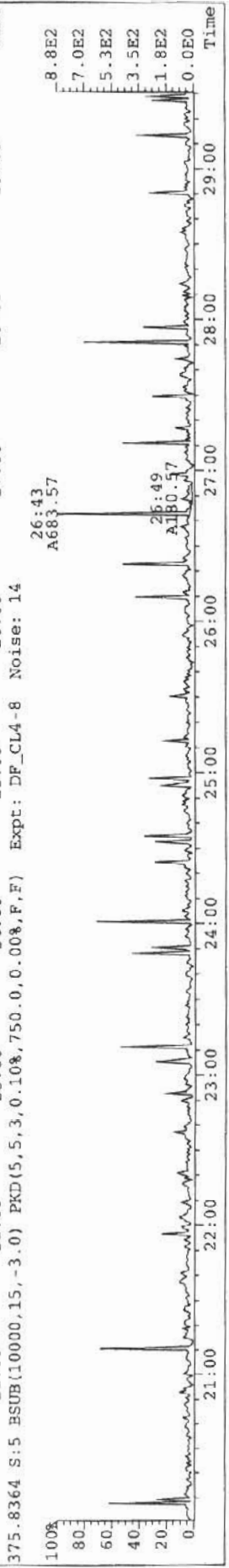
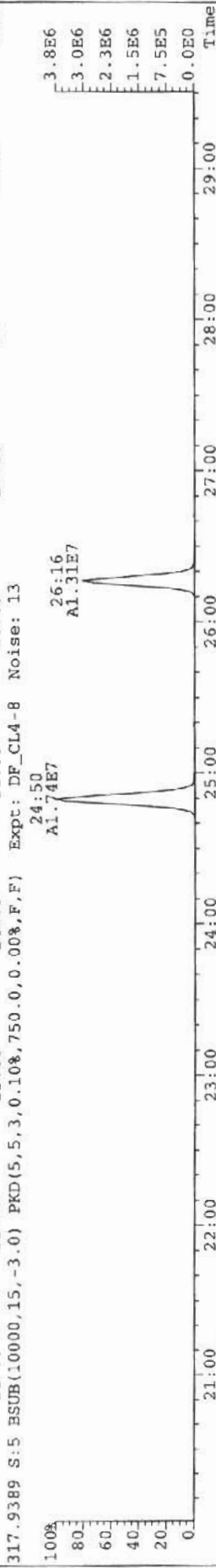
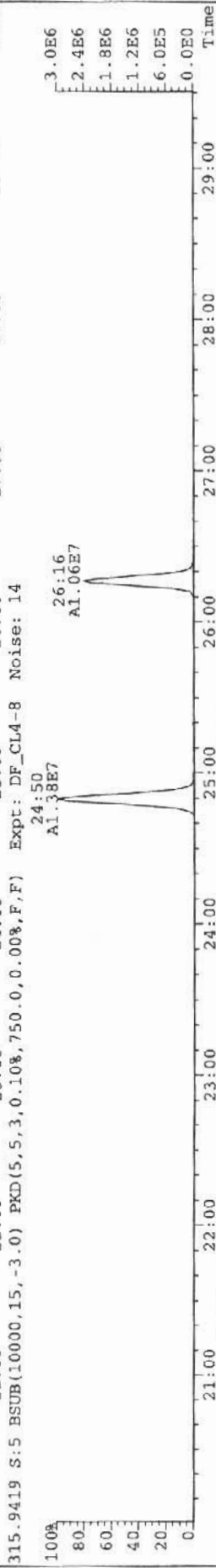
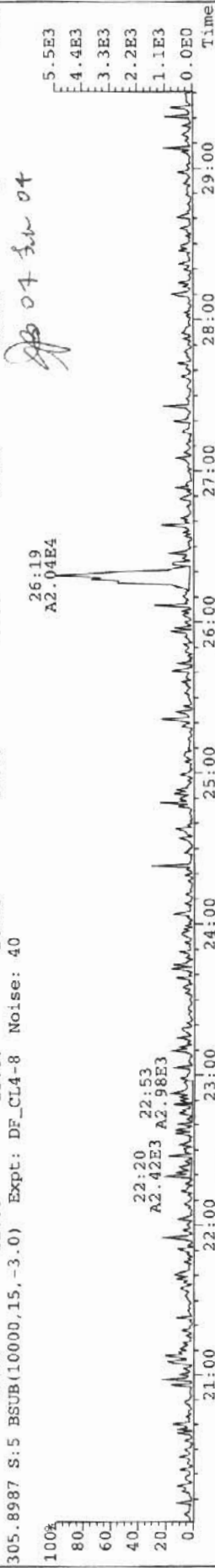
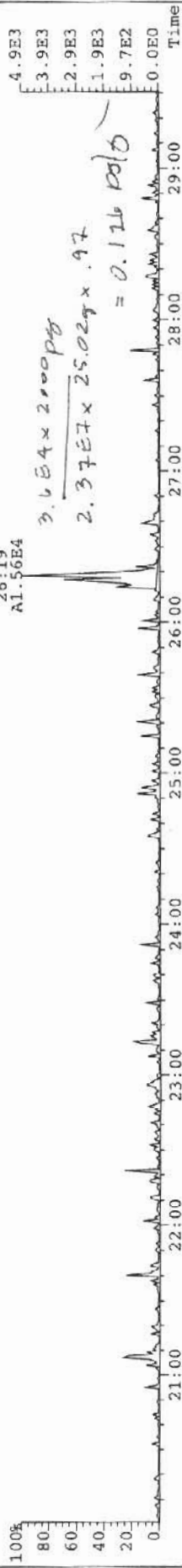
Reviewer: *[Signature]*
 Date: *07 Feb 05*

Analyst: *[Signature]*
 Date: *07 Feb 05*

File: 050131P2 Acq: 31-JAN-2005 23:20:47 GC EI+ Voltage SIR Autospec-UltimaF
Sample# 5 Text: P4970_2905_008 AR030-124-FSBCB2 25.02g Vial# 85 File Text: AAP DB5
319.8965 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



File: 050131P2 Acq: 31-JAN-2005 23:20:47 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 5 Text: P4970_2905_008 AR030-124-FSBCB2 25.02g Vial# 85 File Text: AAP DB5
303.9016 S:5 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



AD 04 Feb 05

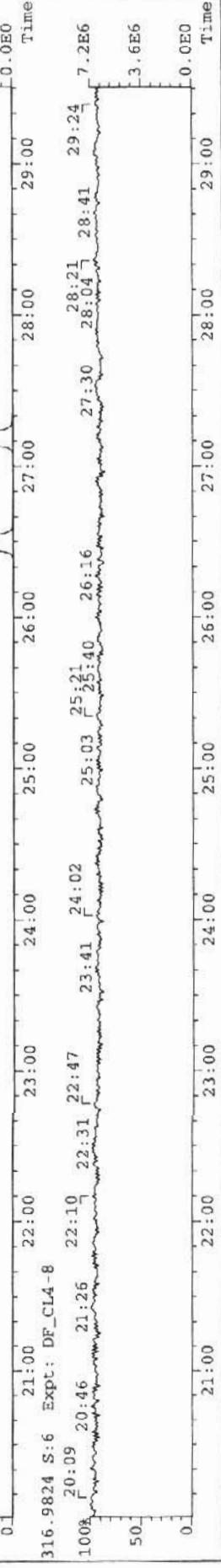
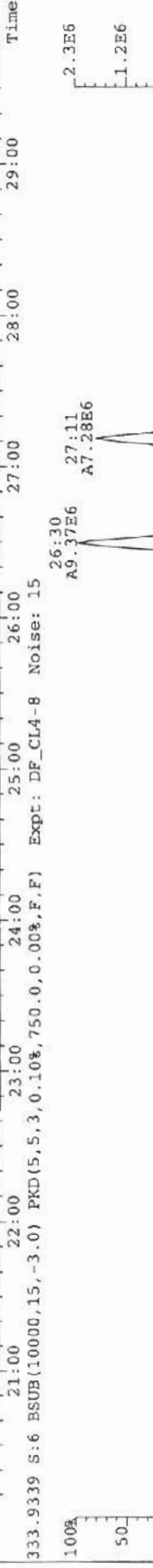
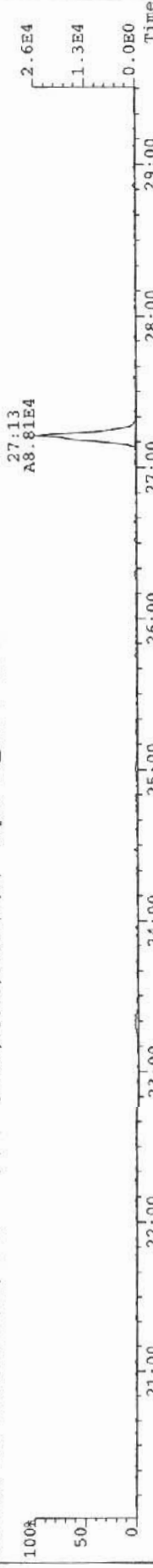
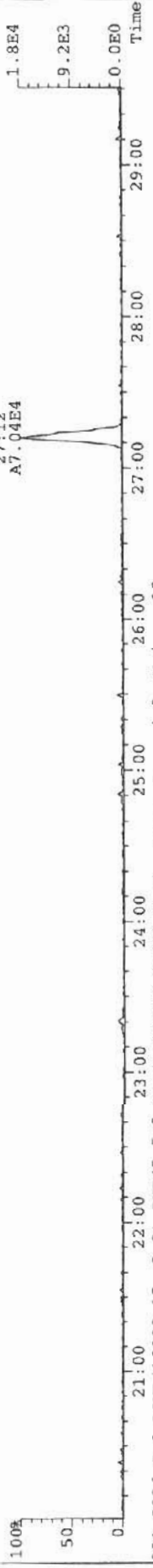
Client ID: AR030-124-FSBCB3
 Lab ID: P4970_2905_009
 Sample text: P4970_2905_009 AR030-124-FSBCB3 25.04g
 Filename: 050131P2 S: 6 Acq: 1-FEB-05 00:13:58
 GC Column ID: db-5 ICal: MML_DF_122403_13AUG>> Wt: 25.040
 Vial: 86

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.58e+05	0.80	1.12	27:13	0.858		467	2.5	0.0443	-
AX	2,3,7,8-TCDF 8.94e+04	0.72	0.97	26:18	0.331		701	2.5	0.0505	-
ES	13C-2,3,7,8-TCDD 1.31e+07	0.80	1.16	27:11	53.0		1567	2.5	0.116	66.4
ES	13C-2,3,7,8-TCDF 2.23e+07	0.82	1.04	26:16	54.6		3009	2.5	0.155	68.3
JS/RT	13C-1,2,3,4-TCDD 1.70e+07	0.82	-	26:30	1.53		1567	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.13e+07	0.80	-	24:50	1.60		3009	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 8.12e+06		1.26	27:13	30.3				0.0484	94.8

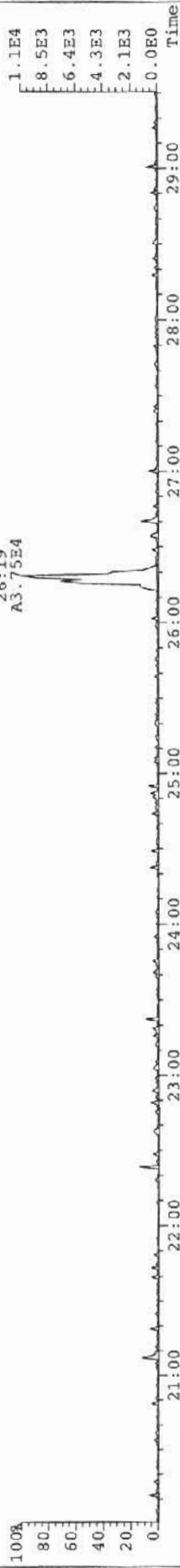
Reviewer: MP
 Date: 07 Feb 05

Analyst: MP
 Date: 07 Feb 05

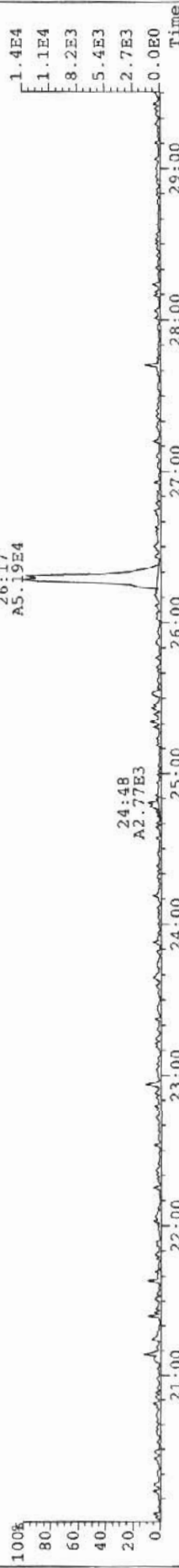
File: 050131P2 Acq: 1-FEB-2005 00:13:58 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: P4970_2905_009 AR030-124-FSBCB3 25.04g Vial# 86 File Text: AAP DB5
319.8965 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



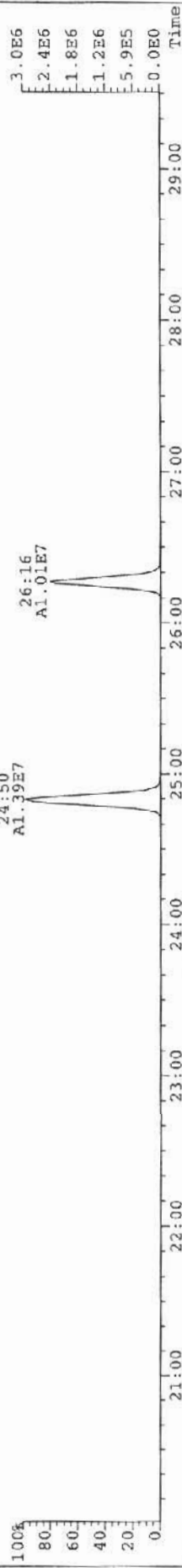
File: C50131P2 Acq: 1-FEB-2005 00:13:58 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 6 Text: F4970_2905_009 AR030-124-FSBCB3 25.04g Vial# 86 File Text: AAP DB5
303.9016 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 12



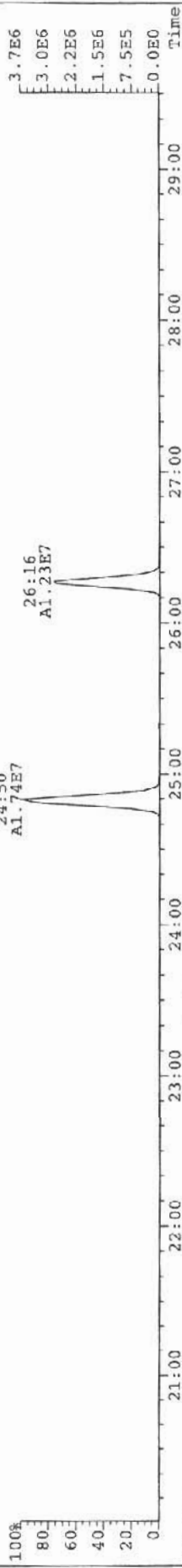
305.8987 S:6 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 48



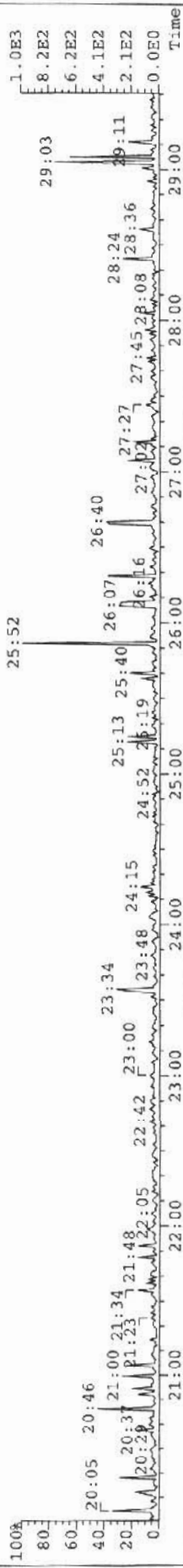
315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 12



317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



071605

Client ID: AR030-124-FSWBB4
 Lab ID: P4970_2905_010
 Sample text: P4970_2905_010 AR030-124-FSWBB4 25.04g

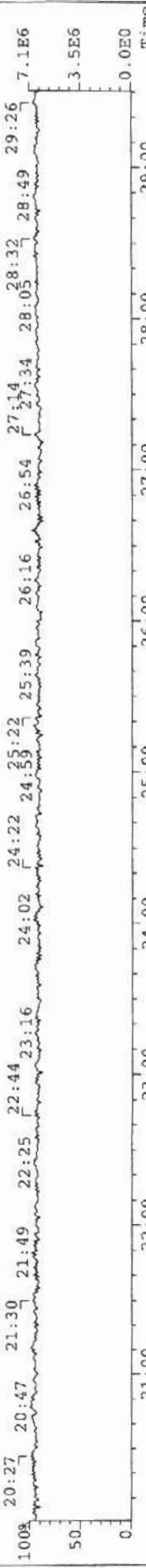
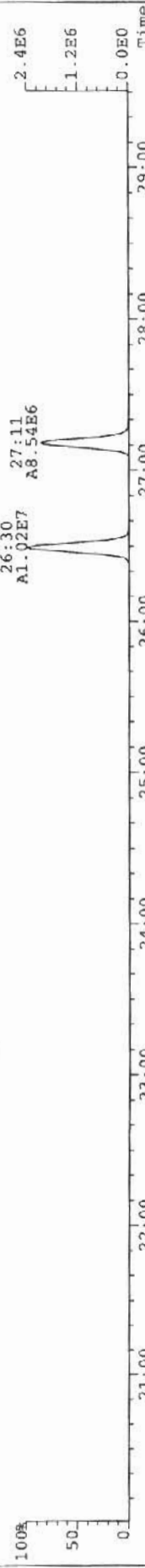
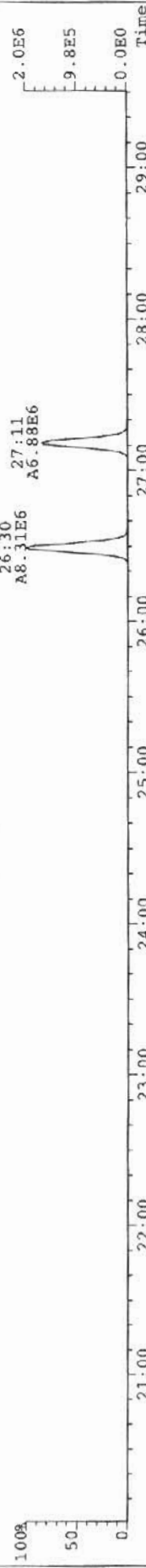
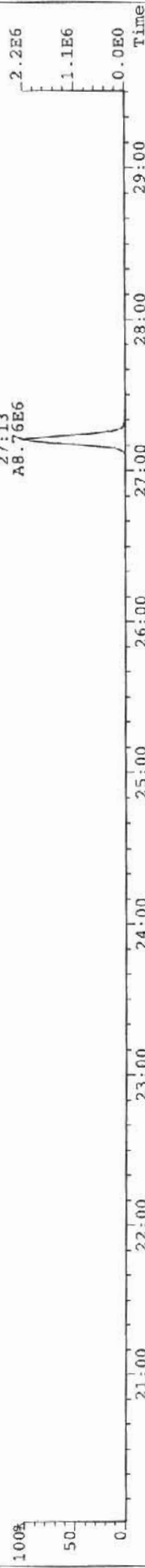
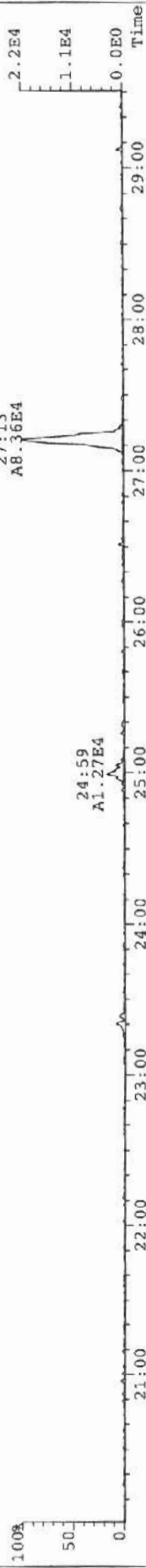
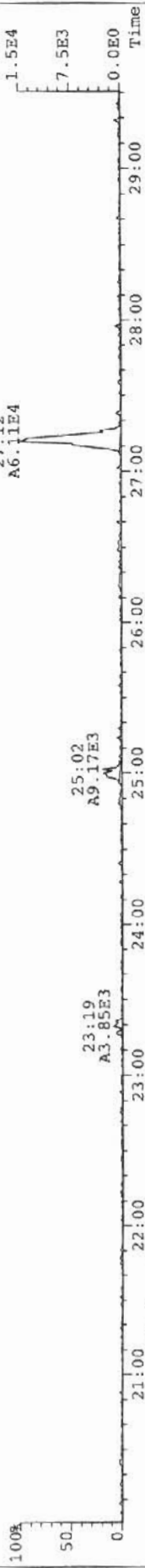
Filename: 050131P2 S: 7 Acq: 1-FEB-05 01:07:14
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG* Wb\Vol:25.040
 Vial: 87

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.45e+05	0.73	1.12	27:13	0.667		569	2.5	0.0492	-
AX	2,3,7,8-TCDF 3.20e+05	0.71	0.97	26:18	1.00		711	2.5	0.0425	-
ES	13C-2,3,7,8-TCDD 1.54e+07	0.81	1.16	27:11	57.3		679	2.5	0.0488	71.7
ES	13C-2,3,7,8-TCDF 2.64e+07	0.80	1.04	26:16	61.7		782	2.5	0.0392	77.3
JS/RT	13C-1,2,3,4-TCDD 1.85e+07	0.81	-	26:30	1.67		679	2.5	-	-
JS	13C-1,2,3,4-TCDF 3.27e+07	0.79	-	24:50	1.67		1025	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 8.76e+06	1.26	1.26	27:12	30.1				0.0188	94.1

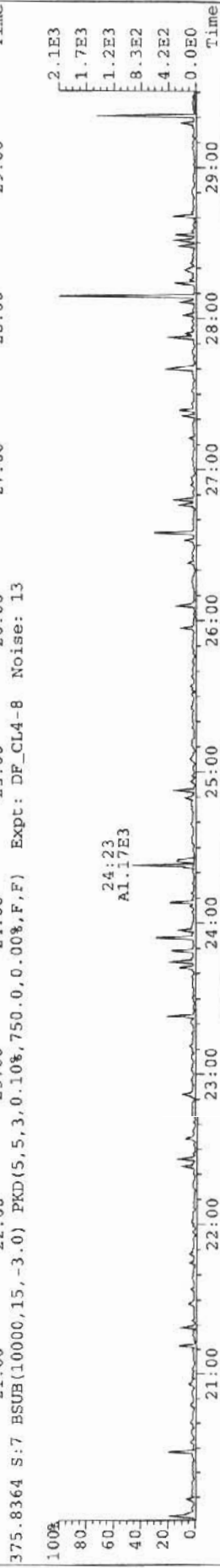
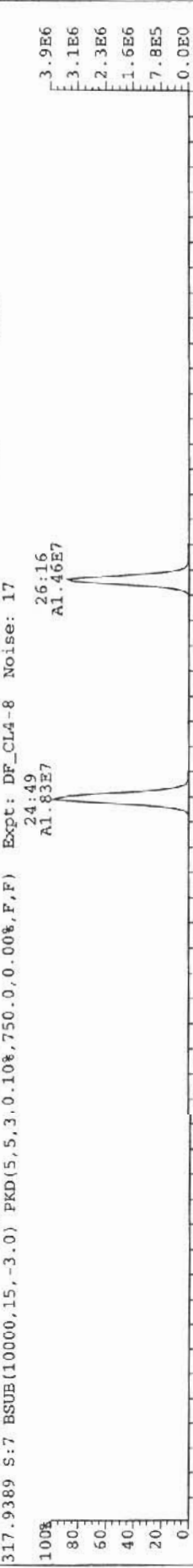
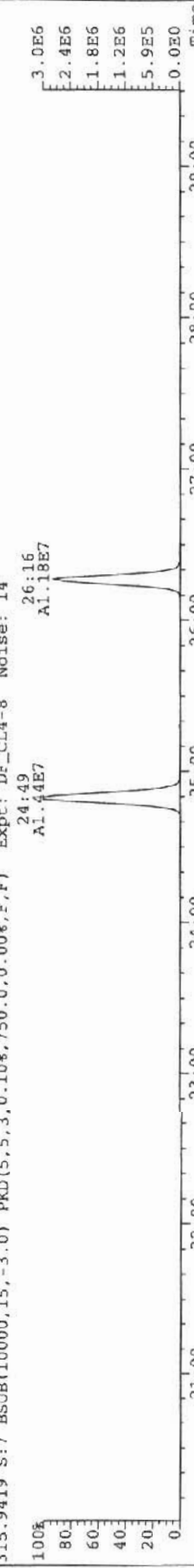
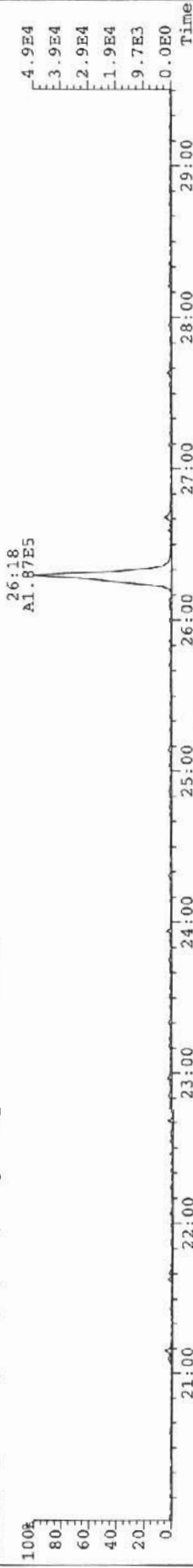
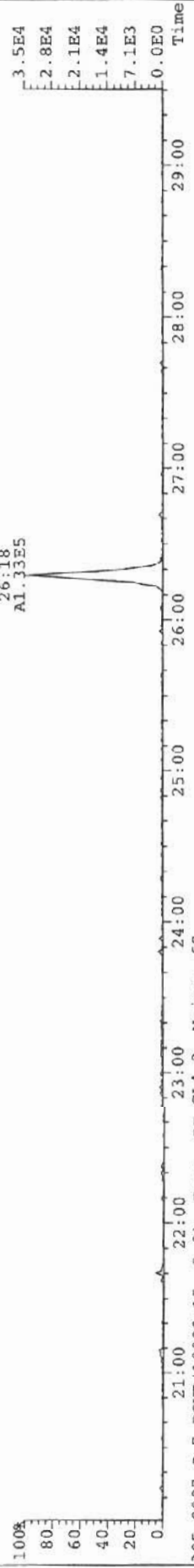
Reviewer: My
 Date: 07/16/05

Analyst: My
 Date: 07/16/05

File: 050131P2 Acq: 1-FEB-2005 01:07:14 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P4970_2905_010 AR030-124-FSWBB4 25.04g Vial# 87 File Text: AAP DB5
319.8965 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



File: 050131P2 Acq: 1-FEB-2005 01:07:14 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 7 Text: P4970_2905_010 AR030-124-FSWB4 25.04g Vial# 87 File Text: RAP DB5
303.9016 S:7 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



07 Feb 05

Client ID: AR030-124-FSCRAB5
 Lab ID: P4970_2905_011
 Sample text: P4970_2905_011 AR030-124-FSCRAB5 25g
 Filename: 050131P2 S: 8 Acq: 1-FEB-05 02:00:30
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG> WC/Vol\25.000
 Vial: 88

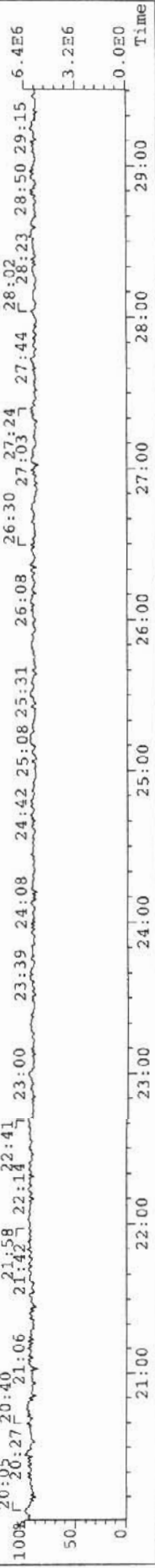
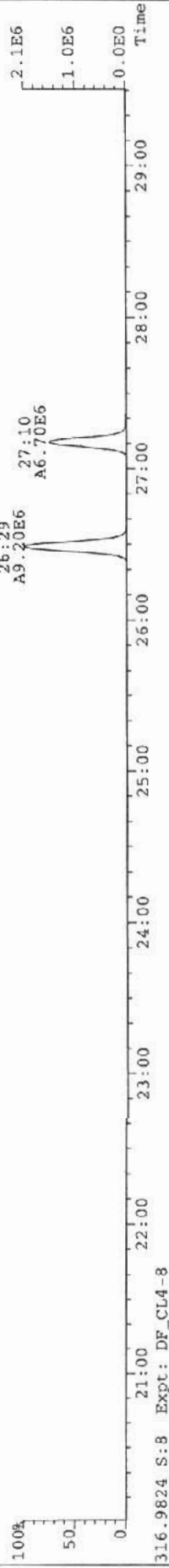
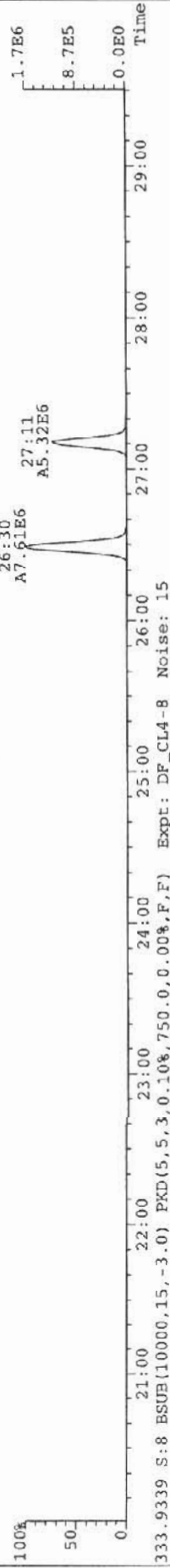
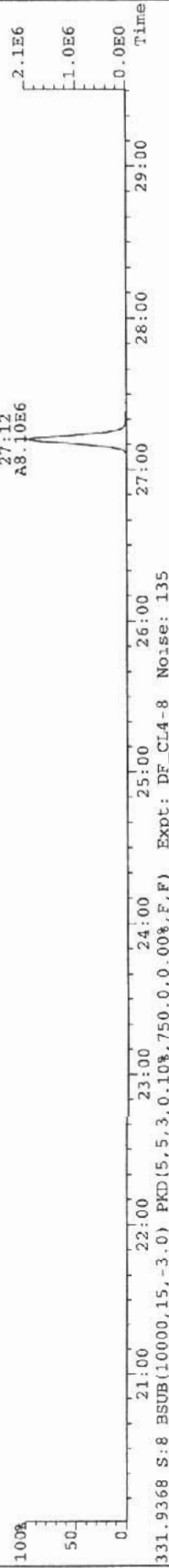
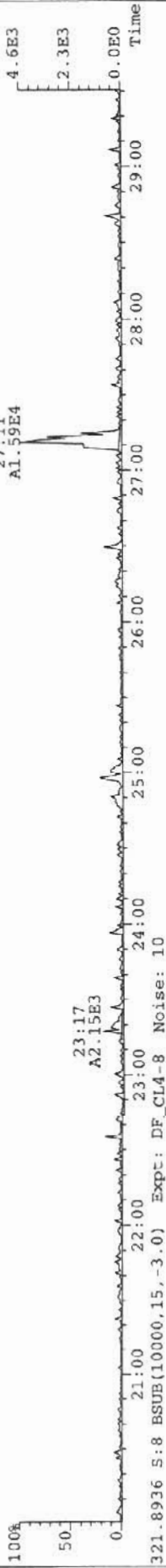
Name	Resp	RA	RRE	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	3.05e+04	0.92	27:12	0.181		518	2.5	0.0579	-
AX	2,3,7,8-TCDF	4.51e+04	0.89	26:17	0.185		696	2.5	0.0518	-
ES	13C-2,3,7,8-TCDD	1.20e+07	0.79	27:10	49.3		862	2.5	0.0707	61.6
ES	13C-2,3,7,8-TCDF	2.07e+07	0.80	26:16	51.7		989	2.5	0.0513	64.7
JS/RT	13C-1,2,3,4-TCDD	1.68e+07	0.83	26:29	1.51		862	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.05e+07	0.78	24:49	1.57		540	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.10e+06	1.25	27:12	30.7				0.155	95.8

RL = .x

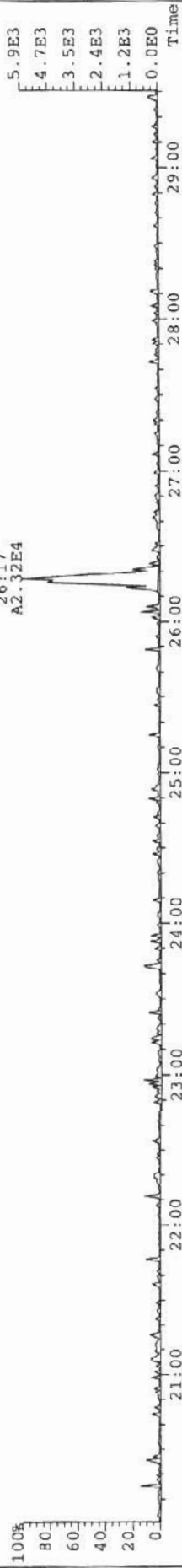
Reviewer: *[Signature]*
 Date: 07/02/05

Analyst: *[Signature]*
 Date: 07/02/05

File: 050131P2 Acq: 1-FEB-2005 02:00:30 GC EI+ Voltage SIR Autospec-Ultimate
Sample# 8 Text: P4970_2905_011 AR030-124-FSCRAB5 25g Vial# 88 File Text: AAP DB5
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 11



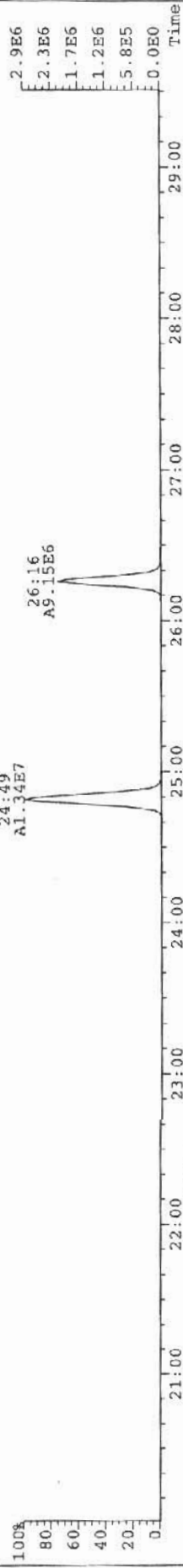
File: 050131P2 Acq: 1-FEB-2005 02:00:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 8 Text: P4970_2905_011 ARO30-124-FSCRAB5 25g Vial# 88 File Text: AAP DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 11



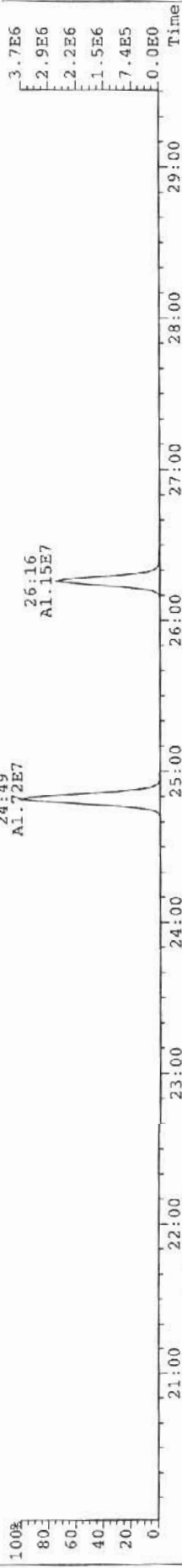
305.8987 S:8 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 40



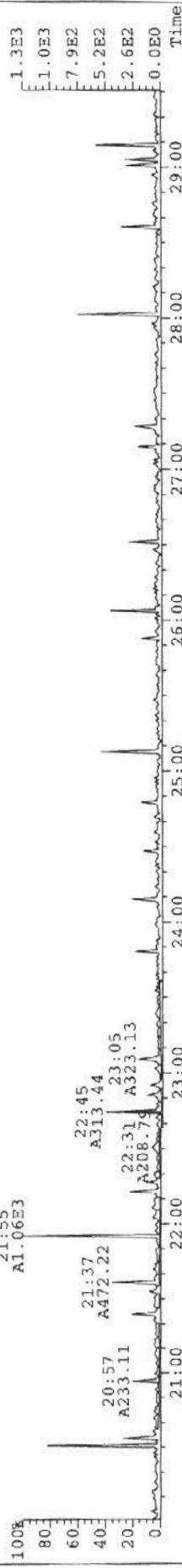
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 16



375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



P4970



ALTA ANALYTICAL PERSPECTIVES

PART 4

SYSTEM PERFORMANCE

"MS, GC, CONCAL, BCS₃"

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-P-DIOXINS & DIBENZOFURANS

TCDD/TCDF CALIBRATION VERIFICATION

Alta Analytical Perspectives

Reviewer: MS
Date: 07/06/05

Initial Calibration: MM1_DF_122403_13AUG04

GC Column ID: DB-5

VER Data Filename: 050131PI S#1 Analysis Date: 31-JAN-05 Time: 09:53:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC.	CONC.
					FOUND	RANGE (3)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	9.8	7.8 - 12.9
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	y	8.6	8.4 - 12.0
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.83	0.65-0.89	y	96.7	82.0 - 121
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	y	94.8	71.0 - 140
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	(4)				9.1	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6a, Method

1613, under VER. 10/94

(4) No ion abundance ratio; report concentration found.

Analyst: MS
Date: 07/06/05

Client ID: 122403
 Lab ID: CS3
 Sample text: CS3 122403

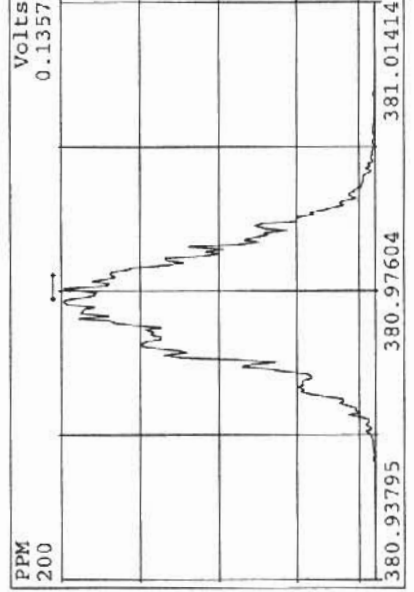
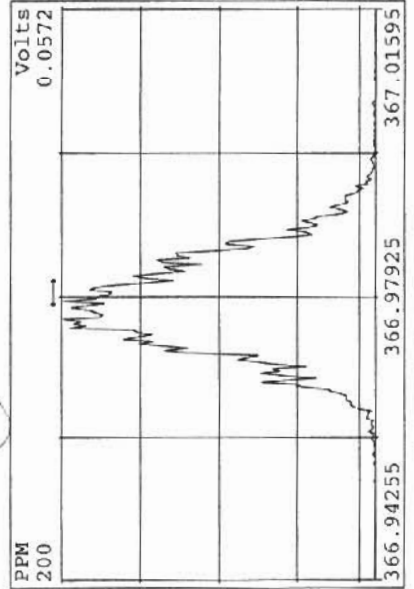
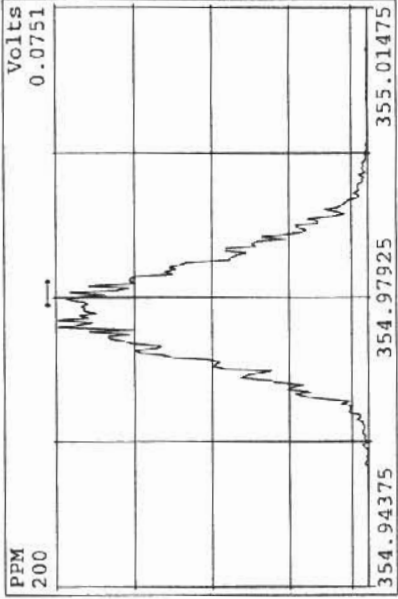
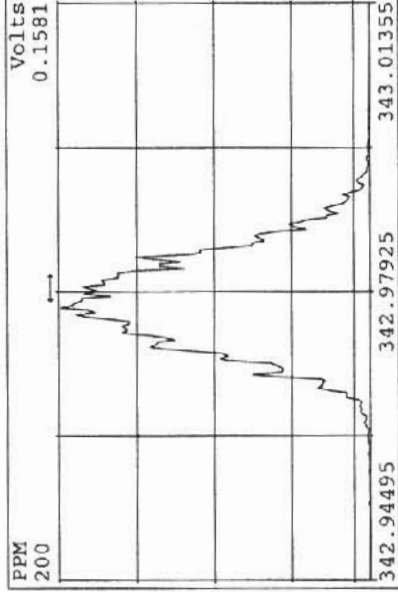
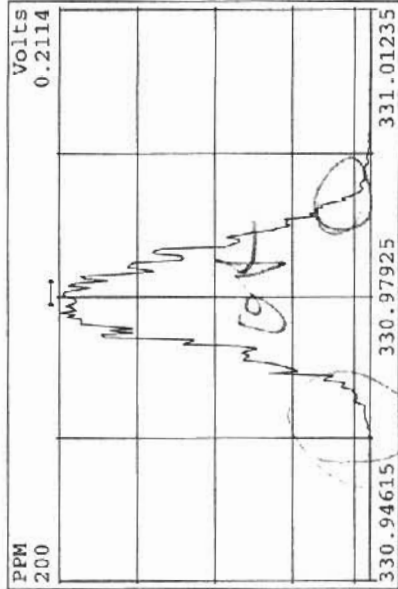
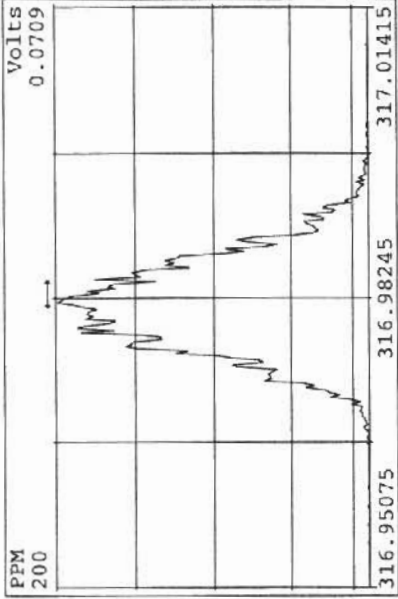
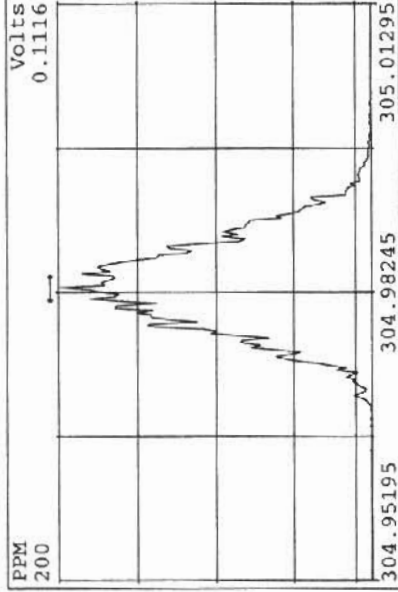
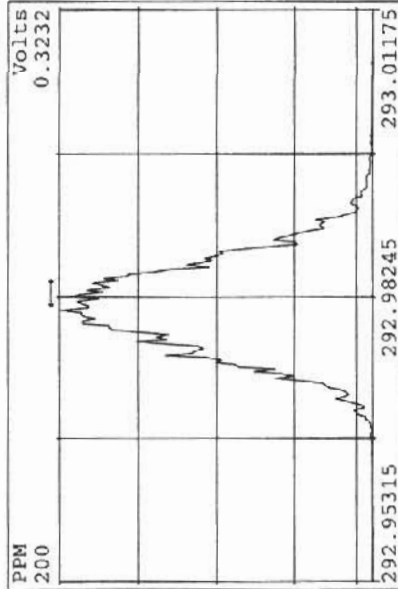
Filename: 050131P1 S: 1 Acq: 31-JAN-05 09:53:58
 GC Column ID: cb-5 ICal: MMI_DF_122403_13AUG* Wt/Vol: 1.000
 Vial: 6

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD 1.92e+06	0.79	1.12	27:13	9.76		348	2.5	0.0330	-
AX	2,3,7,8-TCDF 2.42e+06	0.76	0.97	26:18	8.60		999	2.5	0.0705	-
ES	13C-2,3,7,8-TCDD 1.75e+07	0.83	1.16	27:11	96.7		733	2.5	0.0749	96.7
ES	13C-2,3,7,8-TCDF 2.91e+07	0.80	1.04	26:17	94.8		1543	2.5	0.106	94.8
JS/RT	13C-1,2,3,4-TCDD 1.56e+07	0.83	-	26:30	35.1		733	2.5	-	-
JS	13C-1,2,3,4-TCDF 2.94e+07	0.80	-	24:50	37.8		1543	2.5	-	-
CS	37Cl-2,3,7,8-TCDD 1.78e+06		1.26	27:13	9.09				0.0215	90.9

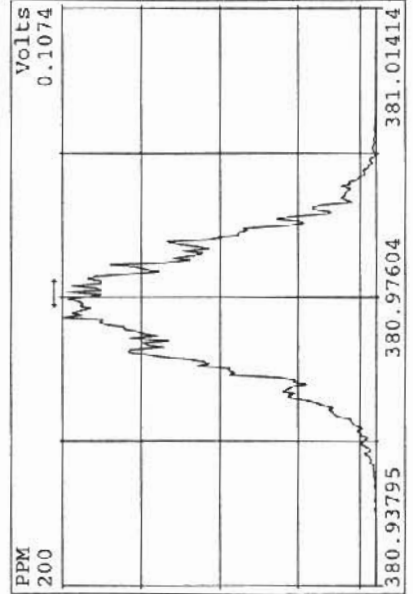
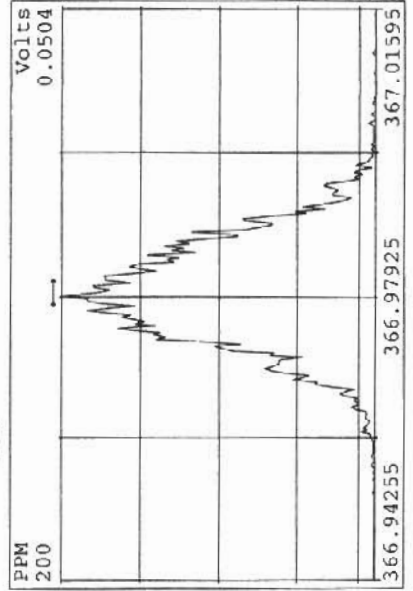
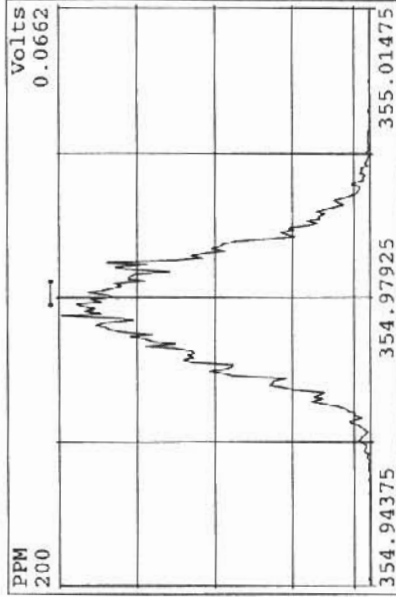
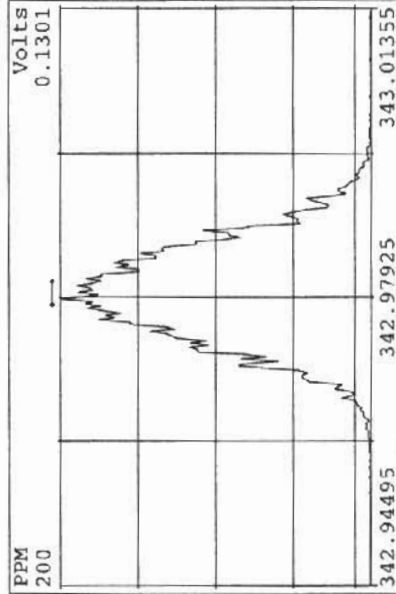
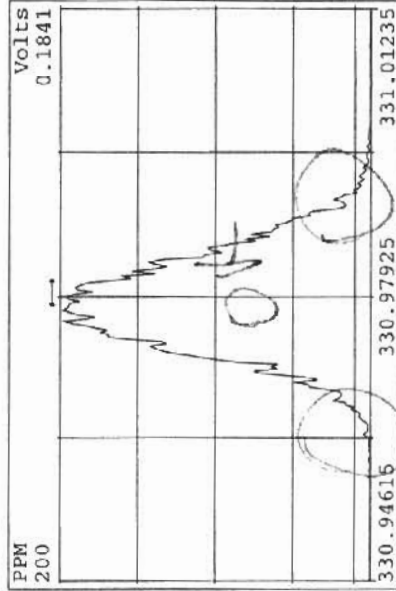
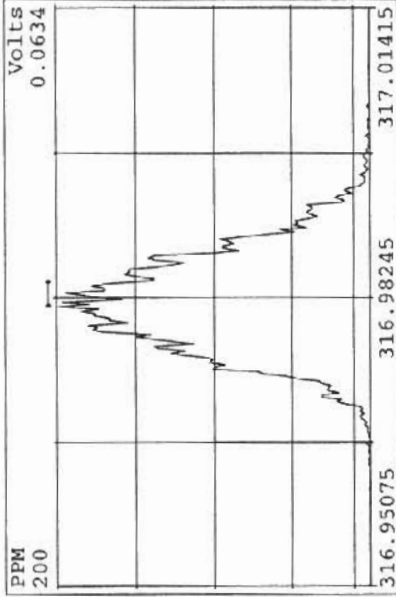
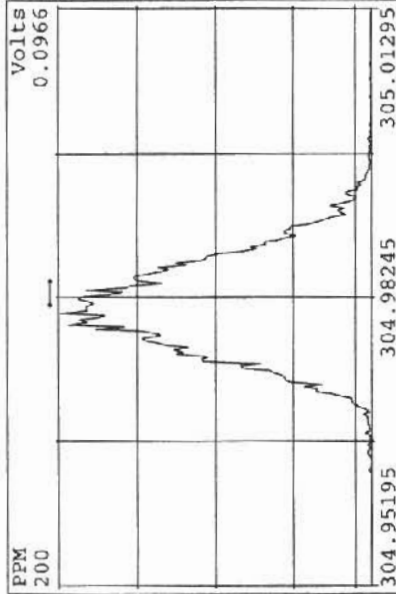
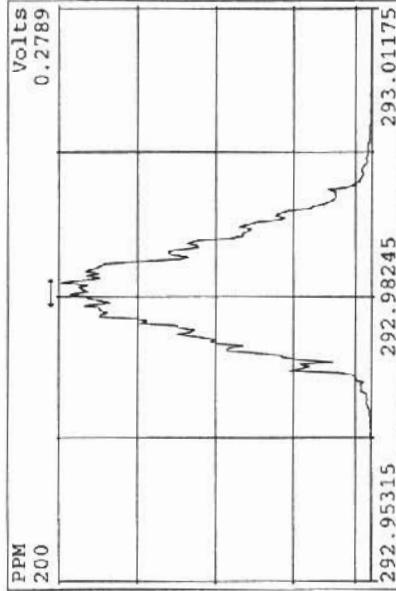
Reviewer: ME
 Date: 2/2/05

Analyst: WV
 Date: 02/02/05

Peak Locate Examination:31-JAN-2005:09:52 File:050131PI
 Experiment:DF_CL4-8 Function:1 Reference:PFK2



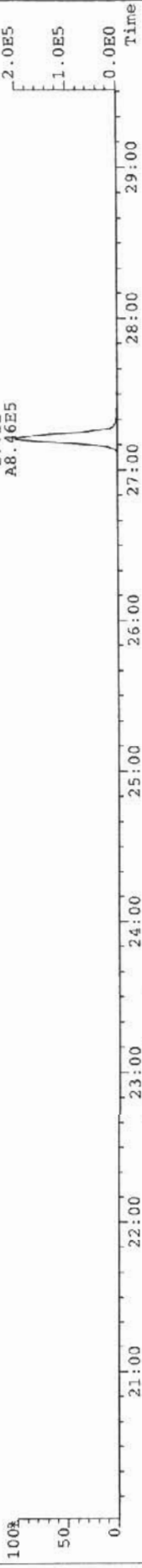
Peak Locate Examination:31-JAN-2005:19:43 File:MM1_RES_CHECK
Experiment:DF_CL4-8 Function:1 Reference:PK2



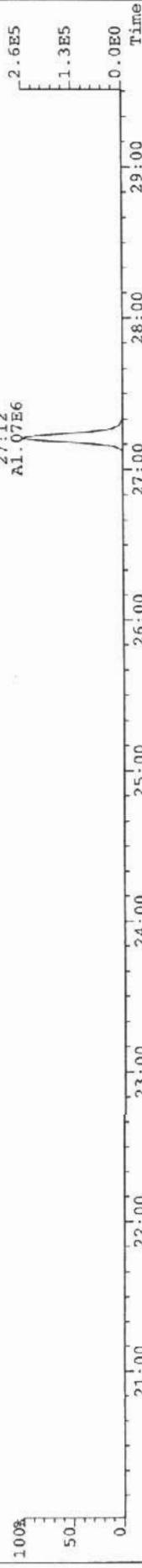
File: 05011P1 Acq: 31-JAN-2005 09:53:58 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 1 Text: CS3 122403 Vial# 6 File Text: AAP DB5

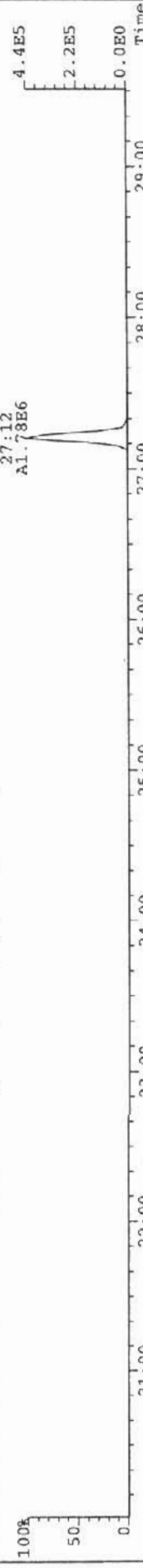
319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



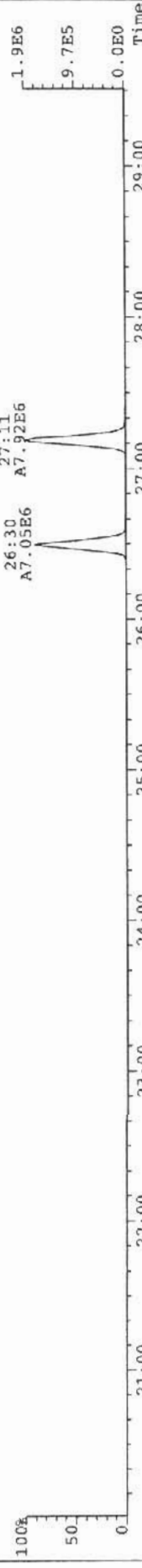
321.8936 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



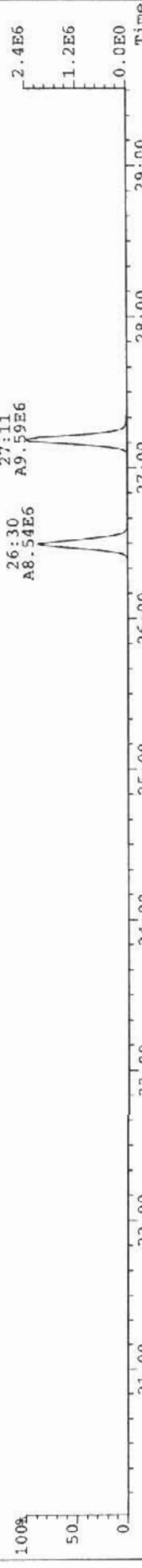
327.8850 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



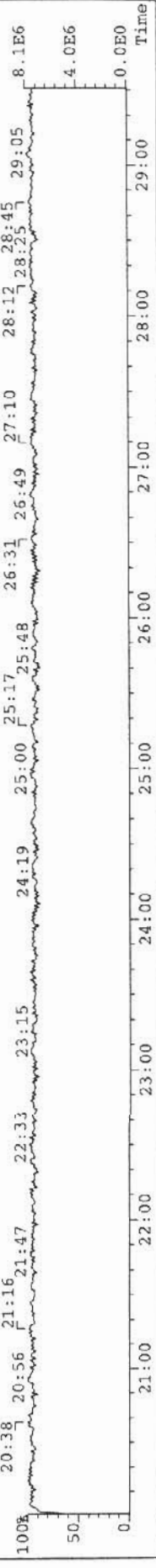
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 163



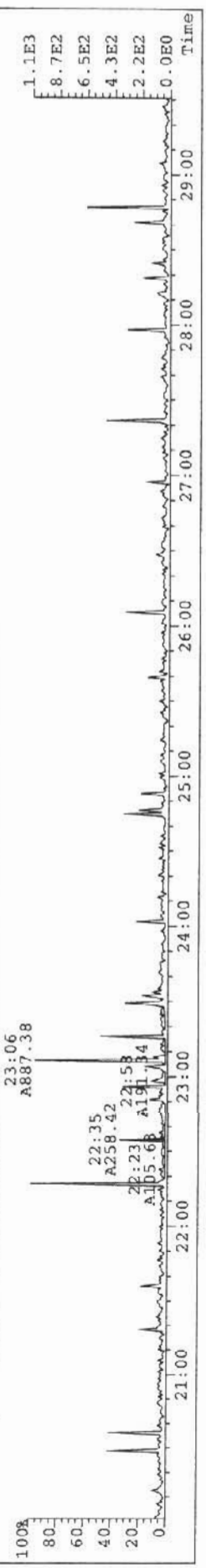
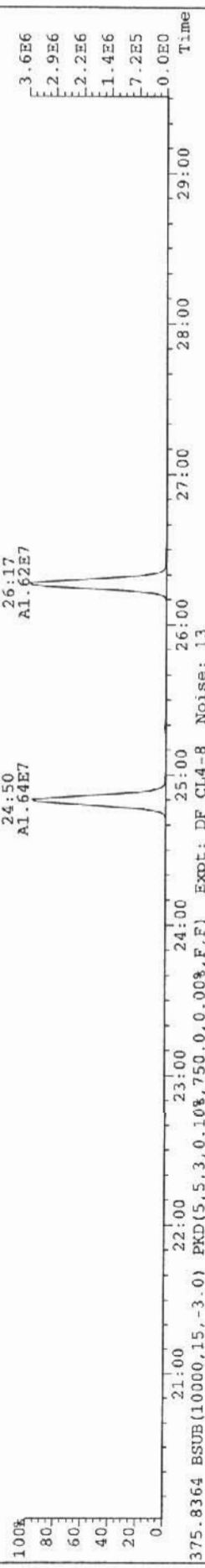
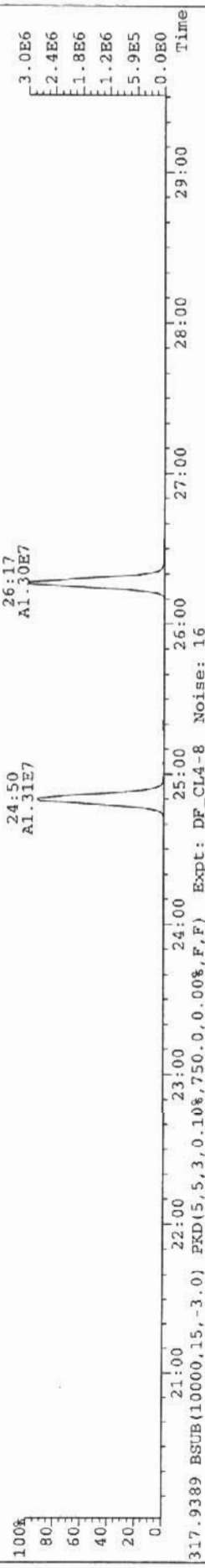
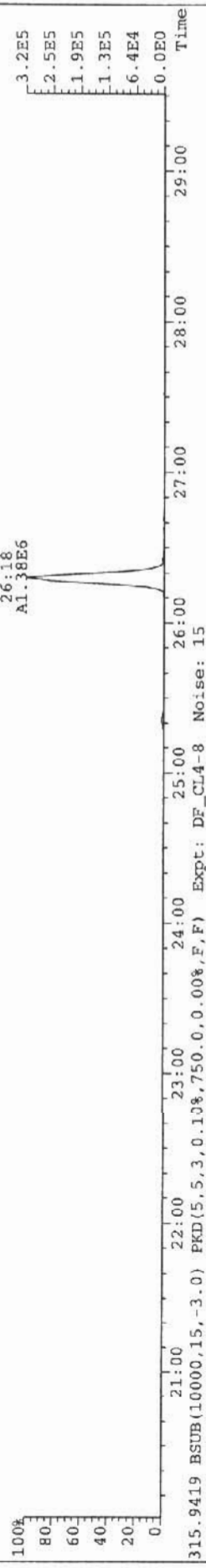
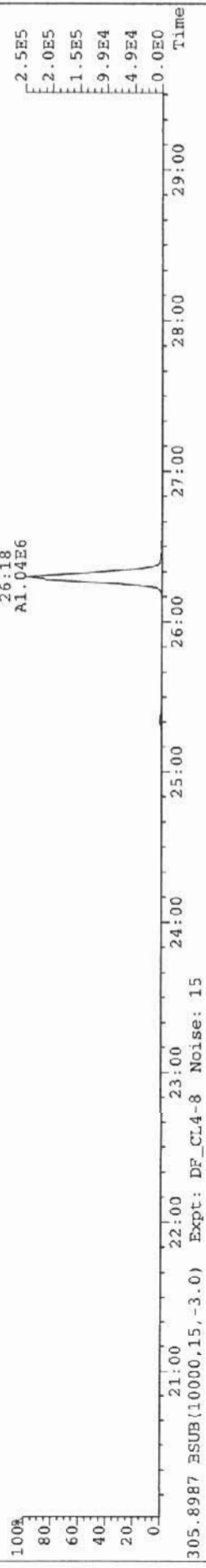
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



316.9824 Expt: DF_CL4-8



File: 050131P1 Acq: 31-JAN-2005 09:53:58 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 1 Text: CS3 122403 Vial# 6 File Text: AAP DB5
303.9016 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



TCDD/TCDF CALIBRATION VERIFICATION

Alta Analytical Perspectives

Reviewer: MP
Date: 07/18/05

Initial Calibration: MM1_DF_122403_13AUG04

GC Column ID: DB-5

VER Data Filename: 050131P2 S#1 Analysis Date: 31-JAN-05 Time: 19:47:55

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	Y	9.5	7.8 - 12.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	Y	8.9	8.4 - 12.0
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	Y	93.0	82.0 - 121
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	Y	92.5	71.0 - 140
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	(4)				8.5	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6a, Method

1613, under VER. 10/94

(4) No ion abundance ratio; report concentration found.

Analyst: MP
Date: 07/18/05

Client ID: 122403
 Lab ID: CS3
 Sample text: CS3 122403

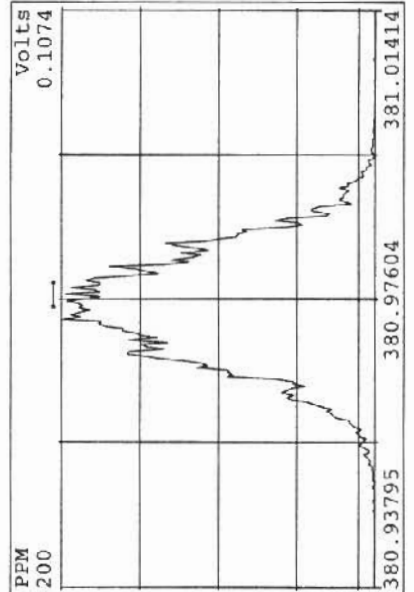
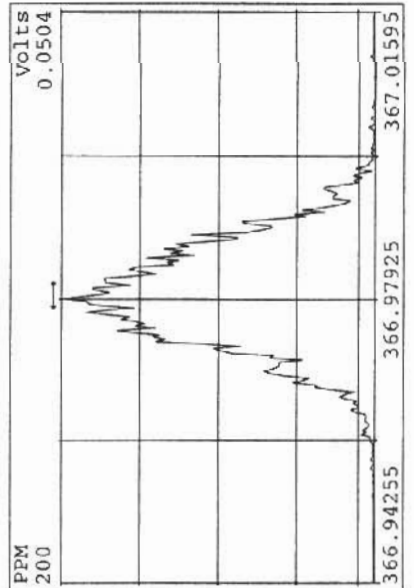
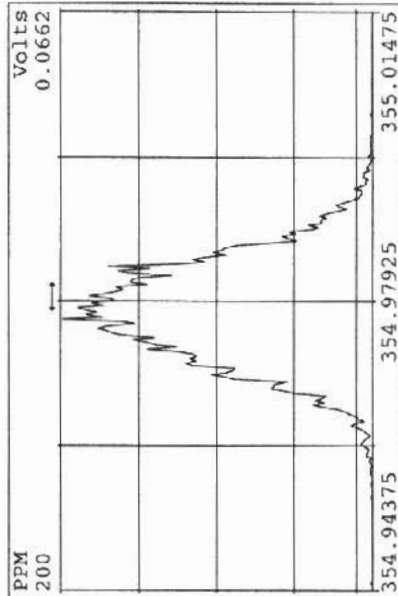
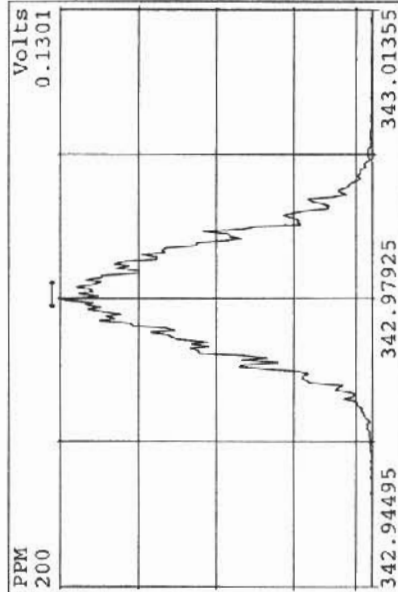
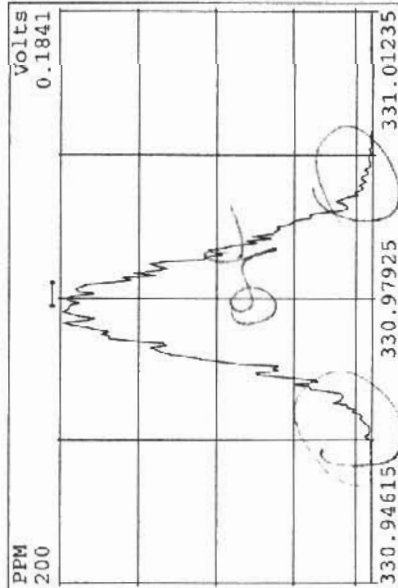
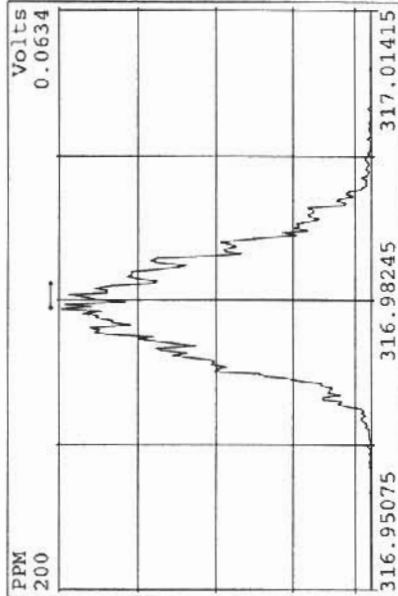
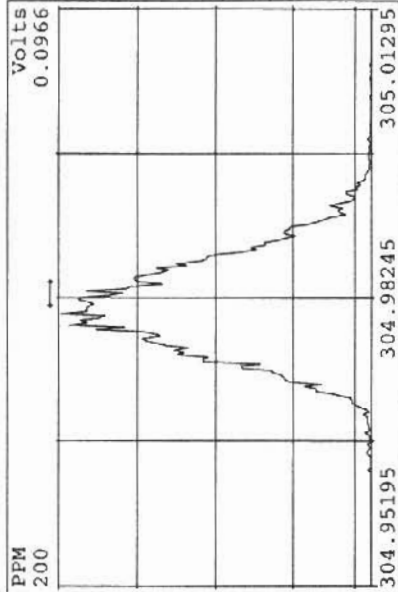
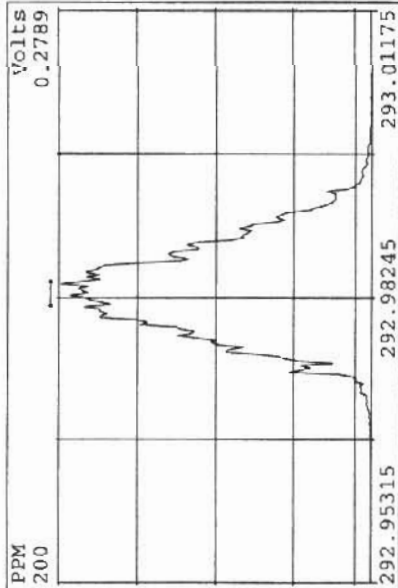
Filename: 050131P2 S: 1 Acq: 31-JAN-05 19:47:55
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG> Wt./Vol: 1.000
 Vial: 6

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	1.75e+06	0.78	1.12	27:12	9.42		411	2.5	0.0399	-
AX	2,3,7,8-TCDF	2.31e+06	0.77	0.97	26:17	8.92		837	2.5	0.0642	-
ES	13C-2,3,7,8-TCDD	1.64e+07	0.79	1.16	27:11	93.8		1306	2.5	0.134	93.0
ES	13C-2,3,7,8-TCDF	2.67e+07	0.80	1.04	26:16	92.5		2054	2.5	0.147	92.5
JS/RT	13C-1,2,3,4-TCDD	1.52e+07	0.82	-	26:29	34.3		1306	2.5	-	-
JS	13C-1,2,3,4-TCDF	2.77e+07	0.80	-	24:49	35.5		1281	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	1.62e+06		1.26	27:12	8.49				0.0202	84.9

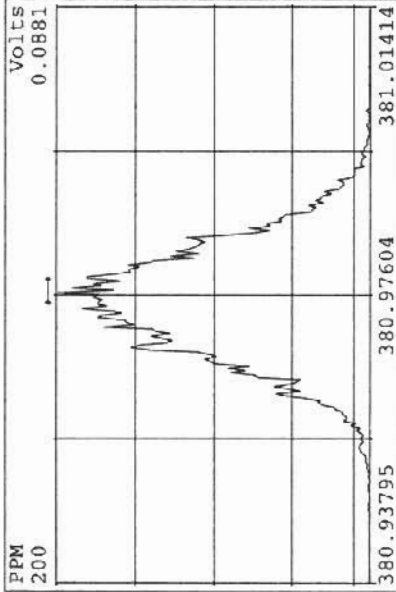
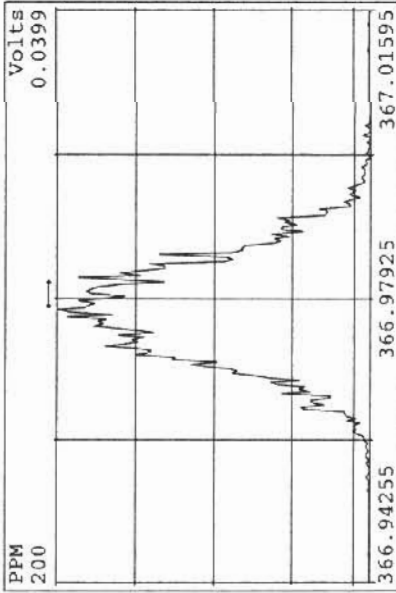
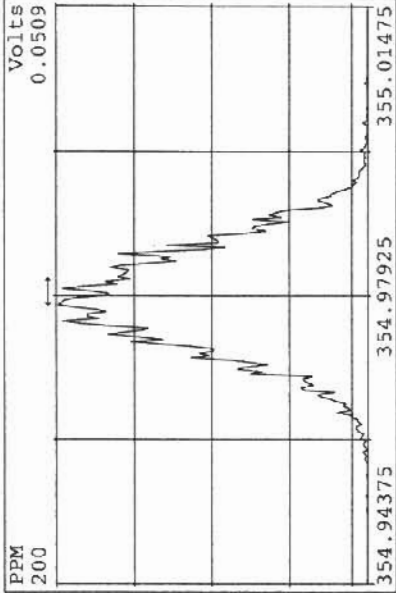
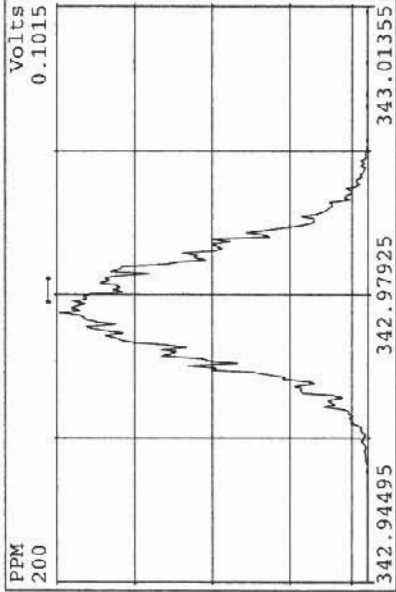
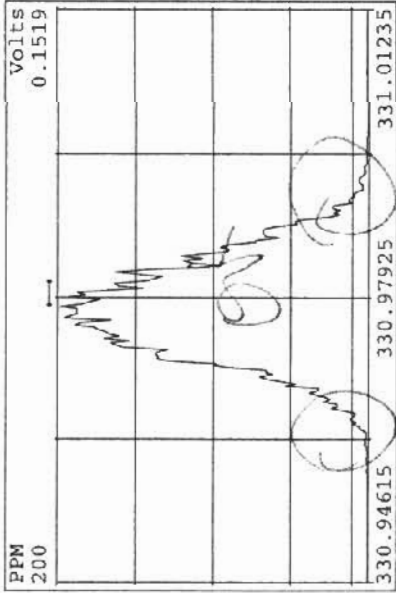
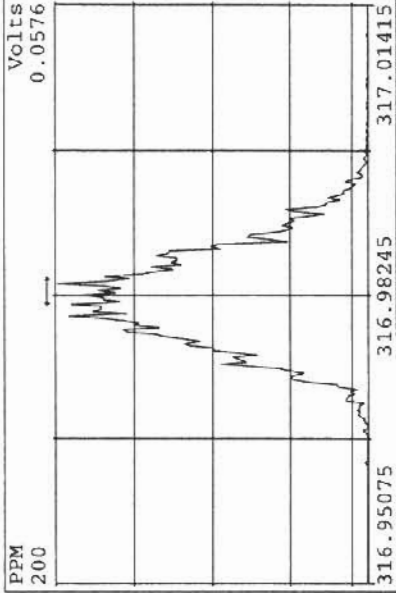
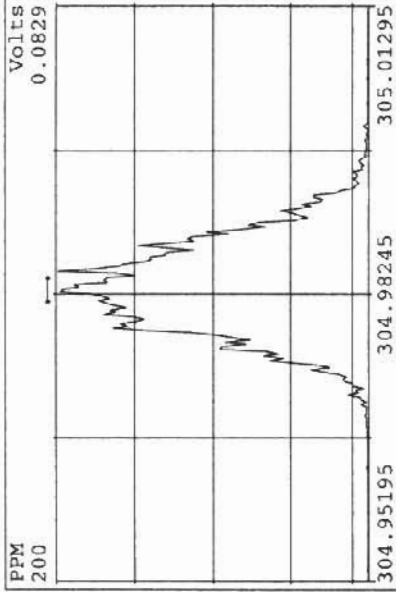
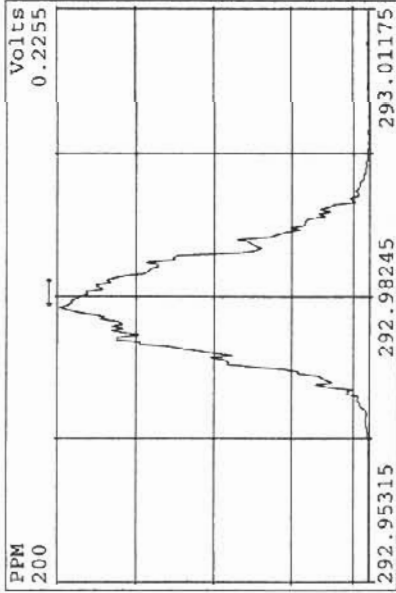
Reviewer: [Signature]
 Date: 07/16/05

Analyst: [Signature]
 Date: 07/16/05

Peak Locate Examination:31-JAN-2005:19:43 File:MM1_RES_CHECK
 Experiment:DF_CL4-8 Function:1 Reference:PFK2



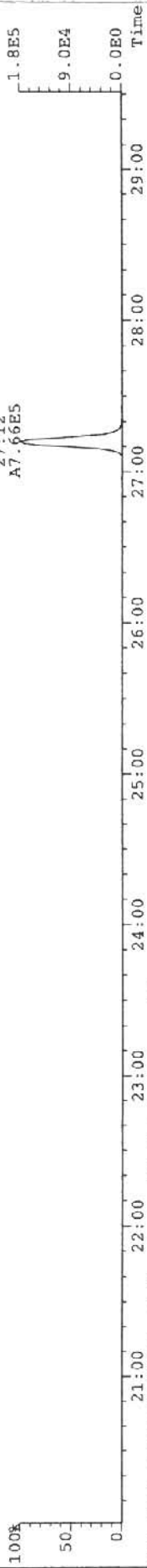
Peak Locate Examination: 1-FEB-2005:02:57 File:MM1_RES_CHECK
 Experiment:DF_CL4-8 Function:1 Reference:PFK2



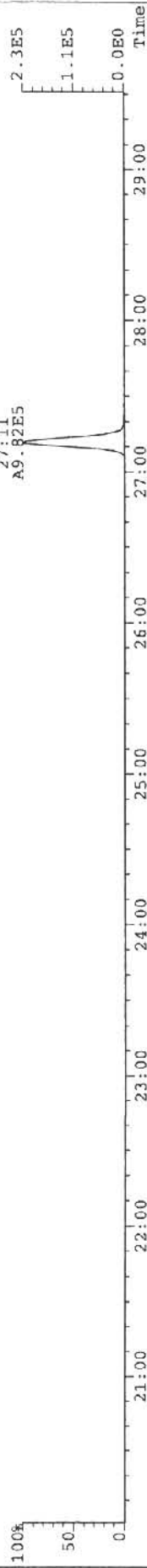
File: 050I31P2 Acq: 31-JAN-2005 19:47:55 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 1 Text: CS3 122403 Vial# 6 File Text: AAP DB5

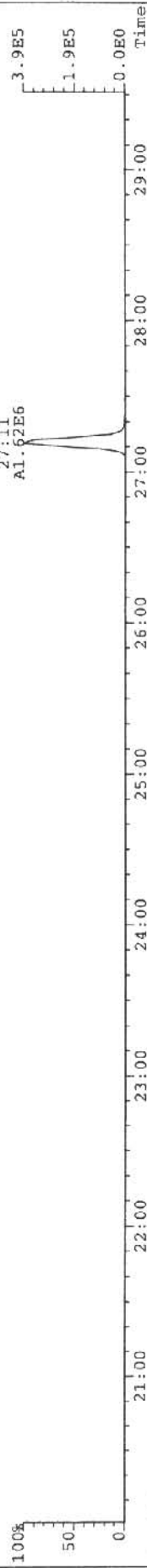
319.8965 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



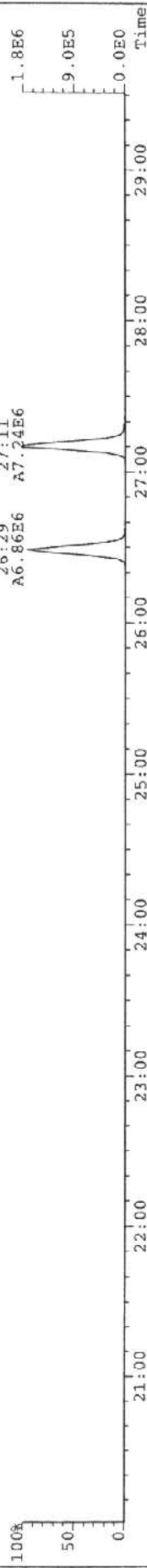
321.8936 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



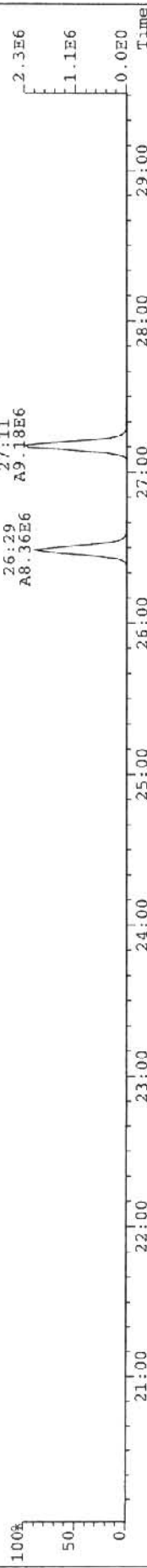
327.8850 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



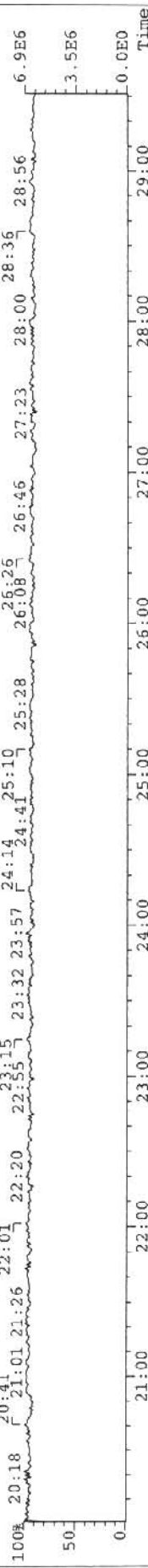
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 144



333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



316.9824 Expt: DF_CL4-8

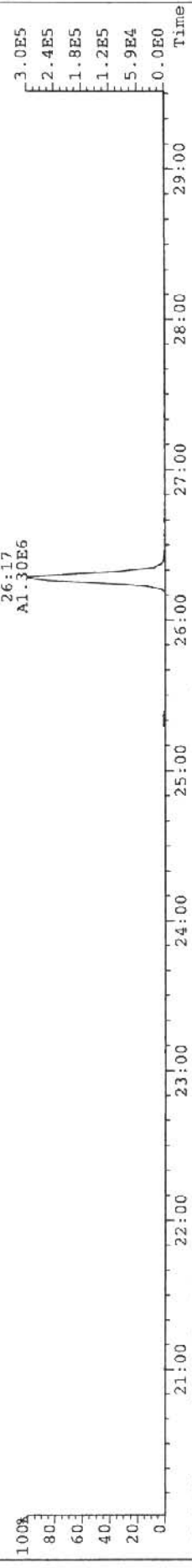


File: 050131P2 Acq: 31-JAN-2005 19:47:55 GC EI+ Voltage SIR Autospec-UltimaE

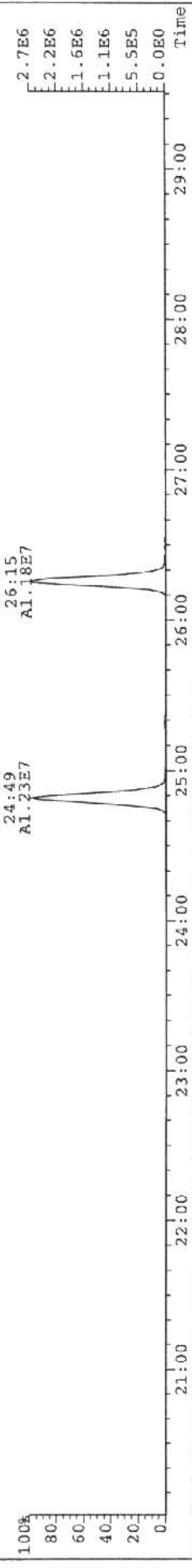
Sample# 1 Text: CS3 122403 Vial# 6 File Text: AAP DB5
303.9016 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



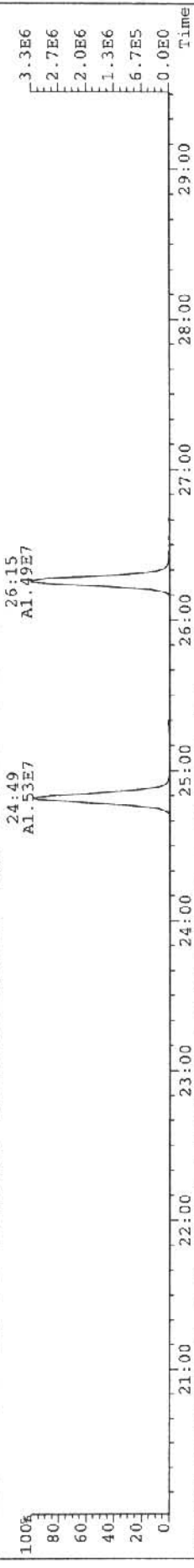
305.8987 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 55



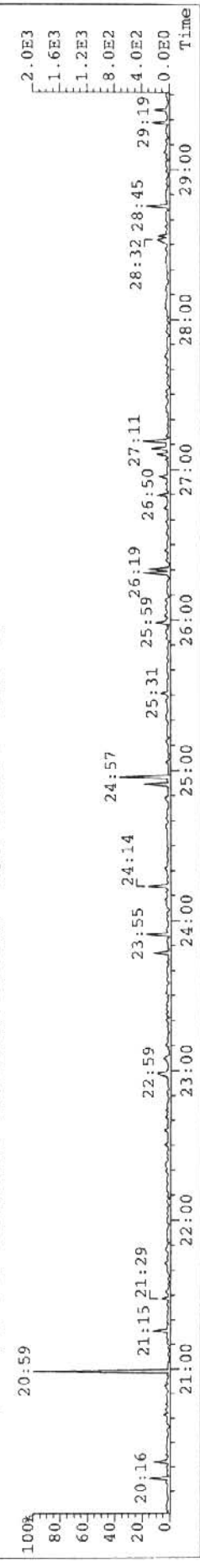
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



P4970



ALTA ANALYTICAL PERSPECTIVES

PART 4D

SYSTEM PERFORMANCE

“ICAL”

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-P-DIOXINS & DIBENZOFURANS

Initial Calibration RRF Summary (ICAL)

Alta Analytical Perspectives

[Form: RRF7]

Cal filename: MM1_DF_122403_13AUG04

Cal date: 12-AUG-04

Data filename: 040812P2

Type	Name	Mean	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
AX	2,3,7,8-TCDD	1.12	7.51 %	1.02	1.07	1.04	1.12	1.16	1.26	1.18
AX	1,2,3,7,8-PeCDF	0.99	7.53 %	0.88	0.92	0.97	1.02	1.06	1.08	1.04
AX	1,2,3,4,7,8-HxCDD	1.06	6.75 %	0.98	0.94	1.06	1.06	1.10	1.13	1.12
AX	1,2,3,6,7,8-HxCDD	1.08	7.48 %	0.94	1.00	1.06	1.10	1.14	1.18	1.11
AX	1,2,3,7,8,9-HxCDD	0.99	6.02 %	0.88	0.99	0.99	1.02	1.05	1.03	1.01
AX	1,2,3,4,6,7,8-HpCDD	0.96	7.97 %	0.85	0.88	0.94	0.99	1.03	1.05	1.02
AX	OCDD	0.94	7.04 %	0.85	0.87	0.90	0.98	1.00	1.00	1.00
AX2	OCDD-a	0.12	6.64 %	0.11	0.12	0.12	0.12	0.13	0.13	0.13
AX	2,3,7,8-TCDF	0.97	9.71 %	0.84	0.88	0.92	0.98	1.03	1.10	1.03
AX	1,2,3,7,8-PeCDF	0.99	6.95 %	0.88	0.92	0.96	1.01	1.05	1.05	1.04
AX	2,3,4,7,8-PeCDF	1.00	6.88 %	0.89	0.93	0.99	1.04	1.05	1.08	1.02
AX	1,2,3,4,7,8-HxCDF	1.13	6.38 %	1.03	1.05	1.10	1.15	1.18	1.21	1.19
AX	1,2,3,6,7,8-HxCDF	1.16	6.64 %	1.04	1.08	1.15	1.21	1.23	1.23	1.21
AX	2,3,4,6,7,8-HxCDF	1.08	7.14 %	0.98	0.97	1.05	1.11	1.13	1.05	1.15
AX	1,2,3,7,8,9-HxCDF	1.13	7.49 %	1.01	1.02	1.10	1.17	1.19	1.20	1.19
AX	1,2,3,4,6,7,8-HpCDF	1.38	7.28 %	1.23	1.27	1.35	1.44	1.48	1.47	1.45
AX	1,2,3,4,7,8,9-HpCDF	1.36	8.29 %	1.21	1.23	1.30	1.39	1.45	1.50	1.43
AX	OCDF	0.97	6.94 %	0.88	0.90	0.93	0.99	1.04	1.03	1.04
AX2	OCDF-a	0.13	7.69 %	0.14	0.12	0.11	0.12	0.13	0.13	0.13
ES	13C-2,3,7,8-TCDD	1.16	2.65 %	1.15	1.19	1.11	1.15	1.15	1.18	1.20
ES	13C-1,2,3,7,8-PeCDD	1.02	4.75 %	1.05	1.05	0.94	1.00	1.00	1.04	1.09
ES	13C-1,2,3,4,7,8-HxCDD	1.03	7.01 %	0.99	1.03	0.96	0.96	0.98	1.10	1.14
ES	13C-1,2,3,6,7,8-HxCDD	1.05	6.34 %	1.05	1.03	1.00	1.00	1.00	1.11	1.17
ES	13C-1,2,3,7,8,9-HxCDD	1.20	6.78 %	1.18	1.20	1.13	1.13	1.13	1.29	1.33
ES	13C-1,2,3,4,6,7,8-HpCDD	0.96	7.56 %	0.97	0.94	0.91	0.88	0.89	1.02	1.08
ES	13C-OCDD	0.86	10.43 %	0.86	0.84	0.80	0.76	0.81	0.93	1.02
ES	13C-2,3,7,8-TCDF	1.04	1.97 %	1.06	1.06	1.01	1.02	1.04	1.04	1.07
ES	13C-1,2,3,7,8-PeCDF	0.85	3.59 %	0.85	0.88	0.80	0.83	0.85	0.86	0.89
ES	13C-2,3,4,7,8-PeCDF	0.91	4.25 %	0.95	0.93	0.84	0.88	0.92	0.90	0.94
ES	13C-1,2,3,4,7,8-HxCDF	1.48	7.24 %	1.45	1.45	1.43	1.36	1.41	1.59	1.66
ES	13C-1,2,3,6,7,8-HxCDF	1.53	7.07 %	1.47	1.50	1.48	1.43	1.46	1.64	1.72
ES	13C-2,3,4,6,7,8-HxCDF	1.48	5.84 %	1.47	1.47	1.42	1.39	1.42	1.58	1.62
ES	13C-1,2,3,7,8,9-HxCDF	1.29	7.66 %	1.25	1.28	1.21	1.20	1.23	1.38	1.46
ES	13C-1,2,3,4,6,7,8-HpCDF	1.10	8.17 %	1.12	1.08	1.07	0.99	1.02	1.17	1.25
ES	13C-1,2,3,4,7,8,9-HpCDF	0.94	8.00 %	0.95	0.93	0.89	0.87	0.89	1.00	1.08
ES	13C-OCDF	1.13	10.71 %	1.09	1.09	1.04	1.00	1.08	1.24	1.34
CS	37Cl-2,3,7,8-TCDD	1.26	3.79 %	*	1.31	1.28	1.18	1.25	1.27	*
CS	13C-1,2,3,4,7-PeCDD	0.91	2.89 %	0.91	0.95	0.87	0.90	0.80	0.88	0.92
CS	13C-1,2,3,4,6-PeCDF	0.83	2.54 %	0.81	0.88	0.82	0.83	0.90	0.82	0.84
CS	13C-1,2,3,4,6,9-HxCDF	1.29	3.25 %	1.26	1.31	1.30	1.24	1.23	1.32	1.34
CS	13C-1,2,3,4,6,8,9-HpCDF	0.93	3.91 %	0.93	0.96	0.93	0.88	0.89	0.96	0.98
AS	AS_HxCDF	Div0	*	*	*	*	*	*	*	*
JS/RT	13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	-
JS	13C-1,2,3,4-TCDF	-	-	-	-	-	-	-	-	-
JS/RT	13C-1,2,3,4,6,7-HxCDD	-	-	-	-	-	-	-	-	-

Reviewer: *MJ*

Date: *12/13/04*

Analyst: *MJ*

Date: *12/13/04*

SS	37Cl-2,3,7,8-TCDD	1.09	4.10 %	*	1.10	1.15	1.03	1.09	1.07	*
SS	13C-1,2,3,4,7-PeCDD	0.88	3.70 %	0.87	0.91	0.92	0.90	0.90	0.85	0.84
SS	13C-1,2,3,4,6-PeCDF	0.98	2.91 %	0.96	1.00	1.03	1.00	0.98	0.96	0.94
SS	13C-1,2,3,4,6,9-HxCDF	0.84	4.42 %	0.86	0.87	0.88	0.87	0.84	0.81	0.78
SS	13C-1,2,3,4,6,8,9-HpCDF	0.85	4.78 %	0.83	0.89	0.87	0.89	0.87	0.82	0.79
SBS	2,4,6,8-TCDF	0.97	9.71 %	0.84	0.88	0.92	0.98	1.03	1.10	1.03
AY	1,3,6,8-TCDD	1.12	7.51 %	1.02	1.07	1.04	1.12	1.16	1.26	1.18
AY	1,2,3,9-TCDD	1.12	7.51 %	1.02	1.07	1.04	1.12	1.16	1.26	1.18
AY	1,2,8,9-TCDD	1.12	7.51 %	1.02	1.07	1.04	1.12	1.16	1.26	1.18
AY	1,2,4,7,9-PeCDD	0.99	7.53 %	0.88	0.92	0.97	1.02	1.06	1.08	1.04
AY	1,2,3,8,9-PeCDD	0.99	7.53 %	0.88	0.92	0.97	1.02	1.06	1.08	1.04
AY	1,2,4,6,7,9-HxCDD	1.04	6.57 %	0.93	0.96	1.03	1.06	1.10	1.11	1.08
AY	1,2,3,4,6,7,9-HpCDD	0.96	7.97 %	0.85	0.88	0.94	0.99	1.03	1.05	1.02
AY	1,3,6,8-TCDF	0.97	9.71 %	0.84	0.88	0.92	0.98	1.03	1.10	1.03
AY	2,3,4,8-TCDF	0.97	9.71 %	0.84	0.88	0.92	0.98	1.03	1.10	1.03
AY	1,2,8,9-TCDF	0.97	9.71 %	0.84	0.88	0.92	0.98	1.03	1.10	1.03
AY	1,3,4,6,8-PeCDF	0.99	6.85 %	0.89	0.92	0.98	1.03	1.05	1.07	1.03
AY	1,2,3,8,9-PeCDF	0.99	6.85 %	0.89	0.92	0.98	1.03	1.05	1.07	1.03
AY	1,2,3,4,6,8-HxCDF	1.12	6.84 %	1.01	1.03	1.10	1.16	1.18	1.20	1.18
ES2	13C-OCDD-a	0.40	10.47 %	0.39	0.39	0.36	0.35	0.37	0.43	0.47
ES2	13C-OCDF-a	0.52	11.29 %	0.50	0.51	0.48	0.46	0.50	0.57	0.63

P4970



ALTA ANALYTICAL PERSPECTIVES

PART 4E

SYSTEM PERFORMANCE

“ OPR ONLY FOR M1613 ”

DOCUMENTATION FOR THE ANALYSIS
OF
POLYCHLORINATED DIBENZO-P-DIOXINS & DIBENZOFURANS

FORM 8A

TCDD/TCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Alta Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): OPR Data Filename:

Ext. Date: Shift: Analysis Date: 31-JAN-05 Time: 20:41:07

Reviewer: MP
Date: 07/10/05

Analyst: MP
Date: 07/10/05

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
NATIVE ANALYTES			
2,3,7,8-TCDD	10	9.0	7.3 - 14.6
2,3,7,8-TCDF	10	9.7	8.0 - 14.7
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	72.3	25.0 - 141.0
13C-2,3,7,8-TCDF	100	77.6	26.0 - 126.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	37.5	14.8 - 63.2

(1) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613.

Client ID: 0_2905_OPR001
 Lab ID: 0_2905_OPR001
 Sample text: 0_2905_OPR001

Filename: 050131P2 S: 2
 GC Column ID: db-5

Acq: 31-JAN-05 20:41:07
 ICal: MM1_DF_122403_13AUG* Wt/Vol: 1.000
 Vial: 77

AX	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	1.45e+06	0.77	1.12	27:13	9.04		253	2.5	0.0289	-
AX	2,3,7,8-TCDF	2.36e+06	0.78	0.97	26:18	9.71		38950	2.5	3.05	-
ES	13C-2,3,7,8-TCDD	1.43e+07	0.81	1.16	27:11	72.3		698	2.5	0.0647	72.3
ES	13C-2,3,7,8-TCDF	2.52e+07	0.81	1.04	26:17	77.6		659	2.5	0.0435	77.6
JS/RT	13C-1,2,3,4-TCDD	1.70e+07	0.81	-	26:30	38.4		698	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.11e+07	0.79	-	24:50	39.9		686	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.02e+06		1.26	27:13	37.5				0.0634	93.6

Reviewer: MS
 Date: 07/10/05

Analyst: MS
 Date: 07/10/05

Client ID: 0_2905_OPR001 File name: 050131P1 S: 2 Vial: 77 Acq: 31-JAN-05 10:47:17
Lab ID: 0_2905_OPR001 GC Column ID: db-5 ICal: MMI_DF_122403_13AUG» Wt/Vol: 1.000
Sample text: 0_2905_OPR001

Reviewer: MLC
Date: 07/16/05

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1,3,6,8-TCDD	23:21	1,2,8,9-TCDD	28:14
1,2,4,7,9-PeCDD	30:12	1,2,3,8,9-PeCDD	33:13
1,2,4,6,7,9-HxCDD	35:00	1,2,3,7,8,9-HxCDD	37:08
1,2,3,4,6,7,9-HpCDD	39:51	1,2,3,4,6,7,8-HpCDD	41:01
1,3,6,8-TCDF	21:09	1,2,8,9-TCDF	28:24
1,3,4,6,8-PeCDF	28:21	1,2,3,8,9-PeCDF	33:31
1,2,3,4,6,8-HxCDF	34:20	1,2,3,7,8,9-HxCDF	37:32
1,2,3,4,6,7,8-HpCDF	39:25	1,2,3,4,7,8,9-HpCDF	41:49

MLA

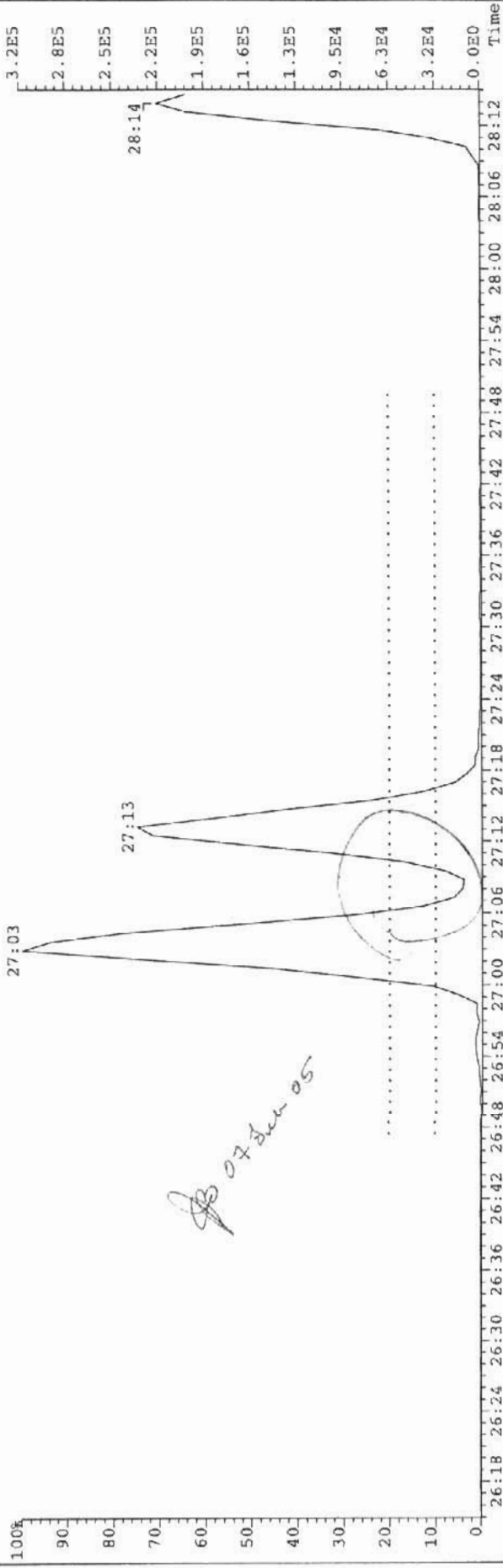
Isomer Specificity Test Standard Results

Isomer	RT	Closest Isomer	RT
2,3,7,8	27:13	1,2,3,9-TCDD	27:03
2,3,7,8-TCDD	26:18	2,3,4,8-TCDF	26:11

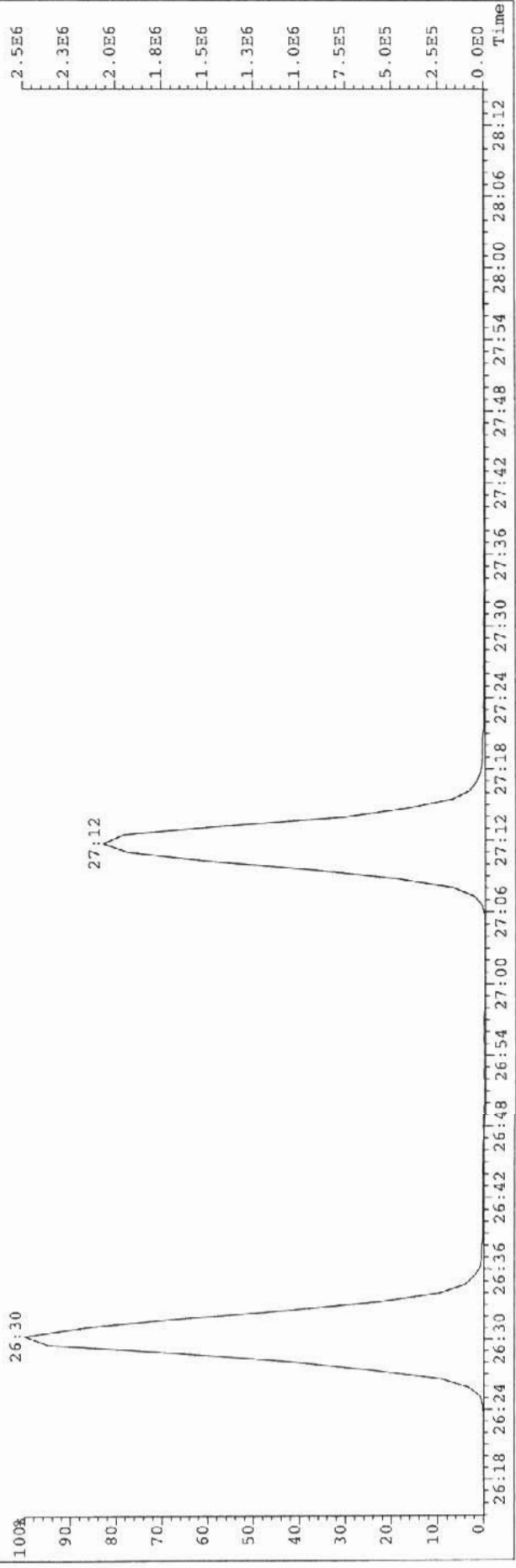
% Valley <= 10%
% Valley <= 40%

Analyst: MLC
Date: 07/16/05

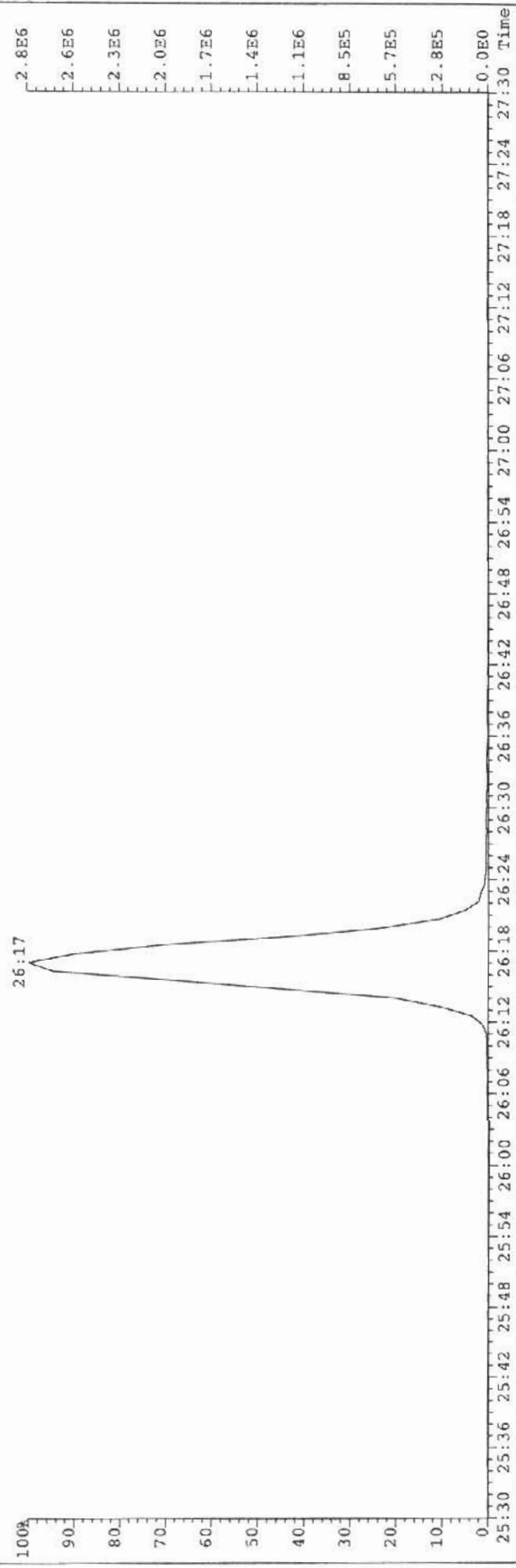
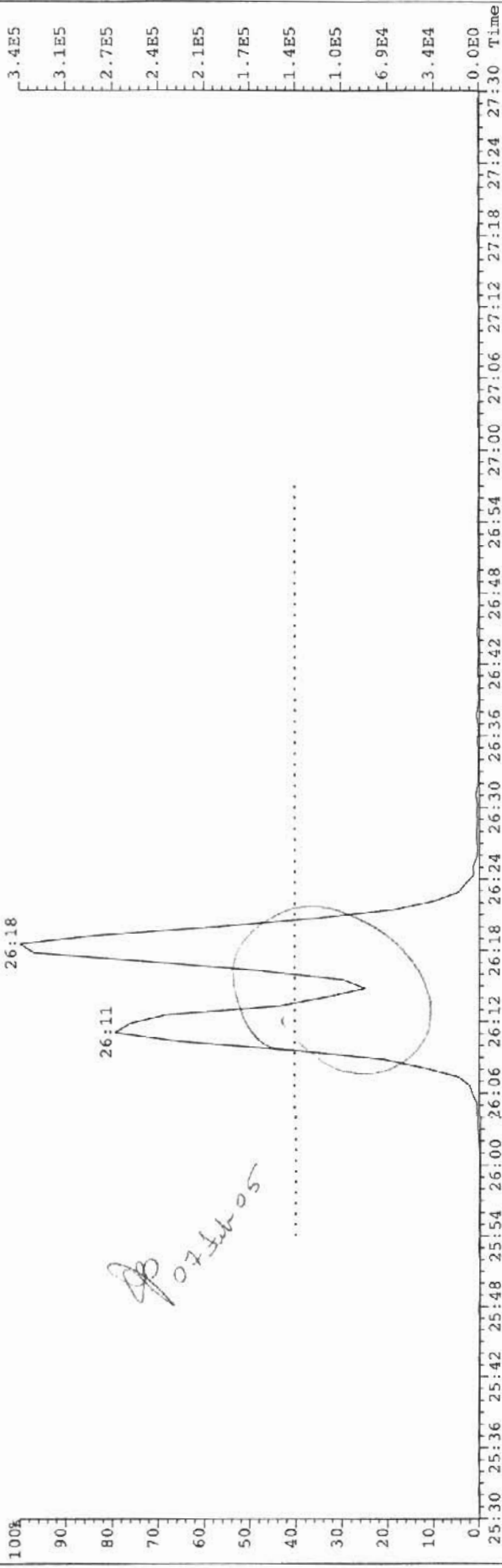
File: 050131PI Acq: 31-JAN-2005 10:47:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



333.9339 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 14



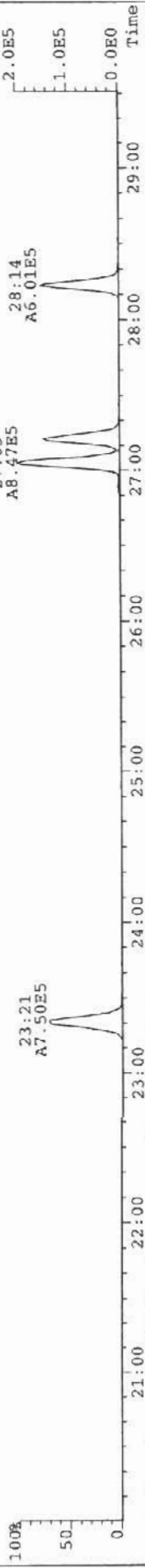
File: 050131P1 Acq: 31-JAN-2005 10:47:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 81



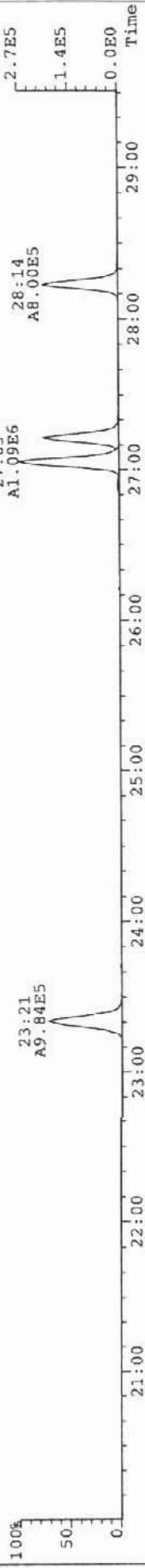
File: 050131P2 Acq: 31-JAN-2005 20:41:07 GC EI+ Voltage SIR Autospec-Ultimate

Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5

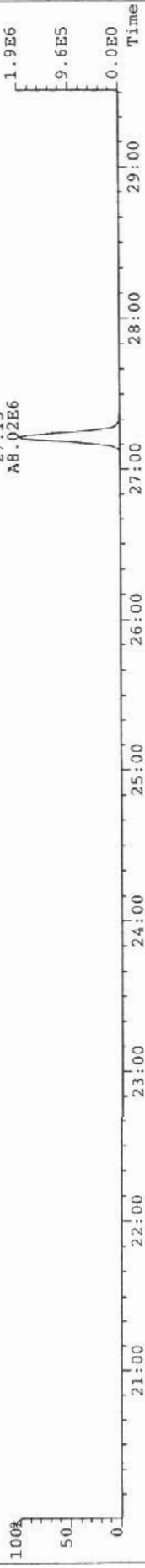
319.8965 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



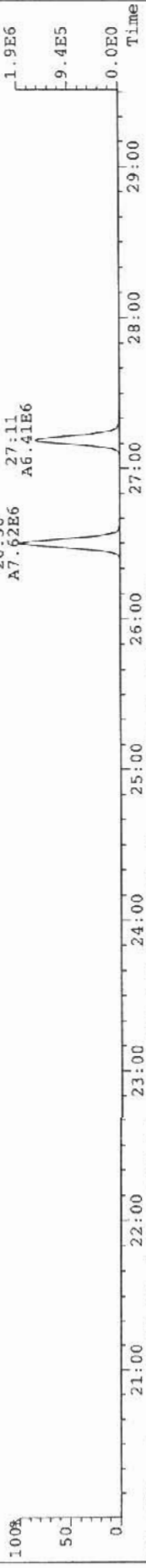
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



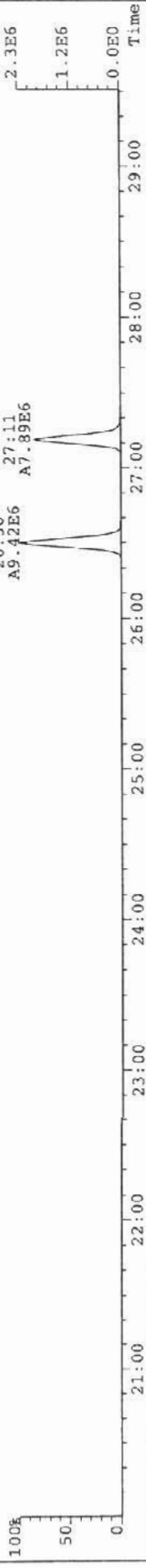
327.8850 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



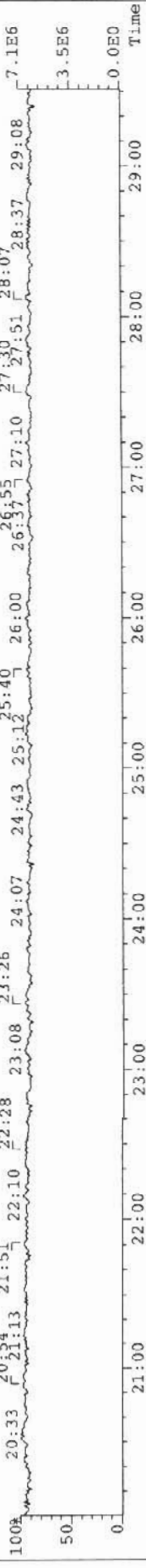
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 83



333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13

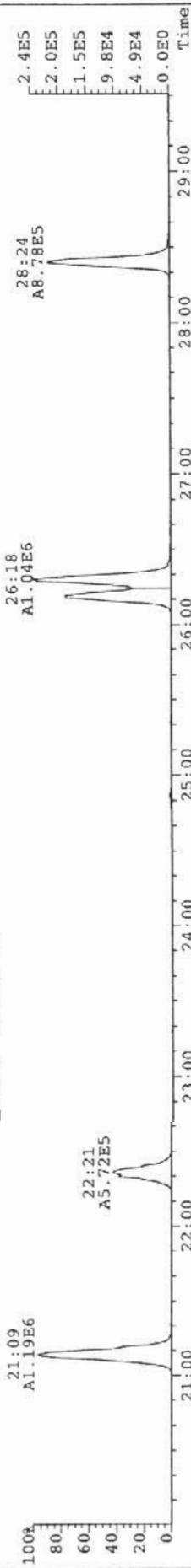


316.9824 S:2 Expt: DF_CL4-8

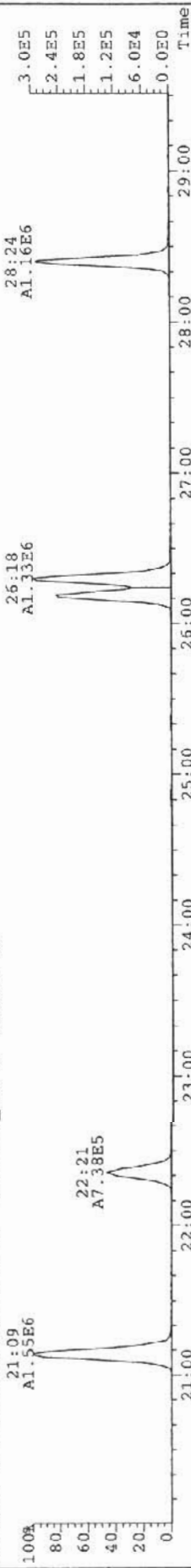


File: 050131P2 Acq: 31-JAN-2005 20:41:07 GC EI+ Voltage STR Autospec-Ultimate

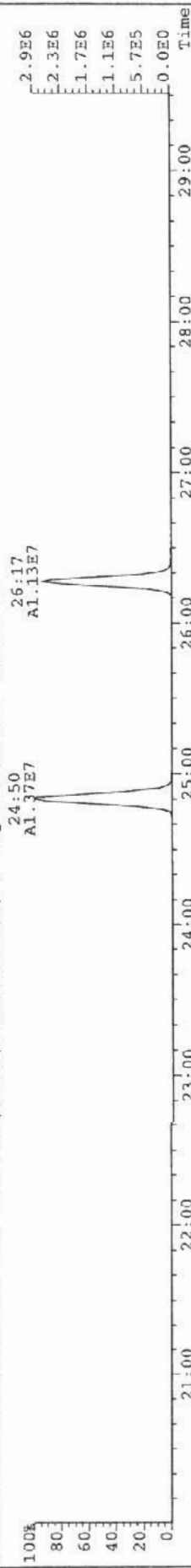
Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5
303.9016 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



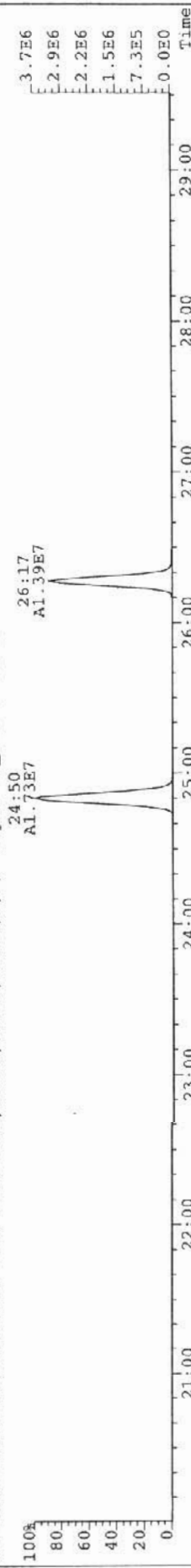
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 62



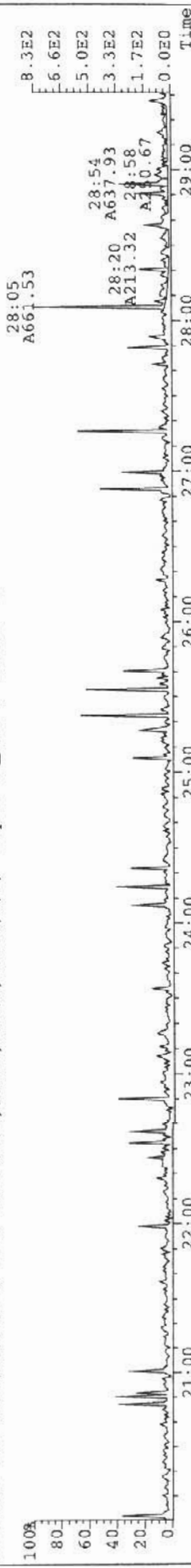
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 16



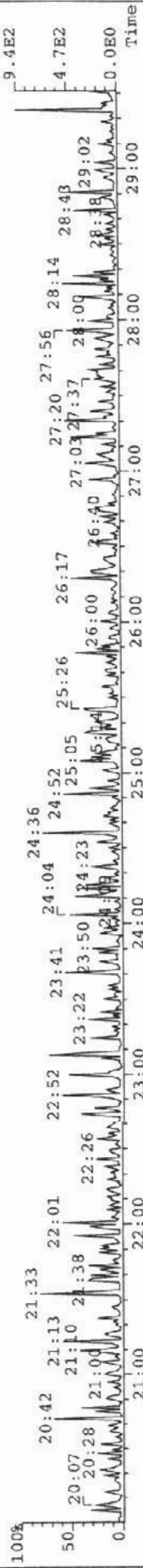
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



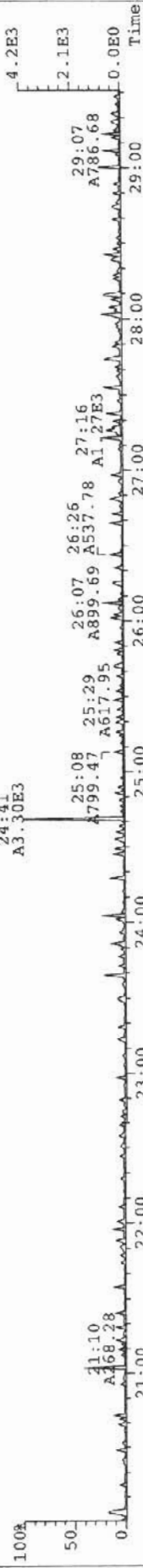
File: 050131P2 Acq: 31-JAN-2005 21:34:17 GC EI+ Voltage STR Autospec-Ultimate
Sample# 3 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DB5
319.8965 S:3 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



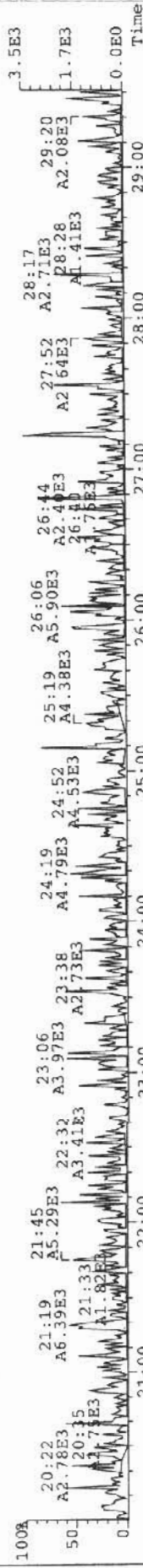
321.8936 S:3 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 10



327.8850 S:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



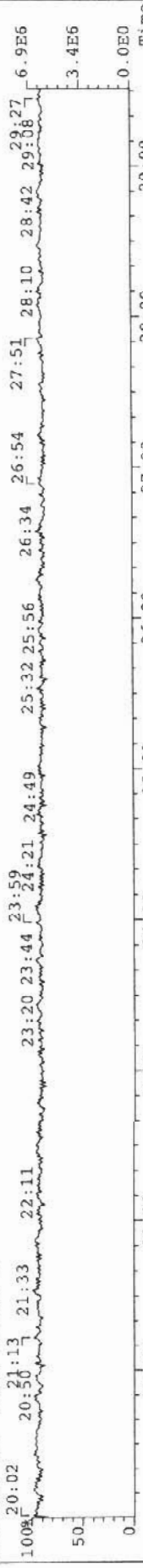
331.9368 S:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



333.9339 S:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



316.9824 S:3 Expt: DF_CL4-8

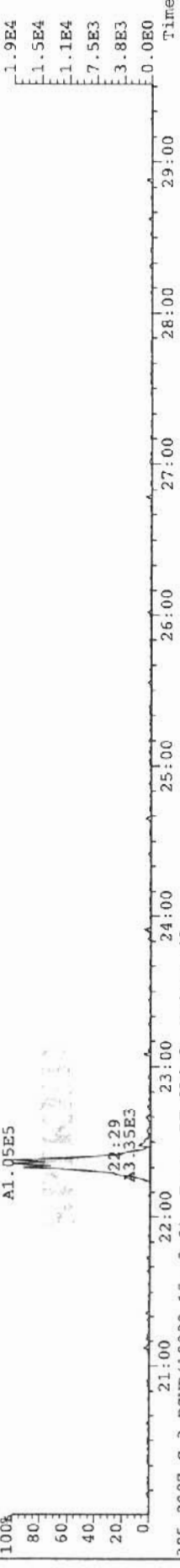


319.8965 S:3 BSub(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9

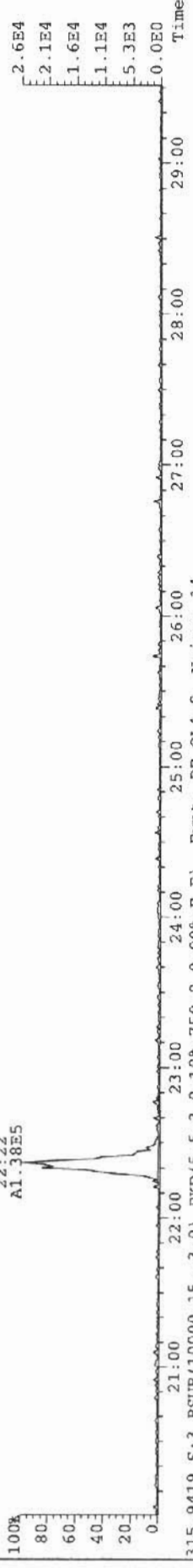
File: 050131P2 Acq: 31-JAN-2005 21:34:17 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DBS

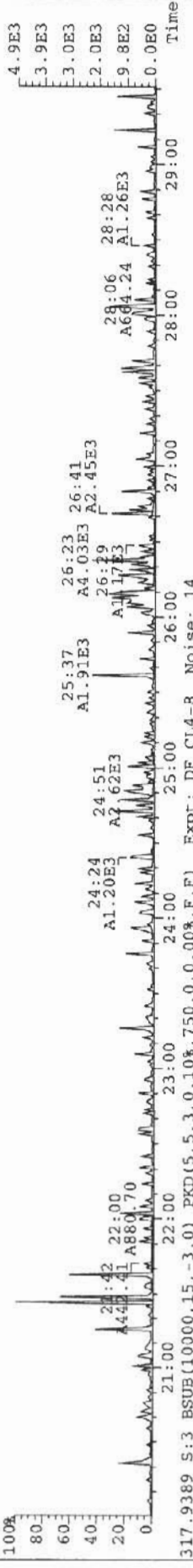
303.9016 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



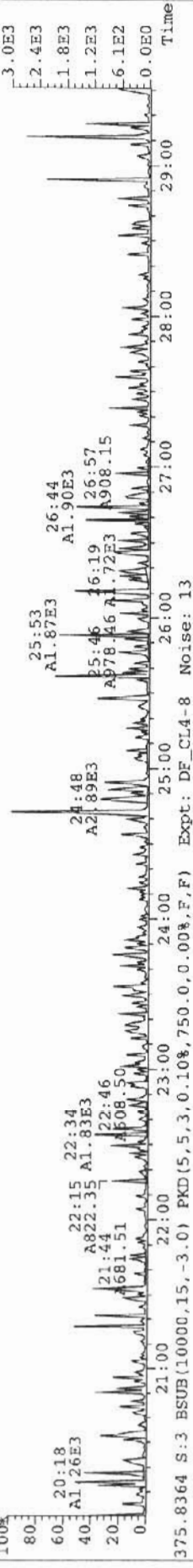
305.8987 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 49



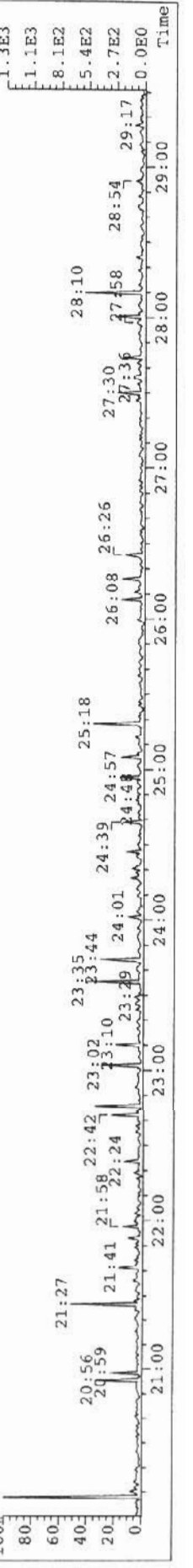
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



FORM 8A
TCDD/TCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Alta Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): OPR Data Filename:

Ext. Date: Shift: Analysis Date: 31-JAN-05 Time: 10:47:17

Reviewer: [Signature]
Date: 01/31/05

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
NATIVE ANALYTES			
2,3,7,8-TCDD	10	9.3	7.3 - 14.6
2,3,7,8-TCDF	10	9.7	8.0 - 14.7
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	71.9	25.0 - 141.0
13C-2,3,7,8-TCDF	100	75.8	26.0 - 126.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	37.3	14.8 - 63.2

Analyst: [Signature]
Date: 01/31/05

(1) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613.

Client ID: 0_2905_OPR001
 Lab ID: 0_2905_OPR001
 Sample text: 0_2905_OPR001

Filename: 050131P1 S: 2 Acq: 31-JAN-05 10:47:17
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG>> Wt/Vol: 1.000
 Vial: 77

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Rec
AX	2,3,7,8-TCDD	1.66e+06	0.76	1.12	27:13	9.31		309	2.5	0.0322	-
AX	2,3,7,8-TCDF	2.55e+06	0.78	0.97	26:18	9.65		37425	2.5	2.74	-
ES	13C-2,3,7,8-TCDD	1.59e+07	0.80	1.16	27:12	71.9		1239	2.5	0.107	71.9
ES	13C-2,3,7,8-TCDF	2.73e+07	0.80	1.04	26:17	75.8		631	2.5	0.0373	75.8
JS/RT	13C-1,2,3,4-TCDD	1.90e+07	0.81	-	26:30	42.9		1239	2.5	-	-
JS	13C-1,2,3,4-TCDF	3.45e+07	0.80	-	24:50	44.3		469	2.5	-	-
CS	37Cl-2,3,7,8-TCDD	8.91e+06		1.26	27:13	37.3				0.0675	93.1

Reviewer: me
 Date: 07/18/05

Analyst: me
 Date: 07/18/05

Client ID: 0_2905_OPR001
 Lab ID: 0_2905_OPR001
 Sample text: 0_2905_OPR001
 Filename: 050131P2 S: 2 Vial: 77
 GC Column ID: db-5 ICal: MM1_DF_122403_13AUG> Wt/Vol: 1.000
 Acq: 31-JAN-05 20:41:07

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1,3,6,8-TCDD	23:21	1,2,8,9-TCDD	28:14
1,2,4,7,9-PeCDD	30:12	1,2,3,8,9-PeCDD	33:13
1,2,4,6,7,9-HxCDD	35:00	1,2,3,7,8,9-HxCDD	37:08
1,2,3,4,6,7,9-HpCDD	39:51	1,2,3,4,6,7,8-HpCDD	41:00
1,3,6,8-TCDF	21:09	1,2,8,9-TCDF	28:24
1,3,4,6,8-PeCDF	28:20	1,2,3,8,9-PeCDF	33:31
1,2,3,4,6,8-HxCDF	34:20	1,2,3,7,8,9-HxCDF	37:31
1,2,3,4,6,7,8-HpCDF	39:25	1,2,3,4,7,8,9-HpCDF	41:48

Reviewer: NY
 Date: 07/06/05

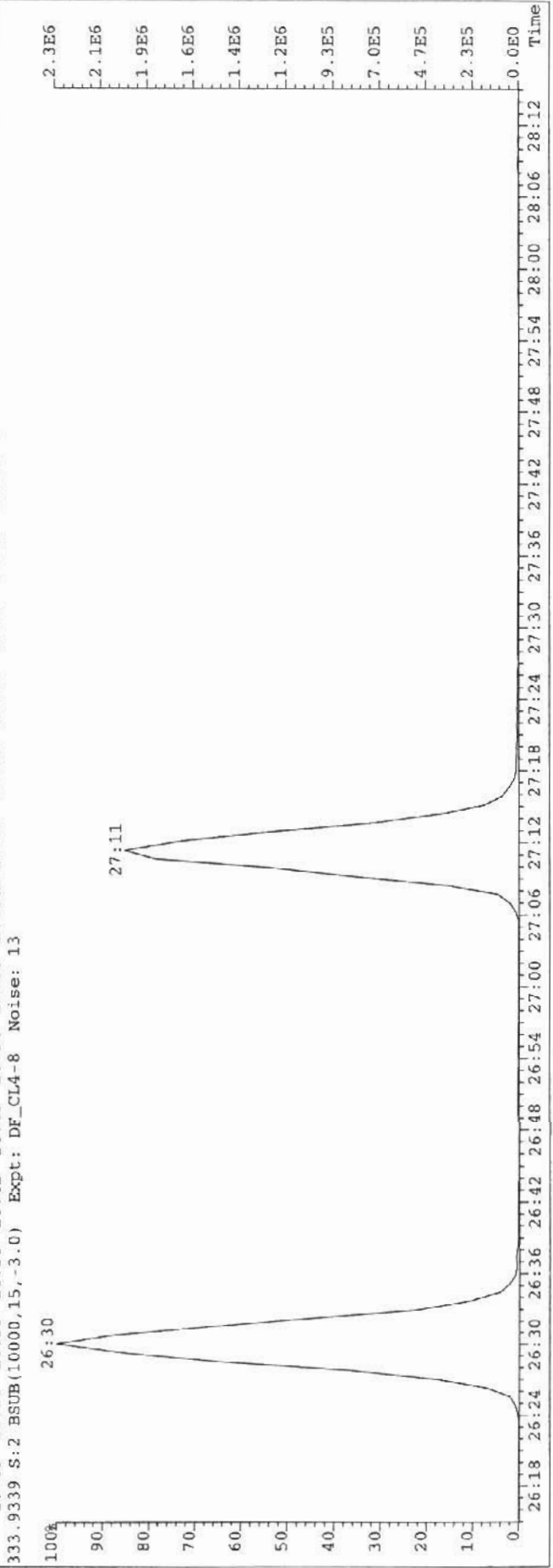
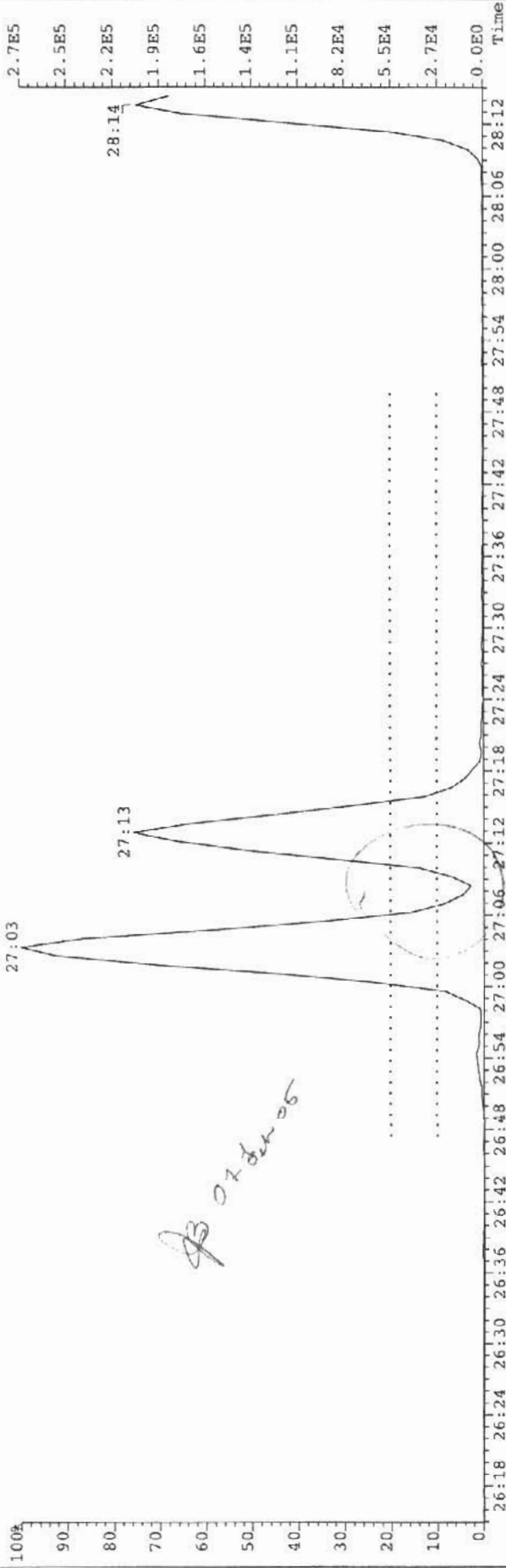
Isomer Specificity Test Standard Results

Isomer	RT	Closest Isomer	RT	% Valley
2,3,7,8-TCDD	27:13	1,2,3,9-TCDD	27:03	<= 10%
2,3,7,8-TCDF	26:18	2,3,4,8-TCDF	26:11	<= 40%

Analyst: NY
 Date: 07/06/05

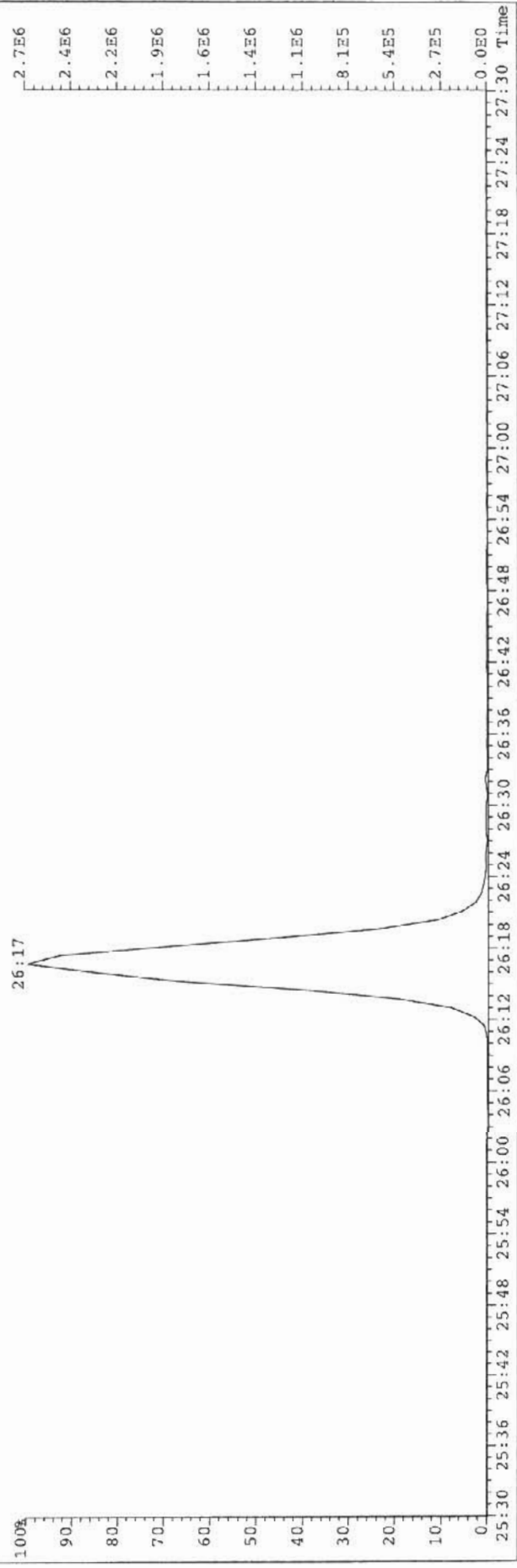
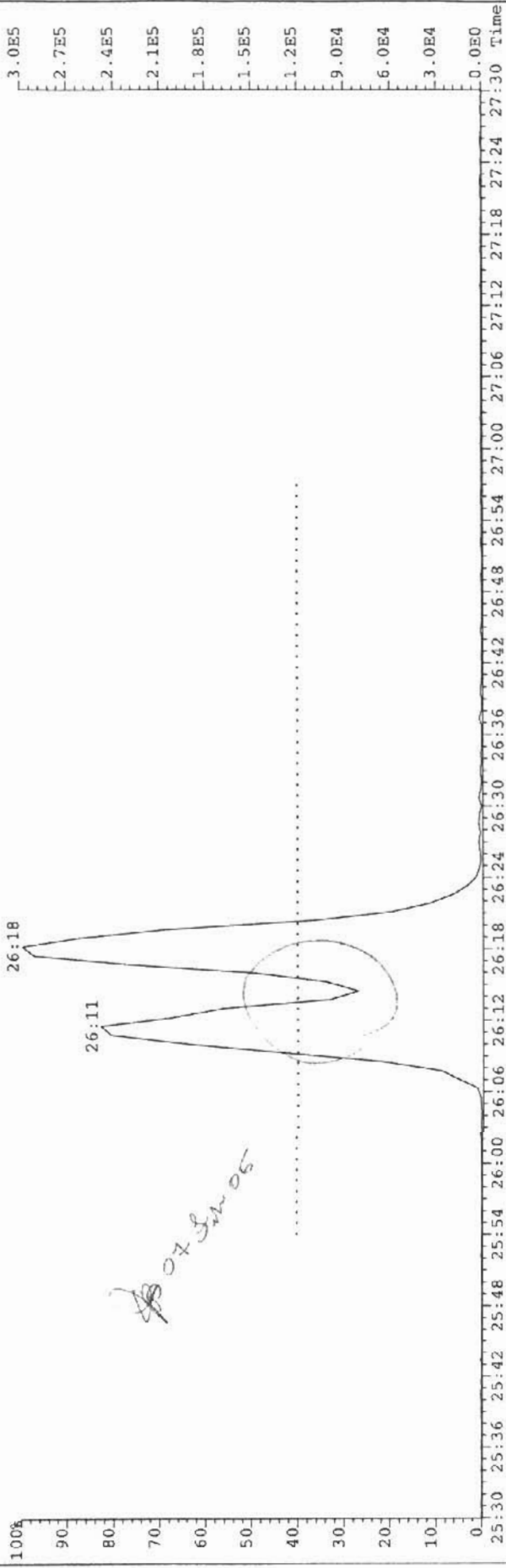
File: 050131P2 Acq: 31-JAN-2005 20:41:07 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



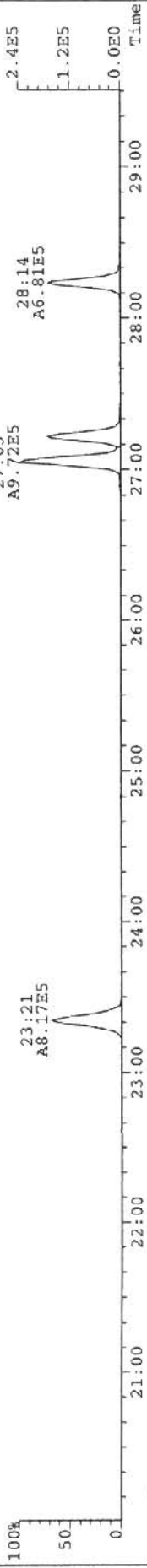
File: 050131P2 Acq: 31-JAN-2005 20:41:07 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DBS
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 62

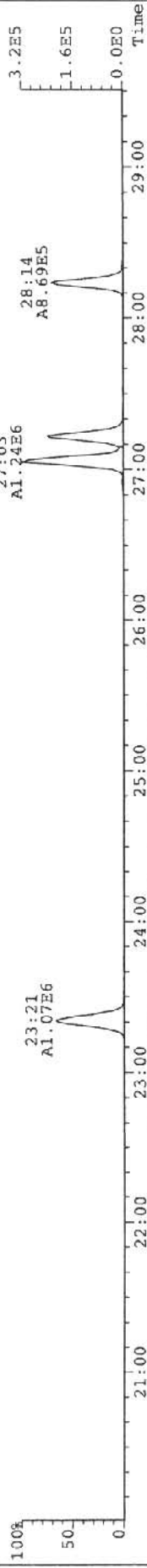


File: 050131P1 Acq: 31-JAN-2005 10:47:17 GC EI+ Voltage STR Autospec-UltimaE

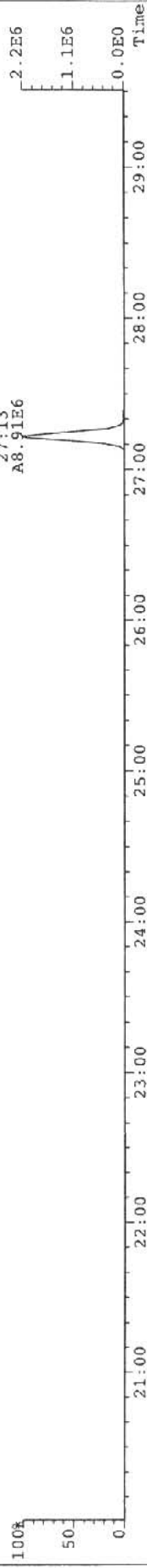
Sample# 2 Text: 0_2905_OPR001 Vial# 77 File Text: AAP DB5
319.8965 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



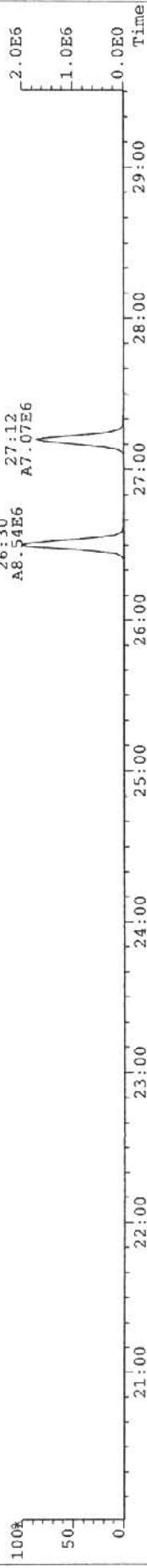
321.8936 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11



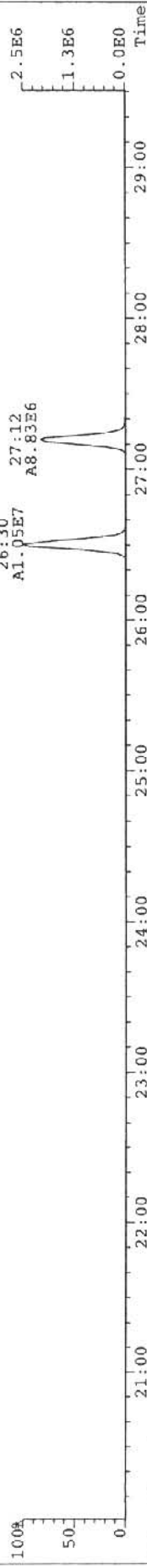
327.8850 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



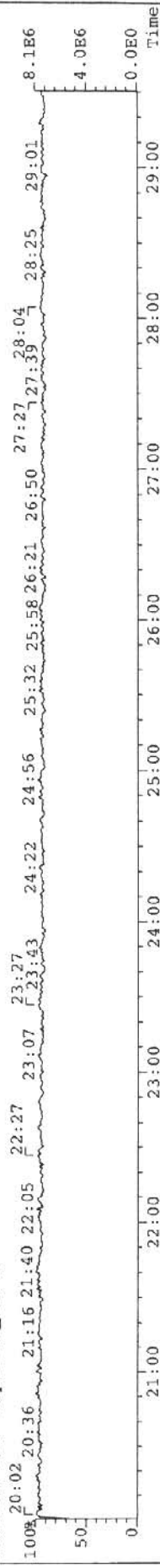
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 175



333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 14



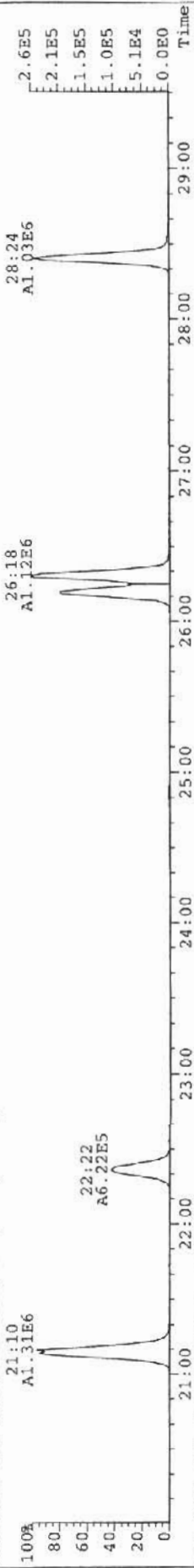
316.9824 S:2 Expt: DF_CL4-8



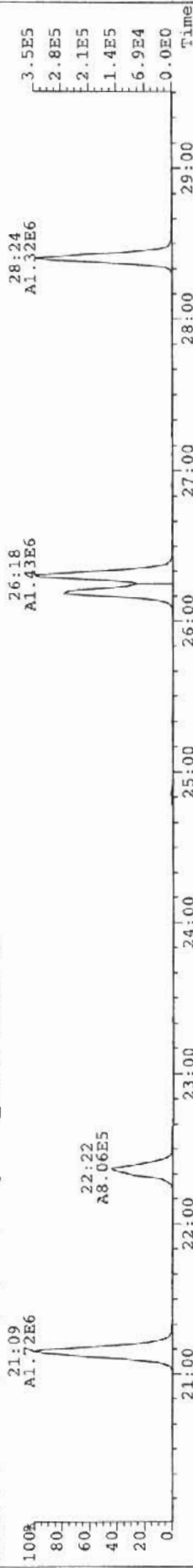
File: 050131P1 Acq: 31-JAN-2005 10:47:17 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 2 Text: 0.2905_OPR001 Vial# 77 File Text: AAP DB5

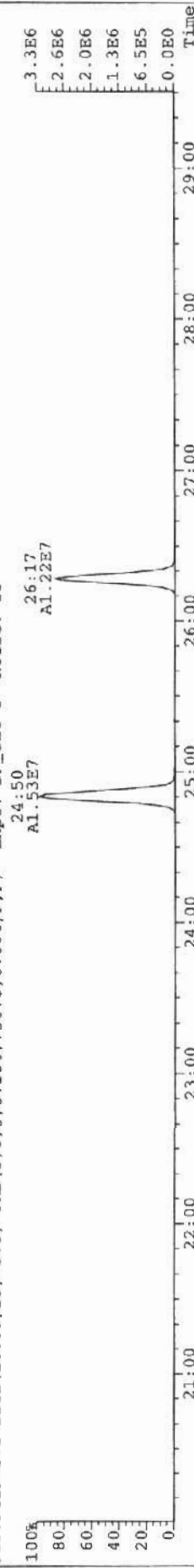
303.9016 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 9



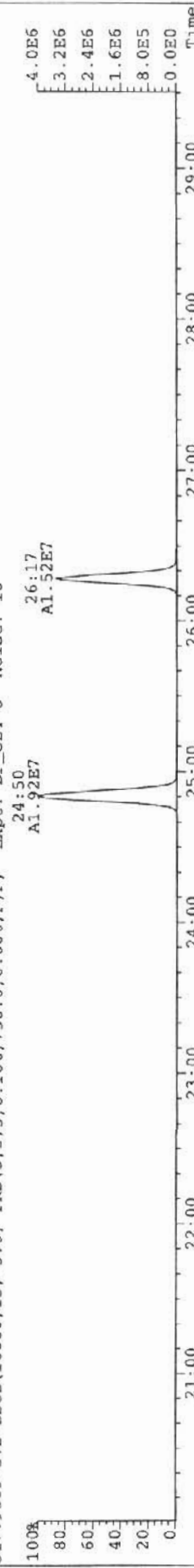
305.8987 S:2 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 81



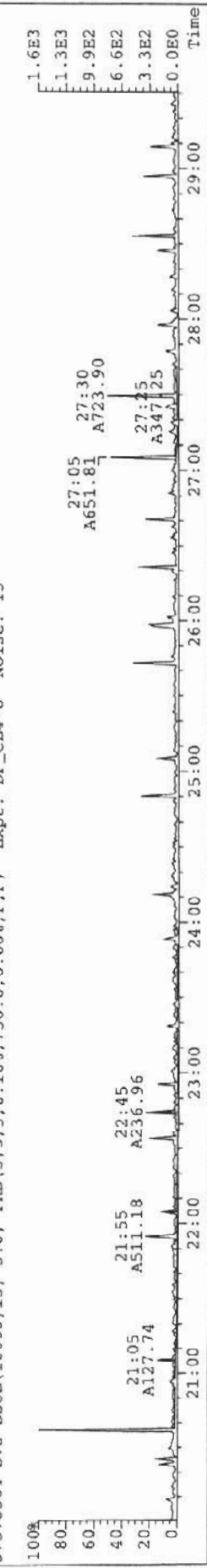
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15



317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 16



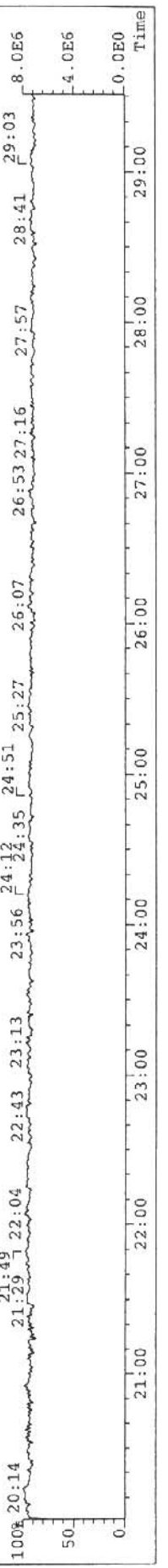
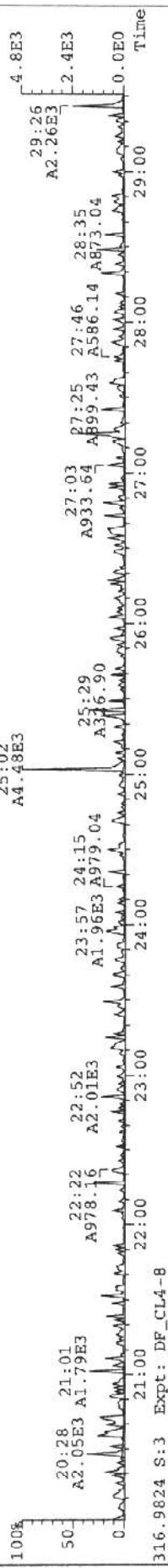
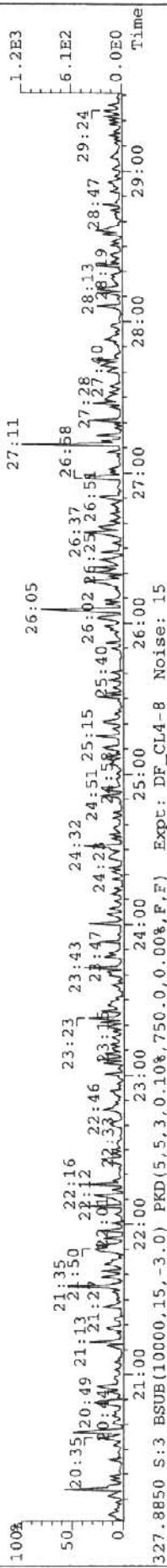
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13



File: 050131P1 Acq: 31-JAN-2005 11:40:22 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DBS

319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 9



File: 050131PI Acq: 31-JAN-2005 11:40:22 GC EI+ Voltage SIR Autospec-UltimaE

Sample# 3 Text: SBS SOLVENT BLANK Vial# 15 File Text: AAP DB5

303.9016 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 11

22:22
A1.25E5



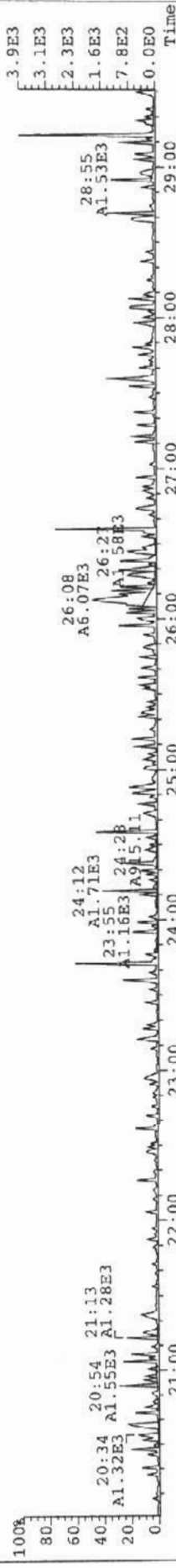
305.8987 S:3 BSUB(10000,15,-3.0) Expt: DF_CL4-8 Noise: 27

22:21
A1.52E5



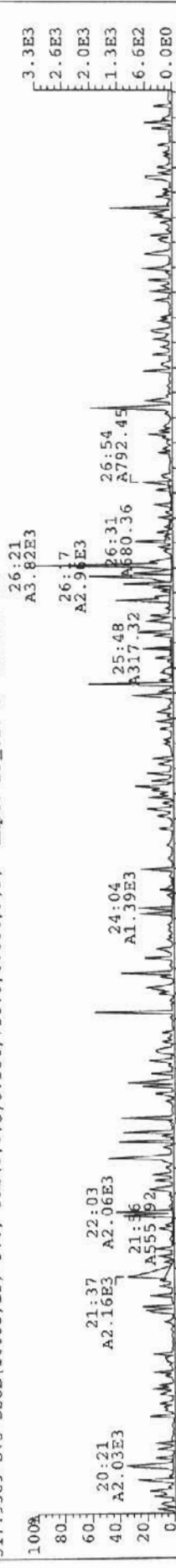
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 16

20:34 20:54 21:13
A1.32E3 A1.55E3 A1.28E3



317.9389 S:3 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 15

20:21 21:37 22:03
A2.03E3 A2.16E3 A2.06E3



375.8364 S:3 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,750.0,0.00%,F,F) Expt: DF_CL4-8 Noise: 13

20:35 21:17 21:41 22:31 23:16 23:43 24:14

